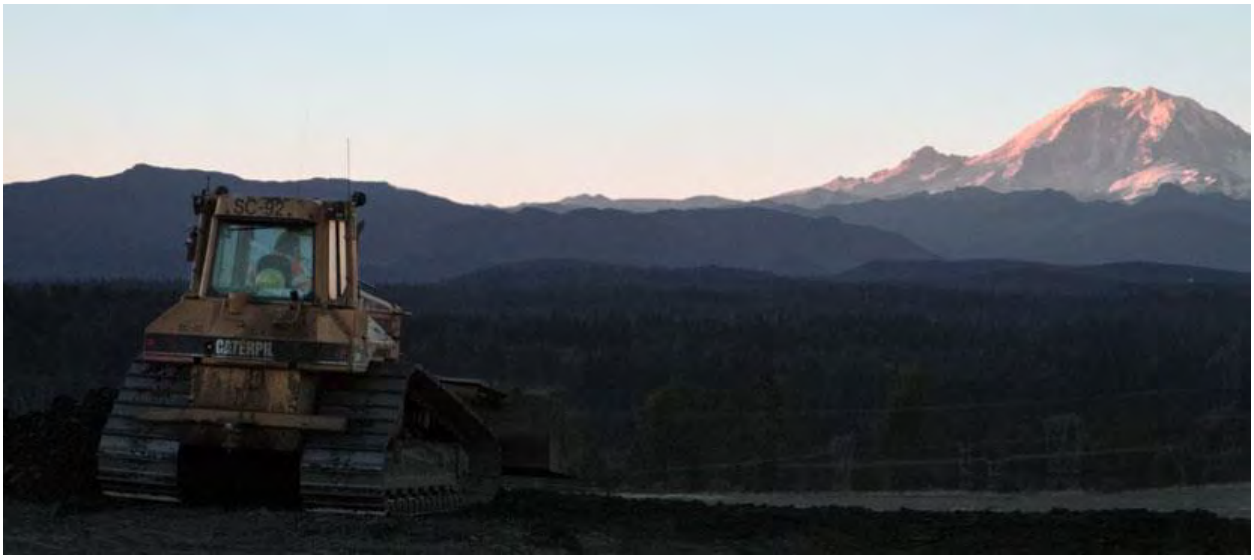
Appendix H

Scenic Resources, Aesthetics, Light and Glare Technical Memorandum (2017)

CEDAR HILLS REGIONAL LANDFILL REVISED SITE DEVELOPMENT PLAN

Scenic Resources, Aesthetics, Light and Glare

Technical Memorandum



Submitted by:
Herrera Environmental Consultants, Inc.

Prepared by:
Osborn Pacific Group Inc.

June 23, 2017

King County

CEDAR HILLS REGIONAL LANDFILL
REVISED SITE DEVELOPMENT PLAN

Scenic Resources, Aesthetics, Light and Glare Technical Memorandum

Prepared for

King County Solid Waste Division

Lead Author

Osborn Pacific Group Inc.

Submitted by

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Acronyms and Abbreviations

BEW	Bio Energy-Washington Landfill Gas Processing Facility
BMP	Best Management Practice
CHRLF	Cedar Hills Regional Landfill
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
KCSWD	King County Solid Waste Division
MRE	Mechanically Reinforced Earth
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
VP	Viewpoint
WAC	Washington Administrative Code

CHAPTER 1

1 Introduction and Summary

1.1 Introduction

The construction or modification of publicly owned landfills can considerably affect the quality and character of the landscape. Understanding the effects of a proposed project and its alternatives on the visual character and quality of the landscape is an integral part of any environmental review process. The State Environmental Policy Act (SEPA), RCW 43.21C, ensures that the effects of projects on the visual quality and aesthetics of a landscape are adequately considered during the early stages of project planning and development.

To ensure that potential changes to visual quality and aesthetics resulting from a project are adequately and objectively considered, it is crucial that an accepted, systematic evaluation process be used. The visual study team used the Federal Highway Administration's (FHWA's) visual quality assessment method (FHWA 2015) as the industry standard for this assessment. FHWA developed this assessment method so that potential visual effects on communities near proposed projects could be adequately and objectively considered. This rigorous and systematic method ensures collection of adequate information for the project decision-making process and development of an objective assessment and description.

Part of the FHWA's assessment method is to use professionally accepted, descriptive terminology that encompasses the physical attributes of the landscape being assessed and viewer perceptions. This terminology helps guarantee consistent and effective communication and is introduced in Chapter 2.

This technical memorandum addresses three primary questions:

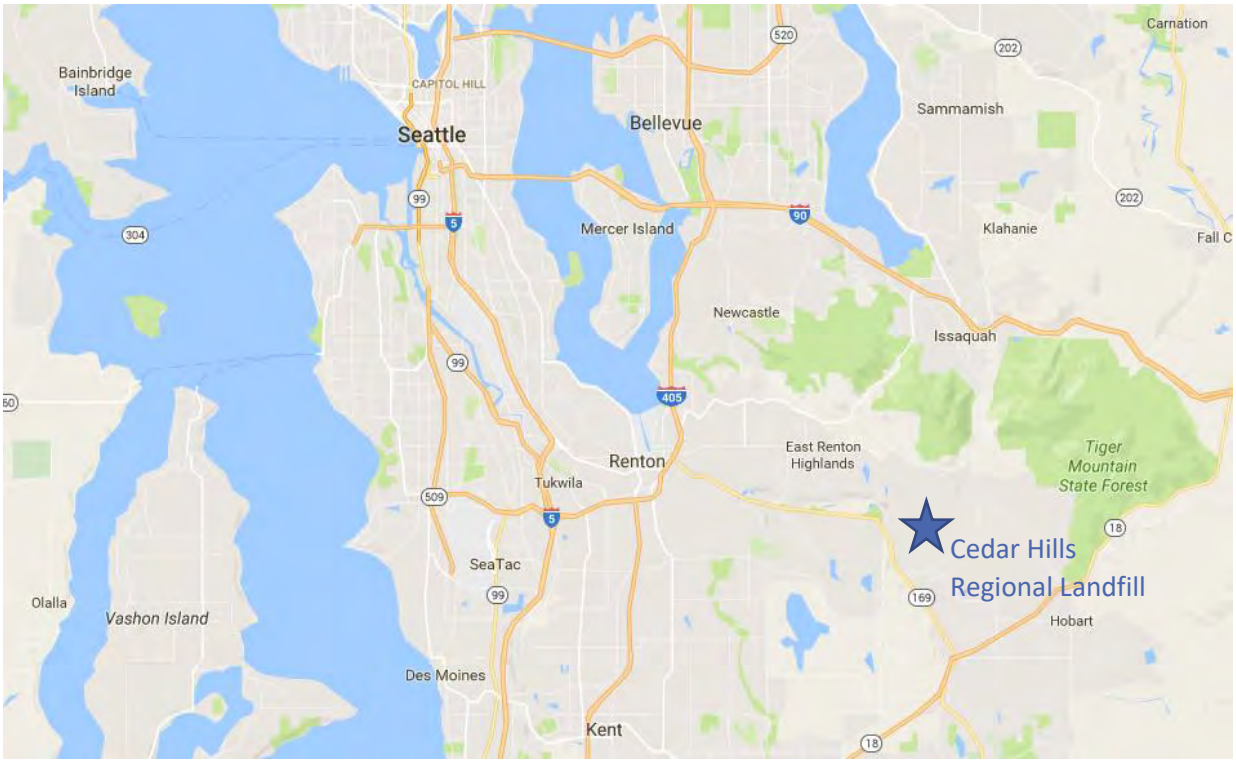
- What are the visual qualities and characteristics of the existing landscape in the study area?
- Who would see the project and what is their likely response to how the project visually fits within the existing landscape?
- What are the potential effects of the project's proposed alternatives on the area's visual quality and aesthetics?

THIS REPORT USES THE WORD "**LANDSCAPE**" TO REFER TO THE COMPLETE VISIBLE NATURAL AND HUMAN-BUILT ENVIRONMENT.

1.2 The Project Site and Current Operations

The King County Solid Waste Division (KCSWD) owns and operates the Cedar Hills Regional Landfill (CHRLF) in eastern King County for the disposal of municipal solid waste generated in the County, exclusive of the cities of Seattle and Milton. It is a 920-acre site located at 16645 228th Avenue SE, off Cedar Grove Road, three miles north of Maple Valley, six miles east of the City of Renton, and about four miles south of the City of Issaquah. See Figure 1, Project Vicinity Map.

Figure 1: Vicinity Map



Beginning in 1963, incremental development phases partitioned the landfill into multiple refuse areas with ancillary support facilities. In addition to the landfill, the site contains Passage Point, a transitional housing facility; a landfill gas-to-energy facility (BEW) owned and operated by Bio Energy Washington, LLC; a right-of-way for a natural gas pipeline, and numerous power line rights-of-way.[1] See Figure 2, Development Areas.

Past and current waste disposal at the CHRLF has generally been limited to the northern three-quarters of the permitted solid waste disposal area. Auxiliary facilities are, for the most part, located at the south end of the permitted solid waste disposal area and include maintenance and administration facilities, stormwater ponds, leachate collection lagoons, siltation ponds, and a landfill gas-to-energy facility. A flare station for landfill gas is located at the northern end of the permitted solid waste disposal area. A vegetated 1,000-foot-wide perimeter buffer, required by the site's 1960 Special Use permit, surrounds the landfill.

Ongoing waste disposal has resulted in large rolling landforms rising approximately 140 to 240 feet above the surrounding terrain, with a larger central hill rising to a maximum elevation of approximately 780 feet above sea level. The current permit for the Municipal Solid Waste Landfill - Cedar Hills Regional Landfill stipulates a maximum height of 800 feet. Vegetation is limited primarily to seeded grass within the inactive part of the landfill operation area. In the active disposal areas, exposed earth and landfilling equipment can be seen.

[1] Facility Engineering and Science Unit, Solid Waste Division, *2015 Annual Report, Cedar Hills Regional Landfill, March 2016,* 1-2.

Table 1. Cedar Hills Regional Landfill Disposal Areas

Disposal Area	Status
East Main Hill Refuse Area	Closed with final cover
Central Pit Refuse Area	Closed with final cover
Southwest Main Hill Refuse Area	Closed with final cover
Southeast Pit Refuse Area	Closed with final cover
South Solid Waste Area	Closed with final cover
Refuse Area 2/3	Closed with final cover
Refuse Area 4	Closed with final cover
Refuse Area 5	Closed on side slopes with final cover; interim cover on top area
Refuse Area 6	Active disposal area currently receiving solid waste; partially closed on side slopes
Refuse Area 7	Active disposal area
Refuse Area 8	Currently in design with initial waste receipt proposed in 2019

The perimeter buffer zone is a 1,000-foot-wide strip that separates the area of landfill activities from surrounding properties. It consists primarily of a mixed conifer and deciduous forest, but the density of the vegetation varies, with the highest densities in the northern buffer and the lowest densities in the southeastern buffer. The character of the vegetation and allowed activities within the perimeter buffer are described below:

North: The north buffer area is comprised of dense, mature, second-growth mixed conifer and deciduous forest. Trees here reach heights of approximately 100 to 150[2] feet. This area is maintained in a natural state and there are no disturbances to wetlands. Dirt roads provide access to environmental monitoring systems.

South: High-voltage electrical transmission lines running east to west divide the southern buffer. The area north of the transmission lines is covered by low, shrubby vegetation. A deciduous and conifer forest grows south of the transmission line easement in the remaining 700-foot-wide buffer area and is maintained in a natural state. Allowed uses in this area of the buffer include two leachate treatment lagoons. Additionally, a small portion of the former South Solid Waste Area extends into the south buffer.

East: The northern portion of the eastern buffer contains mature, second-growth mixed conifer and deciduous forest. In the southern portion of the eastern buffer, vegetation was cleared or thinned along the interior edge of the buffer to accommodate an alcohol treatment facility that has been closed. This facility now serves as Passage Point – a transitional housing and support facility for parents reuniting with their children and returning to the community after a period of incarceration. The southern portion of the eastern buffer also contains the Southeast Pit Refuse Area, an area consisting of grass over landfill cover, filled in the earliest years of the landfill prior to accurate survey of the buffer line. This eastern buffer also contains power transmission lines and many allowed uses, including the landfill access road, 228th Avenue SE, in the southeast corner; and a non-potable water tank.

[2] Final Environmental Impact Statement: Cedar Hills Regional Landfill, 2010 Site Development Plan

West: The western buffer vegetation consists of a mix of conifer and deciduous forest that has grown to a height of approximately 60 to 80 feet.

The topography varies within the perimeter buffer and is generally characterized by rounded knolls.

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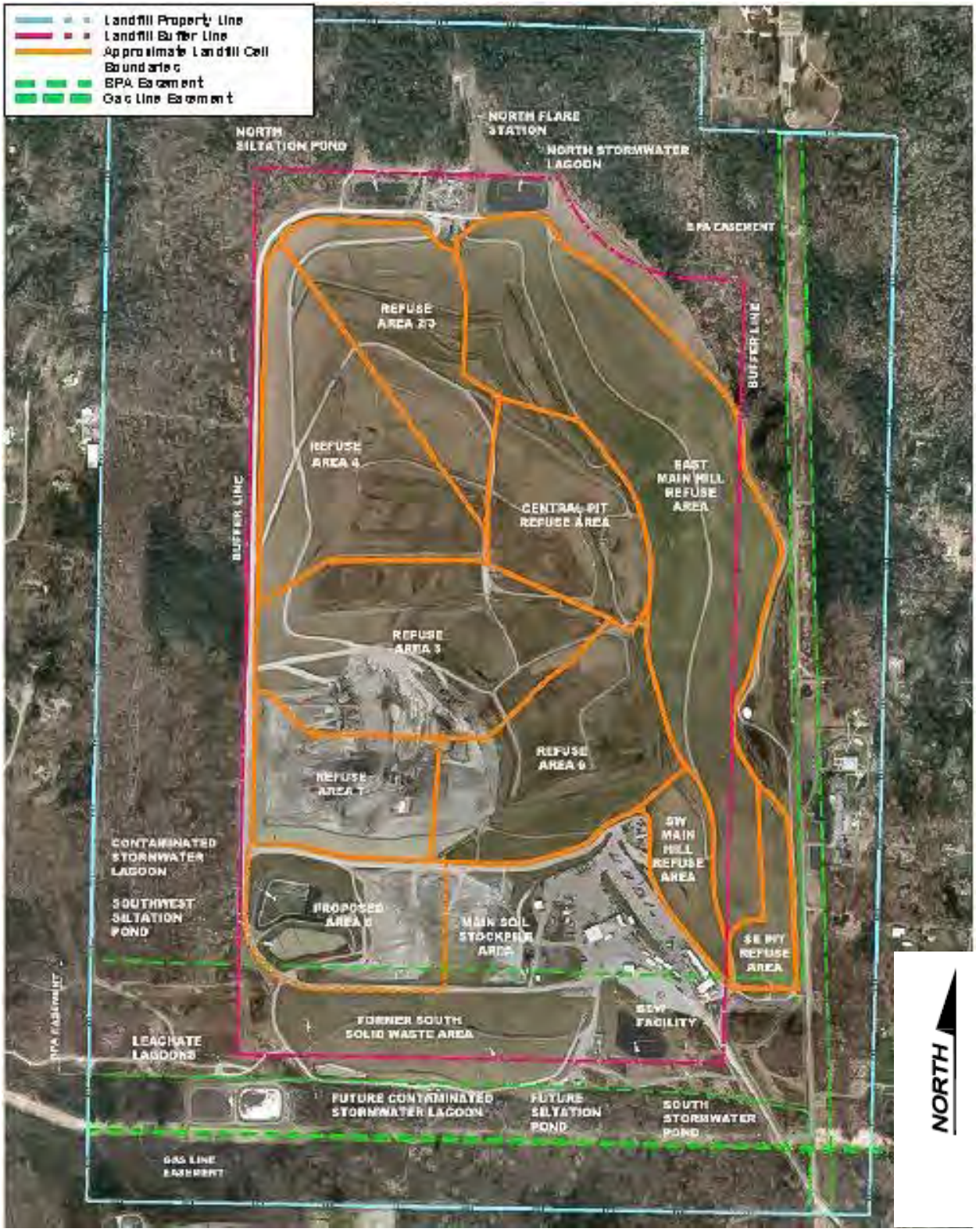
Figure 2: Development Areas at CHRLF[3]



[3] Revised Site Development Plan for Cedar Hills Regional Landfill—Final Report, June 2016

1.3 The Proposed Project - Overview of Action Alternatives

King County is preparing the *"Revised Site Development Plan for Cedar Hills Regional Landfill."* This study identifies and evaluates twelve options to extend the life and expand the capacity at the CHRLF. The evaluation process advanced five Action Alternatives for further consideration. The selected alternatives, A, B, C, D, and E, are described below and on the following pages.

Each alternative is comprised of development in specific areas of the landfill and at various heights of development. The selection of any of the Action Alternatives will extend the life of the landfill to approximately 2040 to 2050, depending on the Alternative.

Areas of the landfill included among the Alternatives are:

Northeast Corner: The Northeast Corner of the landfill is an area roughly encompassing the northern portion of the East Main Hill and a small portion of the Central Pit. This area would also extend into the existing buffer, requiring additional property acquisition adjacent to the site boundary to maintain the permitted 1,000-foot buffer. A 20-foot earthen berm would be constructed along the northeast boundary of the proposed refuse area.

Northwest Corner: The Northwest Corner of the landfill is an area roughly encompassing the northern portion of Area 2/3 and the northern and western portions of Area 4. Development of this area would not extend into the existing buffer. A mechanically reinforced earth berm (MRE) is required in Alternatives A, B, and E. A chain link fence and guardrail would be installed on top of the MRE berm.

Southeast Corner: The Southeast Corner of the landfill is an area encompassing the proposed Southeast Area (Area 9) and the northern two-thirds of the Southwest Main Hill area. Development of this area is common to all Alternatives. The buffer would be rehabilitated in Alternative B. A retaining wall would be constructed on the southern side of the developed area to protect the BEW facility and other landfill support facilities.

Top Deck: The filling elevation for the Top Deck development would range from 810 feet to 830[4] feet in Areas 5, 6, 7, 8, the Southeast Corner (Area 9), and a portion of Areas 2/3, 4, and the Central Pit.

1.3.1 Alternatives A, B, C, D, and E

Table 2 shows the specific areas of the landfill described above included with each Alternative, along with the proposed maximum height and the anticipated year to which the life of the landfill would be extended. Detailed descriptions of each alternative are in Figures 3 through Figure 7.

[4] In 2017, Public Health – Seattle & King County issued an updated Solid Waste Landfill (Handling Facility) permit for CHRLF with an 800-foot height limit. Any Alternative that exceeds that height limit would require an additional revision to that permit.

