



Soil Cap Management

Former Troh Legacy Landfill
10010 SE Vradenburg Road
Happy Valley, OR

Revised:
April 25, 2017

Prepared for:
The Holt Group / Holt Homes
2601 NE 163rd Court
Vancouver, WA 98684

Creekside Environmental Consulting, LLC



21790 Southwest Chehalis Court
Tualatin, Oregon 97062
T. (503) 692-8118

Project No. **THG-2014.3/351-14002-02**

Purpose

This Soil Cap Management plan (Plan) has been prepared to assist The Holt Group / Holt Homes with implementing Oregon Department of Environmental Quality (ODEQ)-mandated ***institutional and engineering controls*** at 10010 SE Vradenburg Road, Happy Valley, Clackamas County, Oregon (the “Subject Property”). These controls are designed to minimize risk to human health and the environment from historic soil contamination beneath the site.

Use

This document details the following:

- Contaminated soil – historical use, chemicals present and estimated extent.
- Overview of requirements, including:
 - o Annual soil cap inspections
 - o Staff training
 - o Signage plan, maintenance and inspection
 - o Procedures for preventing unauthorized subsurface work
 - o Annual report
- Management of contaminated soil and soil cap during subsurface work.

Identified personnel who have responsibility for exterior areas of the Subject Property should review this Plan on an annual basis.

Documentation of Compliance

Please acknowledge the **completion** of required actions on an annual basis, to be completed when the annual report is completed.

Year	Annual Report Submitted		Document Completion & Inclusion of Attachments in Annual Report			
	Date	By (Name & Initials)	B	C	D	E
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						

This

Soil Cap Management

Plan for the

Former Troh Legacy Landfill

Eastern part of Tax Lot 401 of the East Scouters Mountain Development
10010 SE Vradenburg Road
Happy Valley, Clackamas County, Oregon

Has been prepared for the sole benefit and use of our client:

The Holt Group / Holt Homes

2601 NE 163rd Court
Vancouver, Washington 98684

Revised April 25, 2017 by:

Creekside Environmental Consulting, LLC



40 SE 24th Avenue, Suite A
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Limitations

This Soil Cap Management plan (Plan) is reflective of site conditions discovered through environmental site assessments as documented in the December 5, 2016 Analysis of Cleanup Alternatives (prepared by Creekside Environmental Consulting, LLC and EVREN Northwest, Inc.) and the Oregon Department of Environmental Quality's (ODEQ's) Staff Report, Recommended Remedial Action (Staff Report) dated March 2017. Required actions described in this plan are expressly and ONLY those required by the ODEQ Staff Report. The Client is advised that all other environmental agency requirements and regulations are still applicable to the property.

No warranties are expressed or implied concerning potential contaminants or environmental media not addressed through sampling and analysis. Creekside Environmental Consulting, LLC is not responsible for conditions or consequences arising from relevant information that is concealed or not fully disclosed at the time of Plan preparation. This Plan was prepared in accordance with generally accepted professional practice in the area at this time for the exclusive use of our client and their agents or authorized third parties. No other warranty, either expressed or implied, is made.

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B	GeoPacific Engineering, Inc., Site Plan and Exploration Locations and Fill Slope Detail
C	Soil Cap Annual Inspection Form
D	Documentation Form for Annual Staff Training
E	Annual Signage Review Form
F	Subsurface Work Log Form
G	Subsurface Work Documentation Form

1.0 SOIL ENVIRONMENTAL CONDITIONS

The former Troh Legacy Landfill:

- Was operated from 1966 to 1971 and accepted construction and demolition wastes.
- Is centered near 45.4488°N, 122.4957°, within Township 1 South, Range 2 East (Willamette Meridian), Section 25D. The nearest street address is 10010 SE Vradenburg Road, Happy Valley, Clackamas County, Oregon.
- Is located in the eastern half of Tax Lot (TL) 401 and covers approximately 1.5 acres.
- Is also referenced as the North Cell in this Plan and on attached figures:

1.1 Site Setting

The subject area is located within the US Geological Survey Damascus 7.5-minute quadrangle, on the east side of Scouters Mountain. The subject area slopes moderately towards the east. The majority of fill in the landfill on TL401 appears to have been placed in the eastern portion of the tax lot, between the elevations of 700 and 750 feet above mean sea level (amsl; Figure 1). The primary drainage in this area appears to be Rock Creek, which is located 4,000 feet to the east.

The attached figures provide additional information regarding the site setting. Figure 2 outlines the extent of The Holt Group / Holt Homes property being developed in an aerial photograph. Figures 3 and 4 provide site plans showing this same extent. Figure 4 also shows the proposed property subdivision as of the time of this Plan preparation. Figure 5 is a detail drawing specific to the former Troh Legacy Landfill (identified as the North Cell on the Figure 3) and shows inferred extent of the landfill. *This Plan applies to the inferred extent of the former Troh Legacy Landfill as shown on Figure 5.*

1.2 Investigation-Derived Geologic Findings

Test pit logs and boring logs were used to prepare three geologic cross-section profiles (D-D', E-E', and F-F') through the landfill. Cross-section alignment is shown on Figure 5. The geologic cross-section profiles are presented on Figures 6 and Attachment A and may be referenced for the following discussion.

Longitudinal Section D-D'. Geologic section D-D' approximates the longitudinal section of the landfill and its southern extent. At B1, a 4-foot-thick landfill cap composed of silt covers approximately 4 feet of solid waste consisting of plastic, foam, wood and a rubber automobile tire. Nearby at TP14, a 2-foot-thick clayey silt covers approximately 10 feet of solid waste consisting of metal, concrete, wood, and plastic debris in a soil matrix. Native silty clay soil underlies the solid waste. At TP12, a 2-foot-thick silty clay cap covers 12+ feet of solid waste consisting of metal, plastic, rubber, concrete, and wood debris in a soil matrix. Due to water that was trapped within the landfill mass seeping into TP12, it was not possible to tag native soil underlying the solid waste. At B4, a 3-foot-thick silt cap overlies approximately 20 feet of solid waste consisting of wood and burned wood debris. Near the south edge of the landfill at TP16, only 2 feet of solid waste overlain by a 1-foot-thick silt cap was observed.

Lateral Section E-E'. Geologic section E-E' approximates the lateral section through the south end of the landfill. As described above, a two-foot-thick cap covers 20 feet of solid waste at B4. To the west at TP28, a soil cap was absent, and 1-foot of solid waste was exposed right at the ground surface. Further west at TP11, a 1.5-foot-thick silty clay cap covers approximately 8 feet of solid waste consisting of metal, rubber, brick, and wood debris in a soil matrix. Native silty clay underlies the solid waste at approximately 9.5 feet below ground surface (bgs). The westward extent of the landfill is believed to be not too far from TP11. Near the east edge of the

landfill at TP18, a 2-foot-thick silt cap overlies only 1 foot of solid waste. Beneath the solid waste, approximately 2 feet of native silt followed by clay were observed. East of TP18, no solid waste was encountered at B3.

Lateral Section F-F'. Geologic section F-F' approximates the lateral section through the north end of the landfill. At TP13, at 3-foot-thick clayey silt cap covers 8 feet of solid waste consisting of rope, plastic, tires, and wood debris in a soil matrix. Native silt with clay underlies the solid waste at a depth of approximately 11 feet bgs. As described above, a 2-foot-thick clayey silt covers approximately 10 feet of solid waste at TP14. Only 4 feet of solid waste under a 4-foot-thick cap was observed at B1. Further east at B2, a 4-foot-thick silt cap overlies approximately 9 feet of solid waste consisting of wood debris and a shoe in a sandy silt matrix. The solid waste was underlain by native silt at an approximate depth of 13 feet bgs. Near the northeast edge of the landfill at TP20, approximately 1.5 feet of silt caps 1.5 feet of solid waste consisting of scrap pipe, sheet metal, plaster and tile, and a light-colored powder in a soil matrix. Native silt soil underlies the solid waste at a depth of approximately 4 feet bgs.

Landfill Overview. The physical characteristics of the North Cell are outlined below.

- Length: approximately 350 feet north to south.
- Width: approximately 250 feet at the north end, <100 feet near the center, and approximately 275 feet near the south end.
- Depth: greater than 14 feet (including soil cap).
- Area: approximately 62,500 square feet (1.5 acres).
- Landfill Cap: 1.5 to 4 feet thick and composed of silt and clay soil. The cap is generally free of solid waste.
- Solid Waste: up to 20 feet thick and composed of solid waste in a clay-silt and sandy silt matrix. The solid waste to soil ratio is estimated to range from 1:10 to 1:4. The soil matrix was typically dark gray and moist to wet in the presence of decomposing solid waste below a depth of 4 feet. An odor of decomposing waste was present in one of the test pits (TP12).
- Elevation: approximately 710 feet above mean sea level (amsl) at its toe (east) to 760 feet amsl at its west side.
- Native Soil: native silt, silty clay and clay underlie the North Cell.
- Trapped Water: was encountered within the legacy landfill at depths of 8.5 feet in TP11, 9.5 feet in TP12, 13 feet at TP13, and 11 feet at TP14.
- Ground Water Table: Depth to ground water beneath the landfill ranges from 18 to 20.1 feet bgs at B1, 22.5 feet bgs at B2, and 23.4 feet bgs at B4. On the slope east of the landfill, ground water was encountered at depths ranging from 2.9 feet to 7.1 feet bgs.

1.3 Residual Soil Contamination

Investigations. The Contaminated Media Management Plan¹ prepared for the former Troh Legacy Landfill presents a complete biography and summary of environmental investigations completed at the site. Descriptions provided below are taken from reports prepared by both Creekside Environmental Consulting, LLC (Creekside) and ODEQ in the timeframe of 2011 to 2014.

¹ Creekside Environmental Consulting, LLC, August 2014, *Contaminated Media Management Plan*, Former Troh Legacy Landfill, 10010 SE Vradenburg Road, Happy Valley OR 97086.

Nature and Extent. The former Troh Legacy Landfill was reportedly used to dispose construction and demolition wastes. Field observations noted the follow debris during separate investigations:

- Old tires, scrap metal and wood, roofing, old drums, carpet scraps, automobile parts, and old appliances (Creekside, 2011).
- Tires, metal, containers (metal, glass, plastic), old drums, demolition wastes (pavement, concrete, roofing, shingles, wood), carpet & foam padding, automotive items (car seats and enamel containers). ODEQ observed this debris in 2011 and also noted that debris appeared to be disposed of recently (i.e., between 1971 and present day).
- Concrete, metal, drums, wire, wood, plastic sheeting, rubber hoses, and mattress springs (Creekside, 2014). Household waste was not observed.

Orange leachate was also observed to be draining from the toe of the landfill. The leachate generated by the landfill drains to an ephemeral stream, which drains to an ephemeral creek, which drains to Rock Creek (perennial stream), which has its confluence with Clackamas River at river mile 6.2.

In their *Federal Preliminary Assessment* report, ODEQ indicated that nearby construction or demolition projects at the time may have deposited wastes at the Troh Legacy Landfill; e.g., the adjacent Troh's Nest airport serviced many small planes and may have dumped oils at the landfill. ODEQ also determined that other names for the landfill include the "Troh's Nest", and "Obrist & Chaney".

ODEQ stated that they "did not find any existing analytical data or documented contamination on the property". Notwithstanding, ODEQ assembled the following list of preliminary contaminants of concern at the Troh Legacy Landfill:

- Metals – found in debris pile
- Polynuclear aromatic hydrocarbons (PAHs) – from petroleum-based products, including asphalt roofing shingles, tires, pavement, residuals from automotive containers
- Polychlorinated biphenyls (PCBs) – building materials, sealants, and plasticizers
- Polybrominated diphenyl ethers (PBDEs) – from carpet, foam padding and car seats
- Semi-volatile organics (SVOCs) – building materials, paints and coatings
- Methane gases – decomposition of building materials and wood
- Pesticides (DDx and Dieldrin) – possible residual from discarded containers and demolition associated soils

During their 2014 investigation, Creekside submitted four solid waste samples (in a soil matrix) from the North Cell to the laboratories for analysis. One of the solid waste samples (from TP12) contained constituents at concentrations exceeding their respective screening-level risk-based concentrations (SLRBCs²) in soils: lead, the pesticides aldrin, chlordane, and dieldrin, and the PAHs benzo(a)pyrene and benzo(b)fluoranthene were identified as preliminary COPCs. In addition, aldrin, chlordane, 4,4'-dichlorodiphenyldichloroethane (DDD), 4,4'-dichlorodiphenyldichloroethylene (DDE), dieldrin, benzo(a)pyrene, benzo(b)fluoranthene, cadmium, copper, and lead exceeded ODEQ Clean Fill³ Screening concentrations.

² By definition, SLRBCs are the most conservative (lowest level) risk-based concentration for a particular media regardless of pathway and receptor. Residential receptors are typically the most conservative receptor scenario.

³ ODEQ does not require materials in which contaminant concentrations are less than or equal to clean fill concentrations to be regulated as a solid waste. Rather, these materials may be place at upland locations which are greater than 1,000 feet from a surface water body.

Trapped water is in direct contact with solid waste in the landfill cell. SEEP01, located at the east toe of the North Cell, was sampled during Creekside's 2014 characterization activities; impacts exceeding ODEQ SLRBCs or Water Quality Criteria were not detected. The location of SEEP01 is shown on Figure 5.

Also in 2014, Creekside screened soil gas at eleven locations at a depth of five feet with a landfill gas indicator around the perimeter of the proposed development proximate to the North and South Cells. Soil gas screening locations (SG1 through SG5) are shown on Figure 5. Depleted oxygen and enriched carbon dioxide measured in three of the soil gas probes suggest that methanogenesis may be active in the vicinity of the North Cell. Notwithstanding, potentially explosive conditions were not indicated by the data. The concentrations of total volatiles detected were not significant in terms of potential soil impacts.

Note: *Due to the historic use at the property as a landfill, and due to the variable nature of material that maybe found at a historic landfill, it should be understanding that as-yet unidentified areas of residual soil or water contamination may be encountered. Also, while not indicated by perimeter testing, explosive conditions may be present in the historic landfill and precautions should be taken accordingly.*

Risk Assessment. Detected concentrations of aldrin, chlordane, dieldrin, lead, benzo(a)pyrene, and benzo(b)fluoranthene exceeded their most conservative SLRBCs and were tentatively identified as Constituents of Potential Concern (COPCs). No constituent in leachate samples exceeded their SLRBCs, and therefore the leachate does not present an unacceptable health risk.

Further assessment of human health risk demonstrated that COPC impacts present in surface soils and/or subsurface soils do not present an unacceptable health risk to potential human receptors or a significant risk to the environment or to sensitive habitat.

Remedial Action. Creekside evaluated potential remedial alternatives including removal of the buried waste and determined that the existing soil cap with institutional controls as the preferred cleanup alternative for the site. Investigative work has shown that a silt and clay cap of variable depth (measured from 1.5 to 3 feet thick) is present over the former landfill. This "soil cap" will prevent exposure to impacted soils. Adherence to this Plan and the referenced *Contaminated Media Management Plan*¹ will ensure adherence to the institutional controls.

2.0 ENGINEERING AND INSTITUTIONAL CONTROLS

An *engineering control* is a physical method of preventing or minimizing exposure to hazardous substances remaining on the property. The final three-foot thick soil cap at the subject site is an engineering control. Engineering of the soil cap in conjunction with the buttress fill slope is detailed Section 3.

An *institutional control* is a legal or administrative tool to prevent unacceptable exposure to hazardous substances remaining on the property. The following will be required:

- The soil cap in conjunction with the buttress fill slope is to be regularly inspected and maintained under a management plan as long as hazardous substances remain at the site in quantities in excess of SLRBCs. (This Plan serves as the site's management plan.)
- Procedures to ensure that all responsible persons that need to know about the restrictions are informed and trained in known practices to ensure that all subsurface work is done in accordance with the management plan.
- A health and safety plan as part of the site management plan to be followed whenever the soil cap is breached.
- Any digging/excavating will require prior permission from the property owner.
- A log of all work that breaches the cap will be maintained.
- Signs to remind personnel are to be posted and maintained.
- Preparation and submittal of an annual report documenting compliance with all of the above.
- Site development work will be performed under a Contaminated Media Management Plan developed for the project ¹.

3.0 SOIL CAP ENGINEERING

A buttress fill slope will be constructed in conjunction with the soil cap. Benches will be cut into the existing soil cap at the base of the buttress fill, and burlap will be placed as a demarcation layer. A 20 to 80-foot-wide keyway will be cut longitudinal to the slope at the toe of the buttress fill. To drain the slope, a longitudinal subdrain will be installed at the transition between the benches and the keyway. In addition, horizontal drains will be drilled back into the slope, and sand filter drains will be installed at the low point of outfall of the horizontal drains. The buttress fill in conjunction with the existing landfill cap will result in a combined cap thickness that is consistently 3 feet or greater across the entirety of the Troh Legacy Landfill. GeoPacific Engineering, Inc.'s (GeoPacific's) buttress fill Site Plan and Fill Slope Detail are included as Attachment B.

The buttress fill slope/soil cap (soil cap) at the subject site is to be designed as an engineering control with the following goals:

- To be a physical barrier to prevent exposure to hazardous substances remaining on the property.
- To be designed in a manner that minimizes water infiltration to the subsurface.
- To be designed in a manner that minimizes long-term maintenance while meeting the above two goals.

To ensure these goals are met, an Oregon-licensed Professional Engineer will design the soil cap. The **Design Plan** will include the following at a minimum:

- 1) Identification of all required permits.
- 2) Specification and installation of burlap to:
 - a. Be a demarcation layer known to be at a specific depth that can be used as a visual assessment of soil cover being maintained over the long term.
- 3) A site grading plan that includes:
 - a. Grading specifications for at least three feet of cover over landfill material, graded to:
 - i. meet the design elements for the buttress fill slope, and
 - ii. design thickness and uniformity of the soil cap.
 - b. Drainage designed in a manner to minimize erosion and meet the requirements of any necessary permits (e.g., 1200-C).
 - c. Any needed permanent drainage control facilities, including:
 - i. longitudinal drain at the transition from buttress benches to keyway,
 - ii. horizontal drains coinciding with natural drainages that are roughly perpendicular to the slope, and
 - iii. sand filter drains at the low point of outfall of the horizontal drains.
 - d. Specifications for a vegetative cover to minimize deep root penetration below the cap.
 - e. Clearing of vegetation and the construction of access roadways, as necessary.
- 4) Specifications for the importation and placement of clean soil that includes:
 - a. A preference for local sources.

- b. An ODEQ-requirement for stockpiling and sampling imported fill prior to placement. Acceptable quality is defined as meeting ODEQ clean fill standards.
- c. Imported soil is to overly existing soil already present over landfill material.

Note: The soil cap was historically placed across the extent of the former landfill and is comprised of silt and clay soil measuring in depth from 1.5 to 3 feet thick. Initial rough estimates indicate approximately 2,000 cubic yards of clean soil will need to be imported to meet the required soil cap depth.

4.0 STAFF - REQUIRED ACTIONS

Maintaining the soil cap integrity and security is an ongoing responsibility. The **Manager** shall be designated as the person responsible for ensuring this Plan is implemented, that the soil cap integrity is maintained and that this Plan will be reviewed on an annual basis. If a Declaration of Covenant, Conditions and Restrictions (CC&Rs) is developed for this development, management of this plan must be reference in the CC&Rs. The property manager may at his or her discretion assign tasks to appropriate personnel.

Responsible Personnel

Property Manager		Maintenance Operations Manager		
Date	Name	Date	Name	Position
		8/16/2017	Creekside	Consultant

4.1 Soil Cap Annual Inspection

The soil cap is to be inspected on an annual basis. Attachment C provides an example form that may be used to conduct this inspection. The entire site must be inspected for erosion, wildlife disturbance and any unauthorized human activity that is breaching (penetrating) the soil cap. If any such conditions are found, measures will be immediately taken to secure the area and remedy the situation.

4.2 Annual Training

The following tasks to be conducted annually will ensure that all individuals who need to know about site restrictions are informed:

- The buttress fill slope/soil cap will be explained to all appropriate persons (e.g., anyone with responsibilities including the property and anyone actively working on the property). The nature of the site, the importance of and legal obligations of maintaining soil cap integrity, the importance of not breaching the soil cap, as well as procedures for obtaining approval to breach the cap will be discussed. Anyone visiting the Subject Property should be encouraged to report conditions they may observe (e.g., erosion, wildlife disturbance or unauthorized human activities such as digging) that pose a threat to the integrity of the cap and safety to humans on site to the Property Manager.
- The Manager, along with staff designated by him or her, will review this Plan and acknowledge their understanding of Plan requirements. Designated staff should include all landscape and maintenance personnel, and any staff responsible for contracting work conducted at the site.

Attachment D provides a form that may be used to collect acknowledgement signatures. These will be included with the Annual Report.

4.3 Signage Plan, Maintenance and Inspection

Signs are required to be posted regarding the soil cap. The Manager or their designee will determine the best locations for signs to be placed. Suggestions would include any access areas, or along fencing if access is restricted. A list or map of sign locations will be developed and kept on file.

Sign language may vary depending on location and anticipated audience. A possible example may include:

DO NOT DISTURB SOIL
WITHOUT AUTHORIZATION
Soil Cap Present

The signage plan will be reviewed annually for effectiveness and signs will be verified present and in good condition. Attachment E provides a form that may be used to demonstrate signage compliance.

4.4 Approval Process for Authorization to Breach the Soil Cap

The Property Manager is responsible for development of an approval process for any subsurface work, so that no unauthorized work is conducted. This includes work conducted by any contractors or utilities. The process must:

- Allow for documentation required by the work log described in the next section.
- Require personnel or entity conducting work to review, acknowledge understanding and agree to adhere to both this Plan and the *Contaminated Media Management Plan*¹.

These procedures will be reviewed on an annual basis and adjusted as necessary to improve effectiveness or allow for changing conditions.

4.5 Maintain Log of Authorized Soil Cap Breaches

Anytime work is conducted that breaches the soil a log must be maintained. Attachment F provides a form that may be used as a log of work. At a minimum, the following should be documented:

- Personnel/entity performing work.
- Reason for and description of work performed.
- Management and disposal of any impacted soils.
- Precautions taken to prevent exposure to impacted excavated soils.

4.6 Submit an Annual Report

ODEQ has requested an annual report be submitted detailing the work described above. The forms in Attachments C through F have been designed to document compliance on an annual basis. These should be submitted to the Manager for permanent filing.

The Manager shall establish a due date for the Annual Report. This due date may be scheduled for convenience, but once established should be adhered to annually.

5.0 SUBSURFACE WORK – METHODS AND PROCEDURES

Work conducted on the Subject Property in the vicinity of the former Troh Legacy Landfill must be done in a manner that is protective of human health and is consistent with the ODEQ institutional controls described previously in this Plan.

Users of the plan are advised that regulations may change in the future and therefore the regulations should be reviewed prior to commencing any subsurface work. If it is believed that local and State regulations have changed, revisions to the Plan may be necessary from time to time to reflect current regulatory standards.

5.1 Prior to Starting Any Work

Any personnel or entity who will be breaching the soil cap must first:

- Obtain authorization following the approval process developed according to Section 4.4 of this Plan.
- Read and provide signature acknowledgement of the requirements of and intention to adhere to this Plan.
- Obtain all required permits to complete scope of work.
- Complete the Project Initiation portion of the Subsurface Work Documentation form in Attachment G, including designation of responsible parties.

5.2 Shallow Soil / Soil Cap ONLY Work

Anyone performing only small scopes of work that may disturb the soil cap, but that does not anticipate working at depths that may encounter former landfill debris (for example landscape work):

- Must complete the requirements of Section 5.1, above.
- Must replace the soil cap material with the same or similar type of material (silt and/or clay) to a depth/height no less than the original surface of the soil cap.

