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April 15, 2019

Kevin Cook, Senior Planner
Multnomah County
Land Use Planning Division
1600 SE 190th Avenue
Portland, OR 97233

RE: Metro's North Tualatin Mountains
Case #T4-2017-9166 – Comprehensive Plan Text Amendment
Case #T3-2017-9165 – Use Application
Response to Request for Additional Information

Dear Mr. Cook:

This letter and attached exhibits constitute Metro's response to the County's request for additional information, dated February 14, 2019. Below is a response to each item identified in the County's email.

Exhibit 1 – Supplemental Geotechnical Engineering Analysis and Revised HDP Form 1
Exhibit 2 – Revised Preliminary Sight Distance Plan Sheet
Exhibit 3 – Revised Preliminary Grading and Erosion Control Plan Sheet
Exhibit 4 – Metro/PGE Easement (for sight distance improvements)
Exhibit 5 – Letter to County dated February 25, 2019

A. Transportation Planning Request:

By letter dated February 25, 2019, applicant responded to and provided additional information and clarification requested by County transportation planning staff. That letter was previously submitted and is attached for your reference. Exhibit 5.

B. Supplemental Hillside Development Permit Information:

Metro proposes excavation of slopes along NW McNamee that is intended to improve sight distance associated with project access. Applicant previously provided a narrative, geotechnical analysis, and civil drawings addressing proposed sight distance improvements and requirements based on the 85th percentile analysis. To aid in review, the County Transportation Department requested that Metro perform a sight distance analysis based on the 85th percentile speed plus 5 mph. While the County's request results in an increase in sight distance, it also increases the area of disturbance. To reflect those

increases, County planning staff requested that the geotechnical analysis and civil drawings be updated to include the additional area of disturbance.

Below, applicant addresses the Hillside Development Permit standards, as they relate to excavation associated with improving sight distance. This narrative and information are intended to supplement and not replace the narrative and information which address Hillside Development Permit standards for the remainder of the project.

Hillside Development Permit

§ 33.5500 Purposes.

The purposes of the Hillside Development and Erosion Control subdistrict are to promote the public health, safety and general welfare, and minimize public and private losses due to earth movement hazards in specified areas and minimize erosion and related environmental damage in unincorporated Multnomah County, all in accordance with ORS 215, LCDC Statewide Planning Goal No. 7 and OAR 340- 41- 455 for the Tualatin River Basin, and the Multnomah County Comprehensive Framework Plan Policy No. 14. This subdistrict is intended to:

- (A) Protect human life;*
- (B) Protect property and structures;*
- (C) Minimize expenditures for rescue and relief efforts associated with earth movement failures;*
- (D) Control erosion, production and transport of sediment;*
- (E) Regulate land development actions including excavation and fills, drainage controls and protect exposed soil surfaces from erosive forces; and*
- (F) Control storm water discharges and protect streams, ponds, and wetlands within the Tualatin River and Balch Creek Drainage Basins.*

Finding: Metro understands the purposes of the Hillside Development overlay. As confirmed by the geotechnical analysis, the purposes of the standard are upheld with the proposed design. Exhibit 1.

§ 33.5505 Permits Required.

Hillside Development Permit: All persons proposing development, construction, or site clearing (including tree removal) on property located in hazard areas as identified on the "Slope Hazard Map," or on lands with average slopes of 25 percent or more shall obtain a Hillside Development Permit as prescribed by this subdistrict, unless specifically exempted by MCC 33.5510.

Finding: The property includes hazard areas as identified on the Slope Hazard Map. Applicant requests a Hillside Development Permit. This standard is met.

§ 33.5515 Application Information Required.

An application for development subject to the requirements of this subdistrict shall include the following:

- (A) *A map showing the property line locations, roads and driveways, existing structures, trees with 8-inch or greater caliper or an outline of wooded areas, watercourses and include the location of the proposed development(s) and trees proposed for removal.*

Finding: The attached revised civil drawings include the required information. Exhibits 2 and 3. The maps identify trees proposed to be removed or pruned to ensure sight distance/vision clearance standards are met. This standard is met.

- (B) *An estimate of depths and the extent and location of all proposed cuts and fills.*

Finding: As represented in the attached geotechnical report and civil drawings, cuts of up to eight feet and fill of up to six feet may be associated with excavation required to meet sight distance improvements based on the 85th percentile speed plus 5 mph. The extent and location of the work area is depicted in the drawings. Exhibits 1-3. In conjunction with obtaining final development permits, applicant will be applying for and obtaining a grading and erosion control permit that will finalize depths and amounts of removal and fill.

- (C) *The location of planned and existing sanitary drainfields and drywells.*

Finding: There are no existing sanitary drainfields or drywells in the location of planned excavation associated with sight distance improvements. No drainfields or drywells are proposed by applicant. This standard is met.

- (D) *Narrative, map or plan information necessary to demonstrate compliance with MCC 33.5520 (A). The application shall provide applicable supplemental reports, certifications, or plans relative to: engineering, soil characteristics, stormwater drainage, stream protection, erosion control, and/or replanting.*

Finding: To supplement the grading and erosion control plan, stormwater report, geotechnical report, and plans included in the record, applicant provides this narrative and revised geotechnical report and plan sheets to address excavation associated with sight distance improvements along NW McNamee as dictated by the 85th percentile speed plus 5 mph analysis. This standard is met.

- (E) *A Hillside Development permit may be approved by the Director only after the applicant provides:*

- (1) *Additional topographic information showing that the proposed development to be on land with average slopes less than 25 percent, and located more than 200 feet from a known landslide, and that no cuts or fills in excess of 6 feet in depth are planned. High groundwater conditions shall be assumed unless documentation is available, demonstrating otherwise; or*
- (2) *A geological report prepared by a Certified Engineering Geologist or Geotechnical Engineer certifying that the site is suitable for the proposed development; or,*

Finding: The required geological report prepared by a geotechnical engineer certifies that the site is suitable for the proposed sight distance improvements. Exhibit 1. This standard is met.

(3) An HDP Form-1 completed, signed and certified by a Certified Engineering Geologist or Geotechnical Engineer with his/her stamp and signature affixed indicating that the site is suitable for the proposed development.

(a) If the HDP Form- 1 indicates a need for further investigation, or if the Director requires further study based upon information contained in the HDP Form- 1, a geotechnical report as specified by the Director shall be prepared and submitted.

Finding: The required completed and revised HDP Form-1, indicating that the site is suitable for the proposed grading, is included in Exhibit 1. This standard is met.

(F) Geotechnical Report Requirements

(1) A geotechnical investigation in preparation of a Report required by MCC 33.5515 (E) (3) (a) shall be conducted at the applicant's expense by a Certified Engineering Geologist or Geotechnical Engineer. The Report shall include specific investigations required by the Director and recommendations for any further work or changes in proposed work which may be necessary to ensure reasonable safety from earth movement hazards.

Finding: As stated in the report, the geotechnical engineer conducted a geotechnical investigation in preparation of the geological report. The geotechnical engineer certified that the site is suitable for the proposed grading. Exhibit 1. This standard is met.

(2) Any development related manipulation of the site prior to issuance of a permit shall be subject to corrections as recommended by the Geotechnical Report to ensure safety of the proposed development.

Finding: There has been no manipulation of the site prior to applying for the geotechnical permit. This standard is not applicable.

(3) Observation of work required by an approved Geotechnical Report shall be conducted by a Certified Engineering Geologist or Geotechnical Engineer at the applicant's expense; the geologist's or engineer's name shall be submitted to the Director prior to issuance of the Permit.

Finding: Applicant understands the requirement. This standard can be made a condition of approval to ensure compliance.

(G) Development plans shall be subject to and consistent with the Design Standards for Grading and Erosion Control in MCC 33.5520 (A) through (D). Conditions of approval may be imposed to assure the design meets those standards.

Finding: The preliminary grading and erosion control plans, including the attached revised sheet, depict information required in MCC 33.5220 (A) through (D). Please note, applicant is not requesting a grading and erosion control permit at this time. As such, pursuant to MCC 33.5520, applicant requests conditions of approval be imposed to ensure that a grading and erosion control permit is obtained and the design meets the applicable standards prior to ground disturbing activities.

§ 33.5520 Grading and Erosion Control Standards.

Approval of development plans on sites subject to a Hillside Development Permit shall be based on findings that the proposal adequately addresses the following standards. Conditions of approval may be imposed to assure the design meets the standards:

(A) Design Standards for Grading and Erosion Control

(1) Grading Standards

- (a) Fill materials, compaction methods and density specifications shall be indicated. Fill areas intended to support structures shall be identified on the plan. The Director or delegate may require additional studies or information or work regarding fill materials and compaction;*
- (b) Cut and fill slopes shall not be steeper than 3:1 unless a geological and/or engineering analysis certifies that steep slopes are safe and erosion control measures are specified;*
- (c) Cuts and fills shall not endanger or disturb adjoining property;*
- (d) The proposed drainage system shall have adequate capacity to bypass through the development of the existing upstream flow from a storm of 10-year design frequency;*
- (e) Fills shall not encroach on natural watercourses or constructed channels unless measures are approved which will adequately handle the displaced stream-flow for a storm of 10-year design frequency;*

Finding: Applicant is not requesting a grading and erosion control permit at this time. As such, pursuant to MCC 33.5520, applicant requests conditions of approval be imposed to ensure that a grading and erosion control permit is obtained and the design meets the above standards prior to ground disturbing activities.

As confirmed by the geotechnical analysis and review, the proposed limited cuts and retention, and resulting slopes, will not endanger or disturb adjacent property. No fills are proposed to encroach on natural watercourses/channels. This standard can be met by a condition of approval that will ensure compliance.

(2) Erosion Control Standards

- (a) On sites within the Tualatin River Drainage Basin, erosion and stormwater control plans shall satisfy the requirements of OAR 340. Erosion and storm water control plans shall be designed to perform as prescribed by the currently adopted edition of the "Erosion Prevention &*

Sediment Control Plans Technical Guidance Handbook (1994)" and the "City of Portland Stormwater Quality Facilities, A Design Guidance Manual (1995)". Land disturbing activities within the Tualatin Basin shall provide a 100-foot undisturbed buffer from the top of the bank of a stream, or the ordinary high watermark (line of vegetation) of a water body, or within 100-feet of a wetland; unless a mitigation plan consistent with OAR 340 is approved for alterations within the buffer area.

Finding: This standard is not applicable. The site is not within the Tualatin River Drainage Basin.

- (b) *Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion, stabilize the soil as quickly as practicable, and expose the smallest practical area at any one time during construction;*

Finding: The extent of excavation is dictated by sight distance standards and improvements associated with the 85th percentile speed plus 5 mph analysis. Stripping of existing vegetation will be limited to the construction limits as represented in the civil drawings. Work is proposed to improve existing sight distance limitations and improve road user safety. Disturbed soil will be stabilized as quickly as practicable. This standard is met and can be made a condition of approval to ensure compliance.

- (c) *Development Plans shall minimize cut or fill operations and ensure conformity with topography so as to create the least erosion potential and adequately accommodate the volume and velocity of surface runoff;*

Finding: The extent of excavation is dictated by sight distance standards and improvements associated with the 85th percentile speed plus 5 mph analysis. County transportation staff, in an effort to further improve user safety, requested that Metro analyze and represent impacts associated with the addition of 5 mph to the equation. Impacts are minimized in this approach. Disturbed soil will be stabilized as quickly as practicable. This standard is met and can be made a condition of approval to ensure compliance.

