



Agenda
Hearing Examiner Meeting
Thursday, May 4, 2017
City Hall Council Chamber | 505 Swift Boulevard

Hearing Examiner: Gary McLean

Liaisons: Staff Liaison Development Services Manager Simon

Public Hearing – 6:00 p.m.

Public Hearing Explanation:

New Business – Public Hearing:

- I. S2017-101 - An application submitted by Mark Bauder for the Preliminary Plat of Westcliffe Heights to divide 140 acres unto 203 single family residential lots. The project site is located on Little Badger Mountain.

Adjournment

The next Hearing Examiner Meeting is As Needed

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HEARING EXAMINER AGENDA ITEM COVERSHEET

Meeting Date: 05/04/2017

Agenda Category: New Business – Public Hearing

Prepared By: Shane O'Neill, Senior Planner

Subject:

S2017-101 - An application submitted by Mark Bauder for the Preliminary Plat of Westcliffe Heights to divide 140 acres into 203 single family residential lots. The project site is located on Little Badger Mountain.

Department:

Community & Development Services

Recommended Motion:

Staff recommends approval subject to the conditions contained in the TAC Report

Summary:

A preliminary plat to subdivide 140-acres into 203 residential lots and 11 tracts on Little Badger Mountain

Attachments:

1. S2017-101 Staff Report

**CITY OF RICHLAND DEVELOPMENT SERVICES DIVISION
STAFF REPORT TO THE HEARING EXAMINER**

GENERAL INFORMATION:

PROPOSAL NAME: Westcliffe Heights - Preliminary Plat

LOCATION: East of Bermuda Road and west of Meadow Hills Drive

APPLICANT: Mark Bauder

FILE NO.: S2017-101

DESCRIPTION: Request to divide 140.3 acres into 203 single family residential lots and eleven (11) Tracts.

PROJECT TYPE: Type III Preliminary Plat

HEARING DATE: May 4, 2017

REPORT BY: Shane O'Neill, Senior Planner

RECOMMENDED ACTION: Approval subject to completion of proposed conditions

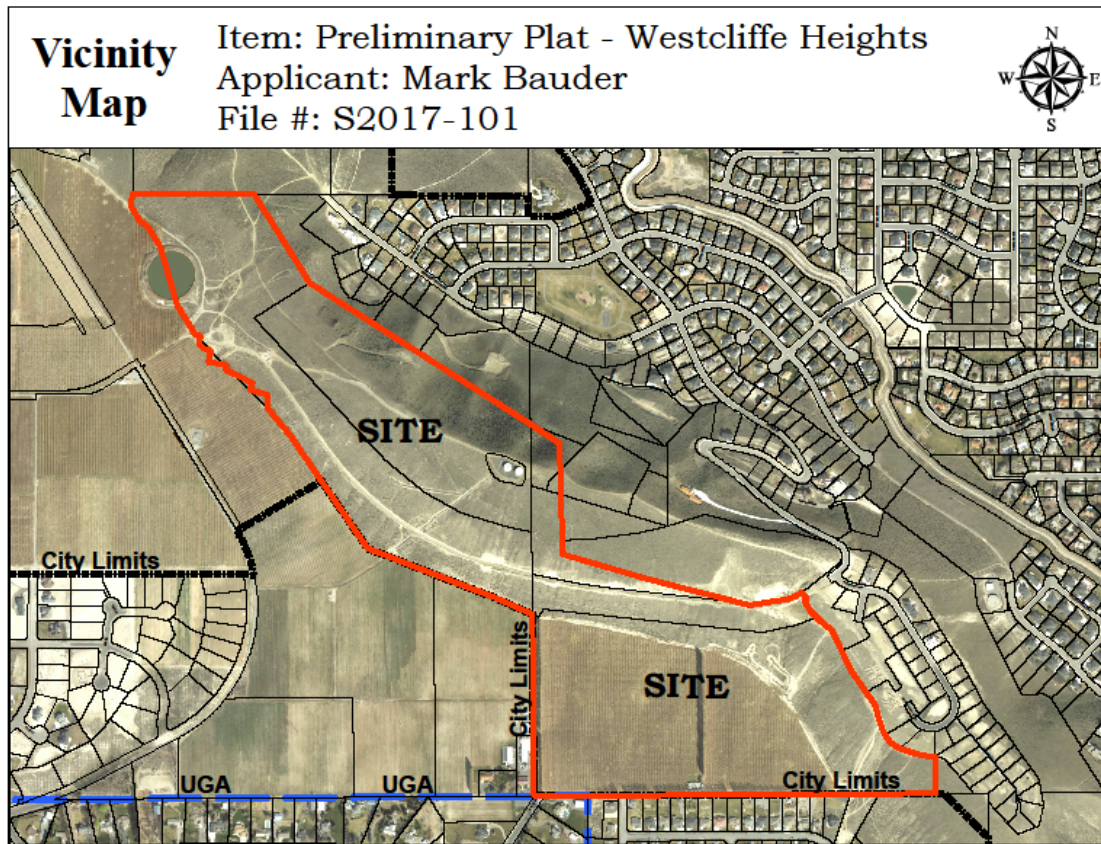


Figure 1 - Vicinity Map

DESCRIPTION OF PROPOSAL

Mark Bauder has filed a preliminary plat application to divide approximately 140 acres into 203 single family residential lots, known as the plat of Westcliffe Heights. The site is comprised of four parcels spanning approximately 1.3-miles in the northwest – southeast orientation; occupying a majority of the crest of Little Badger Mountain. Planned access points into the plat include an extension of Queensgate Drive from the north and connection to Morency Drive in the southern portion of the site. Other access points include connections to Jurupa Street and Rachel Road.

The interior road system will consist of 54-foot-wide primary roadways narrowing to 40-feet together with a series of other 40-foot access roads in the southeast portion of the plat. Forty-foot roads will be single-frontage loaded providing access to lots on one side of the road with a paved width of 27-feet. Fifty-four foot rights-of-way will have a paved width of 34-feet. The plat proposes a total of eleven (11) tracts designated for open space, future development and one lot (#203) for development of a shared community facility. (Refer to the attached preliminary plat map (Exhibit 1).

Four of the eleven tracts, totaling 11.3 acres in area, are indicated for future development. These tracts appear to be potentially buildable but with physical constraints such as steep topography, shallow lot depth and/or rocky substrate.

Seven tracts (Tracts A, C, F, G, H, J & K), totaling 38.8-acres, are designated as open space. Open space tracts typically contain landscaping to serve as places for passive recreational use and enjoyment by residents but not all seven of these tracts will necessarily be treated consistently throughout Westcliffe Heights due to a variety of site conditions including steep slopes and rocky soil. Portions of Tract A are likely to be treated with landscaping while other portions of the tract may be left in a natural condition. Among all of the open space tracts the centrally located Tract F is the most likely to be landscaped in a typical manor with lawn. Lying on the north fringe of the plat, Tracts G & I contains steep slopes. The applicant has indicated that after portions of Tracts G & I have been stabilized the remaining portions may be transferred to the City for public open space use. Similarly, a majority to all of Tract H contains steep slopes requiring stabilization. Tract K, a narrow linear parcel, and Tract J, a small triangular parcel lie along the western boundary of the plat. These tracts will likely be treated with some type of landscaping. Tract K presents an opportunity to contribute to the appeal of the subdivision for those entering from Jurupa Street. Tract J may potentially be absorbed in to the adjacent Lot 79. Many of the site specific details pertaining to the treatment and transferal of tracts will be evaluated further during subsequent final platting stages.

Included amongst the open space tracts and most noteworthy is Tract C, a 13.71 acre section of land lying on the east slope of Little Badger. Tract C contains the steepest slopes within the plat site offering little to no potential buildable areas. Tract C is situated in a location to provide an extension of the Skyline hiking trail which currently extends southeast from Dallas Road, across the crest of Badger Mountain to the city limits line near the north end of Bermuda Road which is near the southern terminus of Queensgate Drive. For topographical reference, the dividing line between Tracts A & C aligns with the crest of Little Badger Mountain.

During their April 13, 2017 meeting the Richland Parks Commission considered transference of Tract C to the City to accommodate the future trail extension. The outcome of their discussion was a decision to accept dedication of Tract C to the City for public recreation. For potential liability reasons Mr. Bauder is not interested in retaining private ownership of the tract for the purpose of inviting the general public to hike on the hillside.

In the northwesterly portion of the plat is an irrigation pond operated by Badger Mountain Irrigation District. The pond is bisected by Tract D designated for future development/storm facility.

Centrally located in the plat is a small 0.8-acre enclave parcel owned by the City of Richland containing two potable water reservoir tanks encompassed by a chain-link fence. This site will remain under city ownership and will be unaffected by the plat.

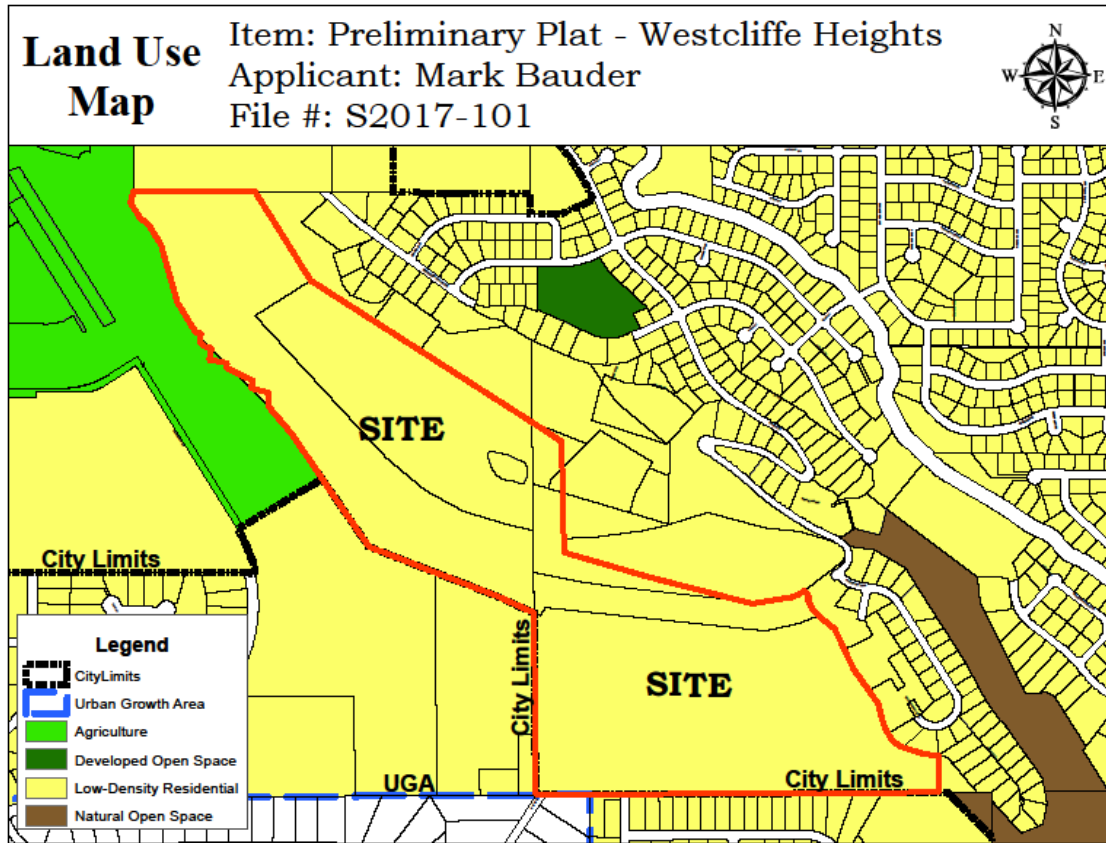


Figure 2 – Comprehensive Plan Map

COMPREHENSIVE PLAN

Richland's comprehensive plan assigns a low-density residential land use designation to the site. The low-density residential designation allows for a residential density range of between 0 – 5 dwelling units per acre equating to average allowable residential densities of 3.5 units per acre. Westcliffe Heights proposes an overall density of 1.45 units/acre or a net density of 2.9 units/acre exclusive of public rights-of-way and tracts A through K. Both density calculations fall within the allowance of the low-density residential land use designation.

GOALS & POLICIES

Land Use Goal #4 in the plan addresses residential development. It states:

The city will establish a broad range of residential land use designations to accommodate a variety of lifestyles and housing opportunities.

Policy 1 – The City will provide a balanced distribution of residential uses and densities throughout the urban growth area.

Policy 2 – The City will encourage residential densification through its land use regulations.

Policy 3 – The City will encourage innovative and non-traditional residential development through expanded use of planned unit developments, density bonuses and multi-use developments.

Policy 4 – The City will encourage conservation of lands identified as “Recreation Resource Conservation Areas” in the City’s Parks, Recreation Facilities and Open Space Master Plan, by allowing developers to increase densities on adjacent lands. Such projects should occur as Planned Unit Developments.

The City’s Transportation element of its comprehensive plan includes the following policy statements:

Policy 1: The City will reserve property for needed rights-of-way as quickly as possible by requiring dedication of right-of-way as a condition for development.

Policy 2: The City will only consider land use changes (such as planned unit development, master planned projects, rezones and plats) when existing and proposed transportation needs are adequately met.

Policy 3: The City will route major and secondary arterials around, rather than through, neighborhoods and communities so as to minimize traffic impacts on residential neighborhoods.

- a. New residential collector street corridors should be designed and constructed through areas that are not already developed with single family housing.
- b. Existing local residential streets should not be converted into collector street routes. In instances where existing streets must be converted to collector roads, these streets shall be brought up to the minimum design standards for collector roads.
- c. In those cases where collector street corridors must be built in close proximity to existing residential neighborhoods, the collector street must be designed in such a way as to minimize the impact to adjoining residents through the use of landscape buffers, sound barriers or similar measures.
- d. In order for arterial collector streets to function effectively, access restrictions shall be imposed on new arterial collector streets. Such access restrictions shall not prevent commercial businesses from accessing directly onto an arterial collector street. Further, residential access may be allowed in specific instances where such access can be demonstrated to have no negative impacts on traffic safety, road function and/or circulation.

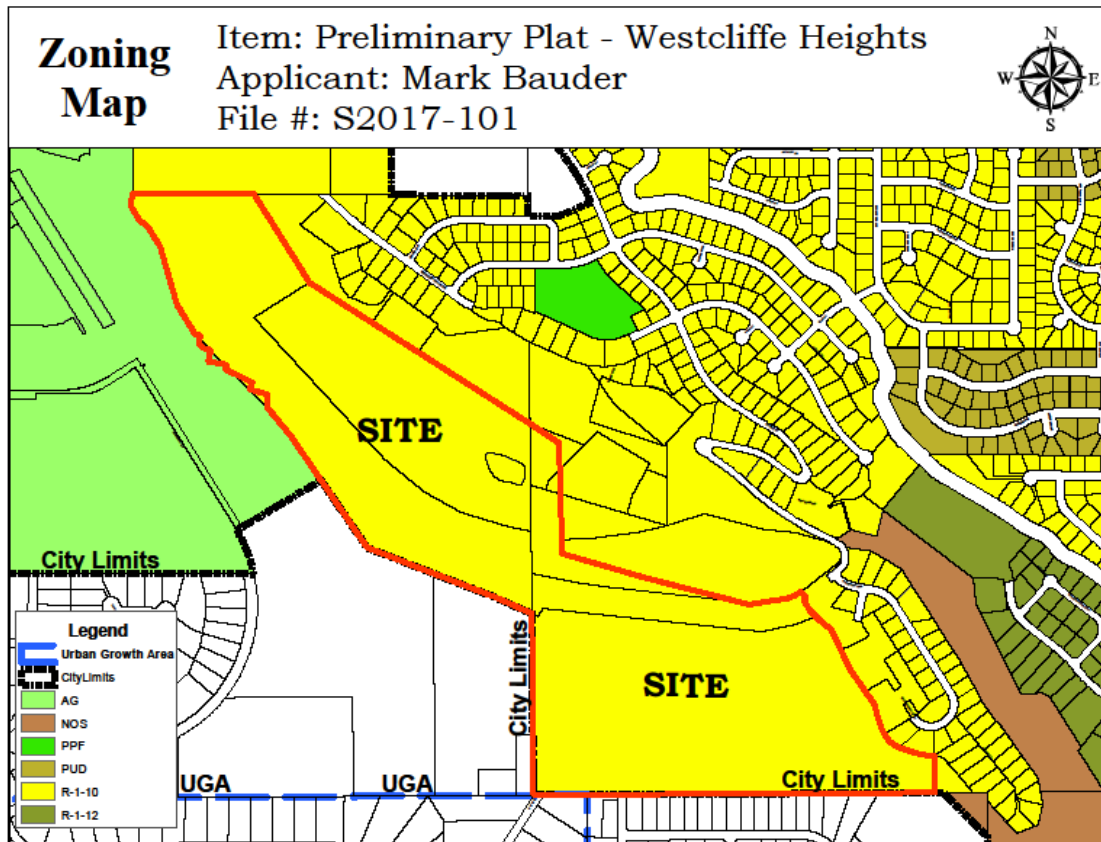


Figure 3 – Zoning Map

ZONING

R-1-10 (Single-Family Residential) zoning is assigned to the subject site together with land to the north and to the east. Some of the land to the west is zoned Agriculture while other tracts to the west are under Benton County's jurisdiction as is the residential neighborhood to the south. The R-1-10 zone imposes an 8,000 square foot minimum lot size with a requirement for a 10,000 square foot average lot size (4.3 units/acre).

Land Uses and Dimensional Standards

The following R-1-10 standards apply to the proposed plat:

Uses Permitted:	Single Family Homes (detached)
Front yard setback:	20 feet minimum
Side yard setback:	10 feet minimum
Rear yard setback:	25 feet minimum
Maximum building height:	30 feet

SITE DESCRIPTION & ADJACENT LAND USES

Sitting atop the hill locally referred to as “Little Badger Mountain”, the plat site consists of arid sagebrush steppe/grassland and two municipal water tanks on a single hillcrest which is generally oriented northwest to southeast. On the north side the hill experiences a vertical gain of approximately 510-feet rising up from Meadow Hills Drive. The south side of the hill experiences a more gradual slope with an approximate vertical gain of 300-feet using the orchard edge as a marker for the base. Multiple areas within the site are designated as critical areas due to high erosion potential and/or steep slopes.

Land east and north of the site is predominantly developed with single-family residential neighborhoods while land in the southern and western vicinities remains as agricultural orchards. Land to the north and southern vicinities contains similar orchards and natural sagebrush together with a single-family home site owned by the Wilson family.

Generally, the plat is situated in an area of vacant land on the western fringe of urban south Richland with neighborhoods to the east, north and south and with large open expanses of orchard land generally to the west.

Site boundaries border the city limits line in the southwest corner where Tracts J & K are shown and along the southerly boundary of the plat. In said vicinity, south of the plat boundary is an un-incorporated single-family residential neighborhood named Reata Heights which was platted in 2002.

CRITERIA FOR PRELIMINARY PLAT APPROVAL

Section 24.12.053 of the RMC sets forth the criteria that must be met before a preliminary plat application can be approved. It states:

The hearing examiner shall not recommend approval of any preliminary plat application, unless the approval is accompanied by written findings that:

- A. The preliminary plat conforms to the requirements of this title;
- B. Appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school;
- C. The public use and interest will be served by the platting of such subdivision and dedication; and
- D. The application is consistent with the requirements of RMC 19.60.095

RMC Section 24.12.050 designates the Hearing Examiner as the hearing body responsible for conducting the review of preliminary plat applications.

PUBLIC NOTICE

Application Date:	February 3, 2017
Notice of Hearing Mailed:	April 11, 2017
Notice of Hearing Posted:	April 17, 2017
Notice of Hearing Published:	April 16, 2017
Public Hearing:	May 4, 2017

A combined notice of application and SEPA determination was provided by mailing notices to property owners within 300 feet. A public hearing notices was distributed through posting of the property, mailing of notice to property owners within 300 feet of the site and publication in the *Tri-City Herald* newspaper. Copies of the notices and affidavits are included in Exhibit 3.

UTILITY AVAILABILITY

There are existing water mains within the boundary of this preliminary plat extending from the Falconcrest subdivision to the southeast. As development proceeds over these mains it shall be the responsibility of the developer to re-lay them at the correct depth and/or relocate them to be within future rights-of-way. The developer will be required to demonstrate that all phases are capable of delivering adequate fire flows prior to construction plans being accepted for review. This may require looping of the water-main from off-site locations, or oversizing of water mains where needed. Domestic potable water will serve the plat from a forced main in the future extension of Queensgate Drive as well as from the municipal reservoir tanks central to the site.

There are multiple off-site locations available to extend sanitary sewer to this project. One possible point of sewer extension is from within the future extension of Queensgate Drive which is an integral feature of this plat as it will serve as a primary point of access into the site. However, City Engineering Department staff indicated that sewer discharge will likely drain to the existing main in Meadow Hills Drive in the Crested Hills subdivision lying at the southeast foot of Little Badger Mountain.

The electrical service for Westcliffe Heights will be accomplished by extending a feeder circuit from the Westcliffe development up Queensgate Drive. This feeder will be extended through the Westcliffe Heights development and connect to an existing feeder circuit in the Falcon Crest subdivision. This will complete a feeder loop improving the system reliability. The residential lots will be served from distribution circuits that are fed from the feeder circuit extended through the development. Infrastructure for a future feeder tie to Rachel Road will also be installed during this development.

TRANSPORTATION

Access into the plat will be achieved by connecting to: Jurupa Street, Rachel Road and Morency Drive and Queensgate Drive. The primary access point will come from

Queensgate Drive by way of an off-site extension of the arterial collector roadway. This portion of Queensgate Drive will have to be constructed prior to completing Phase 1 of Westcliffe Heights. At full buildout, Westcliffe Heights will complete some local roadway network connections providing multiple access options for several residential areas in the vicinity. For example, the Falconcrest subdivision will no longer be restricted to a single point of access on Morency Drive to the north. As a result of the Westcliffe Heights road system Falconcrest residents will also be able to access Queensgate Drive via Morency Drive, the primary drive within the Westcliffe Heights plat or access Leslie Road via Rachel Road to the south.

In regard to the level-of-service (LOS), pursuant to RMC 12.03.170 and 12.03.180 this development proposal as submitted is in general conformance with the assumptions made for land use and scale/density. By way of impact fee payment, the project complies with the concurrency requirements of the Municipal Code.

A traffic study/transportation analysis prepared by Kittelson & Associates, Inc. dated May 4, 2016 (Exhibit 11) was submitted with the Westcliffe Heights preliminary plat application. The 20-page traffic study analyzes traffic impacts associated with multiple roadway alignment alternates of roadways serving the Westcliffe Heights plat site, providing a set of findings and conclusions at the end. A bulk of the study analyzes impacts of roadway alignment alternates leading out of the plat site toward the south into, through residential neighborhoods lying in Benton County's jurisdiction and eventually connecting to City of Richland roadways. Westcliffe Heights proposes connections to Jurupa Street and Rachel Road at the city limits boundary which the study addresses. Analyses of Queensgate Drive extensions and alignment alternates in the study are not particularly applicable to Westcliffe Heights considering all portions of Queensgate Drive lie off-site and would not be constructed as part of this project. An off-site extension of Queensgate Drive from the north however, is proposed as a primary access point for the plat, alleviating traffic on other roadways.

SEPA

On November 11, 2016 Mr. Bauder applied for a site grading permit ahead of the current plat application. Included in his submittal was a SEPA checklist addressing potential impacts of site grading activity (Exhibit 4). On December 2, 2016 staff issued a Determination of Non-Significance (DNS) (Exhibit 5) for the grading permit. The DNS indicated additional SEPA review would take place upon receipt of an application to subdivide the property. The comment period for the grading permit DNS expired on December 19, 2016. No comments were submitted to the city in response to the DNS (EA2016-35).

The applicant filed an environmental checklist with the City (Exhibit 6) at the time of plat application. Staff reviewed the checklist and issued a Mitigated Determination of Non-Significance (MDNS) on March 7, 2017 (Exhibit 7) requiring a full geo-technical report to be submitted in order to fulfill the City's critical areas ordinance requirements. On March 24th PBS provided staff with a detailed geo-technical report;

thereby completing the plat application. The SEPA comment period expired on March 22. On March 16, a comment letter from the Department of Ecology relating to stormwater NPDES permitting and potential soil contamination was received by staff (Exhibit 10).

AGENCY COMMENTS

A variety of public agencies and City departments were given an opportunity to comment on the proposal. Comments were received from the Department of Ecology (Exhibit 8). Comments from Richland Energy Services and from the city Public Works/Engineering Department have been incorporated into the TAC Report (Exhibit 9).

PUBLIC COMMENTS

At the time this report was prepared, the City received comments from several residents from the surrounding vicinity (Exhibit 8) primarily expressing concerns over potentially increased traffic volumes on Morency Drive which is a steep road way with several hairpin turns.

TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

City staff has prepared a list of recommended conditions for the application contained in the Technical Advisory Committee (TAC) Report. (See Exhibit 9.)

ANALYSIS

The criteria approval of a preliminary plat application (RMC 24.12.053) are reprinted here, with a summary of how the application complies with the standard:

A. The preliminary plat conforms to the requirements of this title (RMC Title 24);

The City's subdivision regulations set forth specific requirements for the filing of an application, how notice of the application is to be provided and requires that the Hearing Examiner conduct a public hearing and make recommendation to the City Council. These steps have been followed to date.

B. Appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school;

- Westcliffe Heights provides seven open space tracts including the 13.7-acre Tract C which is planned to be dedicated to the city for public recreation purposes.

- The 3.33-acre Tract D is designated for future development and to serve as a stormwater retention/infiltration facility. Foreseeably, the stormwater facility portion of Tract D will be transferred to the City of Richland.
- Open space Tracts A, F, G, H, J & K providing passive recreational opportunities to the residents will be held and managed by the Westcliffe Heights homeowners association.
- Crested Hills Park is a 5.8-acre neighborhood park situated approximately 665 feet (0.12 miles) east of the proposed plat.
- The larger 41.5-acre Badger Mountain Park is located approximately 2-miles from the proposed plat site. Badger Mountain Park contains outdoor sports fields and courts able to serve recreational needs of the broader surrounding vicinity.
- Richland Municipal Code Chapter 22.12 (Exhibit 10) discusses the parameters for dedicating land for parks in lieu of payment of parks fees. On April 13, 2017 the Richland Parks Commission recommended the Parks and Public Facilities Department accept Tract C to fully satisfy the cost of parks fees for the plat.
- The planned extension of Queensgate Drive would provide access to the proposed subdivision. The plat will establish connections to Jurupa Street, Rachel Road and Morency Drive. Streets located within the proposed plat will include curbs, gutters and sidewalks.
- An off-site extension of Queensgate Drive is as part of the plat; thereby furthering construction of the arterial roadway network in the vicinity as identified in the Comprehensive Plan.
- The site is not located along an existing bus route. The Ben Franklin Transit Authority provides bus service to the community presently provides service along Keene Road and Gage Blvd. approximately 3.5 miles to the east.
- The plat would be served by City domestic water lines currently existing within the boundaries of the project site. Water lines have capacity to provide for the proposed project.
- There are multiple off-site locations available to extend sanitary sewer to this project.
- The plat would be served by Richland Energy Services electrical power by way of service line extension.
- An irrigation source and distribution system, entirely separate from the City's domestic water system, shall be provided for this development.
- Badger Mountain Irrigation District has provided comments related to utility infrastructure protection and grading (Exhibit 8).
- In accordance with City development standards, storm water drainage would have to be retained on-site. The proposed plat design includes ONE tract (Tract D) for storm water drainage facility.
- Richland School District was given the opportunity to comment. Following their review of the proposed preliminary plat the District indicated they have no specific concerns or requirements relative to the plat.