Should landfill debris be encountered, **stop work immediately** and notify the Manager or their designee. Landfill debris may only be removed following the protocol established in the Contaminated Media Management Plan (see next section). Measure and record the depth of the soil cap over landfill debris and supply this information, along with the location of work, to the Property Manager or their designee

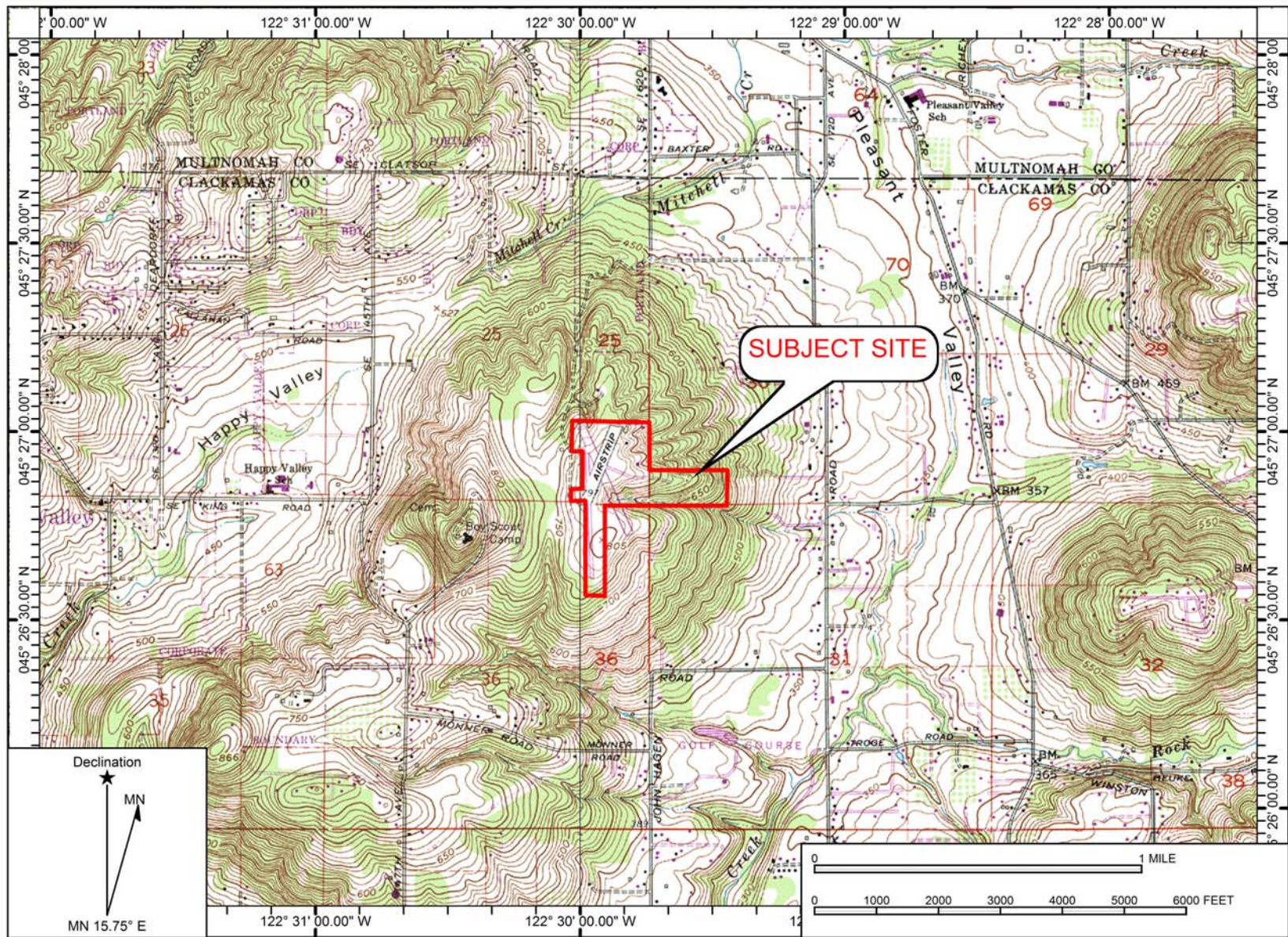
5.3 Earthwork in Former Landfill

Anyone conducting any earthwork that that will encounter landfill debris or trapped water beneath the soil cap **MUST** reference and adhere to the **Contaminated Media Management Plan**¹ for complete soil and water management protocol.

5.4 Reporting Requirements

Detailed notes of field work shall be kept and submitted to the Property Manager or their designee using the Subsurface Work Documentation form in Attachment F. Reason for and dates of work, personnel/contractor/utility performing work, location of soil excavation, soil and water management and disposal, waste disposal receipts and maps/photos of work shall be submitted.

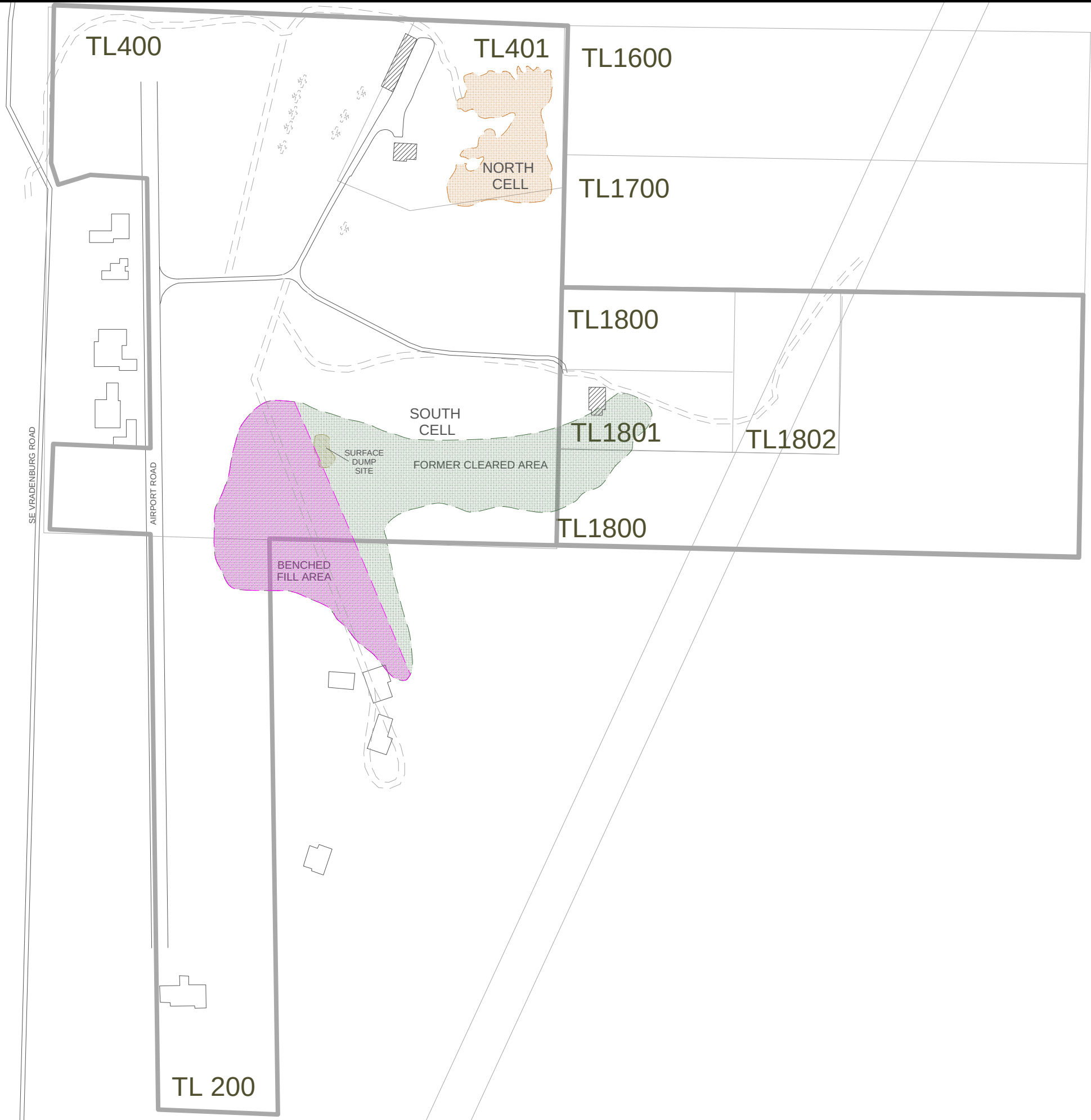
FIGURES



Source: USGS Topographic Map, 7.5 Minute Damascus, OR Quadrangle

Map Publish Date: 1961 / Revision Date: 1984

	Date Drawn: 5/30/2014 CAD File Name: 351-14002fig1sv_map(v02).docx Drawn By: KMC Approved By: BJ	Troh Landfill 45° 26' 57.59"N / 122° 29' 49.78" W Happy Valley, Oregon	Site Vicinity Map	Project No. 351-14002-01 Figure No. 1
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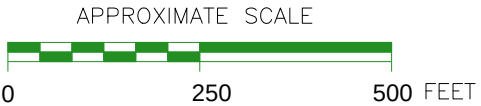


LEGEND:

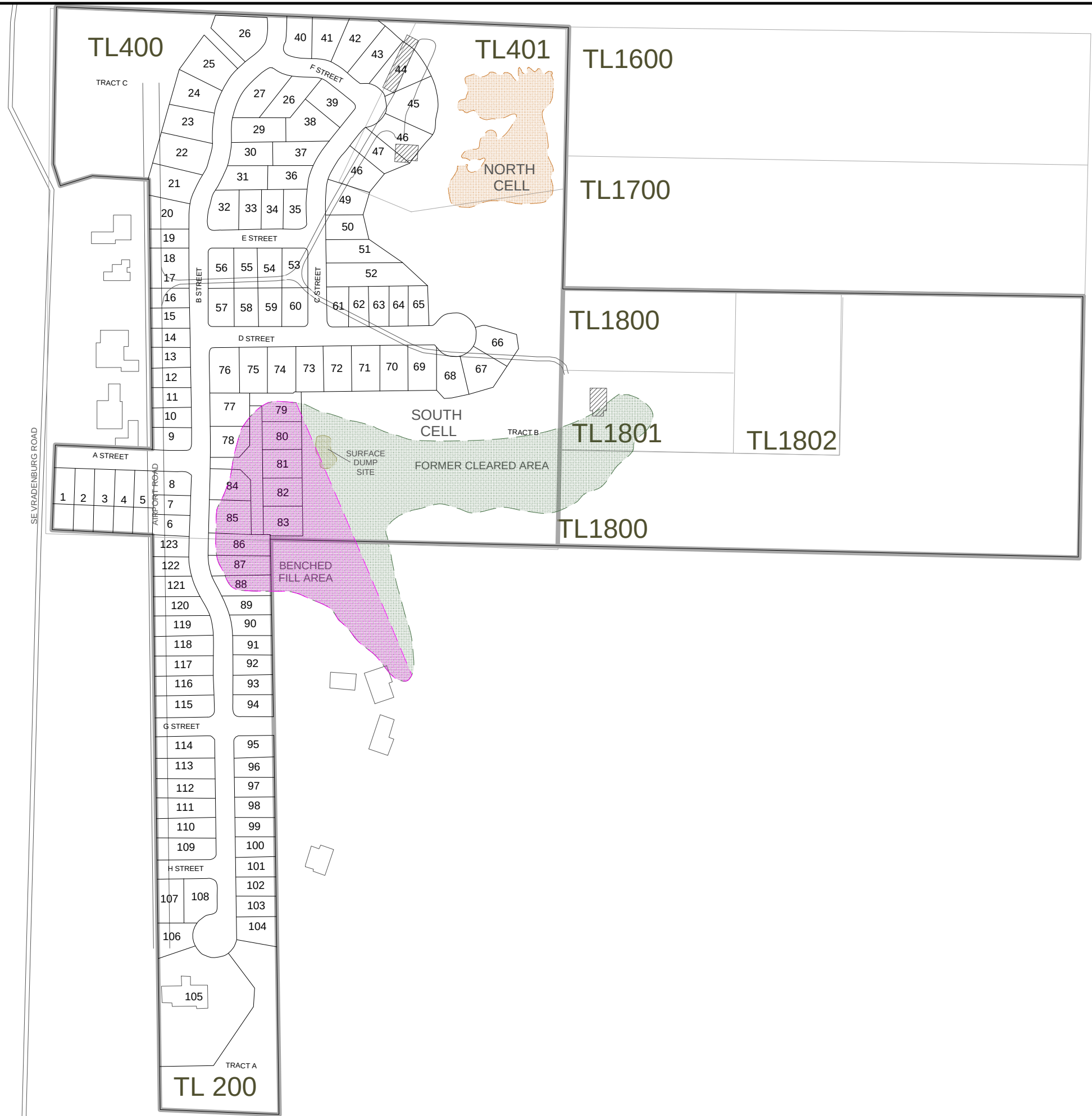
- SUBJECT BUILDINGS
- BUILDINGS
- TAX LOT BOUNDARIES
- SUBJECT PROPERTY BOUNDARIES
- TROH LEGACY LANDFILL
- FORMER CLEARED AREA
- SURFACE DUMP SITE
- BENCHED FILL AREA
- FORMER ROADS AND AIRSTRIPS
- FORMER AIRCRAFT PARKING

NOTES:

- 1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2012.
- 2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.



	CREEKSIDE ENVIRONMENTAL CONSULTING, LLC 21790 SW CHEHALIS COURT TUALATIN, OREGON 97062 (503)692-8118
FIGURE 3 SITE PLAN TROH LANDFILL 45° 26' 57.59"N 122° 29' 49.78" W HAPPY VALLEY, OREGON	

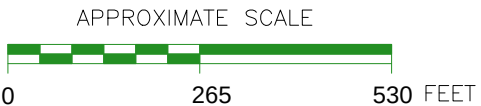


LEGEND:

- SUBJECT BUILDINGS
- BUILDING LOCATIONS
- TAX LOT BOUNDARIES
- FORMER LANDFILL AREAS
- FORMER CLEARED AREA
- SURFACE DUMP SITE
- BENCHED FILL AREA
- SUBJECT PROPERTY BOUNDARIES
- BUILDING LOTS (PROPOSED)

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2012.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.

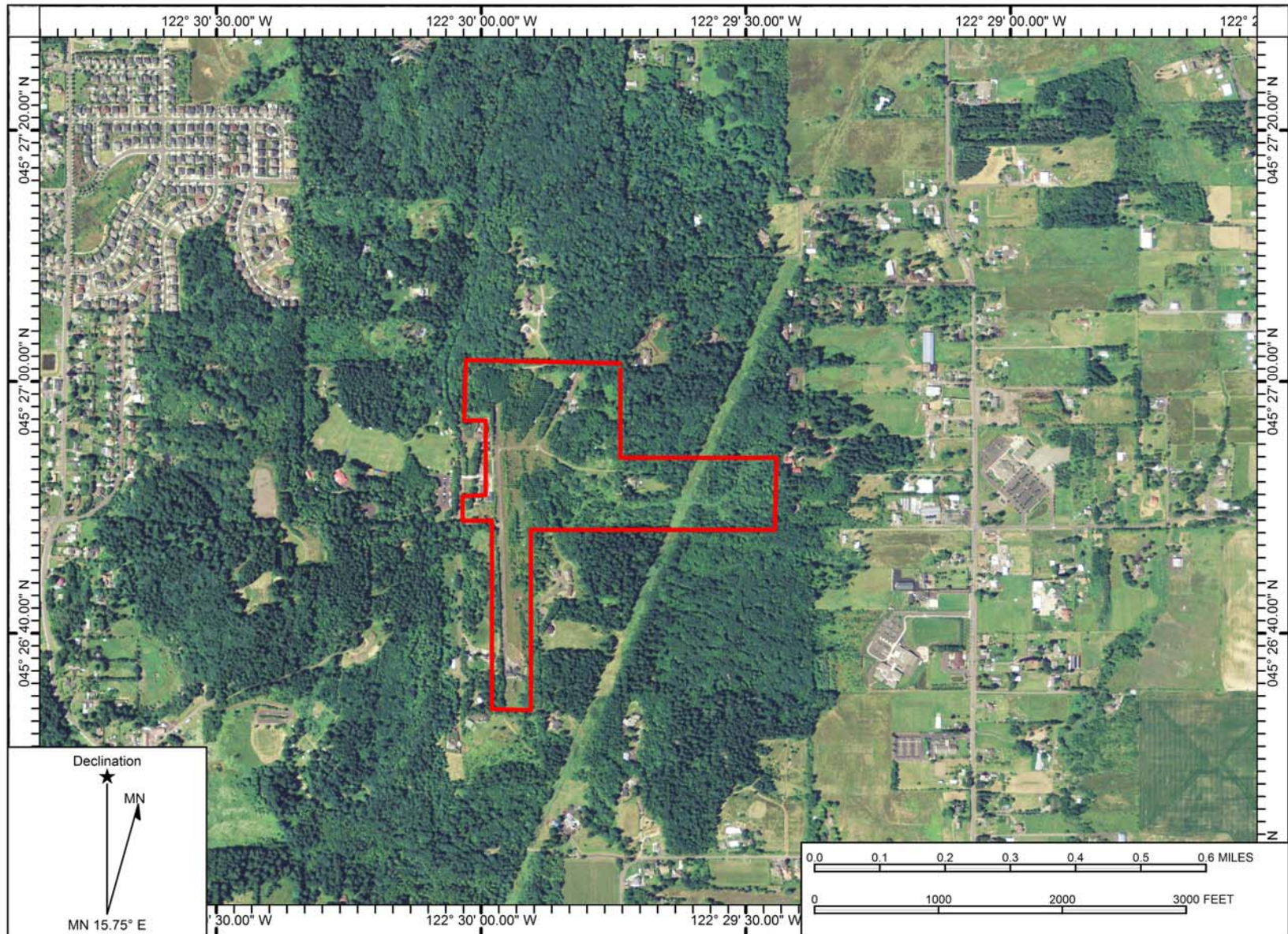


CREEKSIDE ENVIRONMENTAL
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FIGURE 4

SUBDIVISION LOTS

TROH LANDFILL
45° 26' 57.59"N 122° 29' 49.78" W
HAPPY VALLEY, OREGON



Source: USGS Topographic Map, 7.5 Minute Damascus NW, OR Quadrangle

Map Publish Date: Jul 6, 2012 / Revision Date: Jul 6, 2012

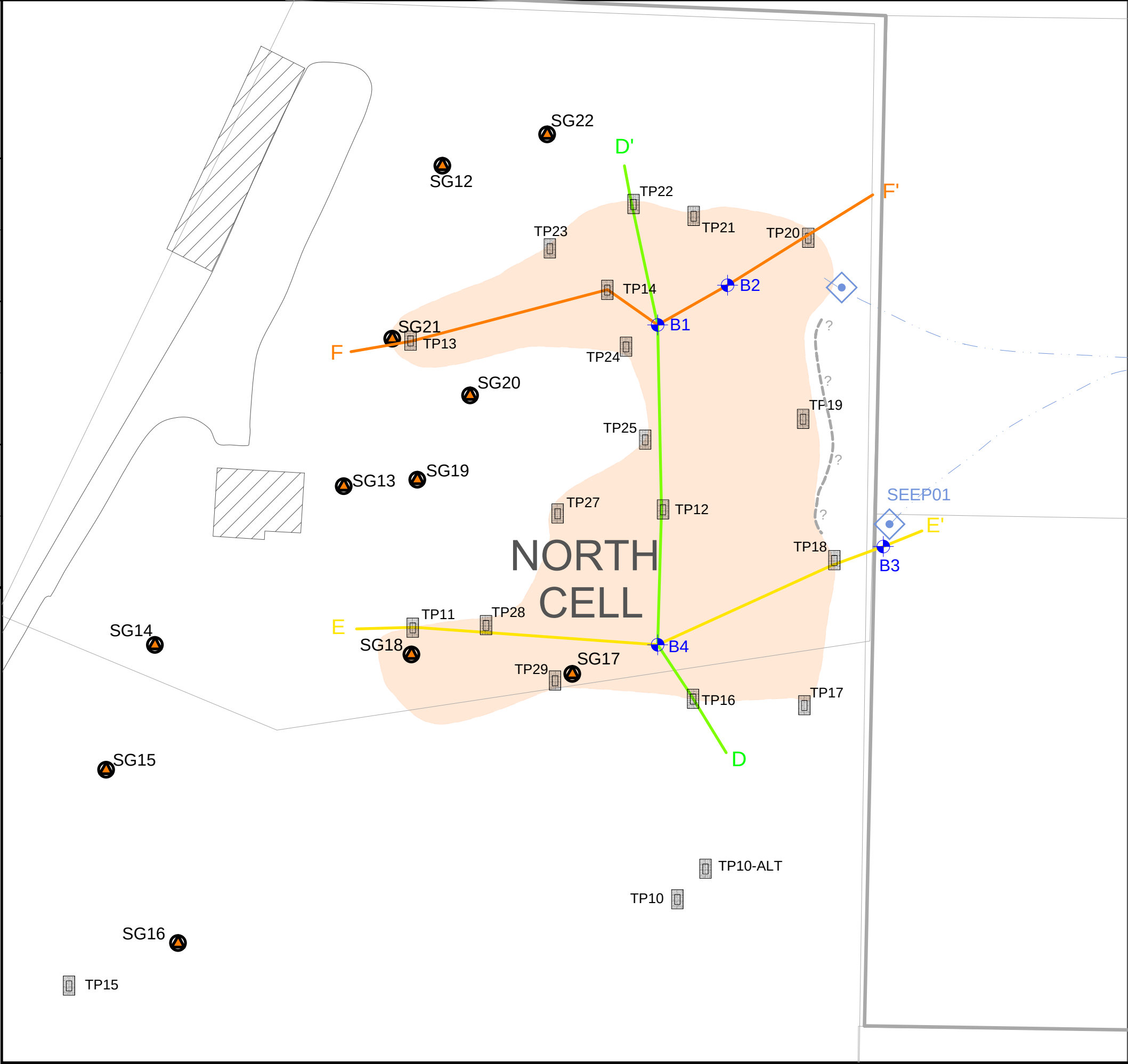


Date Drawn: 5/30/2014
CAD File Name: 351-14002fig2aerial.docx
Drawn By: KMC
Approved By: BJ

POINT LAMUUIII
45° 26' 57.59"N / 122° 29' 49.78" W
Happy Valley, Oregon

**Aerial Photo Map
(2012)**

351-14002-01
Figure No.
2



LEGEND:

SUBJECT BUILDINGS

TAX LOTS

SUBJECT PROPERTY BOUNDARIES

FORMER LANDFILL AREAS

STREAM INTERMITTENT

TEST PITS

RECONNAISSANCE GROUND WATER BORINGS

SEEPS

GEOLOGIC CROSS SECTIONS'

SOIL GAS PROBES

TP1

SEEP01

B3

B4

B1

B2

TP18

TP17

TP16

TP10-ALT

TP10

TP29

SG17

TP28

TP27

TP12

TP25

TP19

TP24

TP14

TP21

TP20

TP22

TP23

TP13

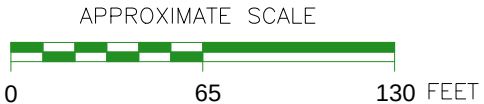
TP11

TP15

TP1

- NOTES:
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2012 AND FIELD NOTES.

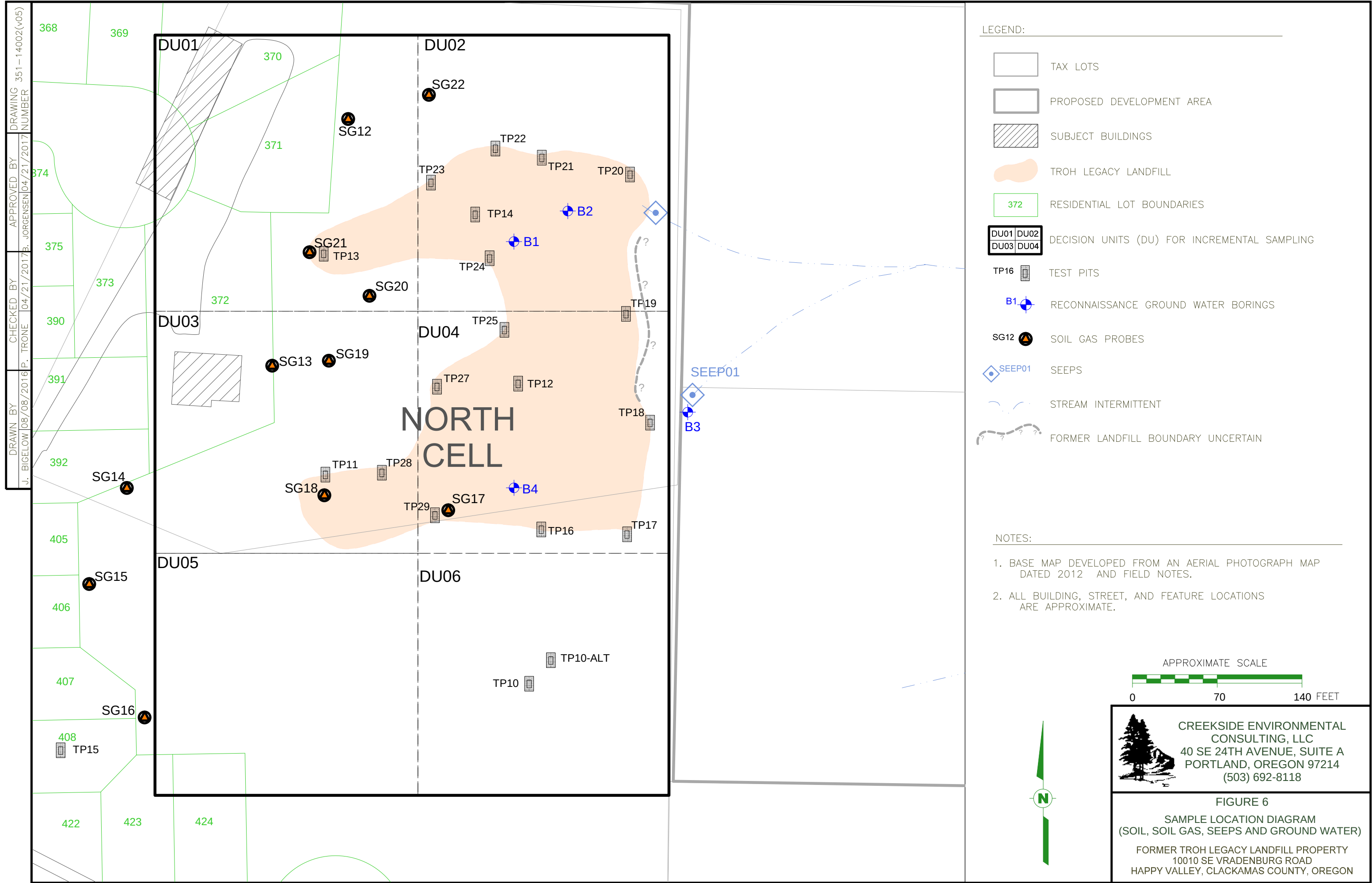
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.