- (d) *Temporary vegetation and/or mulching shall be used to protect exposed critical areas during development;*

Finding: Disturbed areas that will be left exposed for longer than seven days will be mulched to provide temporary erosion protection. This standard is met and can be made a condition of approval to ensure compliance.

- (e) *Whenever feasible, natural vegetation shall be retained, protected, and supplemented;*

1. *A 100-foot undisturbed buffer of natural vegetation shall be retained from the top of the bank of a stream, or from the ordinary high watermark (line of vegetation) of a water body, or within 100-feet of a wetland;*
2. *The buffer required in 1. may only be disturbed upon the approval of a mitigation plan which utilizes erosion and stormwater control features designed to perform as effectively as those prescribed in the currently adopted edition of the "Erosion Prevention & Sediment Control Plans Technical Guidance Handbook (1994)" and the "City of Portland Stormwater Quality Facilities, A Design Guidance Manual (1995)" and which is consistent with attaining equivalent surface water quality standards as those established for the Tualatin River Drainage Basin in OAR 340;*

Finding: No top of bank is within 100 feet of the subject right of way area. This standard is not applicable.

- (f) *Permanent plantings and any required structural erosion control and drainage measures shall be installed as soon as practical;*

Finding: Permanent plantings will be planted as soon as practical to ensure high plant survival rates and help protect against erosion. This standard is met and can be made a condition of approval to ensure compliance.

- (g) *Provisions shall be made to effectively accommodate increased runoff caused by altered soil and surface conditions during and after development.
The rate of surface water runoff shall be structurally retarded where necessary;*

Finding: No additional increase in run off will result from the proposed sight distance improvements. This standard is met.

- (h) *Sediment in the runoff water shall be trapped by use of debris basins, silt traps, or other measures until the disturbed area is stabilized;*

Finding: Should sediment-laden runoff be present during construction, measures will be taken to trap the runoff and stabilize the area contributing the sediment-laden runoff. The plans indicate the use of slope matting, silt fencing, inlet protection and check dams to trap any runoff that may occur during construction. This standard is met and can be made a condition of approval to ensure compliance.

- (i) *Provisions shall be made to prevent surface water from damaging the cut face of excavations or the sloping surface of fills by installation of*

temporary or permanent drainage across or above such areas, or by other suitable stabilization measures such as mulching or seeding;

Finding: The proposed plans make all necessary accommodations to ensure surface water does not damage the project improvement or damage the property. This standard is met and can be made a condition of approval to ensure compliance.

- (j) All drainage provisions shall be designed to adequately carry existing and potential surface runoff to suitable drainageways such as storm drains, natural watercourses, drainage swales, or an approved drywell system;*

Finding: Only natural surfaces are proposed in the area of sight distance improvements. Slopes will be constructed as dictated by the geotechnical engineer. Site runoff is controlled by natural surfaces and drainage swales associated with the right of way. This standard is met.

- (k) Where drainage swales are used to divert surface waters, they shall be vegetated or protected as required to minimize potential erosion;*

Finding: As represented in the application narrative, applicant incorporates an existing drainage ditch to divert surface waters after treatment. The drainage ditch is adjacent to and follows the roadway in the forest environment. Applicant is not proposing to grade or disturb the soil or vegetation within the existing ditch. This standard is met and can be made a condition of approval to ensure compliance.

- (l) Erosion and sediment control devices shall be required where necessary to prevent polluting discharges from occurring. Control devices and measures which may be required include, but are not limited to:*
- 1. Energy absorbing devices to reduce runoff water velocity;*
 - 2. Sedimentation controls such as sediment or debris basins. Any trapped materials shall be removed to an approved disposal site on an approved schedule;*
 - 3. Dispersal of water runoff from developed areas over large undisturbed areas.*

Finding: Sediment fence and/or other measures are proposed to act as an erosion and sediment control device. This standard is met and can be made a condition of approval to ensure compliance.

- (m) Disposed spoil material or stockpiled topsoil shall be prevented from eroding into streams or drainageways by applying mulch or other*

protective covering; or by location at a sufficient distance from streams or drainageways; or by other sediment reduction measures;

Finding: Best management practices will be employed and in place to prevent material/soil from eroding into streams or drainageways. Construction activity is occurring away from said natural features. Also, any stockpiled material will be covered as necessary to prevent erosion. This standard is met and can be made a condition of approval to ensure compliance.

(n) Such non-erosion pollution associated with construction such as pesticides, fertilizers, petrochemicals, solid wastes, construction chemicals, or wastewaters shall be prevented from leaving the construction site through proper handling, disposal, continuous site monitoring and clean-up activities.

Finding: All potential pollutants and construction-related materials will be properly managed and maintained during all phases of construction to ensure the site is kept clean and free from contamination. This standard is met and can be made a condition of approval to ensure compliance.

(B) Responsibility

(1) Whenever sedimentation is caused by stripping vegetation, regrading or other development, it shall be the responsibility of the person, corporation or other entity causing such sedimentation to remove it from all adjoining surfaces and drainage systems prior to issuance of occupancy or final approvals for the project;

(2) It is the responsibility of any person, corporation or other entity doing any act on or across a communal stream watercourse or swale, or upon the floodplain or right-of-way thereof, to maintain as nearly as possible in its present state the stream, watercourse, swale, floodplain, or right-of-way during such activity, and to return it to its original or equal condition.

Finding: The responsibility of appropriately managing sedimentation is acknowledged by Metro.

(C) Implementation

(1) Performance Bond – A performance bond may be required to assure the full cost of any required erosion and sediment control measures. The bond may be used to provide for the installation of the measures if not completed by the contractor. The bond shall be released upon determination the control measures have or can be expected to perform satisfactorily. The bond may be waived if the Director determines the scale and duration of the project and the potential problems arising therefrom will be minor.

(2) Inspection and Enforcement. The requirements of this subdistrict shall be enforced by the Planning Director. If inspection by County staff reveals

erosive conditions which exceed those prescribed by the Hillside Development, work may be stopped until appropriate correction measures are completed.

Finding: Metro will adhere to the implementation and final approval requirements set forth by the County. This standard is met and can be made a condition of approval to ensure compliance.

C. Authorization for Work on PGE Property:

Attached as Exhibit 4 is a recorded easement authorizing Metro to construct and maintain sight distance improvements on PGE property along NW McNamee Road.

If additional information is needed to aid review, Metro will promptly provide whatever information or response is needed or helpful. Thank you for your considerations.

Sincerely,

A handwritten signature in dark ink, appearing to read 'G Shepherd', written in a cursive style.

Gary Shepherd

Carlson Geotechnical

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EXHIBIT 1

**Report of
Supplemental Geotechnical Investigation and
Plans Review
Burlington Creek Forest Nature Park
NW McNamee Road
Multnomah County, Oregon**

CGT Project Number G1704662.B

Prepared for

Ms. Karen Vitkay
Metro
600 NE Grand Avenue
Portland, Oregon 97232-2736

April 2, 2019

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April 2, 2019

Ms. Karen Vitkay
Metro
600 NE Grand Avenue
Portland, Oregon 97232-2736

**Report of
Supplemental Geotechnical Investigation and
Plans Review
Burlington Creek Forest Nature Park
NW McNamee Road
Multnomah County, Oregon**

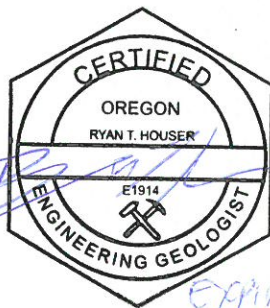
CGT Project Number G1704662.B

Dear Ms. Vitkay:

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our supplemental geotechnical investigation and plans review for the proposed Burlington Creek Forest Nature Park project. The site is located within the Burlington Creek Forest along NW McNamee Road in Multnomah County, Oregon. We performed our work in general accordance with CGT Proposal GP8401, dated March 6, 2019. Written authorization for our services was provided on March 20, 2019, in the form of Metro Contract No. 935909.

We appreciate the opportunity to work with you on this project. Please contact us at 503.601.8250 if you have any questions regarding this report.

Respectfully Submitted,
CARLSON GEOTECHNICAL



Ryan T. Houser, RG, CEG
Senior Engineering Geologist
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EXPIRES: 6/30/2020

Brad M. Wilcox, P.E., G.E.
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1.0 INTRODUCTION

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our supplemental geotechnical investigation and plans review for the proposed Burlington Creek Forest Nature Park project. The site is located within the Burlington Creek Forest along NW McNamee Road in Multnomah County, Oregon.

2.0 PROJECT BACKGROUND & INFORMATION

CGT previously performed a geotechnical investigation and geologic hazard reconnaissance for the proposed trailhead development and new multi-use trail network, the results of which were presented in our "Report of Geotechnical Investigation and Geologic Hazard Reconnaissance, Burlington Creek Forest Nature Park, NW McNamee Road, Multnomah County, Oregon," CGT Project Number G1704662, dated September 13, 2017. Based on information and plans provided by Ms. Vitkay, we understand the overall project design remains consistent with that described in the referenced geotechnical report.

Based on the development plans for the trailhead area, prepared by AKS Engineering and Forestry, LLC, dated September 19, 2017, we understand that the trailhead project area has been expanded to include grading on the west side of NW McNamee Road to improve sight distance from the trailhead access road (hereafter referred to as the "site distance grading area"). This area is outside of the original project boundaries, so was not addressed in the referenced geotechnical report. The plans indicate grading in the site distance grading area will consist of removal of up to about 8 feet of soil. The majority of the site distance grading area will be graded to drain to the northeast with a finished slope gradient of 7½ horizontal to 1 vertical (7½H:1V). The new finished cut slope at the west end of the site distance grading area will have a gradient of 2H:1V.

3.0 PURPOSE & SCOPE OF WORK

Our scope of work included exploring shallow subsurface conditions in the site distance grading area in order to provide supplemental geotechnical recommendations for the proposed grading. Our specific scope of services included the following:

- Contact the Oregon Utilities Notification Center to mark the locations of public utilities within a 20-foot radius of our explorations at the site.
- Further explore shallow subsurface soil conditions at the site by advancing two additional hand auger borings and dynamic cone penetrometer tests to depths of up to 6½ feet below ground surface (bgs).
- Classify the soils encountered in the explorations in general accordance with ASTM D2488 (Visual-Manual Procedure).
- Collect samples of the soils encountered in the hand auger borings to confirm our field classifications.
- Conduct a geologic hazard reconnaissance of the site distance grading area.
- Provide an opinion regarding the applicability of the geotechnical recommendations presented in the referenced geotechnical report to the proposed grading in the site distance grading area.
- Review the referenced project plans to ensure they incorporate geotechnical recommendations from our referenced 2017 report and this supplemental report.
- Provide an updated Hillside Development Permit Form 1 (HDP Form 1) that includes the site distance grading area. The updated HDP Form 1 is included as Appendix A.

This supplemental investigation report should be considered an addendum and attached to the referenced 2017 geotechnical report.

