Remedial Action Work Plan

205 Auto Salvage Site, 5605 NE 105th Avenue, Portland, Oregon

Final

Prepared for:

205 Real Estate Inc.

October 2, 2023
Project No. M0106.30.001

Prepared by:

Maul Foster & Alongi, Inc.
3140 NE Broadway, Portland, OR 97232

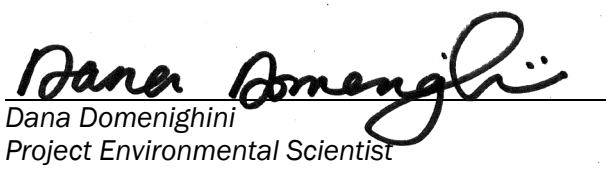
MAUL FOSTER ALONGI

Remedial Action Work Plan

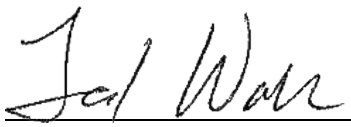
205 Auto Salvage Site, 5605 NE 105th Avenue, Portland, Oregon

The material and data in this plan were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.



Dana Domenighini
Project Environmental Scientist



Ted Wall, PE
Vice President

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Abbreviations

bgs	below ground surface
CMMP	contaminated media management plan
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HASP	health and safety plan
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
NFA	No Further Action
NWTPH	Northwest Total Petroleum Hydrocarbon
PCB	polychlorinated biphenyl
RAP	remedial action plan
RBC	risk-based concentration
the Site	205 Auto Salvage, 5605 NE 105th Avenue, Portland, Oregon
SOP	standard operating procedure
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbon

1 Introduction

Maul Foster & Alongi, Inc. (MFA), has prepared this remedial action work plan (RAP) for a soil removal remedial action to be conducted at the 205 Auto Salvage facility located at 5605 NE 105th Avenue in Portland, Oregon (the Site). The Site is listed as Environmental Cleanup Site Information Site No. 2087.

1.1 Purpose

The purpose of this project is to remove surface soil at the Site where polychlorinated biphenyl (PCB) concentrations were detected in exceedance of the Site-established 0.56 milligrams per kilogram (mg/kg) cleanup level, as well as concentrations of arsenic above applicable Oregon Department of Environmental Quality (DEQ) risk-based concentrations (RCBs). This remedial action is being completed in pursuit of a No Further Action (NFA) determination for the Site by DEQ.

1.2 Scope of Work

To accomplish the project objective, the scope of work described in this plan consists of the following general tasks:

- Excavate up to two feet of impacted surface soil and dispose of it offsite.
- Place a demarcation layer and clean backfill in the excavations.
- Hydroseed the backfilled areas.
- Prepare a Remedial Action Completion Report discussing the above activities.
- Prepare a Contaminated Media Management Plan (CMMP) if analytical results indicate residual contamination remains following the remedial actions discussed above.

These activities are discussed in further detail below.

2 Background

2.1 Site Location, History, and Description

The Site is located in section 15, township 1 north, range 2 east of the Willamette Meridian in Portland, Oregon. The 4.21-acre Site comprises tax lots 1900 and 2000 and is currently occupied by two industrial/warehouse buildings and two auxiliary structures. Since the 1970s, an auto salvage facility, known as 205 Auto Salvage, has operated on the Site.

2.2 Nature and Extent of Contamination

In March 2023, Evren Northwest, Inc. conducted an environmental site assessment on the Site which identified two areas of impacted soil: an area of elevated concentrations of arsenic and PCBs at 0.5 feet below ground surface (bgs) within the stormwater retention pond located along the western property boundary and elevated concentrations of arsenic at 2 feet bgs near a suspect infiltration feature located in the central portion of the Site (ENW 2023).

To further define the remedial action excavation area in the stormwater retention pond, MFA collected additional soil samples in July and August 2023 (MFA 2023a).[1] MFA delineated seven grid cells (GC01 through GC07) for composite soil sampling within the stormwater retention pond area (see Figures 2-1 and 2-2). In each grid cell, one shallow soil sample was collected from 0 to 0.5 feet bgs and one deeper soil sample from 0.5 to 1-foot bgs. Six of the grid cells had concentrations of arsenic above the direct contact DEQ RBCs for occupational and construction workers at 0.5 and 1-foot bgs, while only one grid cell (GC07) had concentrations of arsenic above the direct contact RBC for occupational workers at 1-foot bgs. In addition, only three grid cells (GC03 through GC05) had concentrations of PCBs above the Site-established cleanup level at 0.5 and 1-foot bgs.

The locations of MFA's samples have been used to inform the anticipated excavation extent associated with the stormwater retention pond area, while Evren Northwest, Inc.'s suspect infiltration feature sample location was used to inform the anticipated excavation extent at that feature (see Drawings).

3 Remediation Activities

The selected remedial action involves excavation and off site disposal of surface soil with concentrations of arsenic and/or PCBs exceeding applicable screening criteria. This section presents the associated scope of work.

3.1 Preparatory Activities

Site Health and Safety Plan (HASP). A site-specific HASP has been prepared for the proposed activities (MFA 2023b). [2] The HASP was prepared in general accordance with the Occupational Safety and Health Act and the Oregon Administration Rules. A copy of the HASP will be available for use by MFA staff during the field activities. A HASP for subcontractor activities will be developed by the selected subcontractor prior to performing on-site activities.

Underground Utility Location. A public utility notification request will be submitted through the Oregon Utility Notification Center, which will in turn notify the various utilities in the area to mark any subsurface structures. In addition, MFA will subcontract with a private utility locator to locate

[1] Note that the site investigation report summarizing these events is pending finalization at the time of the completion of this document.
[2] Note that the HASP is pending finalization at the time of the completion of this document.

potential underground utilities in the excavation areas. Underground utility locates will be completed in accordance with MFA Standard Operating Procedure (SOP) 18 (see Appendix A).

Permitting. Permits needed to conduct this work will include a City of Portland grading permit. All grading and clearing shall be subject to the provisions of the most recently adopted City of Portland Grading and Clearing Ordinance. The permit will be prepared and submitted by MFA.

Work Notification. MFA will notify DEQ of the proposed work schedule a minimum of seven days before the start of remediation activities.

3.2 Remedial Actions

MFA will oversee the utility locates and excavation activities to document the activities and collect soil samples for chemical analysis. The approximate lateral and vertical excavation extents have been established based on analytical results from previous field investigations (see Section 2.2). These approximate excavation extents are shown on the attached plan sheets (see Drawings, Sheet C3.0).

All work described in this Section 3.2 will be conducted in conformance with the City of Portland grading permit, which will be attained before on-site work begins.

3.2.1 Contaminated Soil Excavation

The top two feet of soil will be excavated from the seven grid cells and the suspected infiltration feature (shown on Drawing Sheet C3.0) for a total estimated volume of 160 cubic yards.[3] When possible, excavated material will be loaded directly into trucks for transport to a Subtitle D landfill. If required, excavated soil may be temporarily stockpiled prior to off-site transportation and disposal (see Section 3.2.3).

During excavation activities, soil will be regularly screened in the field. Field screening will include screening for the presence of volatiles in accordance with SOP 3 (see Appendix A), using of a photoionization detector, and visual and olfactory observations. If indications of contamination are observed, then additional analysis for total petroleum hydrocarbons (TPH) and volatiles may be necessary to inform the development of a CMMP and for waste profiling purposes (see Sections 3.2.2 and 3.2.4).

3.2.2 Leave Surface Sampling

Following excavation and prior to the placement of clean fill on the Site, MFA will collect soil samples to assess the leave surface conditions following completion of the remedy to inform the development of a CMMP, as needed. A 10-point composite sample will be collected from the floor of the excavation in each grid cell, while one five-point composite sample will be collected from the floor of the excavation for the suspect infiltration feature. The leave surface samples in both excavations will be analyzed for arsenic by U.S. Environmental Protection Agency (EPA) Method 6020B, with the stormwater retention pond excavation will also be analyzed for PCBs by EPA Method 8082A. If indications of impacts are identified during field screening, the leave surface samples will also be

[3] While the depth for direct contact with soil for occupational receptors is defined as up to three feet bgs, a standard cap is defined as two feet bgs. Therefore, the depth of the excavations was limited to two feet bgs and a CMMP will be developed for the Site if residual contamination remains following the remedial actions described in this RAP.

analyzed for gasoline-range TPH by Northwest TPH (NWTPH) Method NWTPH-Gx, diesel- and heavy oil-range TPH by NWTPH-Dx, and volatile organic compounds by EPA Method 8260D and 5035 Method protocols. In addition, if detections of diesel- and/or heavy oil-range TPH are identified, additional analysis for the potential presence of polycyclic aromatic hydrocarbons by EPA Method 8270E will be conducted, Samples will be prepared, handled, and documented in accordance with SOPs 4 and 5 (Appendix A).