CREEKSIDE ENVIRONMENTAL
CONSULTING, LLC
40 SE 24TH AVENUE, SUITE A
PORTLAND, OREGON 97214
(503) 692-8118

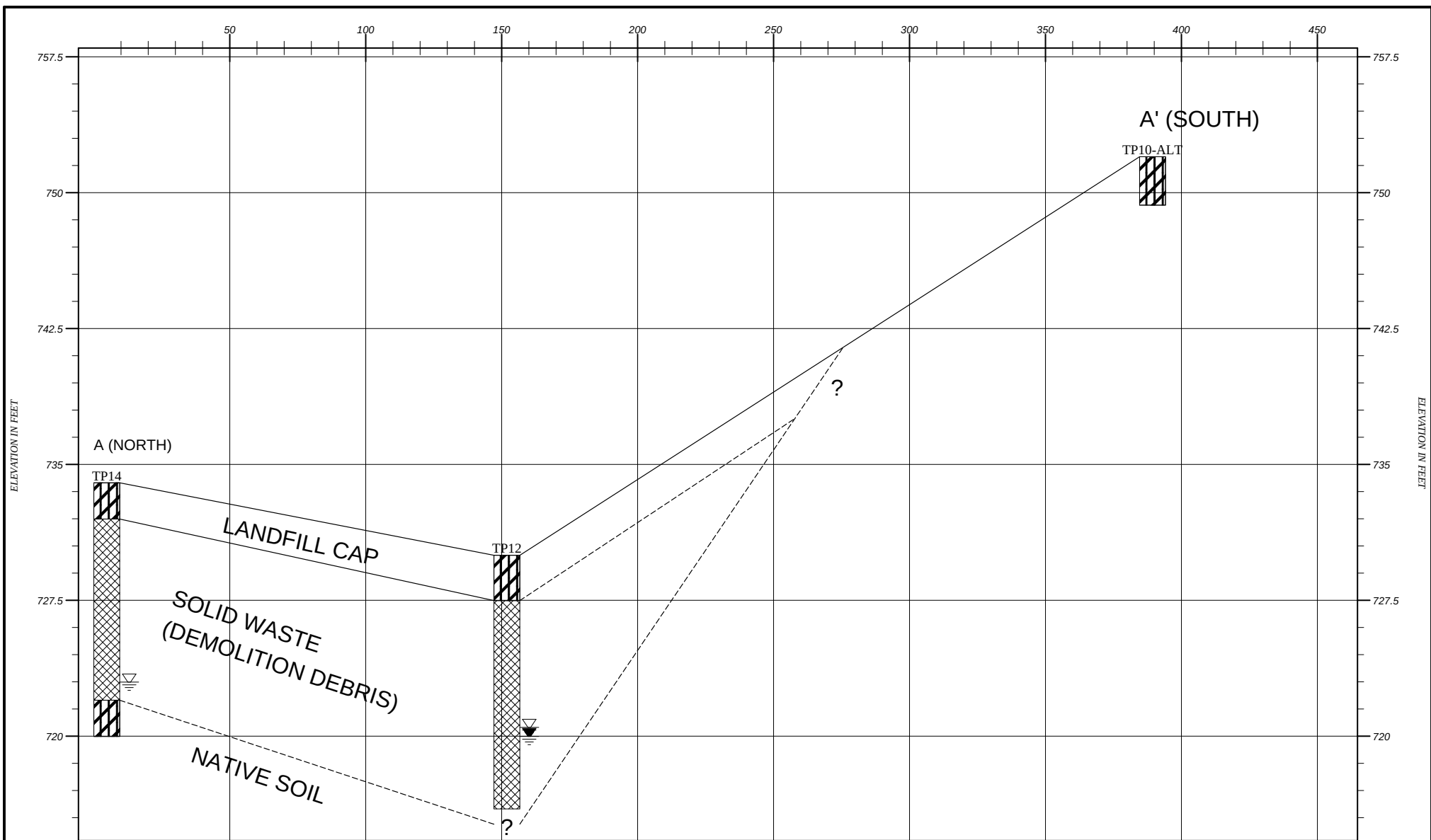
FIGURE 5
LINE OF SECTIONS PROXIMAL
TO TROH LEGACY LANDFILL
FORMER TROH LEGACY LANDFILL PROPERTY
10010 SE VRADENBURG ROAD
HAPPY VALLEY, CLACKAMAS COUNTY, OREGON

DRAWN BY J. BIGELOW 08/08/2016 P. TRONE 04/21/2017 B. JORGENSEN 04/21/2017
CHECKED BY
APPROVED BY
DRAWING NUMBER 351-14002(v05)

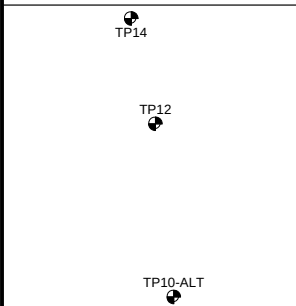


ATTACHMENT A

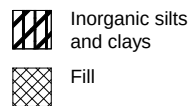
Geologic Profiles



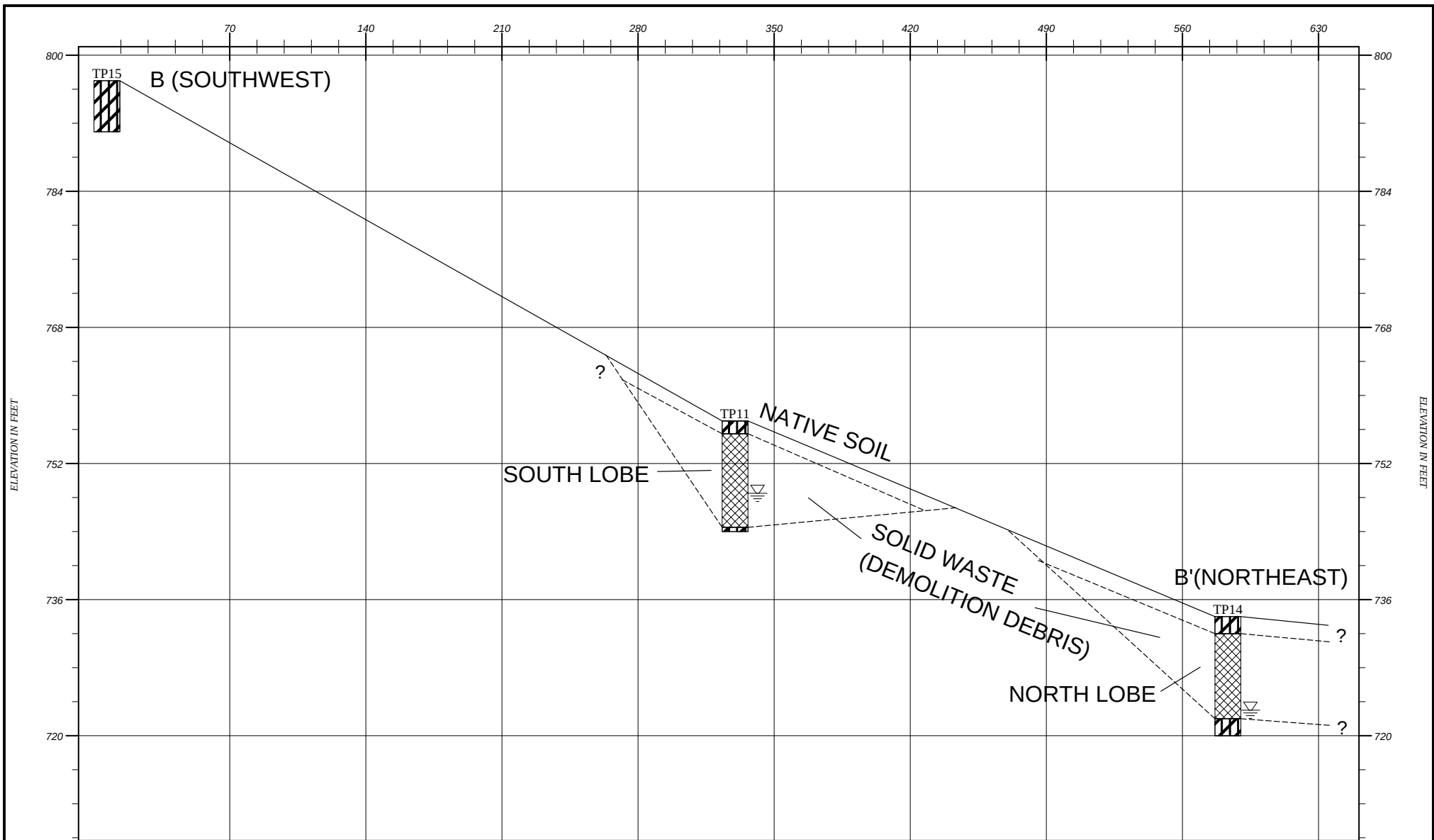
Plan View



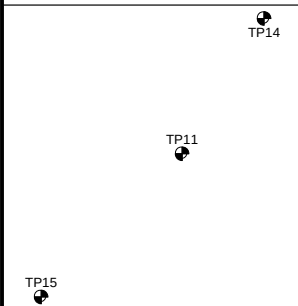
Strata symbols



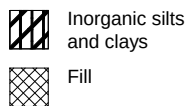
EVREN Northwest GENERALIZED SOIL PROFILE		
HORIZONTAL SCALE: 1"=50'	DRAWN BY/APPROVED BY P. TRONE/L. GREEN	DATE DRAWN 4/21/2017
Troh Landfill		
PROJECT NO. 351-14002-02		FIGURE NUMBER A-1



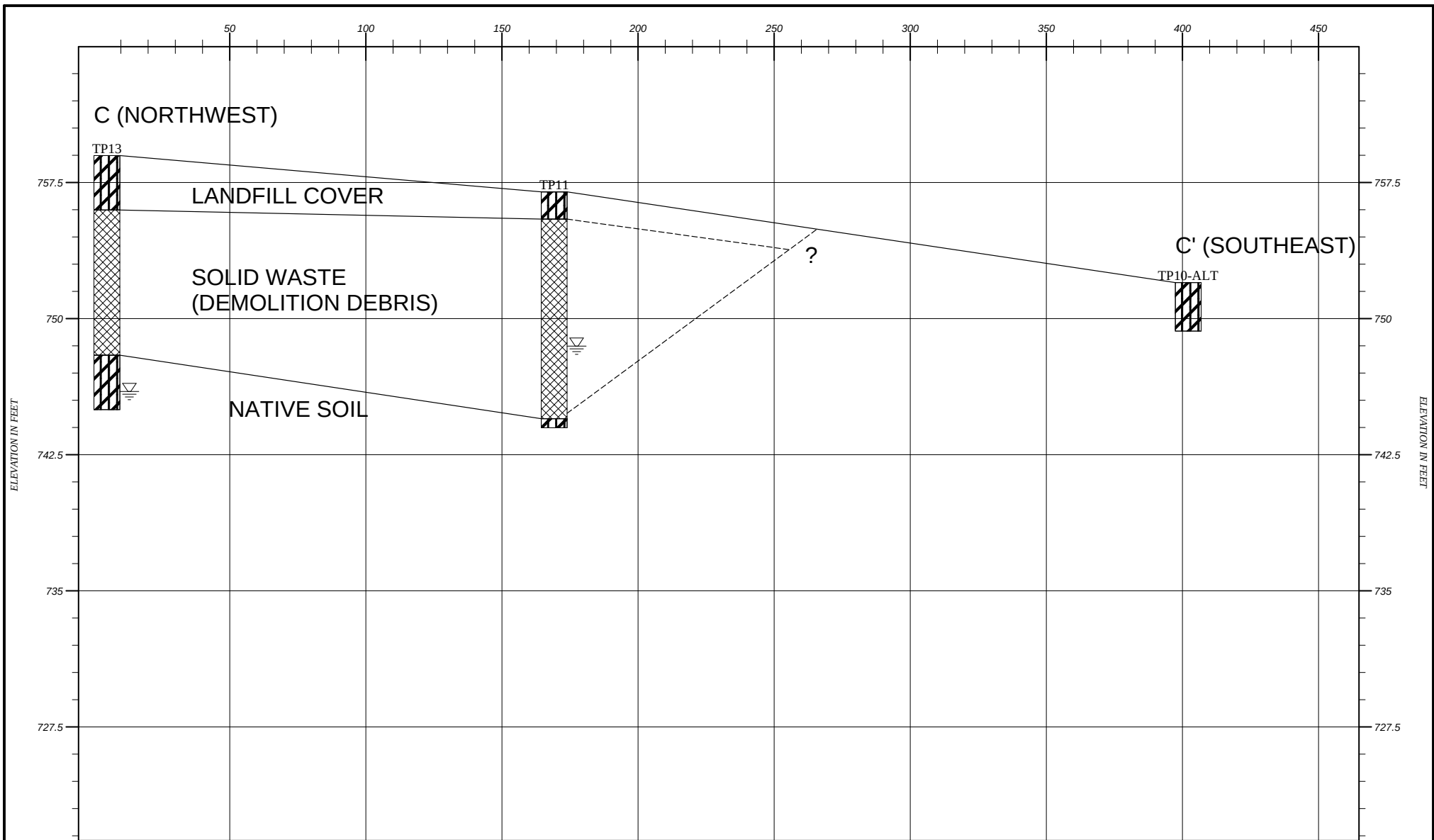
Plan View



Strata symbols



EVREN Northwest GENERALIZED SOIL PROFILE		
HORIZONTAL SCALE: 1"=70'	DRAWN BY/APPROVED BY P. TRONE/L. GREEN	DATE DRAWN 5/28/2014
Troh Landfill		
PROJECT NO.	351-14002-01	FIGURE NUMBER C-2



Plan View

TP13

TP11

TP10-ALT

Strata symbols



Inorganic silts
and clays



Fill

EVREN Northwest GENERALIZED SOIL PROFILE

HORIZONTAL
SCALE: 1"=50'

DRAWN BY/APPROVED BY
P. TRONE / L. GREEN

DATE DRAWN
5/28/2014

VERTICAL
SCALE: 1"=7.5'

Troh Landfill

PROJECT NO.

351-14002-01

FIGURE NUMBER

C-3

ATTACHMENT B

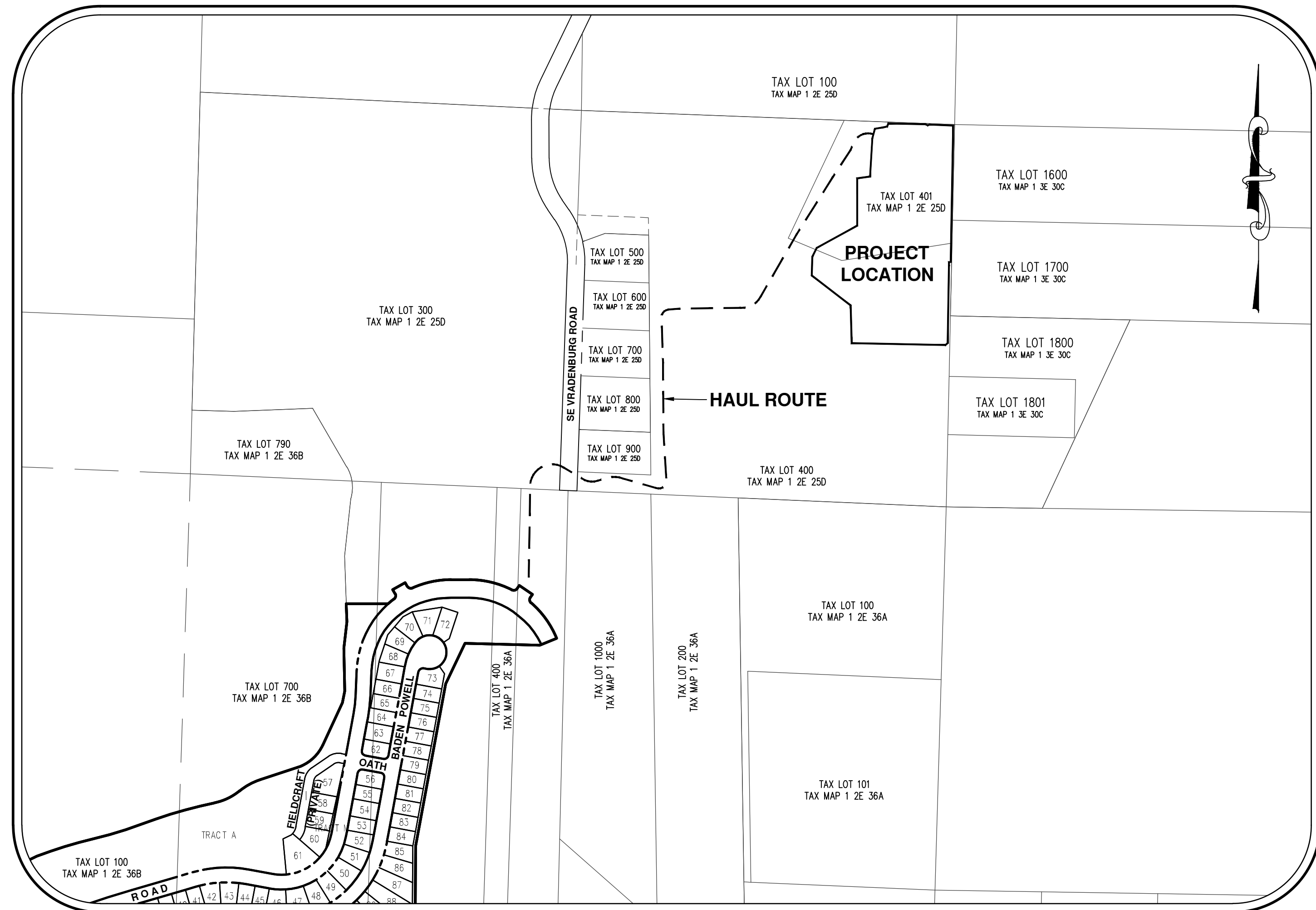
GeoPacific Engineering, Inc.

Site Plan and Exploration Locations and

Fill Slope Detail

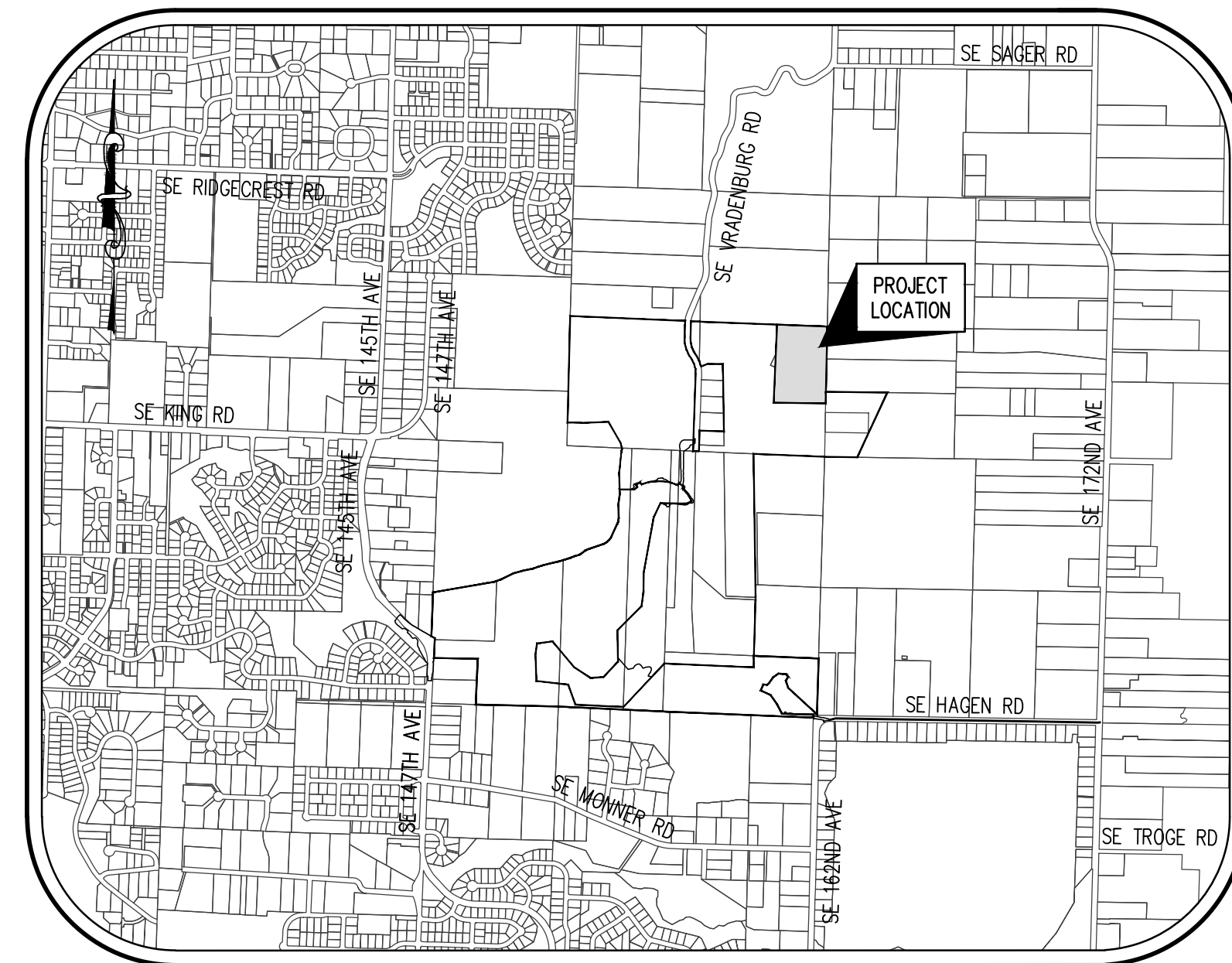
10010 SE VRADENBURG ROAD

GRADING, EROSION AND SEDIMENT CONTROL PLANS



SITE MAP

1"=300'



VICINITY MAP

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

1. HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
2. ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS. (SCHEDULE A.12.B AND SCHEDULE B.1)
3. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS. (SCHEDULE B.1.C AND B.2)
4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, THE ABOVE RECORDS MUST BE RETAINED BY THE PERMIT REGISTRANT BUT DO NOT NEED TO BE AT THE CONSTRUCTION SITE. (SCHEDULE B.2.C)
5. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A.8.A)
6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SCHEDULE A.12.C.I)
7. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SCHEDULE A.12.C.IV. AND V)
8. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.7.A.II)
9. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) AND (2))
10. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS. RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.A.V)
11. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50-FOET OF WATERS OF THE STATE. (SCHEDULE A.7.B.I AND (2)(A)(B))
12. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SCHEDULE A.8.C.I.(5))
13. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAMBANKS. (SCHEDULE A.7.C)
14. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SCHEDULE A.7.D.I)
15. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
16. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS. (SCHEDULE A.8.C.I.(3))
17. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
18. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPs SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPs MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES. (SCHEDULE A.7.D.II AND A.8.C.I.(4))
19. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(5))
20. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH-OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SCHEDULE A.6)
21. USE BMPs TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZERS, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
22. IMPLEMENT THE FOLLOWING BMPs WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A.7.E.III.)
23. USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A.7.A.IV)
24. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.II)
25. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
26. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS. IF NEEDED, THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A.7.B)
27. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPs MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A.7.E.II.(2))
28. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND BARE GROUND ACTIVITIES DURING WET WEATHER. (SCHEDULE A.7.A.I)
29. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
30. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.I)
31. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
32. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN-UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
33. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
34. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
35. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
36. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED SOILS MUST BE REMOVED AND DISPOSED OF PROPERLY, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. (SCHEDULE A.8.C.III.(1) AND D.3.C.II AND III)

BMP MATRIX FOR CONSTRUCTION PHASES
REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF
AVAILABLE BMP'S.

BMP'S	YEAR:	17	17	17	17	17	17	17	17	18	18	18
	MONTH:	5	6	7	8	9	10	11	12	1	2	3
PIPE SLOPE DRAINS												
ENERGY DISSIPATORS												
TEMPORARY DIVERSION DIKES												
CHECK DAMS												
TEMPORARY SEEDING AND PLANTING												
PERMANENT SEEDING AND PLANTING							X	X	X	X	X	X
MYCORRHIZAE/ BIOFERTILIZERS												
STRAW MULCH												
CONSTRUCTION ENTRANCE		X	X	X	X	X	X	X	X	X	X	X
COMPOST BLANKETS												
COMPOST SOCKS												
COMPOST BERM												
SOIL TACKIFIERS												
SODDING VEGETATIVE BUFFER STRIPS												
PLASTIC SHEETING												
SEDIMENT FENCING *		X	X	X	X	X	X	X	X	X	X	X
EROSION CONTROL BLANKETS AND MATS (COCONUT FIBER)					X	X	X	X	X	X	X	X
EARTH DIKES (STABILIZED)												
DRAINAGE SWALES												
ROCK OUTLET PROTECTION												
SEDIMENT TRAP												
STRAW WATTLES (LOOSE COMPACTION RICE STRAW)												
STORM DRAIN INLET PROTECTION												
TEMPORARY OR PERMANENT SEDIMENTATION BASINS												
UNPAVED ROADS GRAVELED OR OTHER BMP ON THE ROAD												
DEWATERING (TREATMENT LOCATION, SCHEMATIC, AND SAMPLING PLAN REQUIRED)												
PAVING OPERATION CONTROLS												
CONCRETE TRUCK WASHOUT						X	X	X	X	X	X	X
GRASS CONSTRUCTION FENCING							X	X	X	X	X	X

* SIGNIFCANCE BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP'S WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

INSPECTION FREQUENCY	
SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOW MELT, IS OCCURRING. AT LEAST ONCE EVERY 14 DAYS, REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS.	ONCE EVERY MONTH.
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.
5. PERIODS DURING WHICH DISCHARGE IS UNLIKELY DUE TO FROZEN CONDITIONS.	MONTHLY RESUME MONITORING IMMEDIATELY UPON MELT, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

- * HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.
- * ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
- * INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
- * REVISIONS TO APPROVED ESC PLAN OR INSPECTOR MUST BE SUBMITTED TO DEQ OR AGENT IN ACCORDANCE WITH CURRENT 1200-C PERMIT.