4.0 SITE DESCRIPTION – SITE DISTANCE GRADING AREA

4.1 Site Geology

A map¹ showing the geology in the site distance grading area is shown on the Geologic Map attached to the referenced 2017 geotechnical report as Figure B2. The map indicates the site distance grading area is underlain by the Winter Water Member of the Miocene Columbia River Basalt Group. The basalt in the area is mantled in most places with a layer of Pleistocene loess (wind-blown silt) and/or colluvium (a mix of loess, clay, and basalt fragments) that can be up to tens of feet thick.

4.2 Site Surface Conditions

The site distance grading area is located west of the trailhead development area on the west side of NW McNamee Road, as shown on the Site Plan, attached as Figure 1. This area typically descended to the north-northeast at a generally even gradient of 3½H:1V. An existing cut slope was located along the west edge of NW McNamee Road, which was up to about 8 feet in height and had a gradient of up to about 1H:1V. The steep cut slope showed localized areas exhibiting minor erosion. Vegetation within the site distance grading area consisted of coniferous and deciduous trees and blackberry bushes. Photographs of the site distance grading area taken during our field investigation are presented on the Site Photographs, attached as Figure 2.

Outside of the minor erosion indicated above, no indication of previous or current slope instability was observed within the site distance grading area.

4.3 Supplemental Subsurface Investigation

Our field investigation consisted of two hand auger borings and dynamic cone penetrometer tests completed in March 2019 in the site distance grading area. The approximate exploration locations are shown on the Site Plan, attached as Figure 1. The exploration locations shown therein were determined based on measurements from existing site features (roadways, etc.) and should be considered approximate. Surface elevations indicated on the logs were determined from the topographic contours shown on the Site Plan and should be considered approximate.

4.3.1 Hand Auger Borings

CGT advanced two additional hand auger borings (HA-TH8 and HA-TH9) at the site on March 27, 2019, to depths of 5½ to 6½ feet bgs using equipment and personnel provided by CGT. The hand auger borings were terminated at those depths due to practical refusal. Practical refusal occurs when the auger cannot be advanced further due to encountering coarse-grained particles or very stiff soils. The hand auger borings were loosely backfilled with the excavated materials upon completion.

¹ Evarts, R.C., O'Connor, J.E., and Cannon, C.M., 2016, Geologic map of the Sauvie Island quadrangle, Multnomah and Columbia Counties, Oregon, and Clark County, Washington: U.S. Geological Survey, Scientific Investigations Map SIM-3349, scale 1:24,000.

4.3.2 In-Situ Testing - Wildcat Dynamic Cone Penetrometer Tests

In conjunction with the hand auger borings, we performed two dynamic cone penetrometer tests to practical refusal depths of about 5 feet bgs. The WDCP tests were performed using a Wildcat Dynamic Cone Penetrometer (WDCP) provided and operated by CGT. The WDCP test is described on the Exploration Key, attached as Figure 3.

4.3.3 Material Classification & Sampling

Members of CGT's geotechnical staff logged the soils encountered in the borings in general accordance with the Visual-Manual Procedure (ASTM D2488). An explanation of this classification system is attached as Figure 4. An explanation of symbols used on the logs is provided on the Exploration Key, attached as Figure 4. Representative, disturbed (grab) samples were obtained within the borings at select intervals. The grab samples stored in sealable plastic bags and transported to our soils laboratory for further examination. Our geotechnical staff visually examined all samples in order to refine the initial field classifications.

4.4 **Subsurface Conditions**

The soils encountered within our supplemental explorations were generally consistent with those encountered previously and described in our 2017 geotechnical report. Logs of the explorations are presented on the boring logs, attached as Figures 5 and 6. The following soils were encountered within our supplemental explorations.

Forest Duff

Forest duff consisting of a thin layer of leaves, branches, pine needles, and other organic material was encountered at the surface of the hand auger borings. The forest duff was about 3 inches thick in the explorations performed in the site distance grading area.

Organic Soil (OL)

Underlying the forest duff was organic soil (topsoil). The topsoil was typically dark brown, moist, exhibited medium plasticity, and contained abundant rootlets and roots up to 1 inch in diameter. The topsoil extended to depths of about ¾ to 1 foot bgs in the borings.

Silt (ML)

Underlying the topsoil in the borings was native silt (ML). This soil was typically light brown with orange and gray mottling, moist, exhibited low-plasticity, and varied in consistency from soft to very stiff. This silt is consistent with descriptions by others of loess (wind-blown sediment) mapped in the vicinity of the site. This soil extended to the full depths explored in the hand auger borings, about 5½ to 6½ feet bgs.

5.0 **GEOTECHNICAL OPINION**

Subsurface conditions encountered in our geotechnical explorations within the site distance grading area were generally consistent with those described for the adjacent trailhead development area in the referenced 2017 geotechnical report. It is our opinion the geotechnical conclusions and recommendations presented in the referenced 2017 geotechnical report are acceptable for use in the design and construction of grading within the site distance grading area.

6.0 PLANS REVIEW

Based on our review of the referenced plans, the trailhead development area has been designed in general accordance with the recommendations presented in the referenced 2017 geotechnical report. In addition, proposed grading in the site distance grading area is consistent with the geotechnical recommendations provided in that report.

7.0 LIMITATIONS & CLOSURE

We have prepared this report for use by the owner and other members of the design and construction team for the proposed development. The opinions and recommendations contained within this report are forwarded to assist in the planning and design process and are not intended to be, nor should they be construed as, a warranty of subsurface conditions.

We have made observations based on our explorations that indicate the soil conditions at only those specific locations and only to the depths penetrated. These observations do not necessarily reflect soil types, strata thickness, or water level variations that may exist between or away from our explorations. If subsurface conditions vary from those encountered in our site explorations, CGT should be alerted to the change in conditions so that we may provide additional geotechnical recommendations, if necessary. Observation by experienced geotechnical personnel should be considered an integral part of the construction process.

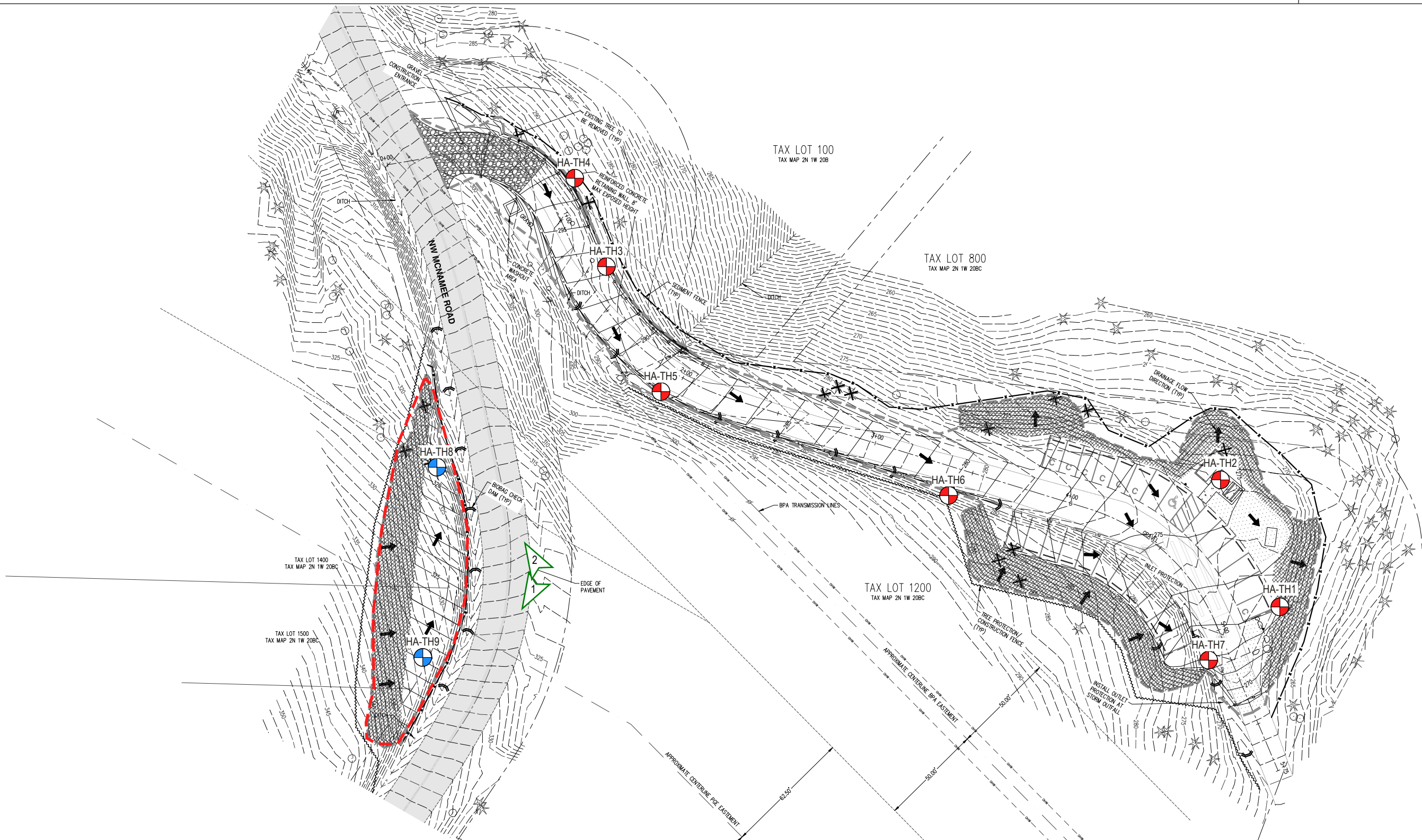
The owner/developer is responsible for ensuring that the project designers and contractors implement our recommendations. When the design has been finalized, prior to releasing bid packets to contractors, we recommend that the design drawings and specifications be reviewed by our firm to see that our recommendations have been interpreted and implemented as intended. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification. Design review and construction phase testing and observation services are beyond the scope of our current assignment, but will be provided for an additional fee.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Geotechnical engineering and the geologic sciences are characterized by a degree of uncertainty. Professional judgments presented in this report are based on our understanding of the proposed construction, familiarity with similar projects in the area, and on general experience. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared; no warranty, expressed or implied, is made. This report is subject to review and should not be relied upon after a period of 3 years.

BURLINGTON CREEK FOREST NATURE PARK - PORTLAND, OREGON
Project Number G1704662.B

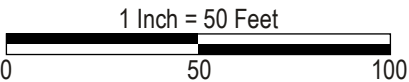
FIGURE 1
Site Plan



LEGEND

- Proposed road cut
- Orientation of site photographs shown on Figure 2

- HA-TH8 March 2019 hand auger boring with WDCP
- HA-TH1 August 2017 hand auger boring with WDCP



NOTES: Drawing based on Sheet 3, "Burlington Parking and Preliminary Grading and Erosion Control Plan", dated September 19, 2017, produced by AKS Engineering & Forestry, LLC. All locations are approximate.