If concentrations of contaminants are above the Site-established cleanup level and/or the occupational and construction worker RBC for direct contact, a CMMP will be developed for the Site at a future date.

3.2.3 Stockpiling

Any soil excavated at the Site that requires temporary stockpiling shall be managed in a manner that minimizes erosion and contact with stormwater runoff, prevents placement near structures, and avoids workers' direct contact with the soil. Temporary soil stockpiles shall be placed on an impervious surface or on 10 mil plastic sheeting (or similar material). The stockpile shall be covered with plastic sheeting at the end of each workday to prevent erosion, dust generation, vapor exposure, and direct contact by humans. The plastic sheeting that covers the pile must be regularly inspected to ensure that it remains functional and protective of human health and the environment. In the event of precipitation, berms should be constructed to restrict runoff from the stockpiles. Temporary stockpiles of contaminated soil must be properly disposed of off site within 180 days of completion of excavation work unless written approval is obtained from DEQ for an alternative schedule.

3.2.4 Offsite Disposal

Soil planned for excavation has been characterized during previous investigations and can be disposed of at an approved disposal facility, with the following exception:

- If indications of impacts are identified during field screening, the excavated material will also be analyzed for TPH and volatiles for disposal characterization purposes. A 10-point composite sample will be analyzed for every 100-cubic-yard stockpile of material excavated. Samples will be prepared, handled, and documented in accordance with SOPs 4 and 5 (Appendix A).

Excavated material will be placed into dump trucks and transported to a Subtitle D landfill. Waste material shall be covered during transport to prevent dust generation and offsite contamination. Prior to leaving the Site, the exteriors of the dump trucks will be inspected to ensure that excavated soil is not adhering to the trucks. In addition, a wheel wash station will be established, if necessary, to prevent track-off from the Site.

3.2.5 Backfill

A demarcation layer of orange construction fencing, or equivalent, will be placed in the base of the excavations prior to backfilling. The excavations will then be backfilled using clean import from a local landscape supply source.

Clean backfill will be placed in the excavated areas and compacted in accordance with project specifications (see Drawings). The final grade will generally match the existing grades of the areas prior to excavation to ensure proper drainage.

Disturbed areas in the stormwater retention pond shall be hydroseeded to stabilize soils and restore initial conditions. Gravel will be placed on the suspect infiltration feature backfill to match preexisting conditions.

4 Reporting

A Remedial Action Completion Report will be developed that includes a brief site background, photographic and written documentation of how the construction work was conducted, quantities of materials removed and brought on to the Site, and figures showing the extent of the remedy. A licensed engineer will certify that the work was conducted in general conformance with the RAP and note any exceptions. If after completion of the remedial actions, the leave surface sampling analytical results indicate residual contamination that exceeds the parameters set forth in Section 1.1, MFA will consult with DEQ. If it is determined a CMMP is necessary to address unacceptable human health risks, a CMMP will be prepared and submitted to DEQ for approval. Upon approval of the completion report and CMMP, if needed, the owner is requesting an NFA determination for the Site from DEQ. Post-construction obligations, if any, (e.g., adherence to a CMMP) are expected to be addressed in the NFA.

References

ENW. 2023. *Draft Focused Phase II Environmental Site Assessment, Industrial Property, 5605-5621 NE 105th Avenue, Portland, Oregon.* Prepared for Blackstone Consulting. EVREN Northwest, Inc. May 19.

MFA. 2023a. *Site Investigation Report, 205 Auto Salvage, 5605 NE 105th Avenue, Portland, Oregon.* Prepared for 205 Real Estate Inc. Maul Foster & Alongi, Inc.: Portland, OR. Finalization Pending.

MFA. 2023b. *Health and Safety Plan, 205 Auto Salvage, 5605 NE 105th Avenue, Portland, Oregon.* Prepared for 205 Real Estate Inc. Maul Foster & Alongi, Inc.: Portland, OR. Finalization Pending.

Limitations

The services undertaken in completing this plan 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 plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

The content of this plan 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 plan.

Figures

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FOSTER
ALONGI

Figure 2-1
Site Overview and Grid Cell Locations

5605 NE 105th Ave
Portland, Oregon

Legend

- Grid Cell
- Property Boundary

0 50
Feet

Data Sources
Aerial photograph obtained from City of Portland.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0106.30\Pro\M0106_30_001.aprx\Fig 2-1 Site Overview Grid Cell Locs
Project: M0106.30.001 Produced By: jroberts Reviewed By: ddomenighini Print Date: 9/29/2023

Figure 2-2
Grid Cell Details

5605 NE 105th Ave
Portland, Oregon

Legend

- Grid Cell
- Property Boundary
- Tax Lot

0 10
Feet

Data Sources
Aerial photograph obtained from City of Portland.

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Path: X:\Q106.30\Pro\MO106.30_001.aprx\Fig 2-2 Grid Cell Details
Print Date: 10/2/2023
Reviewed By: ddomenighini
Produced By: jroberts
Project: MO106.30.001

Drawings

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FOSTER
ALONGI

205 AUTO SALVAGE REMEDIAL ACTION

PREPARED FOR:

205 REAL ESTATE, INC

LOCATED IN SEC. 15, T. 1 N., R. 2 E., W.M., MULTNOMAH COUNTY, PORTLAND, OR

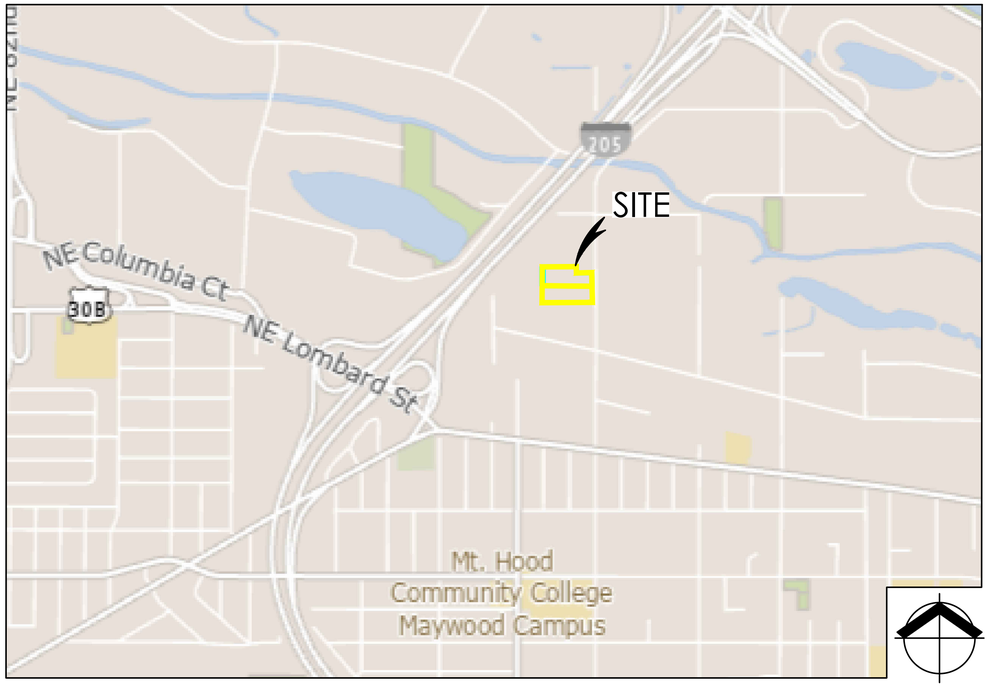
PROJECT CONTACTS

CLIENT	ENGINEER
205 REAL ESTATE, INC. 113 SW 16TH COURT TROUTDALE, OR 97060 P: 503-256-3232 GARY GOSSETT GM.JEEP@205AS.COM	MAUL, FOSTER & ALONGI, INC. 3140 NE BROADWAY PORTLAND, OR 97232 P: 971-544-2139 BROOKE HARMON BHARMON@MAULFOSTER.COM

PROJECT SUMMARY

SITE ADDRESS:
5605 NE 105TH AVENUE
MULTNOMAH COUNTY
PORTLAND, OR 97220
TAX LOTS: 12NE15CC01900 12NE15CC02000

WORK DESCRIPTION:
THE WORK PROPOSED WILL CONSIST OF EXCAVATION OF UP TO 160 CUBIC YARDS OF CONTAMINATED SOIL, BACKFILL OF CLEAN IMPORTED SOIL, AND FINAL STABILZATION.