PERMITTEE'S SITE INSPECTOR NATHAN GARITY

COMPANY/AGENCY: AKS ENGINEERING & FORESTRY, LLC
PHONE: 503-563-6151
FAX: 503-563-6152
E-MAIL: NATHAN@AKS-ENG.COM
QUALIFICATION: CESCL #2016-008

NOTICE TO EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

NOTE: THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS EROSION AND SEDIMENT CONTROL PLAN AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.



AKS DRAWING FILE: 3415 C030 COVERDWS [LAYOUT: C031

PRE-CONSTRUCTION, CLEARING, AND DEMOLITION NOTES:

- ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, STRAW WATTLES, OR OTHER APPROVED MATERIALS.
- SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
- CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES.

GRADING, STREET, AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

- LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.
- TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
- STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING AT THE END OF EACH WORKDAY. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
- EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
- AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
- CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
- SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
- AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SECONDARY MEASURES SUCH AS BERMS OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.
- SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORMWATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
- AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORMWATER SYSTEM.
- USE BMPs SUCH AS INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
- COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

WET WEATHER MEASURES, SEEDING NOTES, AND SPECIFICATIONS

- HYDROMULCH (TACKIFIED WOOD-FIBER MULCH) SHALL BE APPLIED TO THE PROJECT SITE WITH GRASS SEED AT A RATE OF 2000 LB./ACRE. SLOPE MATTING (NORTH AMERICAN GREEN S150, OR APPROVED EQUAL - ALTERNATE SLOPE MATTING MATERIALS MAY BE USED IF APPROVED BY THE PROJECT ENGINEER) SHALL BE USED ALONG WITH THE HYDROMULCH ON SLOPES 2H:1V OR STEEPER. THE METHODS USED AND APPLICATION RATE WILL BE PER THE SEED SUPPLIER'S RECOMMENDATIONS.
- DRY, LOOSE, WEED-FREE STRAW USED AS MULCH SHALL BE APPLIED AT DOUBLE THE HYDROMULCH APPLICATION REQUIREMENT (4000 LB./ACRE). ANCHOR STRAW BY WORKING BY HAND OR WITH EQUIPMENT (ROLLERS, CLEAT TRACKS, ETC.). IF THIS IS UTILIZED AS MULCH, IT SHALL BE SPREAD UNIFORMLY IMMEDIATELY FOLLOWING SEEDING.
- SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
 - DWARF GRASS MIX (MIN. 150 LB./AC.)
 - DWARF PERENNIAL RYEGRASS (80% BY WEIGHT)
 - CREeping RED FESCUE (20% BY WEIGHT)
- SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
- IN ACCORDANCE WITH SUPPLIER'S RECOMMENDATIONS, DEVELOPED AREAS WITHIN 50 FEET OF WATER BODIES AND WETLANDS MUST USE A NON-PHOSPHOROUS FERTILIZER.
- SEEDING SHALL BE SUPPLIED WITH ADEQUATE MOISTURE TO ESTABLISH GRASS. SUPPLY WATER AS NEEDED, ESPECIALLY IN UNUSUALLY HOT OR DRY WEATHER CONDITIONS OR ON ADVERSE SITES. WATER APPLICATION RATES SHOULD BE CONTROLLED TO PROVIDE ADEQUATE MOISTURE WITHOUT CAUSING RUNOFF.
- AREAS WHICH FAIL TO ESTABLISH GRASS COVER ADEQUATE TO PREVENT EROSION SHALL BE RESEED AS SOON AS SUCH AREAS ARE IDENTIFIED, AND ALL APPROPRIATE MEASURES SHALL BE TAKEN TO ESTABLISH ADEQUATE COVER.
- CONTRACTOR SHALL TAKE EVERY PRECAUTION DURING CONSTRUCTION TO KEEP WATER FROM ADVERSELY AFFECTING ALL STRUCTURES, INCLUDING RETAINING WALLS, SLOPES, ETC. CONSULT WITH THE PROJECT ENGINEER FOR SPECIFIC WET WEATHER MEASURES IF UNSURE OF PROPER TREATMENT.
- SEED MIX SHALL BE INSTALLED ON EXPOSED SOIL AREAS ONCE GRADING ACTIVITY HAS BEEN COMPLETED ON EACH PORTION OF THE SITE PRIOR TO PROCEEDING TO ANOTHER AREA OF THE SITE.
- CONTRACTOR MAY BE REQUIRED TO RESEED SOME AREAS DUE TO FURTHER DISTURBANCE AFTER PLANT MATERIAL HAS BEEN INSTALLED ON EXPOSED SOIL AREAS. CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A FULL STAND OF GRASS PRIOR TO FINAL APPROVAL.
- SEED MULCHING/SEEDING SHALL BE APPLIED TO ALL EXPOSED SOIL AREAS.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION:

- ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- ALL "SEDIMENT BARRIERS (TO BE INSTALLED AFTER GRADING)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
- INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.
- LONG TERM SLOPE STABILIZATION MEASURES SHALL BE IN PLACE OVER AREAS WITH A SLOPE MORE THAN 5:1.
- CONSTRUCTION DEWATERING ACTIVITIES (INCLUDING GROUNDWATER DEWATERING AND WELL DRILLING DISCHARGE ASSOCIATED WITH THE REGISTERED CONSTRUCTION ACTIVITY), PROVIDED THAT:
 - THE WATER IS LAND APPLIED IN A WAY THAT RESULTS IN COMPLETE INFILTRATION WITH NO POTENTIAL TO DISCHARGE TO A SURFACE WATER OF THE STATE, OR
 - BEST MANAGEMENT PRACTICES (BMPs) OR AN APPROVED TREATMENT SYSTEM IS USED TO ENSURE COMPLIANCE WITH DISCHARGE AND WATER QUALITY REQUIREMENTS.

OTHER MISCELLANEOUS BMP NOTES:

TO PREVENT ILLICIT CONNECTION AND ILLEGAL DISCHARGE:

- INSPECT SITE BEFORE BEGINNING THE JOB FOR EVIDENCE OF ILLICIT CONNECTIONS OR ILLEGAL DUMPING OR DISCHARGES.
- INSPECT SITE REGULARLY DURING PROJECT EXECUTION FOR EVIDENCE OF ILLICIT CONNECTIONS OR ILLEGAL DUMPING OR DISCHARGES.
- OBSERVE SITE PERIMETER FOR EVIDENCE OR POTENTIAL OF ILLICITLY DISCHARGED OR ILLEGALLY DUMPED MATERIAL WHICH MAY ENTER THE JOB SITE.
- IDENTIFICATION OF ILLICIT CONNECTIONS AND ILLEGAL DUMPING OR DISCHARGES:
 - SOLIDS: LOOK FOR DEBRIS, OR RUBBISH PILES. SOLID WASTE DUMPING OFTEN OCCURS ON ROADWAYS WITH LIGHT TRAFFIC LOADS OR IN AREAS NOT EASILY VISIBLE FROM THE TRAVELED WAY.
 - LIQUIDS:
 - VISIBLE SIGNS OF STAINING OR UNUSUAL COLORS TO THE PAVEMENT OR SURROUNDING ADJACENT SOILS.
 - DISCOLORATION OR OILY SUBSTANCES IN THE WATER OR STAINS AND RESIDUES DETAINED WITH DITCHES, CHANNELS OR DRAINAGE BOXES.
 - PUNGENT ODORS COMING FROM THE DRAINAGE SYSTEMS.
 - ABNORMAL WATER FLOW DURING THE DRY WEATHER SEASON.
 - URBAN AREAS - EVIDENCE OF ILLICIT CONNECTIONS OR ILLEGAL DISCHARGES IS TYPICALLY DETECTED AT THE STORM DRAIN OUTFALL LOCATIONS OR AT THE MANHOLES. SIGNS OF AN ILLICIT CONNECTION OR ILLEGAL DISCHARGE CAN INCLUDE:
 - ABNORMAL WATER FLOW DURING THE DRY WEATHER SEASON.
 - UNUSUAL FLOWS IN SUB-DRAIN SYSTEMS USED FOR DEWATERING.
 - PUNGENT ODORS COMING FROM THE DRAINAGE SYSTEMS.
 - DISCOLORATION OR OILY SUBSTANCES IN THE WATER OR STAINS AND RESIDUES DETAINED WITHIN DITCHES.
 - EXCESSIVE SEDIMENT DEPOSITS, PARTICULARLY ADJACENT TO OR NEAR ACTIVE OFF-SITE CONSTRUCTION.
- NOTIFY THE PROJECT SUPERINTENDENT OF ANY ILLICIT CONNECTIONS, DUMPINGS, OR DISCHARGES AT THE TIME OF DISCOVERY.
- VEHICLES AND EQUIPMENT SHOULD BE WASHED OFF SITE AT A CONTROLLED WASH FACILITY WHEN AT ALL POSSIBLE.
- USE "DRY CLEANING METHODS" SUCH AS WIPING DOWN WHENEVER POSSIBLE RATHER THAN WATER WASHING VEHICLES ON SITE.
- IF CLEANING MUST BE CONDUCTED ON-SITE, IT SHALL BE CONDUCTED IN A DEDICATED AREA WITH THE FOLLOWING CHARACTERISTICS:
 - LOCATED AWAY FROM THE STORM DRAIN INLETS, DRAINAGE FACILITIES, OR WATERCOURSES.
 - PAVED WITH CONCRETE OR ASPHALT, OR STABILIZED WITH AN AGGREGATE BASE.
 - BERMED TO CONTAIN WASH WATERS AND TO PREVENT RUN-ON AND RUNOFF.
 - CONFIGURED WASH AREA WITH A SUMP TO ALLOW COLLECTION AND DISPOSAL OF WASH WATER.
 - DISCHARGE WASH WATER TO A SANITARY OR PROCESS WASTE SEWER (WHERE PERMITTED), OR TO A DEAD END SUMP. WASH WATERS SHALL NOT BE DISCHARGED TO STORM DRAINS OR WATERCOURSES.
 - USED ONLY WHEN NECESSARY.

- WHEN CLEANING VEHICLES OR EQUIPMENT WITH WATER:
 - USE AS LITTLE WATER AS POSSIBLE. CONSIDER USING A HIGH PRESSURE SPRAYER AND USE THE POSITIVE SHUTOFF VALVE.
 - DO NOT USE SOLVENTS OR DETERGENTS TO CLEAN VEHICLES OR EQUIPMENT ON SITE.
 - DO NOT USE STEAM CLEANING ON SITE.

- INSPECT AND CLEAN WORK AREAS REGULARLY TO LIMIT WIND BLOWN DEBRIS AND POLLUTANTS TRANSPORTED BY STORMWATER.

TO REUSE AND RECYCLE CONSTRUCTION WASTES:

- USE TRENCH SPOILS AND CUT AREA SOIL FOR FILL. UNSUITABLE AND EXCESS MATERIAL SHALL BE HAULED OFF SITE TO AN APPROVED LOCATION. IMPORTED FILL MATERIAL SHALL BE APPROVED BY THE PROJECT'S GEOTECHNICAL ENGINEER.

DEMOLITION, GRADING, EROSION & SEDIMENT CONTROL SHEET INDEX

C030	GRADING, EROSION & SEDIMENT CONTROL COVER SHEET
C031	GRADING, EROSION & SEDIMENT CONTROL NOTES
C032	INITIAL EROSION & SEDIMENT CONTROL PLAN & DEMOLITION PLAN
C033	TREE PRESERVATION AND REMOVAL COVER SHEET
C034	TREE PRESERVATION AND REMOVAL PLAN
C034A	TREE PRESERVATION AND REMOVAL TABLE
C034B	TREE PRESERVATION AND REMOVAL TABLE
C035	GRADING & POST DEVELOPMENT EROSION & SEDIMENT CONTROL PLAN
C036	HAUL ROUTE PLAN
C037	GRADING, EROSION & SEDIMENT CONTROL DETAILS
C038	GRADING, EROSION & SEDIMENT CONTROL DETAILS

DEMOLITION GENERAL NOTES

- PRIOR TO STARTING DEMOLITION OPERATIONS, THE CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL NECESSARY PERMITS REQUIRED BY FEDERAL, STATE, CITY, COUNTY, AND LOCAL LAWS, CODES, AND REGULATIONS. DEMOLITION PERMIT SHALL BE REQUIRED THROUGH THE BUILDING DIVISION.
- THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES AND/OR IMPROVEMENTS TO REMAIN ON OR OFF SITE. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING STRUCTURES AND/OR IMPROVEMENTS TO REMAIN AND SHALL RESTORE ANY DAMAGE TO THE PRE-DEMOLITION CONDITION OR BETTER USING NEW MATERIALS. ANY REPAIRS REQUIRED SHALL BE PERFORMED AT THE CONTRACTOR'S SOLE COST AND EXPENSE.
- CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS AND APPROVALS FOR ALL OFF SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO OWNER'S REPRESENTATIVE PRIOR TO INITIATING WORK.
- CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN CONFORMANCE WITH THE EROSION CONTROL PLAN, NOTES, AND DETAILS PRIOR TO STARTING DEMOLITION OPERATIONS.
- THE LOCATION OF ALL UTILITIES SHALL BE MARKED IN THE FIELD PRIOR TO DEMOLITION. CONTRACTOR SHALL PROTECT AND MAINTAIN IN A SAFE AND OPERABLE CONDITION ALL UTILITIES INDICATED TO REMAIN, AND PREVENT INTERRUPTION OF EXISTING UTILITY SERVICES EXCEPT WHEN AUTHORIZED IN WRITING BY THE AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES, ACCEPTABLE TO GOVERNING AUTHORITIES AND OWNER'S REPRESENTATIVE, FOR BUILDING(S) TO REMAIN AS REQUIRED DURING INTERRUPTIONS TO EXISTING UTILITY SERVICES.
- DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE PROJECT LIMITS WITHOUT WRITTEN PERMISSION FROM THE OWNER'S REPRESENTATIVE AND/OR GOVERNMENTAL AGENCIES HAVING JURISDICTION IF APPLICABLE.
- THE CONTRACTOR SHALL KEEP ALL STREETS AND PUBLIC RIGHT-OF-WAYS CLEAN OF MUD, DIRT, AND DEMOLITION DEBRIS. THE CONTRACTOR SHALL MONITOR THE HAULING OF DEBRIS TO INSURE THAT ANY SPILLAGE FROM TRUCKS IS PROMPTLY AND COMPLETELY REMOVED AND CLEANED UP. IF REQUIRED AND/OR NECESSARY, THE CONTRACTOR SHALL COVER ALL HAUL VEHICLES.
- CONTRACTOR SHALL CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. IF APPLICABLE STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY STREET OPENING OR DEMOLITION ACTIVITIES IN THE RIGHT-OF-WAY.
- CONTRACTOR SHALL CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITIONS EXISTING PRIOR TO THE START OF THE WORK.
- DEBRIS SHALL NOT BE BURIED OR STOCKPILED ON THE PROPERTY. ALL DEMOLITION DEBRIS AND MATERIALS SHALL BE DISPOSED OF AT OFFSITE LOCATIONS IN ACCORDANCE WITH ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS, CODES, AND REGULATIONS. THE CONTRACTOR SHALL MAINTAIN RECORDS TO DEMONSTRATE PROPER DISPOSAL ACTIVITIES AND SHALL PROVIDE A COPY TO THE OWNER OR OWNER'S REPRESENTATIVE UPON REQUEST. CONTRACTOR SHALL COORDINATE AND PAY ALL COSTS INCLUDING DISPOSAL CHARGES.
- PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES, AND EXCEPT FOR EDGE OF BUTT JOINTS, SHALL EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT. THE SAWCUT LINES SHOWN ON THE DRAWINGS ARE SCHEMATIC AND NOT INTENDED TO SHOW THE EXACT ALIGNMENT OF SUCH CUTS.
- CONTRACTOR SHALL CONFORM TO APPLICABLE REGULATORY PROCEDURES IF HAZARDOUS OR CONTAMINATED MATERIALS ARE DISCOVERED.
- CONTRACTOR IS RESPONSIBLE FOR JOB SAFETY AND SHALL PROVIDE, ERECT, AND MAINTAIN TEMPORARY BARRIERS, WARNING SIGNS, TRAFFIC CONES, AND PROTECTION AS NECESSARY DURING DEMOLITION ACTIVITIES.
- CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, FACILITIES, IMPROVEMENTS, ETC. AS SHOWN, UNLESS OTHERWISE DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL BACKFILL ALL EXCAVATION RESULTING FROM, OR INCIDENTAL TO, DEMOLITION ACTIVITIES. BACKFILL SHALL BE ACCOMPLISHED WITH APPROVED MATERIALS, AND SHALL BE PLACED AS COMPACTED ENGINEERED FILL AS REQUIRED TO SUPPORT NEW IMPROVEMENTS. BACKFILLING SHALL OCCUR IMMEDIATELY AFTER DEMOLITION ACTIVITIES UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
- DEMOLITION AREAS SHALL BE GRADED TO MATCH ADJACENT TERRAIN TO FORM A SMOOTH, CLEAN (FREE OF DEBRIS), FREE DRAINING SURFACE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR APPROVED BY THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR RELOCATION OF EXISTING UTILITIES, ETC. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND PAY ALL COSTS FOR EXCAVATION, BACKFILL, CONDUIT, WIRING, AND APPURTENANCES REQUIRED TO COMPLETE THE WORK.

	EXISTING	PROPOSED		EXISTING	PROPOSED
DECIDUOUS TREE	◯	◯	STORM SEWER CLEAN OUT	◊	▪
CONIFEROUS TREE	✱	✱	STORM SEWER CATCH BASIN	◻	■
FIRE HYDRANT	⦿	⦿	STORM SEWER MANHOLE	⊗	⊙
WATER BLOWOFF	↑	↑	GAS METER	⊠	◻
WATER METER	◻	◻	GAS VALVE	⊠	◻
WATER VALVE	⊠	⊠	GUY WIRE ANCHOR	←	←
DOUBLE CHECK VALVE	⊠	⊠	POWER POLE	◊	◊
AIR RELEASE VALVE	⦿	⦿	POWER VAULT	◻	◻
SANITARY SEWER CLEAN OUT	◊	◊	POWER JUNCTION BOX	⊠	⊠
SANITARY SEWER MANHOLE	◯	●	POWER PEDESTAL	◻	◻
SIGN	⊠	⊠	COMMUNICATIONS VAULT	◻	◻
STREET LIGHT	☆	☆	COMMUNICATIONS JUNCTION BOX	△	△
MAILBOX	⊠	⊠	COMMUNICATIONS RISER	◯	◯

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE	---	---
BOUNDARY LINE	=====	=====
PROPERTY LINE	=====	=====
CENTERLINE	-----	-----
DITCH	----->	----->
CURB	=====	=====
EDGE OF PAVEMENT	-----	-----
EASEMENT	-----	-----
FENCE LINE	---○---	---□---
GRAVEL EDGE	-----	-----
POWER LINE	---PWR---	---PWR---
OVERHEAD WIRE	---OHW---	---OHW---
COMMUNICATIONS LINE	---COM---	---COM---
FIBER OPTIC LINE	---CFO---	---CFO---
GAS LINE	---GAS---	---GAS---
STORM SEWER LINE	---STM---	---STM---
SANITARY SEWER LINE	---SAN---	---SAN---
WATER LINE	---WAT---	---WAT---

AKS

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10010 SE VRADENBURG RD

HAPPY VALLEY

OREGON

CLACKAMAS COUNTY TAX MAPS 12E 750

GRADING, EROSION & SEDIMENT CONTROL NOTES

DESIGNED BY: RSW
DRAWN BY: CL
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 4/14/2017

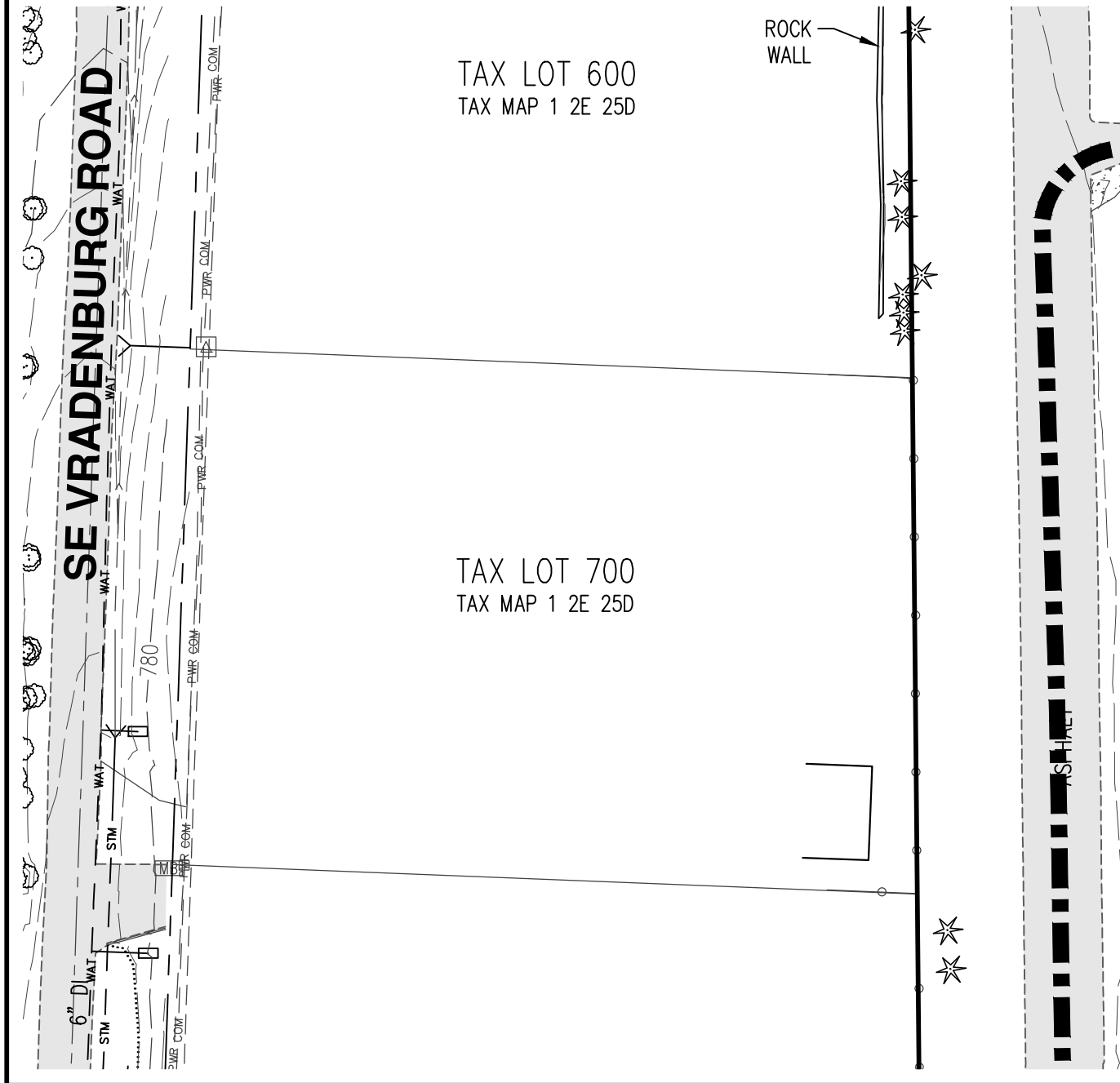
REGISTERED PROFESSIONAL ENGINEER
STATE OF OREGON
NO. 12345
EXPIRATION DATE: 12/31/2025
B. HURLEY