Drafted by: ALS

Photograph 1



Photograph 2



BURLINGTON CREEK FOREST NATURE PARK - PORTLAND, OREGON
Project Number G1704662.B

FIGURE 3
Exploration Key



Atterberg limits (plasticity) test results (ASTM D4318): PL = Plastic Limit, LL = Liquid Limit, and MC= Moisture Content (ASTM D2216)

□ FINES CONTENT (%) Percentage passing the U.S. Standard No. 200 Sieve (ASTM D1140)

SAMPLING



GRAB

Grab sample



BULK

Bulk sample



SPT

Standard Penetration Test (SPT) consists of driving a 2-inch, outside-diameter, split-spoon sampler into the undisturbed formation with repeated blows of a 140-pound, hammer falling a vertical distance of 30 inches (ASTM D1586). The number of blows (N-value) required to drive the sampler the last 12 inches of an 18-inch sample interval is used to characterize the soil consistency or relative density. The drill rig was equipped with an cat-head or automatic hammer to conduct the SPTs. The observed N-values, hammer efficiency, and N_{60} are noted on the boring logs.



MC

Modified California sampling consists of 3-inch, outside-diameter, split-spoon sampler (ASTM G3550) driven similarly to the SPT sampling method described above. A sampler diameter correction factor of 0.44 is applied to calculate the equivalent SPT N_{60} value per Lacroix and Horn, 1973.



CORE

Rock Coring interval



SH

Shelby Tube is a 3-inch, inner-diameter, thin-walled, steel tube push sampler (ASTM D1587) used to collect relatively undisturbed samples of fine-grained soils.

WDCP

Wildcat Dynamic Cone Penetrometer (WDCP) test consists of driving 1.1-inch diameter, steel rods with a 1.4-inch diameter, cone tip into the ground using a 35-pound drop hammer with a 15-inch free-fall height. The number of blows required to drive the steel rods is recorded for each 10 centimeters (3.94 inches) of penetration. The blow count for each interval is then converted to the corresponding SPT N_{60} values.

DCP

Dynamic Cone Penetrometer (DCP) test consists of driving a 20-millimeter diameter, hardened steel cone on 16-millimeter diameter steel rods into the ground using a 10-kilogram drop hammer with a 460-millimeter free-fall height. The depth of penetration in millimeters is recorded for each drop of the hammer.

POCKET
PEN. (tsf)

Pocket Penetrometer test is a hand-held instrument that provides an approximation of the unconfined compressive strength in tons per square foot (tsf) of cohesive, fine-grained soils.

CONTACTS



Observed (measured) contact between soil or rock units.

Inferred (approximate) contact between soil or rock units.

Transitional (gradational) contact between soil or rock units.

ADDITIONAL NOTATIONS

Italics

Notes drilling action or digging effort

{ Braces }

Interpretation of material origin/geologic formation (e.g. { Base Rock } or { Columbia River Basalt })



All measurements are approximate.

BURLINGTON CREEK FOREST NATURE PARK - PORTLAND, OREGON
Project Number G1704662.B

FIGURE 4
Soil Classification

Classification of Terms and Content	Grain Size		U.S. Standard Sieve
NAME: Group Name and Symbol Relative Density or Consistency Color Moisture Content Plasticity Other Constituents Other: Grain Shape, Approximate Gradation Organics, Cement, Structure, Odor, etc. Geologic Name or Formation	Fines		<#200 (0.075 mm)
	Sand	Fine	#200 - #40 (0.425 mm)
		Medium	#40 - #10 (2 mm)
		Coarse	#10 - #4 (4.75)
	Gravel	Fine	#4 - 0.75 inch
		Coarse	0.75 inch - 3 inches
	Cobbles		3 to 12 inches
	Boulders		> 12 inches

Coarse-Grained (Granular) Soils

Relative Density		Minor Constituents		
SPT N ₆₀ -Value	Density	Percent by Volume	Descriptor	Example
0 - 4	Very Loose	0 - 5%	"Trace" as part of soil description	"trace silt"
4 - 10	Loose	5 - 15%	"With" as part of group name	"POORLY GRADED SAND WITH SILT"
10 - 30	Medium Dense	15 - 49%	Modifier to group name	"SILTY SAND"
30 - 50	Dense			
>50	Very Dense			

Fine-Grained (Cohesive) Soils

SPT N ₆₀ -Value	Torvane tsf Shear Strength	Pocket Pen tsf Unconfined	Consistency	Manual Penetration Test	Minor Constituents		
					Percent by Volume	Descriptor	Example
<2	<0.13	<0.25	Very Soft	Thumb penetrates more than 1 inch			
2 - 4	0.13 - 0.25	0.25 - 0.50	Soft	Thumb penetrates about 1 inch			
4 - 8	0.25 - 0.50	0.50 - 1.00	Medium Stiff	Thumb penetrates about ¼ inch	0 - 5%	"Trace" as part of soil description	"trace fine-grained sand"
8 - 15	0.50 - 1.00	1.00 - 2.00	Stiff	Thumb penetrates less than ¼ inch	5 - 15%	"Some" as part of soil description	"some fine-grained sand"
15 - 30	1.00 - 2.00	2.00 - 4.00	Very Stiff	Readily indented by thumbnail	15 - 30%	"With" as part of group name	"SILT WITH SAND"
>30	>2.00	>4.00	Hard	Difficult to indent by thumbnail	30 - 49%	Modifier to group name	"SANDY SILT"

Moisture Content

Dry: Absence of moisture, dusty, dry to the touch Moist: Leaves moisture on hand Wet: Visible free water, likely from below water table					Structure		
	Plasticity	Dry Strength	Dilatancy	Toughness			
ML	Non to Low	Non to Low	Slow to Rapid	Low, can't roll	Stratified: Alternating layers of material or color >6 mm thick Laminated: Alternating layers < 6 mm thick Fissured: Breaks along definite fracture planes Slickensided: Striated, polished, or glossy fracture planes Blocky: Cohesive soil that can be broken down into small angular lumps which resist further breakdown Lenses: Has small pockets of different soils, note thickness Homogeneous: Same color and appearance throughout		
CL	Low to Medium	Medium to High	None to Slow	Medium			
MH	Medium to High	Low to Medium	None to Slow	Low to Medium			
CH	Medium to High	High to Very High	None	High			

Visual-Manual Classification

Major Divisions			Group Symbols	Typical Names
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravels: 50% or more <i>retained</i> on the No. 4 sieve	Clean Gravels	GW	Well-graded gravels and gravel/sand mixtures, little or no fines
			GP	Poorly-graded gravels and gravel/sand mixtures, little or no fines
		Gravels with Fines	GM	Silty gravels, gravel/sand/silt mixtures
			GC	Clayey gravels, gravel/sand/clay mixtures
	Sands: More than 50% <i>passing</i> the No. 4 sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly-graded sands and gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand/silt mixtures
			SC	Clayey sands, sand/clay mixtures
Fine-Grained Soils: 50% or more Passes No. 200 Sieve	Silt and Clays Low Plasticity Fines		ML	Inorganic silts, rock flour, clayey silts
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
			OL	Organic soil of low plasticity
	Silt and Clays High Plasticity Fines		MH	Inorganic silts, clayey silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic soil of medium to high plasticity
Highly Organic Soils			PT	Peat, muck, and other highly organic soils



References:

ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
 Terzaghi, K., and Peck, R.B., 1948, *Soil Mechanics in Engineering Practice*, John Wiley & Sons.



Carlson Geotechnical
A Division of Carlson Testing, Inc.
www.carlsontesting.com

FIGURE 5

Boring HA TH-8

PAGE 1 OF 1

CLIENT Metro

PROJECT NAME Burlington Creek Forest Nature Park

PROJECT NUMBER G1704662B

PROJECT LOCATION Burlington, Oregon

DATE STARTED 3/27/19

GROUND ELEVATION 324 ft

ELEVATION DATUM Figure 1

WEATHER Light Rain

SURFACE Forest Duff

LOGGED BY MM

REVIEWED BY RTH

DRILLING CONTRACTOR CGT

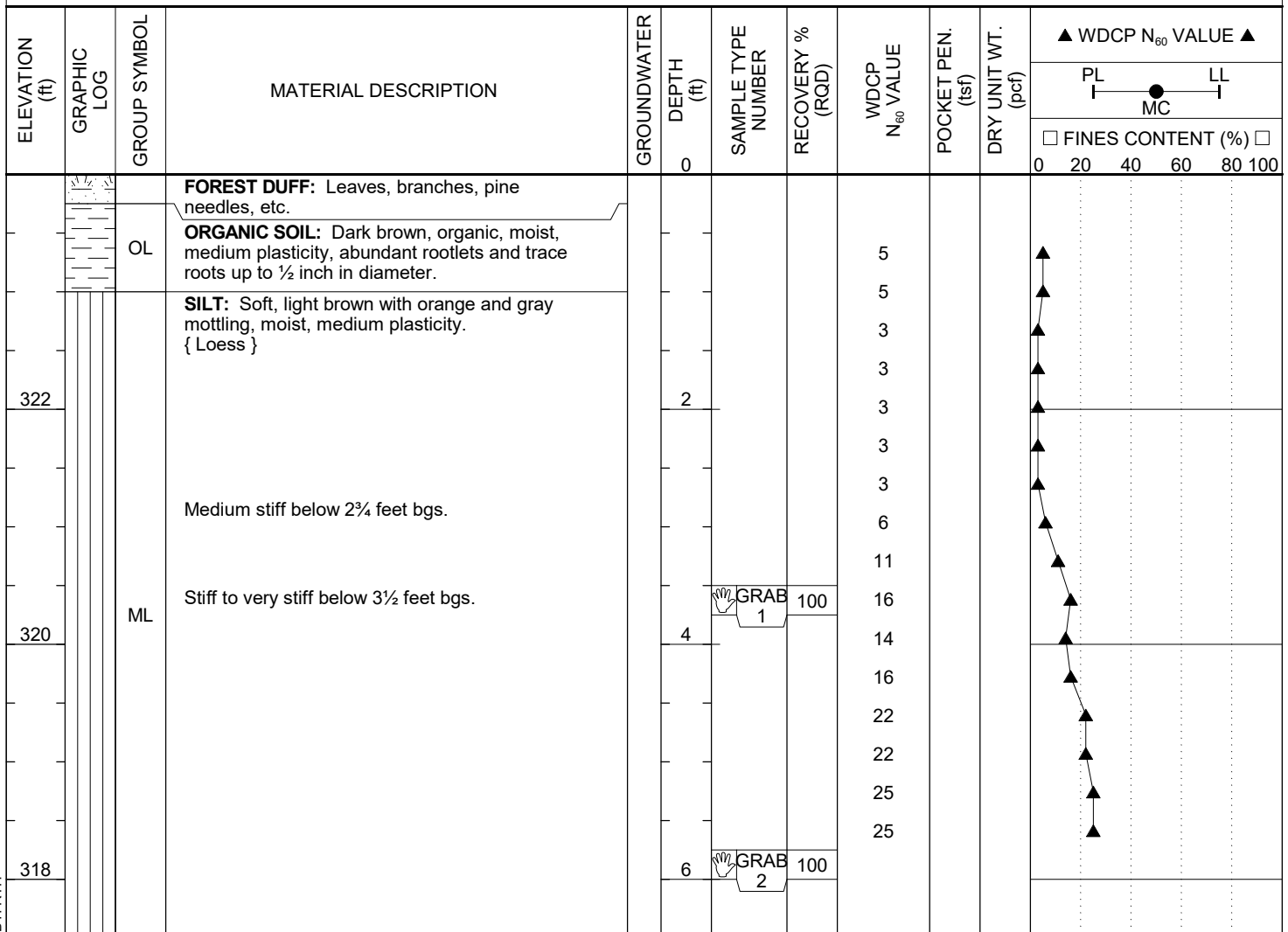
SEEPAGE ---

EQUIPMENT 3 inch diameter hand auger & WDCP

GROUNDWATER AT END ---

DRILLING METHOD Manual 3-inch diameter Hand Auger & WDCP

GROUNDWATER AFTER DRILLING ---



- Boring terminated at 6½ feet bgs due to practical refusal of hand auger.
- Groundwater and caving not observed.
- Boring loosely backfilled with cuttings.