VICINITY MAP

NOT TO SCALE

SHEET INDEX

GENERAL NOTES

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM SOUTH ZONE, NAD 83. ELEVATION DATUM: NAVD 88.
2. 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.
3. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICES OF THE CITY OF PORTLAND AND THE LATEST EDITION OF THE "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION" PREPARED BY ODOT/APWA.
4. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT WILL PREVAIL.
5. ANY CHANGES TO THE DESIGN AND/OR CONSTRUCTION SHALL BE APPROVED BY THE OWNER OR ENGINEER.
6. 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.
7. A COPY OF THESE APPROVED PLANS SHALL BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL CONSTRUCTION EASEMENTS AND TRADE PERMITS NECESSARY TO PERFORM THE WORK.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
10. 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.
11. 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.
12. 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.
13. ANY PUBLIC OR PRIVATE CURB, GUTTER, SIDEWALK, OR ASPHALT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO CITY OF PORTLAND STANDARDS AND PRACTICES.
14. 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.
15. 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.

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GM & JEEP Specialists
205 Auto Salvage Inc.

REGISTERED PROFESSIONAL ENGINEER
89307PE
OREGON
SEPT. 11, 1981
BROOKE ELYSE HARMON
EXPIRES: 6/30/2025
This digital seal certifies the signatory and document content.

205 AUTO SALVAGE REMEDIAL ACTION
205 REAL ESTATE, INC.
TROUTDALE, OREGON

ISSUE	DATE	DESCRIPTION
A	8/30/2023	PERMIT DOCUMENTS

PROJECT: M0106.30.001
DESIGNED: B. TACKETT
DRAWN: B. TACKETT
CHECKED: T. WALL
SCALE

SHEET TITLE
COVER SHEET

SHEET
C0.0

PLOTTED ON: 2023-08-28 1:12 PM PLOTTED BY: Billy Tackett FILENAME: G:\00_MFA Civil\30\00_PROJECTS\0106.30 James C. Brown & Associates\PLANS\C0.0 COVER SHEET.dwg

EROSION AND SEDIMENT CONTROL STANDARD NOTES

1. ALL GRADING AND EROSION CONTROL MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE "EROSION AND SEDIMENT CONTROL MANUAL" PREPARED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY. EROSION CONTROL SHALL BE PER THE SPECIFICATIONS AND DETAILS CONTAINED THEREIN AND SHALL TAKE PRECEDENCE OVER OTHER STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN DAILY LOG OF EROSION CONTROL AND MAINTENANCE.
3. DURING THE PERIOD FROM OCTOBER 1ST TO APRIL 30TH, NO SOILS SHALL BE EXPOSED FOR MORE THAN TWO (2) DAYS. FROM MAY 1ST TO SEPTEMBER 30TH, NO SOUILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN (7) DAYS.
4. INLET PROTECTION FABRIC SHALL BE INSTALLED UNDER ALL GRATES WITHIN THE WORK VICINITY.
5. THE CONTRACTOR WILL PROVIDE APPROPRIATE PROACTIVE EROSION CONTROL DURING CONSTRUCTION TO PREVENT THE EROSION CONTROL SYSTEMS FROM FAILING DUE TO SILT. THE CONTRACTOR SHALL ENSURE THAT SEDIMENT DOES NOT IMPACT THE ADJACENT PROPERTIES OR THE SURROUNDING PUBLIC ROADS DURING CONSTRUCTION.
6. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, AND VEGETATION IS ESTABLISHED.
7. CARE SHOULD BE TAKEN TO NOT DISTURB MORE AREA THAN NEEDED FOR CONSTRUCTION REQUIREMENTS. ALL DISTURBED SOILS SURFACES ARE TO BE STABILIZED. STABILIZATION OF DISTURBED SOIL AREAS SHALL CONSIST OF: HYDROSEEDING OR HANDSEEDING, MULCHING, PLACING OF EROSION CONTROL BLANKETS OR PLASTIC IN LANDSCAPING SOIL AREAS. IT WILL ALSO CONSIST OF PAVING AND CONCRETE WORK IN DRIVING, PARKING, AND SIDEWALK AREAS. ALL SEEDED AREAS ARE TO BE FERTILIZED, WATERED,A ND MAINTAINED TO ENHANCE THE IMMEDIATE REGROWTH OF VEGETATION.
8. MATERIALS STOCKPILES ARE TO BE PROTECTED FROM PRECIPITATION BY THE FOLLOWING MEANS:
   - TEMPORARY - COVER PILES WITH TARPS OR PLASTIC SHEETING WEIGHTED WITH TIRES, LUMBER, OR CONCRETE BLOCKS.
   - PERMANENT - COVER PILES WITH TARPS OR PLASTIC, OR RESEED. PERIMETER AREAS AROUND PILES ARE TO BE SURROUNDED WITH EROSION CONTROL FILTER FABRIC FENCES UNTIL SOILS SURFACE IS STABILIZED WITH RESEEDING.
9. THE ESC FACILITIES SHALL BE INSPECTED DAILY BE THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE CONTINUOUS FUNCTIONING. INSPECTION AND MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO
   - VERIFYING THAT ALL AREAS ARE GRADED SUCH THAT ALL RUNOFF IS DIRECTED TO A SEDIMENTATION TRAP FACILITY BEFORE BEING DISCHARGED TO SURFACE.
   - REMOVAL OF TRAPPED SILTS AT SILT BARRIERS, SILT TRAPS, OR POINTS OF ACCUMULATION.
   - ADDITIONAL PROTECTIVE MEASURES, AS REQUIRED, DUE TO JOB SITE CONDITIONS.
   - IF SEDIMENT IS TRANSPORTED ONTO A ROAD SURFACE, THE SURFACE IS TO BE CLEANED THOROUGHLY AT THE END OF EACH DAY.
10. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
11. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. THIS SEDIMENTATION AND EROSION CONTROL PLAN IS INTENDED TO BE UTILIZED AS A GUIDE TO CONTROL THE TRANSPORTATION OF LOOSE SOILS FROM THE PROPERTY THAT CAUSE WATER QUALITY AND NUISANCE PROBLEMS OUTSIDE OF THE CONSTRUCTION AREA.
13. DEPENDING ON THE CONTRACTOR'S CONSTRUCTION PRACTICES, SOME OF THE PORTIONS OF THE PROPOSED EROSION CONTREOL PLAN MAY BE VARIED ACCORDING TO THE JOB SITE CONDITION. ALL CHANGES TO THE PLAN MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ADJUSTMENT.
14. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

14.1. IF SEDIMENT IS OBSERVED, SWEEPING SHALL BE DONE DAILY IN ORDER TO ENSURE SEDIMENT DOES NOT LEAVE THE SITE.

SITE GRADING

15. ALL PORTIONS OF THE SITE WITHIN THE LIMITS OF THE WORK SHALL BE MOWED AND STRIPPED TO REMOVE ALL GRASS, ROOTS, ORGANIC SOIL, AND CONSTRUCTION FILL DEBRIS PRIOR TO THE BEGINNING OF ANY GRADING OPERATIONS. THE CONTRACTOR SHALL SALVAGE AND STOCKPILE ENOUGH SELECT TOPSOIL TO ACCOMMODATE LANDSCAPING NEEDS.
16. FOLLOWING STRIPPING AND GRUBBING, THE EXPOSED SOILS SHALL BE PROOF ROLLED TO REVEAL WEAK, ORGANIC, OR OTHER UNSUITABLE SOILS. UNSUITABLE SOILS SHALL BE EXCAVATED TO FIRM GROUND AND FILLED TO GRADE WITH SUITABLE NATIVE OR IMPORTED STRUCTURAL FILL.
17. EXPOSED SUBGRADE SOILS ON AREAS TO RECEIVE STRUCTURAL FILL SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES.
18. IF FILLS ARE NEEDED FOR STRUCTURAL SUPPORT, THEY SHALL BE INSTALLED IN NO MORE THAN 8-INCH LIFTS, AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY FOR FINE GRAINED NATIVE SOILS UNLESS OTHERWISE SPECIFIED ON THE PLAN. THE TOP LIFT OF FILL SHALL BE COMPACTED TO 92%. ALL OTHER SOILS SHALL BE COMPACTED TO NO LESS THAN 85%. COMPACTION TESTING IS NOT REQUIRED.
19. AT THE END OF THE GRADING OPERATION, THE STOCKPILED STRIPPINGS SHALL BE DISTRIBUTED ON THE LANDSCAPED AREAS IN A COMPACTED DEPTH NOT TO EXCEED 12".
20. ALL SURFACES SHALL BE GRADED SMOOTH AND FREE OF IRREGULARITIES THAT MIGHT ACCUMULATE SURFACE WATER.
21. ALL GRADING OPERATIONS AND DISTURBED SURFACE SURFACE STABILIZATION SHALL BE IN ACCORDANCE WITH THE PROJECT EROSION CONTROL PLAN.