RENEWAL DATE: 6/30/17

REVISIONS

JOB NUMBER
3415

SHEET
C031



LEGEND

EXISTING GROUND CONTOUR (2 FT) ——— 350 ———

EXISTING GROUND CONTOUR (10 FT) ——— 345 ———

FINISHED GRADE CONTOUR (2 FT) ——— 345 ———

FINISHED GRADE CONTOUR (10 FT) ——— 345 ———

SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING) — x — x —

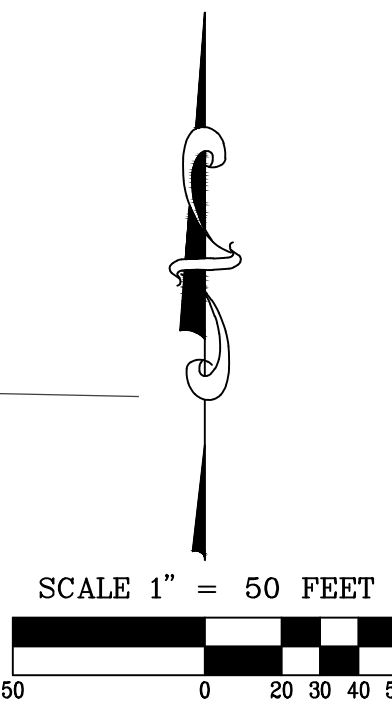
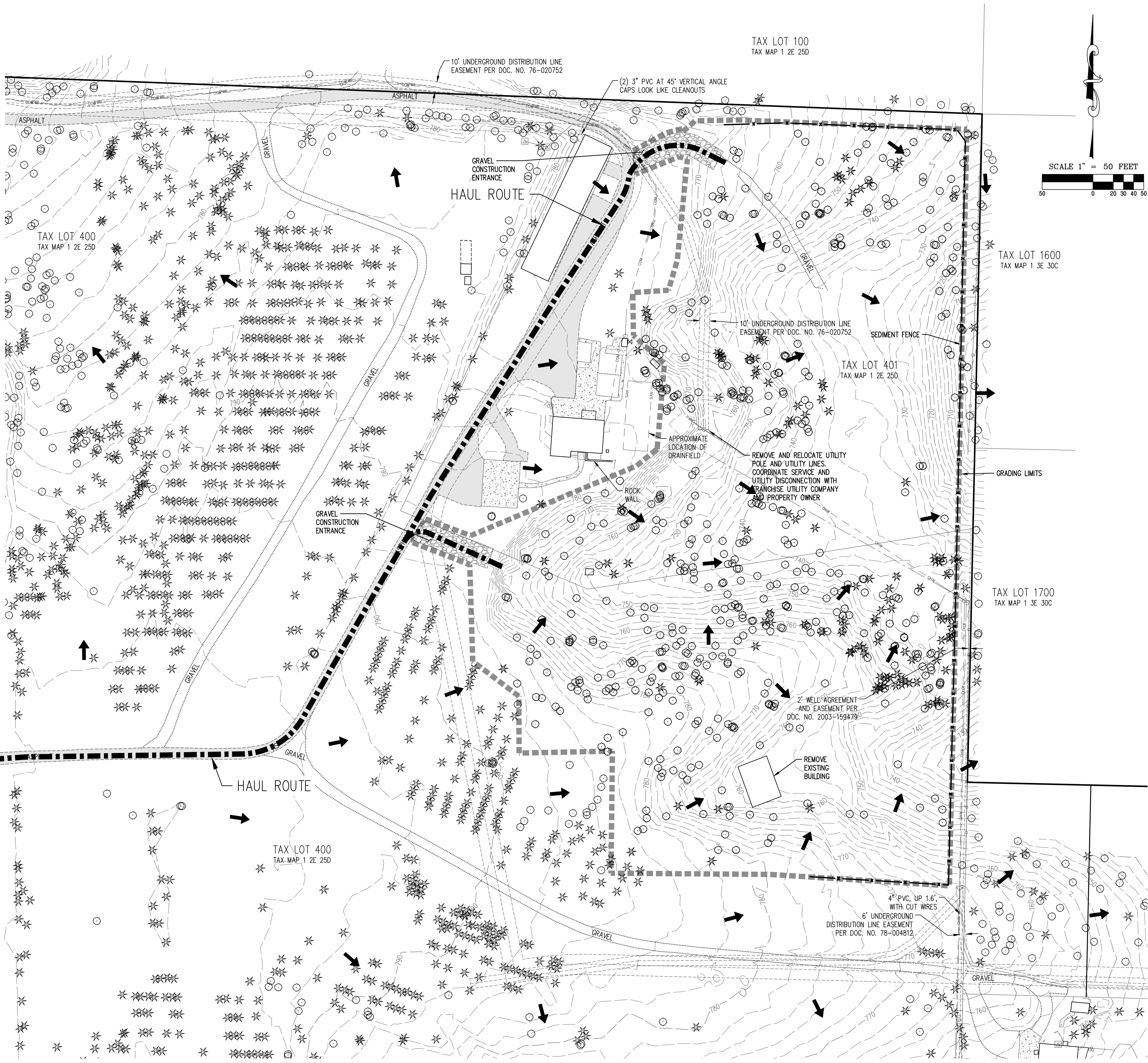
STRAW WADDLE (TO BE INSTALLED AFTER GRADING) — || — || —

DRAINAGE FLOW DIRECTION →

GRAVEL CONSTRUCTION ENTRANCE [Pattern]

GRADING LIMITS/ORANGE CONSTRUCTION FENCE [Dashed Line]

HAUL ROUTE [Thick Dashed Line]



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FORESTRY - PLANNING - LANDSCAPE ARCHITECTURE

10010 SE VRADENBURG RD

HAPPY VALLEY
CLACKAMAS COUNTY TAX MAPS 1 2E 25D
TAX LOTS 400 & 401

**INITIAL EROSION & SEDIMENT CONTROL PLAN
& DEMOLITION PLAN**

DESIGNED BY: RSW
DRAWN BY: CL
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 4/14/2017

REGISTERED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
COURTESY B. HURLEY
RENEWAL DATE: 6/30/17

REVISIONS

JOB NUMBER
3415

SHEET
C032

10010 SE VRADENBURG ROAD

TREE PRESERVATION AND REMOVAL PLANS

TREE PRESERVATION NOTES:

PLACING MATERIALS NEAR TREES:

- NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE TREE PROTECTION AREA OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PARKING EQUIPMENT, PLACING SOLVENTS, STORING BUILDING MATERIAL AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT.

ATTACHMENTS TO TREES:

- DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY OBJECT TO ANY TREE DESIGNATED FOR PROTECTION.

GRADING NEAR TREES:

- THE GRADE SHALL NOT BE ELEVATED OR REDUCED WITHIN THE TREE PROTECTION AREA OF TREES TO BE PRESERVED WITHOUT THE PROJECT ARBORIST'S AUTHORIZATION. THE PROJECT ARBORIST MAY ALLOW COVERAGE OF UP TO ONE HALF OF THE AREA OF THE TREE'S OPTIMAL TREE ROOT PROTECTION ZONE WITH LIGHT SOILS (NO CLAY) TO THE MINIMUM DEPTH NECESSARY TO CARRY OUT GRADING OR LANDSCAPING PLANS, IF IT WILL NOT IMPERIL THE SURVIVAL OF THE TREE. AERATION DEVICES MAY BE REQUIRED TO ENSURE THE TREE'S SURVIVAL.
- IF THE GRADE ADJACENT TO A PRESERVED TREE IS RAISED SUCH THAT IT COULD SLOUGH OR ERODE INTO THE TREE PROTECTION AREA, IT SHALL BE PERMANENTLY STABILIZED TO PREVENT SUFFOCATION OF THE ROOTS.
- THE APPLICANT SHALL NOT INSTALL AN IMPERVIOUS SURFACE WITHIN THE TREE PROTECTION AREA WITHOUT THE AUTHORIZATION OF THE PROJECT ARBORIST. THE PROJECT ARBORIST MAY REQUIRE SPECIFIC CONSTRUCTION METHODS AND/OR USE OF AERATION DEVICES TO ENSURE THE TREE'S SURVIVAL AND TO MINIMIZE THE POTENTIAL FOR ROOT INDUCED DAMAGE TO THE IMPERVIOUS SURFACE.
- TO THE GREATEST EXTENT PRACTICAL, UTILITY TRENCHES SHALL BE LOCATED OUTSIDE OF THE TREE PROTECTION AREA. THE PROJECT ARBORIST MAY REQUIRE THAT UTILITIES BE TUNNELED UNDER THE ROOTS OF TREES TO BE RETAINED IF THE PROJECT ARBORIST DETERMINES THAT TRENCHING WOULD SIGNIFICANTLY REDUCE THE CHANCES OF THE TREE'S SURVIVAL.
- TREES AND OTHER VEGETATION TO BE RETAINED SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. CLEARING OPERATIONS SHALL BE CONDUCTED SO AS TO EXPOSE THE SMALLEST PRACTICAL AREA OF SOIL FOR THE LEAST POSSIBLE AMOUNT OF TIME. SHRUBS, GROUND COVER, AND STUMPS SHALL BE MAINTAINED TO CONTROL EROSION, WHERE FEASIBLE. WHERE NOT FEASIBLE, APPROPRIATE EROSION CONTROL PRACTICES SHALL BE IMPLEMENTED.

ADDITIONAL REQUIREMENTS:

- THE PROJECT ARBORIST MAY REQUIRE ADDITIONAL TREE PROTECTION MEASURES WHICH ARE CONSISTENT WITH ACCEPTED URBAN FORESTRY PRACTICES.

EXCAVATION WITHIN OPTIMAL TREE ROOT PROTECTION ZONES:

- EXCAVATION IN THE TOP 24 INCHES OF SOIL IN THE OPTIMAL TREE ROOT PROTECTION ZONE SHOULD BEGIN AT THE EXCAVATION LINE THAT IS CLOSEST TO THE TREE.
- THE EXCAVATION SHOULD BE DONE BY HAND/SHOVEL OR WITH AN EXCAVATOR AND A PERSON WITH A SHOVEL, PRUNING SHEARS, AND A PRUNING SAW.
- IF DONE BY HAND, ALL ROOTS 1-INCH DIAMETER OR LARGER SHOULD BE PRUNED AT THE EXCAVATION LINE.
- IF DONE WITH AN EXCAVATOR (MOST LIKELY SCENARIO), THEN THE OPERATOR SHALL START THE CUT AT THE EXCAVATION LINE AND CAREFULLY "FEEL" FOR ROOTS/RESISTANCE. WHEN THERE IS RESISTANCE, THE PERSON WITH THE SHOVEL HAND DIGS AROUND THE ROOTS AND PRUNES THE ROOTS 1-INCH DIAMETER OR LARGER.
- THE EXCAVATOR IS TO REMAIN OFF OF THE TREE ROOTS TO BE PRESERVED AT ALL TIMES.
- ALL ROOTS SHALL BE CUT CLEANLY WITH PRUNING SHEARS OR A PRUNING SAW.
- THE PROJECT ARBORIST MUST BE ON SITE DURING ANY WORK WITHIN THE OPTIMAL TREE ROOT PROTECTION ZONE THAT IS WITHIN THE TREE PROTECTION AREA.

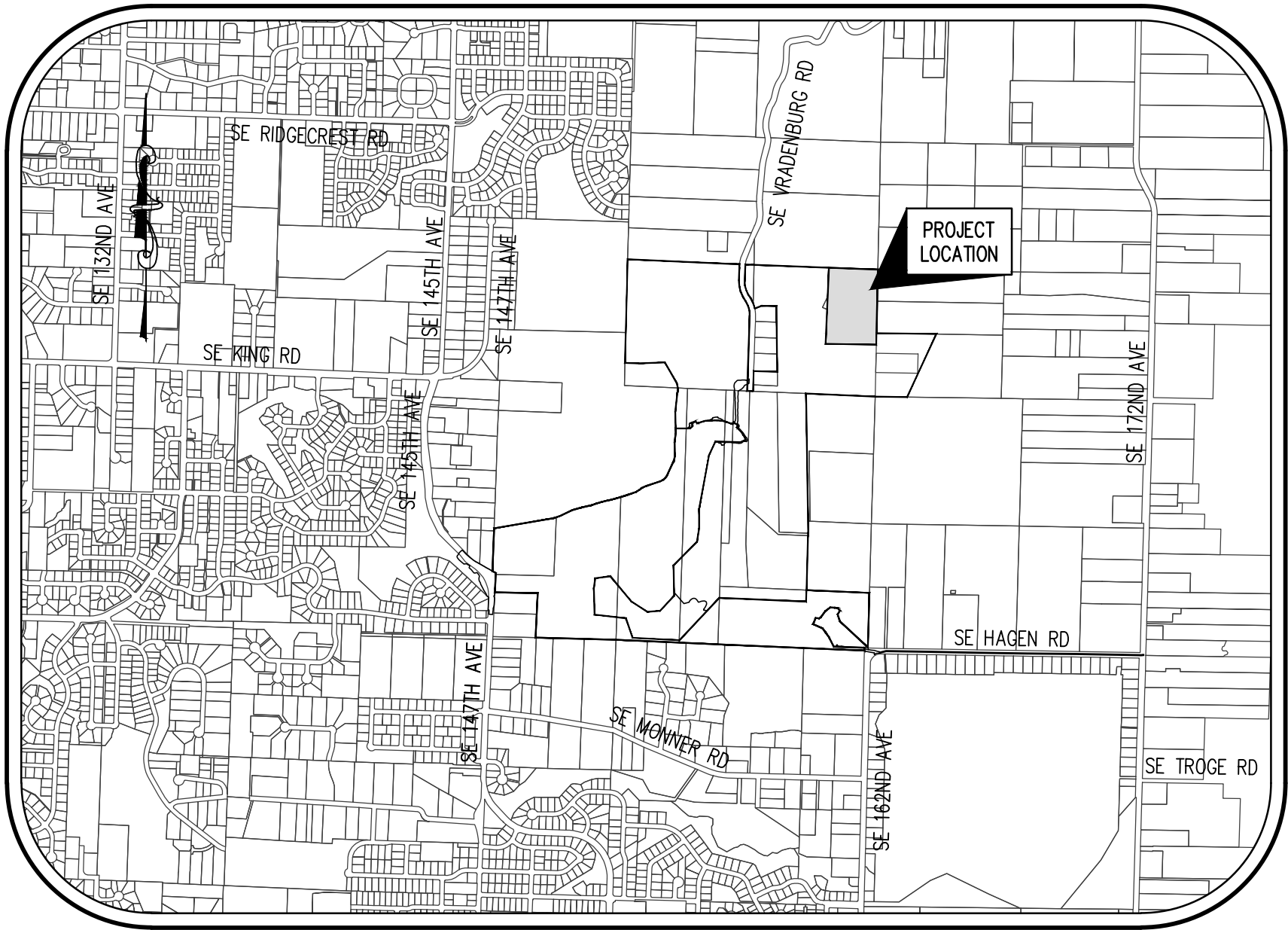
PRUNING/TREE REMOVAL NOTES:

- THE CONTRACTOR SHALL PROVIDE AN ADEQUATE CREW OF PERSONNEL, EQUIPMENT, AND MATERIALS TO SAFELY AND EFFICIENTLY COMPLETE THE ASSIGNED WORK. EACH SUCH CREW SHALL INCLUDE AN INDIVIDUAL WHO SHALL BE DESIGNATED AS THE CREW SUPERVISOR, BE RESPONSIBLE FOR THE CREW'S ACTIVITIES, RECEIVE INSTRUCTION FROM THE OWNER OR THE OWNER'S REPRESENTATIVE, AND DIRECT THE CREW TO ACCOMPLISH SUCH WORK.
- WHENEVER A TREE, WHICH IS NOT SCHEDULED TO BE REMOVED, MUST BE TRIMMED OR PRUNED, THE CONTRACTOR SHALL ENSURE THAT SUCH TRIMMING AND PRUNING IS CARRIED OUT UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST. ALL PRUNING AND TRIMMING SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ANSI A300 "STANDARD PRACTICES FOR TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE".
- UNLESS AS OTHERWISE DIRECTED BY THE OWNER, ROOT BALLS FROM TREES BEING REMOVED SHALL BE COMPLETELY REMOVED UNLESS THE ROOT REMOVAL CROSSES ONTO ADJACENT PROPERTIES OR WOULD COMPROMISE TREES BEING PRESERVED. IN THOSE CASES, THE STUMPS SHALL BE GROUND AS NECESSARY SO AS NOT TO CAUSE DAMAGE TO THE ROOT ZONES OF ADJACENT TREES TO BE PRESERVED ON THE SUBJECT PARCEL OR ABUTTING PARCELS. STUMPS NEAR PROPERTY LINES SHALL ALSO BE GROUND AS NECESSARY SO AS NOT TO CAUSE DISTURBANCE TO ADJACENT PARCELS.
- THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST GOVERNMENTAL SAFETY REGULATIONS. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ANSI Z133.1 "PRUNING, TRIMMING, REPAIRING, MAINTAINING AND REMOVING TREES AND CUTTING BRUSH-SAFETY REQUIREMENTS" WITH SPECIAL EMPHASIS GIVEN TO THE REQUIREMENT THAT ONLY QUALIFIED LINE-CLEARANCE TREE TRIMMERS BE ASSIGNED TO WORK WHERE A POTENTIAL ELECTRICAL HAZARD EXISTS.
- THE CONTRACTOR SHALL MAKE ALL THE NECESSARY ARRANGEMENTS WITH ANY UTILITY THAT MUST BE PROTECTED OR RELOCATED IN ORDER TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF THE OPERATING CONDITION OF ALL ACTIVE UTILITIES WITHIN THE AREA OF CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES.
- ANY MATERIAL RESULTING FROM THE TRIMMING OR REMOVAL OF ANY TREES SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF.
- HAZARDOUS TREE REPORTING: ANY PERSON ENGAGED IN TRIMMING OR PRUNING WHO BECOMES AWARE OF A TREE OF DOUBTFUL STRENGTH, THAT COULD BE DANGEROUS TO PERSONS AND PROPERTY, SHALL REPORT SUCH TREE(S) TO THE OWNER OR THE OWNER'S REPRESENTATIVE. SUCH TREES SHALL INCLUDE THOSE THAT ARE OVER MATURE, DISEASED, OR SHOWING SIGNS OF DECAY OR OTHER STRUCTURAL WEAKNESS.
- DAMAGES: ANY DAMAGE CAUSED BY THE CONTRACTOR, INCLUDING, BUT NOT LIMITED TO, BROKEN SIDEWALK, CURB, RUTTED LAWN, BROKEN WATER SHUT-OFFS, WIRE DAMAGE, BUILDING DAMAGE, STREET DAMAGE, ETC., WILL BE REPAIRED OR REPLACED IN A TIMELY MANNER, TO THE OWNER'S SATISFACTION, AND ALL COSTS PAID BY THE CONTRACTOR.
- ANY BRUSH CLEARING REQUIRED WITHIN THE TREE PROTECTION AREA SHALL BE ACCOMPLISHED WITH HAND OPERATED EQUIPMENT.
- TREES TO BE REMOVED SHALL BE FELLED SO AS TO FALL AWAY FROM OPTIMAL TREE ROOT PROTECTION ZONES AND TO AVOID PULLING AND BREAKING OF ROOTS TO REMAIN. DIRECTIONAL FELLING OF TREES SHALL BE USED TO AVOID DAMAGE TO TREES DESIGNATED FOR RETENTION.
- ALL DOWNED BRUSH AND TREES SHALL BE REMOVED FROM THE TREE PROTECTION AREA EITHER BY HAND OR WITH EQUIPMENT STAGED OUTSIDE OF THE TREE PROTECTION AREA. EXTRACTION SHALL OCCUR BY LIFTING THE MATERIAL OUT, NOT BY SKIDDING IT ACROSS THE GROUND.
- IF TEMPORARY HAUL OR ACCESS ROADS MUST PASS OVER TREE PROTECTION AREA, A ROADBED OF STEEL PLATES, OR 6 INCHES OF MULCH, OR 6 INCHES OF GRAVEL SHALL BE PLACED TO PREVENT SOIL COMPACTION IF DETERMINED NECESSARY BY THE PROJECT ARBORIST. THE ROADBED MATERIAL SHALL BE REPLENISHED AS NECESSARY TO MAINTAIN A 6-INCH DEPTH.
- PRUNING: THE CONTRACTOR SHALL CONSULT WITH THE PROJECT ARBORIST PRIOR TO ANY PRUNING ACTIVITIES NECESSARY FOR CONSTRUCTION ACTIVITIES. ALL PRUNING ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH ANSI A300 PRUNING STANDARDS. PRUNING SHALL BE COMPLETED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
- CUT BRANCHES AND ROOTS WITH SHARP PRUNING INSTRUMENTS THAT DO NOT CHOP OR TEAR.
- AT THE COMPLETION OF CONSTRUCTION, ALL TREES SHOULD ONCE AGAIN BE EVALUATED. LAND CLEARING AND REMOVAL OF ADJACENT TREES CAN EXPOSE PREVIOUSLY UNSEEN DEFECTS AND OTHERWISE HEALTHY TREES CAN BE DAMAGED DURING CONSTRUCTION.

MIGRATORY BIRD TREATY NOTE:

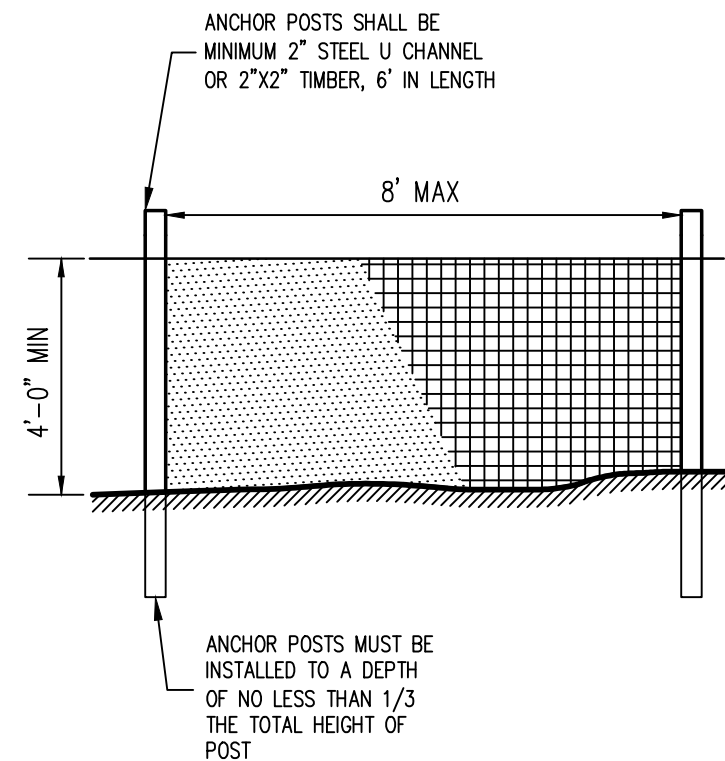
THE CONTRACTOR SHALL COMPLY WITH THE MIGRATORY BIRD TREATY ACT (16 U.S.C. 703-712) WHICH PROTECTS MOST SPECIES OF BIRDS IN OREGON AND PROHIBITS THE REMOVAL OF NESTS CONTAINING EGGS AND DEPENDENT YOUNG. (MIGRATORY BIRDS INCLUDE MOST BIRDS IN OREGON, EXCEPT PIGEONS, HOUSE SPARROWS, AND STARLINGS.)

IF TREE REMOVAL OCCURS DURING NESTING SEASON (FEBRUARY 1ST THROUGH JULY 31ST) A NESTING BIRD SURVEY MUST BE COMPLETED PRIOR TO TREE REMOVAL.