C. The public use and interest will be served by the platting of such subdivision and dedication;

The proposed project is consistent with the Comprehensive Plan, both in terms of the proposed density of the plat and fulfilling road network expansion by adding a section of Queensgate Drive leading into the plat. Adding the proposed connections to Morency Drive, Jurupa Street and Rachel Road will complete these roadways, connecting them to the city's broader road network. Further, the project is consistent with the City's zoning regulations, and would be consistent with development patterns in the surrounding neighborhood considering existing topographic constraints. Provision of additional housing units will contribute to meeting the housing demand experienced in the Tri-Cities thereby serving public interest and demand. Dedication of open space Tract C will provide an important link in the City's pedestrian trail system. The physical trail will be installed by the Friends of Badger volunteer group.

D. The application is consistent with the requirements of RMC 19.60.095, which states:

No development application for a Type II or Type III permit shall be approved by the city of Richland unless the decision to approve the permit application is supported by the following findings and conclusions:

A. The development application is consistent with the adopted Comprehensive Plan and meets the requirements and intent of the Richland Municipal Code.

The proposal is consistent with the Comprehensive Plan and does meet the requirements of the Municipal Code as outlined above.

B. Impacts of the development have been appropriately identified and mitigated under Chapter 22.09 RMC.

Chapter 22.09 is the City's adoption of the State Environmental Policy Act provisions. The applicants filed an environmental checklist for which the City issued and distributed a Mitigated Determination of Non-Significance requiring a detailed geo-technical report to be submitted in accordance with the city's critical areas ordinance. The geo-technical report was received on March 24, 2017 which completed the SEPA review process.

C. The development application is beneficial to the public health, safety and welfare and is in the public interest.

The project is consistent with the City's Comprehensive Plan and development regulations and it therefore would be considered beneficial to public health, safety and welfare and would be in the public interest.

D. The development does not lower the level of service of transportation facilities below the level of service D, as identified in the Comprehensive Plan; provided, that if a development application is projected to decrease the level of service lower than level of service D, the development may still be approved if improvements or strategies to raise the level of service above the minimum

level of service are made concurrent with development. For the purposes of this section, "concurrent with development" means that required improvements or strategies are in place at the time of occupancy of the project, or a financial commitment is in place to complete the required improvements within six years of approval of the development.

The project would add 202 new residential lots that would be accessed from newly constructed roadway extensions leading into the subdivision. A critical off-site section of Queensgate Drive has been dedicated to the City in preparation for extension to the plat site. This portion of Queensgate Drive will have to be constructed prior to completing Phase 1 of Westcliffe Heights. Transportation connectivity would be achieved by making connections to Queensgate Drive, Jurupa Street, Rachel Road and Morency Drive thereby furthering connectivity within the City's road network. . At full buildout, Westcliffe Heights will complete some local network connections providing multiple access options for several residential areas. For example, Falconcrest will no longer be restricted to only 1 access on Morency Drive to the north. Because the project is within the impact fee area, traffic studies are not required to prove level of service or identify mitigation. The fee becomes the mitigation; thereby fulfilling concurrency requirements.

E. Any conditions attached to a project approval are as a direct result of the impacts of the development proposal and are reasonably needed to mitigate the impacts of the development proposal.

The conditions of approval recommended for this project are as a direct result of imposing City development standards as contained in City code and are directly related to the development proposal.

FINDINGS AND CONCLUSIONS

Staff has completed its review the preliminary plat application for Westcliffe Heights (S2017-101) and recommends approval of the request subject to conformance with the conditions of approval included in the attached Technical Advisory Committee Report (Exhibit 9) based on the following findings:

Findings of Fact:

1. The Richland Comprehensive Plan designates the project site as suitable for low density residential development with an allowable density range of 0 to 5 units per acre;
2. The proposed preliminary plat consists of 203 lots averaging 14,557 square feet in area, representing a net density of 2.9 units per acre.
3. Queensgate Drive, including future extensions thereof, is classified as an arterial collector roadway in the City's Comprehensive Plan.

Conclusion of Law:

The proposed preliminary plat is consistent with and would provide for development of the subject property in conformance with the density and type of land use envisioned in the land use and transportation elements of the adopted comprehensive plan.

Findings of Fact:

4. R-1-10 (Single-Family Residential) zoning is applied to the site which permits residential densities of up to 4.3 units per acre. Westcliffe Heights plat proposes a net residential density of 2.9 units per acre;
5. The 203 lots proposed have an average lot size of 14,557 square feet. The smallest lot is 8,046 square feet and the largest lot is 60,167 square feet (1.4 acres).

Conclusion of Law:

The lots within the proposed subdivision are consistent with the provisions of the City's residential zoning regulations.

Findings of Fact:

6. The Westcliffe Heights preliminary plat lies within the boundary of the South Richland Collector Street Financing Plan (RMC 12.03). This plat shall therefore be subject to the fees administered by the finance plan for any phase submitted for approval. Since this property is included within the Financing Plan, it is exempt from the SEPA-related traffic study requirement (TIA).
7. Section 24.12.053 of the RMC sets forth standards for review of preliminary plats that require the Hearing Examiner to consider whether appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school;
8. The proposed preliminary plat provides for the extension of streets that are consistent with the surrounding street network, includes provisions for the extension of public domestic water, sewer, irrigation water and electrical power lines;
9. The proposed improvements to serve the preliminary plat are consistent with the City's development standards;
10. City standards call for the construction of a Secondary Emergency Access Road (SEVA) to serve any development that contains 16 or more homes served by a single access road. The site currently contains a SEVA road which will be maintained as phased plat construction occurs;
11. The City has wild land fire protection requirements that apply to homes built on or adjacent to steep slopes that would impact lots within the proposed plat. The recommended conditions of approval require compliance with these wild land fire protection requirements;
12. The proposed preliminary plat includes a tract labeled "Tract C" which is intended to be transferred to the City for the establishment of a new hiking trail that will further connectivity to the existing hiking trail network on the larger Badger Mountain to the north;
13. Richland Municipal Code Chapter 22.12 (Exhibit 10) discusses the parameters for dedicating land for parks in lieu of payment of parks fees. On

- April 13, 2017 the Richland Parks Commission recommended the Parks and Public Facilities Department accept Tract C to fully satisfy the cost of parks fees for the plat.
14. The school nearest to the project site is Orchard Elementary School located 1.6-miles away, on Gala Way. The Richland School District was invited to comment and expressed no concerns with the plat.
 15. City staff and other utility providers reviewed the project and have recommended specific conditions of approval as set forth in the Technical Advisory Committee report.

Conclusion of Law:

As conditioned, the proposed preliminary plat makes appropriate provisions for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school.

Findings of Fact:

16. The applicant filed an environmental checklist along with their preliminary plat application as required under the State Environmental Policy Act.
17. After review of the checklist and application materials, staff issued a Mitigated Determination of Non-Significance on March 22, 2017 requiring a detailed geo-technical report prepared by a qualified engineer to be submitted in order to fulfill requirements of the City's Critical Areas Ordinance (RMC 22.10).
18. The applicant submitted a geo-technical report as required under the City's Sensitive Areas Ordinance (RMC 22.10).

Conclusion of Law:

Pursuant to Chapters 22.09 and 22.10 of the RMC, the procedures required under the State Environmental Policy Act and the City's Sensitive Areas Ordinance have been completed.

Findings of Fact:

19. RMC 19.60.095(D) requires that development not lower the level of service standard for transportation facilities below a level of service D.
20. The proposed project would add 203 single family lots that would have direct access onto roadways proposed in the plat.
21. The Westcliffe Heights preliminary plat lies within the boundary of the South Richland Collector Street Financing Plan (RMC 12.03). This plat shall therefore be subject to the fees administered by the finance plan for any phase submitted for approval. Since this property is included within the

Financing Plan, it is exempt from the SEPA-related traffic study requirement (TIA). The developer of this proposed project shall receive "credits" for the construction of Gage Boulevard as allowed under the City's South Richland Collector Street Financing Plan.

Conclusion of Law:

The proposed project would not result in a decline of transportation service levels within the area surrounding the project and so is consistent with the provisions of RMC 19.60.095.

Overall Conclusion:

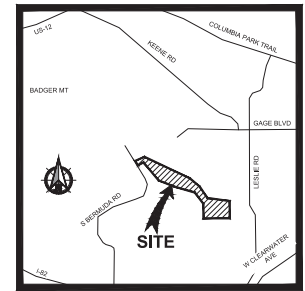
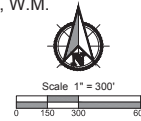
Based on the above findings and conclusions, approval of the proposed preliminary plat of Westcliffe Heights subject to the recommended conditions listed in the Technical Advisory Committee Report is warranted because the project conforms to the City's adopted comprehensive plan and zoning regulations; has followed the required State Environmental Policy Act procedures; and is consistent with the requirements of the City's subdivision regulations.

EXHIBIT LIST

1. Preliminary Plat Map
2. Application
3. Public Notice & Affidavits
4. Environmental Checklist (Grading)
5. Determination of Non-Significance (Grading)
6. Environmental Checklist (Plat)
7. Mitigated Determination of Non-Significance (Plat)
8. Public Comments & Agency Comments
9. Technical Advisory Committee Report
10. RMC 22.12 - Parks Dedication
11. Queensgate Traffic Study
12. Geotechnical Report
13. Site Photos

WESTCLIFFE HEIGHTS PRELIMINARY PLAT

Located In The East 1/2 Of Section 34 And The West 1/2 of Section 35, Township 9 North, Range 28 East, W.M.



VICINITY MAP
NOT TO SCALE

SHEET INDEX

- 1 - COVER SHEET
- 2 - PARTIAL PLAT PLAN
- 3 - PARTIAL PLAT PLAN
- 4 - PARTIAL PLAT PLAN
- 5 - PARTIAL PLAT PLAN

LAND USE TABLE	
Site Area:	140.30 Acres
Total Lot Count:	203 Lots
Minimum Lot Area:	8,046 SF
Maximum Lot Area:	60,167 SF
Average Lot Area:	14,557 SF
Right of Way Dedication:	21.51 Acres
Tract A:	19.17 Acres
Tract B:	0.09 Acres
Tract C:	13.71 Acres
Tract D:	3.33 Acres
Tract E:	0.67 Acres
Tract F:	3.18 Acres
Tract G:	1.15 Acres
Tract H:	1.02 Acres
Tract I:	7.23 Acres
Tract J:	0.19 Acres
Tract K:	0.38 Acres

EXISTING PARCELS INCLUDED	
	134981000005000
	134981000006006
	135983000001044
	135983000001040
	135983000001039

Zoning Classification:
R-1-10 - Single Family Residential
(8,000 SF Minimum)

Easement Note:
All lots shall have a 10' public utility easement abutting any right of way

TRACT A: SHALL BE FOR OPEN SPACE

TRACT B: SHALL BE FOR FUTURE DEVELOPMENT

TRACT C: SHALL BE FOR OPEN SPACE FOR PARKS DEPARTMENT. SUBJECT TO SEPARATE AGREEMENT AND CONDITIONS.

TRACT D: SHALL BE FOR FUTURE DEVELOPMENT/ STORM FACILITY

TRACT E: SHALL BE FOR FUTURE DEVELOPMENT

TRACT F: SHALL BE FOR OPEN SPACE

TRACT G: SHALL BE FOR OPEN SPACE

TRACT H: SHALL BE FOR OPEN SPACE

TRACT I: SHALL BE FOR FUTURE DEVELOPMENT

TRACT J: SHALL BE FOR OPEN SPACE

TRACT K: SHALL BE FOR OPEN SPACE

LOT 203 SHALL BE FOR COMMUNITY USE

PHASING SHOWN IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE

Owner/Developer:
Mark Bauder
605 Summit Street
Richland, WA 99352
(509) 521-7479

Engineer:
HDJ - A Division Of PBS
Jason Mattox, PE
6115 Burden Blvd., Suite E
Pasco, WA 99301
(509) 547-5119

Surveyor:
HDJ - A Division Of PBS
Alex Matarazzo, PLS
6115 Burden Blvd., Suite E
Pasco, WA 99301
(509) 547-5119

PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION



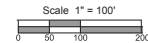
COVER SHEET FOR:

WESTCLIFFE HEIGHTS PRELIMINARY PLAT
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

DESIGNED: PLB
DRAWN BY: PLB
CHECKED: JLM
SCALE: H: 1" = 300'
V: N/A
MARCH 2017
4234-00
SHEET

1
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6115 Burden Blvd, Suite E
Pasco, WA 99301-8930
509/547-5119
303/805-3488
509/547-5129 fax
Internet: www.h2ddesigngroup.com



- 1 PROPOSED ESMT OVER EXTG IRRIGATION LINE TO BADGER MOUNTAIN IRRIGATION DISTRICT
- 2 EXTG 20" IRR ESMT AT 718936 TO BADGER MOUNTAIN IRRIGATION DISTRICT
- 3 EXTG 60" INGRESS-EGRESS, UTIL, AND IRR ESMT AT 898901
- 4 EXTG 25" SEVA FN AT 102-034461 TO C.O.R.
- 5 EXTG 37.5" SEVA FN AT 2012-034461 TO C.O.R.
- 6 EXTG 40" ACCESS ESMT AT 862635
- 7 EXTG 40" ESMT FROM SHORT PLAT 2049
- 8 EXTG IRR ESMT AT 718936 TO BADGER MOUNTAIN IRRIGATION DISTRICT
- 9 EXTG 10" RIGHT-OF-WAY ESMT AT 726851 TO BENTON P.O.D. NO. 1
- 10 EXTG 10" RIGHT-OF-WAY ESMT AT 731006 TO BENTON P.O.D. NO. 1
- 11 EXTG 10" RIGHT-OF-WAY ESMT AT 739741 TO BENTON P.O.D. NO. 1

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S 82°12'19" E	32.66
L2	S 10°25'54" W	31.13

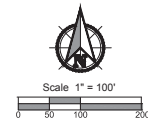
CURVE DATA				
#	Δ	R	L	T
C1	42°09'12"	310.00	228.07	119.41
C2	50°53'04"	275.00	244.23	130.85
C3	2°30'00"	1000.00	43.63	21.82
C4	41°25'50"	210.00	151.85	79.42
C5	1°36'08"	800.00	22.37	11.19
C12	82°58'25"	210.00	304.11	185.75
C13	82°26'09"	210.00	302.14	183.95
C14	55°06'16"	300.00	288.53	156.50
C53	90°00'00"	200.00	31.42	20.00
C54	10°20'47"	280.00	50.56	25.35

PARTIAL PLAT PLAN FOR:

DESIGNED:	PDA
DRAWN BY:	PDA
CHECKED:	JLM
SCALE:	
H:	1" = 100'
V:	N/A
MARCH 2017	
4234-00	
SHEET	

 $\frac{2}{5}$

Exhibit 1



EASEMENTS

- 1 EXTG 20' ACCESS ESMT AFN 2013-025184
- 2 EXTG 60' INGRESS-EGRESS, UTIL AND IRR
ESMT AFN 998901
- 3 EXTG 25' SEVA AFN 2012-034461 TO C.O.R.
- 4 EXTG 37.5' SEVA AFN 2012-034461 TO C.O.R.
- 5 EXTG 42.5' SEVA AFN 2012-034461 TO C.O.R.
- 6 EXTG 20' WATERLINE ESMT (DRAIN LINE)
AFN 2013-025185 TO C.O.R.
- 7 EXTG 15' WATERLINE ESMT (DRAIN LINE)
AFN 2013-025185 TO C.O.R.

LINE TABLE		
LINE	DIRECTION	LENGTH
L3	S 79°20'30" E	108.17
L4	S 66°25'41" E	127.51
L5	S 01°52'37" E	24.69
L6	S 01°52'37" E	32.87
L7	S 28°42'41" W	60.35
L8	N 73°23'14" W	70.68
L9	N 85°50'06" W	25.00
L10	N 18°58'32" W	69.11
L11	N 03°12'54" W	24.75
L12	N 29°53'55" E	20.00

CURVE DATA				
#	Δ	R	L	T
C5	28°58'25"	300.00	151.71	77.51
C15	27°43'16"	300.00	145.15	74.02
C16	43°07'42"	300.00	225.82	118.56
C55	64°33'04"	40.00	45.07	25.27
C56	66°51'35"	130.00	151.70	85.82

PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION



PARTIAL PLAT PLAN FOR:

PARTIAL PLAT PLAN FOR:
WESTCLIFFE HEIGHTS PRELIMINARY PLAT
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON



HDI
A DIVISION OF

6115 Burden Blvd, Suite E
Pasco, WA 99301-8930
509/547-5119
303/805-3488
509/547-5129 fax

Exhibit 1

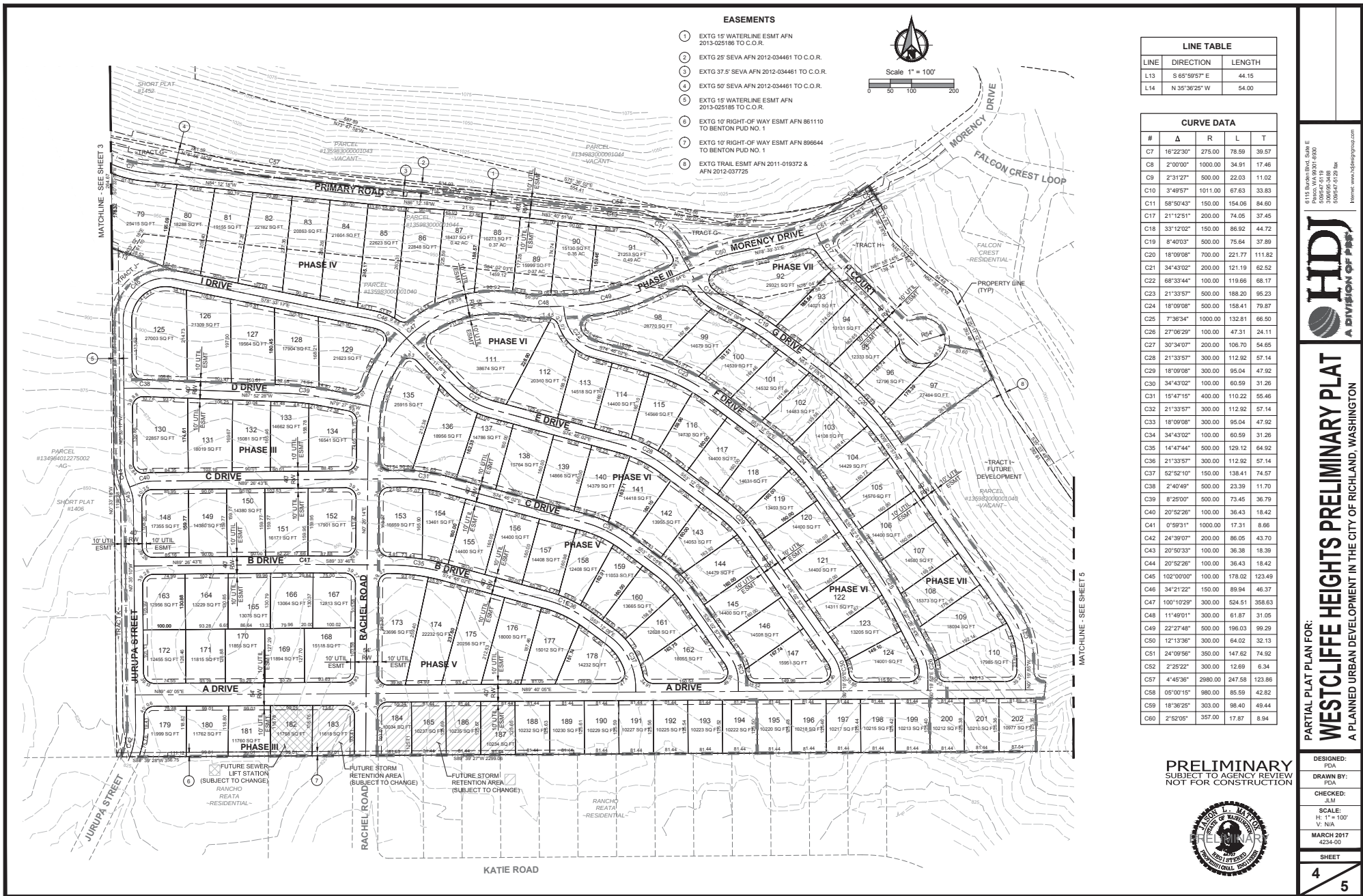
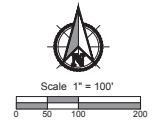


Exhibit 1



- EASEMENTS**
- ① EXTG. TRAIL ESMT AFN 2011-019372 & AFN 2012-037725

PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION



1101 E. KENNEDY BLVD., E
FALLS CHURCH, VA 22044
509.547-0119
509.547-0120
509.547-0120 FAX
Internet: www.h2designs.com



PARTIAL PLAT PLAN FOR:
WESTCLIFFE HEIGHTS PRELIMINARY PLAT
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

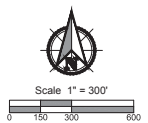
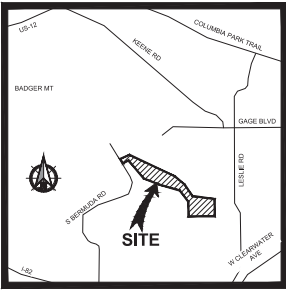
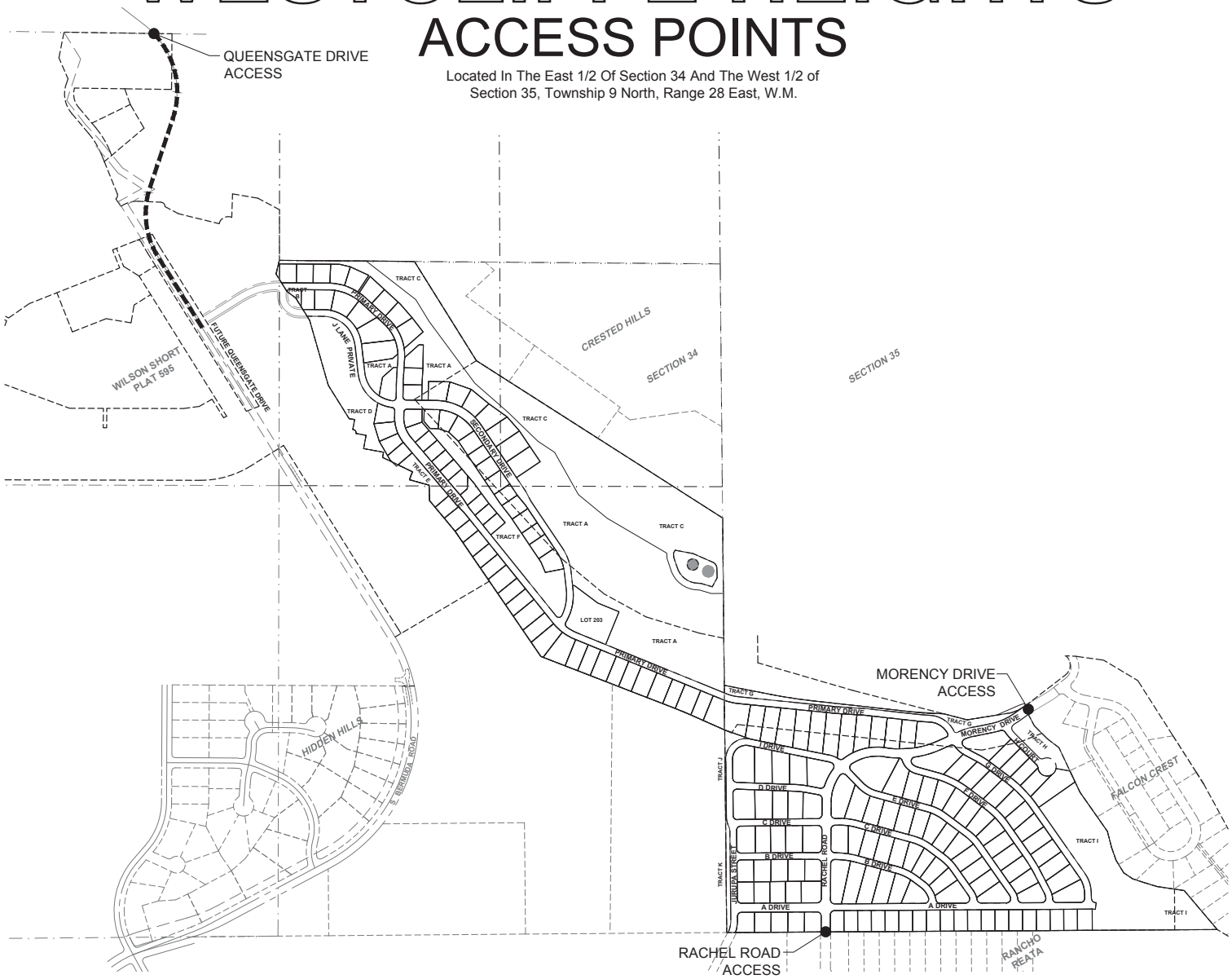
DESIGNED:	PDIA
DRAWN BY:	PDIA
CHECKED:	JLM
SCALE:	H: 1" = 100' V: N/A
MARCH 2017	6234-00

SHEET
5

WESTCLIFFE HEIGHTS

ACCESS POINTS

Located In The East 1/2 Of Section 34 And The West 1/2 of Section 35, Township 9 North, Range 28 East, W.M.



PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION

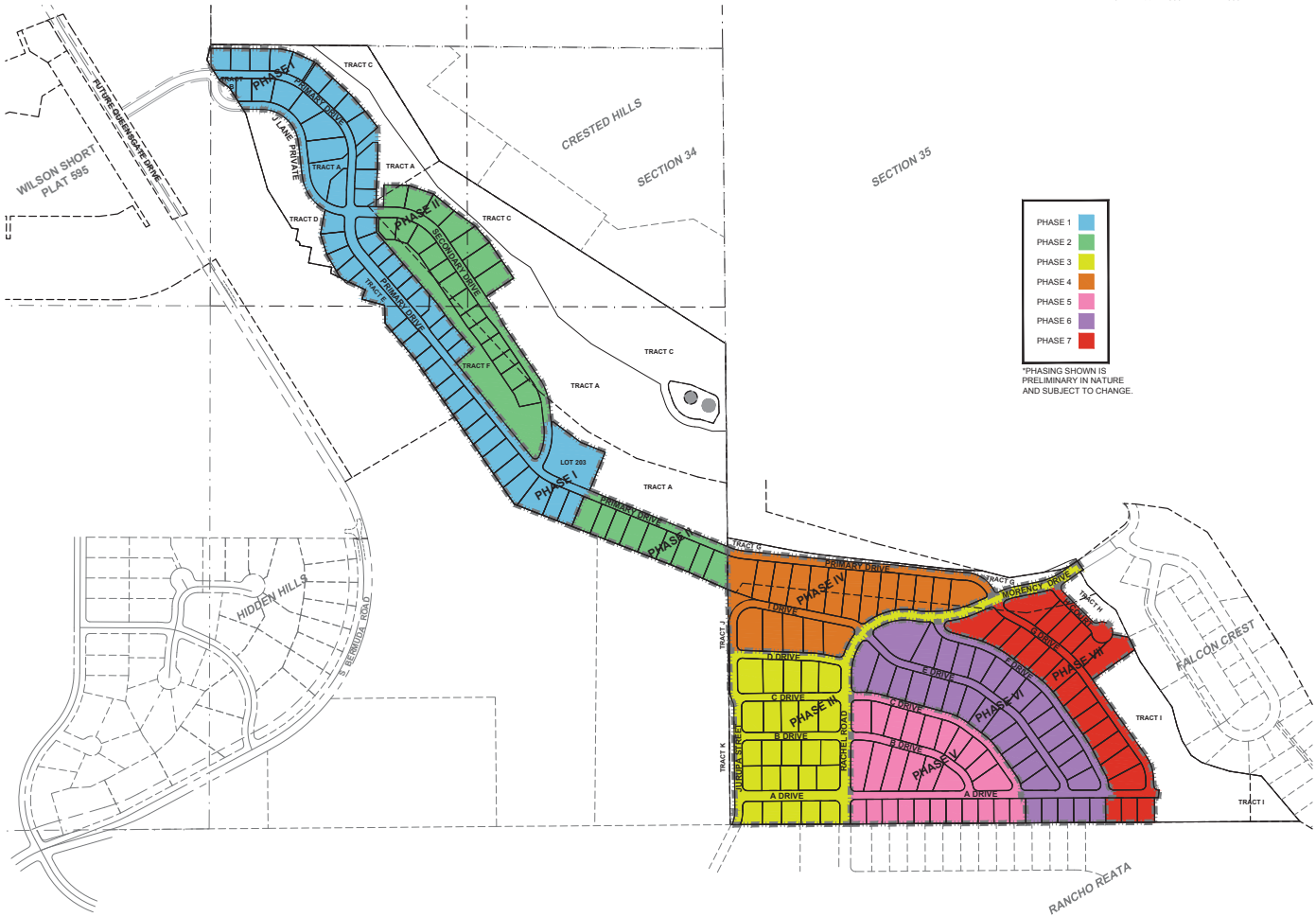
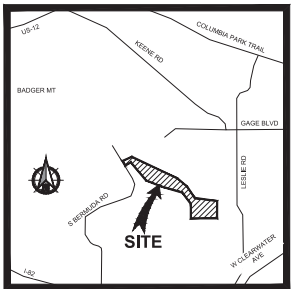
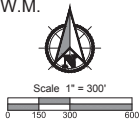


ACCESS POINTS FOR:
WESTCLIFFE HEIGHTS ACCESS POINTS
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

DESIGNED:	PLA
DRAWN BY:	PLA
CHECKED:	JLB
SCALE:	H: 1" = 300' V: N/A
MARCH 2017	4234-00

WESTCLIFFE HEIGHTS PRELIMINARY PHASE EXHIBIT

Located In The East 1/2 Of Section 34 And The West 1/2 of Section 35, Township 9 North, Range 28 East, W.M.



EXISTING PARCELS INCLUDED	
1349810000000000	
1349810000000000	
13598300000001044	
13598300000001040	
13598300000001039	

Zoning Classification:
R-1-10 - Single Family Residential
(8,000 SF Minimum)

Easement Note:
All lots shall have a 10' public utility
easement abutting any right of way

Owner/Developer:
Mark Bauder
605 Summit Street
Richland, WA 99352
(509) 521-7479

Engineer:
HDJ - A Division Of PBS
Jason Mattox, PE
6115 Burden Blvd., Suite E
Pasco, WA 99301
(509) 547-5119

Surveyor:
HDJ - A Division Of PBS
Alex Matarazzo, PLS
6115 Burden Blvd., Suite E
Pasco, WA 99301
(509) 547-5119

PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION



PRELIMINARY PHASE EXHIBIT FOR:
WESTCLIFFE HEIGHTS PRELIMINARY PLAT
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

DESIGNED BY:
KAS
DRAWN BY:
KAS
CHECKED BY:
JLM
SCALE:
H: 1" = 300'
V: N/A
MARCH 2017
4234-00
SHEET

Development & Permit Services Division • Current Planning Section
840 Northgate Dr. • Richland, WA 99352
General Information: 509/942-7794 • Fax: 509/942-7764

PRELIMINARY PLAT APPLICATION

Applicant's Section			
Applicant or Sponsor Mark Bauder			
Address 605 Summit Street		City Richland	State WA Zip 99352
Phone Number 509-521-7479	Fax Number	Other mborchards@aol.com	
Proposed Subdivision Name Westcliffe Heights		Legal Description See Attached	
Average Size Lots		Proposed Number of Tracts 11	
Average Lot Size (Residential Lots) 14,557 SF		Area in Acres 140.30	
Proposed Number of Lots 203		Proposed Number of Blocks 17	
Name of Surveyor Platting Subdivision Alex Matarazzo, PLS HDJ - A Division of PBS			
Address 6115 Burden Blvd., Suite E		City Pasco	State WA Zip 99301
Phone Number 509-547-5119	Fax Number 509-547-5129	Other alex.matarazzo@pbsusa.com	

I DECLARE UNDER THE PENALTY OF THE PERJURY LAWS THAT THE INFORMATION I HAVE PROVIDED ON THIS FORM/APPLICATION IS TRUE, CORRECT AND COMPLETE.


 Applicant's Signature

1/19/17
 Date

OFFICE USE ONLY

Filed on _____ Signature _____

Case File No. _____ Date of Planning Commission Hearing _____

Action by Planning Commission - Minutes _____

- Attach:
1. 30 Copies
 2. 11" x 17" reduction
 3. Ownership Report from Title Company listing all Owners within 300-feet.



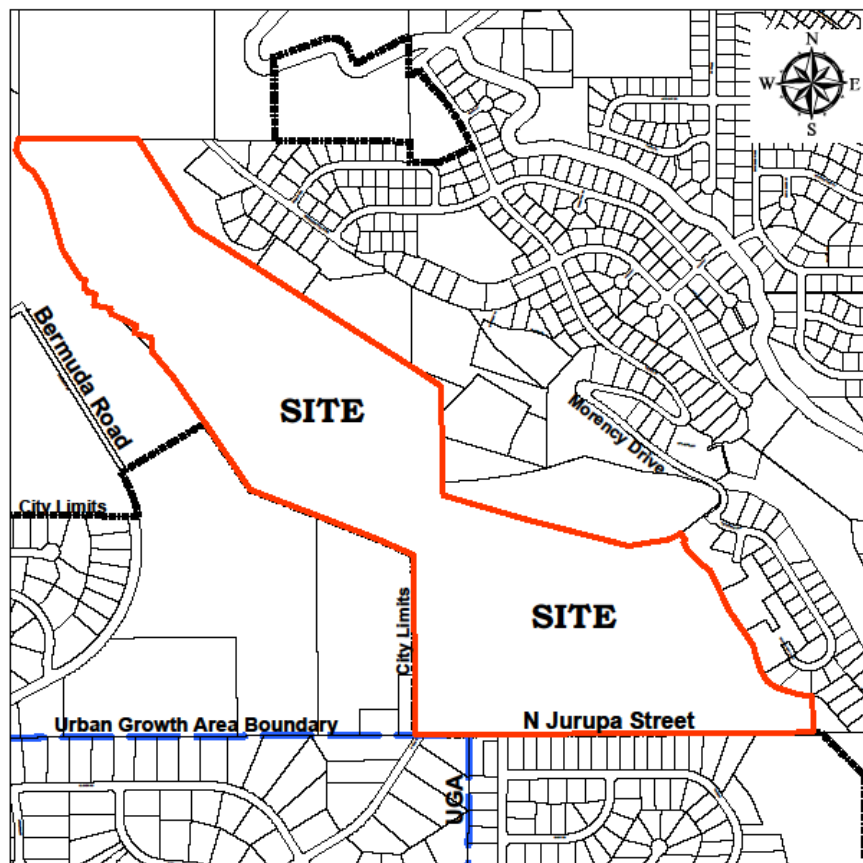
CITY OF RICHLAND NOTICE OF APPLICATION AND SEPA DETERMINATION (S2017-101)

Notice is hereby given that Mark Bauder on February 3, 2017, filed an application for preliminary plat approval to subdivide an approximately 140.3 acre site into 203 single family residential lots (Preliminary Plat of Westcliffe Heights). The proposed plat is located north of N. Jurupa Street and south of Morency Court, in an area locally referred to as Little Badger Mountain. The proposed plat would have an average lot size of 14.557 square feet.

Notice is also given that the City of Richland has issued a Mitigated Determination of Non-Significance (MDNS). An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request. This MDNS is issued under WAC 197-11-350; the lead agency will not act on this proposal until **March 22, 2017**.

Further notice will be given establishing the date on which a public hearing will be held before the Hearings Examiner.

Any person desiring to express their views or to be notified of any decisions pertaining to this application should notify Shane O'Neill, Senior Planner, 840 Northgate Drive, Richland, WA 99352. Comments may also be faxed to (509) 942-7587 or emailed to soneill@ci.richland.wa.us.





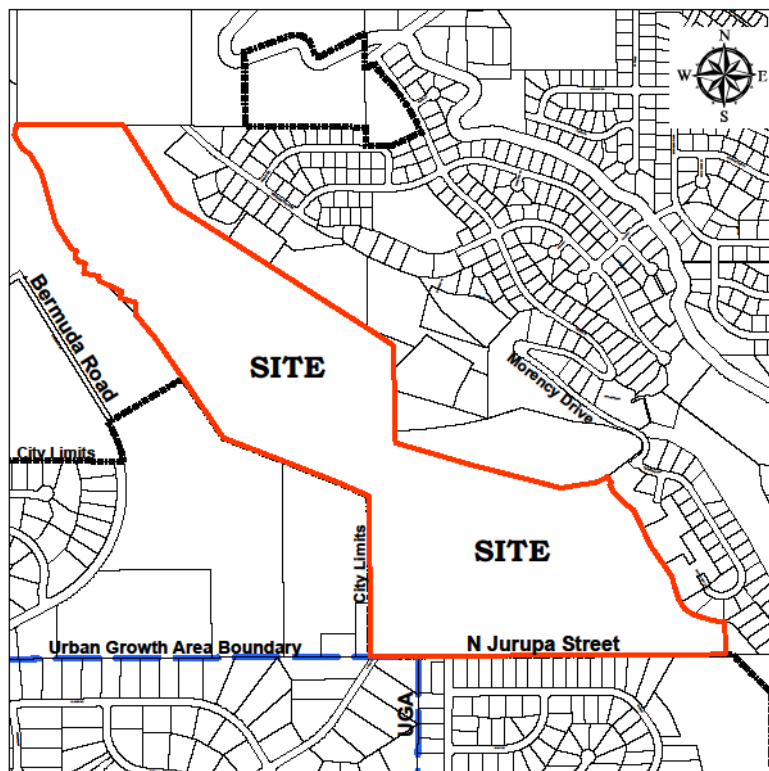
CITY OF RICHLAND PUBLIC HEARING NOTICE (S2017-101)

Notice is hereby given that Mark Bauder on February 3, 2017, filed an application for preliminary plat approval to subdivide an approximately 140.3 acre site into 203 single family residential lots (Preliminary Plat of Westcliffe Heights). The proposed plat is located north of N. Jurupa Street and south of Meadow Hills Drive, in an area locally referred to as Little Badger Mountain. The proposed plat would have an average lot size of 14,557 square feet.

The Richland Hearings Examiner, on **Thursday, May 4, 2017**, will conduct a public hearing and review of the application at 6:00 p.m. in the Richland City Hall Council Chambers, 505 Swift Boulevard. All interested parties are invited to attend and present testimony at the public hearing.

Any person desiring to express their views or to be notified of any decisions pertaining to this application should notify Shane O'Neill, Senior Planner, 840 Northgate Drive, Richland, WA 99352. Comments may also be faxed to (509) 942-7587 or emailed to soneill@ci.richland.wa.us. Written comments should be received no later than 5:00 p.m. on Wednesday, April 25, 2017 to be incorporated into the staff report. Comments received after that date will be entered into the record at the hearing.

The application will be reviewed in accordance with the regulations in RMC Title 19 Development Regulations Administration and Tile 24 Plats and Subdivisions. Appeal procedures of decisions related to the above referenced application are set forth in RMC Chapter 19.70. Contact the Richland Planning Division at the above referenced address with questions related to the available appeal process.



AFFIDAVIT OF MAILING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, Kathy Anderson, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.
2. On the 11th day of April, 2017, I mailed a copy of the attached NOTICE APPLICATION AND PUBLIC HEARING to the attached list of individuals via regular USPS or E-mail on the date indicated above. The Notice of Public Hearing is related to a plat is located north of N. Jurupa Street and south of Meadow Hills Drive, locally referred to as Little Badger Mountain.

Kathy L. Anderson
Signed Name: Kathy Anderson

SIGNED AND SWORN to before me this 11 day of April, 20 17 by Kathy Anderson.



Cynthia Lynn Somers
Notary Public in and for the State of Washington,
Residing at Kennewick WA
My appointment expires: July 10 2020
Cynthia Lynn Somers
Printed Name

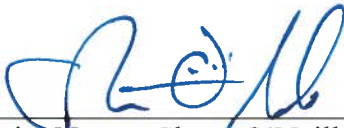
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AFFIDAVIT OF POSTING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, **Shane O'Neill**, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.
2. On the 17th day of April, 2017, I posted the attached NOTICE OF PUBLIC HEARING, File Number S2017-101 on the property at:
- Parcel ID #'s: 1-34981000005000, 1-34981000006006 & 1-35983000001040

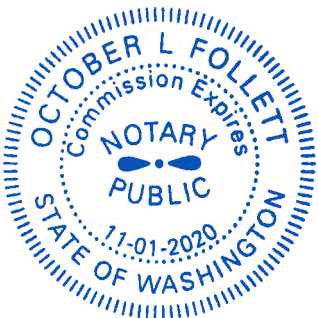


Print Name: Shane O'Neill

SIGNED AND SWORN to before me this 17th day of April, 2017 by SHANE O'NEILL.



Signature of Notary



October L. Follett

Printed Name

Notary Public in and for the State of Washington,

Residing in West Richland

My appointment expires: 11-1-2020



www.ci.richland.wa.us

EA 2016-35
WESTCLIFF HEIGHTS GRADING
ACTION DATE 12.2.2016

Exhibit 4

Development Permitting Division

840 Northgate Drive

Richland, WA 99352

Telephone 509-942-7794

SEPA ENVIRONMENTAL CHECKLIST

UPDATED 2014

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements—that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND

1. Name of proposed project, if applicable: Westcliff Heights- Grading

2. Name of applicant: Mark Bauder

3. Applicant contact information:

Address: 605 Summit Street
Richland, WA 99352

Phone #: 509-521-7479

email address: mborchards@aol.com

4. Date checklist prepared: October 27, 2016

5. Agency requesting checklist: City of Richland

6. Proposed timing or schedule (including phasing, if applicable):

Project Begin: October 2016

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

A preliminary plat, infrastructure construction, and building permits will be completed at a future date.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A cut slope evaluation was completed by Foundation Engineering, Inc. dated 8/24/16.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None known.

10. List any government approvals or permits that will be needed for your proposal, if known.

A grading permit will be needed from City of Richland.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal is for grading in parcels 134982013241004, 134982012049004, 134982000005002, 13498100000500 and 134981000006006. The first 3 listed parcels will have grading for infrastructure to serve the future development in the last 2 listed parcels. The last 2 listed parcels will be graded to prepare for the construction of the infrastructure and lots for future development.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

These parcels are located in Section 34, Township 9 North, Range 28 East W.M. They are north of the I-82, and south of Queensgate Drive. (See attached grading plan for site plan location.)

...location cont'd:

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site

(circle one): Flat rolling hilly steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? +/- 85% %

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. The majority of the site is silty soil, while higher elevations contain basalt cobbles and gravel in a silt matrix, per Cut Slope evaluation by Foundation Engineering, Inc.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. There are existing steep slopes onsite that appear to be stable with slight evidence of raveling in some locations.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The site will be graded to create nearly flat residential lots and graded to build infrastructure that will serve those lots from the existing Queensgate Drive. Approximate quantity of soil to be moved is 286,600 cubic yards.

All fill will be from material excavated on site.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Potential erosion, both wind blown and runoff, are possible as a result of construction and will be managed with a temporary erosion control plan approved by the City of Richland

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

This project is only grading the site, no impervious surfaces will be constructed at this time.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Dust control with water trucks, soil tackifier, silt fencing and recommendations per the Cut Slope Evaluation Report by Foundation Engineering, Inc.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. During Construction there will be exhaust from construction equipment as well as dust. After construction emissions would be unchanged from prior construction conditions.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. None Known

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

During construction, emissions will be limited to working hours and dust will be controlled by person operated watering devices.

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is an irrigation pond, operated by Badger Mountain Irrigation District at the north east corner of the project.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes grading for the future roadway will happen within 200 feet of the irrigation pond.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Water will infiltrate on site, pre-design drainage basins will not be altered at this time.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Not to the applicant's knowledge.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposed does not alter or otherwise affect the drainage patterns in the vicinity of the site.

- d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

None at this time.

4. Plants

- a. Check the types of vegetation found on the site:

☐ deciduous tree: alder, maple, aspen, other

☐ evergreen tree: fir, cedar, pine, other

☒ shrubs

☒ grass

☐ pasture

☐ crop or grain

☐ Orchards, vineyards or other permanent crops.

☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

☐ water plants: water lily, eelgrass, milfoil, other

☐ other types of vegetation

- b. What kind and amount of vegetation will be removed or altered?

Grass and brush will be removed where grading will take place.

- c. List threatened and endangered species known to be on or near the site.

None to the applicant's knowledge.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

None at this time.

- e. List all noxious weeds and invasive species known to be on or near the site.

None to the applicant's knowledge.

5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk heron, eagle, songbirds other: _____

mammals: deer, bear, elk, beaver, other: _____

fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site.

None to the applicant's knowledge.

c. Is the site part of a migration route? If so, explain.

Yes, Richland is within the Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any:

None at this time.

e. List any invasive animal species known to be on or near the site.

None to the applicant's knowledge.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Not Applicable

b. Would your project affect the potential use of solar energy by adjacent properties?

If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal?

List other proposed measures to reduce or control energy impacts, if any:

None

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?

If so, describe.

No.

1) Describe any known or possible contamination at the site from present or past uses.

None to the applicant's knowledge.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None to the applicant's knowledge.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None.

4) Describe special emergency services that might be required.

None.

5) Proposed measures to reduce or control environmental health hazards, if any:

None at this time.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)?
Indicate what hours noise would come from the site.

During construction, there will be construction noise due to equipment. At the completion of this project there is no noise expected in excess of what is currently existing.

- 3) Proposed measures to reduce or control noise impacts, if any:

None at this time.

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Currently the site and adjacent properties are vacant or being used for agricultural purposes.
This proposal will not affect current land use nearby.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

Acres proposed to be graded are not active agricultural ground.

- i) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

- b. Describe any structures on the site.

None

- d. Will any structures be demolished? If so, what?

No.

- e. What is the current zoning classification of the site?

R-1-10: Single Family Residential

- f. What is the current comprehensive plan designation of the site?

Single Family Residential

- g. If applicable, what is the current shoreline master program designation of the site?

Not Applicable.

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

There are steep slopes throughout the site.

- i. Approximately how many people would reside or work in the completed project?

None.

- j. Approximately how many people would the completed project displace?

None.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

- L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The site is to be built in accordance with City of Richland residential zoning requirements.

- m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

None

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None at this time.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None

- c. Proposed measures to reduce or control housing impacts, if any:

None

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not Applicable.

- b. What views in the immediate vicinity would be altered or obstructed?

None

- c. Proposed measures to reduce or control aesthetic impacts, if any:

None

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not Applicable.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

- c. What existing off-site sources of light or glare may affect your proposal?

None

- d. Proposed measures to reduce or control light and glare impacts, if any:

None

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

Badger Mountain Park and various parks located in the residential neighbors.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

Not to the applicant's knowledge.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

None.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

Bermuda Rd is currently the closest existing road.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No, the closest stop is 3-5 miles away.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

None.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

This project will grade the surface to allow for new roads to serve the parcels at a future time.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Not applicable

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No

h. Proposed measures to reduce or control transportation impacts, if any:

None

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No

b. Proposed measures to reduce or control direct impacts on public services, if any.

None

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

Not applicable

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Not applicable

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee: _____

Position and Agency/Organization: _____

Date Submitted: _____

Community & Economic Development Department

This application was reviewed by the Planning Division of the Community & Economic Development Department. Any comments or changes made by the Department are entered in the body of the checklist and contain initials of the reviewer.

Reviewer Signature

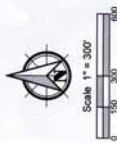
12.2.2016

Date

D. supplemental sheet for nonproject actions

WESTCLIFFE HEIGHTS SITE GRADING

LOCATED IN THE EAST 1/2 OF SECTION 34, TOWNSHIP 9 NORTH, RANGE 28 EAST, WILLAMETTE MERIDIAN, RICHLAND, WASHINGTON



Scale 1" = 300'

OWNER/DEVELOPER:

MARK BAUDER
6500 S. 10TH AVE.
RICHLAND, WA 99352
(509) 521-1479

ENGINEER:

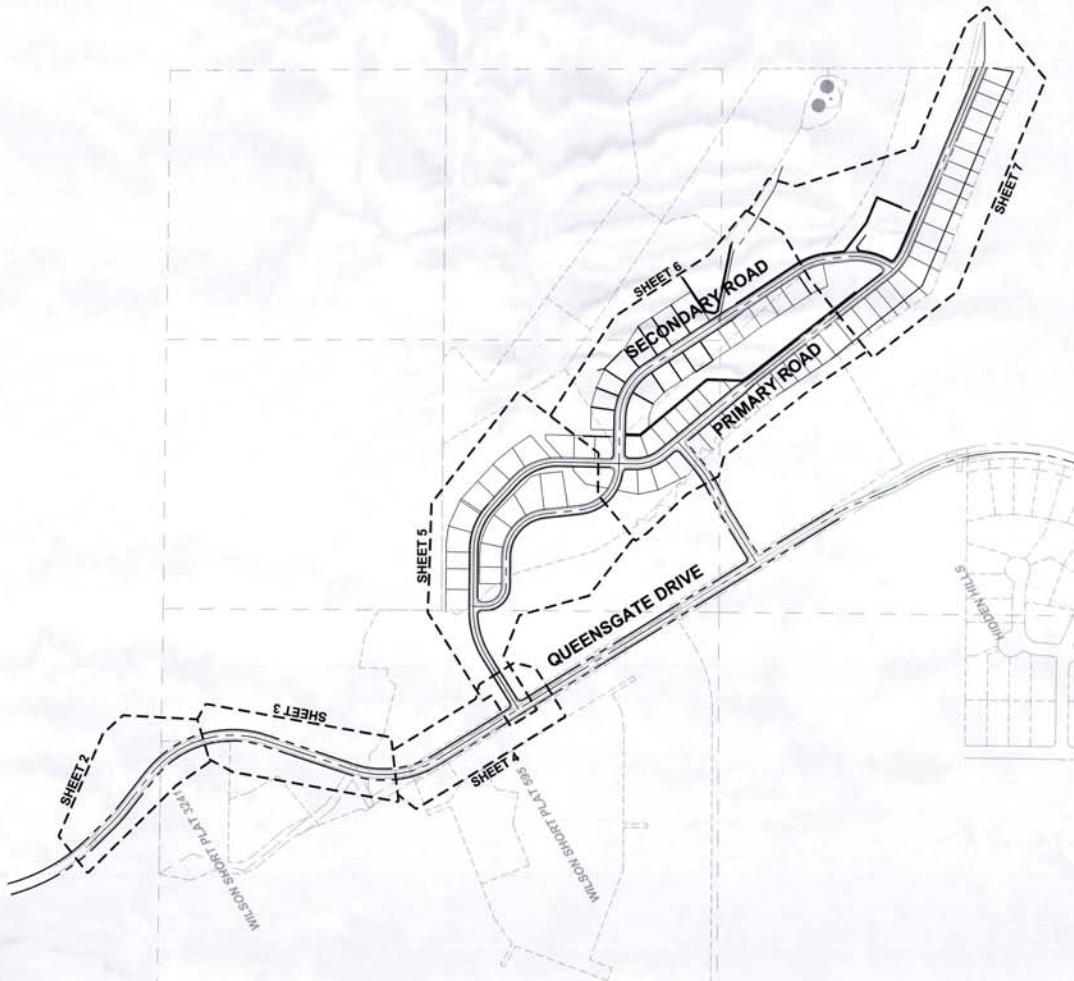
HDJ - A DIVISION OF PBS
ATTN: JASON MATTOX
6115 BURDEN BLVD., SUITE E
PASCO, WA 99301
(509) 547-5119

SURVEYOR:

HDJ - A DIVISION OF PBS
ATTN: JASON MATTOX
6115 BURDEN BLVD., SUITE E
PASCO, WA 99301
(509) 547-5119

SURVEY BENCHMARK:

BRASS CAP AT THE
CORNER OF WALALA WAY
AND SCLY LANE CITY OF
RICHLAND NAD 83 ELEVATION
FOR THIS MONUMENT IS 899.05.