TRANSPORTATION

22. THE MOST CURRENT EDITIONS OF THE OREGON DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS AND STANDARD DETAILS AND THE MOST CURRENT EDITIONS OF THE CITY OF PORTLAND DESIGN STANDARDS SHALL BE UTILIZED IN THE CONSTRUCTION OF TRANSPORTATION ELEMENTS OF THESE PLANS.
23. ALL PAVEMENT SHALL BE STRAIGHT CUT PRIOR TO PAVING. EXISTING PAVEMENT SHALL BE REMOVED AS NECESSARY TO PROVIDE A SMOOTH TRANSITION FOR BOTH RIDE AND DRAINAGE.
24. CONTRACTOR SHALL REPORT ALL DAMAGES IMMEDIATELY TO THE CITY'S PUBLIC WORKS DEPARTMENT OR CONTACT THE INSPECTOR ON THE JOB.
25. PUBLIC RIGHTS-OF-WAY SHALL BE KEPT IN A CLEAN AND SERVICEABLE CONDITION AT ALL TIMES. IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS, THE MATERIAL SHALL BE PROMPTLY REMOVED. MATERIALS ARE TO BE SWEPT AND REMOVED WITH A VACUUM SWEEPER.

DEWATERING

26. CONTRACTOR SHALL ADJUST THE CONSTRUCTION SCHEDULE TO MINIMIZE THE NEED FOR DEWATERING OF STORMWATER FROM EXCAVATIONS. GROUNDWATER IS NOT EXPECTED TO BE ENCOUNTERED IN ANY EXCAVATION.
27. IF DEWATERING OF CONSTRUCTION RELATED STORMWATER IS REQUIRED, IT WILL BE TEMPORARILY STORED IN AN ABOVEGROUND TANK, CHARACTERIZED, AND DISPOSED OF AT A PERMITTED OFF-SITE TREATMENT FACILITY.
28. CONSTRUCTION DEWATERING TO CITY SANITARY OR STORM SEWER SYSTEM IS NOT AUTHORIZED. BATCH DISCHARGE AUTHORIZATION PERMIT IS REQUIRED FOR TEMPORARY DISCHARGES OF GROUNDWATER OR CONSTRUCTION RELATED STORMWATER (CHANNELIZED, COLLECTED, AND/OR PUMPED) TO THE CITY'S SANITARY OR STORM SEWER SYSTEM. IF DEWATERING TO A CITY SANITARY OR STORM SEWER SYSTEM IS NECESSARY, PRE-AUTHORIZATION MUST BE OBTAINED FROM THE BES PRETREATMENT OR STORMWATER PROGRAMS. CALL (502) 823-5600 OR CONTACT JOE BLANCO (JOE.BLANCO@PORTLANDOREGON.GOV) FOR BATCH DISCHARGE INFORMATION AND REQUESTS.

CONTAMINATED MEDIA MANAGEMENT

29. STOCKPILES OF SOIL SHALL BE COVERED TO PROTECT MATERIALS FROM STORMWATER CONTACT.
30. STOCKPILE PERIMETERS SHALL HAVE A CONTAINMENT BARRIER ON ALL FOUR SIDES OF EVERY STOCKPILE.
31. STOCKPILES OF SOIL SHALL HAVE AN IMPERVIOUS LAYER UNDERNEATH THE STOCKPILE.
32. APPROPRIATE SITE CONTROLS SHALL BE EMPLOYED THAT PROTECT DRAG-OUT INTO A CITY STREET FROM THE DEVELOPMENT SITE AND DAY-TO-DAY OPERATIONS.
33. EXCAVATED MATERIAL SHALL BE DISPOSED OF AT A SUBTITLE D LANDFILL.
34. WASTE MATERIAL SHALL BE COVERED DURING TRANSPORT TO PREVENT DUST GENERATION AND OFFSITE CONTAMINATION.

DUST CONTROL

6. TO MINIMIZE DUST DURING EXCAVATION, THE CONTRACTOR SHALL:
   - DRIVE ONLY ON EXISTING GRAVEL OR OTHER HARD SURFACING WHEN FEASIBLE
   - LIMIT SPEED WHILE DRIVING ON-SITE
   - APPLY WATER AS NEEDED FOR DUST SUPPRESSION, BUT AVOID OVER WATERING.
   - USE PHASED CONSTRUCTION TO EXPOSE ONLY THE MINIMUM AMOUNT OF SOIL NECESSARY TO WIND AND WATER.
   - INSTALL TEMPORARY OR PERMANENT SURFACE STABILIZATION MEASURES IMMEDIATELY AFTER DISTURBANCE IF NEEDED.
   - INSPECT AREAS REQUIRING DUST CONTROLS FREQUENTLY AND REAPPLY MATERIALS OR CONTROLS AS NEEDED.

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TROUTDALE, OREGON

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A	6/30/2025	PERMIT DOCUMENTS

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DRAWN: B. TACKETT
CHECKED: T. WALL
SCALE

SHEET TITLE
CONSTRUCTION NOTES

SHEET
C1.0

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ABBREVIATIONS

AC	ACRE, ASPHALT CONCRETE PAVEMENT	LB	POUND(-S)
ACOE	ARMY CORPS OF ENGINEERS	LF	LINEAR FEET
AD	AREA DRAIN	LONG.	LONGITUDINAL
AGG	AGGREGATE	LT	LEFT
AIR	AIR RELIEF	MAX	MAXIMUM
AMSL	ABOVE MEAN SEA LEVEL	MFA	MAUL FOSTER & ALONGI, INC.
AP	ANGLE POINT	MFR	MANUFACTURER
APN	APPARENT PARCEL NUMBER	MH	MANHOLE
APPD	APPROVED	MIC	MONUMENT (IN CASE)
APPROX, ±	APPROXIMAT(-E, -LY)	MIN	MINIMUM; MINUTE
ASPH	ASPHALT	MISC	MISCELLANEOUS
ASSY	ASSEMBLY	MJ	MECHANICAL JOINT
		MON	MONUMENT (SURFACE)
BCR	BEGIN CURB RETURN	MW	MONITORING WELL
BF	BUTTERFLY		
BGS	BELOW GROUND SURFACE	N	NORTH
BLDG	BUILDING	N/A	NOT APPLICABLE
BLVD	BOULEVARD	NAT G, NG	NATURAL GAS
BM	BENCHMARK	NE	NORTHEAST
BMP	BEST MANAGEMENT PRACTICE	NO.	NUMBER
BO	BLOW-OFF	NTS	NOT TO SCALE
BOC	BACK OF CURB	NW	NORTHWEST
BOT, BTM	BOTTOM		
B.O.W.	BOTTOM OF WALL	OC	ON CENTER
BVC	BEGING VERTICAL CURVE	OD	OUTSIDE DIAMETER
		OHP	OVERHEAD POWER
CB	CATCH BASIN	OT	OWNERSHIP TIE
CDF	CONTROLLED DENSITY FILL		
CEM	CEMENT	P	PIPE
CF	CUBIC FEET	P TRAN	PAD MOUNTED TRANSFORMER
CFS	CUBIC FEET PER SECOND	PC	POINT OF CURVATURE
CIP	CAST IRON PIPE	PCC	PORTLAND CEMENT CONCRETE
CIR	CIRCLE	PEN.	PENETRATION
CK	CHECK	PERF	PERFORAT(-E, -ED, -ES, -ION)
CL, ℄	CENTERLINE	P.L., PL	PROPERTY LINE, PLACE
CMP	CORRUGATED METAL PIPE	POW V	POWER VAULT
CO	CLEANOUT	PP	POWER POLE
COMP	COMPACTION	PROP.	PROPOSED
CONC	CONCRETE	PS	PUMP STATION
COP	CITY OF PORTLAND	PSF	POUNDS PER SQUARE FOOT
CPL	COUPLING	PSI	POUNDS PER SQUARE INCH
CT	COURT	PT	POINT OF TANGENT
CTR	CENTER	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
		REQT	REQUIREMENT
DR	DIMENSION RATIO	REV	REVISION
DTL	DETAIL	R/W, ROW	RIGHT OF WAY
DWG(S)	DRAWING(-S)	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
ELEC	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
GAL	GALLON(-S)	TP	TOP OF PAVEMENT, TEL POLE, TURNING POINT
GM	GAS METER		
GND	GROUND	TW	TOP OF WALL
GP	GUARD POST	TYP	TYPICAL
GPM	GALLONS PER MINUTE		
GRD	GRADE	UG	UNDERGROUND
GV	GAS VALVE, GATE VALVE	UGE	UNDERGROUND ELECTRIC
		UTIL	UTILITY
HDPE	HIGH DENSITY POLYETHYLENE		
HGT, HT	HEIGHT	VC	VERTICAL CURVE
HP	HORSEPOWER	VERT	VERTICAL
HORZ	HORIZONTAL	VOL	VOLUME
HYD	HYDRANT		
		W	WIDTH; WIDE; WEST
ID	INSIDE DIAMETER	W/	WITH
IE	INVERT ELEVATION	WATR	WATER
IN	INCH(-ES)	WM	WATER METER
INTX	INTERSECTION	W/O	WITHOUT
INV	INVERT	WSE	WATER SURFACE ELEVATION
IP	IRON PIPE	WV	GATE/GENERAL WATER VALVE
L	LENGTH	YD	YARD
LAT	LATERAL	YR	YEAR