CGT EXPLORATION WITH WDCP LOGS.GPJ 4/2/19 DRAFTED BY: RTH

316

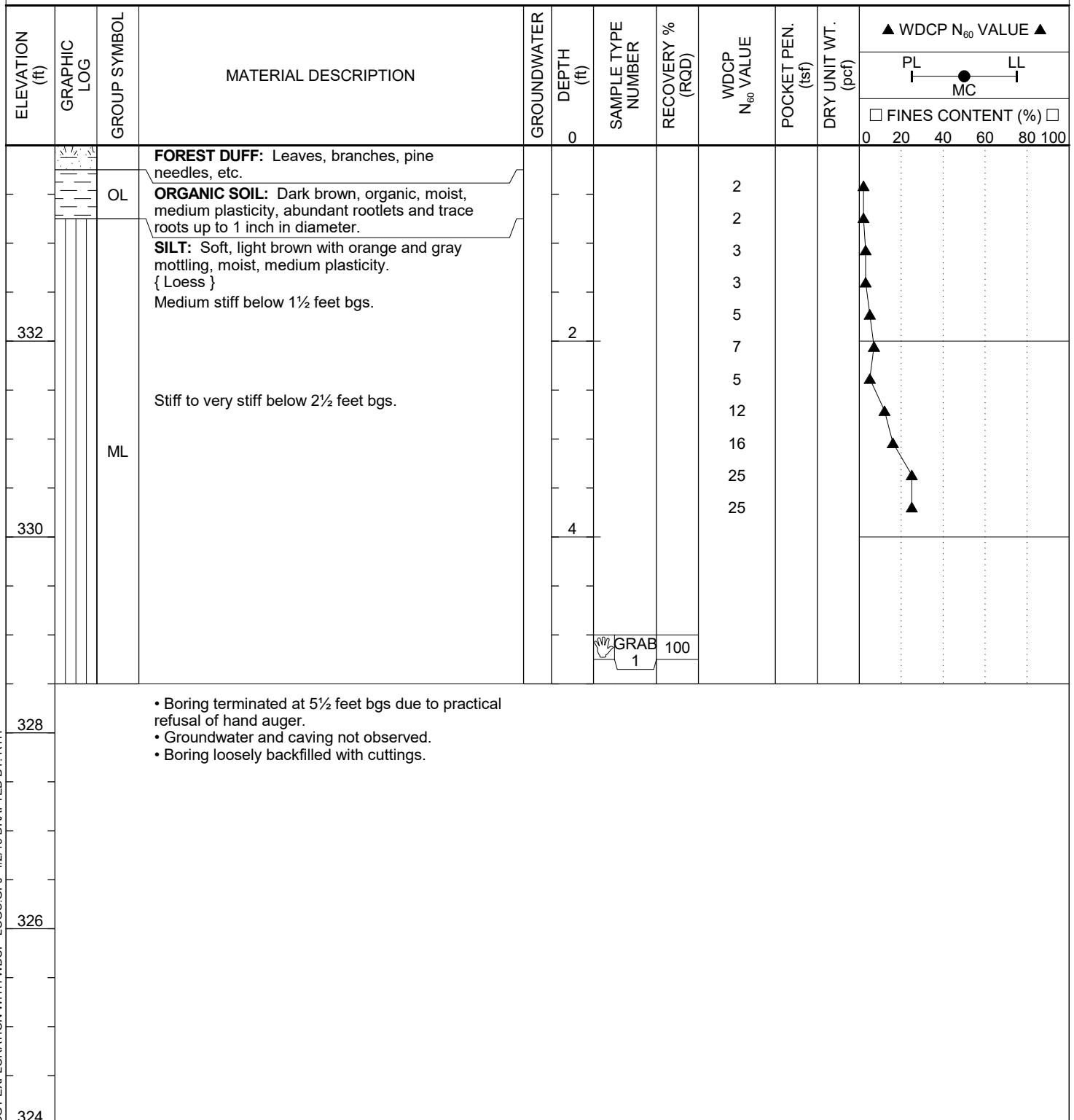
314



Boring HA TH-9

PAGE 1 OF 1

GROUNDWATER AFTER DRILLING ---



CGT EXPLORATION WITH WDCP LOGS.GPJ 4/2/19 DRAFTED BY: RTH

Carlson Geotechnical

A Division of Carlson Testing, Inc.

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Fax: (503) 601-8254

Bend Office (541) 330-9155
Eugene Office (541) 345-0289
Salem Office (503) 589-1252
Tigard Office (503) 684-3460



Appendix A: Hillside Development Permit (HDP) Form 1

**Burlington Creek Forest Nature Park
NW McNamee Road
Multnomah County, Oregon**

CGT Project Number G1704662.B

April 2, 2017

Prepared For:

Ms. Karen Vitkay
Metro
600 NE Grand Avenue
Portland, Oregon 97232-2736

Prepared by
Carlson Geotechnical



MULTNOMAH COUNTY
LAND USE & TRANSPORTATION PROGRAM
1600 SE 190th AVE, SUITE 116
PORTLAND, OREGON 97233-5910
503-988-3043 Fax: 503-988-3389
www.co.multnomah.or.us/landuse

**HILLSIDE DEVELOPMENT PERMIT APPLICATION:
GEOTECHNICAL RECONNAISSANCE AND STABILITY
PRELIMINARY STUDY
[HDP Form 1]**

Note: Response to each question below must be completed or verified by a Certified Engineering Geologist or Geotechnical Engineer, including a State of Oregon Registration Stamp and Number in the space provided on page four. The HDP form 1 addresses Multnomah County Code Section .5515(A)(3), Hillside Development Permits.

Site Address: Burlington Creek Forest, NW McNamee Road

Legal Description:

2N1W20 - 00400
2N1W20B - 00300, 00500, 00600
2N1W20BC - 00800, 01000, 01200
2N1W20BD - 03700
2N1W20C - 00100, 00300, 00400, 00500

Property Owner's Name: Metro

Firm Preparing Report: Carlson Geotechnical

Address: 7185 SW Sandburg Street, Suite 200

Tigard, OR 97223

Preparer's Name: Ryan Houser, CEG

Phone Number: 503-601-8250

GENERAL PROPERTY INFORMATION

1. a. Maximum Slope on Property: 1H:1V Area in which it is located: Road cuts
Average Slope of Property: 4H:1V

b. Are there any wetlands or streambeds on the property? (Please Circle) Yes No
If yes, please show on topographical survey or sketch.
See Figure 2 attached to CGT geotechnical report dated 9/13/17.

c. Volume of soil or earth material disturbed, stored, disposed of or used as fill: _____
See Figure 1 of supplemental report and Figure 3 attached to CGT geotechnical report dated 9/13/17.

Were building plans considered when completing this form? (Please Circle) Yes No
If yes, please note the author and date the plans were prepared.

Design drawings dated September 2017, prepared by Metro (Figures 2 and 3 attached to 9/13/17 geotechnical report and Figure 1 attached to supplemental report).

2. What is the general topography of the property? Please attach a topographic survey or sketch with pertinent notes.

Generally slopes down to the northeast, with multiple drainages cutting the site. Topography shown on Figures 2 and 3 and described in Sections B.2.1 and B.3.1 of Appendix B attached to CGT geotechnical report dated 9/13/17.

Topography of site distance grading area shown on Figure 1 and described in Section 4.2 of the supplemental report.

3. Are there any visible signs of instability or other potentially adverse site features (Landslides, slumps, mud flow, creep, ravines, fills, cuts, seeps, springs, ponds, etc.) within the surrounding area for a minimum distance of 100 feet beyond the subject property boundaries? Describe and indicate on attached topographic survey or sketch.

Localized areas of creep (leaning trees), possible old slump near Crossing 4, and erosion along stream and existing site roadway cuts. These features were not observed in Trailhead area or site distance grading area. Trails will cross multiple streams and near areas of previous landsliding and erosion. See CGT geotechnical report dated 9/13/17 for discussion and recommendations.

4. Is any earthwork proposed in connection with site development?

(Please Circle) ☒ Yes No

If yes, indicate depth and extent of cuts/fills; describe fill types.

Cuts up to about 8 feet and fills up to about 6 feet are planned in conjunction with the Trailhead development. Cuts along trails will be limited to about 2 feet in depth. Creek crossings may involve temporary cuts up to about 5 feet in depth for installation of bridge abutments. Recommendations for grading and fill placement provided in CGT geotechnical report dated 9/13/17.

5. In your opinion, will the proposed earthwork cause potential stability problems for the subject and/or adjacent properties?

(Please Circle) Yes ☒ No

If yes, express probability.

(Please Circle) Very Probable Possibly Possible, but remote

If Very Probable or Possibly, explain.

See CGT geotechnical report dated 9/13/17 for additional details.

6. In your opinion, will the proposed development (structures, foundations, parking area, streets, etc.) create potential stability problems for the subject and/or adjacent properties?

(Please Circle)

Yes

☒ No

If yes, express probability.

(Please Circle)

Very Probable

Possibly

Possible, but remote

If Very Probable or Possibly, explain.

With the use of generally accepted construction techniques, it is our opinion the site can be developed as proposed, without significantly increasing the risk of slope instability that might impact the proposed development or adjacent properties. Recommendations for earthwork provided in Section 5.0 of CGT geotechnical report dated 9/13/17.

7. In your opinion would the subsurface disposal of sewage effluent on the site (i.e., drain fields) have an adverse affect on stability of the site or adjacent area?

(Please Circle)

Yes

☒ No

If yes, express probability.

(Please Circle)

Very Probable

Possibly

Possible, but remote

If Very Probable or Possibly, explain.

Not applicable

8. If answer is Very Probable or Possibly to questions 4 or 5, is it your opinion, on the basis of a visual evaluation, that adequate stability might be achieved by preferred siting of the development, alternative foundation support, earthwork, drainage, etc.?

(Please Circle) Very Probable Possibly Possible, but remote

If yes, explain.

Trail locations are preliminary; final locations will be determined during construction. See CGT geotechnical report dated 9/13/17 text for specific recommendations.

9. Do you recommend additional geotechnical studies (i.e., mapping, testing pits or borings, stability analysis, etc.) prior to site development?

(Please Circle) Very Probable Possibly Possible, but remote

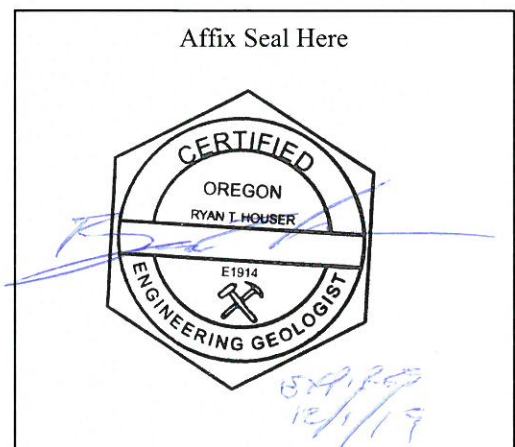
If yes, explain.