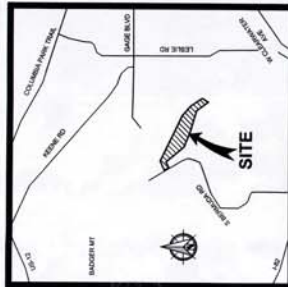


SHEET INDEX

- 1 - COVER SHEET
- 2 - QUEENSGATE DRIVE PLAN AND PROFILE BEGIN THRU STA. 12+00
- 3 - QUEENSGATE DRIVE PLAN AND PROFILE STA. 12+00 THRU STA. 21+50
- 4 - QUEENSGATE DRIVE PLAN AND PROFILE STA. 21+50 THRU END
- 5 - PARTIAL SITE GRADING PLAN
- 6 - PARTIAL SITE GRADING PLAN
- 7 - PARTIAL SITE GRADING PLAN

VICINITY MAP

NOT TO SCALE



ABBREVIATIONS

BVC	BEGIN VERTICAL CURVE	MIN	MINIMUM
PC	POINT OF CURVATURE	PC	POINT OF CURVATURE
DET	DETAIL	PT	POINT OF TANGENCY
DWG	DRAWING	RET	RIGHT-OF-WAY
EG	EXISTING GROUND	RW	RIGHT-OF-WAY
ELEV	ELEVATION	SHT	SHEET
EMT	EASEMENT	STA	STATION
EXTD	EXTENSION	SW	SIDEWALK
FG	FINISH GRADE	SW	SIDEWALK
INTX	INTERSECTION	TOP	TYPICAL
IRR	IRRIGATION	VC	VERTICAL CURVE
LT	LEFT	W	WEST

LINE TYPE LEGEND

---	EXISTING PROPERTY LINE
---	EXISTING EASEMENT LINE
---	EXISTING SECTION LINE
---	EXISTING RIGHT-OF-WAY
---	EXISTING CENTERLINE
---	EXISTING IRRIGATION LINE
---	EXISTING WATER LINE
---	EXISTING SANITARY SEWER LINE
---	EXISTING OVERHEAD POWER LINE
---	EXISTING EDGE OF PAVING
---	EXISTING EDGE OF GRAVEL
---	EXISTING FENCE
---	PROPOSED RIGHT-OF-WAY
---	PROPOSED CENTERLINE
---	PROPOSED SECTION LINE
---	PROPOSED WALL
---	FUTURE CURB AND GUTTER
---	FUTURE SIDEWALK

CITY OF RICHLAND

APPROVED _____ DATE _____



Utility Locate
Call 811
2 Business Days
Before Digging

COVER SHEET FOR:
WESTCLIFFE HEIGHTS
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON



Internet: www.hdjgroup.com
509.547.5119
509.547.5120 fax
309.950.3488
6115 Burden Blvd., Suite E
Pasco, WA 99301-8000

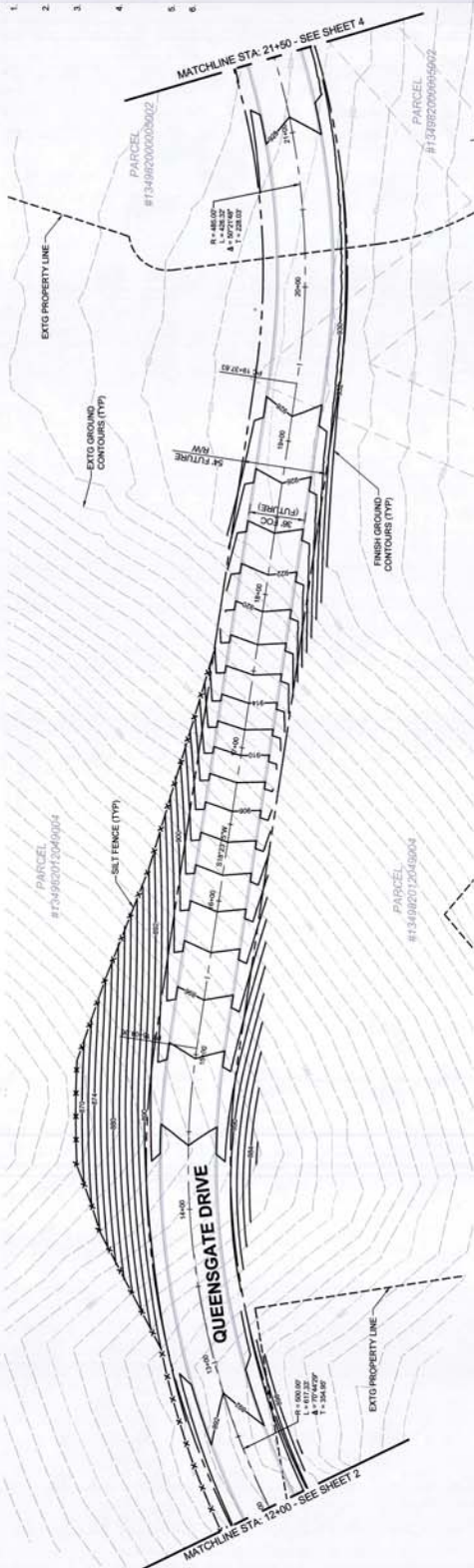
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1
SHEET

Profile view of Queensgate Drive from station 3+50 to 12+00. The drawing shows the existing ground (dashed line), the proposed grade elevation (solid line), and the original existing ground at the road centerline (dotted line). Key features include a 1.25% slope, a 1.25% slope, and a 1.25% slope. The drawing also shows the existing ground (dashed line) and the proposed grade elevation (solid line). The drawing includes a title block with the project name 'QUEENSGATE DRIVE STA: 3+50 TO STA: 12+00' and a scale of 1 inch = 10 feet. The drawing also includes a north arrow and a graphic scale bar.

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GENERAL CONSTRUCTION NOTES

1. THE PROPOSED CONTOURS SHOWN REPRESENT FINISH GRADE ELEVATIONS.
2. ALL EXISTING UNDERGROUND AND ABOVE GROUND UTILITIES SHALL BE PROTECTED DURING GRADING ACTIVITIES.
3. FUTURE CURB, GUTTER, AND SIDEWALK SHOWN ON THIS PLAN FOR CLARITY NOT TO BE CONSTRUCTED AT THIS TIME. GRADE TO SURROUND IN THESE AREAS.
4. ALL DISTURBED AREAS SHALL BE HYDRO-SEED AT THE COMPLETION OF THE PROJECT. GRADED AREAS FOR FUTURE DEVELOPMENT SHALL BE HYDRO-SEED TO MAINTAIN LONG-TERM EROSION CONTROL.
5. CONTOUR INTERVAL = 2'
6. SEE EROSION CONTROL NOTES AND DETAILS, SHEET 5.



QUEENSGATE DRIVE PLAN AND PROFILE STA. 12+00 THRU STA. 21+50 FOR:
WESTCLIFFE HEIGHTS
 A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

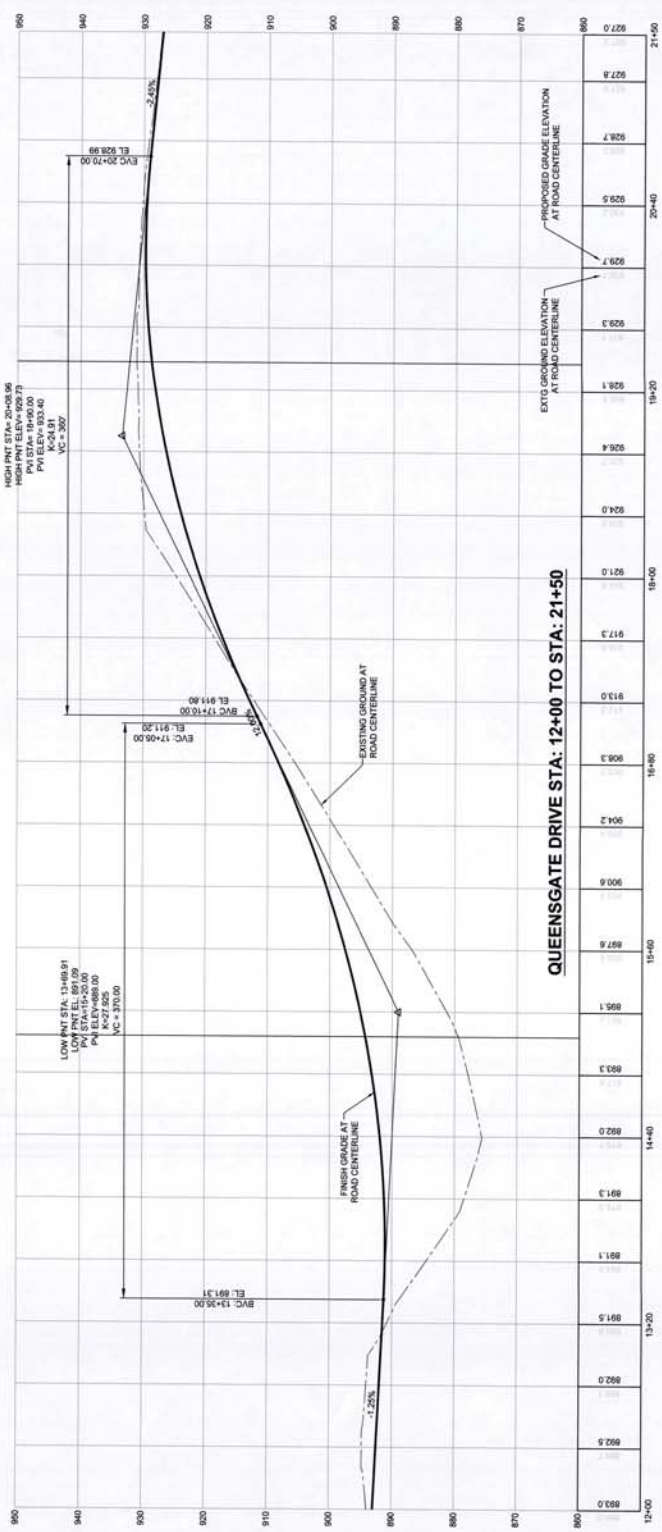


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APPROVED BY CITY OF RICHLAND DATE



DESIGNED BY: MEER
 DRAWN BY: MEER
 CHECKED BY: MEER
 SCALE: H: N/A, V: N/A
 MOVEMENT: 2016, 02/24/20
 SHEET 3



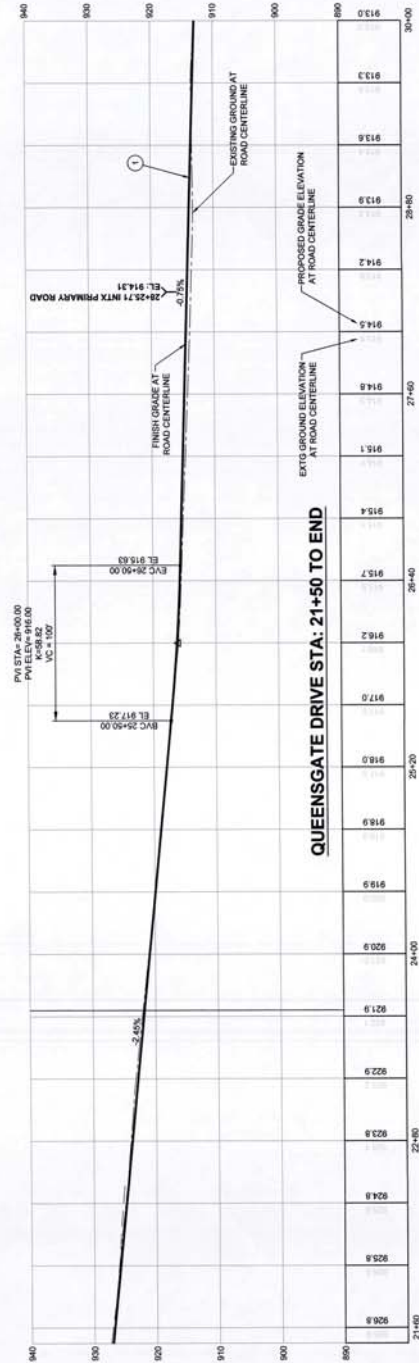
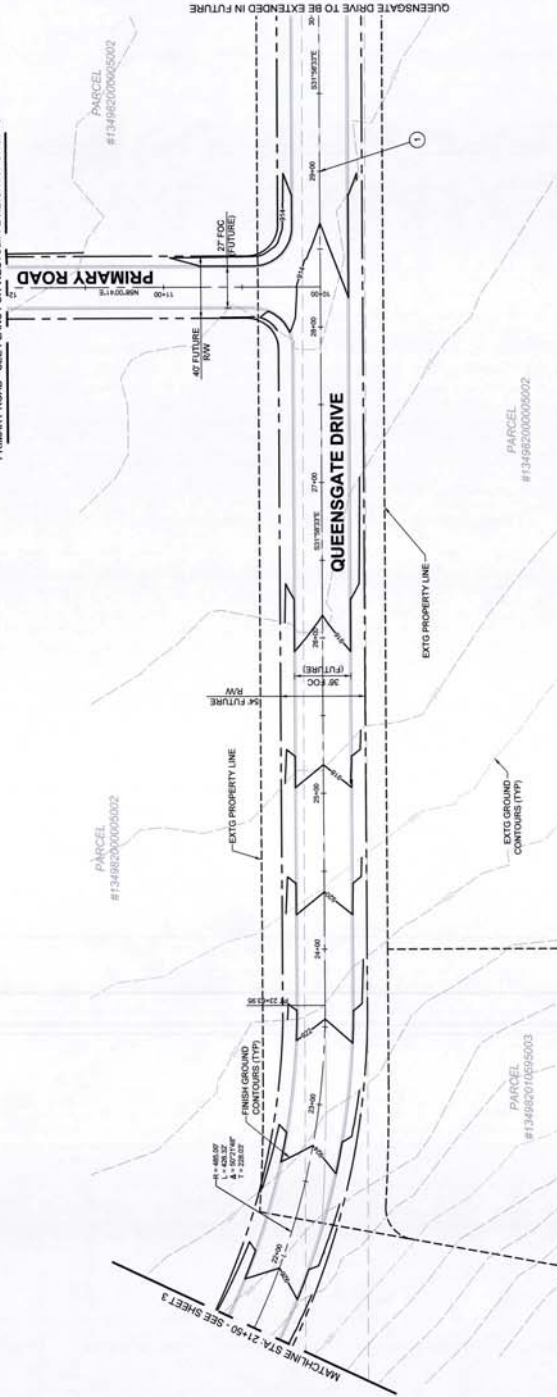
GENERAL CONSTRUCTION NOTES

1. THE PROPOSED CONTOURS SHOWN REPRESENT FINISH GRADE ELEVATIONS.
2. ALL EXISTING UNDERGROUND AND ABOVE GROUND UTILITIES SHALL BE PROTECTED DURING GRADING ACTIVITIES.
3. FUTURE CURB, GUTTER, AND SIDEWALK SHOWN ON THIS PLAN FOR CONSTRUCTION SHALL BE CONSTRUCTED AT THIS TIME. GRADE TO BE MAINTAINED IN THESE AREAS.
4. ALL DISTURBED AREAS SHALL BE HYDRO SEEDS AT THE COMPLETION OF THE PROJECT. GRADED AREAS FOR FUTURE DEVELOPMENT MAY REQUIRE ADDITIONAL APPLICATION OF HYDRO-SEED TO MAINTAIN LONG-TERM EROSION CONTROL.
5. CONTOUR INTERVAL = 2'
6. SEE EROSION CONTROL NOTES AND DETAILS, SHEET 5.

KEYED CONSTRUCTION NOTES

1. STA. 29+00 - END CONSTRUCTION GRADING ACTIVITIES. TRANSITION END OF SURGRADE SMOOTHLY INTO EXISTING GROUND.

PRIMARY ROAD - SEE PLANS FOR WESTCLIFFE HEIGHTS - SHEET 5



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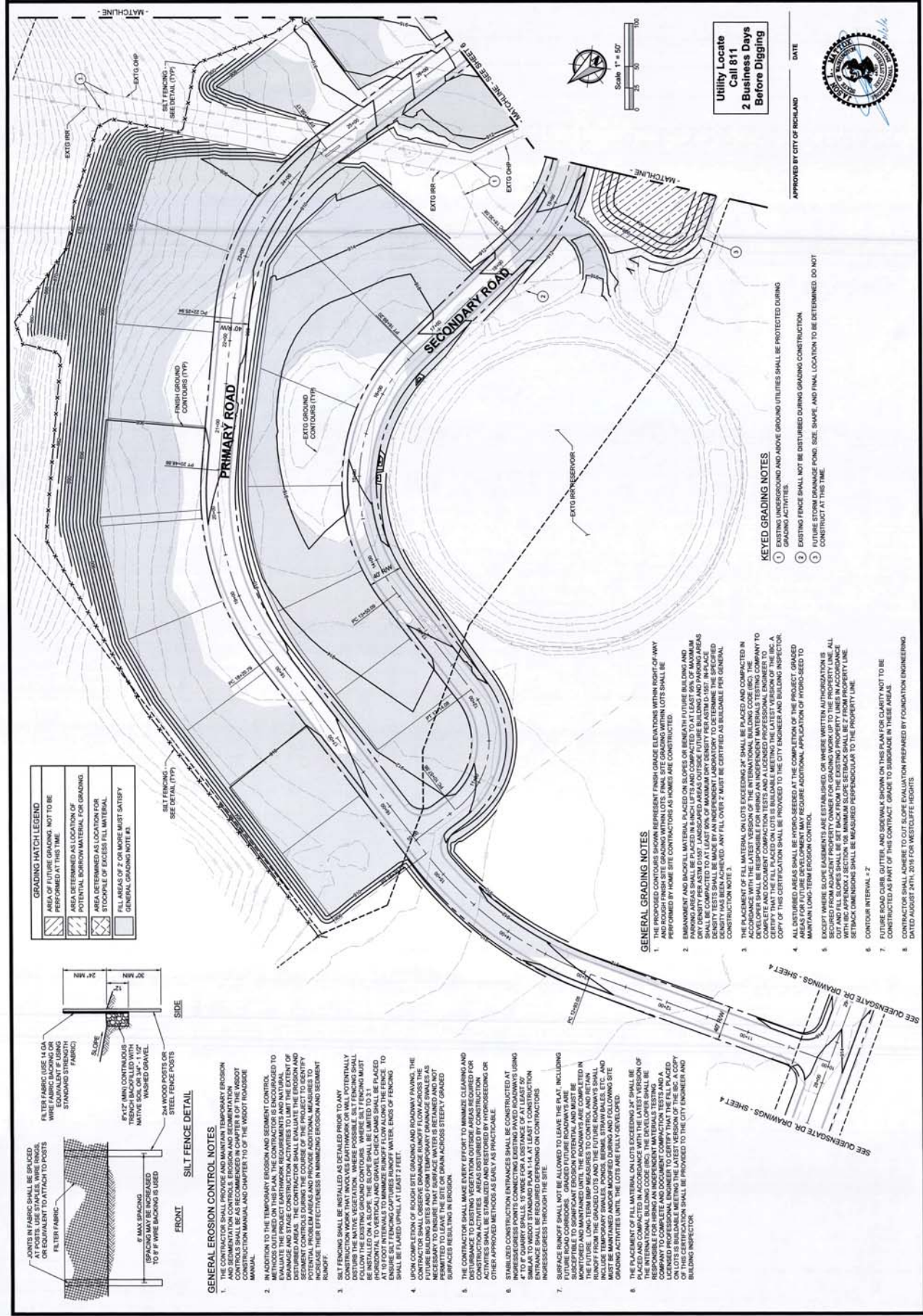


APPROVED BY CITY OF RICHLAND DATE

QUEENSGATE DRIVE PLAN AND PROFILE STA: 21+50 THRU END FOR:
WESTCLIFFE HEIGHTS
A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON

HDI
A DIVISION OF PBS
1615 BURMAN BLVD. SUITE E
RICHLAND, WA 99109-4119
509-527-4119
509-527-4120 FAX
WWW.HDIENGINEERING.COM

DESIGNED: MJS
DRAWN BY: MJS
CHECKED: JAM
SCALE: 1"=40'
V.N.A.
NOVEMBER 2016
423403
SHEET
4 7

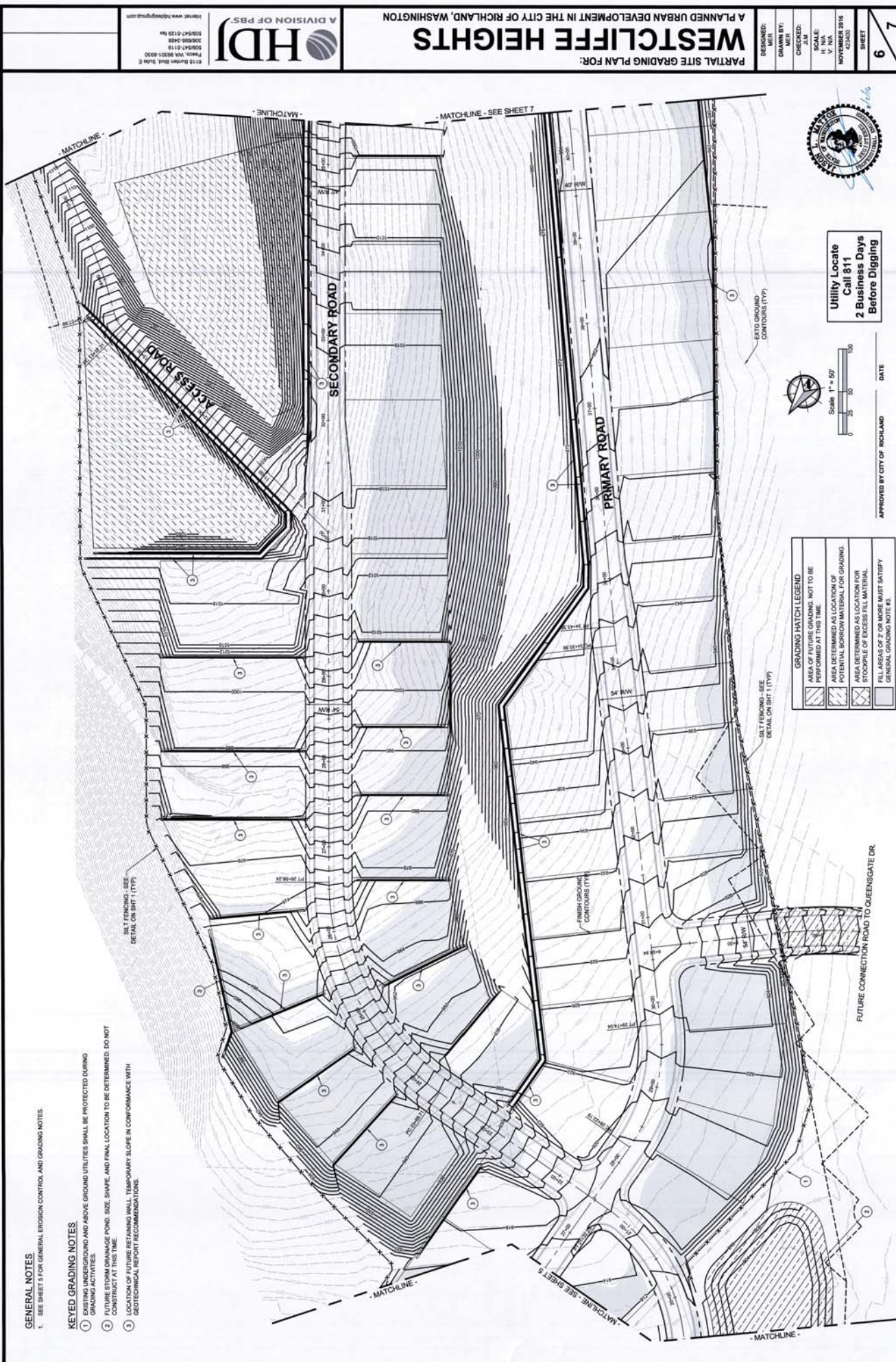


GENERAL NOTES

1. SEE SHEET 5 FOR GENERAL EROSION CONTROL AND GRADING NOTES.

KEYED GRADING NOTES

1. EXISTING UNDERGROUND AND ABOVE GROUND UTILITIES SHALL BE PROTECTED DURING GRADING ACTIVITIES.
2. FUTURE STORM DRAINAGE POND, SIZE, SHAPE, AND FINAL LOCATION TO BE DETERMINED. DO NOT CONSTRUCT AT THIS TIME.
3. LOCATION OF FUTURE RETAINING WALL. TEMPORARY SLOPE IN CONFORMANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS.



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GRADING HATCH LEGEND	
	AREA OF FUTURE GRADING, NOT TO BE PERFORMED AT THIS TIME
	AREA DETERMINED AS LOCATION OF STOCKPILE OF EXCESS FILL MATERIAL
	POTENTIAL EROSION MATERIAL FOR GRADING
	AREA DETERMINED AS LOCATION FOR STOCKPILE OF EXCESS FILL MATERIAL
	FILL AREAS OF 2' OR MORE MUST SATISFY GENERAL GRADING NOTE #1.

FUTURE CONNECTION ROAD TO QUEENSGATE DR.