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

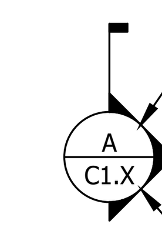
SYMBOL EXIST. PROP. — DESCRIPTION

- GAS METER
- GAS VALVE
- PAD MOUNTED TRANSFORMER
- POWER VAULT
- TRANSMISSION TOWER
- UTILITY POLE
- UTILITY POLE ANCHOR
- TELEPHONE RISER
- TELEPHONE VAULT
- LIGHT POLE

WATER SYMBOLS

SYMBOL EXIST. — DESCRIPTION

- GUARD POST / BOLLARD
- WATER METER
- FIRE HYDRANT
- GATE VALVE



TYPICAL SECTION CALLOUT

CHANNELIZATION SYMBOLS

SYMBOL EXIST. — DESCRIPTION

- SIGN

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST. — DESCRIPTION

- SAN. SEWER CLEAN OUT
- SAN. SEWER MANHOLE
- STORM DRAIN CATCH BASIN
- DECOMMISSIONED STORM DRAIN CATCH BASIN
- STORM DRAIN CULVERT
- STORM DRAIN MANHOLE
- DRY WELL
- AREA DRAIN

- PROPOSED SEDIMENT FENCE (SF)
- PROPOSED FLOW DIRECTION (OR / OR)
- EXISTING FLOW DIRECTION
- EXISTING OVERHEAD POWER (P)
- EXISTING UNDERGROUND POWER (E x)
- EXISTING UNDERGROUND TELEPHONE (T)
- EXISTING UNDERGROUND GAS (G)

- EXISTING GRADE MAJOR CONTOUR (27)
- EXISTING GRADE MINOR CONTOUR (27)
- EXISTING STORM DRAIN PIPE (SD_x)
- EXISTING WATER PIPE (W_x)
- EXISTING SANITARY SEWER PIPE (SS_x)
- EXISTING AC PAVEMENT
- EXISTING CONCRETE SURFACING
- EXISTING CONCRETE SURFACING
- EXISTING GRAVEL SURFACING

- PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL) (27)
- PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL) (27)
- PROPOSED GRAVEL SURFACING

- EXISTING FENCE LINE
- EXISTING ROAD CENTERLINE
- EXISTING RIGHT-OF-WAY
- EXISTING PROPERTY LINE (PL)
- EXISTING EASEMENT LINE

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REGISTERED PROFESSIONAL ENGINEER 89307PE OREGON SEP. 11, 2015 BROOKE ELYSE HARMON
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SHEET TITLE
MASTER LEGEND

SHEET
C1.1

FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0106.30 James C. Brown & Associates\PLANS\C1.1 MASTER LEGEND.dwg
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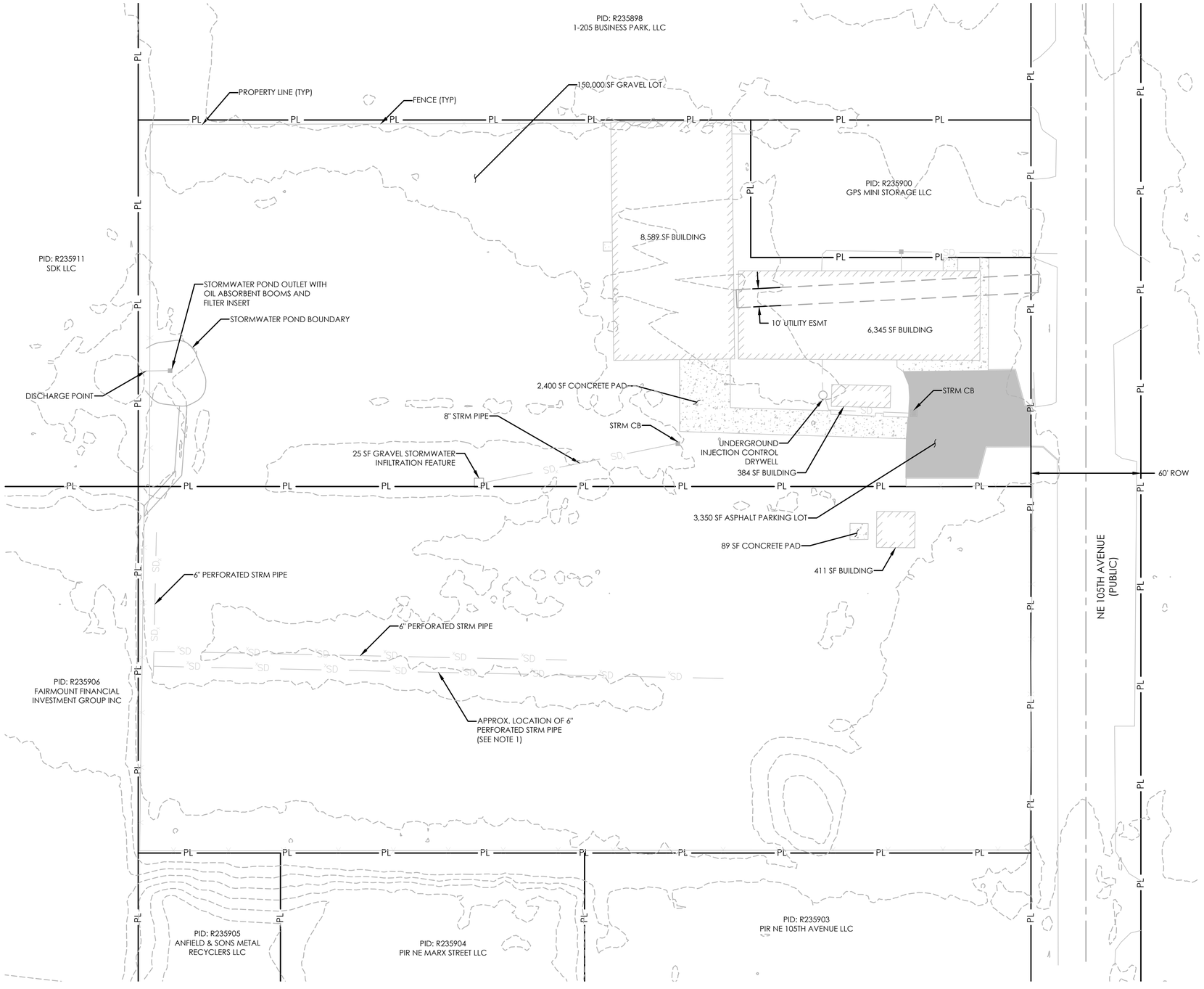

NOTES:
1. CONTRACTOR TO CONFIRM THE LOCATION OF EXISTING STORMWATER PIPE

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SEP. 11, 2018
BROOKE ELYSE HANSON