Table 2. Alternatives A, B, C, D, and E

Revised Site Development Plan Alternative	Area Included in Alternative	Maximum Proposed Height of Alternative	Anticipated Month/Year of Landfill Life Extension
A	**Southeast Corner** **Northwest Corner** **Top Deck**	810 Feet	May 2041
B	**Southeast Corner (with SE Pit Refuse Area Excavation)** **Northwest Corner** **Top Deck**	825 Feet	July 2042
C	**Southeast Corner** **Northeast Corner** **Top Deck**	810 Feet	July 2041
D	**Southeast Corner** **Top Deck**	830 Feet	April 2040
E	**Southeast Corner** **Northwest Corner** **Northeast Corner** **Top Deck**	830 Feet	August 2050

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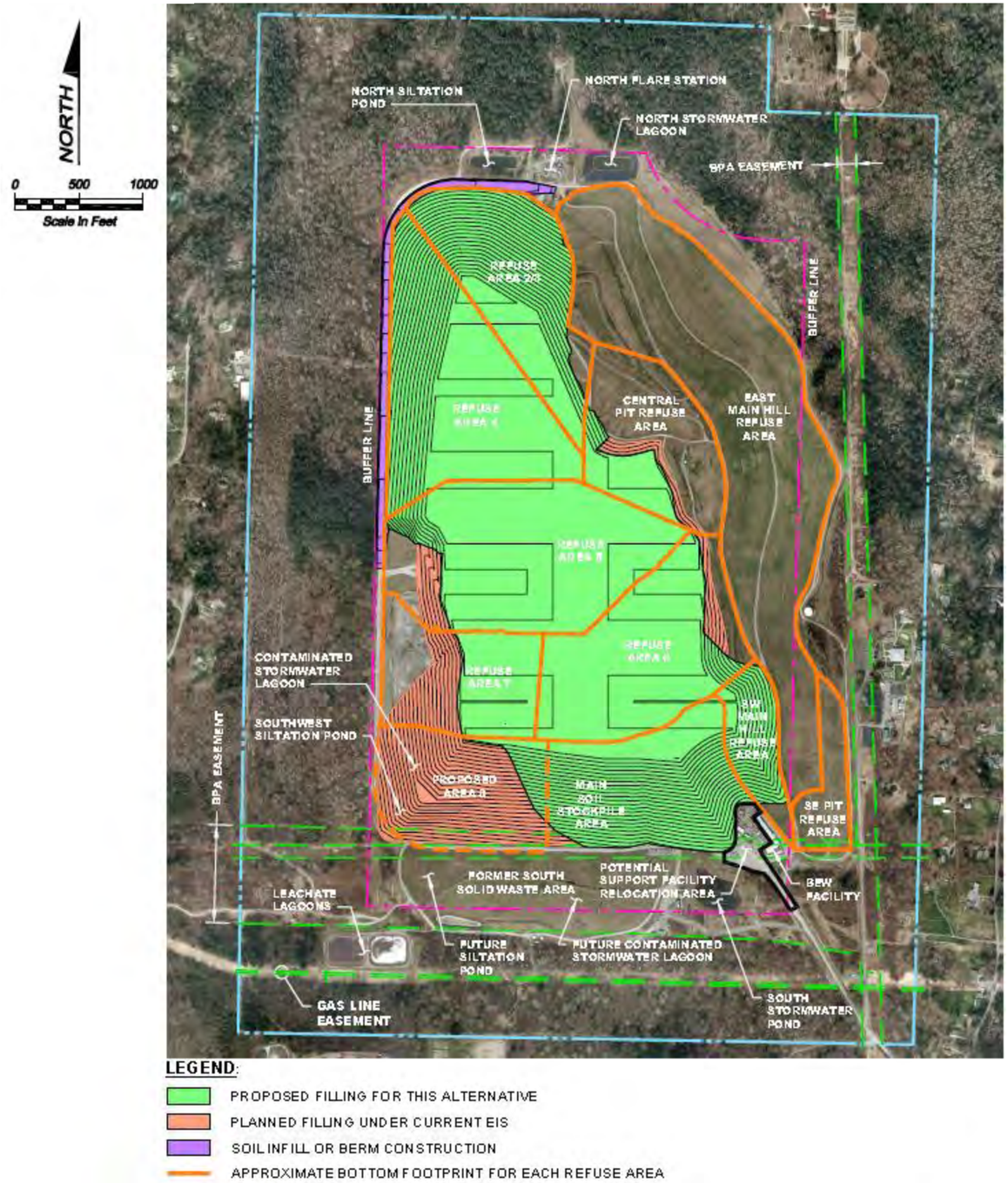
Figure 3. Alternative A



Alternative A

DESCRIPTION

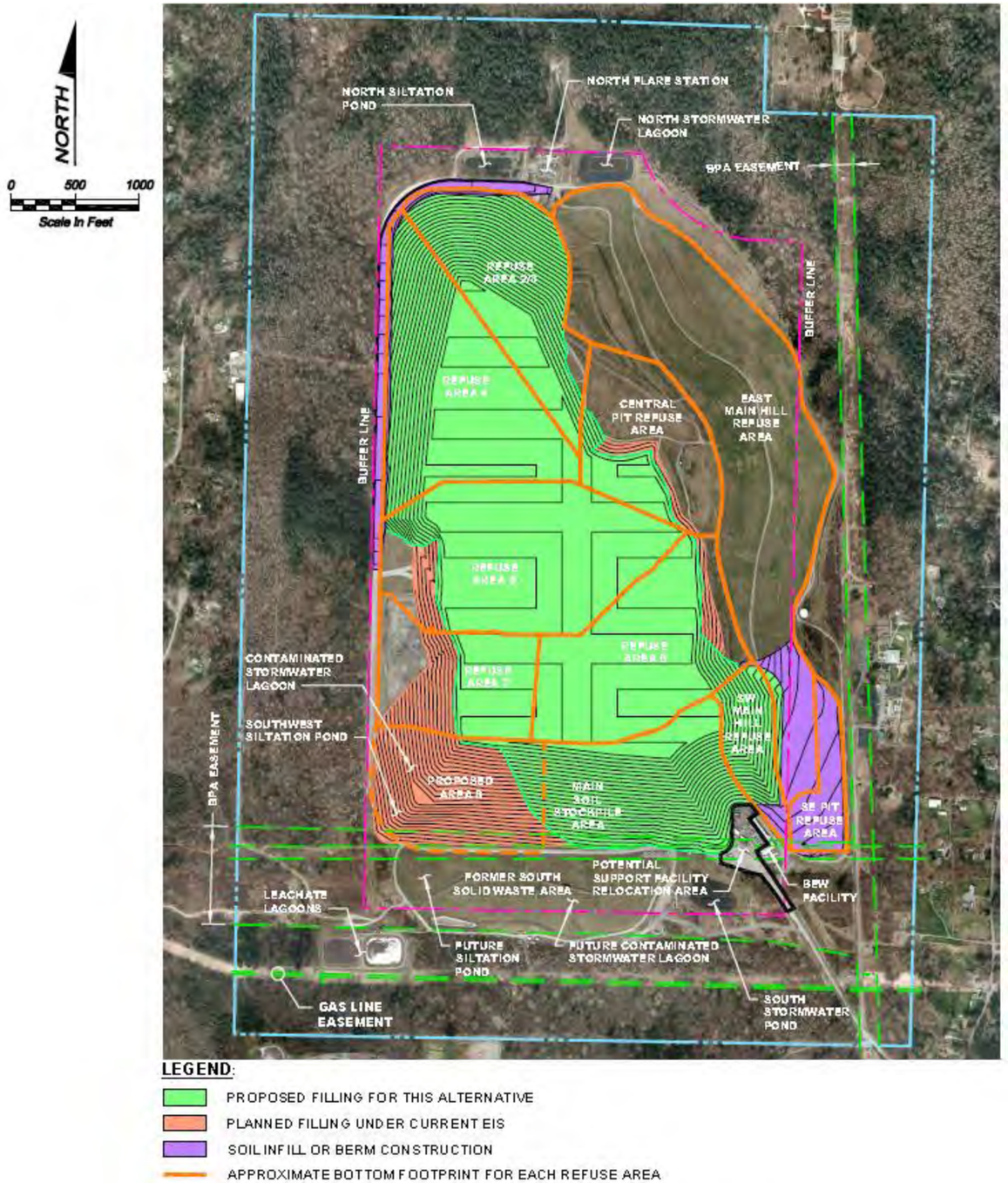
- Areas 5, 6, 7, and 8 filled to elevation 800’
- Southeast Area (Area 9) without refuse – excavation to elevation 800’
- Northwest Area (Areas 2/3 and 4) with MRE berm to elevation 810’
- Top deck of Areas 5, 6, 7, 8, and Southeast Area (Area 9) to elevation 810’
- Extends the operational life of the landfill to 2041

Area	Current Approximate High Point[1] (2016)	Elevation per Approved 2010 FEIS*	Proposed Elevation under this Alternative
Area 5	763’	800’	810’
Area 6	771’	800’	810’
Area 7	711’	800’	810’
Area 8	594’	800’	810’
Southeast Area	628’	788’	810’
Northwest Area	759’	788’	810’

* In 2017, King County received an updated permit from the Department of Public Health to raise the elevation previously approved pursuant the 2010 FEIS to 800’.

Source: Revised Site Development Plan for Cedar Hills Regional Landfill – Final Report, June 2016 and March 2016 Aerial Photograph.

Figure 4. Alternative B



Alternative B

DESCRIPTION

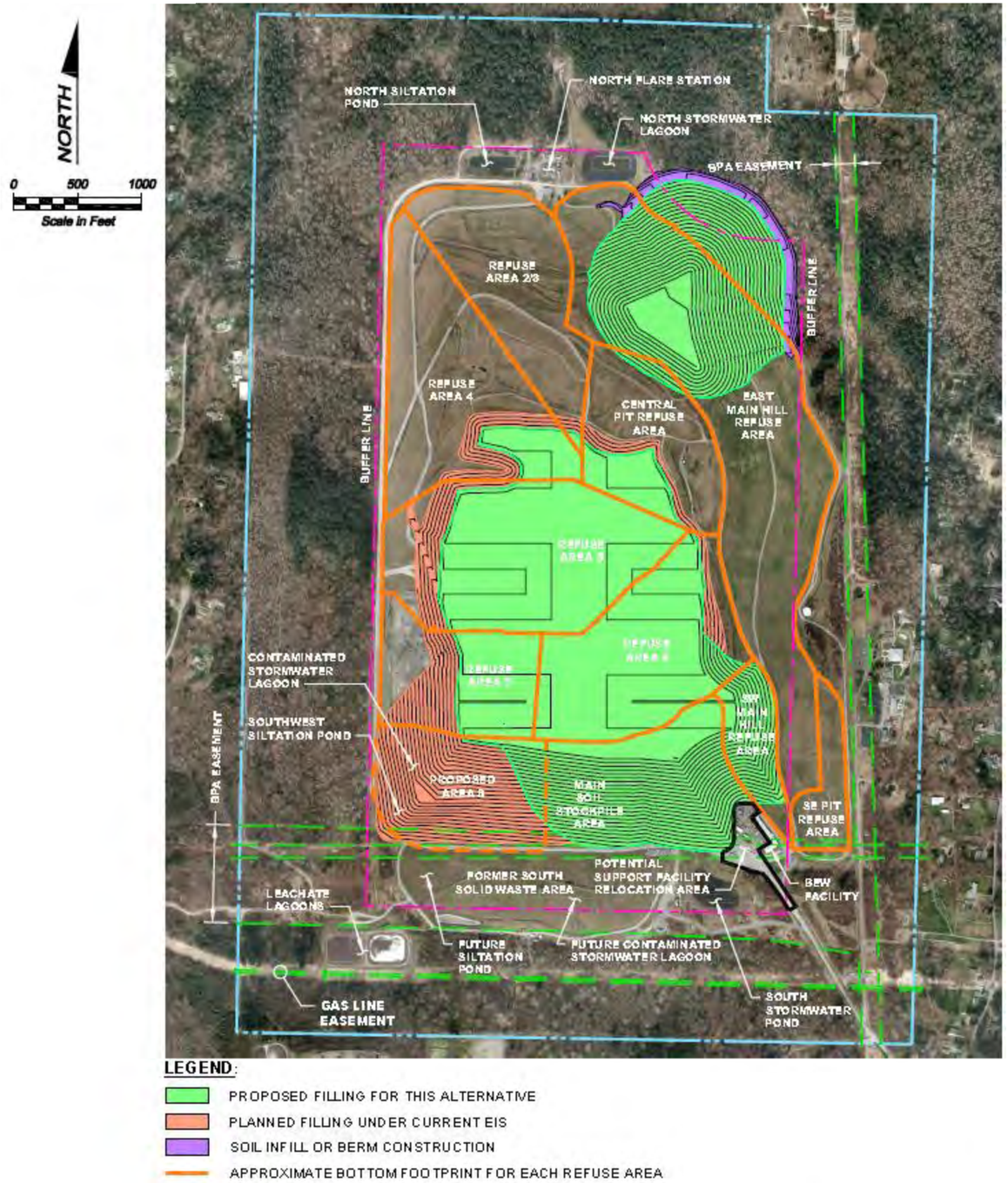
- Areas 5, 6, 7, and 8 filled to elevation 800’
- Southeast Area (Area 9) with refuse excavation to elevation 800’
- Northwest Area (Areas 2/3 and 4) with MRE berm to elevation 825’
- Top deck of Areas 5, 6, 7, 8, and Southeast Area (Area 9) to elevation 825’
- Extends the operational life of the landfill to 2042

Area	Current Approximate High Point[1] (2016)	Elevation per Approved 2010 FEIS*	Proposed Elevation under this Alternative
Area 5	763’	800’	825’
Area 6	771’	800’	825’
Area 7	711’	800’	825’
Area 8	594’	800’	825’
Southeast Area	628’	788’	825’
Northwest Area	759’		825’

* In 2017, King County received an updated permit from the Department of Public Health to raise the elevation previously approved pursuant the 2010 FEIS to 800’.

Source: Revised Site Development Plan for Cedar Hills Regional Landfill – Final Report, June 2016 and March 2016 Aerial Photograph.

Figure 5. Alternative C



Alternative C

DESCRIPTION

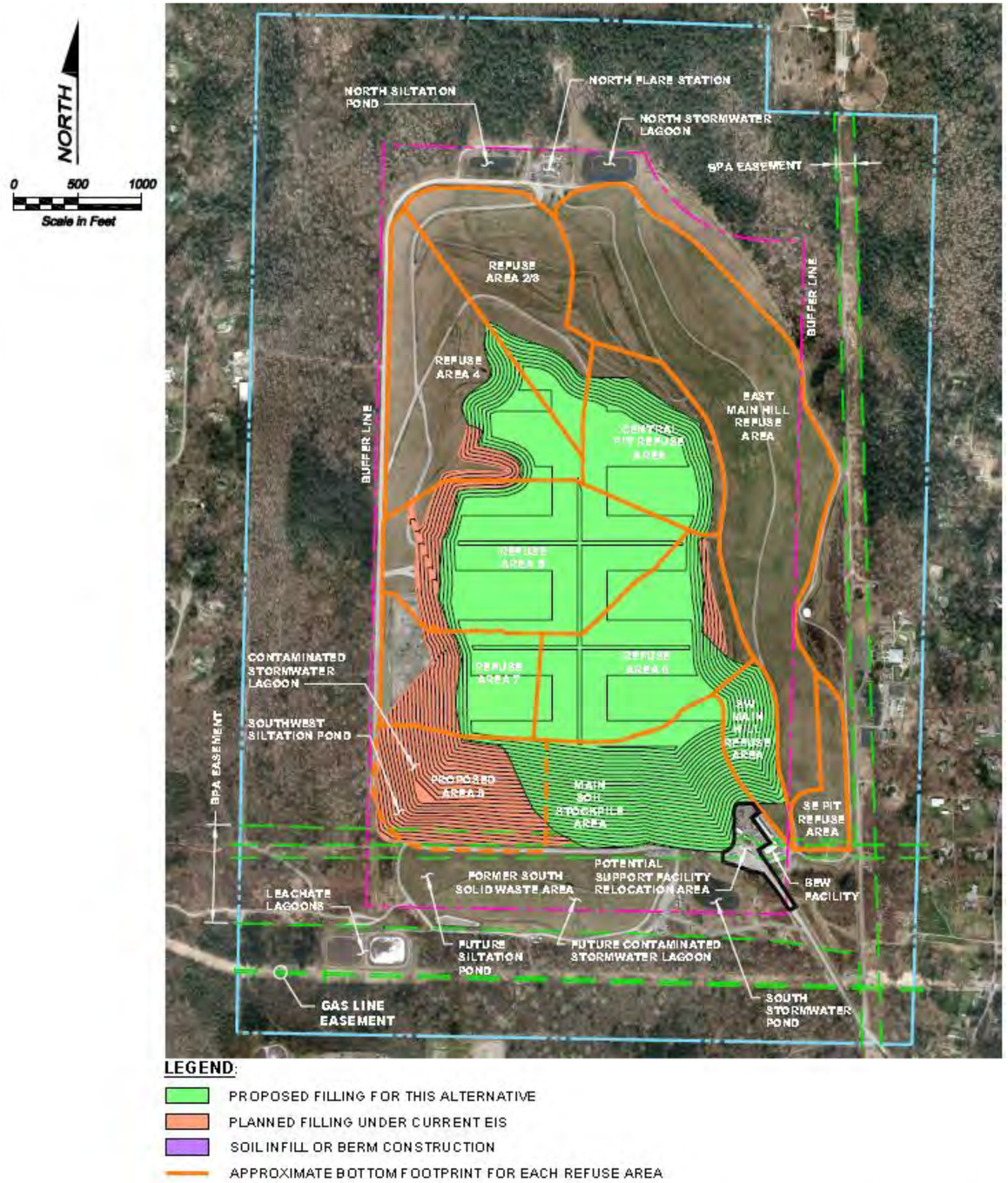
- Areas 5, 6, 7, and 8 filled to elevation 800’
- Southeast Area (Area 9) without refuse excavation to elevation 800’
- Northeast Area with soil berm to elevation 800’
- Top deck of Areas 5, 6, 7, 8, and Southeast Area (Area 9) to elevation 810’
- Extends the operational life of the landfill to 2041

Area	Current Approximate High Point[1] (2016)	Elevation per Approved 2010 FEIS*	Proposed Elevation under this Alternative
Area 5	763’	800’	810’
Area 6	771’	800’	810’
Area 7	711’	800’	810’
Area 8	594’	800’	810’
Southeast Area	628’	788’	810’
Northeast Area	657’		800’

* In 2017, King County received an updated permit from the Department of Public Health to raise the elevation previously approved pursuant the 2010 FEIS to 800’.

Source: Revised Site Development Plan for Cedar Hills Regional Landfill – Final Report, June 2016 and March 2016 Aerial Photograph.

Figure 6. Alternative D



Alternative D

DESCRIPTION

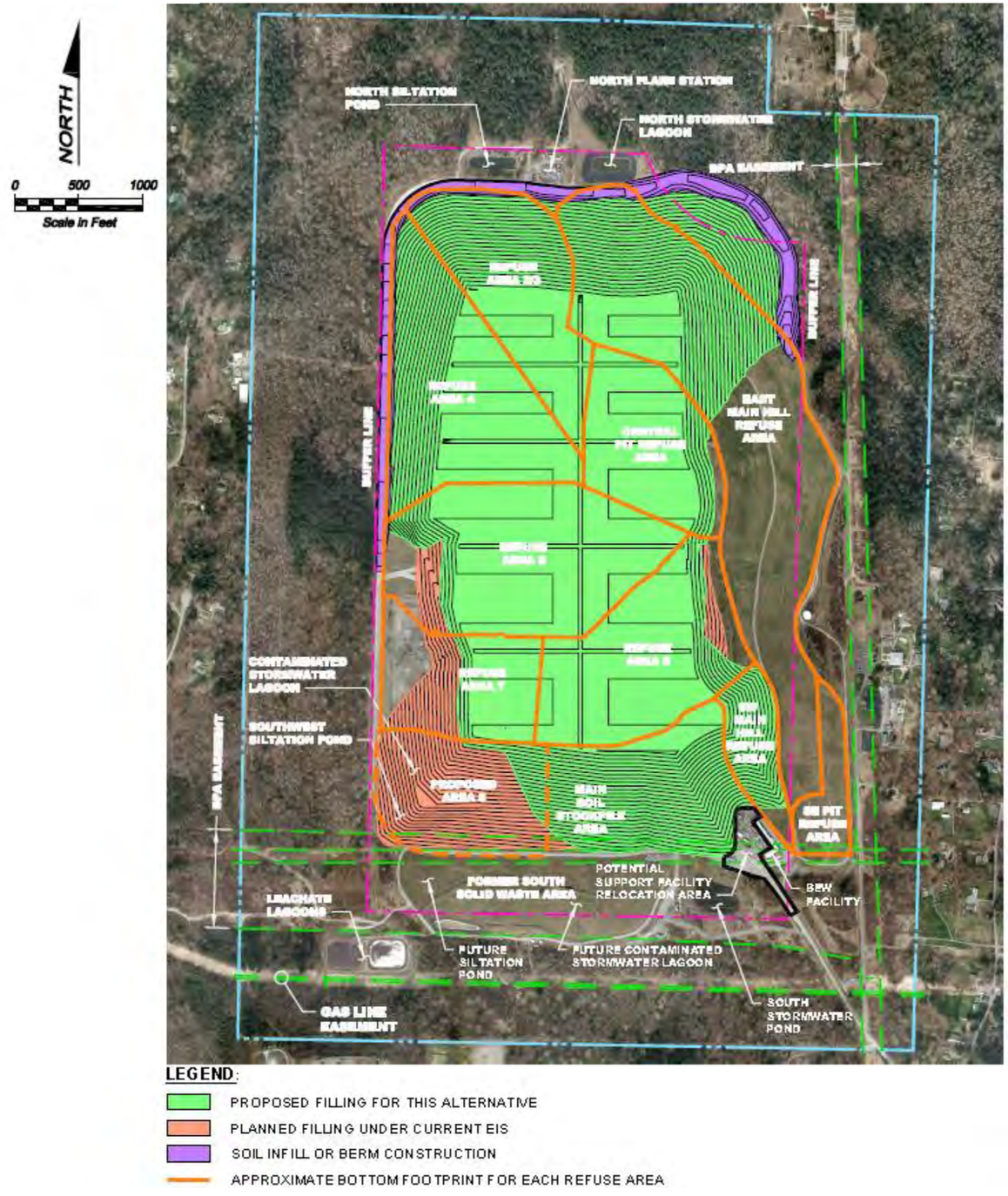
- Areas 5, 6, 7, and 8 filled to elevation 800’
- Southeast Area (Area 9) without refuse excavation to elevation 800’
- A portion of Areas 2/3, 4, and Central Pit to elevation 830’
- Top deck of Areas 5, 6, 7, 8, and Southeast Area (Area 9) to elevation 830’
- Extends the operational life of the landfill to 2040

Area	Current Approximate High Point[1] (2016)	Elevation per Approved 2010 FEIS*	Proposed Elevation under this Alternative
Area 5	763’	800’	830’
Area 6	771’	800’	830’
Area 7	711’	800’	830’
Area 8	594’	800’	830’
Southeast Area	628’	788’	830’
Portions of Area 2/3	758’	788’	830’
Area 4	765’	800’	830’
Central Pit	775’	800’	830’

* In 2017, King County received an updated permit from the Department of Public Health to raise the elevation previously approved pursuant the 2010 FEIS to 800’.

Source: Revised Site Development Plan for Cedar Hills Regional Landfill – Final Report, June 2016 and March 2016 Aerial Photograph.

Figure 7. Alternative E



Alternative E

DESCRIPTION

- Areas 5, 6, 7, and 8 filled to elevation 800’
- Southeast Area (Area 9) without refuse excavation to elevation 800’
- Northwest Area (Areas 2/3 and 4) with MRE berm to elevation 830’
- Northeast Area (including a portion of 2/3 and Central Pit) with soil berm to elevation 830’
- Top deck of Areas 5, 6, 7, 8, and Southeast Area (Area 9) to elevation 830’
- Extends the operational life of the landfill to 2050

Area	Current Approximate High Point[1] (2016)	Elevation per Approved 2010 FEIS*	Proposed Elevation under this Alternative
Area 5	763’	800’	830’
Area 6	771’	800’	830’
Area 7	711’	800’	830’
Area 8	594’	800’	830’
Southeast Area	628’	788’	830’
Northwest Area	759’		830’
Northeast Area	657’	800’	830’

* In 2017, King County received an updated permit from the Department of Public Health to raise the elevation previously approved pursuant the 2010 FEIS to 800’.

Source: Revised Site Development Plan for Cedar Hills Regional Landfill – Final Report, June 2016 and March 2016 Aerial Photograph.

1.4 No Action Alternative

The No Action Alternative completes the work currently in progress based on existing permits. This includes preparing a new fill area in Refuse Area 8 and in a portion of the Southeast Area. The FEIS for the CHRLF 2010 Site Development Plan anticipated that this development would extend the life of the landfill approximately 5-6 years beyond 2018, to approximately 2024. Because of improved best management practices in landfill operations implemented by King County since then, the no action alternative (i.e., the preferred Alternative from the 2010 FEIS) currently targets the closure of the CHRLF to occur in approximately 2028.