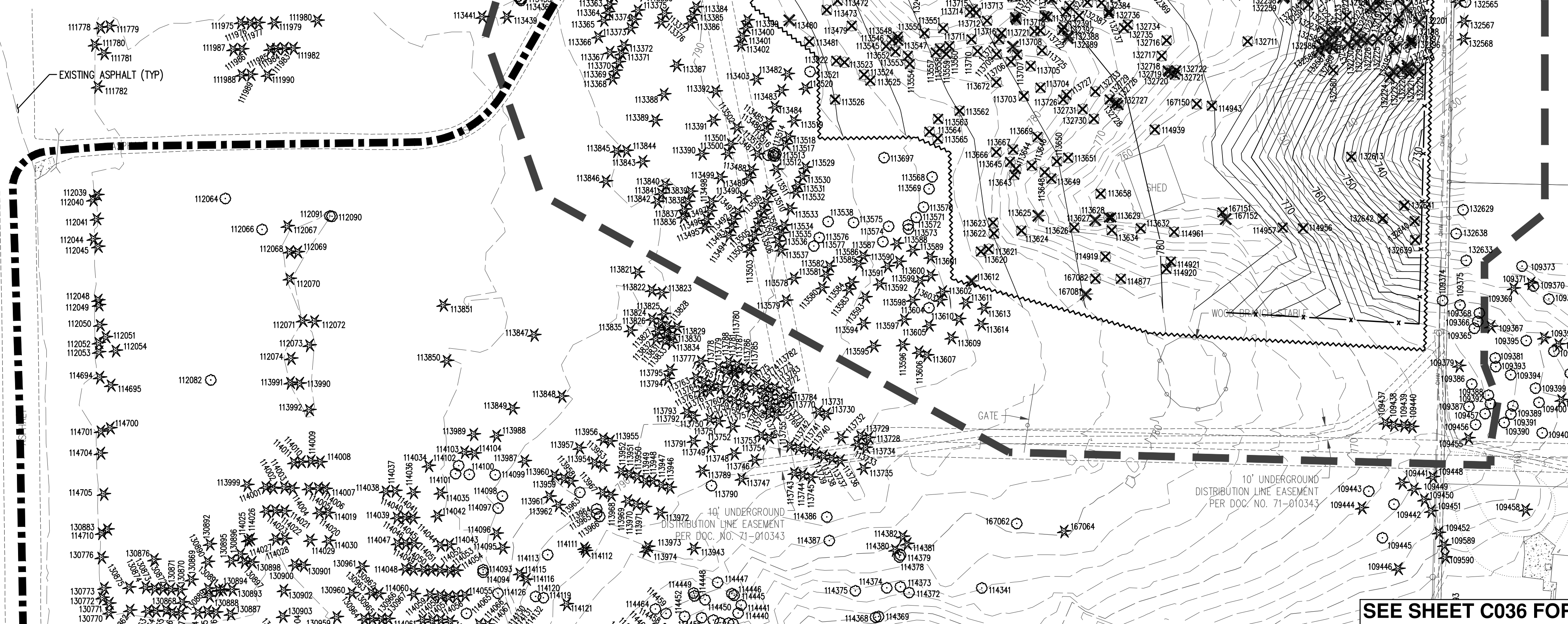
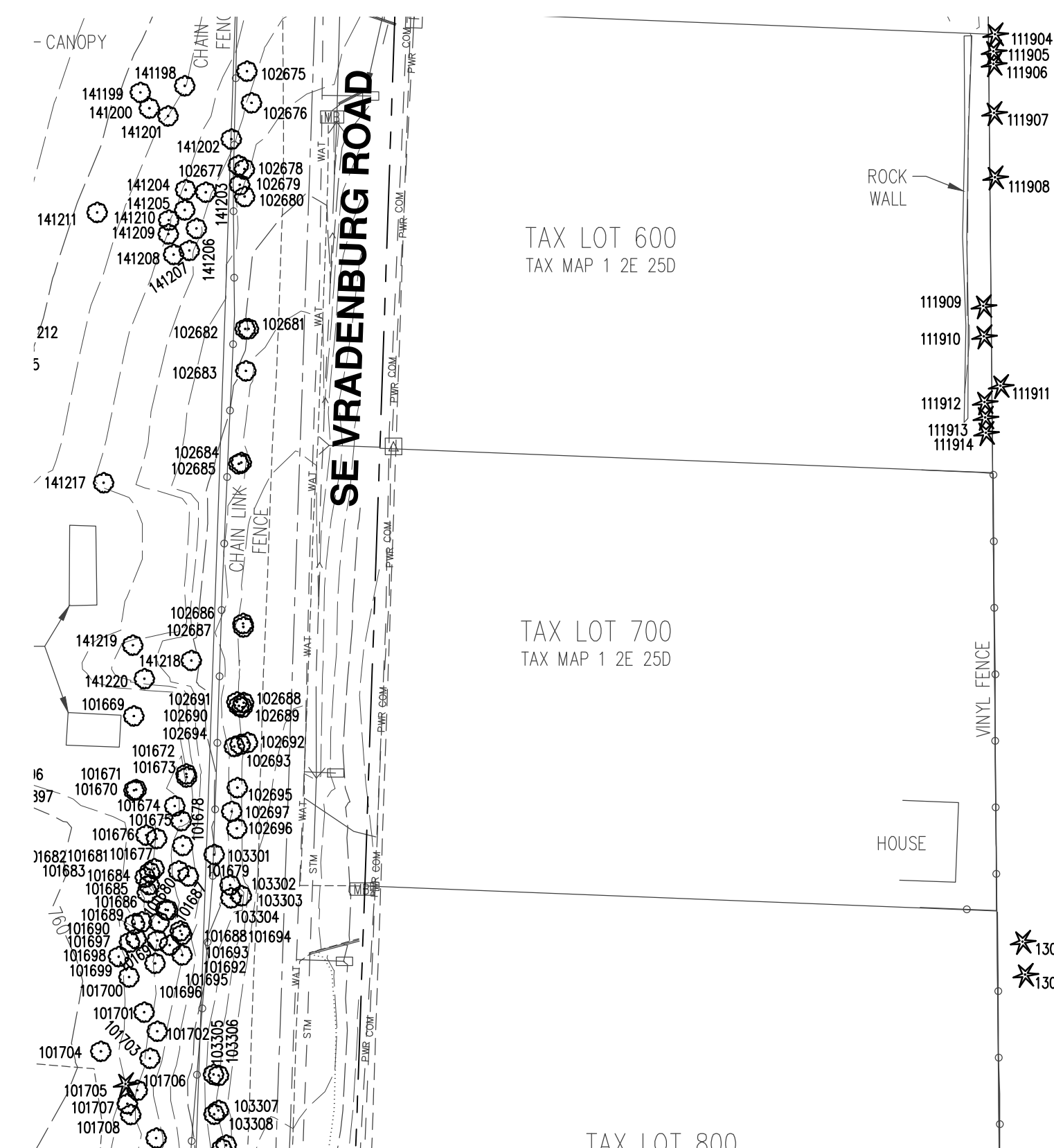
DESIGNED BY:	RSW
DRAWN BY:	CL
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 4/14/2017	
RENEWAL DATE: 6/30/17	
REVISIONS	
JOB NUMBER	
3415	
SHEET	
C034	

EXISTING GROUND CONTOUR (2 FT)	
EXISTING GROUND CONTOUR (10 FT)	
FINISHED GRADE CONTOUR (2 FT)	
FINISHED GRADE CONTOUR (10 FT)	
	CONIFEROUS DECIDUOUS
EXISTING TREE TO BE PRESERVED	
EXISTING TREE TO BE REMOVED	
ROOT PROTECTION ZONE (1-FT RADIUS PER 1-IN OF DBH)	
TREE PROTECTION/CONSTRUCTION FENCE (4' ORANGE PLASTIC CONSTRUCTION FENCE OR APPROVED EQUAL)	
PRE-CONSTRUCTION SEDIMENT FENCE (TO BE INSTALLED PRIOR TO LAND DISTURBANCE)	
GRAVEL CONSTRUCTION ENTRANCE	
HAUL ROUTE	



NOTES:

1. BLAZE ORANGE PLASTIC MESH FENCE FOR TREE PROTECTION DEVICE OR APPROVED EQUAL.
2. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
3. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.



**SEE SHEET C036 FOR
HAUL ROUTE PLAN**

AKS DRAWING FILE: 3415 PH1A C030 TREE TABLEDING | LAYOUT: C034A

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
109365	DECIDUOUS	7	ONSITE	PRESERVE
109366	DECIDUOUS	7	ONSITE	PRESERVE
109368	DECIDUOUS	9	ONSITE	PRESERVE
109374	DECIDUOUS	7	ONSITE	PRESERVE
109375	DECIDUOUS	7	ONSITE	PRESERVE
109379	CONIFEROUS	31	ONSITE	PRESERVE
109386	DECIDUOUS	7	ONSITE	PRESERVE
109387	DECIDUOUS	6	ONSITE	PRESERVE
109388	DECIDUOUS	8	ONSITE	PRESERVE
109392	DECIDUOUS	6	ONSITE	PRESERVE
109437	CONIFEROUS	9	ONSITE	PRESERVE
109438	CONIFEROUS	9	ONSITE	PRESERVE
109439	CONIFEROUS	7	ONSITE	PRESERVE
109440	CONIFEROUS	11	ONSITE	PRESERVE
109455	CONIFEROUS	32	ONSITE	PRESERVE
109456	DECIDUOUS	6	ONSITE	PRESERVE
109457	DECIDUOUS	6	ONSITE	PRESERVE
112877	DECIDUOUS	17	ONSITE	PRESERVE
112878	DECIDUOUS	14	ONSITE	PRESERVE
112879	CONIFEROUS	24	ONSITE	PRESERVE
112880	CONIFEROUS	22	ONSITE	PRESERVE
112885	DECIDUOUS	12	ONSITE	PRESERVE
112887	DECIDUOUS	7,11,27	ONSITE	PRESERVE
112889	DECIDUOUS	6,7,17	ONSITE	PRESERVE
112890	DECIDUOUS	19	ONSITE	PRESERVE
112891	DECIDUOUS	15	ONSITE	PRESERVE
112892	DECIDUOUS	8	ONSITE	PRESERVE
112893	DECIDUOUS	16,16,18	ONSITE	PRESERVE
112894	DECIDUOUS	9	ONSITE	PRESERVE
112895	DECIDUOUS	12	ONSITE	PRESERVE
112897	DECIDUOUS	15	OFFSITE	PRESERVE
112898	DECIDUOUS	14	ONSITE	PRESERVE
112899	DECIDUOUS	9	ONSITE	PRESERVE
112900	DECIDUOUS	13	ONSITE	PRESERVE
112901	CONIFEROUS	7	OFFSITE	PRESERVE
112902	CONIFEROUS	14	OFFSITE	PRESERVE
112903	DECIDUOUS	15	ONSITE	REMOVE
112905	DECIDUOUS	12	ONSITE	REMOVE
112914	DECIDUOUS	12	ONSITE	REMOVE
112915	DECIDUOUS	9	ONSITE	REMOVE
112916	DECIDUOUS	16,16	ONSITE	REMOVE
112935	DECIDUOUS	6	ONSITE	REMOVE
112936	DECIDUOUS	6,11	ONSITE	REMOVE
112937	DECIDUOUS	21	ONSITE	REMOVE
112950	DECIDUOUS	14	ONSITE	REMOVE
112951	DECIDUOUS	7	ONSITE	REMOVE
112952	DECIDUOUS	7	ONSITE	REMOVE
112953	DECIDUOUS	6	ONSITE	REMOVE
112954	DECIDUOUS	24	ONSITE	REMOVE
112955	DECIDUOUS	6	ONSITE	REMOVE
112956	DECIDUOUS	19,24	ONSITE	REMOVE
112957	DECIDUOUS	17,20	ONSITE	REMOVE
112958	DECIDUOUS	20	ONSITE	REMOVE
112959	CONIFEROUS	21	ONSITE	REMOVE
112960	DECIDUOUS	6,8,9,9	ONSITE	REMOVE
113076	CONIFEROUS	11	ONSITE	PRESERVE
113077	CONIFEROUS	13	ONSITE	PRESERVE
113078	CONIFEROUS	9,11	ONSITE	REMOVE
113080	CONIFEROUS	13	ONSITE	REMOVE
113082	CONIFEROUS	10,13,14	ONSITE	REMOVE
113086	DECIDUOUS	7	ONSITE	REMOVE
113087	CONIFEROUS	69	ONSITE	REMOVE
113093	CONIFEROUS	29	ONSITE	PRESERVE
113094	DECIDUOUS	8,9	ONSITE	PRESERVE
113095	CONIFEROUS	28	ONSITE	PRESERVE
113098	CONIFEROUS	26	ONSITE	PRESERVE
113099	CONIFEROUS	23,23	ONSITE	PRESERVE
113101	CONIFEROUS	12	ONSITE	PRESERVE
113102	CONIFEROUS	8	ONSITE	PRESERVE
113103	CONIFEROUS	8	ONSITE	PRESERVE
113104	CONIFEROUS	14	ONSITE	PRESERVE
113105	DECIDUOUS	6	ONSITE	PRESERVE
113107	CONIFEROUS	27	ONSITE	PRESERVE
113108	CONIFEROUS	27	ONSITE	PRESERVE
113109	CONIFEROUS	28	ONSITE	PRESERVE
113111	CONIFEROUS	24	ONSITE	PRESERVE
113112	CONIFEROUS	15	ONSITE	PRESERVE
113114	CONIFEROUS	27	ONSITE	PRESERVE
113125	CONIFEROUS	16	ONSITE	PRESERVE
113131	CONIFEROUS	9	ONSITE	PRESERVE
113134	DECIDUOUS	7	ONSITE	REMOVE
113135	DECIDUOUS	9	ONSITE	REMOVE
113136	DECIDUOUS	10	ONSITE	REMOVE
113137	DECIDUOUS	9	ONSITE	REMOVE
113138	DECIDUOUS	7	ONSITE	REMOVE
113139	DECIDUOUS	9	ONSITE	REMOVE
113140	DECIDUOUS	9	ONSITE	REMOVE
113141	DECIDUOUS	7	ONSITE	REMOVE
113142	DECIDUOUS	8	ONSITE	REMOVE
113143	DECIDUOUS	8	ONSITE	REMOVE
113144	DECIDUOUS	15,28	ONSITE	REMOVE
113145	DECIDUOUS	8	ONSITE	REMOVE
113146	DECIDUOUS	10	ONSITE	REMOVE
113147	DECIDUOUS	6,6,8	ONSITE	REMOVE
113148	DECIDUOUS	7	ONSITE	REMOVE
113149	DECIDUOUS	9	ONSITE	REMOVE
113154	DECIDUOUS	22	ONSITE	REMOVE

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
113155	DECIDUOUS	19	ONSITE	REMOVE
113156	DECIDUOUS	7,14	ONSITE	REMOVE
113171	DECIDUOUS	9	ONSITE	REMOVE
113173	DECIDUOUS	6,7	ONSITE	REMOVE
113176	DECIDUOUS	9	ONSITE	REMOVE
113179	CONIFEROUS	13	ONSITE	REMOVE
113180	DECIDUOUS	23	ONSITE	PRESERVE
113314	DECIDUOUS	9	ONSITE	PRESERVE
113315	DECIDUOUS	11	ONSITE	PRESERVE
113350	CONIFEROUS	14,15	ONSITE	PRESERVE
113351	CONIFEROUS	15	ONSITE	PRESERVE
113352	CONIFEROUS	16	ONSITE	PRESERVE
113353	CONIFEROUS	19	ONSITE	PRESERVE
113354	CONIFEROUS	9	ONSITE	PRESERVE
113355	CONIFEROUS	11	ONSITE	PRESERVE
113356	CONIFEROUS	7	ONSITE	PRESERVE
113357	CONIFEROUS	8	ONSITE	PRESERVE
113358	CONIFEROUS	9	ONSITE	PRESERVE
113359	CONIFEROUS	11	ONSITE	PRESERVE
113360	CONIFEROUS	6	ONSITE	PRESERVE
113361	CONIFEROUS	7	ONSITE	PRESERVE
113362	CONIFEROUS	8	ONSITE	PRESERVE
113363	CONIFEROUS	9	ONSITE	PRESERVE
113364	CONIFEROUS	6	ONSITE	PRESERVE
113365	CONIFEROUS	8	ONSITE	PRESERVE
113366	CONIFEROUS	9	ONSITE	PRESERVE
113367	CONIFEROUS	6	ONSITE	PRESERVE
113368	CONIFEROUS	8	ONSITE	PRESERVE
113369	CONIFEROUS	9	ONSITE	PRESERVE
113370	CONIFEROUS	9	ONSITE	PRESERVE
113371	CONIFEROUS	9	ONSITE	PRESERVE
113372	CONIFEROUS	10	ONSITE	PRESERVE
113373	CONIFEROUS	8	ONSITE	PRESERVE
113374	CONIFEROUS	9	ONSITE	PRESERVE
113375	CONIFEROUS	7	ONSITE	PRESERVE
113376	CONIFEROUS	9	ONSITE	PRESERVE
113377	CONIFEROUS	11	ONSITE	PRESERVE
113378	CONIFEROUS	14	ONSITE	PRESERVE
113379	CONIFEROUS	14	ONSITE	PRESERVE
113380	CONIFEROUS	13	ONSITE	PRESERVE
113381	CONIFEROUS	14	ONSITE	PRESERVE
113382	CONIFEROUS	15	ONSITE	PRESERVE
113383	CONIFEROUS	19	ONSITE	PRESERVE
113384	CONIFEROUS	15	ONSITE	PRESERVE
113385	CONIFEROUS	11	ONSITE	PRESERVE
113386	CONIFEROUS	17	ONSITE	PRESERVE
113387	CONIFEROUS	13	ONSITE	PRESERVE
113388	CONIFEROUS	12	ONSITE	PRESERVE
113389	CONIFEROUS	6,8	ONSITE	PRESERVE
113390	CONIFEROUS	14	ONSITE	PRESERVE
113391	CONIFEROUS	12	ONSITE	PRESERVE
113392	CONIFEROUS	9	ONSITE	PRESERVE
113399	CONIFEROUS	10	ONSITE	PRESERVE
113400	CONIFEROUS	19	ONSITE	PRESERVE
113401	CONIFEROUS	7	ONSITE	PRESERVE
113402	CONIFEROUS	10	ONSITE	PRESERVE
113403	CONIFEROUS	15	ONSITE	PRESERVE
113404	CONIFEROUS	7	ONSITE	PRESERVE
113405	CONIFEROUS	8	ONSITE	PRESERVE
113419	CONIFEROUS	20	ONSITE	PRESERVE
113421	CONIFEROUS	21	ONSITE	PRESERVE
113424	CONIFEROUS	17	ONSITE	PRESERVE
113425	CONIFEROUS	12	ONSITE	PRESERVE
113426	CONIFEROUS	16	ONSITE	PRESERVE
113427	CONIFEROUS	15	ONSITE	PRESERVE
113428	CONIFEROUS	14	ONSITE	PRESERVE
113430	CONIFEROUS	13	ONSITE	PRESERVE
113431	CONIFEROUS	12	ONSITE	PRESERVE
113432	CONIFEROUS	15	ONSITE	PRESERVE
113433	CONIFEROUS	17,19	ONSITE	PRESERVE
113435	DECIDUOUS	6	ONSITE	PRESERVE
113436	DECIDUOUS	6	ONSITE	PRESERVE
113437	DECIDUOUS	6	ONSITE	PRESERVE
113438	DECIDUOUS	6	ONSITE	PRESERVE
113439	CONIFEROUS	20	ONSITE	PRESERVE
113471	DECIDUOUS	16	ONSITE	REMOVE
113472	DECIDUOUS	23	ONSITE	REMOVE
113473	DECIDUOUS	21	ONSITE	REMOVE
113474	DECIDUOUS	16	ONSITE	REMOVE
113475	DECIDUOUS	17	ONSITE	REMOVE
113479	DECIDUOUS	20	ONSITE	REMOVE
113480	CONIFEROUS	49	ONSITE	REMOVE
113481	DECIDUOUS	11	ONSITE	REMOVE
113482	CONIFEROUS	14	ONSITE	PRESERVE
113483	CONIFEROUS	15	ONSITE	PRESERVE
113484	CONIFEROUS	14	ONSITE	PRESERVE
113485	CONIFEROUS	9	ONSITE	PRESERVE
113486	CONIFEROUS	13	ONSITE	PRESERVE
113487	CONIFEROUS	11	ONSITE	PRESERVE
113488	CONIFEROUS	14	ONSITE	PRESERVE
113489	CONIFEROUS	12	ONSITE	PRESERVE
113490	CONIFEROUS	13	ONSITE	PRESERVE
113491	CONIFEROUS	11	ONSITE	PRESERVE
113492	CONIFEROUS	10	ONSITE	PRESERVE
113493	CONIFEROUS	13	ONSITE	PRESERVE
113494	CONIFEROUS	13	ONSITE	PRESERVE
113495	CONIFEROUS	15	ONSITE	PRESERVE

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
113496	CONIFEROUS	12	ONSITE	PRESERVE
113497	CONIFEROUS	10	ONSITE	PRESERVE
113498	CONIFEROUS	15	ONSITE	PRESERVE
113499	CONIFEROUS	17	ONSITE	PRESERVE
113500	CONIFEROUS	13	ONSITE	PRESERVE
113501	CONIFEROUS	11	ONSITE	PRESERVE
113502	CONIFEROUS	10	ONSITE	PRESERVE
113503	CONIFEROUS	17	ONSITE	PRESERVE
113504	CONIFEROUS	13	ONSITE	PRESERVE
113505	CONIFEROUS	10	ONSITE	PRESERVE
113506	CONIFEROUS	10	ONSITE	PRESERVE
113507	CONIFEROUS	13	ONSITE	PRESERVE
113508	CONIFEROUS	9	ONSITE	PRESERVE
113509	CONIFEROUS	12	ONSITE	PRESERVE
113510	CONIFEROUS	12	ONSITE	PRESERVE
113511	CONIFEROUS	13	ONSITE	PRESERVE
113512	DECIDUOUS	7	ONSITE	PRESERVE
113513	DECIDUOUS	7	ONSITE	PRESERVE
113514	DECIDUOUS	6	ONSITE	PRESERVE
113515	DECIDUOUS	10	ONSITE	PRESERVE
113516	DECIDUOUS	7	ONSITE	PRESERVE
113517	CONIFEROUS	13	ONSITE	PRESERVE
113518	CONIFEROUS	12	ONSITE	PRESERVE
113519	CONIFEROUS	15	ONSITE	PRESERVE
113520	CONIFEROUS	14	ONSITE	PRESERVE
113521	DECIDUOUS	11	ONSITE	PRESERVE
113522	DECIDUOUS	8	ONSITE	REMOVE
113523	DECIDUOUS	7	ONSITE	REMOVE
113524	DECIDUOUS	9	ONSITE	REMOVE
113525	DECIDUOUS	8	ONSITE	REMOVE
113526	DECIDUOUS	8,13,15	ONSITE	REMOVE
113529	CONIFEROUS	15	ONSITE	PRESERVE
113530	CONIFEROUS	10	ONSITE	PRESERVE
113531	CONIFEROUS	13	ONSITE	PRESERVE
113532	CONIFEROUS	13	ONSITE	PRESERVE
113533	CONIFEROUS	14	ONSITE	PRESERVE
113534	CONIFEROUS	15	ONSITE	PRESERVE
113535	CONIFEROUS	12	ONSITE	PRESERVE
113536	CONIFEROUS	15	ONSITE	PRESERVE
113537	CONIFEROUS	7	ONSITE	PRESERVE
113538	DECIDUOUS	6	ONSITE	PRESERVE
113545	DECIDUOUS	13	ONSITE	REMOVE
113546	DECIDUOUS	15	ONSITE	REMOVE
113547	DECIDUOUS	12	ONSITE	REMOVE
113548	DECIDUOUS	15	ONSITE	REMOVE
113550	DECIDUOUS	14	ONSITE	REMOVE
113551	DECIDUOUS	14	ONSITE	REMOVE
113552	DECIDUOUS	12	ONSITE	REMOVE
113553	DECIDUOUS	12	ONSITE	REMOVE
113554	DECIDUOUS	14	ONSITE	REMOVE
113557	DECIDUOUS	10	ONSITE	REMOVE
113558	DECIDUOUS	10	ONSITE	REMOVE
113559	DECIDUOUS	18	ONSITE	REMOVE
113560	DECIDUOUS	10	ONSITE	REMOVE
113562	DECIDUOUS	8,10	ONSITE	REMOVE
113563	DECIDUOUS	16,23	ONSITE	REMOVE
113564	DECIDUOUS	12	ONSITE	REMOVE
113565	DECIDUOUS	8	ONSITE	REMOVE
113568	DECIDUOUS	7	ONSITE	PRESERVE
113569	DECIDUOUS	7,7	ONSITE	PRESERVE
113570	DECIDUOUS	6,8	ONSITE	PRESERVE
113571	DECIDUOUS	8	ONSITE	PRESERVE
113572	DECIDUOUS	7	ONSITE	PRESERVE
113573	DECIDUOUS	7	ONSITE	PRESERVE
113574	DECIDUOUS	6,9,9	ONSITE	PRESERVE
113575	DECIDUOUS	7,10	ONSITE	PRESERVE
113576	DECIDUOUS	8,11,13,16	ONSITE	PRESERVE
113577	DECIDUOUS	6,7,7	ONSITE	PRESERVE
113578	CONIFEROUS	13	ONSITE	PRESERVE
113579	CONIFEROUS	13	ONSITE	PRESERVE
113580	CONIFEROUS	15	ONSITE	PRESERVE
113581	CONIFEROUS	9	ONSITE	PRESERVE
113582	CONIFEROUS	8	ONSITE	PRESERVE
113583	CONIFEROUS	16	ONSITE	PRESERVE
113584	CONIFEROUS	14	ONSITE	PRESERVE
113585	CONIFEROUS	10	ONSITE	PRESERVE
113586	CONIFEROUS	16	ONSITE	PRESERVE
113587	DECIDUOUS	6,6	ONSITE	PRESERVE
113588	CONIFEROUS	8	ONSITE	PRESERVE
113589	CONIFEROUS	9	ONSITE	PRESERVE
113590	CONIFEROUS	7	ONSITE	PRESERVE
113591	CONIFEROUS	15	ONSITE	PRESERVE
113592	CONIFEROUS	15	ONSITE	PRESERVE
113593	CONIFEROUS	7	ONSITE	PRESERVE
113594	CONIFEROUS	12	ONSITE	PRESERVE
113595	CONIFEROUS	8	ONSITE	PRESERVE
113596	CONIFEROUS	13	ONSITE	PRESERVE
113597	CONIFEROUS	15	ONSITE	PRESERVE
113598	CONIFEROUS	16	ONSITE	PRESERVE
113599	CONIFEROUS	16	ONSITE	PRESERVE
113600	CONIFEROUS	9	ONSITE	PRESERVE
113601	CONIFEROUS	13	ONSITE	PRESERVE
113602	CONIFEROUS	10	ONSITE	PRESERVE
113603	CONIFEROUS	6	ONSITE	PRESERVE
113604	DECIDUOUS	6,8	ONSITE	PRESERVE
113605	CONIFEROUS	14	ONSITE	PRESERVE
113606	CONIFEROUS	10	ONSITE	PRESERVE