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SHEET TITLE

EXISTING CONDITIONS

SHEET

C2.0

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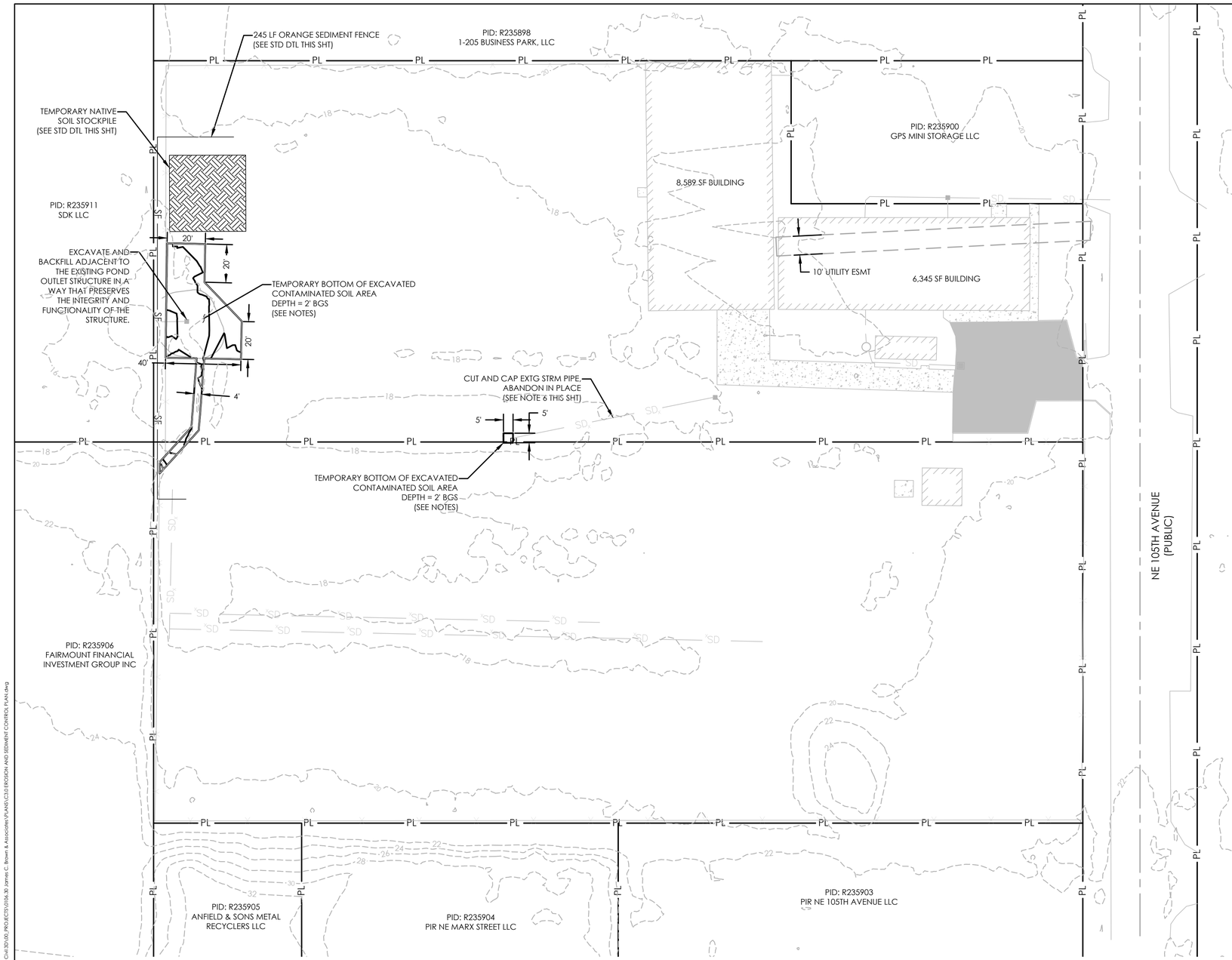
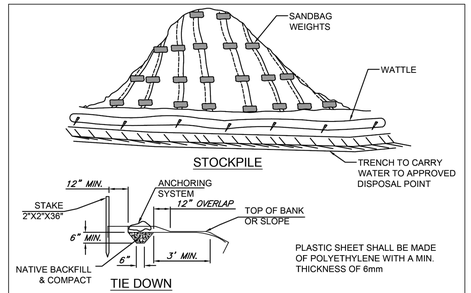


NOTES:

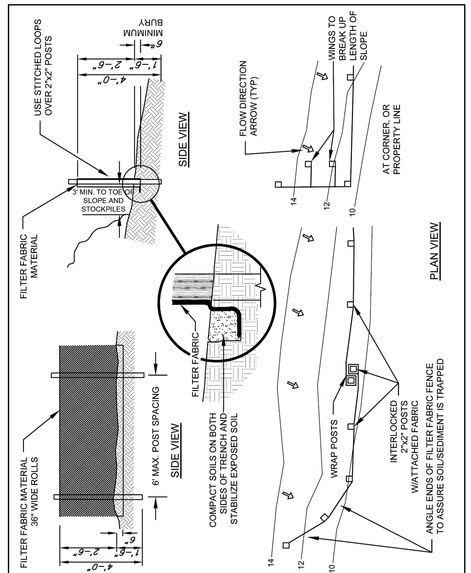
1. CONTRACTOR TO EXCAVATE AND REMOVE CONTAMINATED SOIL FROM THE AREAS NOTED ON THIS SHEET. CONTAMINATED SOIL IS TO BE STOCKPILED FOLLOWING CONTAMINATED MEDIA MANAGEMENT PLAN PROCEDURES. SEE SHEET C1.0. THE CONTRACTOR IS RESPONSIBLE FOR SETTING UP AN APPROVED WASTE PROFILE AND FOR THE TRANSPORT AND PROPER DISPOSAL OF EXCAVATED MATERIAL. EXISTING ANALYTICAL IS AVAILABLE FOR THE EXCAVATION AREAS AND MAY BE USED BY THE CONTRACTOR TO SET UP THE PROFILE IN ADVANCE OF SOIL DISTURBING ACTIVITIES, THOUGH THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL NECESSARY ANALYTICAL IS PROVED TO THE LANDFILL.
2. THE EXCAVATION TARGET DEPTH IS NOTED ON THE PLANS. APPROXIMATE EXTENT OF CONTAMINATION BASED ON SOIL DATA THAT EXCEED ONE OR MORE RISK-CONCENTRATIONS FOR RESIDENTIAL, OCCUPATIONAL, AND/OR CONSTRUCTION WORKERS, PER THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY.
3. CONTRACTOR TO COORDINATE WITH THE ENGINEER FOR EXCAVATION LIMITS. THE ENGINEER WILL FIELD SCREEN EXCAVATION PRIOR TO APPROVING BACKFILLING.
4. DEMARCATION LAYER IS TO BE INSTALLED PRIOR TO BACKFILLING. EXCAVATIONS TO BE BACKFILLED WITH MATERIAL MEETING CITY OF PORTLAND CLEAN FILL REQUIREMENTS.
5. EXCAVATED SOIL TO BE TRANSPORTED TO A SUBTITLE D LANDFILL ONCE TESTED. WASTE MATERIAL SHALL BE COVERED DURING TRANSPORT TO PREVENT DUST GENERATION AND OFFSITE CONTAMINATION.
6. THE CONTRACTOR SHALL CUT AND PLUG THE EXISTING STORM PIPE AS NOTED ON THE PLAN VIEW. THE EXISTING PIPE, WHICH IS TO BE ABANDONED, SHALL HAVE A GROUT PLUG POURED AROUND AND IN THE END OF THE PIPE FOR A DISTANCE OF TWO PIPE DIAMETERS.

EARTHWORK QUANTITIES		
MATERIAL TYPE	CUT (CY)	FILL (CY)
CONTAMINATED SOIL	155	0
CLEAN IMPORTED SOIL	0	155



EROSION CONTROL MANUAL | PLASTIC SHEETING
Detail Drawing 3.7-A

FILE DRAFT:INSPECTORS GRAPHICS DRAWING PLOT 1:1



EROSION CONTROL MANUAL | TEMPORARY SEDIMENT CONTROL FENCE
Detail Drawing 3.15-A

FILE DRAFT:INSPECTORS GRAPHICS DRAWING PLOT 1:1

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Brooke Hansen
OREGON
BROOKE ELYSE HANSEN
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SHEET TITLE