APPROVED BY CITY OF RICHLAND _____ DATE _____

PARTIAL SITE GRADING PLAN FOR: WESTCLIFFE HEIGHTS A PLANNED URBAN DEVELOPMENT IN THE CITY OF RICHLAND, WASHINGTON



6115 BUCKINGHAM BLVD, SUITE 200
FARMERSVILLE, VA 22431-4800
PHONE: 540-893-5400
FAX: 540-893-5401
WWW.HDJGROUP.COM

DESIGNED: MER
DRAWN BY: MER
CHECKED: J.M.
SCALE: 1" = 40'
DATE: NOVEMBER 2014
PROJECT NO: 423400
SHEET: 6

7

**Utility Locate
Call 811
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Before Digging**

APPROVED BY CITY OF RICHLAND

DATE _____



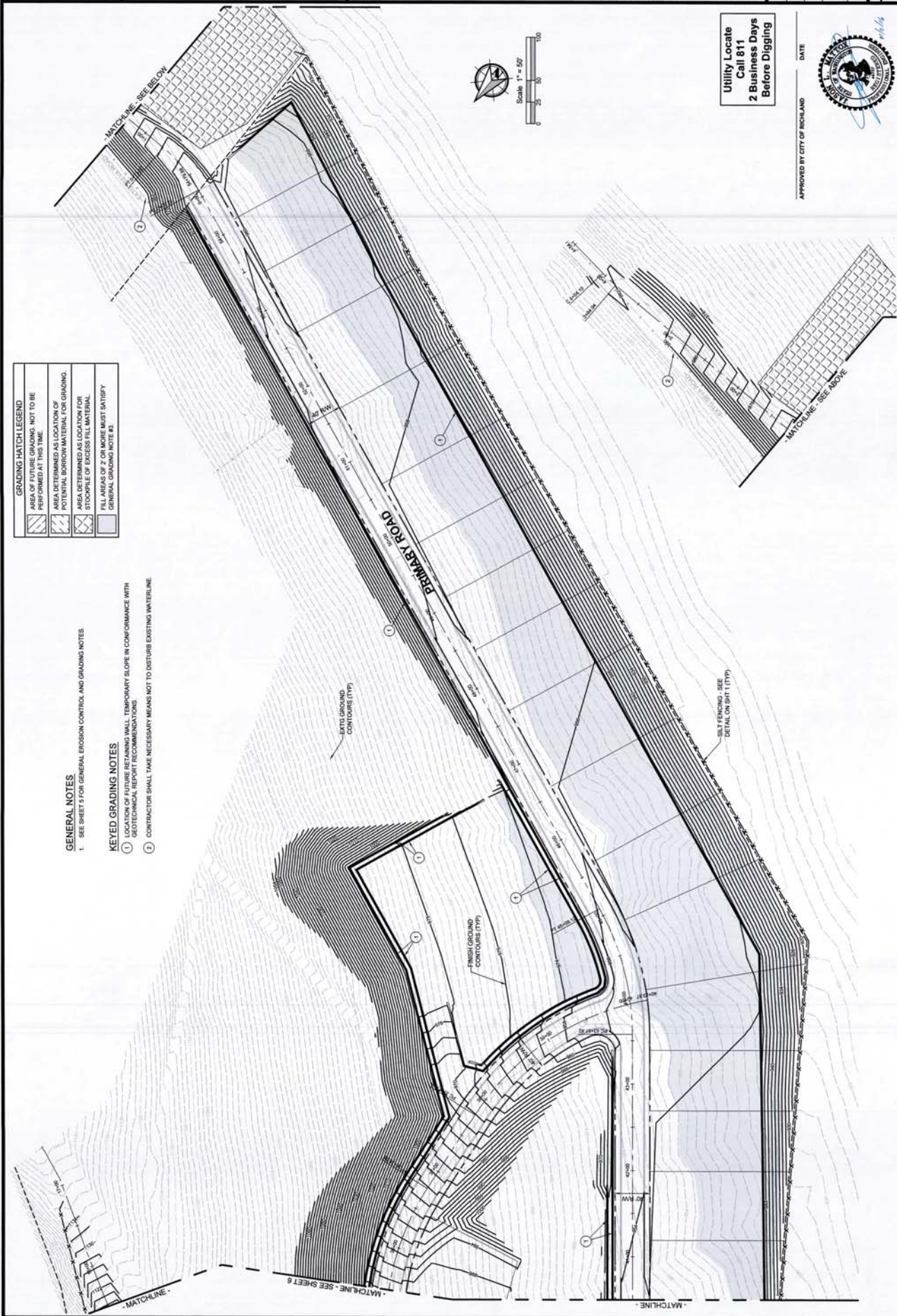
GRADING HATCH LEGEND	
	AREA OF FUTURE GRADING, NOT TO BE PERFORMED AT THIS TIME.
	AREA DETERMINED AS LOCATION OF POTENTIAL BORROW MATERIAL FOR GRADING.
	AREA DETERMINED AS LOCATION FOR STOCKPILE OF EXCESS FILL MATERIAL.
	FILL AREAS OF 2' OR MORE MUST SATISFY GENERAL GRADING NOTE #3.

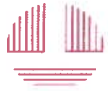
GENERAL NOTES

1. SEE SHEET 5 FOR GENERAL EROSION CONTROL AND GRADING NOTES.

KEYED GRADING NOTES

- 1 LOCATION OF FUTURE RETAINING WALL. TEMPORARY SLOPE IN CONFORMANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS
- 2 CONTRACTOR SHALL TAKE NECESSARY MEANS NOT TO DISTURB EXISTING WATERLINE





Date: August 24, 2016
To: Chad Bettesworth, P.E.
Director of Land Development
Pahlisch Homes
From: Timothy J. Pfeiffer, P.E., G.E.
Subject: Cut Slope Evaluation
Project: Westcliff Heights - Richland, Washington
Project #2162029



We understand Pahlisch Homes is planning a single-family housing development called Westcliff Heights, southwest of Richland, Washington (Figure 1). At your request, Foundation Engineering, Inc. visited the site to observe the performance of existing cut slopes and the materials exposed in several test pits located in proposed cut slope areas. Based on our observations, we were asked to provide recommendations for cut slopes planned for Westcliff Heights. A summary of the site conditions, observations and recommendations are provided herein.

SITE CONDITIONS

The site covers the southwest side of a ridge extending from a saddle at the northwest end of the site to a high point near the southeast corner. Two water reservoirs are located near the high point, and the access road to the reservoirs extends along the ridge to the northwest. The northeast side of the ridge is much steeper than the southwest side and has landforms characteristic of past slope movement. A site plan is included in Figure 2 (attached).

Surface Observations

The lower portion of the site below $\pm$ El. 1,000 is covered with silt, and the upper portion is predominately covered with basalt cobbles and gravel in a silt matrix. Geologic mapping shows the ridge is underlain by basalt folded into an anticline forming the ridge. The mapping also shows a covering of flood alluvium below $\pm$ El. 1,000. The geologic mapping is consistent with our observations.

We observed the performance of several existing excavation slopes to provide a reference for the proposed excavations. A cut slope on the north side of the ridge, northeast of TP-5, consisted of closely jointed basalt. The excavation slope was typically $\frac{3}{4}$:1 (H:V) and followed a preferred joint orientation. The slope appears to have been there for over a decade and was generally performing well except for ravel that had built up a small talus pile at the base of the slope.

We observed the excavations for the water reservoirs near the top of the ridge. These excavations were typically 1:1 and consisted of closely jointed basalt similar

to what was observed in the test pits. The excavation slopes were performing well with scattered areas of ravel.

We also observed the excavations for a development under construction southeast of the site. Temporary, near vertical excavations were under construction in material similar to the weathered basalt observed in the lower portion of the Westcliff Heights test pits. The excavation slopes observed were up to 10 feet high and these slopes did not appear to be intended to be finished slopes. Based on the close jointing observed, we would expect the unprotected slopes would ravel and perform poorly in the long term. To address the ravel and unsightly slopes, it appears that angular boulders were being stacked against the temporary rock excavations to form what appeared to be a rockery wall, but without the base width required for rockery wall supporting soil. Slopes with this finish appear to be performing well.

Subsurface Explorations

We observed the excavation of Test Pits 4 through 8 during the site visit. Test pits 1 through 3 were excavated before we arrived. The locations of the test pits are shown on Figure 2. We understand that detailed test pit logs will be prepared by others. Therefore, we only noted the soil and rock characteristics of the test pit excavations in relation to how the site materials will perform in cut slopes.

The test pits we observed were on the upper slopes and predominately in weathered basalt. In general, the test pit excavations encountered up to 3 feet of silt with gravel and cobble-sized basalt fragments. Caliche was observed in the soil and rock starting from ± 1 to 2 feet and extending down to ± 3 to 5 feet. Calcite infilling and staining of joint surfaces were observed in the weathered basalt. Typically, the silt with gravel and cobble-sized basalt fragments transitioned to weathered basalt between ± 3 and 5 feet. The basalt was typically moderately weathered and very weak (R1) to medium strong (R3) with close to very close jointing. Joints in the upper 5 feet were infilled with silt and caliche, and joints were commonly stained or infilled with calcite for the remainder of the excavation.

TP-4. Test Pit 4 was excavated near the center of the site, about half-way between the proposed upper and lower roads. The test pit encountered medium stiff to stiff silt with trace gravel to a depth of ± 3 feet with moderate caliche cement below two feet. From ± 3 to 7.5 feet the excavation encountered very weak to weak (R1 to R2) basalt with close jointing. Practical excavation refusal with a Kamatsu 400 LC was encountered at ± 7.5 feet.

TP-5. Test Pit 5 was excavated near the top of the ridge. The test pit encountered silty gravel with cobbles and boulders to a depth of ± 4 feet with moderate caliche cement below two feet. From ± 4 to 15 feet, the excavation encountered very weak to weak (R1 to R2) basalt with close jointing. From ± 15 to 19 feet, the excavation encountered an interflow zone consisting of hard, yellow-brown mottled grey, silty clay and clay with some sand and gravel. Lenses of hard, high plasticity clay were observed within the interflow zone.

TP-6. Test Pit 6 was excavated on the south side of the ridge, ± 150 feet from TP-2. The test pit encountered silty cobbles with gravel transitioning to weathered basalt at ± 3 feet. Moderate caliche cement was observed between ± 1 and 3 feet. From ± 3 to 10 feet, the excavation encountered very weak to medium strong (R1 to R3) basalt with close jointing. Practical excavation refusal was encountered at ± 10 feet. An additional test pit was excavated ± 20 feet downslope for observation of potential seepage during infiltration testing.

TP-7. Test Pit 7 was excavated southeast of Test Pit 4. The test pit encountered medium stiff to stiff silt with cobbles and gravel transitioning to weathered basalt at a depth of ± 4 feet. Moderate caliche cement was observed between ± 1.5 and 4 feet. From ± 4 to 9 feet the excavation encountered very weak to moderately strong (R1 to R3) basalt with close jointing. Practical excavation refusal was encountered at ± 9 feet.

TP-8. Test Pit 8 was excavated near the proposed cut area for the southeast end of the upper road. The test pit encountered cobbles and gravel with silt transitioning to weathered basalt at a depth of ± 3 feet. Moderate caliche cement was observed between ± 1.5 and 3 feet. From ± 3 to 13 feet, the excavation encountered very weak to moderately strong (R1 to R3) basalt with close jointing. Strong to very strong (R4 to R5) boulders (core stones) up to ± 1.5 feet in diameter were observed between ± 4 and 13 feet. Practical excavation refusal was encountered at ± 13 feet.

DISCUSSION

The selection of rock excavation methods (blasting vs ripping) should be left to the judgement of the excavation contractor. Based on the excavations observed, we expect that rock can be excavated by ripping using a suitably sized excavator working a face, or a suitable dozer with a single-tooth ripper. Isolated areas of less weathered basalt and fewer joints may require blasting or excavation with a hydraulic hammer. None of the material we observed in the test pits would be suitable for production of crushed rock aggregate.

We anticipate that the excavations for the upper road and the adjacent lots will encounter predominately weathered basalt below a depth of ± 3 feet. Based on the test pit observations, the basalt should be expected to be variable, but generally range from weak to medium strong with close jointing. Based on the performance of the test pit excavations and the observation of nearby cuts in similar material, we anticipate that cut slopes up to ± 15 feet high will temporarily stand nearly vertical. However, areas with unfavorable jointing may fail during excavation. Rock slopes steeper than 1:1 (H:V) are expected to ravel and produce frequent rockfall. The rock slopes are not expected to support vegetation and may be considered unsightly.

The adjacent development addressed the raveling and unsightly rock slopes by placing stacked angular basalt boulders on the slope in a rockery wall. If well-constructed, this slope treatment is expected to perform well. An alternative means of stabilizing the face is the construction of a shotcrete wall covering the face. The shotcrete can be sculpted and stained to provide a natural appearance.

We anticipate the construction of the rockery facing would be the less costly option. However, depending on the availability and cost of rock for the rockery facing, the sculpted shotcrete option could be cost-competitive.

The yellow-brown clay observed in the interflow zone in TP-5 is susceptible to high swell pressures and rapid degradation when exposed to moisture. This material is expected to swell and degrade rapidly when exposed. However, we anticipate that the extent of this material is limited to isolated areas and layers. Therefore, this material should be removed whenever it is encountered in excavations.

RECOMMENDATIONS

The following recommendations address the proposed rock cuts and assume we will be present during construction to observe the performance of the slopes.

1. Excavate permanent slopes in the silt and the upper 4 feet above the weathered rock no steeper than 1.5:1 (H:V). Cover exposed silt soil with erosion control matting until permanent erosion control is established.
2. Excavate temporary slopes in the weathered rock no steeper than 1:5 (H:V). Additional evaluations should be performed during construction for slopes taller than 15 feet.
3. Provide a rockery facing for any rock slope steeper than 1:1 (H:V).
4. Construct the rockery facing by placing angular basalt blocks against the temporary rock slope. Use angular, hard, durable rock at least 3-feet in diameter at the base of the slope and no less than 2 feet in diameter at the top.
5. Use a contractor experienced with the construction of rockery walls and carefully stack the basalt blocks to form a stable, well-filled mass.
6. Place the stones directly against the temporary rock slope and fill any voids with angular, crushed drain rock.

A Foundation Engineering representative should be contacted to confirm the assumed rock conditions during construction and provide additional recommendations as needed. We are available to provide additional recommendations for the construction of a sculpted shotcrete facing if requested

VARIATION OF SUBSURFACE CONDITIONS, USE OF REPORT AND WARRANTY

The data contained herein assumes the subsurface profiles encountered in the test pits are representative of the overall site conditions.

This memorandum was prepared for the exclusive use of Pahlisch Homes for the proposed Westcliff Heights Development in Richland, Washington. The scope of work is limited to the evaluation of the weathered rock for proposed cut slopes. Information contained herein should not be used for other sites or for unanticipated construction without our written consent. This memorandum is intended as a data report for planning and design by others. Contractors using this information to estimate construction quantities or costs do so at their own risk. Foundation

Engineering's services do not include any survey or assessment of potential surface contamination or contamination of the soil or ground water by hazardous or toxic materials. Foundation Engineering assumes those services, if needed, have been completed by others.

Our work was done in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.



FOUNDATION ENGINEERING INC.
 PROFESSIONAL GEOTECHNICAL SERVICES
 7857 SW CIRRHUS DRIVE, BLDG 24
 BEAVERTON, OR 97008
 BUS. (503) 643-1541

DATE AUG 2016
 DWN. DIJ
 APPR. _____
 REVIS. _____
 PROJECT NO.
 2162029

VICINITY MAP

WESTCLIFF HEIGHTS
 RICHLAND, WASHINGTON

FIGURE NO.

1



NOT TO SCALE



FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES

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DATE AUG 2016
DWN. DIJ
APPR. _____
REVIS. _____
PROJECT NO.
2162029

SITE PLAN

WESTCLIFF HEIGHTS
RICHLAND, WASHINGTON

FIGURE NO.

2



File No. EA2016-35

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal: Site grading within five parcels of land totaling 222 acres in preparation for a single family residential subdivision. Further SEPA review will be conducted upon receipt of a preliminary plat application.

Proponent: Mark Bauder

Location of Proposal: An irregularly shaped site generally lying west of Meadow Hills Drive and east of Bermuda Road, an area commonly referred to a "Little Badger Mountain"; Township 9 North, Range 28 East, Section 34, W.M.

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

- () There is no comment for the DNS.
- (X) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days. Comments must be submitted by **December 19, 2016.**
- () This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Shane O'Neill

Position/Title: Senior Planner

Address: P.O. Box 190, Richland, WA 99352

Date: December 2, 2016

Signature  _____



SEPA ENVIRONMENTAL CHECKLIST

UPDATED 2014

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND

1. Name of proposed project, if applicable: Westcliff Heights- Preliminary Plat

2. Name of applicant: Mark Bauder

3. Applicant contact information:

Address: 605 Summit Street

Richland, WA 99352

Phone #: 509-521-7479

email address: mborchards@aol.com

4. Date checklist prepared: January 10, 2017

5. Agency requesting checklist: City of Richland

6. Proposed timing or schedule (including phasing, if applicable):

Project Begin: Spring 2017

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Engineering plans would be permitted through City of Richland for infrastructure improvements. Project will apply for a grading permit through City of Richland, individual homes will apply for building permits.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A cut slope evaluation was completed by Foundation Engineering, Inc. dated 8/24/2016. A transportation consideration report was completed by Kittelson & Associates, Inc. dated 4/4/2016.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

Westcliff Heights Waterline Extension, grading permit and a SEPA associated with the project.

10. List any government approvals or permits that will be needed for your proposal, if known.

Grading permits, infrastructure permits through City of Richland, building permits through City of Richland.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal is to subdivide parcels 134981000005000, 134981000006006, 135983000001044 and 135983000001040, a combined 138.95 acres, to 203 residential lots. The property will be developed in accordance with the R-1-10 Single Family Residential zoning. The project would include the development of public infrastructure to include roads, water, sewer, and storm systems.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

These parcels are located in Section 34, Township 9 North, Range 28 East W.M. They are north of the I-82, and south of Queensgate Drive. (See attached preliminary plat for site plan location.)

...location cont'd:

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site

(circle one): Flat rolling hilly steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? +/- 85% %

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. The majority of the site is silty soil, while higher elevations contain basalt cobbles and gravel in a silt matrix, per Cut Slope evaluation by Foundation Engineering, Inc. (See attached)

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. There are existing steep slopes on site that appear to be stable with slight evidence of raveling in some locations. Portions of the site that are too steep will remain undeveloped, and identified as tracks.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The site will be graded to create residential lots and graded to build infrastructure that will serve those lots from the existing Queensgate Drive. All fill will be from material excavated on site, import of materials for grading is not anticipated.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Potential erosion, both wind blown and runoff, are possible as a result of construction and will be managed with a temporary erosion control plan approved by the City of Richland.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 22% of the site will be covered with impervious surfaces after the project completion and full build out of homes.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

During construction erosion control measures will be implemented such as person operated watering devices and silt fencing. After construction the majority of the disturbed surfaces on the site will be grass and landscaping consistent with single family yards.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. During construction there will be exhaust emissions from construction equipment as well as dust. After project completion there would be normal air emissions resulting from a residential neighborhood setting.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. No off site sources of emissions will affect this proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

During construction, emissions will be limited to working hours and dust will be controlled by person operated watering devices.

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is an irrigation pond, operated by Badger Mountain Irrigation District at the north east corner of the project.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes grading for the future roadway will happen within 200 feet of the irrigation pond.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals or diversions proposed with this project.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposed site does not lie within a 100-year floodplain

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposed project does not involve any discharge of waste materials to surface waters.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No ground water will be withdrawn or will water be discharged to the ground water with this proposal.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None, sanitary sewer will be discharged to the City municipal system.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater runoff will be collected within the roadway prism and disposed of via surface/subsurface methods consistent with the City of Richland standards for stormwater disposal. There will be no offsite discharges of stormwater proposed with this project.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

It is not anticipated that this will occur since waste materials are not allowed to be discharged to City owned and maintained storm systems.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposed project does not alter or otherwise affect the overall drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The stormwater disposal methods will be in compliance with City of Richland standards as well as the Washington State Department of Ecology Eastern Washington Stormwater Manual

4. Plants

a. Check the types of vegetation found on the site:

☐ deciduous tree: alder, maple, aspen, other

☐ evergreen tree: fir, cedar, pine, other

☒ shrubs

☒ grass

☐ pasture

☐ crop or grain

☒ Orchards, vineyards or other permanent crops.

☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

☐ water plants: water lily, eelgrass, milfoil, other

☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Grass and brush will be removed where grading will take place. Approximately 38 acres of orchard will be removed with the development of the project.

c. List threatened and endangered species known to be on or near the site.

There are no threatened or endangered species known to be on or near the site to the applicant's knowledge.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The single family residential lots will most likely be landscaped with grass and trees.

e. List all noxious weeds and invasive species known to be on or near the site.

There are no noxious weeds or invasive species known to be on or near the site to the applicant's knowledge.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other: _____

mammals: deer, bear, elk, beaver, other: ground squirrel

fish: bass, salmon, trout, herring, shellfish, other _____

- b. List any threatened and endangered species known to be on or near the site.

There are no threatened or endangered species known to be on or near the site to the applicant's knowledge.

- c. Is the site part of a migration route? If so, explain.

Yes, Richland is within the Pacific Flyway.

- d. Proposed measures to preserve or enhance wildlife, if any:

No measures are being proposed to preserve or enhance wildlife.

- e. List any invasive animal species known to be on or near the site.

There are no invasive animal species known to be on or near the site to the applicant's knowledge.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The project will require energy in order to serve the proposed homes with electricity and gas.

- b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.

This project has no impact to adjacent properties potential solar needs.

- c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

The proposed homes will be constructed in accordance with all applicable building codes as recognized by the City of Richland.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?

If so, describe.

There are no identified potential health hazards with this proposal.

- 1) Describe any known or possible contamination at the site from present or past uses.

There are no known or possible contamination at the site from present or past uses to the applicant's knowledge.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None to the applicant's knowledge.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None.

- 4) Describe special emergency services that might be required.

None.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

None at this time.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

There are no known sources of noise in the area that will directly affect this proposal. The project is near existing agricultural uses and will experience seasonal noises due to the maintenance and production of agricultural products.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)?
Indicate what hours noise would come from the site.

On a short term basis there will be noise associated with infrastructure construction, hours of operation will be limited to those allowed by the City of Richland. The proposed project will increase the traffic in the area consistent with single family residential neighborhoods on a long term basis.

- 3) Proposed measures to reduce or control noise impacts, if any:

Construction hours will be limited to working hours defined by the City of Richland.

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Currently the site and adjacent properties are vacant, single family homes, or being used for agricultural purposes. This proposal will not affect nearby land uses.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

Approximately 38 acres of orchard land will be converted to single family residential homes.

- i) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: The proposal does not anticipate any adverse impacts on ag ground, and does not anticipate that current ag practices will effect the development.

- b. Describe any structures on the site.

There is an existing residence on Parcel 135983000001040.

- d. Will any structures be demolished? If so, what?

Yes, the existing residence on-site will be removed.

- e. What is the current zoning classification of the site?

R-1-10: Single Family Residential

- f. What is the current comprehensive plan designation of the site?

~~Single Family Residential~~ LOW-DENSITY RESIDENTIAL

SEO
3.3.17

- g. If applicable, what is the current shoreline master program designation of the site?

Not Applicable.

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

There are steep slopes throughout the site that qualify as critical areas.

- i. Approximately how many people would reside or work in the completed project?

The preliminary plat would allow for the development of multiple single family housing with approximately 500 residents.

- j. Approximately how many people would the completed project displace?

None.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

Existing residence to be removed from the site will be replaced by a new construction home.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: The site is to be built in accordance with City of Richland residential zoning and comprehensive plan requirements.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

None

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

203 single family homes are being proposed.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

One existing residence will be removed.

c. Proposed measures to reduce or control housing impacts, if any:

Housing impacts will be controlled by the City of Richland zoning code for an R-1-10 designation.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of any building would be limited by the R-1-10 zoning code at 30 feet. The principal exterior building materials could vary but would most likely be either wood siding or stucco.

b. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity would be altered or obstructed by this project.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Aesthetics would be controlled by the City of Richland zoning code for R-1-10.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The project would create light from the required city street lights as well as outside lighting on the residential homes. This light would be created during the evening hours.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not to the applicant's knowledge.

c. What existing off-site sources of light or glare may affect your proposal?

There are no off-site sources of light or glare that will affect the project proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

All proposed lighting measures would be directed downward.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Badger Mountain Park and various city parks located in the residential neighbors. Badger Mountain Hiking Trails are located 1.0 miles to the west and the Meadow Springs Country Club (golf course) is located 0.75 miles east of the site.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Applicant is open to providing informal hiking opportunities in the area and link other trails that are in the vicinity of the site.

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

Not to the applicant's knowledge.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

Applicant/family has been the principal land owner for several decades and is not aware of any cultural or historical resources that are present on-site.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

None.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

Queensgate Extension/Bermuda Road, Rachel Road, Morency Drive.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No, the closest stop is 3-5 miles away.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The project would have the ability to provide on-street parking as well as driveway at each individual home.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Yes, the project will require the development of new public streets to be extended to the site as well as the development of the internal roadway system to serve the single family homes.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Approximately 2,030 vehicular trips per day will be generated by the completed project. Peak volumes would occur in the morning and evening hours ITE Trip Generation Manual was used for estimation of traffic generated by single family residential development.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No

h. Proposed measures to reduce or control transportation impacts, if any:

Project would seek to develop offsite roadway to extend Queensgate Drive to the site.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

This project will result in the need for fire protection, police protection, schools, and other public services associated with housing development.

b. Proposed measures to reduce or control direct impacts on public services, if any.

The plat will be subject to impact fees implemented by the City and School District. Properties created by the project would be subject to local taxes and levies imparted by the local jurisdiction.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. Utilities to include water, sewer, refuse service, and electricity will be provided by the City of Richland. Irrigation will be provided by Badger Mountain Irrigation District, the natural gas provider in the area is Cascade Natural Gas, and telephone is provided by CenturyLink and Charter Communications. New sanitary sewer, water, and irrigation mains, as well as dry utilities will need to be extended into the project in order to service the lots.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Mark Bauder

Name of signee: Mark Bauder

Position and Agency/Organization: OWNER

Date Submitted: 1/19/17

Community & Economic Development Department

This application was reviewed by the Planning Division of the Community & Economic Development Department. Any comments or changes made by the Department are entered in the body of the checklist and contain initials of the reviewer.

[Signature] 3.3.2017
Reviewer Signature Date

D. supplemental sheet for nonproject actions



Memorandum

Date: August 24, 2016
To: Chad Bettesworth, P.E.
Director of Land Development
Pahlisch Homes
From: Timothy J. Pfeiffer, P.E., G.E.
Subject: Cut Slope Evaluation
Project: Westcliff Heights - Richland, Washington
Project #2162029



We understand Pahlisch Homes is planning a single-family housing development called Westcliff Heights, southwest of Richland, Washington (Figure 1). At your request, Foundation Engineering, Inc. visited the site to observe the performance of existing cut slopes and the materials exposed in several test pits located in proposed cut slope areas. Based on our observations, we were asked to provide recommendations for cut slopes planned for Westcliff Heights. A summary of the site conditions, observations and recommendations are provided herein.

SITE CONDITIONS

The site covers the southwest side of a ridge extending from a saddle at the northwest end of the site to a high point near the southeast corner. Two water reservoirs are located near the high point, and the access road to the reservoirs extends along the ridge to the northwest. The northeast side of the ridge is much steeper than the southwest side and has landforms characteristic of past slope movement. A site plan is included in Figure 2 (attached).

Surface Observations

The lower portion of the site below $\pm$ El. 1,000 is covered with silt, and the upper portion is predominately covered with basalt cobbles and gravel in a silt matrix. Geologic mapping shows the ridge is underlain by basalt folded into an anticline forming the ridge. The mapping also shows a covering of flood alluvium below $\pm$ El. 1,000. The geologic mapping is consistent with our observations.

We observed the performance of several existing excavation slopes to provide a reference for the proposed excavations. A cut slope on the north side of the ridge, northeast of TP-5, consisted of closely jointed basalt. The excavation slope was typically $\frac{3}{4}$:1 (H:V) and followed a preferred joint orientation. The slope appears to have been there for over a decade and was generally performing well except for ravel that had built up a small talus pile at the base of the slope.

We observed the excavations for the water reservoirs near the top of the ridge. These excavations were typically 1:1 and consisted of closely jointed basalt similar

to what was observed in the test pits. The excavation slopes were performing well with scattered areas of ravel.

We also observed the excavations for a development under construction southeast of the site. Temporary, near vertical excavations were under construction in material similar to the weathered basalt observed in the lower portion of the Westcliff Heights test pits. The excavation slopes observed were up to 10 feet high and these slopes did not appear to be intended to be finished slopes. Based on the close jointing observed, we would expect the unprotected slopes would ravel and perform poorly in the long term. To address the ravel and unsightly slopes, it appears that angular boulders were being stacked against the temporary rock excavations to form what appeared to be a rockery wall, but without the base width required for rockery wall supporting soil. Slopes with this finish appear to be performing well.