1.5 Executive Summary of Visual Effects

1.5.1 Action Alternatives

Significant aesthetic impacts are those that diminish the public enjoyment and appreciation of an inventoried resource or that impair the character or quality of such a place.[5] Mere visibility or detectability is not an adverse impact. The landscape surrounding the CHRLF will retain its open space character and overall spatial organization. Although there are some intrusions to the vertical and overhead planes in the landscape within the project site, these intrusions are minimal. The surrounding landscape will retain its integrity because the open sky, topography, and existing patterns of land use will remain dominant.

The existing site is visibly distinct from the natural landscape due to the disturbed nature of the landfill's surface areas. The landfill is an existing facility; it has become an established and accepted part of the landscape. The proposed project alternatives would alter the visual character of the site and the surrounding area by introducing 10-foot (Alternatives A and C), 25-foot (Alternative B), or 30-foot (Alternatives D and E) increases in elevation in Areas 5, 6, 7, and 8 and the Southeast Area.

Alteration of the perimeter buffer would occur in the northeast corner of the property under some alternatives. As part of Alternatives C and E, landfill operations would extend northeastward and cause the removal of 485,235 square feet (approximately 11 acres) of mature vegetation, including mixed deciduous and conifer trees. The remaining buffer is heavily vegetated and gains elevation further northeast from the proposed development in this area. This alteration would not result in a significant obstruction of the viewshed. No other alterations of the perimeter buffer are proposed.

Any visual impacts as a result of implementing Alternatives A, B, C, D, or E are considered a less than significant impact due to the relatively minor decrease in the available viewshed, which is already obstructed by the current landfill.

1.5.2 No Action Alternative

Under the No Action Alternative, visual quality will evolve to reflect the changes identified in the approved 2010 Cedar Hills Regional Landfill Site Development Plan. No vegetation would be removed as part of the No Action Alternative. It is assumed that the vegetative buffer would be maintained in its current condition.

[5] Maine Department of Environmental Protection, Natural Resources Protection Act, Chapter 315

1.5.3 Light and Glare

1.5.3.1 Action Alternatives

To determine the impacts of light and glare from the proposed landfill project, typical sensitive uses such as residences near the landfill were identified. The sources and amounts of light and glare that occur on the landfill site as currently approved were compared with the amount of light and glare that would occur under the proposed Action Alternatives. No new sources of light and glare would occur as a result of any of the proposed alternatives.

1.5.3.2 No Action Alternative

No new sources of light and glare will occur under the No Action Alternative.

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CHAPTER 2

2 Methodology

2.1 Regulatory Setting and Guidance Context

The Washington State Environmental Policy Act (SEPA) requires the consideration of aesthetics as an element of the environment in SEPA review.

State and County SEPA regulations and supporting materials, such as the Washington State Department of Ecology SEPA Handbook, do not provide specific guidance for conducting assessments of aesthetics and visual resources. However, such guidance is provided by various federal agencies and addresses appropriate methods, considerations, and procedures for aesthetics and visual resources assessments. For the purposes of this aesthetics and visual resources assessment, guidance provided by resource managers in various federal agencies has been used to develop the assessment methodology. The most widely known of these methodologies are those developed by U.S. Department of Agriculture and U.S. Forest Service (Landscape Aesthetics, A Handbook for Scenery Management), the U.S. Department of Transportation, Federal Highways Administration (Visual Impact Assessment for Highway Projects, and U.S. Department of Interior, Bureau of Land Management (The Visual Resource Management System). The landscape and land use setting of the proposed project are considerably different than those generally evaluated by these federal agencies. While none of the methodologies apply directly to this project, each utilizes a process of conducting a visual inventory within the local landscape and visual context and identifying viewer sensitivity and response. FHWA's visual quality assessment method forms the general framework for assessing this project's potential visual impacts.

2.2 Visual Assessment Methodology

The visual resource methodology used to inventory and assess the potential impacts of the proposed project alternatives includes the following:

- Define the study area[6] (See Section 3.2, Study Area)
- Prepare a viewshed determination[7] (See Figure 8. Viewshed Analysis)
- Identify and evaluate potentially sensitive viewers and viewpoints within the landscape context of the development
- Use visual simulations to describe the visual changes introduced by the construction and operation of the proposed project alternatives, as appropriate
- Assess the visual impacts from potentially sensitive viewpoints within the visual context of the proposed project alternatives, and
- Recommend mitigation measures, if necessary.

[6] Defined as viewing areas in the Final Environmental Impact Statement: Cedar Hills Regional Landfill, 2010 Site Development Plan
[7] Ibid.

2.2.1 Specialized Tools and/or Vocabulary

The assessment methodology uses an accepted set of assessment tools and well-defined terminology to evaluate the conditions that exist before the project and that are likely to be created by the project. The following terminology is used throughout this report:

- *Viewers:* people who have views of the project, usually discussed in terms of activity categories such as resident, jogger, hiker, or motorist, which are referred to as "viewer groups."
- *View:* a scene or area that can be seen of the project area from the surrounding neighborhoods and communities. Sensitive or special views are identified for use in visualizations.
- *Viewpoint:* the location of the viewer.
- *Viewer sensitivity:* a combination of the following factors for a specific view:
    - ❖ What viewer groups have that view?
    - ❖ How long does the view last? Motorists typically have short-duration views due to the motorists' rate of movement through the landscape, while pedestrians and residents have longer-duration or continual views.
    - ❖ What are the viewer groups' likely levels of response to the appearance, aesthetics, and quality of the view? Level of response is subjective, and is affected by factors such as the visual character of the surrounding landscape, the activity viewers are engaged in, and their values, expectations, and interests.

THE TERM "LOW VIEWER SENSITIVITY" IS USED WHEN VIEWERS ARE NOT PARTICULARLY CONCERNED ABOUT THE VIEW BEING CONSIDERED, OR, WHEN FEW VIEWERS EXPERIENCE THE VIEW. THE TERM "HIGH VIEWER SENSITIVITY" IS USED WHEN MANY VIEWERS OBSERVE A VIEW FREQUENTLY OR FOR A LONG TIME, OR WHEN THEY ARE VERY AWARE OF AND CONCERNED ABOUT THE VIEW. VIEWER SENSITIVITY DOES NOT IMPLY SUPPORT FOR OR OPPOSITION TO A PROPOSED PROJECT; IT IS A NEUTRAL TERM THAT IS AN IMPORTANT PARAMETER IN ASSESSING VISUAL QUALITY.

Visual sensitivity is generally higher for people who are driving for pleasure, such as tourists or people traveling to recreation areas. These viewer groups would likely have higher sensitivity to views of the landfill. Motorists who frequently and/or regularly travel the roads around the landfill can become desensitized to their surroundings because of its familiarity. Motorists in general and drivers in particular have only fleeting awareness of their surroundings. These factors combine to result in an overall lower visual sensitivity for motorists.

Residents are among the most sensitive viewers to visual quality change. This is because of the large amount of time they spend at the viewpoint, their familiarity with the view, and their sense of ownership.

- *Visual character:* an impartial description of the landscape, defined by the relationships between the existing visible natural and built landscape features. These relationships are considered in terms of dominance, scale, diversity, and continuity.

  The following are the character-defining visual landscape features that are identified and discussed during this assessment:

  - ❖ Landforms: types, gradients, and scale
  - ❖ Vegetation: types, size, maturity, and continuity
  - ❖ Land uses: size, scale, and character of associated buildings and ancillary site uses
  - ❖ Overhead utility structures and lighting: types, sizes, intensity, and scale
  - ❖ Open space: type (for examples, parks, reserves, greenbelts, and undeveloped land), extent and continuity
  - ❖ Viewpoints with views of visual resources.

- *Visual quality* describes the level of excellence of selected views. The visual quality assessment asks several questions and evaluates before- and after-project quality using descriptions. The questions asked are: Is this view common or memorable? Is it a pleasing composition (with a mix of elements that seem to belong together) or not (with a mix of elements that either do not belong together or are eyesores that contrast with the other elements in the surroundings)? The answers are expressed in these terms:

  - ❖ **Vividness** is the degree of memorability or distinctiveness of the landscape components. For example, a view of Mount Rainier can have high vividness because it is a memorable sight.

*The immediate and lasting impression of a view of Mount Rainier on the viewer is an example of high **vividness**.*

- ❖ **Intactness** is a measure of the presence of or freedom from encroaching elements that disrupt a natural or otherwise cohesive condition. For example, an unbroken expanse of native vegetation would have high intactness because the landscape is not interrupted by features that appear mismatched or out of place.

Little or no encroachment—the existing landscape is free from non-typical visual intrusions and is an example of ***intactness****.*

- ❖ **Unity** is the degree of visual coherence and compositional harmony of the landscape view considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape.

Unity*: The extent to which visual intrusions are sensitive to and in visual harmony with the existing landscape.*

- *Viewshed* boundaries are established primarily by landforms and are modified by view-blocking vegetation. See Figure 8.

Table 3. Definitions of Visual Quality Descriptors

Descriptor	Vividness	Intactness	Unity
Low	Low vividness indicates a landscape that lacks distinction or is non-descript.	Low intactness indicates that the integrity of the landscape is greatly reduced, either by the loss of large portions of a landscape from the view or the prevalence of incompatible elements. The incompatibility can result from conflicting scales, colors, or purposes, among others.	Low unity indicates that the built features of a landscape do not fit with the natural or existing setting or from one built feature to another.

Average	Average vividness indicates the presence of some features that create a somewhat memorable view.	Average intactness indicates the presence of some features that are not compatible with the existing landscape, or a loss of part of the landscape.	Average unity indicates that built features are somewhat harmonious with the existing setting and blend with the built environment context.
High	High vividness indicates the presence of a dominant feature or a collection of features that are distinctive and create a very memorable view.	High intactness indicates that the landscape is highly natural and elements fit into the visual setting (size, color, texture, form).	High unity indicates that the visual elements of a landscape are in balance and harmony with each other. High unity attests to the careful design of individual components and their relationship in the landscape and to each other.

People who would be affected by changes in the visual quality or character of their views are collectively referred to as viewers. Viewers are grouped by activity (such as resident or motorist) because viewer activity and expectations affect their awareness of and sensitivity to views. Viewer groups with views of the landfill include residents, people engaged in recreation or visiting the area, employees and clients of businesses, cyclists, pedestrians, and motorists.

2.2.2 Visual Simulations

To illustrate anticipated visual changes in the landscape associated with the proposed Action Alternatives, photographic visual simulations of the landfill from two (2) selected vantage points were used to evaluate project visibility and aesthetic quality.

These visual simulations were prepared through computer modeling and digital compositing with base photographs taken from two viewpoints. The first step of the simulation process was to photograph existing conditions. Next, three-dimensional computer models of the landfill were developed using computer-aided design and drafting (CADD) data provided by the project engineers. The computer models were scaled and matched to the site photographs using common reference points. After electronically compositing the computer model with the site photograph, soil cover and grass were manually added using digital editing software.

The visualizations provide an accurate representation of the location and scale of proposed changes in relation to other objects as seen from those viewpoints. However, they are limited in what they can convey because the camera's field of view can only approximate the human eye's single point field of view. A photograph provides an accurate representation of the scale of a structure in relation to other

objects seen from the viewpoint. It does not, however, reproduce the entire field of view perceived by a human observer.

The purpose of the visual simulations is to provide a comparison of visual changes. Not all potential views are reproduced or simulated. In many cases, a verbal description of existing and future views is provided. In some cases, existing and future views are represented by a single photograph of an existing scene, and probable changes in the view are described rather than shown graphically.

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CHAPTER 3

3 Affected Environment

3.1 Off-Site Conditions

The CHRLF is located in the foothills of the Cascade Mountain Range. The complex and diverse topography of the area includes deep valleys, steep-sided peaks, plateaus, and rolling hills. Major topographic features in the vicinity include Squak Mountain to the north, Tiger Mountain to the northeast, and the Cedar River Valley to the south. Much of the area is covered with mature second-growth conifer forest.

A variety of land uses are found in the vicinity of the landfill. Industrial facilities, including gravel mining and organic waste composting, operate south of the site. Residential development generally surrounds the landfill on the west, north, and east, including single-family subdivisions, large lot properties, and small farms. The character of the residential subdivisions generally falls into one of three categories: 1) subdivisions in open, formerly agricultural valleys, such as in May Valley; 2) subdivisions in forested areas such as Mirrormont to the east of the CHRLF and Maple Hills to the west, where the tree cover has been either maintained or re-established, and 3) subdivisions on slopes where trees have been removed to open views to Mount Rainier or other scenic features.

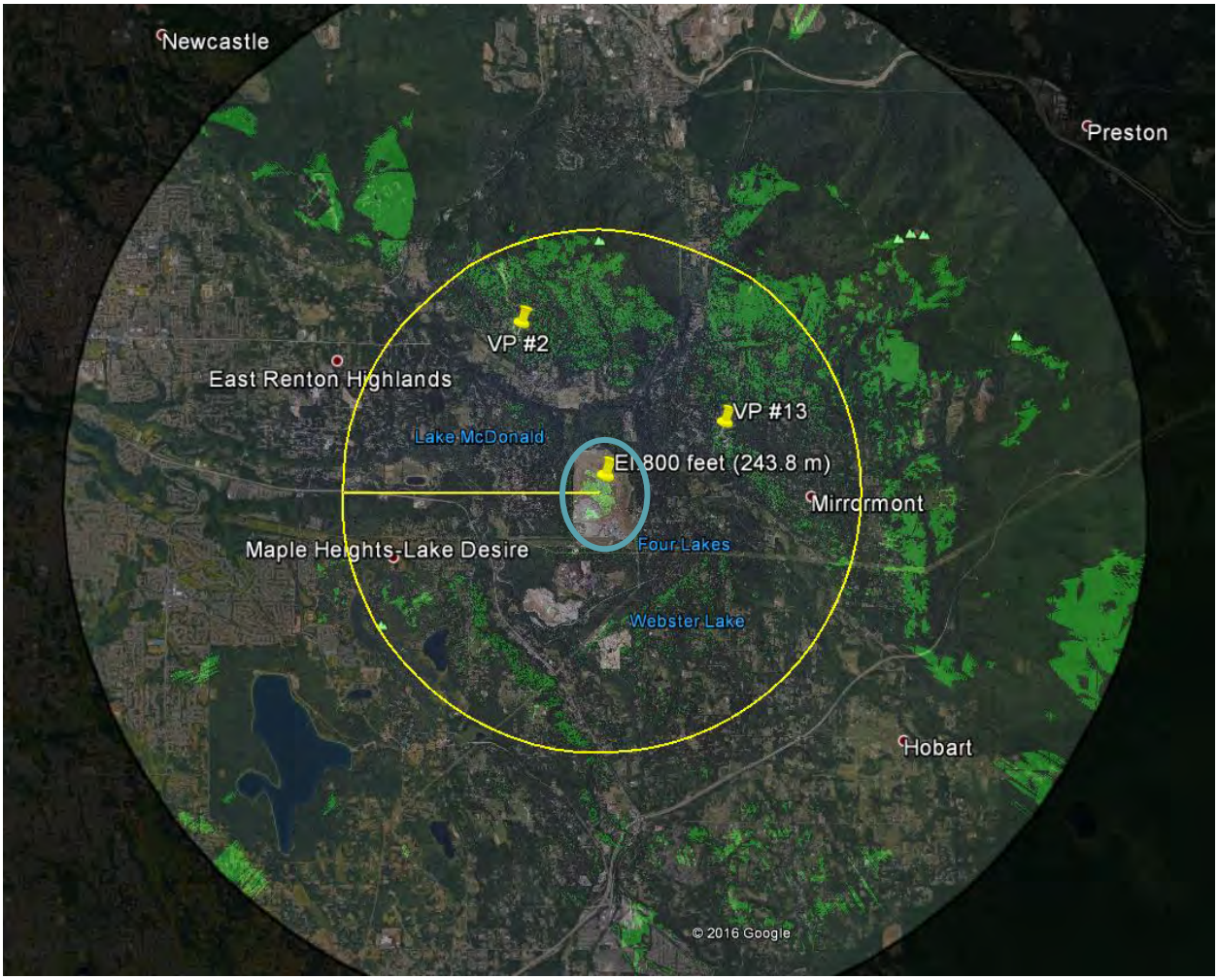
While there are a few neighborhood businesses and convenience stores in the vicinity, there are no large commercial or retail developments.

CHRLF is visible from surrounding areas; however, most potential views of the landfill are obscured by topography, existing off-site vegetation, and the vegetated 1,000-foot-wide buffer surrounding the landfill. A large portion of the landfill can be clearly seen from two locations: 1) from a residential area approximately one mile to the east, and 2) from an industrial area to the south. Other views of the landfill are partial or screened views through vegetation or views in which the landfill summit appears in the distance as a grass-covered ridge line rising just above the trees, or where active landfill operations are occurring, views may also include earthmoving equipment and soil. Some individual residents may have clearer views of the landfill from their properties. Many residences are on higher ground than the CHRLF, but views from hillside homes tend to be screened by the tree canopy from late spring to late fall when the deciduous trees are fully leafed out.

3.2 Study Area

Figure 8 illustrates an analysis of areas with views to the landfill. This analysis assumes that the landfill elevation is 800 feet, which is the current maximum permitted height, not its current lower elevation. CHRLF is situated in the blue oval, centrally located in the figure. The areas painted in green indicate where there are potential views of the landfill. The yellow circle represents the study area - a three-mile radius from the center of the CHRLF; the outer circle extends the radius to six miles. Visual simulations of the proposed alternatives were prepared for the two highlighted viewpoints: VP #2 and VP #13. In most areas where potential visibility is indicated on the viewshed map, the analysis suggests that views of a portion of the landfill could be seen, but not necessarily all of the landfill areas as proposed in each Alternative.

Figure 8. Viewshed Analysis



3.3 Key Viewpoints

In 2009, the KCSWD explored ways to extend the useful life of the CHRLF by developing more disposal capacity at the site. KCSWD evaluated five Action Alternatives that would provide additional landfill capacity, as well as a No Action Alternative. Upon completion of the environmental review process, KCSWD recommended a preferred alternative in the 2010 Final EIS that maximized the available space at the landfill with no significant adverse impacts on the environment.

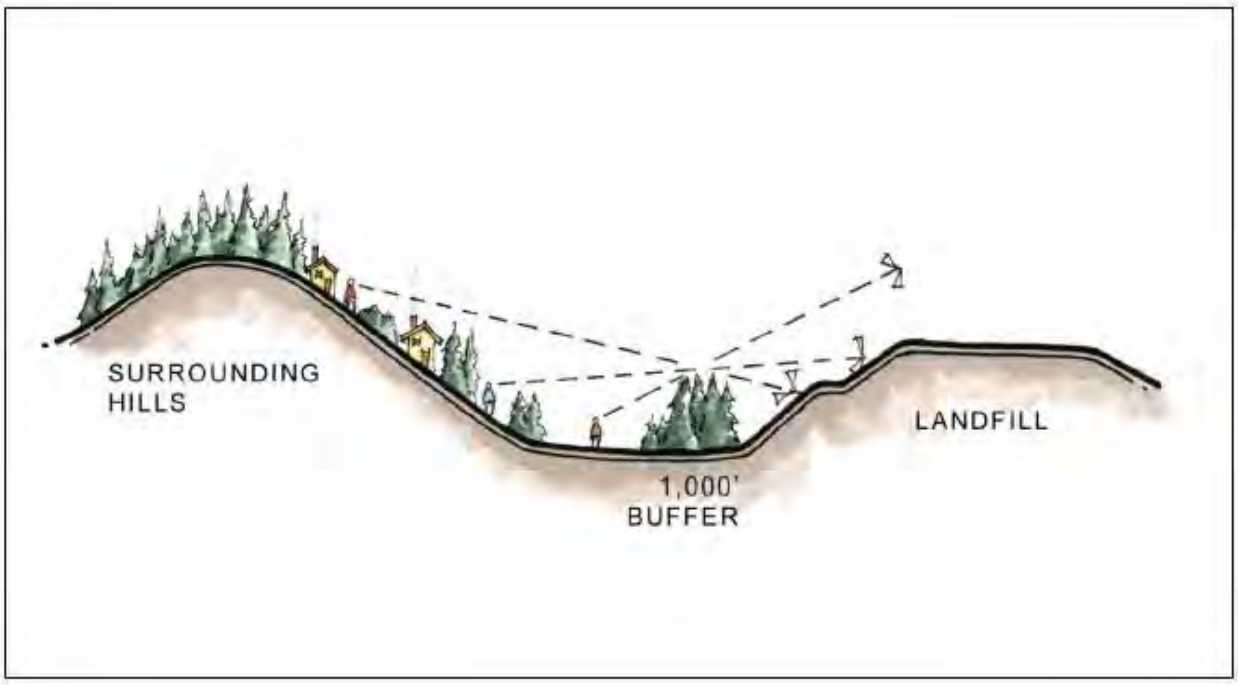
During this evaluation, the KCSWD conducted a study to assess views of the landfill from surrounding areas. Key viewpoints (as seen in Figure 10) were selected by assessing the topography and vegetation in the vicinity of the landfill to determine which areas could provide views of the landfill. Key viewpoints with the greatest potential for visual impacts were selected by the following methods:

- Observing the surrounding areas from the landfill summit to identify those residences and roads that may provide a view of the landfill.
- Determining whether the view is typical of the project area and is a public location with sensitive viewers nearby and can be seen by major viewer groups.

- Determining whether the view represents moderate to high changes to visual quality or character of scenic views.
- Determining that a substantial portion of the CHRLF is visible from the viewpoint.

As discussed above, topography and vegetation largely determine the locations from which a person is able to view the landfill. Figure 9 illustrates the effects of topography and vegetation on views of the landfill. In most locations where there is a potential view, views are screened by existing vegetation, both off-site and within the buffer. In each potential viewing area, people may or may not be able to see the landfill depending on the density of the vegetation and the season. The winter months allow more views of the landfill because deciduous trees have dropped their leaves.