GRADING AND EROSION CONTROL PLAN

SHEET

C3.0

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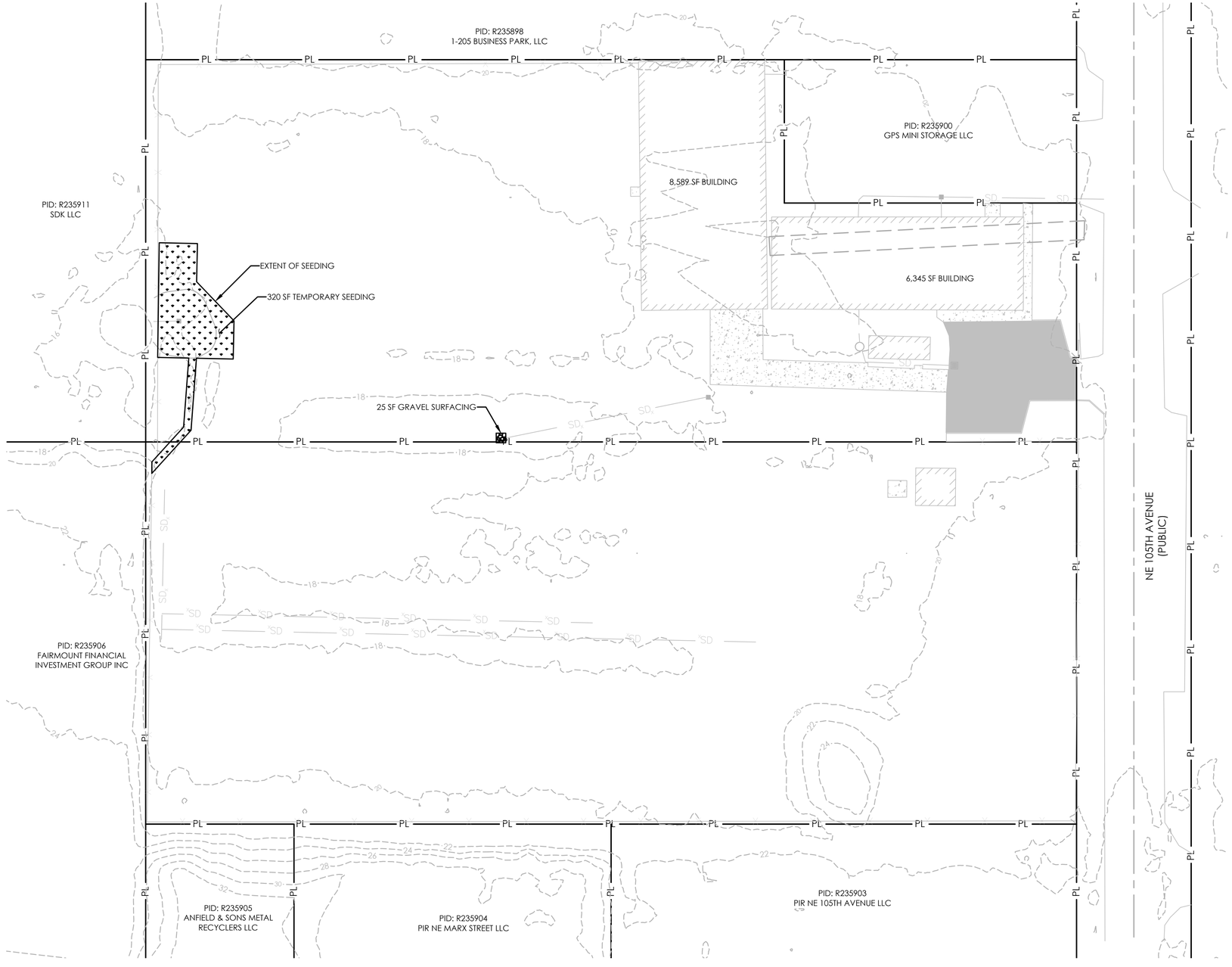

NOTE:
1. CONTRACTOR SHALL MATCH EXISTING GRADES AT EXTENTS OF PROPOSED GRADING SMOOTHLY AND UNIFORMLY.
2. UPON BACKFILLING EXCAVATED AREA, STABILIZE GROUND CONDITIONS BY PLACING TEMPORARY SEEDING TO THE EXTENT OF EXCAVATION, PER SECTION 01030.43(a) OF CITY OF PORTLAND (COP) SPECIFICATIONS.

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OREGON
MAY 11, 2016
BROOKE ELYSE HANNON

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SHEET TITLE

SITE RESTORATION PLAN

SHEET

C4.0

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Appendix A

Standard Operating Procedures

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STANDARD OPERATING PROCEDURE

Field Screening for VOCs in Soil

SOP Number: 3
Date: 3/9/2021
Revision Number: 0.1

SCOPE AND APPLICATION

This standard operating procedure (SOP) describes the use of a photoionization detector (PID) to field screen soil for evidence of organic vapors. The PID measures the organic vapor concentration in parts per million, is not compound-specific.

Never rely on a stand-alone PID reading to identify organic chemical contamination in soil. Always collect multiple PID readings (e.g., at multiple depths along the length of a soil core), since it is the relative difference in concentration between multiple readings (e.g., a sudden increase in concentration at a certain depth interval) that is the typical indictor of contamination. Additionally, PID readings should always be accompanied by observation of the soil samples for other indictors of contamination, such as soil staining or chemical odors, so that these multiple lines of evidence can be used together to identify potential organic chemical contamination in the field.

EQUIPMENT AND MATERIALS REQUIRED

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- PID with calibration gas
- Ziploc®-type bags
- Field forms or notebook for documenting PID readings

METHODOLOGY

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for organic vapor field screening, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

The electron volt (eV) rating for the PID lamp (e.g., 9.8, 10.6, 11.7) must be greater than the ionization potential (in eV) of a compound in order for the PID to detect the compound. A lamp of at least 9.8 eV should be used for petroleum hydrocarbons. A lamp of at least 10.6 eV should be used for typical chlorinated alkenes. If the project health and safety plan does not specify the lamp size, verify the compatibility of the lamp size with the anticipated compounds expected to be present in soil prior to the field activities, and confirm with the project manager.

General Procedure:

Calibration:

- The PID should be calibrated daily (or more frequently, as needed).
- Calibrate the PID according to the manufacturer's instructions.
- Document the calibration activities and results in the field notebook.

Measuring organic vapor content:

- Place a representative volume (generally, a "handful") of freshly exposed soil into a Ziploc-type bag.
- Seal the bag and gently knead the bag to loosen the soil.
- Let the bag set for several minutes to allow organic vapors, if present, to volatilize from the soil into the headspace of the bag.

- Partially open the bag so that the tip of the PID intake tube can be inserted into the bag but is not in contact with the soil, then close the bag seal around the intake tube.
- Record the PID measurement and document results in the field notes or boring log.

Static Sheen Test Procedure and Observations:

Sheen Test Procedure:

- Following the PID screen discussed above, add enough water to cover the soil in the container.
- Observe the water for signs of discoloration/sheen and characterize per the table below.

When static sheen testing is required or when making observations of a water surface the following table presents descriptions to be used (consistent with Department of Ecology Guidance)[1].

No Sheen (NS)	No visible sheen on the water surface
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid. Natural organic oils or iron bacteria in the soil may produce a slight sheen.
Moderate Sheen (MS)	Pronounced sheen over limited area; probably has some color/iridescence; spread is irregular, may be rapid; sheen does not spread over entire water surface.
Heavy Sheen (HS)	Heavy sheen with pronounced color/iridescence; spread is rapid; the entire water surface is covered with sheen.
Biogenic Film (BF)	False positive results may be generated by the presence of decaying organic matter and iron bacteria, which can produce a rainbow-like sheen similar to an oil sheen. These sheens, unlike oil sheens, can typically be broken up creating platy or blocky fragments when agitated or disturbed. Biogenic films can also be foamy.

[1] Department of Ecology. 2016. Guidance for remediation of petroleum contaminated sites. June.

MAUL FOSTER ALONGI

STANDARD OPERATING PROCEDURE

Surface and Subsurface Soil Sampling Using Hand Tools

SOP Number: 4
Date: 3/9/2021
Revision Number: 0.1

SCOPE AND APPLICATION

This standard operating procedure (SOP) describes the use of hand tools for obtaining surface and subsurface soil samples for physical and/or chemical analysis. For other projects where mechanical equipment is used (e.g., drill rig or excavator), it may be possible to obtain the sample manually, for example by grabbing soil directly from a drilled soil core or excavator bucket, thereby precluding the need for hand tools.

EQUIPMENT AND MATERIALS REQUIRED

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the Health and Safety Plan)
- Tools appropriate for the conditions that may be encountered (e.g., spoon, trowel, shovel, hand auger); tools constructed of stainless steel are preferred.
- Stainless steel bowls
- Tape measure with increments in feet and tenths of a foot.
- Laboratory-supplied sample containers
- Laboratory chain-of-custody form and cooler with ice.
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures).
- Field forms or notebook for documenting the sampling procedures.

METHODOLOGY

When the project-specific sampling and analysis plan (SAP) specifies additional or other requirements for soil sampling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

General Procedure:

- Don gloves as specified in the Health and Safety Plan; replace gloves with new gloves after each sample is collected.
- Clear the ground surface of brush, root mat, grass, leaves, and other debris.
- Use the selected hand tool to remove soil to the targeted sample depth. Use a measuring tape to verify that the sample depth is correct and record the depth in the field notebook or boring log.
- Describe and document the soil lithology in accordance with SOP 2.
- If the sample volume requirement is small (generally one or two 8-ounce jars), the soil can be placed directly into the sample container. This can be done manually; however, if the gloves have become soiled during excavation, don new gloves before collecting the sample.
- If the sample volume requirement is large, or composite sample collection is required, collect the soil and homogenize in a decontaminated stainless-steel bowl or a dedicated Ziploc® bag and then manually transfer the sample to the sample container. If the gloves have become soiled during excavation, don new gloves before collecting the samples.