Subsurface Explorations

We observed the excavation of Test Pits 4 through 8 during the site visit. Test pits 1 through 3 were excavated before we arrived. The locations of the test pits are shown on Figure 2. We understand that detailed test pit logs will be prepared by others. Therefore, we only noted the soil and rock characteristics of the test pit excavations in relation to how the site materials will perform in cut slopes.

The test pits we observed were on the upper slopes and predominately in weathered basalt. In general, the test pit excavations encountered up to 3 feet of silt with gravel and cobble-sized basalt fragments. Caliche was observed in the soil and rock starting from ± 1 to 2 feet and extending down to ± 3 to 5 feet. Calcite infilling and staining of joint surfaces were observed in the weathered basalt. Typically, the silt with gravel and cobble-sized basalt fragments transitioned to weathered basalt between ± 3 and 5 feet. The basalt was typically moderately weathered and very weak (R1) to medium strong (R3) with close to very close jointing. Joints in the upper 5 feet were infilled with silt and caliche, and joints were commonly stained or infilled with calcite for the remainder of the excavation.

TP-4. Test Pit 4 was excavated near the center of the site, about half-way between the proposed upper and lower roads. The test pit encountered medium stiff to stiff silt with trace gravel to a depth of ± 3 feet with moderate caliche cement below two feet. From ± 3 to 7.5 feet the excavation encountered very weak to weak (R1 to R2) basalt with close jointing. Practical excavation refusal with a Kamatsu 400 LC was encountered at ± 7.5 feet.

TP-5. Test Pit 5 was excavated near the top of the ridge. The test pit encountered silty gravel with cobbles and boulders to a depth of ± 4 feet with moderate caliche cement below two feet. From ± 4 to 15 feet, the excavation encountered very weak to weak (R1 to R2) basalt with close jointing. From ± 15 to 19 feet, the excavation encountered an interflow zone consisting of hard, yellow-brown mottled grey, silty clay and clay with some sand and gravel. Lenses of hard, high plasticity clay were observed within the interflow zone.

TP-6. Test Pit 6 was excavated on the south side of the ridge, ± 150 feet from TP-2. The test pit encountered silty cobbles with gravel transitioning to weathered basalt at ± 3 feet. Moderate caliche cement was observed between ± 1 and 3 feet. From ± 3 to 10 feet, the excavation encountered very weak to medium strong (R1 to R3) basalt with close jointing. Practical excavation refusal was encountered at ± 10 feet. An additional test pit was excavated ± 20 feet downslope for observation of potential seepage during infiltration testing.

TP-7. Test Pit 7 was excavated southeast of Test Pit 4. The test pit encountered medium stiff to stiff silt with cobbles and gravel transitioning to weathered basalt at a depth of ± 4 feet. Moderate caliche cement was observed between ± 1.5 and 4 feet. From ± 4 to 9 feet the excavation encountered very weak to moderately strong (R1 to R3) basalt with close jointing. Practical excavation refusal was encountered at ± 9 feet.

TP-8. Test Pit 8 was excavated near the proposed cut area for the southeast end of the upper road. The test pit encountered cobbles and gravel with silt transitioning to weathered basalt at a depth of ± 3 feet. Moderate caliche cement was observed between ± 1.5 and 3 feet. From ± 3 to 13 feet, the excavation encountered very weak to moderately strong (R1 to R3) basalt with close jointing. Strong to very strong (R4 to R5) boulders (core stones) up to ± 1.5 feet in diameter were observed between ± 4 and 13 feet. Practical excavation refusal was encountered at ± 13 feet.

DISCUSSION

The selection of rock excavation methods (blasting vs ripping) should be left to the judgement of the excavation contractor. Based on the excavations observed, we expect that rock can be excavated by ripping using a suitably sized excavator working a face, or a suitable dozer with a single-tooth ripper. Isolated areas of less weathered basalt and fewer joints may require blasting or excavation with a hydraulic hammer. None of the material we observed in the test pits would be suitable for production of crushed rock aggregate.

We anticipate that the excavations for the upper road and the adjacent lots will encounter predominately weathered basalt below a depth of ± 3 feet. Based on the test pit observations, the basalt should be expected to be variable, but generally range from weak to medium strong with close jointing. Based on the performance of the test pit excavations and the observation of nearby cuts in similar material, we anticipate that cut slopes up to ± 15 feet high will temporarily stand nearly vertical. However, areas with unfavorable jointing may fail during excavation. Rock slopes steeper than 1:1 (H:V) are expected to ravel and produce frequent rockfall. The rock slopes are not expected to support vegetation and may be considered unsightly.

The adjacent development addressed the raveling and unsightly rock slopes by placing stacked angular basalt boulders on the slope in a rockery wall. If well-constructed, this slope treatment is expected to perform well. An alternative means of stabilizing the face is the construction of a shotcrete wall covering the face. The shotcrete can be sculpted and stained to provide a natural appearance.

We anticipate the construction of the rockery facing would be the less costly option. However, depending on the availability and cost of rock for the rockery facing, the sculpted shotcrete option could be cost-competitive.

The yellow-brown clay observed in the interflow zone in TP-5 is susceptible to high swell pressures and rapid degradation when exposed to moisture. This material is expected to swell and degrade rapidly when exposed. However, we anticipate that the extent of this material is limited to isolated areas and layers. Therefore, this material should be removed whenever it is encountered in excavations.

RECOMMENDATIONS

The following recommendations address the proposed rock cuts and assume we will be present during construction to observe the performance of the slopes.

1. Excavate permanent slopes in the silt and the upper 4 feet above the weathered rock no steeper than 1.5:1 (H:V). Cover exposed silt soil with erosion control matting until permanent erosion control is established.
2. Excavate temporary slopes in the weathered rock no steeper than 1:5 (H:V). Additional evaluations should be performed during construction for slopes taller than 15 feet.
3. Provide a rockery facing for any rock slope steeper than 1:1 (H:V).
4. Construct the rockery facing by placing angular basalt blocks against the temporary rock slope. Use angular, hard, durable rock at least 3-feet in diameter at the base of the slope and no less than 2 feet in diameter at the top.
5. Use a contractor experienced with the construction of rockery walls and carefully stack the basalt blocks to form a stable, well-filled mass.
6. Place the stones directly against the temporary rock slope and fill any voids with angular, crushed drain rock.

A Foundation Engineering representative should be contacted to confirm the assumed rock conditions during construction and provide additional recommendations as needed. We are available to provide additional recommendations for the construction of a sculpted shotcrete facing if requested.

VARIATION OF SUBSURFACE CONDITIONS, USE OF REPORT AND WARRANTY

The data contained herein assumes the subsurface profiles encountered in the test pits are representative of the overall site conditions.

This memorandum was prepared for the exclusive use of Pahlisch Homes for the proposed Westcliff Heights Development in Richland, Washington. The scope of work is limited to the evaluation of the weathered rock for proposed cut slopes. Information contained herein should not be used for other sites or for unanticipated construction without our written consent. This memorandum is intended as a data report for planning and design by others. Contractors using this information to estimate construction quantities or costs do so at their own risk. Foundation

Engineering's services do not include any survey or assessment of potential surface contamination or contamination of the soil or ground water by hazardous or toxic materials. Foundation Engineering assumes those services, if needed, have been completed by others.

Our work was done in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

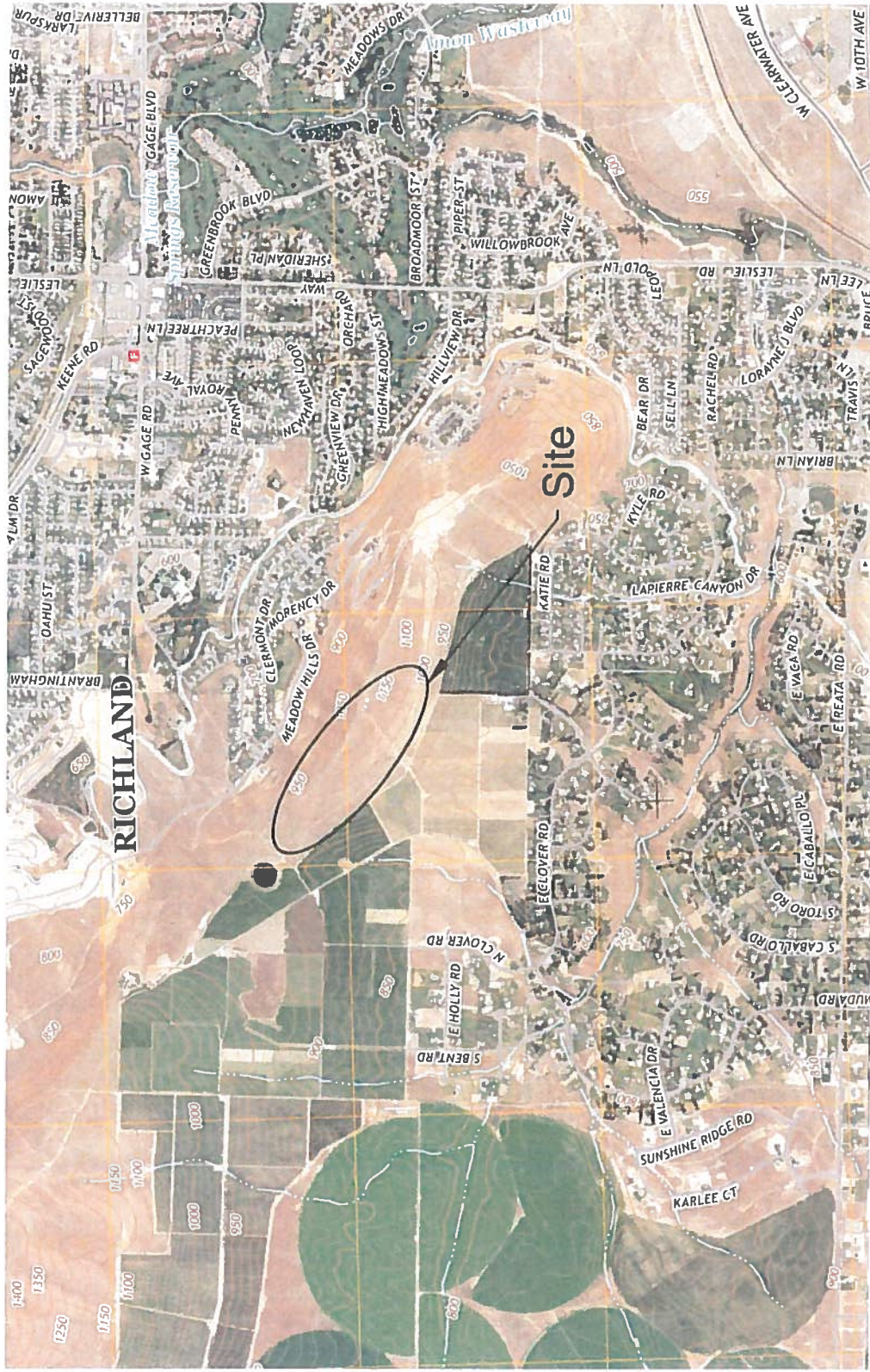


FIGURE NO.

1

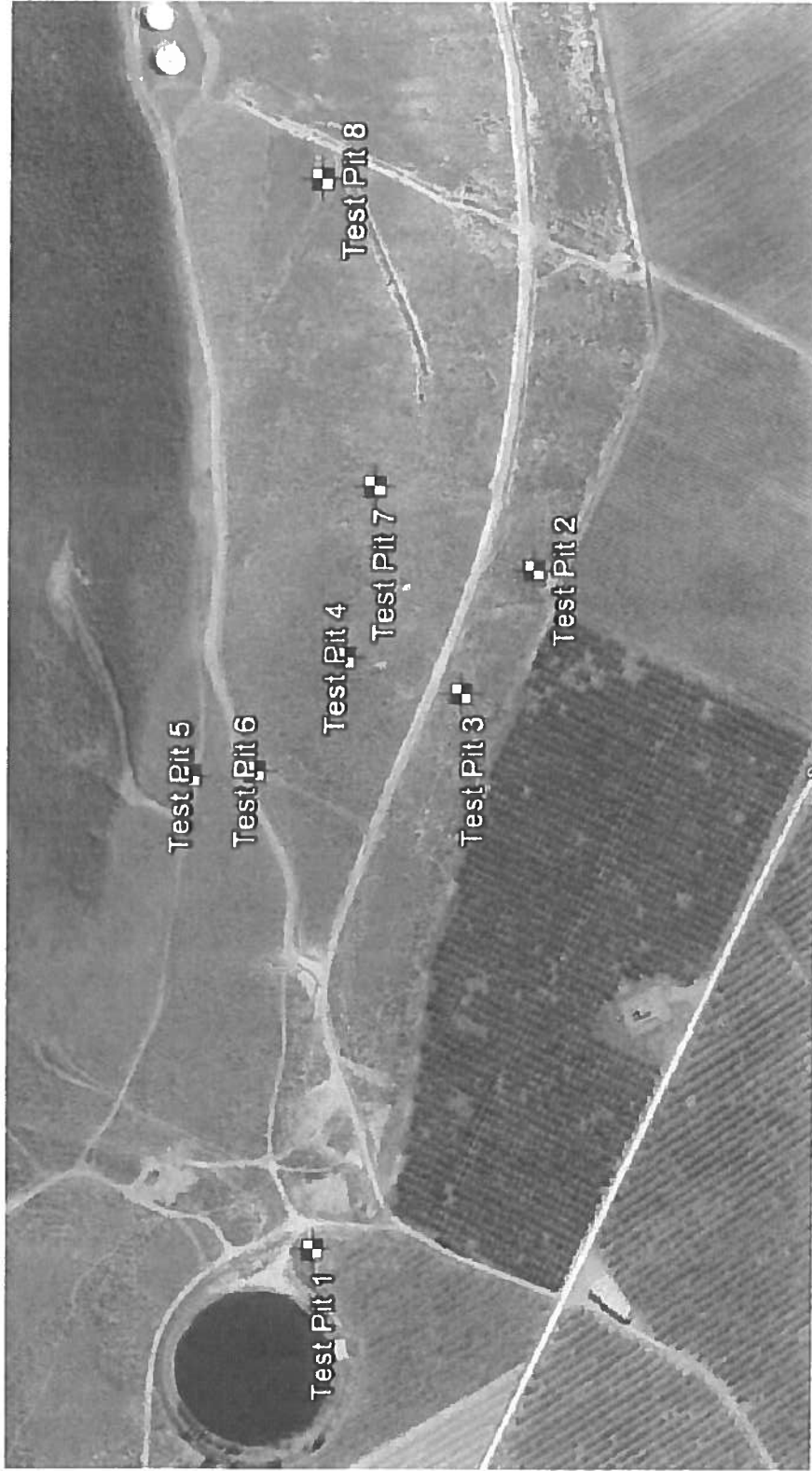
VICINITY MAP

WESTCLIFF HEIGHTS
RICHLAND, WASHINGTON

DATE AUG 2016
DWN. DJJ
APPR. _____
REVIS. _____
PROJECT NO. 2162029

FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES
7657 SW CIRRUS DRIVE, BLDG 24
BEAVERTON, OR 97008
BUS. (503) 643-1541

FILE NAME: FIG 1 - VICINITY MAP



NOT TO SCALE



FOUNDATION ENGINEERING INC.
 PROFESSIONAL GEOTECHNICAL SERVICES
 7857 SW CIRRIUS DRIVE, BLDG 24
 BEAVERTON, OR 97008
 BUS. (503) 643-1541

DATE AUG 2016
 DWN. DJJ
 APPR. _____
 REVIS. _____
 PROJECT NO. 2162029

SITE PLAN
 WESTCLIFF HEIGHTS
 RICHLAND, WASHINGTON

FIGURE NO.

2



File No. EA2017-04

CITY OF RICHLAND
Mitigated Determination of Non-Significance

Description of Proposal: A preliminary plat to subdivide 140.3 acres into 203 lots together with 11 tracts, to allow for the future construction of single-family homes and a private community center building.

Proponent: Mark Bauder

Location of Proposal: Benton County Tax Parcel #'s: 1-34981000005000, 1-34981000006006, 1-35983000001044 & 1-35983000001040; located north of N. Jurupa Street and south of Morency Court, in an area locally referred to as Little Badger Mountain

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment contingent upon the following mitigation measures:

- 1 Prior to the City accepting the first phase final plat, the proponent must have performed and submit to the City the results of a site-wide geologic hazards study and technical report. Said geologic technical report shall include assurance in the form of a letter from the geologic consultant who prepared the required study and report stating that the activity creates minimal risk of danger to life or property on or off the project site.
- 2 The off-site portion of Queensgate Drive and "Primary Drive" shall be constructed to the City's standard rural road section at the same time that phase 1 is constructed.
- 3 The Westcliffe Heights residential subdivision, or any subsequent name thereof, is subject to dedication or payment of fees for park, recreation and open space land in accordance with the provisions of Richland Municipal Code Section 22.12.
- 4 The Westcliffe Heights residential subdivision, or any subsequent name thereof, is subject to payment of traffic impact fees in accordance with the provisions of Richland Municipal Code Chapter 12.03.
- 5 Stormwater control measures shall be implemented during construction activities, utilizing best management practices in accordance with the Storm Water Control

Manual for Eastern Washington and as identified by permit conditions issued by the City of Richland and or the Washington State Department of Ecology.

- 6 An erosion control plan shall be prepared by the applicant and submitted to the City of Richland for review and approval. Erosion control measures shall be maintained throughout the construction of the project.
- 7 If during grading and construction activities archeological resources are uncovered, the developer shall suspend work in that particular area and contact the Washington State Office of Archeology and Historic Preservation to determine a plan for mitigation of the disturbance to the resource.

() There is no comment for the MDNS.

(XX) This MDNS is issued under WAC 197-11-350(; the lead agency will not act on this proposal for fourteen (14) days. Comments must be submitted by **March 22, 2017**

() This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

Responsible Official: Shane O'Neill

Position/Title: Senior Planner

Address: 840 Northgate Drive, Richland, WA 99352

Date: Issued March 7, 2017

Signature  _____

COMMENTS

The following comments provide some explanation for the rationale used in arriving at the decision to issue a Mitigated Determination of Non-Significance:

Geology

Richlands Comprehensive Plan (Figure LU-2) identifies the project site as a geologic hazard area due to the presence of steep slopes. Westcliffe Heights is proposed on the southwest slope of a large hill locally known as “Little Badger” which has a peak elevation of 1,200 feet. The northeast side of the ridge is much steeper than the southwest side and has landforms characteristic of past slope movement. Due to the general condition of steep slopes on-site and within the surrounding vicinity the City expresses concern over the sites potential susceptibility to geologic hazards including landslides, erosion and/or seismic activity. As such, the city is calling for a site-wide geologic hazards study and technical report in accordance with Richland Municipal Code Section 22.10.240.

Transportation

Queensgate Drive is identified in Richlands Comprehensive Plan as an arterial collector roadway. Off-site construction of Queensgate Drive together with a “primary drive” identified on the preliminary plat is necessary to serve the proposed subdivision. Prior to city acceptance of the phase 1 final plat of Westcliffe Heights, Queensgate Drive and the “primary drive” shall be constructed to the City’s standard rural road section standard.

Parks & Open Space

To assure adequate park and recreational site and facilities are properly located, developed and preserved to meet the recreational needs of the residents of the city’s neighborhoods and to equitably apportion on the basis of the additional need created by individual developments, the cost of providing park and recreational sites and facilities necessary to serve the additional families brought into the community by new development, the city will assess parks fees at the time of building permit issuance.

ONeill, Shane

From: BMID Manager <bmidmanager@badgermountainirrigation.com>
Sent: Tuesday, April 25, 2017 11:20 AM
To: O'Neill, Shane
Subject: RE: Pre-Plat Review
Attachments: BMIDReservoir and Bypass.pdf

Shane,

Regarding our conversation for comment on the Westcliffe Heights Pre Plat. The Right of Way we would like around our Reservoir and Bypass I have attached a view of both with GPS points for you. We would like to see at least a 20' around the Bypass and Air/Vac due to the 42" check valve that is in the ground outside of the cage. The grading for this property cannot be higher than our reservoir and will need to have some kind of break or drainage ditch in order to keep any water from running into the reservoir. If the BMID Pipeline is included inside of Tract C along with PUD we would be fine with the size of the current easement. If it ends up running through any lot lines we would like to see an easement of 25' from center line of the pipeline on each side of the line which would be a 50' easement overall due to the size and depth of this line. At this time I have no more comments until I see plans for construction. Thanks

Colby Getchell

District Manager
bmidmanager@badgermountainirrigation.com
Badger Mountain Irrigation District
87525 E. Reata Rd.
Kennewick, WA 99338
509-531-2938 (Cell)
509-628-0777 (Office)
509-628-0112 (Fax)



BMD Irrigation Reservoir Latitude: 46°13'21.00"N Longitude: 119°17'44.96"W

Air Relief/Vac and Bypass Latitude: 46°13'20.75"N Longitude: 119°17'37.60"W

© 2016 Google

Google Earth

feet
meters

100

600



Google Earth



Exhibit 8

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

March 16, 2017

Shane O'Neill
City of Richland
PO Box 190
Richland, WA 99352

Re: EA2017-04

Dear Mr. O'Neill:

Thank you for the opportunity to comment on the mitigated determination of nonsignificance for the Westcliff Heights subdivision of 140.3 acres into 203 lots and 11 tracts. This project is proposed by Mark Bauder. We have reviewed the documents and have the following comments.

WATER QUALITY

Project with Potential to Discharge Off-Site

The NPDES Construction Stormwater General Permit from the Washington State Department of Ecology is required if there is a potential for stormwater discharge from a construction site with disturbed ground. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit is a minimum of a 38 day process and may take up to 60 days if the original SEPA does not disclose all proposed activities.

The permit requires that Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) is prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water (this includes storm drains) by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading or construction.

More information on the stormwater program may be found on Ecology's stormwater website at: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/>. Please submit an application or contact **Lloyd Stevens Jr.** at the Dept. of Ecology, (509) 574-3991, with questions about this permit.

TOXICS CLEAN-UP

Based upon the historical agricultural use of this land, there is a possibility the soil contains residual concentrations of pesticides. Ecology recommends that the soils be sampled and



Mr. O'Neill
March 16, 2017
Page 2

analyzed for lead and arsenic, and for organochlorine pesticides. If these contaminants are found at concentrations above the Model Toxics Control Act cleanup levels Ecology recommends that potential buyers be notified of their occurrence.

If you have any questions or would like to respond to these Toxics Clean-up comments, please contact **Valerie Bound** at (509) 454-7886 or email at valerie.bound@ecy.wa.gov.

Sincerely,



Gwen Clear
Environmental Review Coordinator
Central Regional Office
(509) 575-2012
crosepacoordinator@ecy.wa.gov

From: Craig Whiteley <treasurer@crestedhills.com>
Sent: Tuesday, April 25, 2017 9:08 PM
To: ONeill, Shane
Cc: *CITY COUNCIL; Simon, Rick; David Culley; Mollie Schlotthauer; Hammond, David & Beth
Subject: Westcliff Heights Preliminary Plat - Notice of Application - S2017-101
Attachments: S2017-101 - Crested Hills HOA.pdf

Dear Mr. O'Neill,

On behalf of nearly 200 property owners, and over 500 City of Richland residents, the Crested Hills Homeowners Association (HOA) Board of Directors would like to provide input to the application for preliminary plat approval of **Westcliff Heights** (S2017-101). Please include the attached letter to the hearing examiner application package. Crested Hills has been dealing with traffic over capacity issues for over a decade, and the application to develop **Westcliff Heights**, just like the application for **The Reserve at Summerview Terrace** a month ago, will make our current situation worse.

We respectfully request that the City of Richland deny approval of **Westcliff Heights** preliminary plat until adequate infrastructure is factored into the application. We look forward to sharing our concerns with the Hearings Examiner on May 4, 2017.

Sincerely,
Crested Hills HOA Board of Directors

Exhibit 8

April 26, 2017

Mr. Shane O'Neill
City of Richland – Senior Planner
840 Northgate Drive
P.O. Box 190
Richland, WA 99352

SUBJECT: ***Westcliff Heights*** Preliminary Plat

Reference: Notice of Application - S2017-101

Dear Mr. O'Neill:

As a follow-up to our March 14, 2017 letter providing input on the preliminary plat application for ***The Reserve at Summerview Terrace*** (S2017-100), the Crested Hills Homeowners Association (HOA) Board of Directors would like to provide input on the application for the preliminary plat of ***Westcliff Heights*** (S2017-101). There are a number of similarities between the ***Summerview Terrace*** and ***Westcliff Heights*** preliminary plat applications, and combined represent a potentially significant impact to Crested Hills in terms of additional traffic which will result in a direct safety impact to the 500 City of Richland residents living within our HOA boundary. A partial list of similarities include the following:

- Both of the preliminary plats are adjacent to the Crested Hills subdivision and both will bring additional traffic into our already over-capacity road system.
- Both applications ignore, or do not attempt to mitigate, the need for additional collector road infrastructure to support the increased traffic.
- Both applications plan to use local streets to connect to Crested Hills which is inconsistent with Richland municipal code section **12.02.070 Local Streets**, which states that “***Local streets provide direct access from abutting property to the collector street. They are typically an internal subdivision road and service to through traffic is deliberately discouraged.***” {underlined for emphasis}
- Both applications are inconsistent with Policy 3 of Transportation Element, Goal 4 of the City of Richland Comprehensive Plan which states that “***New residential collector street corridors should be designed and constructed through areas***

that are not already developed with single family housing” and “Existing local residential streets should not be converted into collector street routes.”

- Both applications do not take into consideration a previous decision made by the Richland City Council in 2011, during approval of the Falcon Crest subdivision, that no additional traffic shall be routed into Crested Hills without the proper collector road system being installed by the requesting developer.

The City of Richland planning commission and city council record shows that Crested Hills has struggled with over-capacity and unsafe residential streets for over a decade. The 2011 Falcon Crest Traffic Study supports this fact. Just like the Falcon Crest application in 2011 (S2011-101), the Crested Hills HOA would strongly encourage the City of Richland to incorporate adequate street infrastructure into the S2017-101 preliminary plat application process. Without some additional collector roads factored into the development, many of the additional 2,030 additional trips per day documented in the Washington State Environmental Policy Act (SEPA) checklist for ***Westcliff Heights*** will rely on Morency Drive as a quicker route to Gage Boulevard and Keene Road, rather than travelling on Rachel Road over to Leslie Road.