Figure 9. Illustration of Topographic Effects on Views



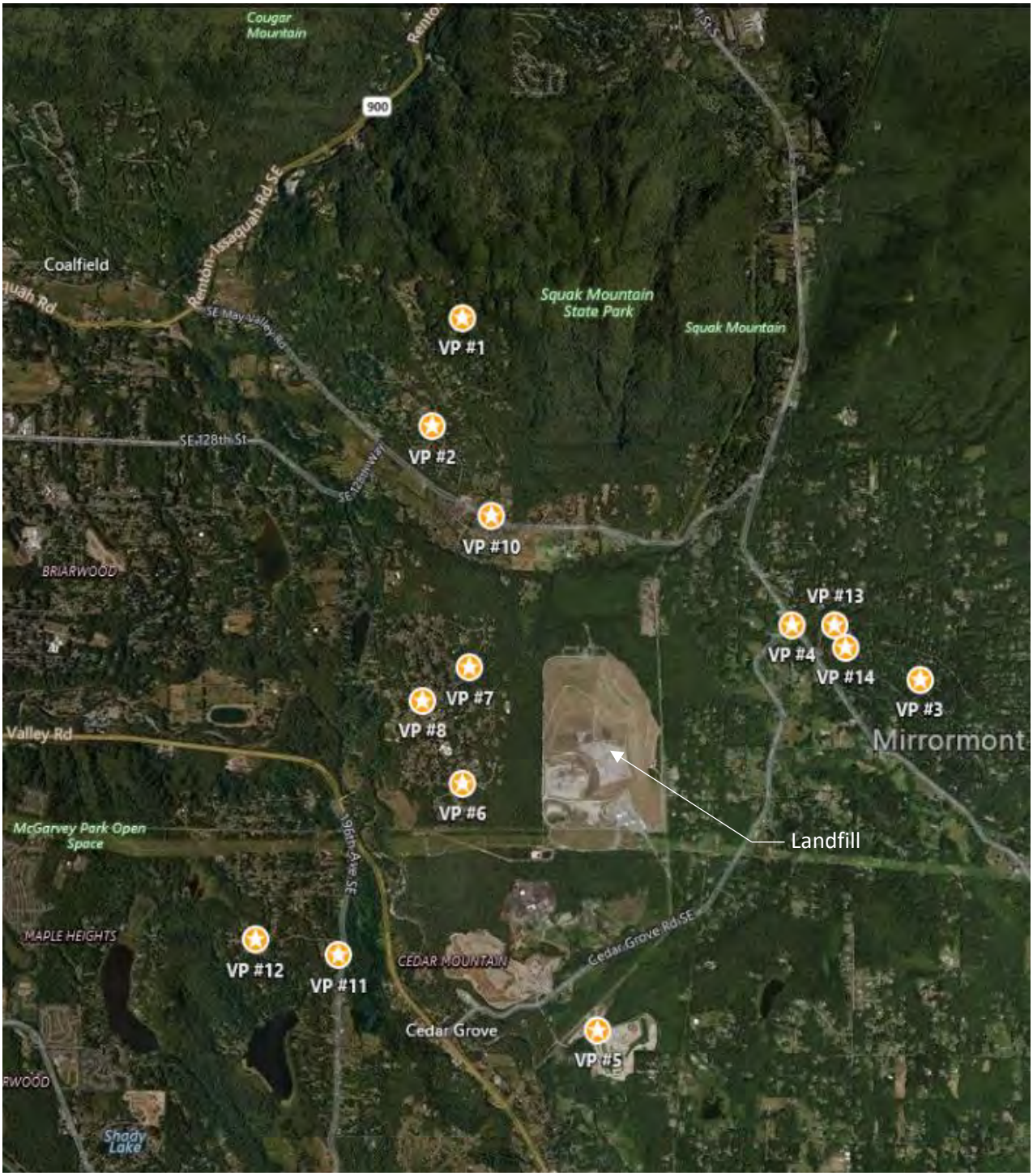
Source: Final Environmental Impact Statement, Cedar Hills Regional Landfill 2010 Site Development Plan

Eleven key viewpoints were previously selected for analysis based on the following criteria:

- Will people be able to see significant visual change from the viewpoint?
- What would be the duration of the view?
- What are the expectations of the viewers?
- How far away is the landfill from the viewpoint?

For this visual assessment, the study team used previously defined viewpoints and selected new viewpoints for views toward the project that could be used for visualizations and/or evaluation points. Viewpoints are shown in Figure 10. Below, each viewpoint is described in more detail, beginning on the north side of the landfill, and continuing on the east, south, and west sides.

Figure 10. Viewpoint Locations



3.3.1 Viewpoint #1

Much of the south side of Squak Mountain is too steep for development. Where development has occurred, homebuilders typically have cleared the thick forest to provide views to Mount Rainier and the Cascade Range. Depending on location, residents may view the existing landfill in the middle ground from an elevation above, at, or below the existing landfill. Even though Viewpoint #1 is at El. 1,166' (about 350' above the elevation of the current landfill), views of the landfill are mostly obscured by existing foreground and middle ground vegetation. This viewpoint is perched on the southwest side of Squak Mountain in a heavily forested area. This community is sparsely populated; the predominant views are static views from private residences. The landfill is approximately 2.5 miles south-southeast from this viewpoint location on 207th Avenue SE.

Figure 11: Viewpoint #1

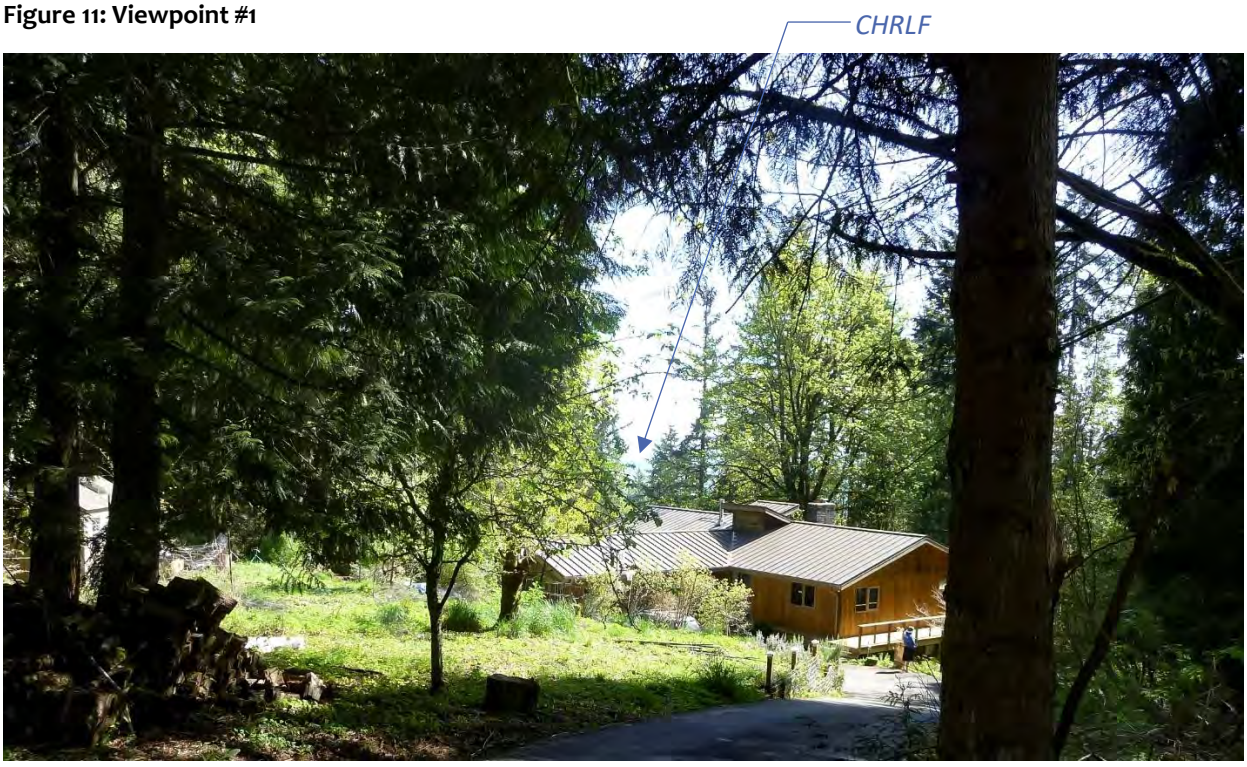


Figure 12 illustrates the approximate sightline from Viewpoint #1 to the landfill. The cross-section A-A' in Figure 13 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane along the sightline. Alternative E considers the highest potential elevation of 830'.

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Figure 12. Sightline and Section Elevation from Viewpoint #1

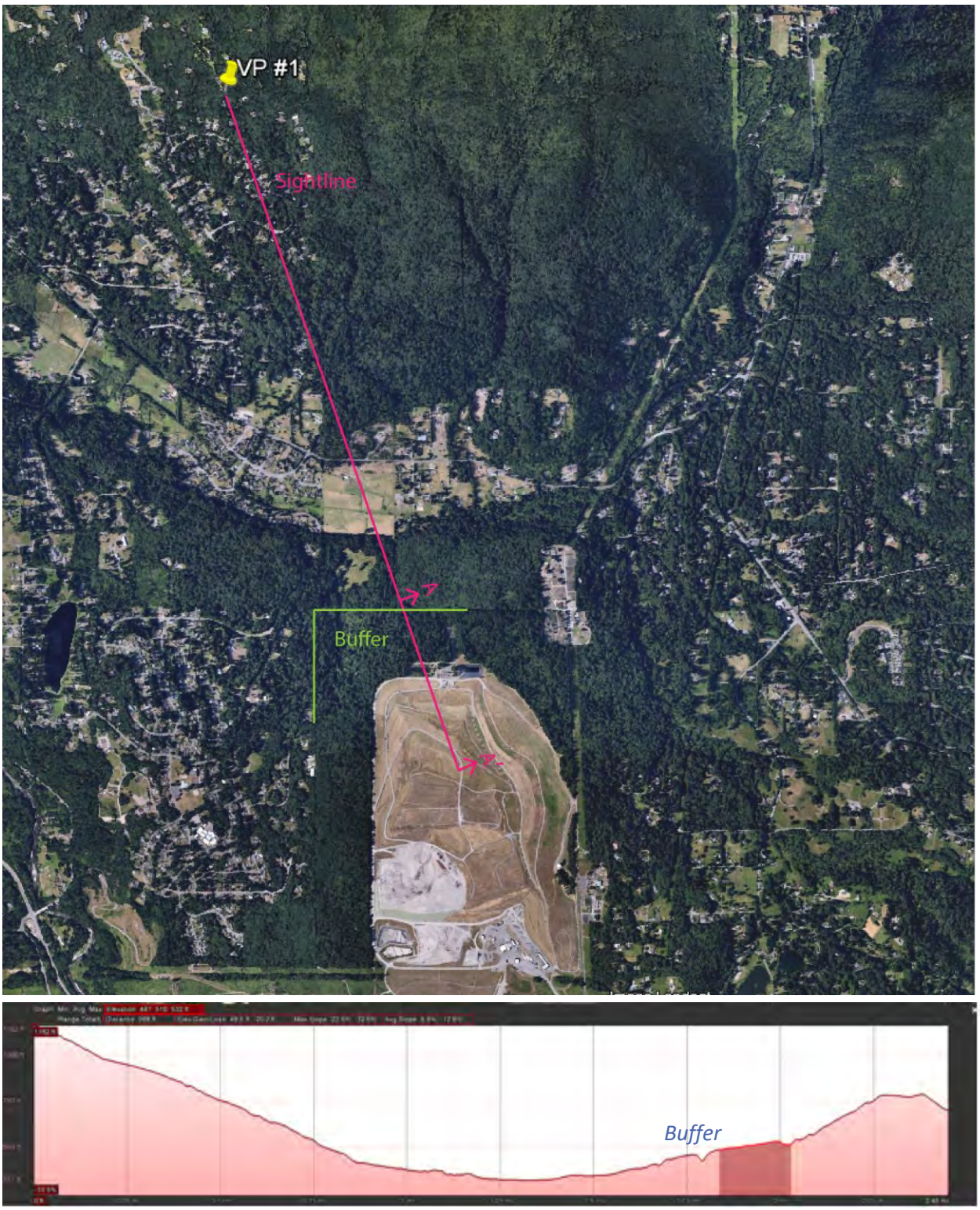
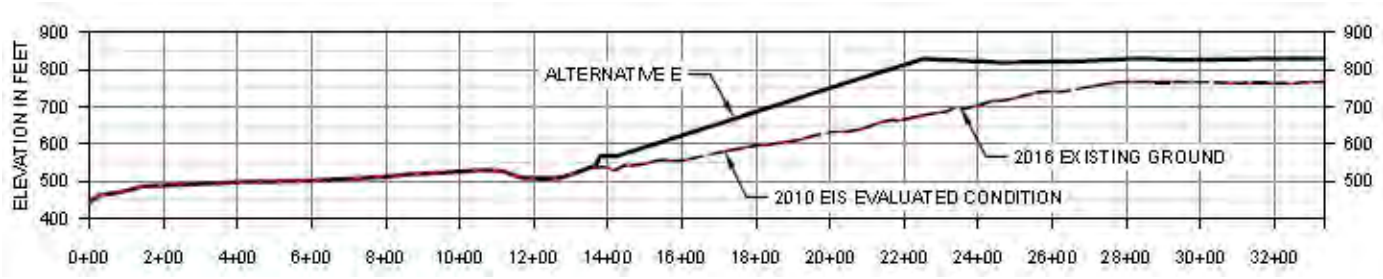


Figure 13. Cross Section A-A' (VP #1)



3.3.1.1 Visual Effects

Residents above the elevation of the existing landfill would likely see some visual changes resulting from soil surcharging activity, an increase in landfill bulk, and some soil stockpile relocation; all activities that are common to Alternatives A, B, and E. The visual changes would be limited to the visible northwestern face and summit of the landfill. At 2.5 miles away, these visual changes would be softened by distance and atmospheric conditions. The access roads and active landfill areas would be less prominent and equipment would be difficult to discern.

The proposed landfill vertical expansion in Alternatives A, B, and E would be slightly more obvious when compared with surrounding landforms because of the flat-topped, manufactured shape of the landfill. The proposed vertical expansion may block some of the distant horizon. This is considered a less than significant impact due to the relatively minor decrease in the available viewshed, which is already obstructed by existing vegetation and the current landfill.

There would be no changes to the current view in Alternatives C and D.

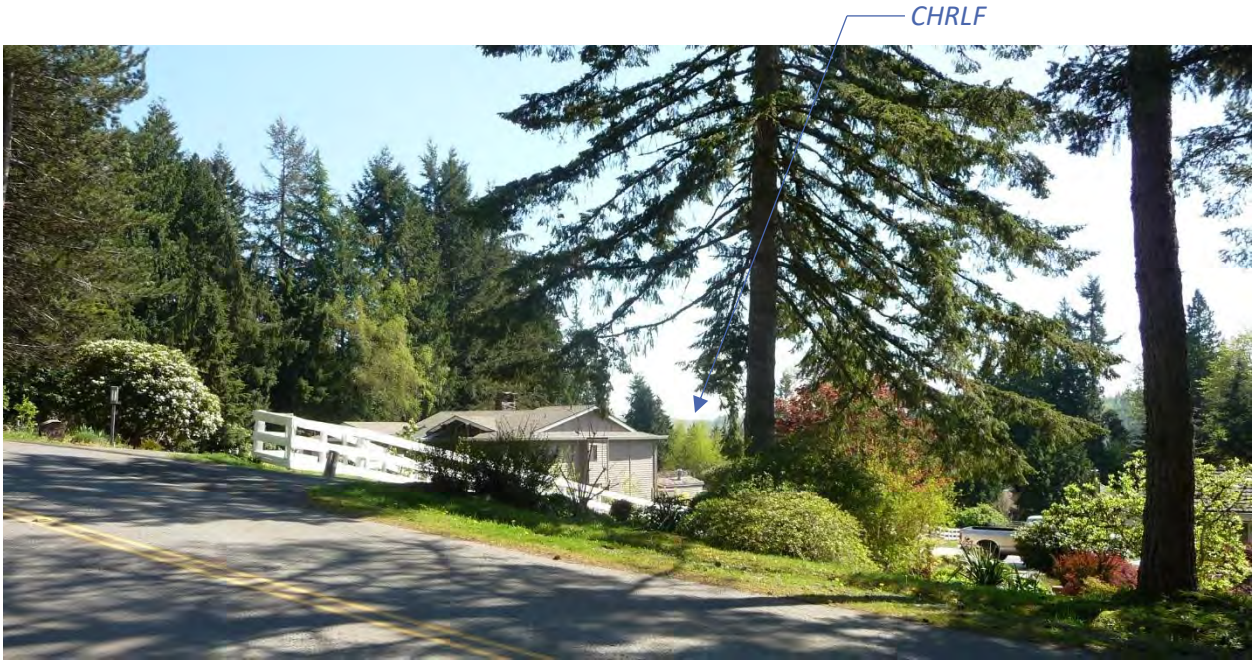
3.3.1.2 Summary – Viewpoint #1

Viewpoint Location	47.497916 N, 122.064375 W
Approximate Street Location	207th Avenue SE and 208th Place SE
Viewpoint Elevation	1,166'
Visible Landfill Elevation	783'
2010 EIS-Evaluated Elevation (highest)	783'
Relation between Viewpoint and Landfill Elevations	Viewpoint above Landfill: 383'
Distance to Landfill	2.45 miles
Landfill Buffer	6% avg. slope, El. 487' to El. 531'
Primary Viewer Group	Residents
Viewer Sensitivity	Low
Vividness	Average
Unity	Average
Intactness	Average

3.3.2 Viewpoint #2

This viewpoint is also located on the southwest side of Squak Mountain on SE 127th Street just east of its intersection with 202nd Place SE. It is approximately 1.9 miles from the longitudinal center of the landfill and 1.4 miles from the northwest edge of the buffer. The elevation at Viewpoint #2 is 579' and the view is generally to the southeast. The landfill is largely obscured by vegetation in the foreground; however, when there are breaks in the vegetation, one can view the northwest corner of the landfill. Views of the landfill may be more prominent from some individual homes in this community.

Figure 14: Viewpoint #2



The aerial photograph and section in Figure 15 illustrate the approximate sightline from Viewpoint #2 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be currently visible from Viewpoint #2. The cross-section A-A' in Figure 16 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 15. Sightline and Section Elevation from Viewpoint #2

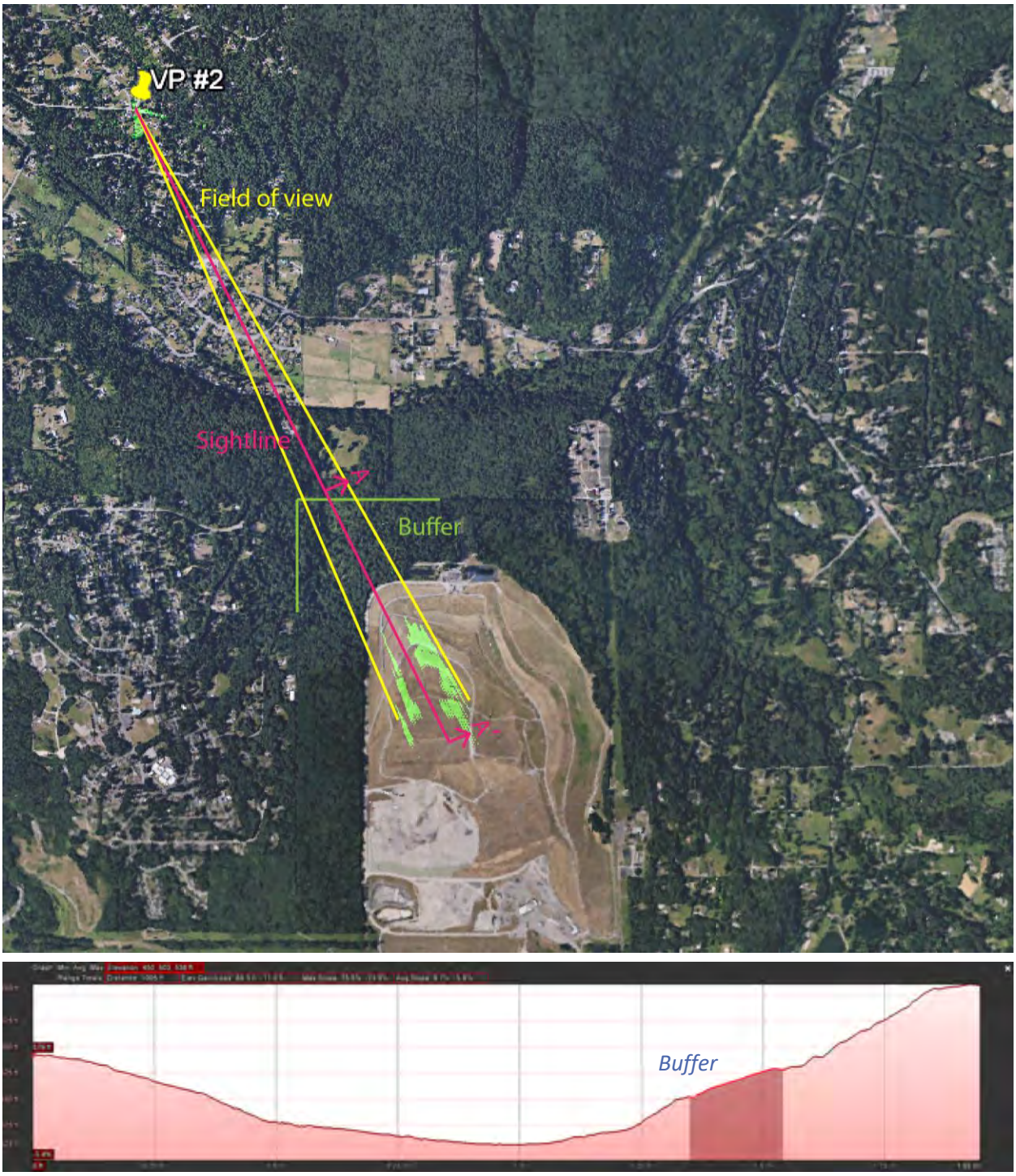
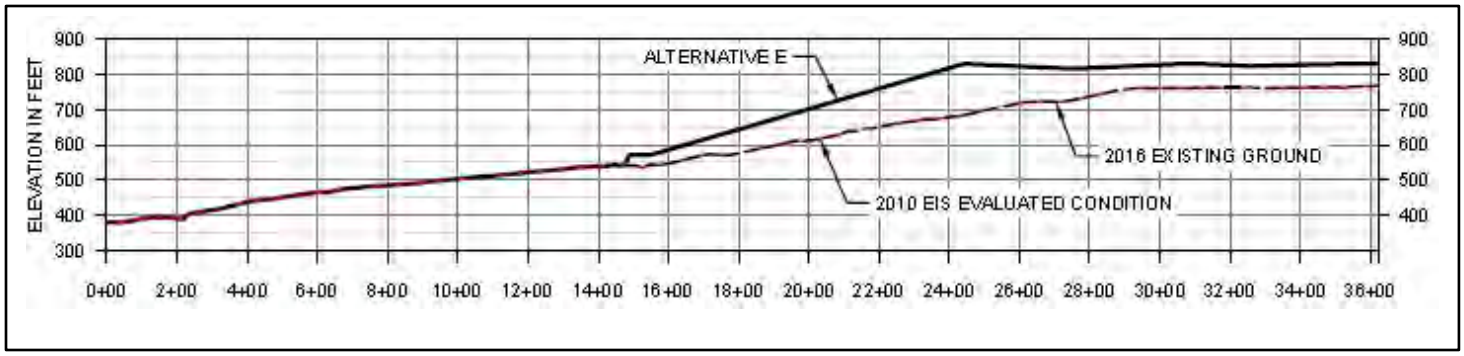


Figure 16: Cross Section A-A' (VP #2)



3.3.2.1 Visual Simulations

Figure 17. VP #2 Alternative A

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Figure 18. VP #2 Alternative B

Figure 19. VP #2 Alternative C

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Figure 20. VP #2 Alternative D

Figure 21. VP #2 Alternative E

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3.3.2.2 Visual Effects

Distant views of landfill operations from Viewpoint #2 are generally obscured by existing landforms and vegetation. Residents and motorists have a partial view of the landfill's northwestern face and summit. The landfill contrasts with the surrounding area because of the grass vegetative cover and by the horizontal line of the flat top of the landfill. Residents here may see some soil surcharging activity and an increase in landfill bulk in Alternatives A, B, and E. At nearly 2 miles from the landfill, distance and atmospheric conditions again will cause the access roads and active landfill areas to be less prominent.