- Before sample collection, and to the extent possible, remove organic debris, anthropogenic material (e.g., brick, metal, glass), and gravels larger than 4 millimeters, unless a project-specific SAP directs otherwise.
- When sampling for gasoline-range total petroleum hydrocarbons (gasoline) or volatile organic compounds (VOCs), a subsample will be obtained from a discrete portion of the collected sample. To minimize the potential loss of volatiles during sampling, the subsample shall not be composited or homogenized. The sample container for gasoline and/or VOC analysis will be filled first if additional containers are necessary for other analysis. Specific procedures for collecting samples for gasoline and/or VOC analysis using the U.S. Environmental Protection Agency Method 5035 are specified in SOP 5.
- The sampling device and field equipment will be decontaminated between sample locations in accordance with SOP 1. Alternatively, new, disposable equipment can be used to collect each sample to preclude the need for equipment decontamination.

Backfilling Sample Locations:

Backfill in accordance with federal and state regulations (e.g., Oregon bentonite requirements per OAR 690-240-0035). Otherwise, manual excavations can be backfilled with excess soil remaining after sample collection, unless the project-specific SAP requires a different backfill procedure.

MAUL FOSTER ALONGI

STANDARD OPERATING PROCEDURE

EPA Method 5035 Soil Sampling

SOP Number: 5
Date: 3/9/2021
Revision Number: 0.1

SCOPE AND APPLICATION

This standard operating procedure (SOP) describes the methods for obtaining soil samples for chemical analysis for gasoline-range petroleum hydrocarbons (gasoline) and volatile organic compounds (VOCs) by U.S. Environmental Protection Agency Method 5035A.

EQUIPMENT AND MATERIALS REQUIRED

The following materials are necessary for this procedure:

- Sampling equipment (e.g., Terra Core Sampler™ or similar sampler capable of collecting a 5-gram soil sample).
- Laboratory-supplied sample containers:
  - Preweighed and labeled 40-milliliter volatile organic analysis (VOA) vials, including preservative (typically methanol)
  - Two-ounce jar for percent total solids/moisture (if required, confirm with the laboratory)
- Laboratory chain-of-custody form and cooler with ice.
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures).
- Field forms or notebook for documenting the sampling procedures.

METHODOLOGY

When the site-specific sampling and analysis plan (SAP) specifies additional or different requirements for soil sampling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

Laboratory Analytical Considerations:

- VOCs must be analyzed within 14 days of sample collection.
- Samples must be maintained at less than 4°±2°C.
- Discrete VOC samples may be composited at the laboratory.

General Procedure:

- When using the Terra Core Sampler, seat the plunger in the handle.
- Collect the sample by pushing the sampler into the soil until the soil has filled the sampler.
- Remove the sampler and confirm that the soil in it is flush with the mouth of the sampler.
- Wipe all debris from the outside of the sampler. Remove any excess collected soil that extends beyond the mouth of the sampler.
- Rotate the plunger handle 90 degrees until it is aligned with the slots in the body of the sampler. Place the mouth of the sampler into the sample container and extrude the sample into the sample container by pushing the plunger down. Hold the sample at an angle when extruding to minimize splashing of the preservative.
- Immediately remove any soil or debris from the threads of the vial and place the lid on the vial.

- Gently swirl the vial (do not shake) to allow the preservative to uniformly penetrate and wet the soil.
- Repeat process for each additional sample container.
- If required by the laboratory, fill a 2-ounce container to capacity for percent total solids determination.

MAUL FOSTER ALONGI

STANDARD OPERATING PROCEDURE

Underground Utility Locates

SOP Number: 18
Date: 3/9/2021
Revision Number: 0.1

SCOPE AND APPLICATION

This standard operating procedure (SOP) describes the practices for locating underground utilities. Refer to the MFA health and safety plan (HASP) for additional information regarding communication procedures to be followed when an inadvertent utility strike occurs, as well as regarding methods for mitigating hazards during a utility strike.

EQUIPMENT AND MATERIALS REQUIRED

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the HASP)
- Marking materials (e.g., marking paint, stakes, flags)
- Field documentation materials

METHODOLOGY

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for underground utility locates, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

Before Conducting Utility Locates:

- Ensure that the locate will be conducted reasonably soon before the excavation work begins, e.g., within 48 hours. There may be project-specific conditions, e.g., weather and/or ground features that could cause markings to fade, which would require scheduling of the excavation work sooner than 48 hours after the locate.
- Clearly define the boundary of the work and the locations of all proposed excavations. Prepare a map of the project area showing the excavation locations.
- Interview site managers/property owners and obtain plans or drawings, if available, showing on-site utilities.
- For project work that will not take place in the public right-of-way, ensure that the public rights-of-way nearest to the project are identified and communicated during the one-call notification.
- Identify the township and range of the project area. This information can be easily attained by a quick email to MFA's GIS Exchange.
- If feasible, conduct a site visit to identify site conditions that could cause fading or disruption of marking paint. Such conditions could include gravel or ground sensitive to erosion and high traffic.
- Check the weather forecast to assess the potential for snow or rain to make marking utilities difficult or cause the markings to fade.

One-Call Utility Notification:

- If possible, initiate the one-call utility notification at least one week before the proposed work begins.
- Include a map or GPS coordinates when submitting the notification.
- Before conducting any excavation activities, confirm with each public utility that the utility locate has been completed.

- On remote or complicated sites, consider meeting public locators on site.
- Document the one-call ticket number and results in the project files.
- Provide the one-call ticket number to subcontractors who will be doing the excavations.

Private Utility Locate:

- Conduct the private utility locate only after confirmation that the public utility locate has been completed and all public utilities have been marked and the results reviewed by MFA staff who will be overseeing the excavations.
- Meet the private locator on site and participate in the entire private utility locate. Be engaged in the process, ask questions, and take time to walk the site thoroughly with the locator.
- Bring a copy of the one-call utility ticket and results of the one-call utility locater to check against the utility markings on the ground.
- If possible, have a site/property representative knowledgeable of on-site utilities participate in the private utility locate.
- If paint alone may not suffice to ensure clear marking of utilities, add vertical markers such as stakes or flags.
- Visually assess the area of the proposed excavation(s) to identify features potentially indicative of buried utilities. Have the private utility locator examine each feature identified below to assess the presence of buried utilities.
  - Examine adjacent public rights-of-way where public utilities have been marked for evidence of utilities that may extend onto the project site.
  - Identify nearby light poles, telephone poles, electrical utility poles, or other overhead utility poles with wires or conductors that run from the overhead utility, down the pole, and into the ground.
  - Identify the location of gas meters, water meters, or other aboveground junction boxes for evidence of utilities extending from these features into the ground.
  - Examine asphalt and concrete ground surfaces for discontinuities in the surface indicative of utility installations. Discontinuities may include recent patches of asphalt or concrete inlaid within older concrete or asphalt surfaces.
  - Identify manholes and catch basins indicative of buried storm or sanitary sewer pipes. Open manholes to examine the orientation of associated pipes to assess whether the utilities may be present near proposed excavations.
  - Identify tank ports and vent pipes.
  - Identify irrigation systems and associated features such as valve boxes and controllers.
  - Identify any other signs indicating the presence of buried utilities.
  - Be wary of utility marks that suddenly begin or dead end.

Preparing to Perform Subsurface Activities after a Locate:

- Ensure that the markings are still visible when the work begins.
- Adjust locations, as needed, to avoid identified utilities, or use alternative methods such as nonmechanical excavation means (i.e., manual excavation or air-knifing) to a minimum depth of 5 feet.

Table
APWA UNIFORM COLOR CODE

	WHITE—Proposed Excavation
	PINK—Temporary Survey Markings
	RED—Electric Power Lines, Cables, Conduit and Lighting Cables
	YELLOW—Gas, Oil, Steam, Petroleum or Gaseous Materials
	ORANGE—Communication, Alarm or Signal Lines, Cables or Conduit
	BLUE—Potable Water
	PURPLE—Reclaimed Water, Irrigation and Slurry Lines
	GREEN—Sewers and Drain Lines
Source: Uniform Color Codes, ANSI Standard Z535.1. American Public Works Association. Revised 1999.	