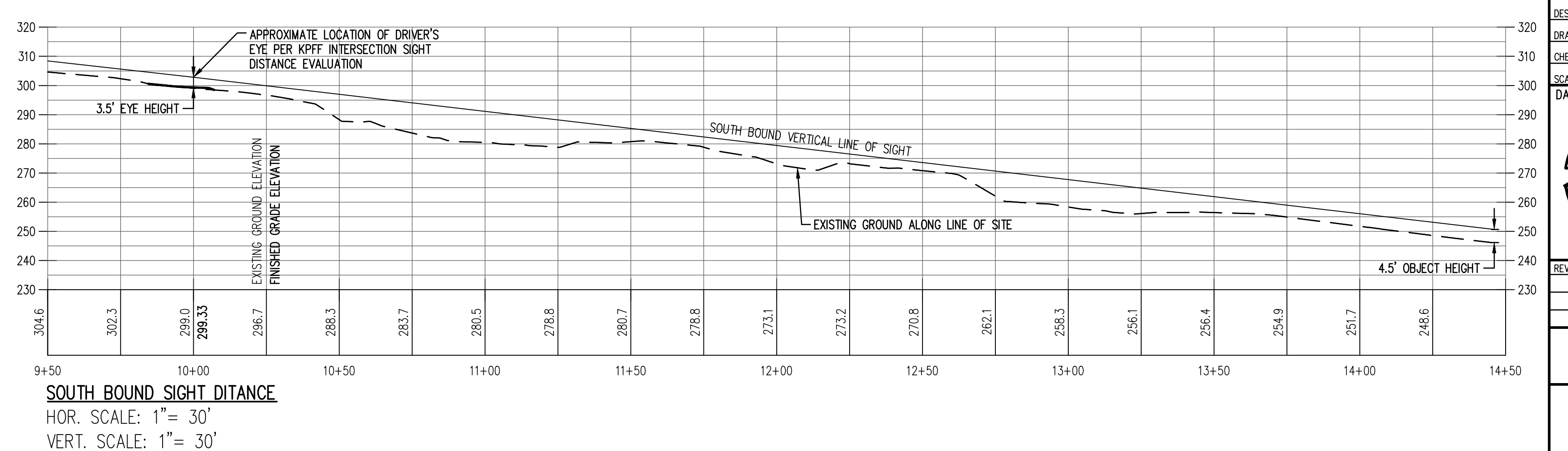
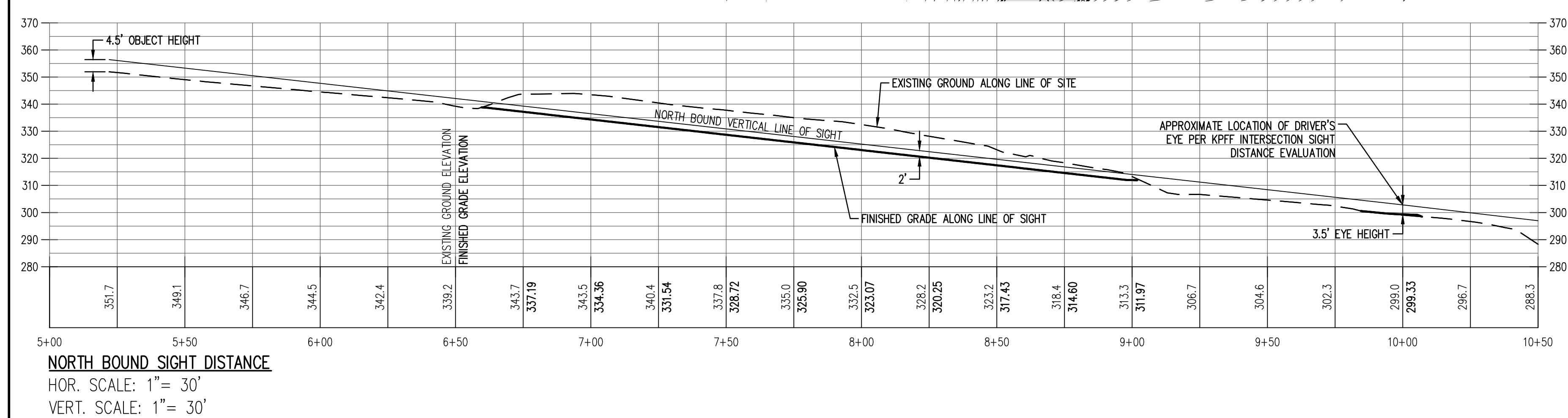
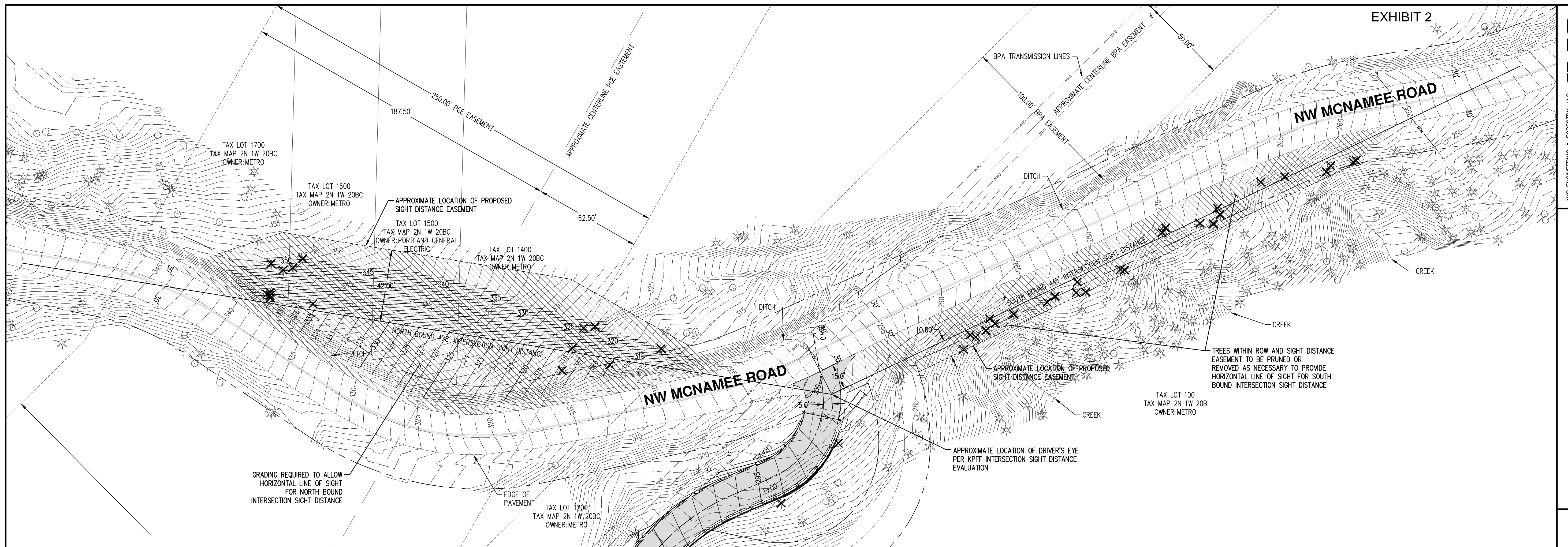
Geotechnical investigations performed as part of current scope of work. No additional studies recommended based on existing plans.

By signing and affixing the required stamp below, the Certifying Engineering Geologist or Geotechnical Engineer certifies that the site is suitable for the proposed development.

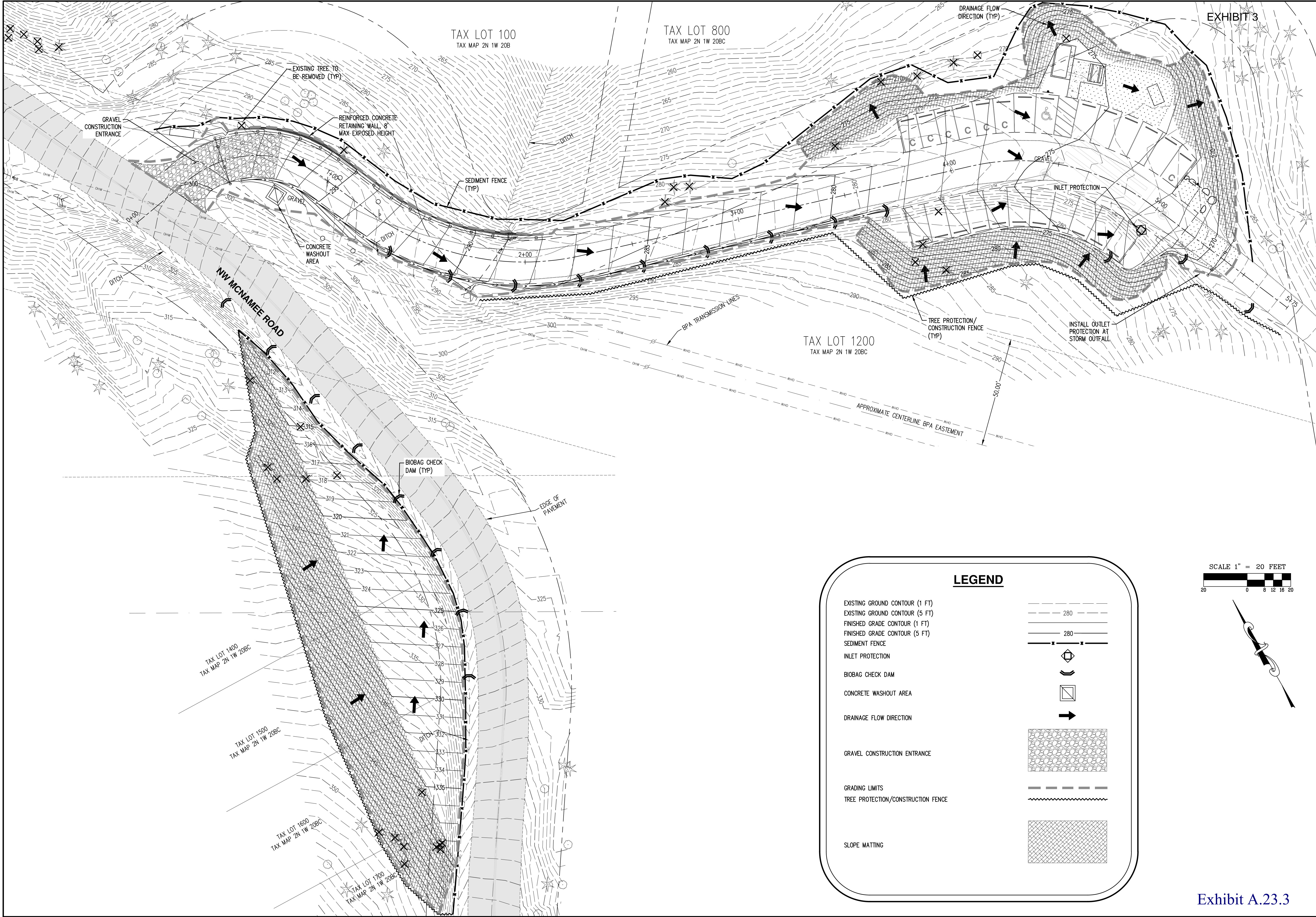
Signature B. J. Houser

Date 4/2/19





AKS DRAWING FILE: 4781 ESC PLAN.DWG | LAYOUT: LAYOUT1



LEGEND

EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	----
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	----
SEDIMENT FENCE	—x—x—
INLET PROTECTION	⬢
BIOBAG CHECK DAM	⌢
CONCRETE WASHOUT AREA	◻
DRAINAGE FLOW DIRECTION	➔
GRAVEL CONSTRUCTION ENTRANCE	⬢
GRADING LIMITS	---
TREE PROTECTION/CONSTRUCTION FENCE	~~~~~
SLOPE MATTING	⬢