The proposed landfill vertical expansion in Alternatives A, B, and E would be obvious because of the flat-topped, manufactured shape of the landfill. The proposed vertical expansion may block some of the distant horizon. This is considered a less than significant impact due to the relatively minor decrease in the available viewshed, which is already obstructed by existing vegetation and the current landfill.

There would be no changes to the current view in Alternatives C and D.

3.3.2.3 Summary – Viewpoint #2

Viewpoint Location	47.488926 N, 122.068094 W
Approximate Street Location	SE 127th Street and 202nd Place SE
Viewpoint Elevation	579'
Visible Landfill Elevation	769'
2010 EIS-Evaluated Elevation (highest)	769'
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 190'
Distance to Landfill	1.95 miles
Landfill Buffer	10% avg. slope, El. 457' to El. 538'
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	Low
Vividness	Average
Unity	Average
Intactness	Average

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3.3.3 Viewpoint #10

The landfill and its buffer are revealed in fleeting glimpses along SE May Valley Road between 218th Avenue SE and 208th Avenue SE. Viewpoint #10 affords a distant view of landfill operations, while other views of the landfill buffer occur only across broad stretches of pastureland where roadside vegetation is sparse. This viewpoint is at the base of Squak Mountain, approximately 0.7 miles from the buffer, and 1.3 miles from the longitudinal center of the landfill. This viewpoint is at El. 357'.

Figure 22: Viewpoint #10

The aerial photograph and section in Figure 23 illustrate the approximate sightline from Viewpoint #10 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be visible from Viewpoint #10. The cross-section A-A' in Figure 24 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

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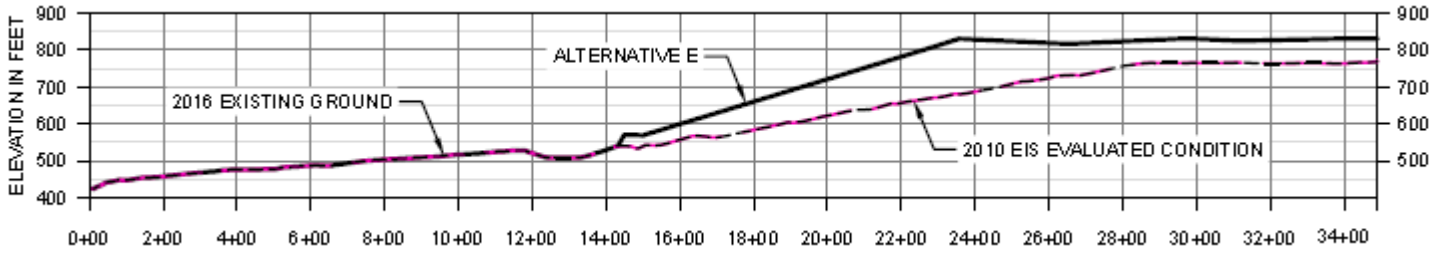
Figure 23. Sightline and Section Elevation from Viewpoint #10

Figure 24. Cross Section A-A' (VP #10)



3.3.3.1 Visual Effects

Filling activity at the north face of the landfill and possible increase in landfill bulk may be apparent along May Valley Road. Because of the middle ground vegetation, the landfill would continue to appear as a grass-vegetated ridgeline in the distance. The increase in height proposed under Alternatives A, B, and E would largely be obscured by the perimeter buffer. However, the proposed vertical expansion would be obvious because of the flat-topped, manufactured shape of the landfill. The proposed vertical expansion may block some of the distant horizon. This is considered a less than significant impact due to the relatively minor decrease in the available viewshed, which is already obstructed by existing vegetation and the current landfill.

There would be no changes to the current view in Alternatives C and D.

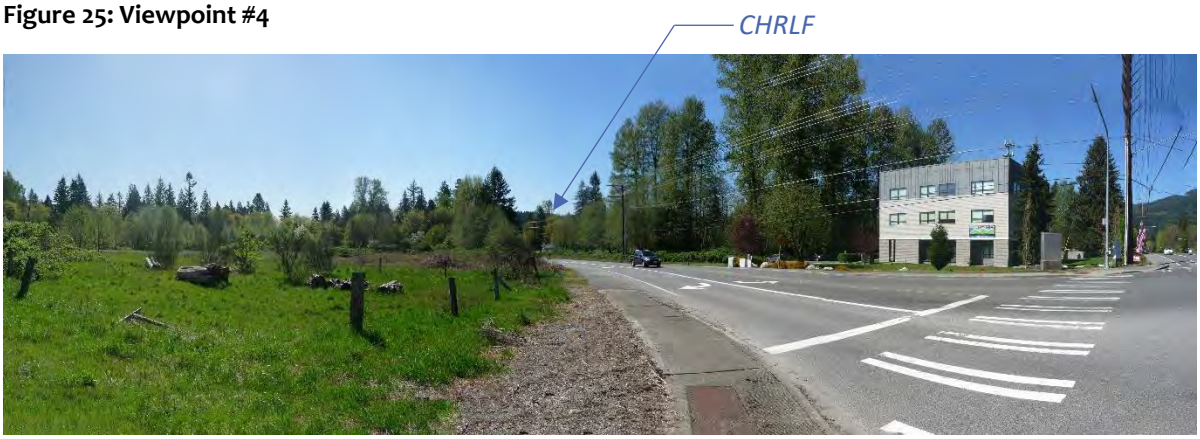
3.3.3.2 Summary – Viewpoint #10

Viewpoint Location	47.481468 N, 122.060711 W
Approximate Street Location	SE May Valley Road between 208th and 218th Avenues SE
Viewpoint Elevation	357'
Visible Landfill Elevation	769'
2010 EIS-Evaluated Elevation (highest)	769'
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 412'
Distance to Landfill	1.3 miles
Landfill Buffer	8.6% avg. slope, El. 450' to El. 524'
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	Low
Vividness	Average
Unity	Average
Intactness	Average

3.3.4 Viewpoint #4

This view is from the southwest corner of the intersection of Issaquah-Hobart Road SE and Cedar Grove Road SE and is looking West-South-West toward the northeast corner of the landfill buffer. This vantage point is approximately 0.9 miles from the buffer and approximately 1.28 miles from the longitudinal center of the landfill. The field of view is limited by existing vegetation and topography. The viewpoint is at El. 358'. The elevation of the ground plane for the buffer rises from El. 510' to El. 564' along the sight line. The buffer here is heavily vegetated with mixed conifers and deciduous trees and generally precludes a view of the landfill.

Figure 25: Viewpoint #4



The aerial photograph and section in Figure 26 illustrate the approximate sightline from Viewpoint #4 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be currently visible from Viewpoint #4. The cross-section A-A' in

Figure 27 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

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Figure 26. Sightline and Section Elevation from Viewpoint #4

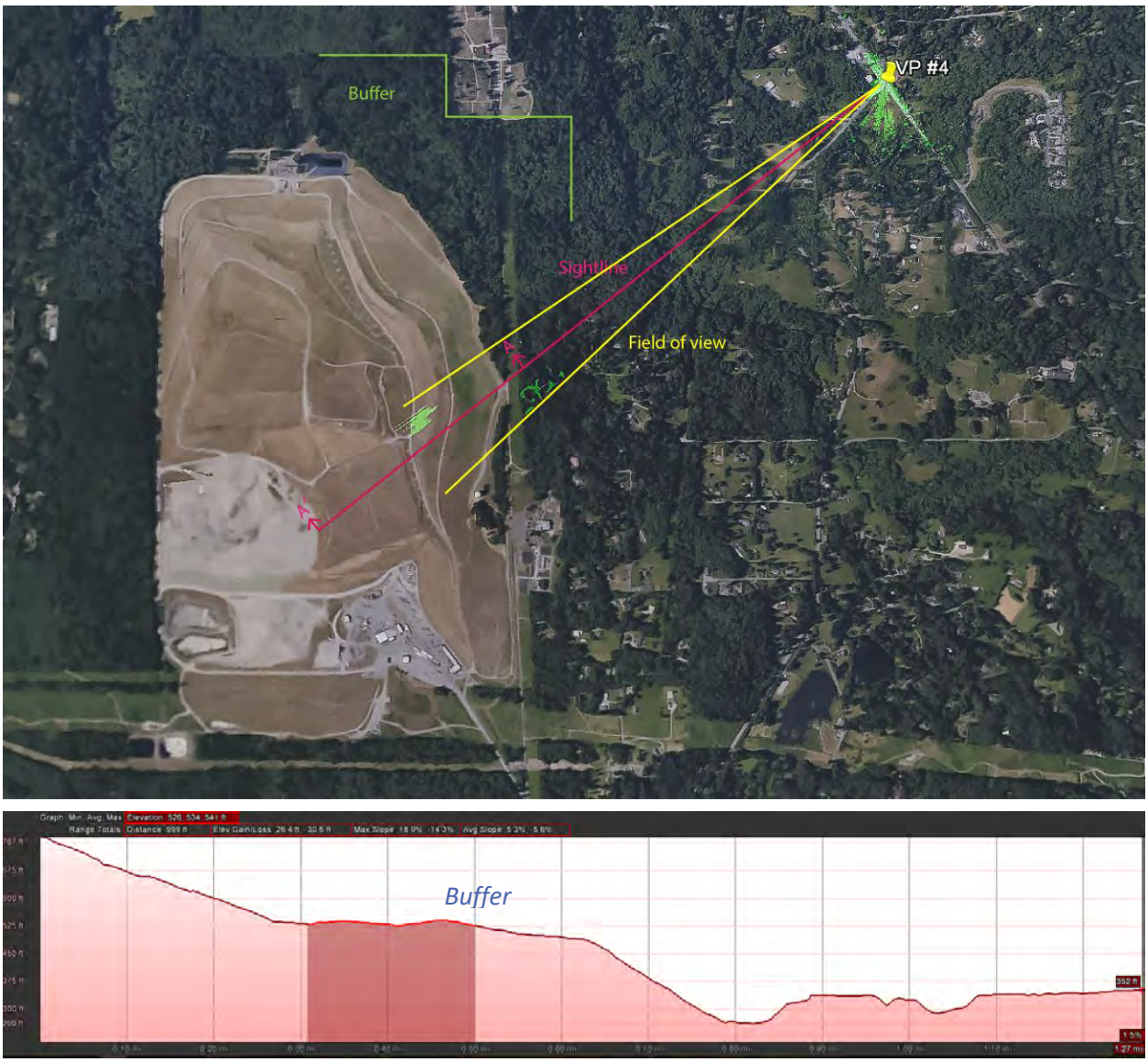
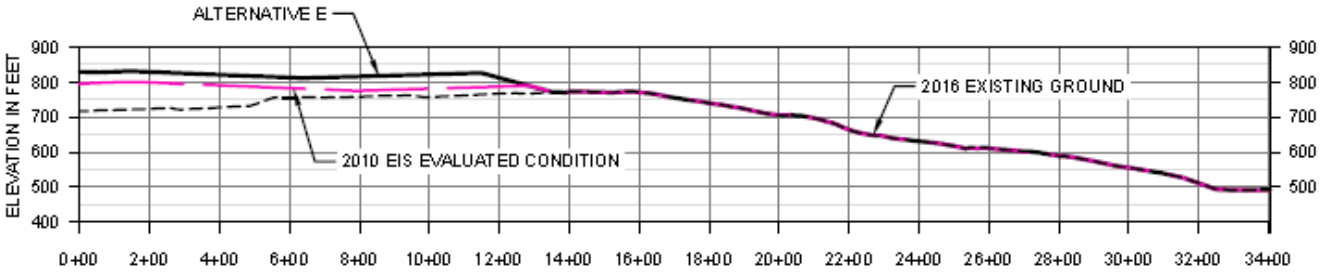


Figure 27. Cross Section A-A' (VP#4)



3.3.4.1 Visual Effects

There will be no changes in views of the landfill under Alternatives A, B, C, and D. Under Alternative E, the ridgeline would rise from its current elevation of 765 feet to a projected elevation of 830 feet. From this viewpoint, this would appear as a barely visible grass-covered ridgeline and would still be largely camouflaged by the perimeter buffer. Existing vegetation in the foreground and landforms in the middle ground would continue to obstruct views of the landfill from this viewpoint.

3.3.4.2 Summary – Viewpoint #4

Viewpoint Location	47.472503 N, 122.023328 W
Approximate Street Location	Cedar Grove Road and Issaquah-Hobart Road
Viewpoint Elevation	358’
Visible Landfill Elevation	757’
2010 EIS-Evaluated Elevation (highest)	800’
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 399’
Distance to Landfill	1.26 miles
Landfill Buffer	6.7% avg. slope, El. 475’ to El. 534’
Primary Viewer Group	Motorists
Viewer Sensitivity	Low
Vividness	Low
Unity	Low
Intactness	Average

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3.3.5 Viewpoint #13

When traveling westbound on SE 147th Place, the landfill is a dominant feature on the skyline. This viewpoint is approximately 1.5 miles from the longitudinal center of the landfill and is at El. 526'. The heavily vegetated landfill buffer is also visible from this viewpoint. Located immediately north and west of the Mirrormont Subdivision, this road provides access to a newer development that currently consists of fourteen residences, either constructed or now under construction.

Figure 28. Viewpoint #13

The aerial photograph and section in Figure 29 illustrate the approximate sightline from Viewpoint #13 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be visible from Viewpoint #13. The cross-section A-A' in Figure 30 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 29. Sightline and Section from Viewpoint #13

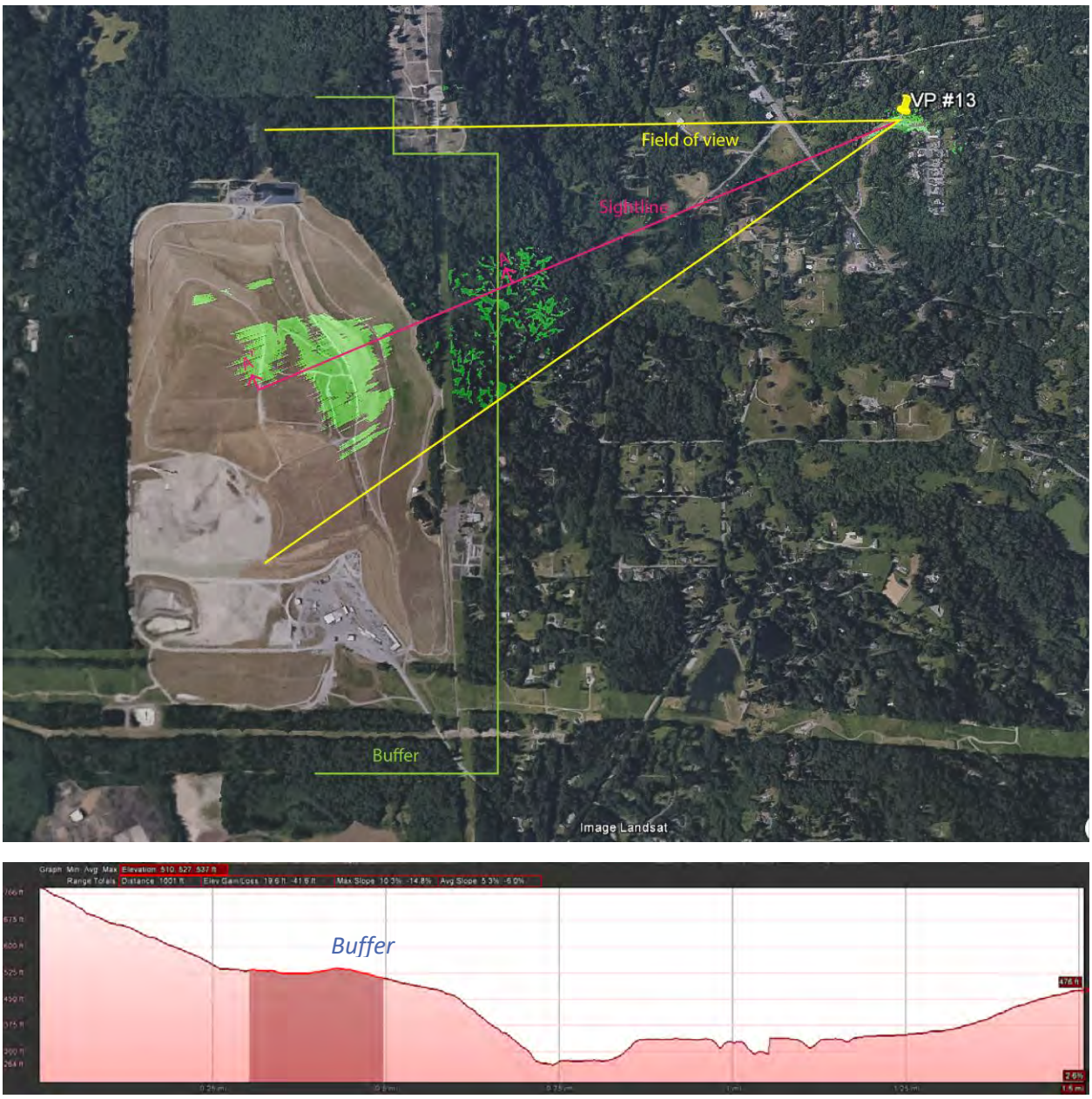

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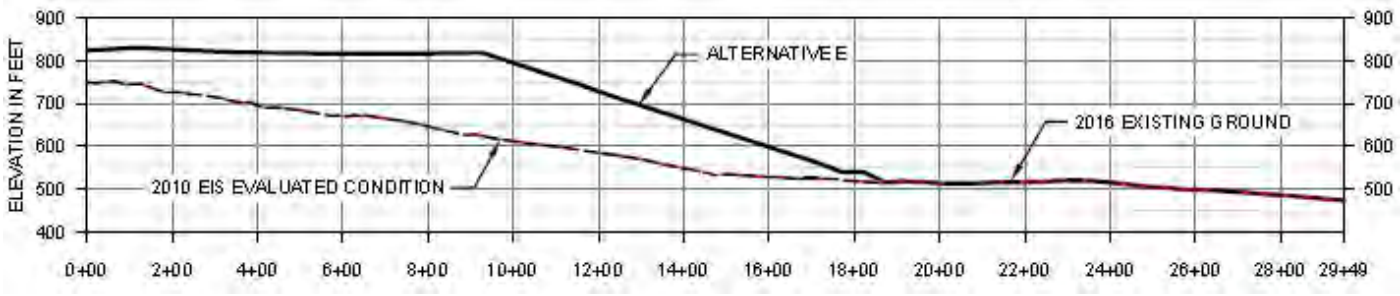
Figure 30. Cross Section A-A' (VP #13)



3.3.5.1 Visual Simulations

Figure 31. VP #13 Alternative A

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Figure 32. VP #13 Alternative B

Figure 33. VP #13 Alternative C

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Figure 34. VP #13 Alternative D

Figure 35. VP #13 Alternative E

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3.3.5.2 Visual Effects

From this location, the landfill appears as a grass-covered ridgeline. Under Alternative C, this ridgeline would remain between 765 and 800 feet above mean sea level; however, landfill development in the extreme northeast corner would both encroach on the perimeter buffer and increase the apparent bulk of the landfill. The final elevation of the landfill development in the northeast corner under Alternative C is projected to be 800 feet, a rise of 265'. The slope from the earthen berm to the final elevation is depicted in Figure 33.