Once the connection has been made between ***Westcliff Heights*** and Crested Hills, there is the potential for thousands of additional trips to enter Crested Hills from existing residents of ***El Rancho Reata*** subdivision. This impact is not considered in the environmental traffic impact included in the SEPA checklist associated with this application. The Benton County property website shows 320 homes in four phases of ***El Rancho Reata*** which would equate to approximately 3,200 trips per day. Without a traffic study to understand the full impact, residents of Crested Hills might experience 50% of the combined ***Westcliff Heights*** and ***El Rancho Reata*** traffic – which would add over 2,500 additional trips per day through Crested Hills, creating an impossible traffic congestion situation. **The City of Richland cannot and must not let this happen!**

The Crested Hills HOA is suggesting that the City look at ways to make the ***Westcliff Heights*** connection to Morency Drive an emergency access only route until the remainder of collector roads are installed (e.g. future Queensgate Drive, etc.) and only available in the event of a fire or other emergency situation. This type of access would be consistent with the access currently in place in Crested Hills on the south-east tie in to Meadow Hills Drive limiting travel to Leslie Road for emergency vehicles only.

Based on a telephone conversation with Tavis Hatfield of the Benton County Road Department on April 24, 2017, the county has not been asked to provide input to this application. Mr. Hatfield went on to say that Benton County has not changed its position

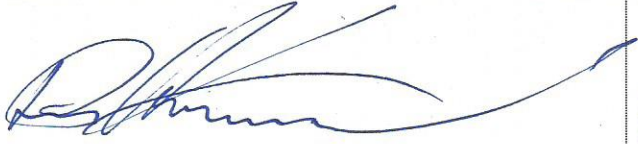
Mr. Shane O'Neill
April 26, 2017

about declining access to Rachel Road until developer funded road improvements are included as a condition of approval. Improvements to Rachel Road are not mentioned in the preliminary plat application.

We will close this letter exactly as we did with the March 14, 2017 letter related to the ***Reserve at Summerview Terrace***. Property owners have a right to develop their property but they do not have the right to impact surrounding residents by over loading the residential street capacities in adjacent subdivisions. Please do not continue to perpetuate the problem of approving more subdivisions in South Richland without holding developers responsible for ensuring that adequate infrastructure is included as part of the subdivision preliminary plat application process. Residents have no leverage to force developers to install adequate infrastructure for new subdivisions so we must rely on the City of Richland, as our representative, to ensure residents are not impacted by poor land use planning decisions.

We respectfully request that the City of Richland deny approval of ***Westcliff Heights*** preliminary plat until adequate infrastructure is factored into the application.

Sincerely,

Crested Hills Homeowners Association Board of Directors	
 David Culley, President 709 Meadow Hills Drive	 Mollie Schlotthauer, Secretary 2199 Morency Drive
 David Hammond, Member-at-Large 953 Meadow Hills Drive	 Craig Whiteley, Treasurer 2108 Morency Drive

CC: Richland City Council - citycouncil@ci.richland.wa.us
Rick Simon, COR Development Services Manager - RSimon@ci.richland.wa.us

ONeill, Shane

From: Craig Whiteley <treasurer@crestedhills.com>
Sent: Sunday, April 23, 2017 11:39 AM
To: O'Neill, Shane; Simon, Rick
Cc: Culley, David E; culleyman@gmail.com; ranbswanson@yahoo.com; mbsing@hotmail.com; David
Subject: S2017-101 Little Badger - North of N. Jurupa Street and south of Morency

Shane or Rick,

Can you please send all information you have concerning Mark Bauder's proposed subdivision south of Little Badger Mountain (S2017-101)? Specifically, the Crested Hills Homeowners association is very interested in the road infrastructure related to how this preliminary plat will tie into the rest of the South Richland collector roads. If you have the City report available I would appreciate getting a copy of that document too. I hope the City of Richland realizes how impactful this development could be if a connection is made to Falcon Crest via Morency Drive.

Thank you in advance for any information you can send us.

Regards,

Craig Whiteley and the rest of the
Crested Hills Homeowners Association Board of Directors

O'Neill, Shane

From: Carl Connell <cwconnelljr@gmail.com>
Sent: Monday, April 17, 2017 9:49 AM
To: O'Neill, Shane
Cc: Carl Connell; rosanita@casastewart.com; djbarnard@aol.com; judy.connell@fluor.com; junochoe@sbcglobal.net; tammyshin@hotmail.com; xsiwang@yahoo.com; rob@barnardgriffin.com; suecarnevali@me.com
Subject: CITY OF RICHLAND PUBLIC HEARING NOTICE (S2017-101)
Attachments: PastedGraphic-1.png; ATT00001.htm; City of Richland, WA Public Hearing Notices.pdf; ATT00002.htm

Mr. O'Neill, my wife Judy and I reside at 2520 Falconcrest Loop, a 5-year old Bauder-developed community that borders the proposed new subdivision on Little Badger Mountain. Judy and I are unavailable to provide personal comments at the hearing on May 4, and there respectfully submit these written comments for consideration during the upcoming proceedings.

The Falconcrest community has not yet been fully developed (there are approximately 46 lots total, with 13 residences built, and 3 under construction [not sold]), and now, this new undertaking for 203 lots is being planned. Our major concern is **congestion and safe ingress and egress from the current Falconcrest residences as well as the new proposed community**. Currently only ONE road goes to the top of Little Badger Mountain - Morency Drive, which becomes Falconcrest Loop. The road has hairpin turns, is treacherous in bad weather, and even under good conditions, can barely accommodate one car in each direction.. There is no other way into, or out of, Falconcrest. Further, in addition to current residents navigating Falconcrest hill and connecting Morency Drive, view seekers and potential buyers frequent the road - already creating potentially dangerous conditions.

Before additional development is approved, new city-maintained roads with the appropriate lighting, curbing, and sidewalks must be planned, cut, and paved. Safety - under normal, off-normal, and emergency conditions - is our concern and should be the concern of the City. The Falconcrest hill and Morency Drive must NOT remain the only available conveyance. Neither should they become the "preferred" route because of convenience or the lack of city maintenance.

We therefore request that the petition for the new development be denied UNLESS additional roads are built to accommodate the increased residential traffic.

Respectfully submitted.
Carl & Judy Connell

From: Rob Griffin <rob@barnardgriffin.com>
Sent: Tuesday, April 18, 2017 2:41 PM
To: O'Neill, Shane
Cc: Carl Connell; rosalita@casastewart.com; djbarnard@aol.com; judy.connell@fluor.com; junochoe@sbcglobal.net; tammyshin@hotmail.com; xsiwang@yahoo.com; Rob Griffin; suecarnevali@me.com
Subject: CITY OF RICHLAND PUBLIC HEARING NOTICE (S2017-101)

From: Robert Griffin, Deborah Barnard

To: Mr. Shane O'Neill, Senior Planner

My wife Deborah Barnard and I built a home on Falconcrest Loop in 2013 and therefore we live adjacent to the area proposed by Mark Bauder as **Westcliffe Heights**. It is our belief that the current access roads (Morency to Falconcrest Loop) are insufficient to service what might very well be a tenfold increase in traffic. It is reasonable to assume that the Morency-Falconcrest route will become a major and probably preferred access to the proposed development. From strictly an experiential point of view it is not reasonable to presume that the existing roads can safely accommodate such a massive increase in traffic. It is a matter of concern that Morency Dr. crosses an entirely residential neighborhood with many children. Our concerns regarding emergency access and dangerous overuse are succinctly and articulately stated by Mr. Carl Connell in his letter of 4/17/17 (see below) and we respectfully request that our names be amended to those of the Connells expressing that the **petition be denied** until such time as additional roads are built and existing roads are modified to handle increased traffic safely.

Submitted 4/18/17,

Robert Griffin, Deborah Barnard
 2524 Falconcrest Loop
 Richland, WA 99352

(Text of letter from Carl Connell to Shane O'Neill)

Mr. O'Neill, my wife Judy and I reside at 2520 Falconcrest Loop, a 5-year old Bauder-developed community that borders the proposed new subdivision on Little Badger Mountain. Judy and I are unavailable to provide personal comments at the hearing on May 4, and there respectfully submit these written comments for consideration during the upcoming proceedings.

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residences as well as the new proposed community. Currently only ONE road goes to the top of Little Badger Mountain - Morency Drive, which becomes Falconcrest Loop. The road has hairpin turns, is treacherous in bad weather, and even under good conditions, can barely accommodate one car in each direction.. There is no other way into, or out of, Falconcrest. .Further, in addition to current residents navigating Falconcrest hill and connecting Morency Drive, view seekers and potential buyers frequent the road - already creating potentially dangerous conditions.

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Respectfully submitted.
Carl & Judy Connell

ONeill, Shane

From: Mollie Schlotthauer <mbsing@hotmail.com>
Sent: Sunday, April 23, 2017 11:22 PM
To: Craig Whiteley; O'Neill, Shane; Simon, Rick
Cc: Culley, David E; culleyman@gmail.com; ranbswanson@yahoo.com; David
Subject: Re: S2017-101 Little Badger - North of N. Jurupa Street and south of Morency

I'm not kidding when I say this traffic stuff is making me reconsider my homes location. If the city is unwilling to support our neighborhood, I don't know that we'll be staying here for more than a couple of years.

Mollie

Sent from [Outlook](#)

From: Craig Whiteley <treasurer@crestedhills.com>
Sent: Sunday, April 23, 2017 11:38 AM
To: soneill@ci.richland.wa.us; RSimon@CI.RICHLAND.WA.US
Cc: Culley, David E; culleyman@gmail.com; ranbswanson@yahoo.com; mbsing@hotmail.com; David
Subject: S2017-101 Little Badger - North of N. Jurupa Street and south of Morency

Shane or Rick,

Can you please send all information you have concerning Mark Bauder's proposed subdivision south of Little Badger Mountain (S2017-101)? Specifically, the Crested Hills Homeowners association is very interested in the road infrastructure related to how this preliminary plat will tie into the rest of the South Richland collector roads. If you have the City report available I would appreciate getting a copy of that document too. I hope the City of Richland realizes how impactful this development could be if a connection is made to Falcon Crest via Morency Drive.

Thank you in advance for any information you can send us.

Regards,

Craig Whiteley and the rest of the

Crested Hills Homeowners Association Board of Directors

Exhibit 8

To: Shane O'Neill, Senior Planner

soneill@ci.richland.wa.us

City of Richland, Public Hearing Notice (S2017-101)

Our address is 2715 Katie Rd and our property is adjacent to the proposed application for preliminary approval to subdivide an approximately 140.3 acre site into 203 single family residential lots.

Unfortunately we are not available to attend the public hearing scheduled for Thursday, May 4, 2017. However, we do have concerns with the proposed application.

In accordance with Richland Municipal Code, Chapter 24.16.290, residential lots which have street frontage along two opposite boundaries shall be avoided (full text included below). Our quality of life will be drastically altered should our property have two opposite street boundaries, which will happen should this application be approved. We are one of many who will be in the same situation. An active street that can be accessed from our backyard by children and pets also raises safety concerns as well as the noise level created by being bounded by streets on the front and back yards. We believe that there are multiple alternatives that would facilitate a safe and quality driven subdivision in the proposed area. Movement of the roadway so that houses backyards border each other; creation of a parkway (not just a sidewalk) of significance that would create a buffer zone between the Katie Rd. houses and N. Jurupa Street; creation of a park or natural habitat area between the Katie Rd. houses and N. Jurupa Street; Complete removal of N. Jurupa Street.

I respectfully request that this application be denied until such time that the applicant provides an acceptable alternative to this potential code violation.

Should you desire, I would be happy to discuss this with you further and at your convenience. I also encourage you to continue to reach out to the Katie Rd. neighborhood and continue discussions associated with this application.

Thank you for your time and consideration of our concerns.

Donald and Barbara Hawkins

2715 Katie Rd

Kennewick, WA 99338

(509) 396-0826

24.16.260 Lots – Double frontage.

Residential lots which have street frontage along two opposite boundaries shall be avoided except for reverse-frontage lots which are essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation. For such lots, there shall be an easement in favor of the appropriate governmental entity for a planting screen at least 10 feet wide along the lot lines abutting such a traffic arterial or other disadvantageous use across which there shall be no right of access. [Ord. 73 § 4.26].



CITY OF RICHLAND PUBLIC HEARING NOTICE (S2017-101)

Notice is hereby given that Mark Bauder on February 3, 2017, filed an application for preliminary plat approval to subdivide an approximately 140.3 acre site into 203 single family residential lots (Preliminary Plat of Westcliffe Heights). The proposed plat is located north of N. Jurupa Street and south of Meadow Hills Drive, in an area locally referred to as Little Badger Mountain. The proposed plat would have an average lot size of 14,557 square feet.

The Richland Hearings Examiner, on Thursday, May 4, 2017, will conduct a public hearing and review of the application at 6:00 p.m. in the Richland City Hall Council Chambers, 505 Swift Boulevard. All interested parties are invited to attend and present testimony at the public hearing.

Any person desiring to express their views or to be notified of any decisions pertaining to this application should notify Shane O'Neill, Senior Planner, 840 Northgate Drive, Richland, WA 99352. Comments may also be faxed to (509) 942-7587 or emailed to sonell@ci.richland.wa.us. Written comments should be received no later than 5:00 p.m. on Wednesday, April 25, 2017 to be incorporated into the staff report. Comments received after that date will be entered into the record at the hearing.

The application will be reviewed in accordance with the regulations in RMC Title 19 Development Regulations Administration and Title 24 Plats and Subdivisions. Appeal procedures of decisions related to the above referenced application are set forth in RMC Chapter 19.70. Contact the Richland Planning Division at the above referenced address with questions related to the available appeal process.



(S2017-101 – Westcliffe Heights)

**RICHLAND PLANNING COMMISSION
TECHNICAL ADVISORY COMMITTEE REPORT
MAY 4, 2017**

APPLICANT: MARK BAUDER

REQUEST: PRELIMINARY PLAT APPROVAL TO SUBDIVIDE 140.3 ACRES INTO
203 RESIDENTIAL LOTS, (WESTCLIFFE HEIGHTS)

LOCATION: IMMEDIATELY SOUTH OF THE INTERSECTION OF FERRARA LANE
AND SICILY LANE (WESTCLIFFE)

ENGINEER: PBS ENGINEERING

TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

The Technical Advisory Committee conducted a review of the request and recommends that if the preliminary plat is approved, such approval be subject to the following conditions:

Pre-Plat Specific Corrections:

1. Tract "D" should be labeled as a "Storm Drainage Tract" and not as "Future Development", per discussions with the developer and his engineer.
2. The BMID pond needs to be shown on sheet 1.

General Conditions:

3. Portions of the plat are subject to the City's wild land fire protection requirements. To ensure that future lot buyers are properly informed of the specific wild land fire requirements, the following note shall be placed on the final plat: *"The following lots within the plat are subject to the City's Wild Land Fire Protection requirements as delineated in Richland Municipal Code Section 21.01.030 or as they may be subsequently modified. Lots 1-19 shall be subject to these requirements. All structures built on these lots must be developed with non-combustible siding, soffit and skirting on the side adjacent to the wild-land area. Decks or porches 36 inches or less in height shall have skirting if within 30 feet of adjacent wild-land areas when the wild-land area is in excess of five contiguous acres. Skirting shall be sufficiently constructed so as not to allow the accumulation of combustible material under the deck or porch. The area under the deck or porch shall not be used for storage."*
4. Subsequent final plat phases shall be designed and submitted in substantial conformance with the preliminary plat referenced in the May 4, 2017 staff report (Exhibit 1).
5. Dedication of Tract C referenced as Exhibit 1 in the May 4, 2017 staff report, to the City of Richland Parks and Public Facilities Department shall fully satisfy parks impact fee payment requirements for all lots belonging to Westcliffe Heights.
6. All final plans for public improvements shall be submitted prior to pre-con on a 24" x 36" hardcopy format and also electronically in .dwg format compatible with the City's standard CAD software. Addendums are not allowed, all information shall be supplied in the specified 24 x 36 (and electronic) format. When construction of the infrastructure has been substantially completed, the applicant shall provide paper, mylar and electronic record drawings in accordance with the City's

"Record Drawing Requirements". The electronic as-built record drawings shall be submitted in AutoCAD format compatible with the City's standard CAD software. Electronic copies of the construction plans are required prior to the pre-con meeting, along with the multiple sets of paper drawings. The mylar record drawings (including street lights) shall be submitted and approved by the City before the final punchlist inspection will be performed. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.

7. Any and all necessary permits that may be required by jurisdictional entities outside of the City of Richland shall be the responsibility of the developer to obtain.
8. A copy of the construction drawings shall be submitted for review to the appropriate jurisdictions by the developer and his engineer. All required comments / conditions from all appropriate reviewing jurisdictions (e.g.: Benton County, any appropriate irrigation districts, other utilities, etc.) shall be incorporated into one comprehensive set of drawings and resubmitted (if necessary) for final permit review and issuance.
9. Any work within the public right-of-way or easements or involving public infrastructure will require the applicant to obtain a right-of-way permit prior to construction. A plan review and inspection fee in the amount equal to 5% of the construction costs of the work within the right-of-way or easement will be collected at the time the permit is issued. A stamped, itemized Engineers estimate (Opinion of probable cost) and a copy of the material submittals shall be submitted along with the final plan submittal.
10. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. After approval by the City of the paper copy, a mylar copy of the record drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
11. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of the final plat. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of plat acceptance. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for plat acceptance.
12. A pre-construction conference will be required prior to the start of any work within the public right-of-way or easement. Contact the Civil and Environmental Engineering Division at 942-7500 to schedule a pre-construction conference.
13. Site plan drawings which involve the construction of public infrastructure shall be drawn on a standard 24" x 36" drawing format to a scale which shall not be less than 1"= 40'.
14. All plan sheets involving construction of public infrastructure shall have the stamp of a current Washington State licensed professional engineer.
15. All construction plan sheets shall include the note "CALL TWO WORKING DAYS BEFORE YOU DIG 1-800-424-5555 (or "811")." Or: <http://www.call811.com/>
16. An irrigation source and distribution system, entirely separate from the City's domestic water system, shall be provided for this development. *Construction plans will not be accepted for review until adequate and viable proof of an irrigation source is made available by the developer.* The

designing Engineer shall submit plans for the proposed irrigation system to the Irrigation District with jurisdiction over the property at the same time that they are submitted to the City for construction review. Plans shall be reviewed and accepted by said irrigation district prior to issuance of a Right-of-Way permit by the City. Easements shall be provided on the final plat for this system where needed.

17. A copy of the preliminary plat shall be supplied to the Post Office and all locations of future mailbox clusters approved prior to final platting.

Design Standards:

18. Public improvement design shall follow the following general format:
 - A. Sanitary sewer shall be aligned on the north and west side of street centerlines.
 - B. Storm sewer shall be aligned on the south and east side of street centerlines.
 - C. Any sewer or storm manholes that are installed outside of public Right of Way shall have an acceptable 12-foot wide gravel access road (minimum) provided from a public street for maintenance vehicles.
 - D. 10-foot horizontal spacing shall be maintained between domestic water and sanitary sewer mainlines and service lines.
 - E. Water lines shall be aligned on the south and east side of street centerlines.
 - F. Watermains larger than 8-inches in diameter shall be ductile iron.
 - G. Watermains installed outside of the City Right of Way or in very rocky native material, shall be ductile iron and may need restrained joints.
 - H. All watermains outside areas zoned R1 shall be ductile iron.
 - I. Fire hydrant location shall be reviewed and approved by the City Fire Marshal.
 - J. Sewer mains over 15-feet deep shall be constructed out of SDR26 PVC, C900 PVC or ductile iron. The entire main from manhole to manhole shall be the same material. Private sewer service lines over 15-feet deep shall also be constructed of the same material, then transition to regular sewer piping above 15-feet.
 - K. All utilities shall be extended to the adjacent property (properties) at the time of construction.
 - L. The minimum centerline finish grade shall be no less than 0.30 % and the maximum centerline finish grade shall be no more than 10.0 % for local streets.
 - M. The minimum centerline radius for local streets shall be 100-feet.
 - N. Any filling of low areas that may be required within the public Right of Way shall be compacted to City standards.
 - O. A overall, composite utility plan shall be included in the submitted plan set if the project is phased. This comprehensive utility plan benefits all departments and maintenance groups involved in the review and inspection of the project.
 - P. A detailed grading plan shall be included in the submitted plan set.
 - Q. For public utilities not located within public street rights-of-way the applicant shall provide maintenance access acceptable to the City and the applicant shall provide an exclusive 10-foot wide public utility easement (minimum) to be conveyed to the City of Richland.
 - R. Final design of the public improvements shall be approved at the time of the City's issuance of a Right-of-way Construction Permit for the proposed construction.
 - S. All public improvements shall comply with the State of Washington and City of Richland requirements, standards and codes.
 - T. All cul-de-sacs shall have a minimum radius of 45-feet to the face of curb to allow for adequate turning radius of fire trucks and solid waste collection vehicles.
 - U. Curb returns at minor intersections shall have a minimum radius of 25-feet. Curb returns at major intersections should have minimum radius of 30-feet but should be evaluated on a case by case basis.
 - V. All public streets shall meet design requirements for sight distance (horizontal, vertical and intersectional).

- W. The final engineered construction plans shall identify locations for irrigation system, street lighting, gas service, power lines, telephone lines, cable television lines, street trees and mail boxes. All electrical appurtenances such as transformers, vaults, conduit routes, and street lights (including their circuit) need to be shown in the plan view.
 - X. Construction plans shall provide or reference all standard drawings or special details that will be necessary to construct all public improvements which will be owned, operated, maintained by the City or used by the general public (Commercial Driveway, Curb, Gutter, Sidewalk, Water, Sewer, Storm, Street and Street lighting etc.).
 - Y. The contractor shall be responsible for any and all public infrastructure construction deficiencies for a period of one year from the date of the letter of acceptance by the City of Richland.
19. If the project will be built in phases the applicant shall submit a master plan for the sanitary sewer, domestic water, storm drainage, electrical, street lighting and irrigation system for the entire project prior to submitting plans for the first phase to assure constructability of the entire project. This includes the location and size of any storm retention ponds that may be required to handle runoff.
20. If the City Fire Marshal requires a secondary emergency vehicle access, it shall be included in the construction plan set and be designed to the following standards:
- A. 2-inches compacted gravel, minimum (temp. SEVA only).
 - B. 2% cross-slope, maximum.
 - C. 5% slope, maximum. Any access road steeper than 5% shall be paved or be approved by the Fire Marshal.
 - D. Be 20-feet in width.
 - E. Have radii that are accommodating with those needed for City Fire apparatus.
- Secondary emergency vehicles accesses (SEVA's) shall be 20-feet wide, as noted. Longer secondary accesses can be built to 12-feet wide with the approval of the City of Richland Fire Marshal, however turn-outs are required at a spacing acceptable to the Fire Dept. Temporary SEVA's shall be constructed with 2-inches of compacted gravel, at a minimum. Permanent SEVA's shall be paved with 2-inches of asphalt over 4-inches of gravel, at a minimum.
21. **SURVEY MONUMENT DESTRUCTION:**
All permanent survey monuments existing on the project site shall be protected. If any monuments are destroyed by the proposed construction, the applicant shall retain a professional land surveyor to replace the monuments and file a copy of the record survey with the City.
- A. No survey monument shall be removed or destroyed (*the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible*) before a permit is obtained from the Department of Natural Resources (DNR). WAC 332-120-030(2) states "It shall be the responsibility of the governmental agency or others performing construction work or other activity (including road or street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." (RCW 58.09.130).
 - B. Any person, corporation, association, department, or subdivision of the state, county or municipality responsible for an activity that may cause a survey monument to be removed or destroyed shall be responsible for ensuring that the original survey point is perpetuated. (WAC 332-120-030(2)).
 - C. Survey monuments are those monuments marking local control points, geodetic control points, and land boundary survey corners. (WAC 332-120-030(3)).

When a monument must be removed during an activity that might disturb or destroy it, a licensed Engineer or Land Surveyor must complete, sign, seal and the file a permit with the DNR.

It shall be the responsibility of the designing Engineer to identify the affected monuments on the project plans and include a construction note directing them to the DNR permit.

Traffic & Streets:

22. The Westcliffe Heights preliminary plat lies within the boundary of the South Richland Collector Street Financing Plan (RMC 12.03). This plat shall therefore be subject to the fees administered by the finance plan for any phase submitted for approval. Since this property is included within the Financing Plan, it is exempt from the SEPA-related traffic study requirement (TIA). The developer of this proposed project shall receive "credits" for construction of Queensgate Drive as allowed under the City's South Richland Collector Street Financing Plan.
23. The off-site portion of Queensgate Drive and "Primary Drive" shall be constructed to the City's standard rural road section at the same time that phase 1 is constructed.
24. The maximum centerline finish grade for the proposed Queensgate Drive shall be no more than 10%.
25. NEW COMMENT: The vision-clearance triangle needs to be shown on all corner lots on both the construction plans and the final plat document, in accordance with RMC Chapter 12.11.020. If the intersection is in a curve, it will have to be evaluated per AASHTO guidelines. This information may need to be designed by the engineer of record and supplied to the surveyor of record for inclusion into the final plat document.
26. All proposed Right of Ways that are narrower than 54-feet shall have parking restricted, as per City standards. Street signs indicating restricted parking shall be installed prior to final platting at the developers expense. The restricted parking areas shall be indicated on the construction plans and the final plat.
27. All private roads shall be constructed to provide for adequate fire truck & solid waste collection truck access & turnaround movements.
28. Any private roads narrower than 34-feet shall have parking restricted on one side, and any roads 28-feet or narrower shall have parking restricted on both sides. Street signs indicating restricted parking shall be installed prior to final platting at the developers expense.
29. Sidewalks shall be installed along all public Right of Way frontages that building lots do not front on during construction of those phases (e.g., storm drainage ponds, parks, etc.).
30. If the project is to be constructed in phases, all dead-end streets longer than 150-feet that will be continued later need to have temporary turn-arounds built at the end of them. The radius of these turn-arounds shall be 45-feet minimum, and shall be constructed of 2-inches of compacted top course gravel for slopes less than 5%, or of 2-inches of asphalt atop 2-inches of gravel for slopes greater than 5%. If the temporary turn around is not located within the final plat an easement with a 50-foot radius will be required.

Domestic Water:

31. The proposed preliminary plat is located within both the Tapteal 4 and 5 water pressure zones. It shall be the responsibility of the developer to install the appropriate infrastructure to serve domestic water at the correct pressure(s) to the entire plat. This may require parallel water mains in some roads.
32. There are existing water mains within the boundary of this preliminary plat. As development proceeds over these mains it shall be the responsibility of the developer to re-lay them at the correct depth and/or relocate them to be within future Right of Ways.
33. The developer will be required to demonstrate that all phases are capable of delivering adequate fire flows prior to construction plans being accepted for review. This may require looping of the watermain from off-site locations, or oversizing of water mains where needed.
34. Domestic water shall be extended to the adjoining properties adjacent to the plat.
35. The fire hydrant layout shall be approved by the City Fire Marshal.