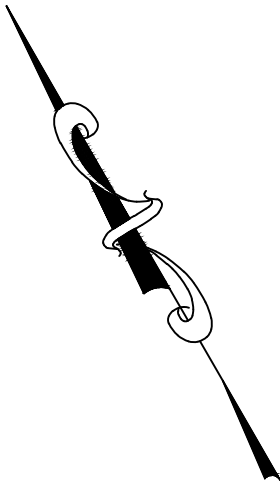
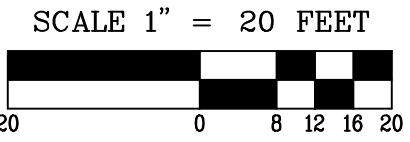


Exhibit A.23.3

AKS

AKS ENGINEERING & FORESTRY, LLC
12065 SW HERMAN RD. STE 100
TUALATIN, OR 97062
P: 503.563.6151
F: 503.563.6152
aks-eng.com

ENGINEERING · SURVEYING · NATURAL RESOURCES
FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

BURLINGTON CREEK
PARKING METRO
MULTNOMAH COUNTY OREGON
TAX MAP 2N 1W 20B

BURLINGTON PARKING
PRELIMINARY GRADING AND
EROSION CONTROL PLAN

DESIGNED BY: BRB
DRAWN BY: AZV
CHECKED BY: AHH
SCALE: AS NOTED
DATE: 04/11/2019
RENEWAL DATE: 6/30/19
REVISIONS
JOB NUMBER
4781
SHEET
3 OF 5

REGISTERED PROFESSIONAL ENGINEER
EXPIRATION DATE: 12/31/2020
CONDER H. HURLEY
RENEWAL DATE: 6/30/19

NOT FOR CONSTRUCTION

EXHIBIT 3

EXHIBIT 4

Portland General Electric Company
121 SW Salmon St.
Portland, OR 97204

Grantor Name and Address

Metro
600 NE Grand Ave.
Portland, OR 97232

Grantee Name and Address

After recording return to:

Gary Shepherd
Office of Metro Attorney
600 NE Grand Ave.
Portland, OR 97232

Send tax statements to:

No change

Multnomah County Official Records
E Murray, Deputy Clerk

2018-000879



\$62.00

1R-EASEMT

\$25.00 \$11.00 \$20.00 \$6.00

01/03/2018 01:33:38 PM

Pgs=5 Stn=11 NORTONJ

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT ("Agreement") is between Metro, a municipal corporation ("Metro") and Portland General Electric Company ("PGE"). In consideration of the mutual promises and obligations contained herein and other good and valuable consideration, receipt of which is acknowledged, each party agrees as follows:

PGE is the recorded owner of property commonly known as 2N1W20BC/01500, County of Multnomah, State of Oregon (PGE Property) recorded as document no. Book 742 - Page 925 in Multnomah County deed records and legally described as:

Lot 9, Block 25, BURLINGTON, in the County of Multnomah, and State of Oregon.

The PGE Property is adjacent to and west of NW McNamee Road and surrounded by property owned by Metro in the Burlington Creek Forest.

Metro is improving the access road for its Burlington Creek Forest property. The access road is located north of the PGE property and on the east side of NW McNamee Road. Currently, the condition of the PGE property adjacent to NW McNamee Road obstructs needed vision clearance and site lines associated with the Metro access road onto NW McNamee Road.

Metro desires to enter the PGE Property, grade the slope adjacent to NW McNamee Road, and remove vegetation for the purpose of improving vision clearance and site lines along NW McNamee Road.

Metro also desires to continually maintain the PGE Property adjacent to NW McNamee Road for the purpose of maintaining vision clearance and site lines along NW McNamee Road.

1. Easement and Easement Purpose.

PGE grants Metro an exclusive permanent right to access and to undertake work in the Easement Area to construct, reconstruct, repair, replace, and maintain vision clearance and site line improvements along NW McNamee Road.

Work will include, without limitation, excavating and grading slopes adjacent to the public right of way, removing vegetation, and maintaining vegetation so as to not obstruct vision clearance and site lines associated with the Metro access road.

PGE also grants Metro a temporary construction easement outside the permanent Easement Area for the purpose of facilitating the vision clearance and site line improvement work.

2. Easement Area.

The permanent Easement Area benefiting Metro is described as a strip of land west of and immediately adjacent to the NW McNamee right of way beginning at the northeast corner of the PGE property then running westerly along the northern line a distance of 45 feet, then a 90 degree turn to the south and thereafter running southerly the width of the PGE property to its southern line, then a 90 degree turn to the east and thereafter running easterly along the southern line, parallel with the northern line, a distance of 30 feet to the NW McNamee Road right of way, then running northerly along the NW McNamee Road right of way to the point of beginning.

The temporary construction easement area is described as a 10 foot wide strip of land the width of the PGE property and immediately west of the Easement Area.

3. Use and Maintenance.

Metro is solely responsible for constructing, reconstructing, and maintaining the vision clearance and site line improvements allowed or constructed under this Agreement, including bearing the entire cost and expense incurred with respect to all of Metro's activities on or associated with the PGE Property. Metro shall not interfere with PGE's access, operations or quiet enjoyment of the PGE Property.

Metro must not disturb any ground or remove any trees without first consulting with PGE and providing plans, including erosion control, for PGE review.

Immediately after Metro performs work pursuant to this Agreement, Metro must stabilize the disturbed surface. The construction area and ground surface must be left in a neat, safe, and presentable condition.

PGE cannot erect anything in the Easement Area that would frustrate the purpose of this Agreement except that PGE may construct, operate, maintain, replace, improve, relocate and enlarge Systems within the PGE Property and Easement Area. "Systems" shall include a variable number of wires, circuits, and all appurtenances, equipment, structures, poles, guys, anchors, transformers, and facilities as PGE deems necessary or convenient for the operation and maintenance of such Systems and for the purpose of transmission, distribution, and sale of electricity and communication. PGE shall have the right to use the PGE Property for all purposes, provided that such use does not interfere with Metro's use, enjoyment, or exercise by Metro of any rights under the Agreement.

Metro accepts the PGE Property "AS IS" in the condition now existing with no improvement, alteration or other work to be performed by PGE. No representation, express or implied, respecting any matter or thing relating to this Agreement, including, without limitation, the condition of the PGE Property, have been made to Metro by PGE other than as may be contained herein. PGE SHALL NOT BE LIABLE TO METRO OR TO ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES, ARISING OUT OF, IN CONNECTION WITH OR AS A RESULT OF THIS AGREEMENT, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR ANY OTHER THEORY IN LAW OR IN EQUITY.

4. **Disclaimer.** The parties agree that all easement rights will be exercised strictly in compliance with all present and future laws, permits, rules, and regulations of Multnomah County and the State of Oregon, or other governmental body having jurisdiction over the easement area.

5. **Taxes.** Metro agrees that Metro is responsible for the payment of taxes, fees or assessments against PGE, if any, for the Easement Area or use of the Easement Area by Metro.

6. **Construction Liens.** Metro shall indemnify PGE against any and all liens attaching against PGE property and resulting from Metro, its contractor's, and agent's activity on the PGE Property, and shall obtain the immediate release of said liens over the PGE Property.

7. **Termination.** This easement is perpetual, subject to the following.

(a) **By Mutual Consent.** The parties may terminate this Agreement by mutual consent, by signing and recording a notice of termination.

(b) **By PGE.**

(i) If Metro uses the Easement Area for a purpose other than as described in their Agreement, or fails to commence construction of the Improvement within five (5) years from the date of the last signature below, PGE may terminate this Agreement at any time by providing Metro notice of its intent to do so, recording a notice of termination, and providing Metro a copy of the recorded termination.

(ii) If Metro fails to fulfill or otherwise violates the terms of this Agreement, PGE may terminate this Agreement at any time by recording a notice of termination. However, before termination is permitted under this subsection ii, PGE must give Metro written notice of the breach, PGE's intent to terminate, and not less than thirty (30) calendar days to cure the breach. If the breach is not timely cured, PGE may terminate this Agreement at any time by recording a notice of termination and providing Metro a copy of the recorded termination.

(c) **By Metro.** If Metro does not construct improvements associated with Metro's access road to the Burlington Creek Forest, Metro may terminate this Agreement at any time by providing PGE notice of its intent to do so, recording a notice of termination, and providing PGE a copy of the recorded termination.

8. **Indemnification.** Metro assumes all risk of loss, damage, or injuries of any kind which may result from this Agreement and to the maximum extent permitted by law and the Oregon Tort Claims Act, Metro shall indemnify, defend, and hold harmless PGE, its officers, directors, agents, and employees, from and against all claims, suits, actions, losses, damages, consequential or otherwise, liabilities, attorney's fees, costs and expenses recovered or made against PGE for any property damage or personal injury resulting from, relating to, or arising out of the acts, omissions, or negligence of Metro, its officers, directors, agents, employee, invitees, contractors or subcontractors and concerning Metro's presence in or use of the PGE Property.

9. **Dispute Resolution.** In the event that a dispute arises under this Agreement, the parties must first meet in an effort to resolve the dispute. Thereafter, all claims will be filed in Multnomah County Circuit Court, wherein all parties waive their right to a jury trial.

10. Notice. All notice and correspondence must be given in writing to the address set forth below and is deemed given upon (a) personal service or (b) deposit in the United States Mail, postage prepaid. All such notices are deemed received (i) upon personal service, (ii) three (3) days after deposit in the United States Mail, postage prepaid, or (iii) one (1) day after deposit with a nationally recognized overnight courier service:

To PGE: Portland General Electric Company
121 SW Salmon Street
Portland, OR 97204
Attn: Property Services Manager

To PGE: Portland General Electric Company
121 SW Salmon Street
Portland, OR 97204
Attn: General Counsel

To Metro: Metro
Parks and Nature Director
600 NE Grand Avenue
Portland, Oregon 97232

Copy to: Metro
Office of Metro Attorney
600 NE Grand Avenue
Portland, Oregon 97232

The foregoing addresses may be changed by giving written notice. Notice given in any manner other than the manners set forth above will be effective when received by the party for whom it is intended.

11. Covenants. The terms, conditions, and provisions of this Agreement extend to, bind and benefit the successors and assigns of the parties hereto and run with the land.

12. Grounding/ Cathodic Protection. Metro acknowledges that metallic structures which come into contact with any forms of electrically conducting environments (i.e., environments containing enough ions to conduct electricity such as soil and water) will corrode and deteriorate at an accelerated pace. Metro shall be responsible for determining, implementing, monitoring, and maintaining all means of grounding and cathodic protection with respect to any of Metro's activities, equipment, or property located on the PGE Property. PGE shall be indemnified and held harmless from any and all actions of Metro, Metro's personnel, contractors, agents, and invitees on the PGE Property relating to determining, implementing, monitoring, and maintaining all means of grounding and cathodic protection.