In Alternative E, this ridgeline would rise from its approved elevation of 800 feet to 830 feet. Under both Alternatives C and E, the grass-covered ridgeline would be more visible above the visual tree line comprising the perimeter buffer. During landfill operations, construction of the increased landfill capacity in the Northeast corner, soil surcharging activity, soil-covered ridgeline, and earth-moving equipment would be visible. The appearance of these activities would be temporary and softened by distance and atmospheric conditions. The fill area contrasts with the surrounding area because of the current soil cover and grass vegetative cover. It is also identifiable by the horizontal line of the flat top of the landfill. The slope from the earthen berm to the final elevation is depicted in Figure 35.

Motorists who frequently and/or regularly travel the roads around the landfill can become desensitized to their surroundings because of its familiarity. Motorists, in general, and drivers in particular, usually have only a fleeting awareness of their surroundings. These factors combine to result in an overall lower visual sensitivity for motorists.

The proposed vertical and horizontal expansion would encroach on the horizon line; however, this is considered a less than significant impact due to the relatively minor decrease in the available viewshed, which is already obstructed by the existing vegetation and the current landfill.

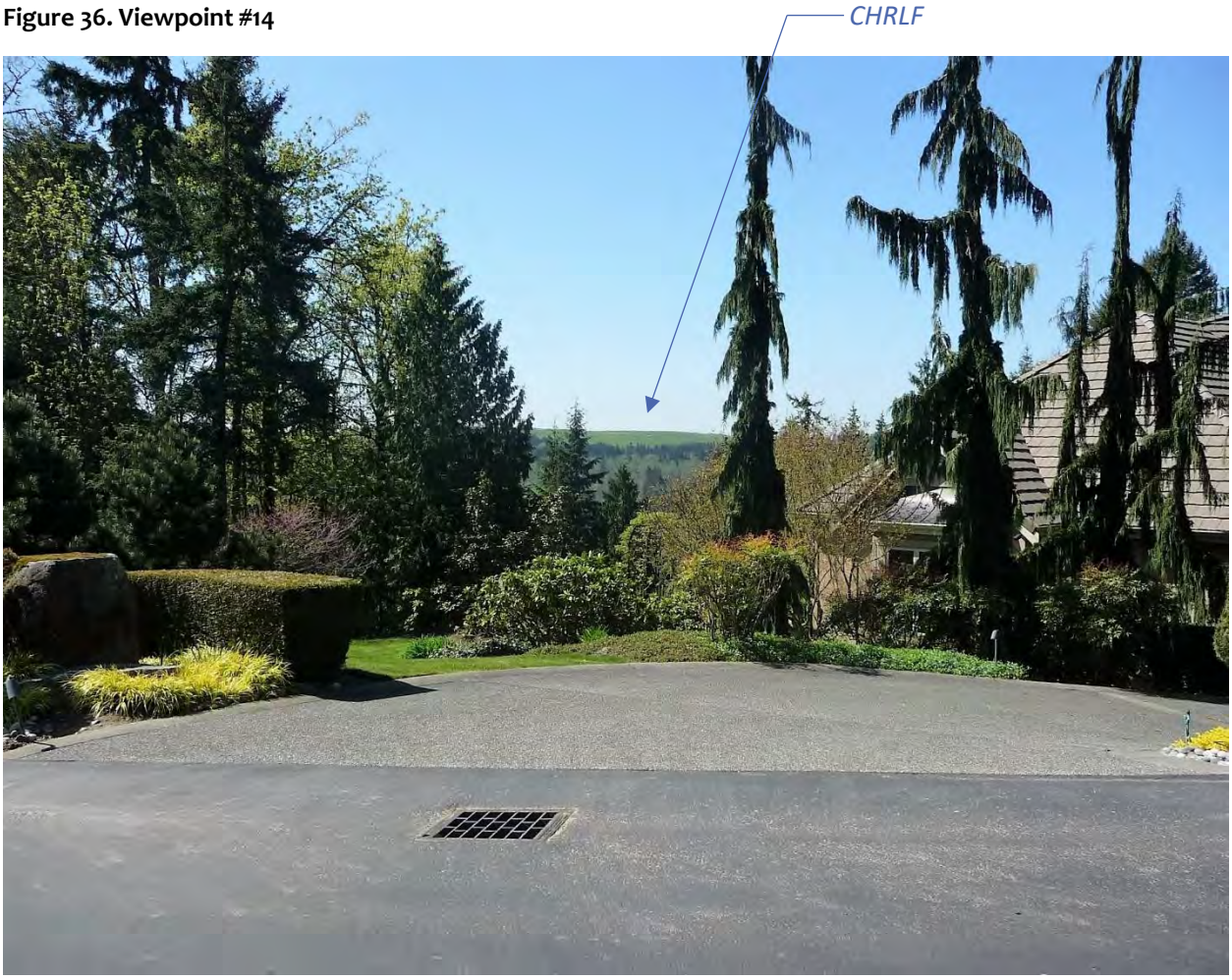
3.3.5.3 Summary – Viewpoint #13

Viewpoint Location	47.472494 N, 122.017896 W
Approximate Street Location	SE 147th Place, 900± feet east of Issaquah-Hobart Road SE
Viewpoint Elevation	526'
Visible Landfill Elevation	775'
2010 EIS-Evaluated Elevation (highest)	775'
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 249'
Distance to Landfill	1.5 miles
Landfill Buffer	7.5% avg. slope, El. 499' to El. 532'
Primary Viewer Group	Motorists
Viewer Sensitivity	Low
Vividness	Average
Unity	Low
Intactness	Average

3.3.6 Viewpoint #14

Approximately five to seven of the twelve homes along SE 147th Place have a west-facing view of the landfill and landfill buffer. This community is sited on a steep hillside. Much of the native vegetation was cleared to reveal panoramic views of the skyline. The elevation from this viewpoint is 602 feet. However, some of the homes are situated approximately 30 feet above this viewpoint and have unobstructed views of the landfill. As the young landscape in this community matures, the views to the landfill would become more constricted. This viewpoint is approximately 1.5 miles from the longitudinal center of the landfill.

Figure 36. Viewpoint #14



The aerial photograph and section in Figure 37 illustrate the approximate sightline from Viewpoint #14 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be visible from Viewpoint #14. The cross-section A-A' in Figure 38 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 37. Sightline and Section Elevation from Viewpoint #14

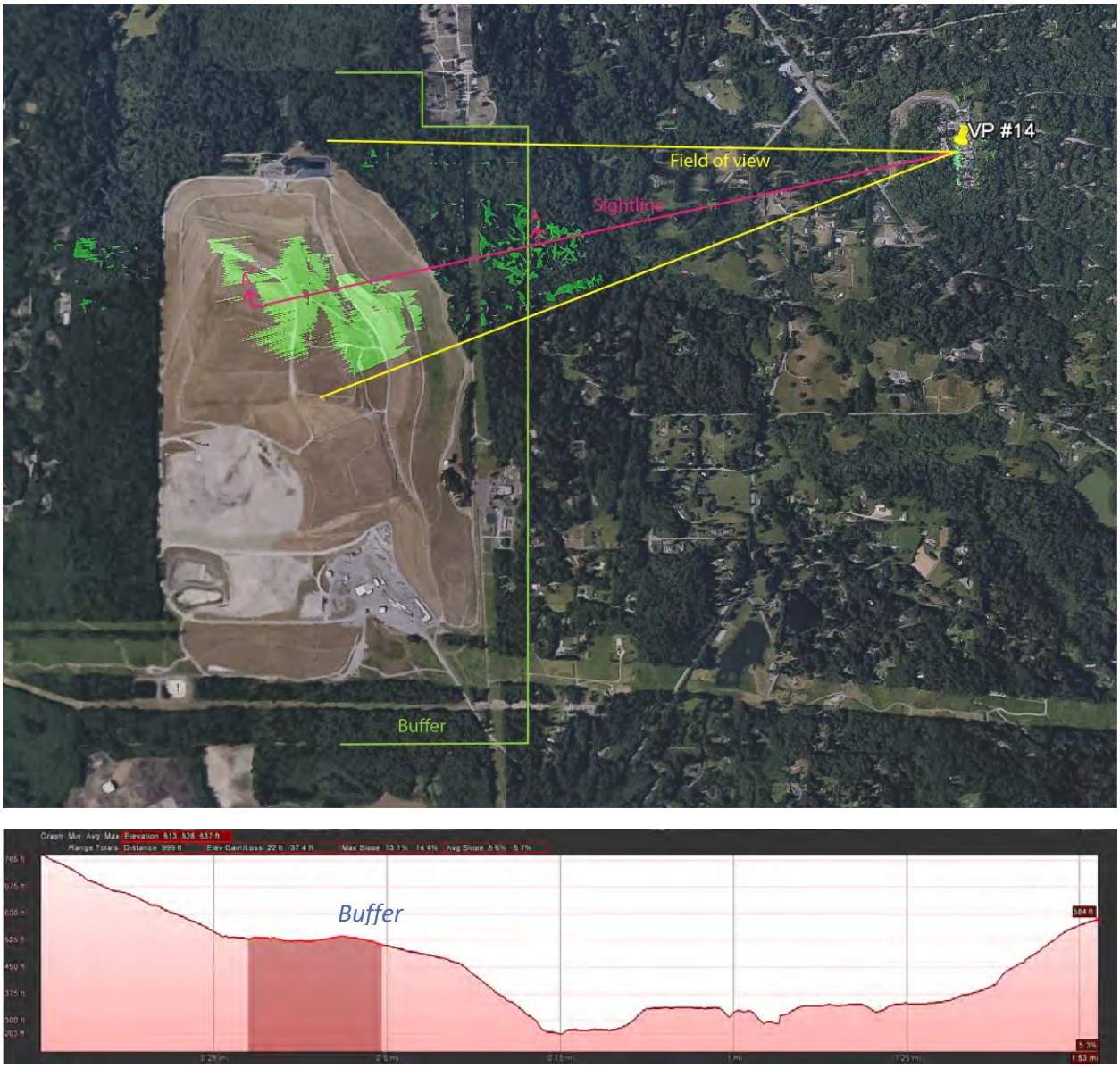
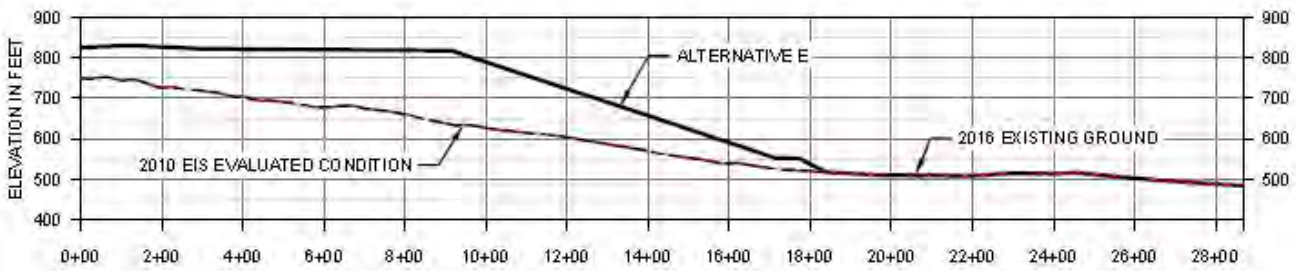


Figure 38. Cross Section A-A' (VP #14)



3.3.6.1 Visual Effects

The visual effects from this viewpoint are the same as described for Viewpoint #13, with the exception that the cone of vision along the sightline is broader and affords a more expansive view of the landfill from north to south.

From this location, the landfill appears as a grass-covered ridgeline. Under Alternative C, this ridgeline would remain between 765 and 800 feet; however, landfill development in the extreme northeast corner would both encroach on the perimeter buffer and increase the apparent bulk of the landfill. The final elevation of the landfill development in the northeast corner under Alternative C is projected to be 800 feet, a rise of 265'.

In Alternative E, this ridgeline would rise from its approved elevation of 800 feet to 830 feet. Under this alternative, the grass-covered ridgeline would be more visible above the visual tree line comprising the perimeter buffer. During landfill operations, construction of the increased landfill capacity in the Northeast corner, soil surcharging activity, soil-covered ridgeline, and earth-moving equipment would be visible. The appearance of these activities would be temporary and softened by distance and atmospheric conditions. The fill area contrasts with the surrounding area because of the current soil cover and grass vegetative cover. It is also identifiable by the horizontal line of the flat top of the landfill.

Residents are the primary viewers and while the view to the landfill would be dominated by the grass-covered ridgeline following temporary construction, it would not be substantially different than what is currently viewed. Because the landfill is an existing facility, it has become an established part of the landscape. None of the alternatives would substantially degrade the existing visual character and the impact would be less than significant due to the relatively minor decrease in the available viewshed, which is already obstructed by existing vegetation and the current landfill.

3.3.6.2 Summary – Viewpoint #14

Viewpoint Location	47.470629 N, 122.016657 W
Approximate Street Location	24045-24099 SE 147th Place
Viewpoint Elevation	602'
Visible Landfill Elevation	787'
2010 EIS-Evaluated Elevation (highest)	787'
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 185'
Distance to Landfill	1.5 miles
Landfill Buffer	9% avg. slope, El. 485' to El. 535'
Primary Viewer Group	Residents
Viewer Sensitivity	High
Vividness	Average
Unity	Average
Intactness	Average

3.3.7 Viewpoint #3

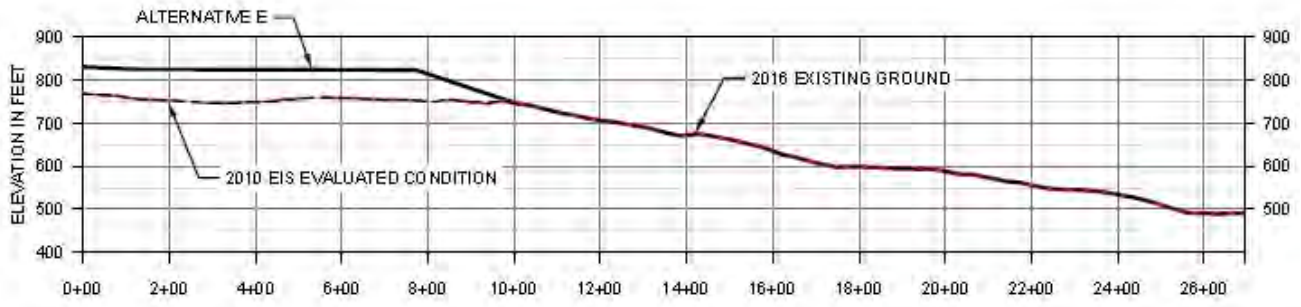
The Mirrormont residential community is sited on a steep, forested hillside where much of the existing mature Douglas fir forest cover has been maintained. If the landfill is visible from residents in this area, it will appear as a grass-covered ridgeline to the west. Based on the study team's reconnaissance along SE Mirrormont Drive, SE Mirrormont Place, and SE Mirrormont Way, views to the landfill were obscured by the dense existing vegetation as seen in Figure 39.

Figure 39. Viewpoint #3

Figure 40 illustrates the approximate sightline from Viewpoint #3 to the landfill. The cross-section A-A' in Figure 41 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 40. Sightline and Section Elevation from Viewpoint #3

Figure 41. Cross Section A-A' (VP #3)



3.3.7.1 Visual Effects

When the landfill is visible from individual residences in the Mirrormont community, they may be able to see landfill operations in Areas 5 and 6 where the projected elevation would rise to 830 feet in Alternative E. At 2.0 miles away, these visual changes would be softened by distance and atmospheric conditions. The access roads and active landfill areas would be less prominent and equipment would be difficult to discern.

3.3.7.2 Summary – Viewpoint #3

Viewpoint Location	47.467960 N, 122.007408 W
Approximate Street Location	250th Place SE and SE Mirrormont Place
Viewpoint Elevation	803’
Visible Landfill Elevation	789’
2010 EIS-Evaluated Elevation (highest)	800’
Relation between Viewpoint and Landfill Elevations	Viewpoint above Landfill: 14’
Distance to Landfill	2 miles
Landfill Buffer	15% avg. slope, El. 489’ to El. 625’
Primary Viewer Group	Residents
Viewer Sensitivity	Low
Vividness	Low
Unity	Average
Intactness	Average

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3.3.8 Viewpoint #5

Viewpoint #5 is located on SE Lake Francis Road. This viewpoint affords a view of the upper south face of the landfill. From this industrial area, the landfill appears in the middle ground where active filling is occurring under the 2010 approved activity. Other visible areas of the landfill appear as a low, grass-covered ridge. Squak Mountain is in the background. This viewpoint is at El. 454 and is 1.6 miles from the longitudinal center of the landfill. The buffer slope along the sightline is fairly steep at about 8.5% and is vegetated with conifers and deciduous trees. From the viewpoint, the buffer is about 0.8 miles north.

Figure 42. Viewpoint #5

The aerial photograph and section in Figure 43 illustrate the approximate sightline from Viewpoint #5 to the landfill. The green shading on the existing (Spring 2016) ground plane on the landfill depicts areas of the landfill which may potentially be visible from Viewpoint #5. The cross-section A-A' in Figure 44 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 43. Sightline and Section Elevation from Viewpoint #5

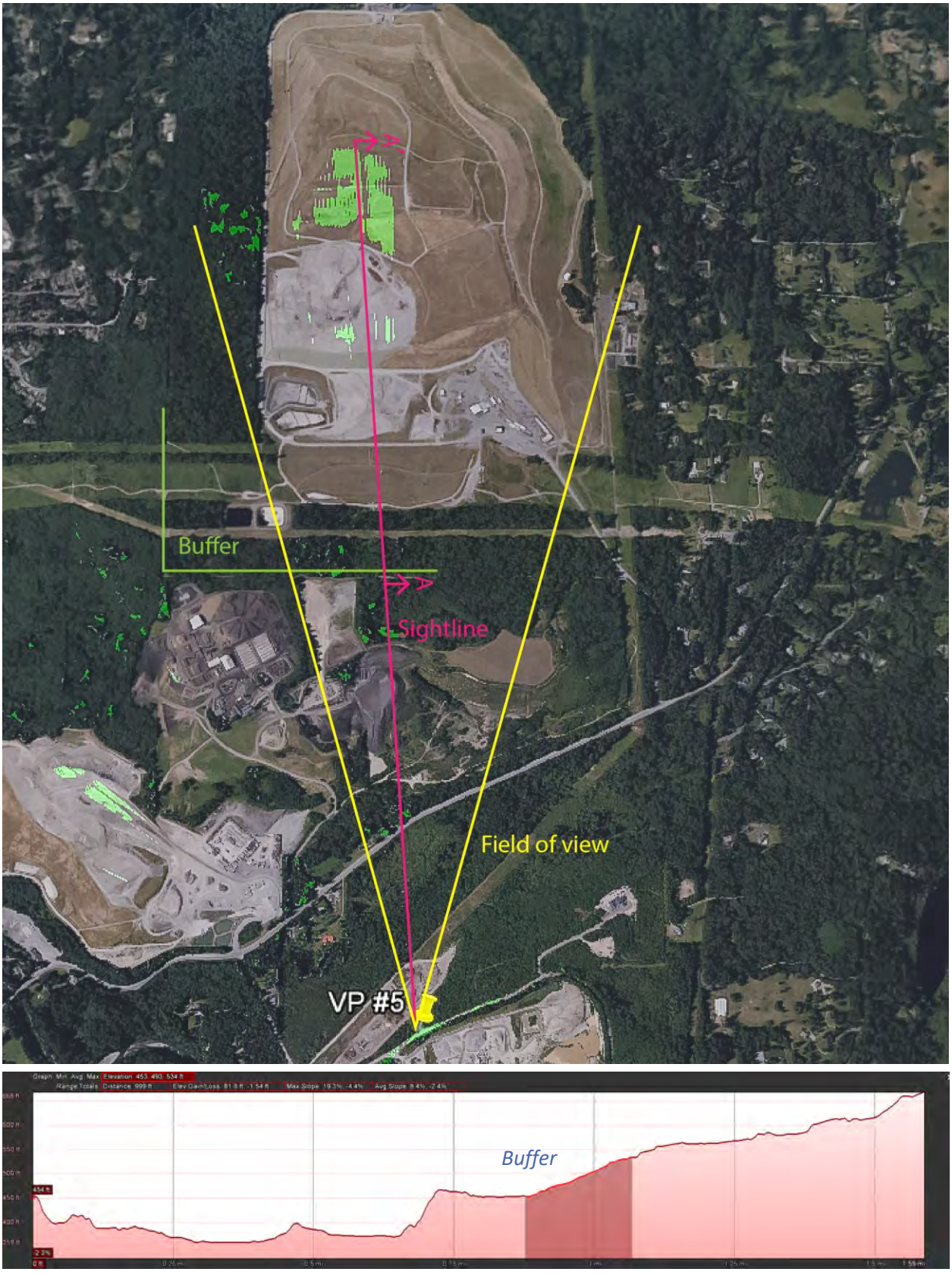
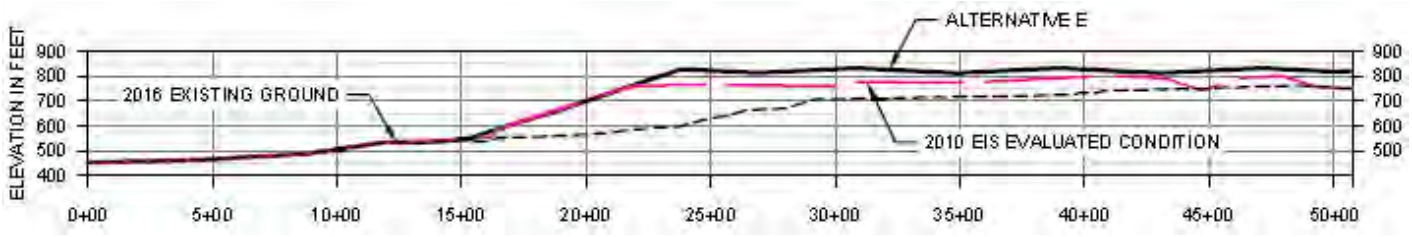


Figure 44. Cross Section A-A' (VP #5)



3.3.8.1 Visual Effects

Under all alternatives, landfilling operations and earth-moving equipment would be visible in Areas 6 and 7, where current elevations average 620' to 780' above sea level. The proposed elevations for these areas vary by alternative where El. 810' is projected for Alternatives A and C, El. 825' for Alternative B, and El. 830' for Alternatives D and E. None of the alternatives would substantially degrade the existing visual character and the impact is less than significant due to the relatively minor decrease in the available viewshed, which is already obstructed by existing vegetation and the current landfill. While the landfill operations and earth-moving equipment would be visible, they would be softened by distance and atmospheric conditions. Upon completion of the landfill operations, a grass vegetative cover would dominate the view.