AKS DRAWING FILE: 3415 PH1A C030 TREE TABLEDING | LAYOUT: C034B

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
131806	DECIDUOUS	8	ONSITE	REMOVE
131807	CONIFEROUS	13	ONSITE	REMOVE
131808	CONIFEROUS	9	ONSITE	REMOVE
131813	CONIFEROUS	18	ONSITE	REMOVE
131814	CONIFEROUS	23	ONSITE	REMOVE
131815	CONIFEROUS	22	ONSITE	REMOVE
131816	CONIFEROUS	10	ONSITE	REMOVE
131817	CONIFEROUS	19	ONSITE	REMOVE
131818	DECIDUOUS	7	ONSITE	REMOVE
131819	DECIDUOUS	6	ONSITE	REMOVE
131820	CONIFEROUS	16	ONSITE	REMOVE
131821	CONIFEROUS	19	ONSITE	REMOVE
131822	DECIDUOUS	7	ONSITE	REMOVE
131823	CONIFEROUS	15	ONSITE	REMOVE
131824	DECIDUOUS	6	ONSITE	REMOVE
131825	DECIDUOUS	6	ONSITE	REMOVE
131827	DECIDUOUS	9	ONSITE	REMOVE
131828	DECIDUOUS	9,11	ONSITE	REMOVE
131829	DECIDUOUS	29	ONSITE	REMOVE
131830	CONIFEROUS	27	ONSITE	REMOVE
131831	DECIDUOUS	7	ONSITE	REMOVE
131833	DECIDUOUS	11	ONSITE	REMOVE
131834	DECIDUOUS	10,10,15,7	ONSITE	REMOVE
131835	DECIDUOUS	11	ONSITE	REMOVE
131836	DECIDUOUS	13	ONSITE	REMOVE
131838	DECIDUOUS	8	ONSITE	REMOVE
131839	DECIDUOUS	8	ONSITE	REMOVE
131840	DECIDUOUS	6	ONSITE	REMOVE
131841	DECIDUOUS	7	ONSITE	REMOVE
131842	DECIDUOUS	8	ONSITE	REMOVE
131843	DECIDUOUS	6	ONSITE	REMOVE
131844	DECIDUOUS	6	ONSITE	REMOVE
131845	DECIDUOUS	6	ONSITE	REMOVE
131846	DECIDUOUS	6	ONSITE	REMOVE
131862	DECIDUOUS	6	ONSITE	REMOVE
131863	DECIDUOUS	9	ONSITE	REMOVE
131864	DECIDUOUS	9	ONSITE	REMOVE
131865	DECIDUOUS	6	ONSITE	REMOVE
131866	CONIFEROUS	26	ONSITE	REMOVE
131867	CONIFEROUS	6	ONSITE	REMOVE
131868	CONIFEROUS	9,13	ONSITE	REMOVE
131869	DECIDUOUS	11	ONSITE	REMOVE
131870	CONIFEROUS	6	ONSITE	REMOVE
131871	DECIDUOUS	12	ONSITE	REMOVE
131888	DECIDUOUS	6,8	ONSITE	REMOVE
131889	DECIDUOUS	7	ONSITE	REMOVE
131890	DECIDUOUS	11	ONSITE	REMOVE
131891	DECIDUOUS	9	ONSITE	REMOVE
131892	DECIDUOUS	6	ONSITE	REMOVE
131894	DECIDUOUS	12,17	ONSITE	REMOVE
131895	DECIDUOUS	10,11	ONSITE	REMOVE
131896	DECIDUOUS	11,11	ONSITE	REMOVE
131897	DECIDUOUS	10	ONSITE	REMOVE
131898	DECIDUOUS	8,10	ONSITE	REMOVE
131899	DECIDUOUS	15	ONSITE	REMOVE
131941	CONIFEROUS	12	ONSITE	REMOVE
131954	DECIDUOUS	6	ONSITE	REMOVE
131955	DECIDUOUS	16	ONSITE	REMOVE
131956	DECIDUOUS	6	ONSITE	REMOVE
131958	CONIFEROUS	13	ONSITE	REMOVE
131959	CONIFEROUS	14	ONSITE	REMOVE
131960	DECIDUOUS	8	ONSITE	REMOVE
131964	DECIDUOUS	8,11	ONSITE	REMOVE
131965	CONIFEROUS	9	ONSITE	REMOVE
131966	DECIDUOUS	7	ONSITE	REMOVE
131976	DECIDUOUS	22	OFFSITE	PRESERVE
131982	DECIDUOUS	17	ONSITE	REMOVE
131983	DECIDUOUS	12	ONSITE	REMOVE
131984	DECIDUOUS	15	ONSITE	REMOVE
131985	DECIDUOUS	10	ONSITE	REMOVE
131988	DECIDUOUS	10	ONSITE	PRESERVE
131989	DECIDUOUS	10	ONSITE	REMOVE
131990	DECIDUOUS	16	ONSITE	REMOVE
131992	DECIDUOUS	15	OFFSITE	PRESERVE
131993	DECIDUOUS	12	ONSITE	PRESERVE
131996	DECIDUOUS	9,10,25	OFFSITE	PRESERVE
131999	DECIDUOUS	20	OFFSITE	PRESERVE
132017	DECIDUOUS	17	ONSITE	REMOVE
132052	DECIDUOUS	11	ONSITE	REMOVE
132053	DECIDUOUS	15	ONSITE	REMOVE
132054	DECIDUOUS	14	ONSITE	REMOVE
132055	DECIDUOUS	10	ONSITE	REMOVE
132056	DECIDUOUS	21	ONSITE	REMOVE
132057	DECIDUOUS	7	ONSITE	REMOVE
132058	DECIDUOUS	12	ONSITE	REMOVE
132059	DECIDUOUS	8	ONSITE	REMOVE
132060	DECIDUOUS	6	ONSITE	REMOVE
132061	DECIDUOUS	7	ONSITE	REMOVE
132076	DECIDUOUS	8	ONSITE	REMOVE
132077	DECIDUOUS	7	ONSITE	REMOVE
132140	CONIFEROUS	6	ONSITE	REMOVE
132141	CONIFEROUS	12	ONSITE	REMOVE
132142	CONIFEROUS	24	ONSITE	REMOVE
132143	CONIFEROUS	12	ONSITE	REMOVE
132144	DECIDUOUS	15	ONSITE	REMOVE
132145	CONIFEROUS	19	ONSITE	REMOVE
132146	CONIFEROUS	11	ONSITE	REMOVE

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
132147	DECIDUOUS	16	OFFSITE	PRESERVE
132148	DECIDUOUS	9	ONSITE	REMOVE
132149	CONIFEROUS	9	ONSITE	REMOVE
132150	CONIFEROUS	30	ONSITE	PRESERVE
132151	CONIFEROUS	26	ONSITE	REMOVE
132152	DECIDUOUS	9	ONSITE	REMOVE
132153	CONIFEROUS	7	ONSITE	REMOVE
132154	DECIDUOUS	6	ONSITE	REMOVE
132155	DECIDUOUS	8	ONSITE	REMOVE
132156	CONIFEROUS	9	ONSITE	REMOVE
132157	CONIFEROUS	8	ONSITE	REMOVE
132158	CONIFEROUS	6	ONSITE	REMOVE
132159	DECIDUOUS	9	ONSITE	REMOVE
132160	CONIFEROUS	7	ONSITE	REMOVE
132161	CONIFEROUS	6	ONSITE	REMOVE
132162	CONIFEROUS	12	ONSITE	REMOVE
132163	DECIDUOUS	10	ONSITE	REMOVE
132164	CONIFEROUS	7	ONSITE	REMOVE
132165	CONIFEROUS	8	ONSITE	REMOVE
132166	DECIDUOUS	11	ONSITE	REMOVE
132167	DECIDUOUS	10	ONSITE	REMOVE
132168	DECIDUOUS	12	ONSITE	REMOVE
132169	DECIDUOUS	9	ONSITE	REMOVE
132170	DECIDUOUS	6	ONSITE	REMOVE
132171	CONIFEROUS	11	ONSITE	REMOVE
132172	DECIDUOUS	10	ONSITE	REMOVE
132173	DECIDUOUS	16	ONSITE	REMOVE
132174	DECIDUOUS	10	ONSITE	REMOVE
132175	CONIFEROUS	13	ONSITE	REMOVE
132176	DECIDUOUS	9	ONSITE	REMOVE
132177	DECIDUOUS	9,13	ONSITE	REMOVE
132178	DECIDUOUS	12	ONSITE	REMOVE
132179	CONIFEROUS	7	ONSITE	REMOVE
132180	DECIDUOUS	7	ONSITE	REMOVE
132181	DECIDUOUS	8	ONSITE	REMOVE
132182	DECIDUOUS	7	ONSITE	REMOVE
132184	DECIDUOUS	7	ONSITE	REMOVE
132185	DECIDUOUS	17	ONSITE	REMOVE
132186	DECIDUOUS	18	ONSITE	REMOVE
132187	CONIFEROUS	7	ONSITE	REMOVE
132188	CONIFEROUS	6	ONSITE	REMOVE
132189	DECIDUOUS	7	ONSITE	REMOVE
132190	DECIDUOUS	8	ONSITE	REMOVE
132191	DECIDUOUS	7	ONSITE	REMOVE
132192	DECIDUOUS	9	ONSITE	REMOVE
132193	DECIDUOUS	8	ONSITE	REMOVE
132194	DECIDUOUS	11	ONSITE	REMOVE
132195	DECIDUOUS	9	ONSITE	REMOVE
132196	DECIDUOUS	7	ONSITE	REMOVE
132197	DECIDUOUS	14	ONSITE	REMOVE
132198	DECIDUOUS	12	ONSITE	REMOVE
132199	DECIDUOUS	9	ONSITE	REMOVE
132200	DECIDUOUS	6	ONSITE	REMOVE
132201	CONIFEROUS	10	ONSITE	REMOVE
132202	CONIFEROUS	7	ONSITE	REMOVE
132203	DECIDUOUS	9	ONSITE	REMOVE
132204	DECIDUOUS	8	ONSITE	REMOVE
132205	CONIFEROUS	7	ONSITE	REMOVE
132206	CONIFEROUS	10	ONSITE	REMOVE
132207	CONIFEROUS	11	ONSITE	REMOVE
132208	CONIFEROUS	7	ONSITE	REMOVE
132209	CONIFEROUS	9	ONSITE	REMOVE
132210	CONIFEROUS	11	ONSITE	REMOVE
132211	CONIFEROUS	14	ONSITE	REMOVE
132212	CONIFEROUS	8	ONSITE	REMOVE
132213	CONIFEROUS	6	ONSITE	REMOVE
132214	CONIFEROUS	7	ONSITE	REMOVE
132216	DECIDUOUS	7	ONSITE	REMOVE
132217	DECIDUOUS	10	ONSITE	REMOVE
132218	CONIFEROUS	12	ONSITE	REMOVE
132219	CONIFEROUS	18	ONSITE	REMOVE
132220	CONIFEROUS	19	ONSITE	REMOVE
132221	DECIDUOUS	8	ONSITE	REMOVE
132222	CONIFEROUS	12	ONSITE	REMOVE
132223	CONIFEROUS	12	ONSITE	REMOVE
132224	DECIDUOUS	13	ONSITE	REMOVE
132225	CONIFEROUS	8	OFFSITE	REMOVE
132226	CONIFEROUS	14	ONSITE	REMOVE
132227	CONIFEROUS	8	ONSITE	REMOVE
132228	CONIFEROUS	12	ONSITE	REMOVE
132229	CONIFEROUS	12	ONSITE	REMOVE
132230	CONIFEROUS	11	ONSITE	REMOVE
132231	CONIFEROUS	7	ONSITE	REMOVE
132232	DECIDUOUS	8	ONSITE	REMOVE
132233	CONIFEROUS	7	ONSITE	REMOVE
132234	CONIFEROUS	6	ONSITE	REMOVE
132235	CONIFEROUS	13	ONSITE	REMOVE
132236	CONIFEROUS	9	ONSITE	REMOVE
132257	CONIFEROUS	6	ONSITE	REMOVE
132258	CONIFEROUS	10	ONSITE	REMOVE
132259	CONIFEROUS	17	ONSITE	REMOVE
132267	CONIFEROUS	18	ONSITE	REMOVE
132268	DECIDUOUS	8,9	ONSITE	REMOVE
132269	DECIDUOUS	7	ONSITE	REMOVE
132270	DECIDUOUS	11	ONSITE	REMOVE
132272	DECIDUOUS	10	ONSITE	REMOVE
132273	CONIFEROUS	8	ONSITE	REMOVE

TREE NO.	TYPE	DBH(IN.)	ONSITE/OFFSITE	REMOVE/PRESERVE
132275	CONIFEROUS	11	ONSITE	REMOVE
132276	DECIDUOUS	10	ONSITE	REMOVE
132282	DECIDUOUS	10	OFFSITE	PRESERVE
132283	DECIDUOUS	15	ONSITE	REMOVE
132284	DECIDUOUS	11	ONSITE	REMOVE
132285	DECIDUOUS	11	ONSITE	REMOVE
132286	DECIDUOUS	10	ONSITE	REMOVE
132291	CONIFEROUS	6	ONSITE	REMOVE
132292	DECIDUOUS	17	ONSITE	REMOVE
132293	DECIDUOUS	13	ONSITE	REMOVE
132294	DECIDUOUS	10	ONSITE	REMOVE
132295	DECIDUOUS	14	ONSITE	REMOVE
132298	DECIDUOUS	12	ONSITE	REMOVE
132299	DECIDUOUS	16	ONSITE	REMOVE
132300	DECIDUOUS	7	ONSITE	REMOVE
132301	DECIDUOUS	10	ONSITE	REMOVE
132302	DECIDUOUS	10	ONSITE	REMOVE
132303	DECIDUOUS	15	ONSITE	REMOVE
132304	DECIDUOUS	12	ONSITE	REMOVE
132305	DECIDUOUS	11	ONSITE	REMOVE
132312	DECIDUOUS	14	ONSITE	REMOVE
132314	DECIDUOUS	8	ONSITE	REMOVE
132317	DECIDUOUS	18	ONSITE	REMOVE
132322	DECIDUOUS	15	ONSITE	REMOVE
132323	DECIDUOUS	18	ONSITE	REMOVE
132324	DECIDUOUS	14	ONSITE	REMOVE
132325	DECIDUOUS	8	ONSITE	REMOVE
132326	DECIDUOUS	22	ONSITE	REMOVE
132327	DECIDUOUS	11	ONSITE	REMOVE
132328	DECIDUOUS	8	ONSITE	REMOVE
132329	DECIDUOUS	10	ONSITE	REMOVE
132330	DECIDUOUS	7	ONSITE	REMOVE
132331	DECIDUOUS	16	ONSITE	REMOVE
132332	DECIDUOUS	10	ONSITE	REMOVE
132333	DECIDUOUS	14	ONSITE	REMOVE
132334	DECIDUOUS	12	ONSITE	REMOVE
132335	DECIDUOUS	12	ONSITE	REMOVE
132336	DECIDUOUS	9	ONSITE	REMOVE
132337	DECIDUOUS	8	ONSITE	REMOVE
132338	DECIDUOUS	17,18	ONSITE	REMOVE
132339	DECIDUOUS	14	ONSITE	REMOVE
132340	DECIDUOUS	9,17	ONSITE	REMOVE
132341	CONIFEROUS	6,6	ONSITE	REMOVE
132342	DECIDUOUS	21	ONSITE	REMOVE
132343	DECIDUOUS	10	ONSITE	REMOVE
132344	CONIFEROUS	6	ONSITE	REMOVE
132345	DECIDUOUS	10	ONSITE	REMOVE
132346	DECIDUOUS	10	ONSITE	REMOVE
132347	DECIDUOUS	8	ONSITE	REMOVE
132348	CONIFEROUS	10	ONSITE	REMOVE
132349	DECIDUOUS	11	ONSITE	REMOVE
132350	DECIDUOUS	15	ONSITE	REMOVE
132351	DECIDUOUS	13	ONSITE	REMOVE
132352	DECIDUOUS	12	ONSITE	REMOVE
132353	DECIDUOUS	6	ONSITE	REMOVE
132354	DECIDUOUS	6	ONSITE	REMOVE
132355	CONIFEROUS	10	ONSITE	REMOVE
132356	DECIDUOUS	11	ONSITE	REMOVE
132357	CONIFEROUS	6	ONSITE	REMOVE
132358	DECIDUOUS	12	ONSITE	REMOVE
132359	CONIFEROUS	6	ONSITE	REMOVE
132361	DECIDUOUS	12	ONSITE	REMOVE
132362	DECIDUOUS	6	ONSITE	REMOVE
132365	DECIDUOUS	13	ONSITE	REMOVE
132367	DECIDUOUS	9	ONSITE	REMOVE
132368	DECIDUOUS	12	ONSITE	REMOVE
132369	CONIFEROUS	10	ONSITE	REMOVE
132371	DECIDUOUS	14	ONSITE	REMOVE
132372	DECIDUOUS	11	ONSITE	REMOVE
132373	DECIDUOUS	8	ONSITE	REMOVE
132374	DECIDUOUS	8	ONSITE	REMOVE
132375	DECIDUOUS	11	ONSITE	REMOVE
132376	DECIDUOUS	9	ONSITE	REMOVE
132377	DECIDUOUS	10	ONSITE	REMOVE
132378	DECIDUOUS	6	ONSITE	REMOVE
132379	DECIDUOUS	7	ONSITE	REMOVE
132380	DECIDUOUS	11	ONSITE	REMOVE
132381	DECIDUOUS	11	ONSITE	REMOVE
132382	DECIDUOUS	14	ONSITE	REMOVE
132383	DECIDUOUS	10	ONSITE	REMOVE
132384	DECIDUOUS	12	ONSITE	REMOVE
132385	DECIDUOUS	10	ONSITE	REMOVE
132386	DECIDUOUS	12	ONSITE	REMOVE
132387	DECIDUOUS	8	ONSITE	REMOVE
132388	DECIDUOUS	9,9,12	ONSITE	REMOVE
132389	CONIFEROUS	10	ONSITE	REMOVE
132390	DECIDUOUS	11	ONSITE	REMOVE
132391	DECIDUOUS	12	ONSITE	REMOVE
132392	DECIDUOUS	6	ONSITE	REMOVE
132393	DECIDUOUS	6,8	ONSITE	REMOVE
132394	DECIDUOUS	10	ONSITE	REMOVE
132395	DECIDUOUS	11	ONSITE	REMOVE
132396	DECIDUOUS	13	ONSITE	REMOVE
132397	DECIDUOUS	9	ONSITE	REMOVE
132398	DECIDUOUS	13	ONSITE	REMOVE
132399	DECIDUOUS	8	ONSITE	REMOVE
132400	DECIDUOUS	16	ONSITE	REMOVE

DESIGNED BY: RSW
DRAWN BY: CL
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 4/14/2017

RENEWAL DATE: 6/30/17

REVISIONS

C035

EXISTING GROUND CONTOUR (2 FT)

EXISTING GROUND CONTOUR (10 FT)

FINISHED GRADE CONTOUR (2 FT)

FINISHED GRADE CONTOUR (10 FT)

SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING)

STRAW WADDLE (TO BE INSTALLED AFTER GRADING)

DRAINAGE FLOW DIRECTION

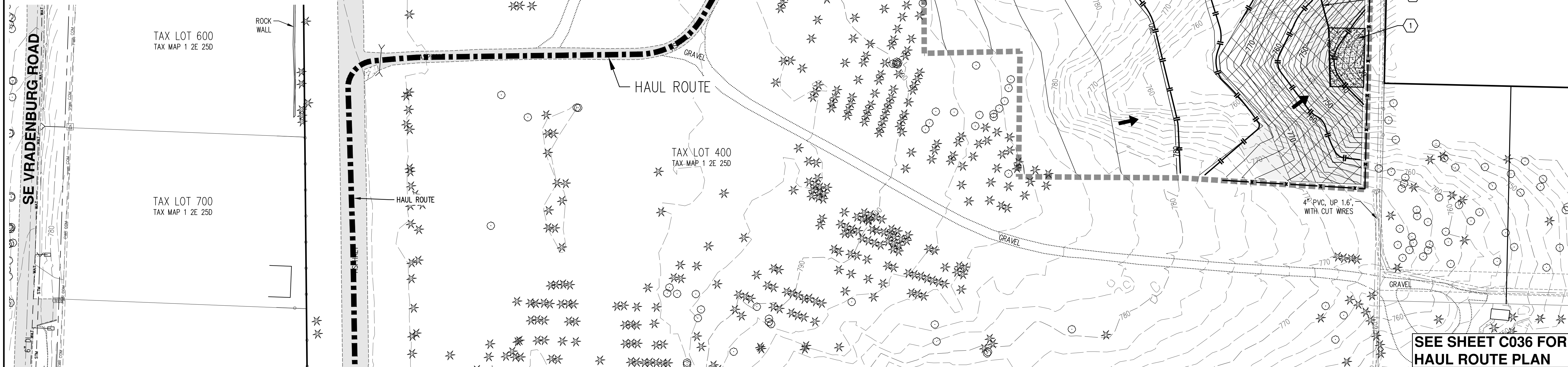
GRAVEL CONSTRUCTION ENTRANCE

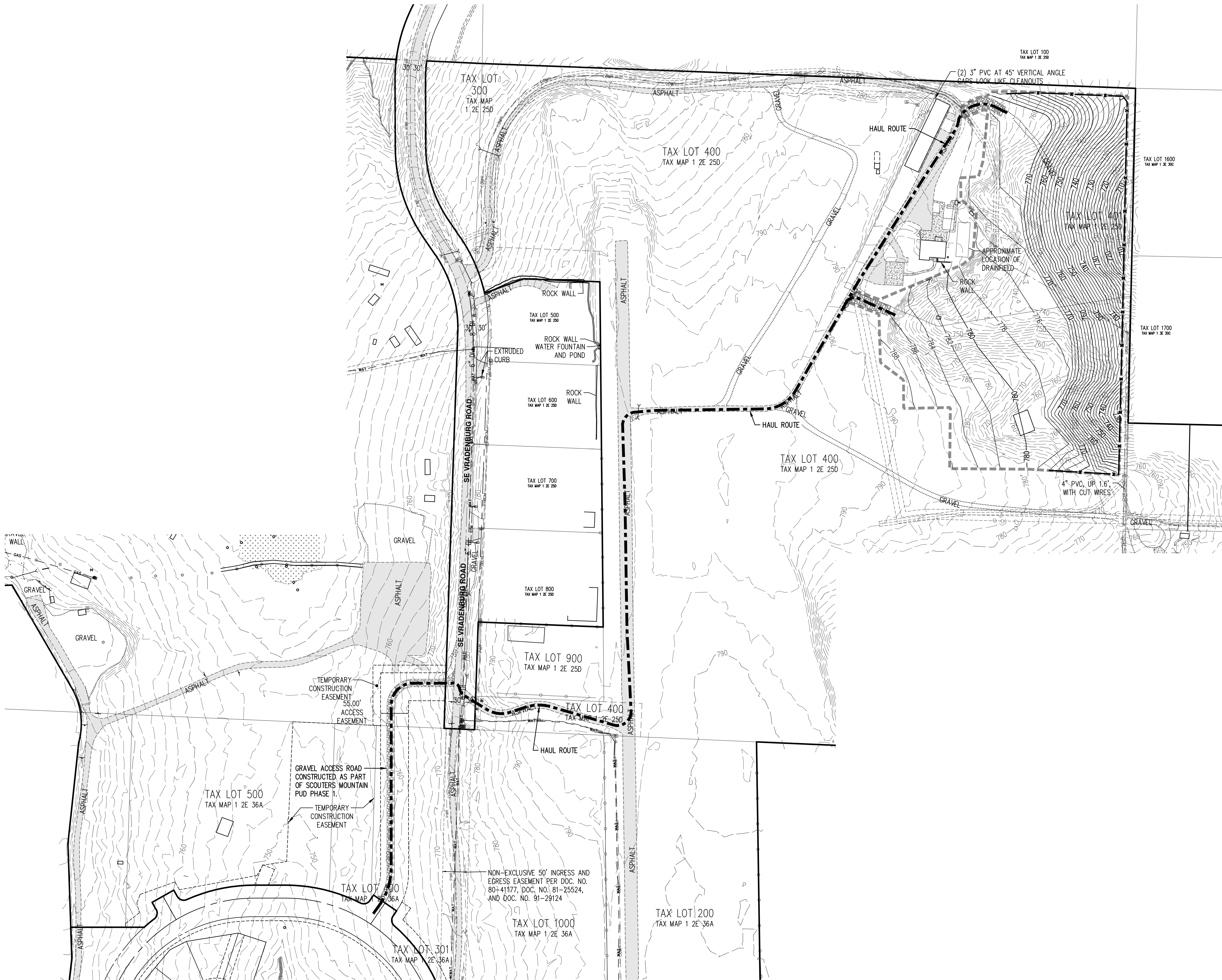
GRADING LIMITS/ORANGE CONSTRUCTION FENCE

HAUL ROUTE

- ANY LANDFILL MATERIAL ENCOUNTERED DURING EXCAVATION ACTIVITIES FOR STRUCTURAL BERMS SHALL BE HAULED OFFSITE.
- ALL STRUCTURAL BERM CONSTRUCTION SHALL BE STRUCTURAL FILL AND SHALL MEET THE REQUIREMENTS OF THE PROJECT'S GEOTECHNICAL ENGINEER AND THE CITY OF HAPPY VALLEY. THE MINIMUM COMPACTION SHALL BE 95% PER AASHTO T-99 (ASTM D693).

1. APPROXIMATE LOCATION OF SAND FILTER DRAINS - LOCATION TO BE FINALIZED DURING CONSTRUCTION. CONSTRUCT PER GEOPACIFIC ENGINEERING FIGURE 2, SHEET C038.
2. 4-INCH DIAMETER ADS HEAVY DUTY GRADE (OR EQUAL) PERFORATED PLASTIC PIPE SUBDRAIN PER GEOPACIFIC ENGINEERING FIGURE 2, SHEET C038.