13. Insurance. Prior to the commencement of the Term, Metro shall provide to PGE proof of and continuously maintain excess liability insurance against claims and liability for personal injury, death, or property damage arising from the use, occupancy, disuse or condition of the PGE Property, improvements or adjoining areas or ways, or from any other cause, with a combined single limit sufficient to cover any claim or liability which may result from any obligation of Metro pursuant to or in any way associated with this Agreement written in a form acceptable to PGE. In addition, Metro and Metro's contractors shall maintain workers' compensation insurance in compliance with the laws of the State of Oregon.

14. Miscellaneous. If any term or provision is held invalid or unenforceable, the validity of the remaining provisions is not affected. Failure at any time to require performance of any provision does not

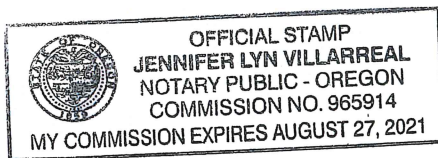
limit a party's right to enforce the provision. Any waiver of any breach is not a waiver of any succeeding breach or a waiver of any provision. The parties will cooperate fully to achieve the intended result of this Agreement. The parties acknowledge and agree that time is of the essence with respect to every term, condition, obligation, and provision. The laws of the State of Oregon govern. No rights in the public are created. This Agreement may only be amended in writing, signed by all parties. This Agreement is executed on the last day signed below.

Metro,
an Oregon municipal corporation


Martha J. Bennett
Chief Operating Officer

STATE OF OREGON, County of Multnomah) ss.

The foregoing instrument was acknowledged before me this 3 day of January, 2018 by Martha J. Bennett, Chief Operating Officer, Metro.



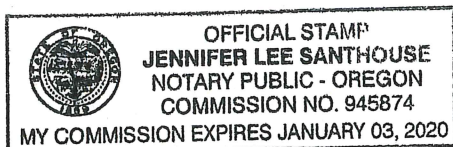

Notary Public for Oregon
My Commission Expires: 8/27/21

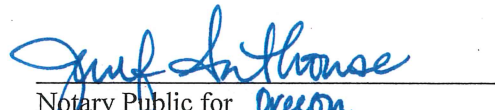
LMZ **Portland General Electric Company**


Mark Lindley
Property Services Manager

STATE OF OREGON, County of Multnomah) ss.

The foregoing instrument was acknowledged before me this 28th day of December, 2017 by Mark Lindley, Property Services Manager, Portland General Electric Company.




Notary Public for Oregon
My Commission Expires: 1/3/2020



Gary Shepherd, Senior Assistant Attorney

EXHIBIT 5

600 NE Grand Ave.
Portland, OR 97232-2736
oregonmetro.gov

503-797-1600
Fax: 503-797-1792
gary.shepherd@oregonmetro.gov

February 25, 2019

Kate McQuillan
Multnomah County
Transportation Planning and Development
1620 SE 190th Avenue
Portland, OR 97233

RE: Metro's Burlington Creek Forest Use Application
Case #T3-2017-9165

Dear Ms. McQuillan:

The following is provided to aid in County Transportation and Development review. Metro's use application includes lots and land comprising +/-208 acres, upon which Metro is proposing a small trailhead and trail development. Reference to 350 acres in the application is referring to Metro's entire Burlington Creek Forest holding, which includes substantial acreage north/northwest of NW McNamee Drive as well as acreage east of the railroad tracks and adjacent to Highway 30. The lots upon which the access drive, parking area, trailhead, and trails will be located are: 2N1W20B-00100; 2N1W20B-00300; 2N1W20B-00400; 2N1W20B-00500; 2N1W20B-00600; 2N1W20BC-00800; 2N1W20BC-00900; 2N1W20BC-01000; 2N1W20BC-01200; 2N1W20C-00100; 2N1W20C-00200; 2N1W20C-00300; 2N1W20C-00400; 2N1W20C-00500; 2N1W20C-00600; 2N1W20C-00700; 2N1W20BD-03700; 2N1W20-00400.

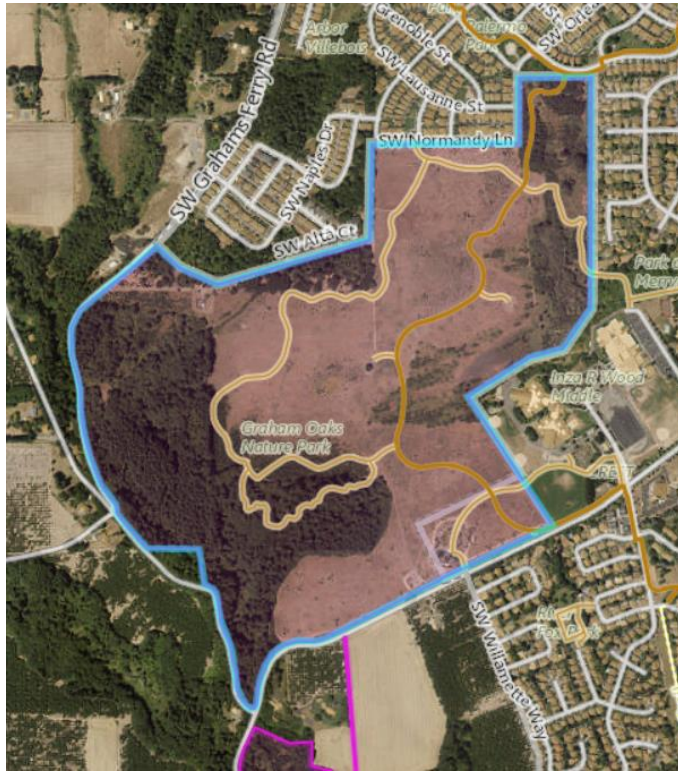
For purposes of the transportation analysis and analyzing other Metro nature parks to quantify use and demand, Metro uses the 208 acres associated with the planned Burlington Creek Nature Park. Metro did not include the 140 plus additional Burlington Creek Forest acres, as that land is disconnected from the proposed improvements and is not managed for visitors.

To avoid any misunderstanding, Metro has revised the comparable parks table that is part of the Transportation Impact Assessment to reflect the 208 acres associated with the planned Burlington Creek Nature Park, in which only a portion of land will be disturbed.

The comparable parks table reflects the acreage associated with Metro's other area nature parks. As depicted below, those parks are developed with trailheads and trails and are surrounded by existing and planned residential development or otherwise enclosed by transportation corridors.

SE 12th Ave
Valley and Park
SE 17th Ave
SE Clark St
SE Lewis St
SE Jeanette St
SE Madenburg Rd
Scouters Mountain Boy Scout Camp
Christina Cemetery
Scouters Mountain Junior Park
SE Scouters Mountain Rd
SE Club Ct

Graham Oaks Nature Park



Cooper Mountain



Land to the south and east of Cooper Mountain Nature Park is currently being brought into the Urban Growth Boundary and will be planned for residential subdivision development.

Those nature parks are different from the proposed Burlington Creek Forest Nature Park in that no additional Metro owned forest land or natural area is adjacent to them. In other words, those nature parks comprise Metro's entire contiguous holding and all the

land is managed for and supports the nature park. When completed, the Burlington Creek Forest will have two components - the Burlington Creek Natural Area and the Burlington Creek Nature Park, and two management objectives, much like Metro's Oxbow Regional Park and the Gordon and Buck Creek Natural Areas adjacent to it.

Thank you for your considerations.

Sincerely,

A handwritten signature in dark ink, appearing to read "G Shepherd", written in a cursive style.

Gary Shepherd

CC: Kevin Cook, Multnomah County

Enclosure (revised parks comparable table)

Park Comparables

Feb-19

Park	Agency	Location	Acres	Annual Day Use Attendance	Annual Vehicle Trips	Annual Vehicle Count	10 Minute Population	20 Minute Population	30 Minute Population	POC % (20 min)	Trail Miles	Activities	No. Parking Spaces	Comments
Burlington Creek Forest Nature Park	Metro	Multnomah County, OR	208	NA	NA	NA	3,400	149,000	739,000	0.35	8	Hiking, MTB, equestrian trails, 1-2 picnic tables proposed	25	No equestrian parking, single restroom, two picnic tables. 5.5 miles of trails and 2.5 miles gravel road.
Graham Oaks Nature Park	Metro	City of Wilsonville, OR	246	109,300	58,600	29,300	28,000	200,000	737,000	0.24	3	Hiking, walking, biking, play area, nature education center, shelter and picnic tables, regional trail	27	Nature education center, picnic tables and shelter, regional trail, adjacent neighborhood.
Scouter's Mountain Nature Park	Metro	Happy Valley, OR	100	28,225	22,580	11,290	58,000	456,000	1,028,000	0.31	1	Hiking, walking, nature education, shelter and picnic tables.	24	Significant local neighborhood population.
Mount Talbert Nature Park	NCPRD/Metro	Happy Valley, OR	253	87,200	69,800	34,900	112,000	587,000	1,400,000	0.27	4	Hiking, accessible trail, sheltered picnic area, nature education	29	Picnicing, restroom, shelter, nature education
Cooper Mountain Nature Park	THPRD/Metro	Beaverton, OR	230	123,450	98,760	49,380	145,000	487,000	790,000	0.33	3.5	Hiking, walking, play area, nature education center, shelter and picnic tables.	53	Surrounded by significant residential community. Functions like a neighborhood park.
Whipple Creek Regional Park	Clark County	Vancouver, WA	300	NA	NA	NA	NA	316,000	787,000	NA	4.3	Hiking, equestrian, MTB	10 passenger, 12 trailer	
Powell Butte Nature Park	City of Portland	Portland, OR	612	NA	NA	NA	111,000	464,000	1,020,000	0.34	8+	Hiking, MTB, equestrian, nature education center, picnicking	65 passenger vehicle and 4 trailer spaces	A city park within city limits. More extensively developed than BCF, more than 3x the population within a 20 minute drive time.
L.L. Stub Stewart State Park	Oregon State Parks	Washington County, OR	1,673	112,716	56,360	28,180	NA	108,400	395,900	NA	25+	Hiking, equestrian, mountain biking, regional trail, disc golf, picnicking, dog park, nature education center, wildlife viewing	unknown	Oregon State Parks assumes 4 passengers/ vehicle. Counts are for day users only, campers are not included.
Forest Park	City of Portland	Portland, OR	5,100	NA	NA	NA	17,500	297,000	1,048,000	0.33	70	Hiking, MTB, equestrian	unknown	Includes the Wildwood Trail a National Scenic Trail.

NOTES

- 1) Population data based on ESRI business analyst 2016 estimates.
- 2) Drive times generated with network analyst.
- 3) POC = Persons of Color.
- 4) Trail miles include existing gravel roads where visitor use is allowed.
- 5) A vehicle occupancy rate of 2.5 persons/vehicle is typically assumed to calculate # of visitors.
- 6) A study of four Metro parks foun+A10:P34d a vehicle occupancy rate of 1.6 persons/vehicle.

North Tualatin Mountains
Burlington Creek Forest
METRO