3.3.8.2 Summary – Viewpoint #5

Viewpoint Location	47.438953 N, 122.047426 W
Approximate Street Location	Lake Francis Road SE and about 225th Avenue SE
Viewpoint Elevation	454'
Visible Landfill Elevation	668'
2010 EIS-Evaluated Elevation (highest)	800'
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 214'
Distance to Landfill	1.6 miles
Landfill Buffer	8.4% avg. slope, El. 554' to El. 534'
Primary Viewer Group	Motorists
Viewer Sensitivity	Low
Vividness	Low
Unity	Low
Intactness	Low

3.3.9 Viewpoint #11

Winter-time glimpses of the landfill are fleeting along 195th Place SE between SE 174th Street and SE 176th Street. Dense roadside vegetation effectively screens views of the landfill. This viewpoint is approximately 1.75 miles from the longitudinal center of the landfill and is essentially at the same elevation as the landfill. Vegetation in the perimeter buffer also effectively screens views of the landfill.

Figure 45. Viewpoint #11

Figure 46 illustrates the approximate sightline from Viewpoint #11 to the landfill. The cross-section A-A' in Figure 47 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 46. Sightline and Section Elevation from Viewpoint #11

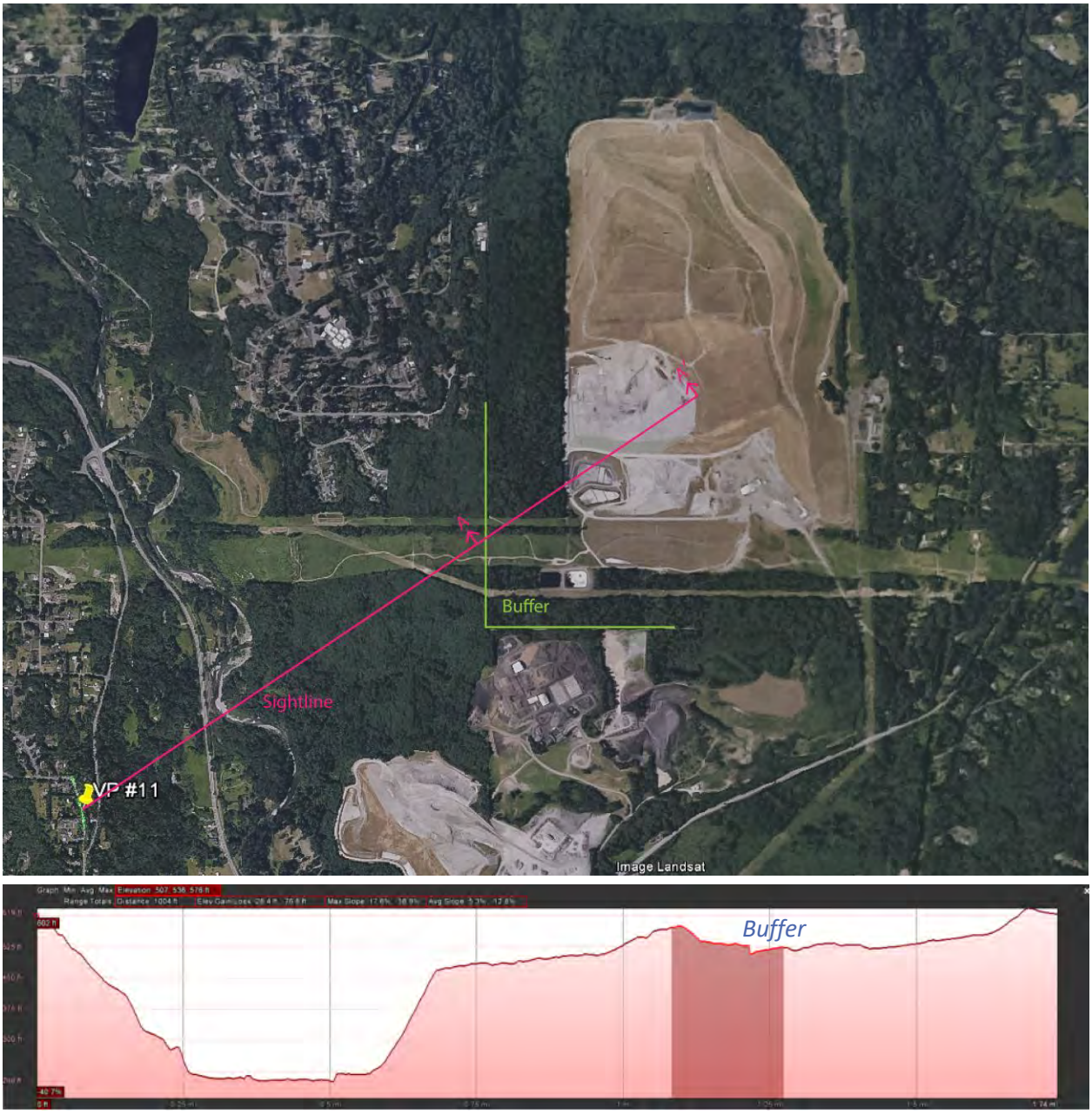
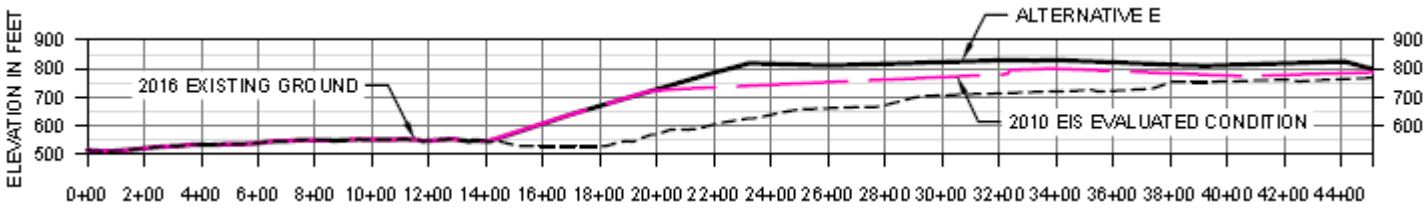


Figure 47. Cross Section of Landfill Along Sightline (VP #11)



3.3.9.1 Visual Effects

Unless the roadside vegetation is removed along 195th Place SE, motorists would likely be unaware of any visual changes at the landfill under any of the alternatives. None of the alternatives would substantially degrade the existing visual character.

3.3.9.2 Summary – Viewpoint #11

Viewpoint Location	47.445195 N, 122.079703 W
Approximate Street Location	195th Place SE, north of SE 176th Street
Viewpoint Elevation	602’
Visible Landfill Elevation	619’
2010 EIS-Evaluated Elevation (highest)	800’
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 17’
Distance to Landfill	1.7 miles
Landfill Buffer (slopes slightly down to landfill)	5% avg. slope, El. 571’ to El. 524’
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	Low
Vividness	Low
Unity	Low
Intactness	Low

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3.3.10 Viewpoint #12

This viewpoint at SE 174th Way and 187th Place SE is located in a well-established single-family neighborhood in the Maple Heights community and is presently approximately at the same elevation as the landfill. Native stands of vegetation are not a factor for obstructing views to the landfill. Instead, steep topography, some ornamental landscaping, and rooflines on multi-story homes obstruct views to the landfill.

Figure 48. Viewpoint #12

Figure 49 illustrates the approximate sightline from Viewpoint #12 to the landfill. The cross-section A-A' in Figure 50 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 49. Sightline and Section Elevation from Viewpoint #12

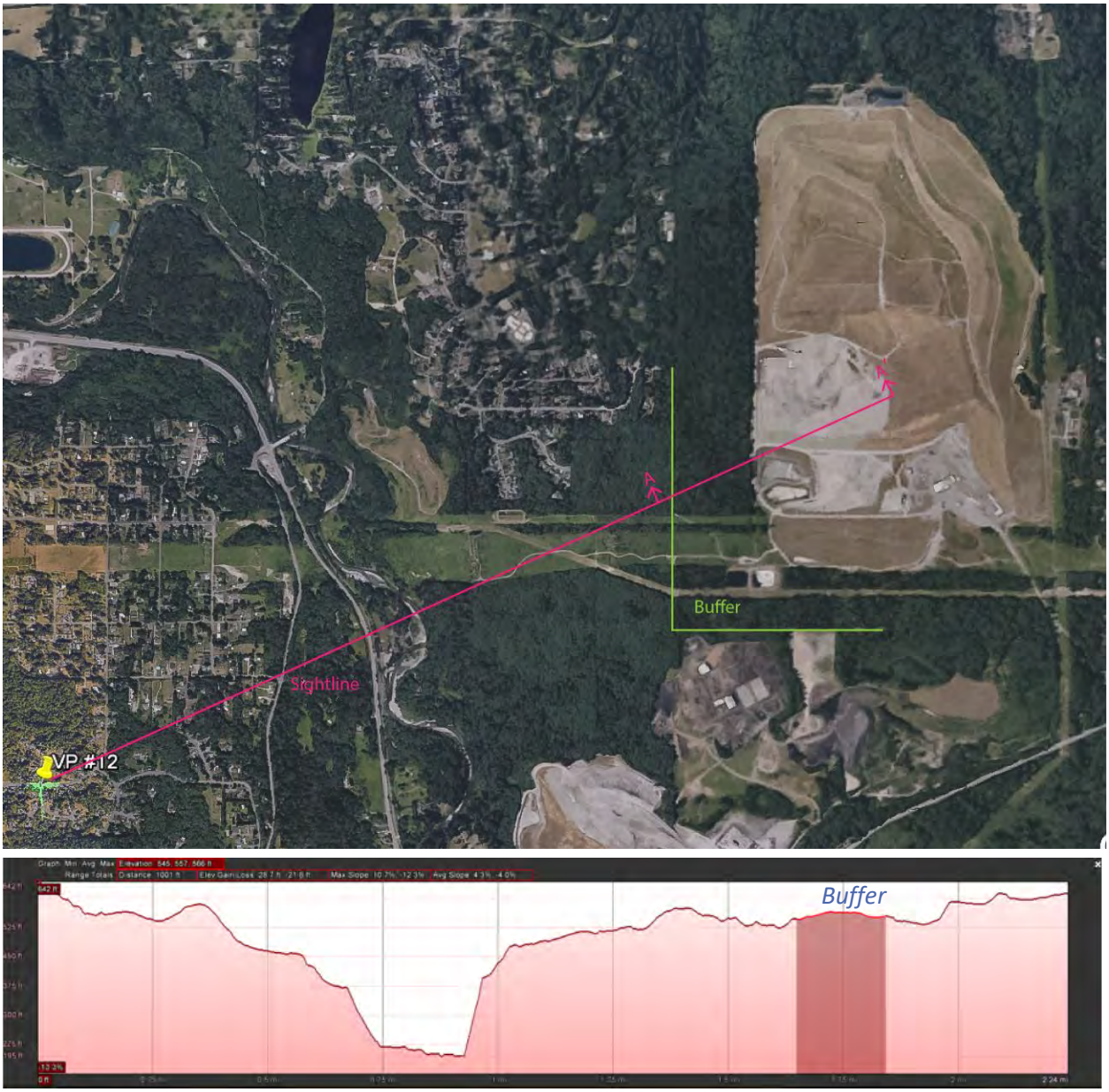
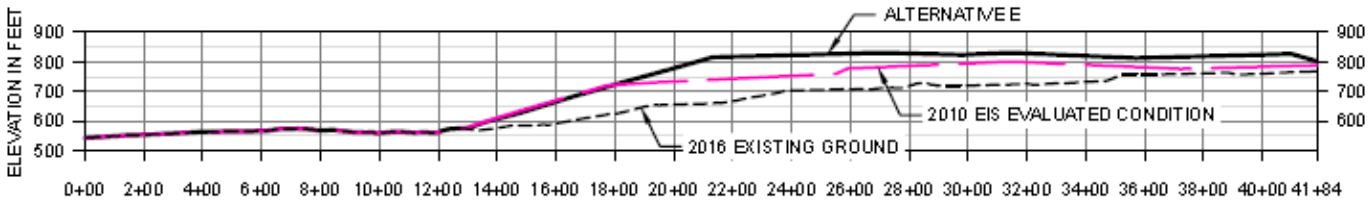


Figure 50. Cross Section A-A' (VP #12)



3.3.10.1 Visual Effects

Residents are the primary viewers and while the view to the landfill would be dominated by landfill operations, including visible earth-moving equipment, it would not be substantially different than what is currently viewed. The appearance of these activities is softened by distance (greater than 2 miles) and atmospheric conditions. Under proposed Alternatives A and C, the landfill elevation would be increased by 10 feet; under proposed Alternative B, the elevation would be increased by 25 feet; and under proposed Alternatives D and E, the elevation would be increased by 30 feet. Because the landfill is an existing facility, it has become an established part of the landscape. None of the alternatives would substantially degrade the existing visual character and the impact is less than significant due to the relatively minor decrease in the available viewshed, which is already obstructed by topographic effects, neighborhood features, and the current landfill.

3.3.10.2 Summary – Viewpoint #12

Viewpoint Location	47.446419 N, 122.090146 W
Approximate Street Location	SE 174th Way and 187th Place SE
Viewpoint Elevation	642'
Visible Landfill Elevation	613'
2010 EIS-Evaluated Elevation (highest)	800'
Relation between Viewpoint and Landfill Elevations	Viewpoint above current Landfill: 29'
Distance to Landfill	2.25 miles
Landfill Buffer	4% avg. slope, El. 546' to El. 554'
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	High
Vividness	Average
Unity	Average
Intactness	Average

3.3.11 Viewpoint #6

This viewpoint is located in a dense residential neighborhood at the base of the perimeter buffer. The perimeter buffer effectively obstructs all views to the landfill from this viewpoint and surrounding residences along SE 159th Street between 205th Avenue SE and 209th Avenue SE.

Figure 51. Viewpoint #6

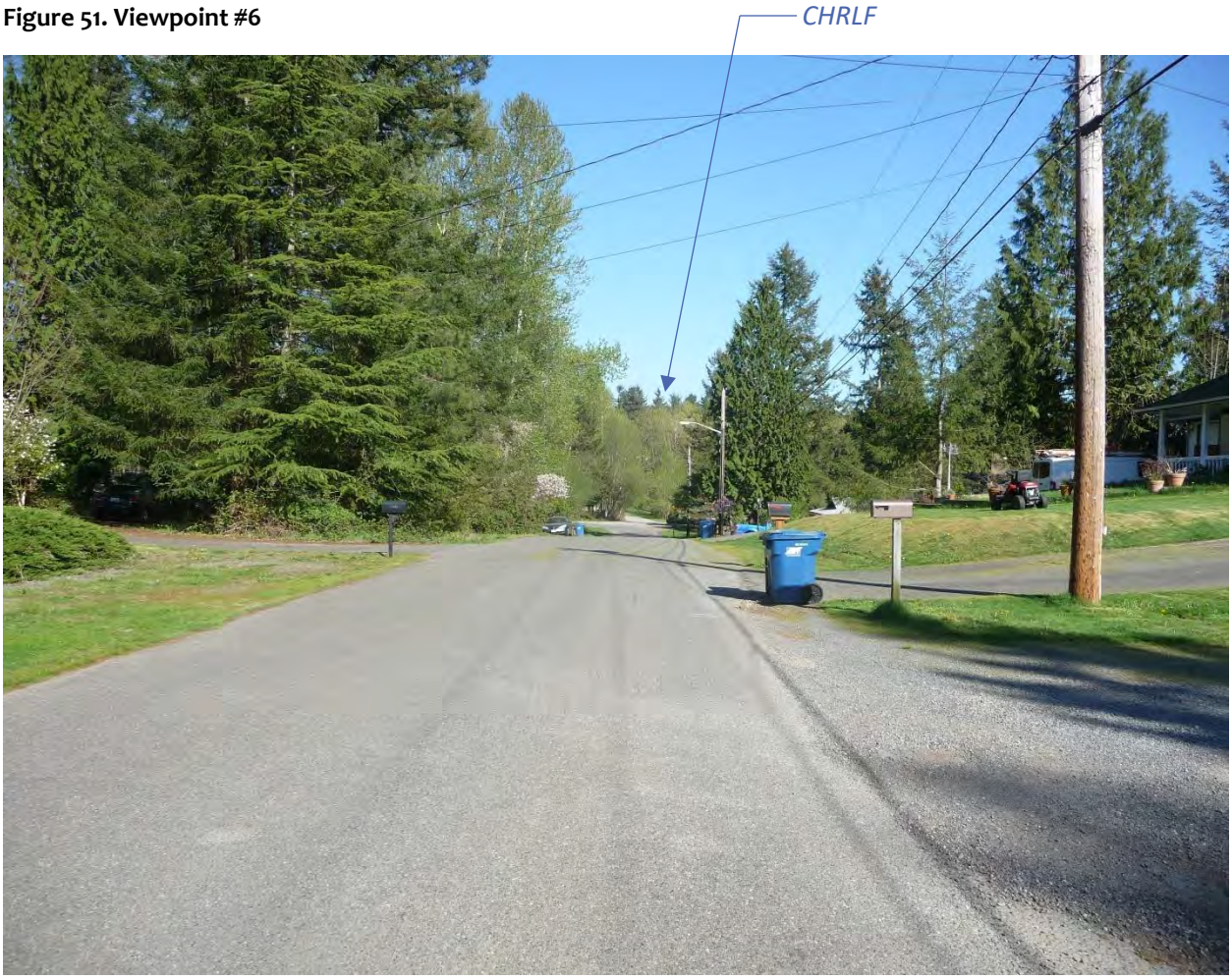


Figure 52 illustrates the approximate sightline from Viewpoint #6 to the landfill. The cross-section A-A' in Figure 53 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 52. Sightline and Section Elevation from Viewpoint #6

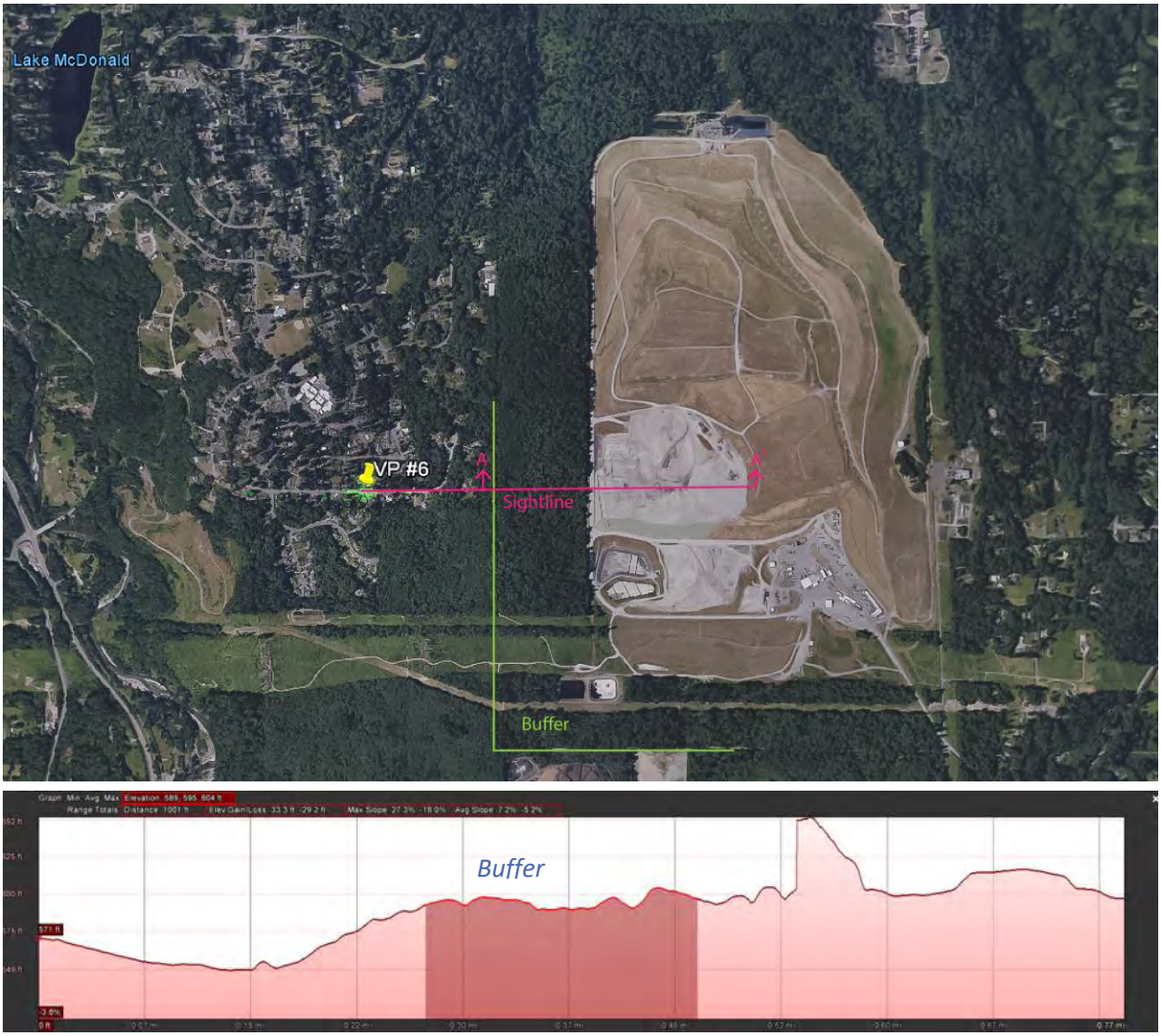
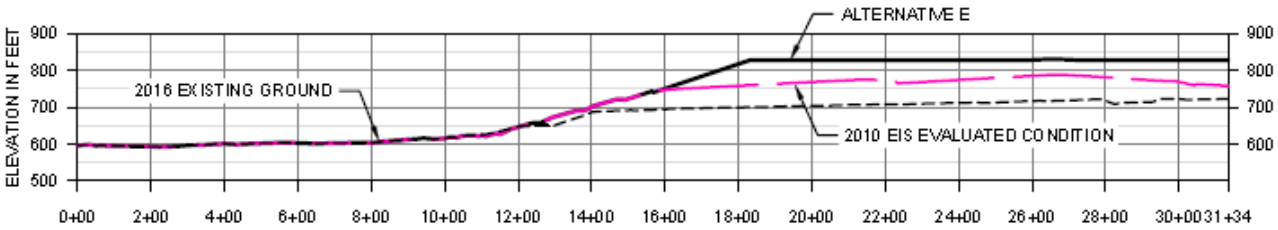


Figure 53. Cross Section A-A' (VP #6)



3.3.11.1 Visual Effects

The perimeter buffer existing vegetation in the foreground effectively obstructs all views to the landfill. None of the alternatives would substantially degrade the existing visual character.