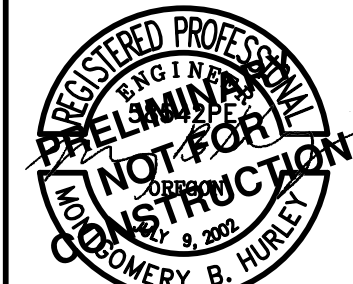
10010 SE VRADENBURG RD

HAPPY VALLEY

CLACKAMAS COUNTY TAX MAPS 12E 25D

HAUL ROUTE PLAN

DESIGNED BY: RSW
DRAWN BY: CL
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 4/14/2017



REVISIONS

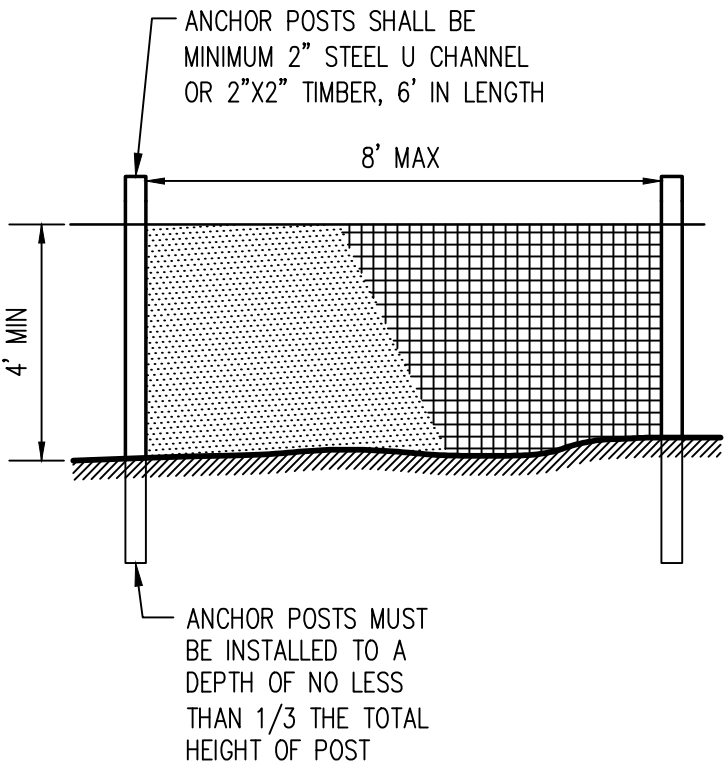
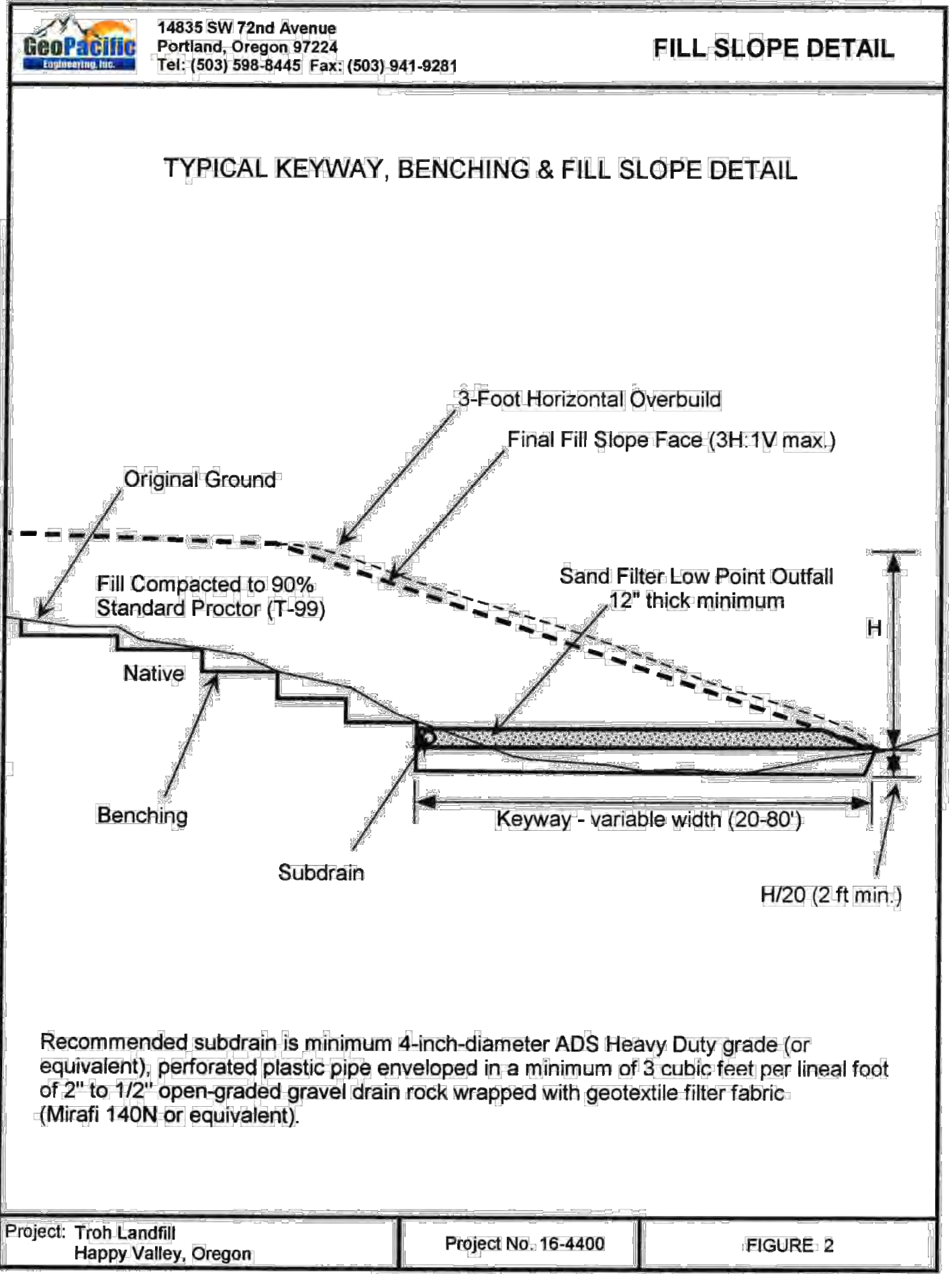
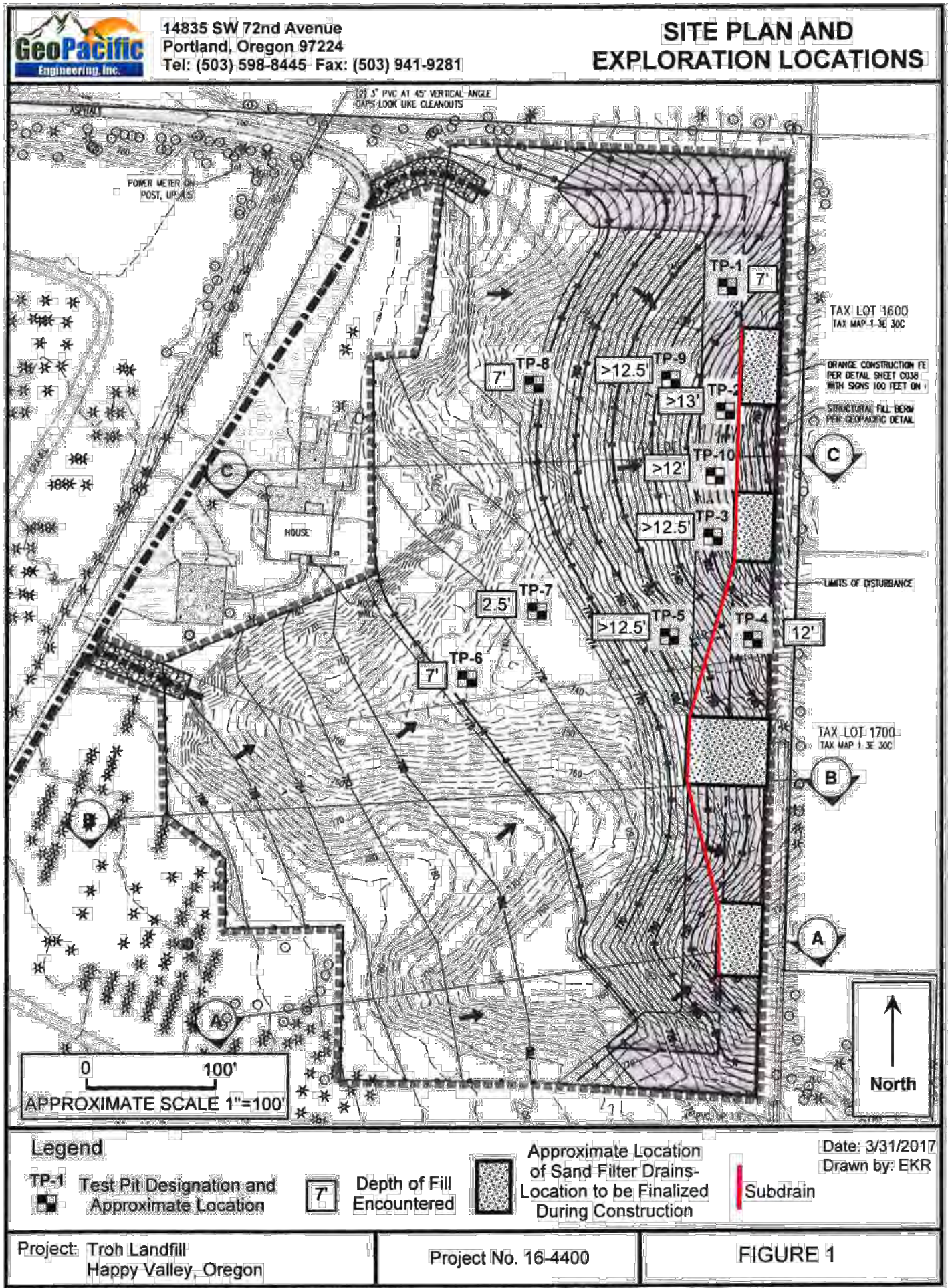
JOB NUMBER
3415
SHEET

C036

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

AKS



- NOTES:
1. BLAZE ORANGE PLASTIC MESH FENCE FOR TREE PROTECTION DEVICE OR APPROVED EQUAL.
 2. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
 3. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION / CONSTRUCTION FENCE

10010 SE VRADENBURG RD

HAPPY VALLEY

OREGON

CLACKAMAS COUNTY TAX MAPS 1 & 2E 250

GRADING, EROSION & SEDIMENT CONTROL DETAILS

DESIGNED BY: RSW
DRAWN BY: CL
CHECKED BY: MBH
SCALE: AS NOTED

DATE: 4/14/2017



RENEWAL DATE: 6/30/17

REVISIONS

JOB NUMBER
3415

SHEET

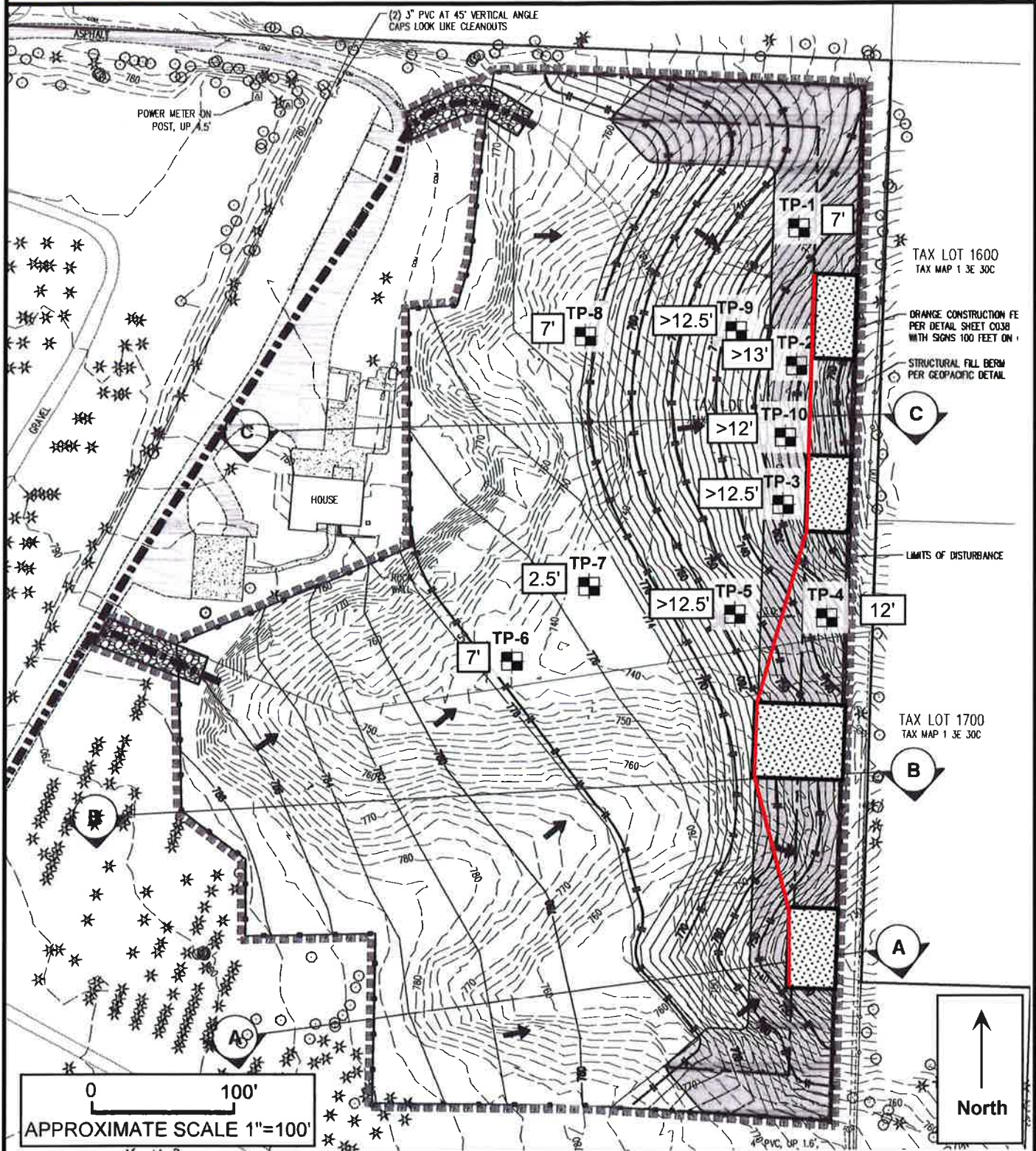
C038

AKS
AKS ENGINEERING & FORESTRY, LLC
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14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE PLAN AND EXPLORATION LOCATIONS



Legend

TP-1 Test Pit Designation and
Approximate Location

7' Depth of Fill
Encountered

Approximate Location
of Sand Filter Drains-
Location to be Finalized
During Construction

Subdrain

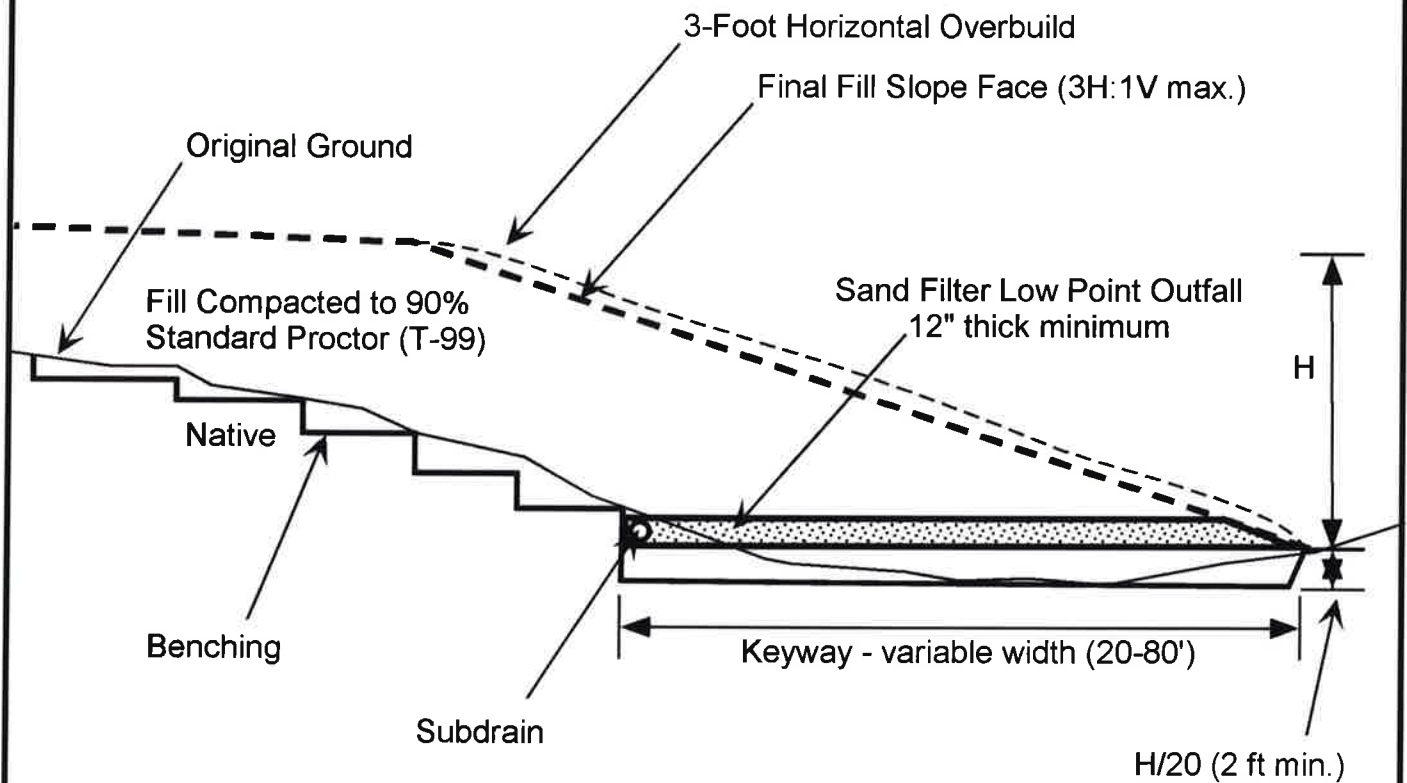
Date: 3/31/2017
Drawn by: EKR

Project: Troh Landfill
Happy Valley, Oregon

Project No. 16-4400

FIGURE 1

TYPICAL KEYWAY, BENCHING & FILL SLOPE DETAIL



Recommended subdrain is minimum 4-inch-diameter ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2" to 1/2" open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent).

ATTACHMENT C

Soil Cap Annual Inspection Form

Copy and use the following form to document the ODEQ-required annual soil cap inspection.

Soil Cap Annual Inspection Form

Date of Inspection: _____

Inspected by: _____

Maintaining the soil cap integrity and security **protects individuals** from exposure to landfill debris and contaminated soil beneath the site and is an ongoing responsibility. At a minimum, the soil cap will be inspected annually. More frequent inspections are encouraged and should also be documented with this form.

The soil cap is present over the entire historic Troh Legacy Landfill and is comprised of silt and clay varying in depth from 1.5 to 3 feet thick. Persons performing the inspection must have a thorough understanding of the Soil Cap Management plan.

LANDFILL SOIL CAP

Evaluate all areas for erosion, wildlife disturbance and any unauthorized human activity that is breaching (penetrating) the soil cap. At least 12 inches of clean soil must be maintained over the original impacted soil.

Is any unauthorized digging occurring? Y / N

If yes, immediately take steps to secure the area and manage the breach according to the Soil Cap Management or Contaminated Media Management Plan, as appropriate.

Are any natural elements (e.g., wind, rain, surface water, etc.) disturbing topsoil? Y / N

Are there any signs of wildlife (e.g., gophers, deer, dogs, etc.) disturbing topsoil? Y / N

Are there any potential conditions that may disturb topsoil / breach the cap? Y / N

If the answer is yes to any of these questions, please document the conditions by 1) taking photographs, 2) showing location on a map, 3) describing condition and the measures taken to remedy the situation. Documentation should be kept with this form and submitted with the Annual Report.

ACTION OR ADDITIONAL DOCUMENTATION REQUIRED?

SIGNATURE OF PERSON PERFORMING INSPECTION:

ATTACHMENT D

Documentation Form for Annual Training

Copy and use the following form to document compliance with ODEQ's requirement for training.

Documentation Form Annual Training

For Year: _____

Maintaining the soil cap integrity and security **protects individuals** from exposure to hazardous chemicals in soil beneath the site and is an ongoing responsibility. To ensure continued compliance with ODEQ requirements, **personnel responsible for or who will work on the subject site will be trained annually**. Additionally, designated staff will review the Soil Cap Management plan annually. This form documents compliance with both of these requirements and is to be submitted with the Annual Report to ODEQ.

ANNUAL PERSONNEL TRAINING

All appropriate personnel (with responsibility for or who will physically work on the subject site) shall be educated on 1) the location and nature of the former Troh Legacy Landfill, 2) the nature of the soil cap, 3) procedures to be followed should they need to do work in the vicinity of the former Troh Legacy Landfill. Training should be geared to the audience.

Person responsible for training (name, position):

I certify that I have trained all appropriate personnel prior to them assuming responsibilities for or working in the area of the former Troh Legacy Landfill. *Sign and date.*

ANNUAL REVIEW OF SOIL CAP MANAGEMENT PLAN

The Property Manager, along with staff designated by him or her, will review this Plan annually and acknowledge their understanding of Plan requirements.

By signing below you acknowledge that you have reviewed, understand and will adhere to the requirements of the Soil Cap Management Plan. Attach additional pages as needed.

[illegible]

ATTACHMENT E

Annual Signage Review Form

Copy and use the following form to document compliance with ODEQ's requirement for posting and maintaining signs.

Annual Signage Review Form

For Year: _____

Maintaining the soil cap integrity and security **to protect individuals** from exposure to impacted soil beneath the site is an ongoing responsibility. To ensure continued compliance with ODEQ requirements, the signage plan will be reviewed annually for effectiveness and signs will be verified present and in good. This form documents signage compliance and is to be submitted with the Annual Report to ODEQ.

ODEQ requires signs be posted regarding the soil cap. The Property Manager or their designee will work to determine the best locations for signs to be placed. A signage plan (list or map of sign locations and wording) will be developed and kept on file.

ANNUAL SIGNAGE REVIEW AND INSPECTION

Please consider the effectiveness of the signage plan during this review and implement changes as necessary. Please explain any yes answers in the spaces provided below, or attach additional pages/supporting documentation as necessary.

Person conducting review (name, position):

Have there been any unauthorized breaches of the soil cap in the last year? Y / N

If yes, could a change in signage have prevented this breach? Y / N

If yes, describe and implement changes to the signage plan.

Are signs still present and visible at all locations? Y / N

Do any of the signs need repair? Y / N

Are there any locations that signs should be added? Y / N

Are there any other reasons to modify the signage plan? Y / N

Please modify signage plan according to need identified during this review and implement any changes in a timely manner.

ACTION OR ADDITIONAL DOCUMENTATION REQUIRED?

SIGNATURE OF PERSON PERFORMING INSPECTION:

ATTACHMENT F

Subsurface Work Log Form

This form may be used to document any work that breaches the soil cap. This will create a work log as required by ODEQ. Make copies as needed.

WORK LOG

For Any Breach of Soil Cap

For Year: _____

Maintaining the soil cap integrity and security **to protect individuals** from exposure to landfill debris and contaminated soil beneath the site is an ongoing responsibility. ODEQ requires a log of all work conducted that penetrates the soil cap. This form is to be submitted with the Annual Report to ODEQ. Make copies as necessary.

Responsible Party (Name, Position, Company):	Start Date:	End Date:
Has a subsurface work documentation form been completed?		
Please describe Scope of Work and reason for need to breach soil cap. Details and supporting documentation should be submitted with separate Subsurface Work Documentation form.		
Was any impacted soil excavated? If yes, briefly describe method of management and disposal.		
Describe precautions taken to prevent individuals from being exposed to hazardous constituents in soil		
Responsible Party (Name, Position, Company):	Start Date:	End Date:
Has a subsurface work documentation form been completed?		
Please describe Scope of Work and reason for need to breach soil cap. Details and supporting documentation should be submitted with separate Subsurface Work Documentation form.		
Was any impacted soil excavated? If yes, briefly describe method of management and disposal.		
Describe precautions taken to prevent individuals from being exposed to excavated soils		

ATTACHMENT G

Subsurface Work Documentation Form

Copy and provide the following form to personnel, contractors or utilities who will be performing work that breaches the soil cap. ***Completing and following instructions on this form will ensure work is done according to this Soil Cap Management Plan.*** Once work is finished, a completed form and any required supporting information should be placed in the work log file.

Subsurface Work Documentation Form

Name of Project: _____

This form is to be completed by any personnel, contractor or utility performing work that will penetrate the soil cap. Work is not to be conducted unless the criteria described below are met and the Property Manager (or designee) has approved the work.

PROJECT INITIATION

Responsible Party (Name, Position, Company):	Requested Work Start Date:
CERTIFICATION: I have read the Soil Cap Management plan (Plan) and I understand its importance for protecting the soil cap. I agree to abide by these measures and safety rules and all applicable safety regulations while working on the property. <i>FURTHER, I take responsibility for training all field personnel for this project on the requirements of this Plan.</i> I understand that any violation of these rules will result in my removal from the work area. Signature of Responsible Party Listed Above:	
Please describe proposed work, any anticipated excavation of impacted soil, proposed methods of management and disposal, proposed methods of replacing soil cap at work completion.	

PROJECT APPROVAL

Person Approving Proposed Work (Name, Position, Company):	Date of Approval:
CERTIFICATION: I have a thorough understanding of the Soil Cap Management plan (Plan). The proposed work methods meet the requirements of the Plan and I grant approval for the work to be conducted as described. Signature of Approving Party:	
Designated personnel to contact in case of change in scope or questions regarding Plan:	Phone Number:

Name of Project: _____

Complete the following information upon project completion. Please attach appropriate supporting documentation including, but not limited to, field work photographs, and a map showing location and extent of work.

Responsible Party (Name, Position, Company):	Start Date:	End Date:
Detailed Description of Work:		
Was any landfill debris / contaminated soil from below the soil cap excavated? Y / N If yes, <u>please provide supporting documentation</u> and describe in detail the methods used to manage any impacted soils onsite and method(s) of disposal. <u>Waste receipts must be provided.</u>		
Describe precautions taken to prevent individuals from being exposed to impacted soils.		
Describe method of replacing soil cap at work completion.		
Signature of Responsible Party Listed Above:		