3.3.11.2 Summary – Viewpoint #6

Viewpoint Location	47.459314 N, 122.064248 W
Approximate Street Location	SE 159th Street between 205th Avenue SE and 209th Avenue SE
Viewpoint Elevation	571’
Visible Landfill Elevation	611’
2010 EIS-Evaluated Elevation (highest)	800’
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 40’
Distance to Landfill	0.8 miles
Landfill Buffer	5% avg. slope, El. 584’ to El. 600’
Primary Viewer Group	Residents
Viewer Sensitivity	Low
Vividness	Average
Unity	Average
Intactness	Average

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3.3.12 Viewpoint #8

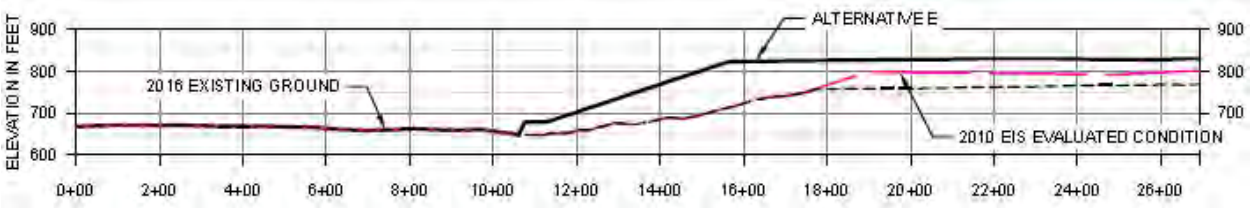
Maple Hills community is immediately adjacent to and west of the landfill. This viewpoint is somewhat centrally located within the community and borders a large community park – Maple Hills Park. It is only three blocks from the base of the heavily vegetated perimeter buffer and from this viewpoint, motorists and residents can only see the dense vegetation. The horizontal plane created by the top of the buffer is the only visual clue that the landfill lies just beyond the buffer.

Figure 54. Viewpoint #8

Figure 55 illustrates the approximate sightline from Viewpoint #8 to the landfill. The cross-section A-A' in Figure 56 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 55. Sightline and Section Elevation from Viewpoint #8

Figure 56. Cross Section A-A' (VP #8)



3.3.12.1 Visual Effects

The perimeter buffer existing vegetation in the foreground effectively obstructs all views to the landfill. None of the alternatives would substantially degrade the existing visual character.

3.3.12.2 Summary – Viewpoint #8

Viewpoint Location	47.466211 N, 122.069322 W
Approximate Street Location	SE 152nd Street and 204th Avenue SE
Viewpoint Elevation	664’
Visible Landfill Elevation	787’
2010 EIS-Evaluated Elevation (highest)	787’
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 123’
Distance to Landfill	0.93 miles
Landfill Buffer	3% avg. slope, El. 617’ to El. 628’
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	Low
Vividness	Low
Unity	Average
Intactness	Average

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3.3.13 Viewpoint #7

This viewpoint is located on the northeast side of the Maple Hills community. In the immediate vicinity of this viewpoint are newer homes and homes that are currently under construction. These residences and the access road abut the perimeter buffer and lie some 50 feet below the top of the buffer.

Figure 57. Viewpoint #7

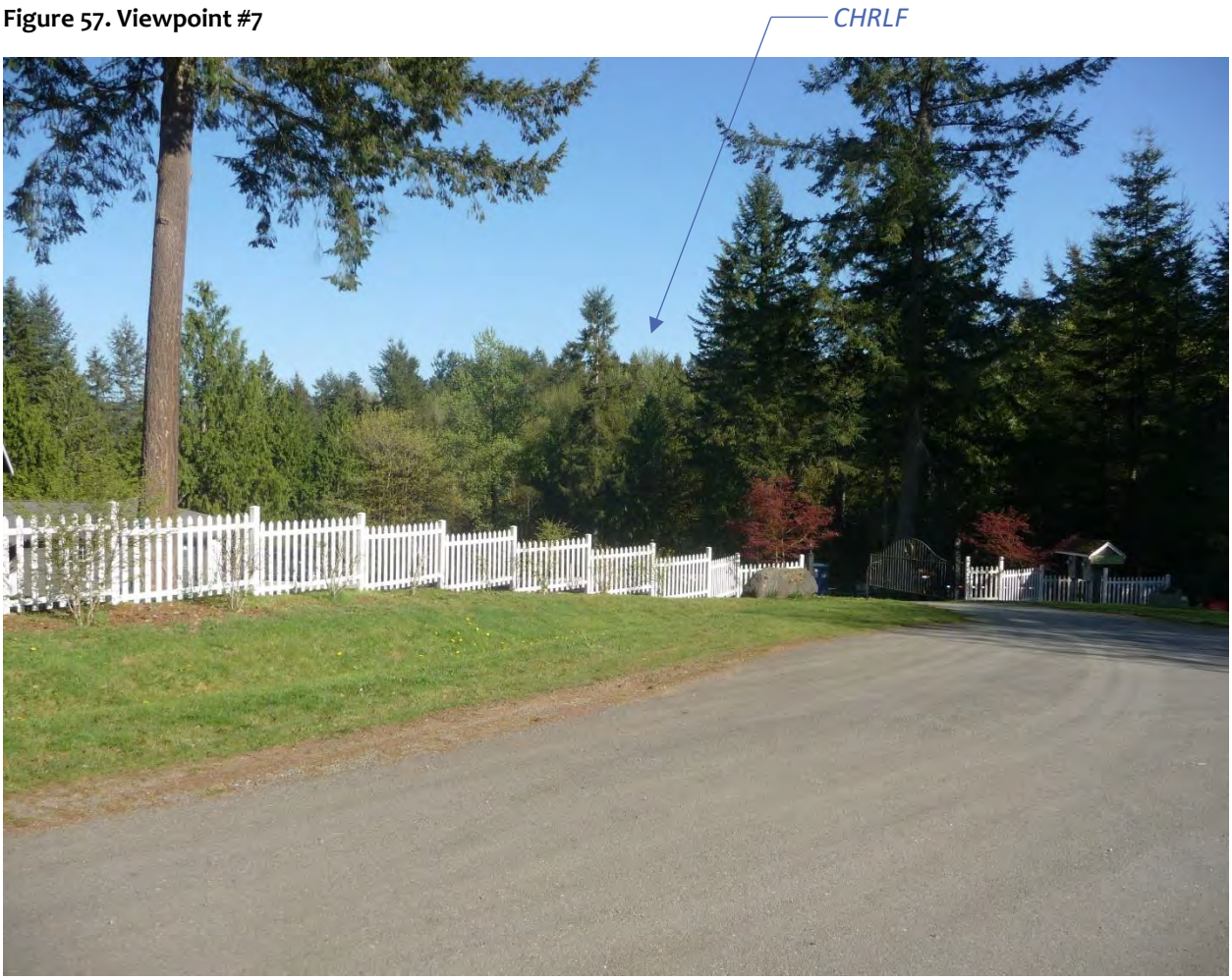


Figure 58 illustrates the approximate sightline from Viewpoint #7 to the landfill. The cross-section A-A' in Figure 59 illustrates the existing ground plane, the 2010 approved condition, and the proposed Alternative E ground plane. Alternative E considers the highest potential elevation of 830'.

Figure 58. Sightline and Section Elevation from Viewpoint #7

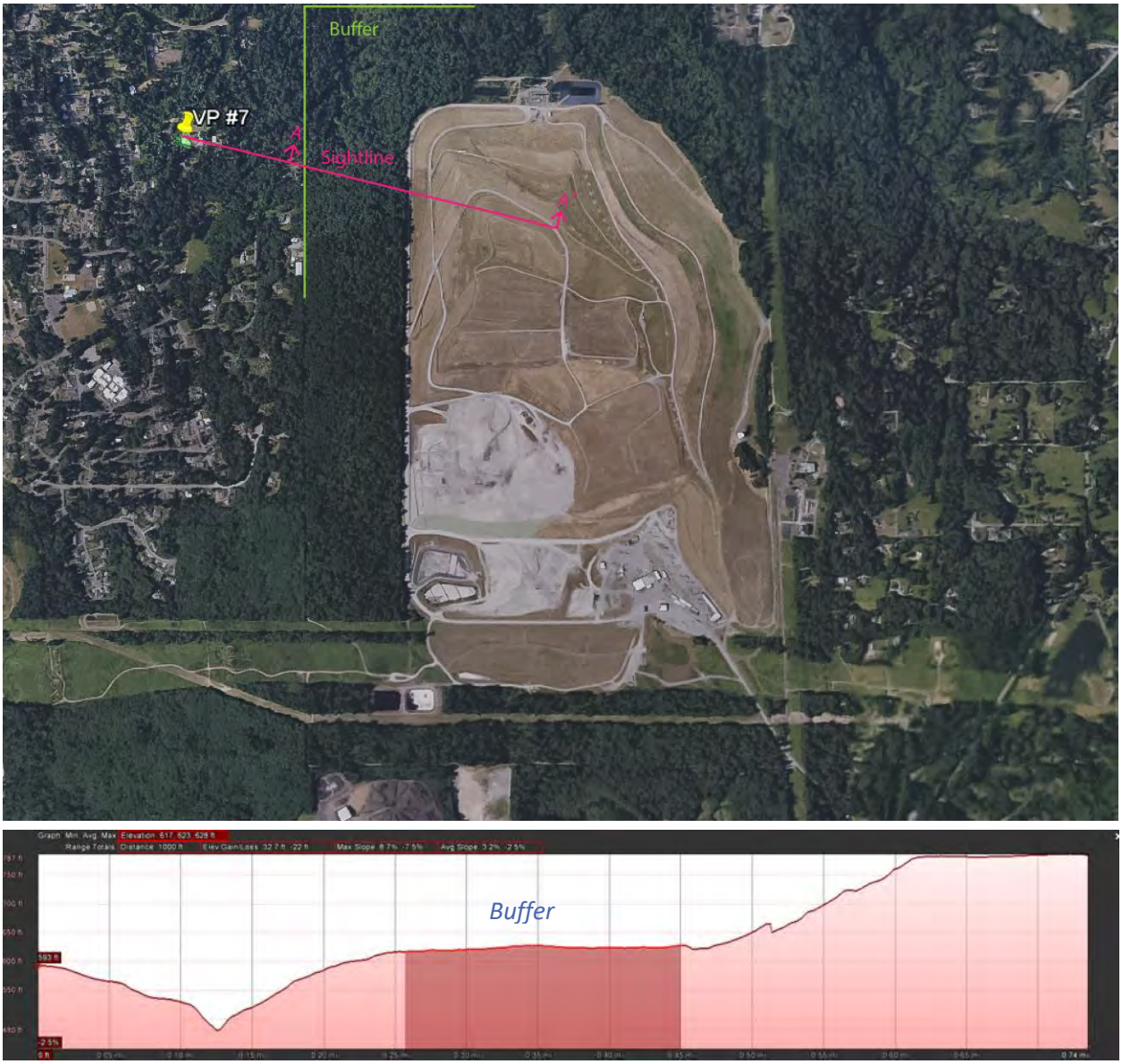
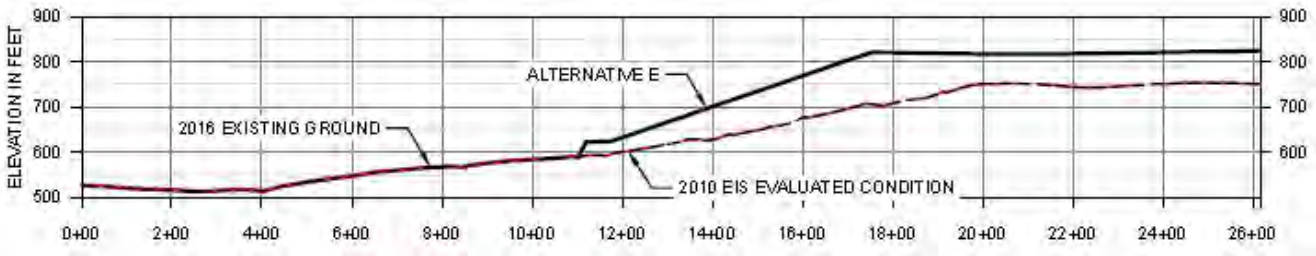


Figure 59. Cross Section of Landfill Along Sightline (VP #7)



3.3.13.1 Visual Effects

The perimeter buffer existing vegetation in the foreground effectively obstructs all views to the landfill. None of the alternatives would substantially degrade the existing visual character.

3.3.13.2 Summary – Viewpoint #7

Viewpoint Location	47.468935 N, 122.063426 W
Approximate Street Location	209th Avenue SE
Viewpoint Elevation	593’
Visible Landfill Elevation	786’
2010 EIS-Evaluated Elevation (highest)	786’
Relation between Viewpoint and Landfill Elevations	Viewpoint below Landfill: 122’
Distance to Landfill	0.68 miles
Landfill Buffer (slopes down towards landfill)	5% avg. slope, El. 659’ to El. 630’
Primary Viewer Group	Residents, Motorists
Viewer Sensitivity	Low
Vividness	Average
Unity	Average
Intactness	Average

3.4 No Action Alternative

Under the No Action Alternative, visual quality would evolve to reflect the changes identified in the 2010 approved site development of Area 8. No vegetation will be removed as part of the No Action Alternative.

3.5 Light and Glare

CHRLF is an existing, active landfill. However, because of the dense vegetation within the perimeter buffer, little to no ambient lighting presently emanates beyond the boundaries of the landfill. Parking lots and other areas around the administrative office are equipped with pole or wall mounted lighting for safety and security purposes. Portable lighting fixtures with attached diesel-powered generators are positioned at several locations in the operations area to facilitate safe working conditions in periods of darkness. These lights are focused downward on-site and are not generally visible to the surrounding land uses. A flare station for landfill gas is located at the northern end of the permitted solid waste disposal area. This flare station operates intermittently, as needed. Views of any light generated by the flare would be abated by surrounding vegetation and its location at a lower elevation. In all cases, the flare would operate similarly under the No Action or Action Alternatives, though for a shorter duration under the No Action Alternative.

With the vertical expansion of the landfill in the proposed Action Alternatives, the practice of using portable light fixtures is anticipated to continue. As needed, portable lighting fixtures would be placed in areas where active work is ongoing. This lighting would continue to be shielded and directed on-site and would not increase the lighting levels experienced by off-site receptors. In addition, operations take place during daylight hours (between 7:30 a.m. and 4:30 p.m.) and they do not require the use of high-intensity nighttime lighting. Lighting would not affect day or nighttime public views under any of the proposed alternatives.

No additional sources of glare will be introduced with the increase in the height of the existing landfill under the proposed Action Alternatives. Some glare may be experienced from the refuse trucks driving to the working face of the landfill, as well as from equipment operating at the working face. However, these momentary glare occurrences would be the same as the glare currently experienced from existing operations. Glare would not be increased at the project site under any of the alternatives. Therefore, impacts from glare will be less than significant. No mitigation measures are required.

Under the no-action alternative, the applicant would continue to operate its existing facility and any changes in lighting and glare would result from approved actions identified in the 2010 FEIS.

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CHAPTER 4

4 Mitigation

The design features and Best Management Practices (BMPs) the Applicant would use to avoid or minimize environmental impacts during construction and operations and those required by agency standards or permits are assumed to be part of the Project and have been considered in assessing the environmental impacts to aesthetics and visual resources. While no specific significant visual impacts as a result of the Action Alternatives have been identified, it is important to maintain mitigation efforts currently in place to preclude unforeseen compromises in visual quality. These mitigation measures include:

4.1 Screening

Due to the height of the landfill, screening with earthen berms, fences, or planted vegetation does not completely eliminate project visibility. The current perimeter buffer has been successful in providing a visual screen for properties in close proximity to the project site. This buffer should be maintained, particularly along the roadways immediately adjacent to the landfill property. As necessary, infilling with additional native trees and shrubs will ensure longevity as some of the older vegetation begins to decline.

4.2 Camouflage

It is recommended that typical landfill covers such as seeding continue to be utilized on the project.

4.3 Other Mitigation

- Use motion- and/or user-controlled light systems to minimize the amount of nighttime artificial lighting where practicable. Continue to ensure lighting is directed onsite and employ methods to shield lighting.
- Use neutral colors for non-safety-related structures and equipment to reduce the visual impact of bright colors.
- Use non-reflecting materials and finishes to reduce glare where practical.
- Continue to use uniform design grades, colors, and heights across the landfill site.
- Do not place any advertising appurtenances on the landfill.

CHAPTER 5

5 Conclusion

Any visual impacts as a result of implementing Alternatives A, B, C, D, or E are considered less than significant due to the relatively minor decrease in the available viewshed. The visual quality and character of the area will not be significantly altered. The mitigation measures that would be implemented as part of the project would help ensure that the CHRLF would not have significant adverse impacts on visual quality.

CHAPTER 6

6 References

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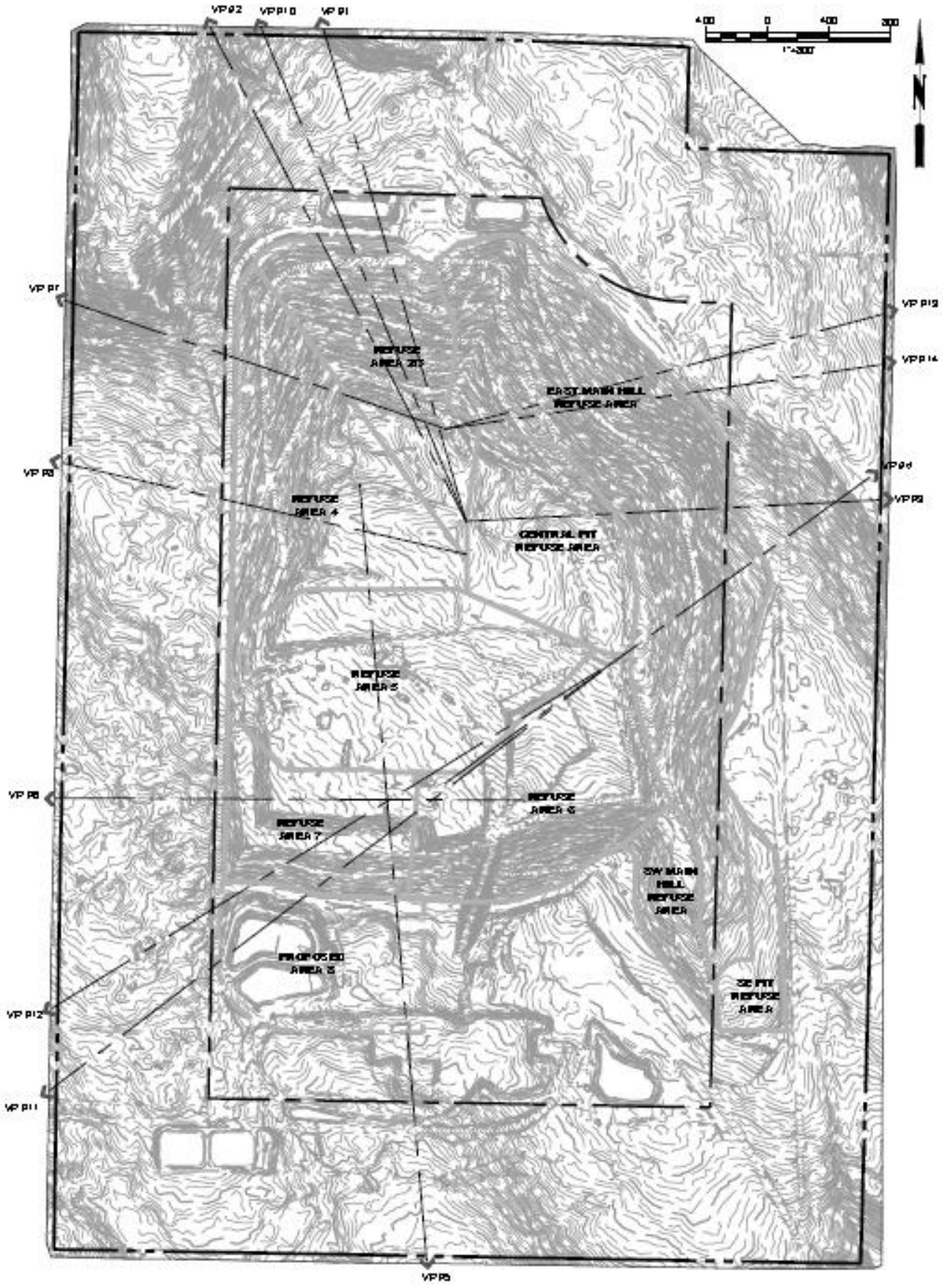
Attachment A

Sightlines Map


VP P2
VP P10
VP P1
VP P7
VP P13
VP P14
VP P3
VP P4
VP P9
REFUSE AREA 4
CENTRAL PIT REFUSE AREA
REFUSE AREA 5
VP P6
REFUSE AREA 6
REFUSE AREA 7
SW MAIN HILL REFUSE AREA
PROPOSED AREA 8
SE PIT REFUSE AREA
VP P12
VP P11
VP P5
N