Sanitary Sewer:

36. There are multiple off-site locations available to extend sanitary sewer to this project. It shall be the responsibility of the developer to extend a sewer main to this property to serve sanitary sewer at the time of plat construction.
37. Sanitary sewer shall be extended to all adjoining uphill properties adjacent to the plat.
38. A 10-foot wide exclusive sanitary sewer easement shall be provided for any sewer main that is outside of the public Right-of-Way. Wider easements are required for mains that are buried deeper than 10-feet. If any manholes are located outside of the public Right-of-Way, maintenance truck access to said structure may be required.

Storm Water:

39. This project may require coverage under the Washington State General NPDES Permit for Construction projects. The Developer shall be responsible for compliance with the permit conditions. The City has adopted revised standards affecting the construction of new stormwater facilities in order to comply with conditions of its NPDES General Stormwater Permit program. This project, and each phase thereof, shall comply with the requirements of the City's stormwater program in place at the time each phase is engineered. The project will require detailed erosion control plans.
40. All storm drainage systems shall be designed following the core elements defined in the latest edition of the Stormwater Management Manual for Eastern Washington. The Hydrologic Analysis and Design shall be completed based on the following criteria: Washington, Region 2, Benton County; SCS Type 1A – 24 Hour storm for storm volume. The applicant's design shall provide runoff protection to downstream property owners.
41. The flow-rate of the public storm drainage system shall be designed using the 2-Year, 3-Hour short duration Eastern Washington storm for pipe and inlet sizing using SCS or Santa Barbara method; no modifying or adding time of concentration; no surcharge allowed. Calculations shall be stamped by a registered professional engineer and shall include a profile of the system showing the hydraulic grade line. The calculations should include a 50-foot wide strip behind each right of way line to represent drainage from private property into the City system. Of that

area, 50% shall be considered pervious and 50% impervious. Calculations shall include a profile for the design showing the hydraulic grade line for the system. Passing the storm downhill to an existing system will require a downstream storm system capable of accepting the water without being overwhelmed.

42. All construction projects that don't meet the exemption requirements outlined in Richland Municipal Code, Section 16.06 shall comply with the requirements of the Washington State Department of Ecology issued Eastern Washington NPDES Phase II Municipal Stormwater Permit. All construction activities subject to this title shall be required to comply with the standards and requirements set forth in the Stormwater Management Manual for Eastern Washington (SWMMEW) and prepare a Stormwater Site Plan. In addition a Stormwater Pollution Prevention Plan (SWPPP) or submission of a completed erosivity waiver certification is required at the time of plan submittal.
43. If any existing storm drainage or ground water seepage drains onto the proposed site, said storm drainage shall be considered an existing condition, and it shall be the responsibility of the property developer to design a system to contain or treat and release the off-site storm drainage.
44. If there are any natural drainage ways across the proposed pre-plat, the engineered construction plans shall address it in accordance with Richland Municipal code 24.16.170 ("Easements-watercourses").
45. Prior to or concurrent with the submittal of the first phase the developer shall provide a Geotechnical report including the percolation rate of the soils in the area of any storm retention ponds. If the project constructs a storm retention pond then the engineer will need to demonstrate that the pond will drain itself within 24 hours after the end of a storm event, and not have standing water in it longer than that. Engineering solutions are available for retention ponds that do not perk within 24 hours.
46. As per RMC chapter 24.20.070 and the City of Richland's Comprehensive Stormwater Management Plan, the storm drainage system installed as part of this plat may need to be oversized in order to handle the additional flow from future developments in the vicinity.
47. Stormwater collection pipes shall be extended to the adjoining properties adjacent to the plat.
48. If the storm drain pond slopes are greater than 25% or deeper than 4-feet, then a 6-foot fence will be required around the perimeter of the pond with a minimum 12-foot wide gate for maintenance vehicles. A maintenance road from the public Right of Way to the bottom of the pond is also needed (2-inches of compacted gravel, minimum). The City's maintenance of the pond in the future will consist of trimming weeds to maintain compliance with fire and nuisance codes, and maintaining the pond for functionality.
49. The developer shall be responsible for landscaping the storm pond and for its maintenance through the one-year infrastructure warranty period. At a minimum the landscaping plan should be consistent with the City's intended maintenance standard as described above. If the developer wishes for the pond to be landscaped and visually appealing, then the homeowners association should be considered for maintenance responsibilities. This will require an irrigation meter and sprinkler system (including a power source), and responsibility for maintaining the landscaping.
50. The developer of record shall maintain the public storm drainage system for one year from the date of final acceptance by The City of Richland (as determined by the issuance of the "Letter of Final Acceptance"). Said developer shall also thoroughly clean the entire system, including structures,

pipelines and basins prior to the City warranty inspection, conducted 11 months after the Letter of Final Acceptance.

Electrical Service:

51. Provide a ten (10) foot electrical utility easement following the south line of the access easement shown on Sheet 3 of the preliminary plat leading from the "secondary drive" to the City reservoirs, noted as easement 1.
52. The electrical service for Westcliffe Heights will be accomplished by extending a 750mcm feeder circuit from the Westcliffe development up Queensgate Drive. This feeder will be extended through the Westcliffe Heights development and connect to an existing feeder circuit in Falcon Crest. This will complete a feeder loop improving the system reliability. The residential lots will be served from distribution circuits that are fed from the feeder circuit extended through the development. Infrastructure for a future feeder tie to Rachel Road will also be installed during this development.

Final Platting Requirements:

53. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. After approval by the City of the paper copy, a mylar copy of the record drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
54. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of a certificate of occupancy. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of final acceptance. Off-site ("third party") easements for City infrastructure are the responsibility of the developer to obtain. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for final occupancy.
55. Any off-site easements or permits necessary for this project shall be obtained and secured by the applicant and supplied to the City at the time of plat construction and prior to final plat acceptance by the City.
56. Ten-foot wide public utility easements will be required on the final plat along both sides of all Right-of-Ways within the proposed plat.
57. NEW COMMENT: The vision-clearance triangle needs to be shown on all corner lots on the final plat document, in accordance with RMC Chapter 12.11.020. If the intersection is in a curve, it will have to be evaluated per AASHTO guidelines. This information may need to be designed by the engineer of record and supplied to the surveyor of record for inclusion into the final plat document.
58. All landscaped areas within the plat that are in the public Right of Way shall be the responsibility of the property owners to maintain.

59. The intended use and ownership of all tracts within the plat shall be noted on the final plat.
60. Property with an unpaid L.I.D. assessment towards it must be paid in full or segregated per Richland Municipal Code 3.12.095.
61. Any restricted parking areas shall be indicated on the final plats.

DRAFT

Chapter 22.12

DEDICATION OR PAYMENT OF FEE FOR PARK, RECREATION AND OPEN SPACE LAND

Sections:

22.12.010 Purpose.

22.12.020 Park impact fees.

22.12.025 Repealed.

22.12.030 Payment of fees.

22.12.035 Repealed.

22.12.037 Repealed.

22.12.040 Review of development applications by the parks and recreation commission.

22.12.045 Repealed.

22.12.050 Dedication of park land in lieu of payment of fees.

22.12.060 Repealed.

22.12.070 Credit for land and/or facilities.

22.12.080 Appeals.

22.12.090 Vesting.

22.12.010 Purpose.

The following sections of this chapter are enacted and shall be liberally construed to effectuate the following purposes:

- A. To aid in the amelioration of adverse environmental impacts of land use and development;
- B. To assure that adequate park and recreational sites and facilities are properly located, developed and preserved to meet the recreational needs of the residents of the city's neighborhoods;
- C. To equitably apportion, on the basis of the additional need created by individual developments, the cost of providing park and recreational sites and facilities necessary to serve the additional families brought into the community by new development;
- D. To aid in implementation of the goals, objectives, policies and standards set forth in the parks and recreation element of the Richland comprehensive plan.

22.12.020 Park impact fees.

As a condition of the granting of approval of any residential zoning or residential development plan under RMC Title 23 or any residential subdivision or residential short subdivision under RMC Title 24 and consistent with the needs and purposes expressed in RMC 22.12.010, a payment of an impact fee shall be required for one or more of the following: the acquisition or development of public open spaces devoted to public parks, playgrounds, and trails and other recreational purposes; provided, that no fee shall be required where the average density of the proposed use or development is one dwelling unit or less per two and one-half acres.

Park impact fees shall be as follows:

Single-family residential unit
\$1,187.00/unit

Townhomes and duplexes
\$1,053.00/unit

Apartments 3 – 4 units
\$922.00/unit

Apartment > 5 units
\$747.00/unit

Mobile homes
\$838.00/unit

Exhibit 10

Beginning in 2012 and in every year following, fees shall be adjusted January 1st of each year, based on the annual percentage change in the Consumer Price Index, Seattle Urban Wage and Clerical Workers (CPI-W) July through June.

22.12.025 Review by Richland parks and recreation commission.

Repealed by Ord. 24-11.

22.12.030 Payment of fees.

The department shall not approve the final inspection and issue the certificate of occupancy unless and until the impact fees required by this chapter, less any permitted exemptions, credits or deductions, have been paid in full or land has been dedicated per RMC 12.12.050 or park fee credits have been approved by the city. If the payment of impact fees is deferred past the point of permit issuance, the process for the deferral of impact fee payments as set forth in RMC 12.03.085 shall be followed.

A. Fees shall be deposited in a park reserve fund account as established in RMC 3.24.150 through 3.24.170 and shall be used for the acquisition or improvement of park and recreational facilities serving and primarily benefiting residents of the zone with respect to which such payments have been made.

B. Acquisition and/or improvement of such park and recreation facilities shall be made as sufficient funds become available and consistent with the most recent adopted version of the parks and recreation plan.

22.12.035 Criteria for acceptance of park land dedication.

Repealed by Ord. 24-11.

22.12.037 Criteria for acceptance of open space dedication.

Repealed by Ord. 24-11.

22.12.040 Review of development applications by the parks and recreation commission.

Exhibit 10

The Richland parks and recreation commission shall review and make a recommendation to the city council relating to all development proposals in which the applicant is proposing the dedication of any park, trail or open space property to the city; the development abuts a city park or trail property and/or the applicant is requesting credit or partial credit against fees otherwise required by this chapter for private park improvements or other related private improvements that may have the effect of reducing the need for city parks. Projects that are less than 250 dwelling units in size and that do not abut or adjoin existing city park or trail properties and that do not include any proposed land dedications or requests for park mitigation fee credits shall be exempt from review by the parks and recreation commission; provided, that in any circumstance where the Richland parks and recreation commission reviews any development proposal that also requires review by the Richland planning commission under RMC Titles 23, 24 or 26, the Richland parks and recreation commission review shall occur first, so that the Richland planning commission will have knowledge of any Richland parks and recreation commission recommendation or decision.

22.12.045 Value of dedicated park land.

Repealed by Ord. 24-11.

22.12.050 Dedication of park land in lieu of payment of fees.

The parks and recreation commission shall make a recommendation to council on the acceptance of park land in lieu of fees. Dedication of land for park and/or trail purposes shall be based on criteria within the most current version of the adopted parks and recreation plan. Where the dedication of park land is accepted by the city, the value of such dedication shall be established, based on the average of recent undeveloped residential land sales occurring within the vicinity of the development. Alternatively, an applicant may choose to establish a value through the use of a certified land appraiser; provided, that any such appraisal shall be independently reviewed by a second certified land appraiser. The costs of such appraisals shall be borne by the applicant. These land values shall be used to determine the amount of credit provided against any required park fees.

22.12.060 Time of payment of required fee.

Repealed by Ord. 24-11.

22.12.070 Credit for land and/or facilities.

Credit may be granted for private land and/or facilities which are provided in a residential subdivision or development. Credit may also be granted for improvements made to existing public park land or facilities. Improvements to public or private lands that are eligible for credit are those that assist in meeting the need for neighborhood recreational lands or facilities and which implement the most current adopted version of the parks and recreation plan. Projects for which credit may be granted include the provision of usable open space containing minimum improvements (irrigation system, ground cover and landscaping) and/or the provision of facilities typically associated with neighborhood parks and playgrounds. All park improvements and installation of park facilities and/or equipment eligible for such credit shall be subject to the approval of the parks and recreation department for conformance with city standards. The amount of credit to be granted, if any, shall be determined by the Richland parks and recreation commission and shall be based on the value of the land and/or facilities provided, the suitability of such land and/or facilities for activities typically associated with neighborhood parks and playgrounds, the ability of the land and/or facilities to serve public and private recreational needs of the neighborhood, and the impact on implementation of the parks and recreation element of the Richland comprehensive plan.

Requests for credit shall be submitted to the city planning and development services division and shall contain the following information:

A. A site plan showing:

1. Scale of the drawing and the boundaries, dimensions and orientation of the site to true north;
2. Topography at a minimum two-foot contour interval;
3. Location and layout of existing physical characteristics (vegetation, natural waterways and drainage ways, rock outcroppings, etc.) indicating any significant features to be removed, improved or preserved;
4. Location and layout of proposed improvements including landscaping, irrigation system, pathways and trails, play areas and playground equipment, lighting, fencing, structures, etc.;
5. Ingress, egress and internal circulation for the site;
6. Relationship of the site and proposed improvements to adjoining property.

B. An itemized list of the proposed improvements including a description, the quantity, and estimated per-unit cost figure for the individual improvements.

Exhibit 10

C. A statement of the methods and/or provision for ownership, maintenance and use of the site and proposed improvements.

D. Any other materials and/or information determined by the city to be necessary or appropriate.

The city parks department shall coordinate review of the request for credit and shall forward same to the Richland parks and recreation commission, which shall review the request for credit and determine the amount of credit to be granted, if any. If the granting of credit is determined to be appropriate, the value established therefor shall be deducted from the fees owed under RMC 22.12.030.

22.12.080 Appeals.

Appeal to the parks and recreation commission concerning interpretation or administration of this title may be taken by any person aggrieved. Such appeals shall be taken within 10 days from the date of the order, requirement, decision or determination by filing with the city planning and development services division a notice of appeal specifying the grounds thereof, together with a \$100.00 filing fee. The planning and development services division shall transmit to the parks and recreation commission all papers constituting the record upon which the action appealed from was taken. The parks and recreation commission shall conduct a hearing of the appeal within 45 days after the filing of the notice of appeal. Written notice of such hearing shall be mailed at least 10 days before said hearing to the parties in interest. At the hearing, any party may appear in person or by agent or attorney. Any decision made by the Richland parks and recreation commission may be appealed to the Richland city council.

22.12.090 Vesting.

Any person, firm or corporation who has dedicated land to the city through the platting process, for park purposes and/or has made improvements to city park land to satisfy the requirements of this chapter prior to the adoption of this ordinance amendment on October 4, 2011, to fully satisfy the requirements of this chapter shall not be assessed any additional fees or required to dedicate additional park land under this chapter. Any person, firm or corporation who has dedicated land and/or made improvement to city park land to partially satisfy the requirements of this chapter shall be given credit for the percentage of the required fee that has been satisfied. Any person, firm or corporation, who applies for building permits for residential units, after October 4, 2011, shall pay fees in accordance with the current provisions of this chapter.



May 4, 2016

Project #: 19707

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RE: The Vista - Queensgate Drive Extension/Bauder Property Review of Routing Alternatives

Dear Jeff and Matt,

This letter provides an overview of transportation considerations associated with two possible routing alternatives for the Queensgate Drive extension through The Vista on the Bauder Property (herein referred to as "The Vista"). Pursuant to our March 10, 2016 meeting and subsequent scoping conversations, we evaluated the relative differences of connecting the Queensgate Drive southerly extension to either S Bermuda Road or Rachel Road.

The methodology and findings of our review are documented in this letter. We assessed existing conditions, a near-term (year 2020) and 20-year conditions assuming site development and the two roadway extension alternatives. Link-based review of volume-to-capacity ratios generated by the BFCOG travel demand model in the site vicinity indicate that Queensgate Road, Leslie Road, Rachel Road, Bermuda Road, and E Reata Road are all projected to operate well under capacity regardless of which Queensgate Drive extension alternative is pursued in both the near-term as well as the 20-year conditions. The BFCOG model demonstrates neither extension alternative is capacity constrained at the link level and lead to a finding of comparable travel times on uncongested routes.

In general, the modeling and traffic analysis reveal that traffic capacity is not a "differentiator" in reviewing the two alternative routes. Therefore, based on our review, we recommend the proposed development move ahead routing the Queensgate Drive extension to S Bermuda Road. The S Bermuda Road alternative directs site traffic to an existing roadway that generally has fewer private residential driveways, a higher posted speed limit, and a more gentle horizontal and vertical profile as compared to Rachel Road. If a secondary connection to Rachel Road is realized in the future through other

development activities, the additional connectivity provided by Rachel Road should further enhance the local transportation system.

Assuming Queensgate Drive is extended to S Bermuda Road, review of operations at three study intersections determined that:

- Signalization of the Leslie Road/E Reata Road intersection will likely be needed in conjunction with full buildout of The Vista development. We recommend the intersection operations be monitored during phased buildout of The Vista beginning after completion of the first 200 homes at The Vista and that the intersection be signalized if and when warranted. The anticipated signalization need is consistent with the City of Richland's adopted Transportation Plan. Further, this intersection may require signalization in the event the Rachel Road extension is pursued instead of the S Bermuda Road extension (though signalization should not be required to support full buildout of The Vista alone).
- A westbound right-turn lane should be provided at the S Bermuda Road/E Reata Road intersection. The 20-year analysis revealed that this right-turn lane would meet WSDOT guidelines regardless of whether Queensgate is extended to Rachel Road or S Bermuda Road.

In addition, the 20-year analysis also identified the need for a westbound left-turn lane on E Reata Road at S Bermuda Road. The Vista development is not anticipated to contribute any traffic volumes to this movement and the need for the improvement is independent of development of the new neighborhood.

Twenty year modeling also found the Rachel Road/Leslie Road intersection requires mitigation regardless of the Queensgate Drive extension alternative selected (under both scenarios, the future modeling assumes a new eastern extension of Rachel Road between Leslie Road and Steptoe Street to the east per the *Richland Transportation Plan*). Acceptable operations can be provided either via signalization or installation of a roundabout.

No other intersection capacity improvement needs were identified amongst the three study intersections in either the near-term or the 20-year conditions.

The remainder of this letter further documents our study methodology and findings.

STUDY BACKGROUND

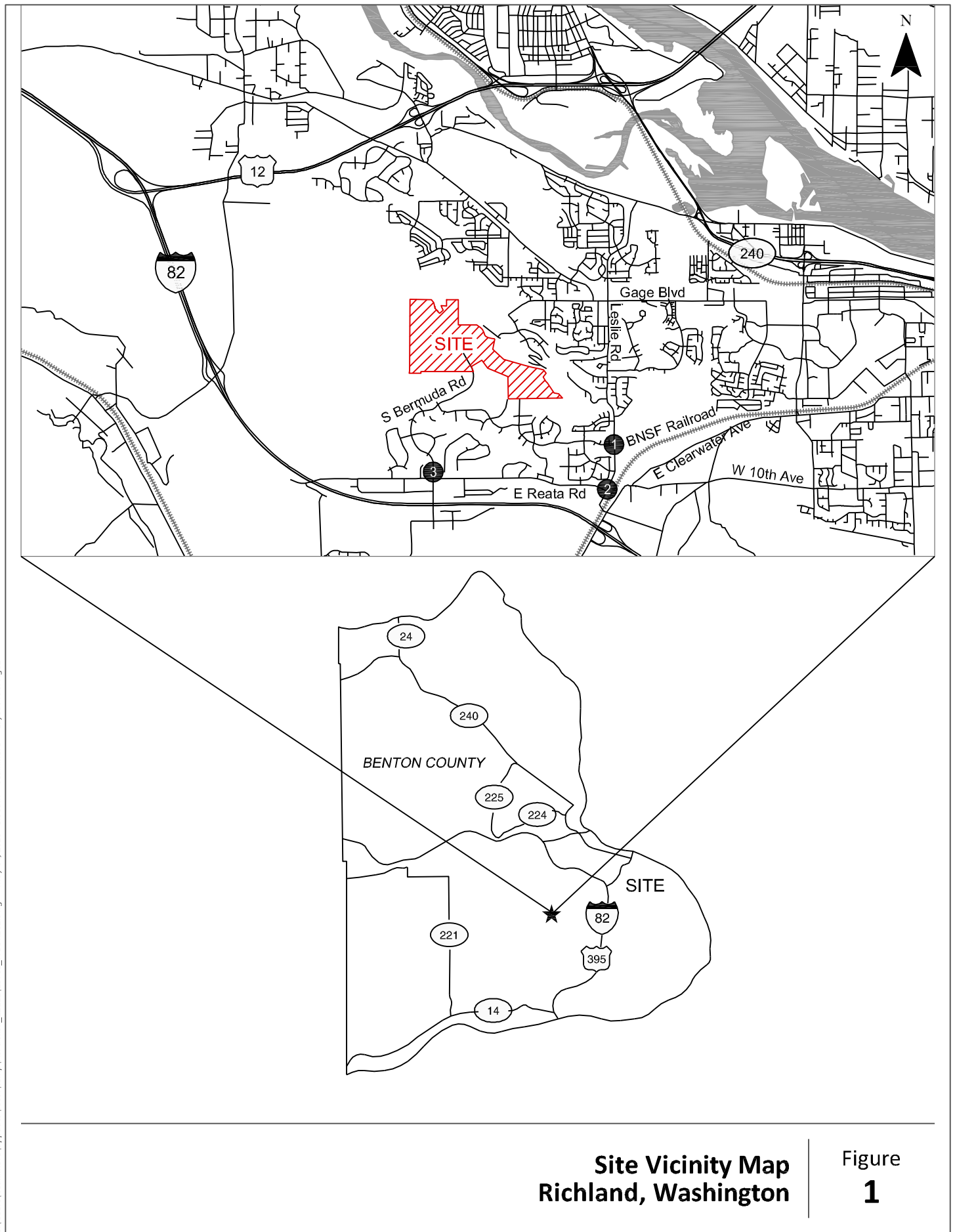
Pahlisch Homes, in cooperation with the Bauder family, is proposing development of land encompassing approximately 140 acres. At this time, development is anticipated to include up to 470 residential homes. In addition to the local street infrastructure provided within the new neighborhood, the development would also accommodate the extension of Queensgate Drive south through the property. The southerly Queensgate Drive extension could be constructed to connect with either S Bermuda Road or Rachel Road, both of which could connect the new neighborhood as well as

surrounding neighborhoods with Leslie Road. The total area of the Bauder and Wilson properties is 351 acres with a potential 1,177 homes at build out. The 20-year analysis assumes development of the additional homes.

This study compares and contrasts the transportation impacts of extending Queensgate Drive to either S Bermuda Road or Rachel Road. Figure 1 illustrates the site vicinity and Figure 2 illustrates a conceptual assessment of two roadway alignment alternatives.

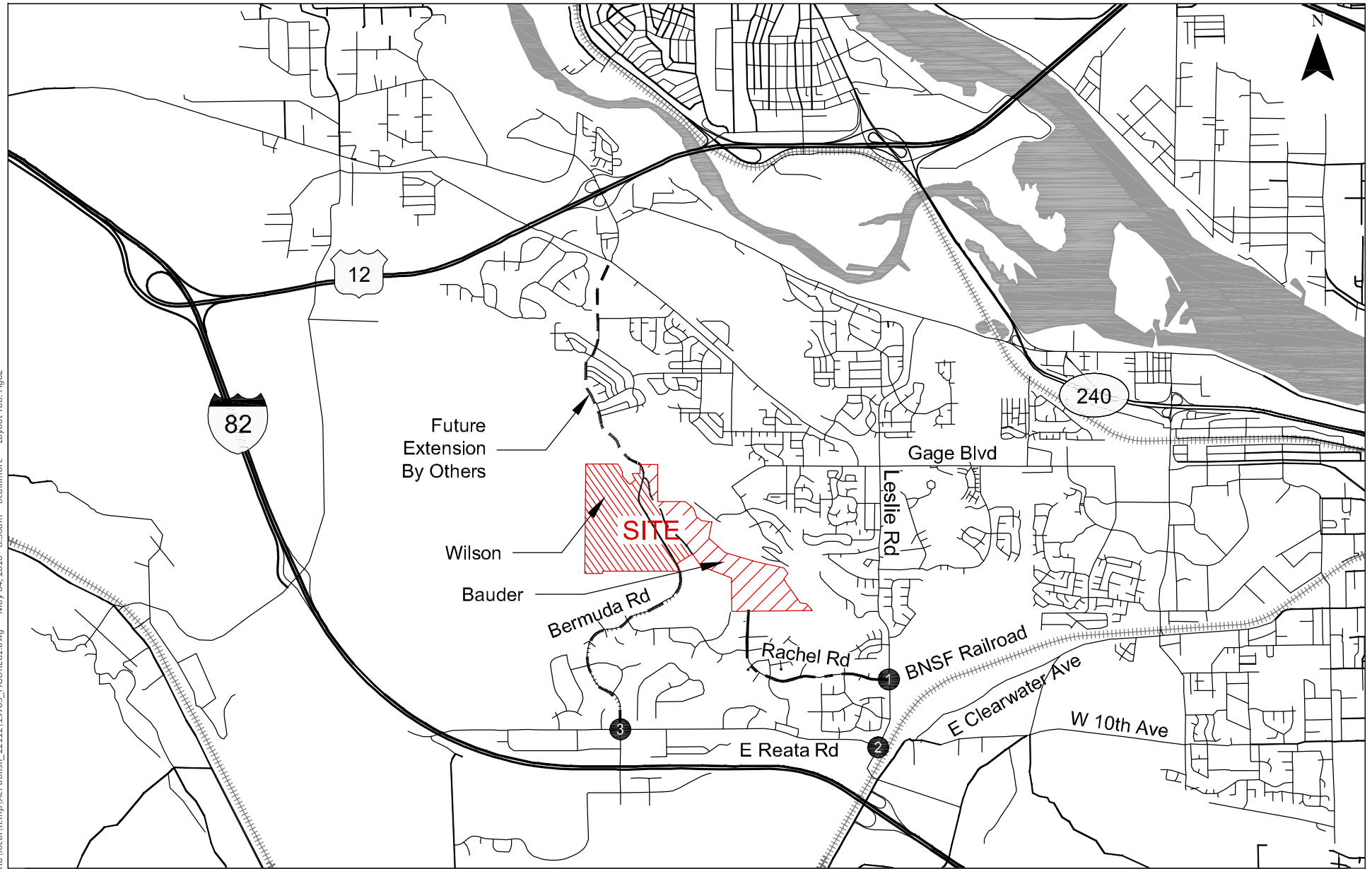
STUDY METHODOLOGY

We evaluated implications of both roadway extension alternatives through a combination of travel demand modeling and intersection capacity analysis as well as qualitative field observations about the existing built environment and topography of the adjacent roadways, as described below.



**Site Vicinity Map
Richland, Washington**

**Figure
1**



**Alternative Queensgate Alignment Options
with Site Development
Richland, Washington**

**Figure
2**

Travel Demand Model

Data from Benton-Franklin Council of Government's (BFCOG) travel demand model was used to assess traffic volume changes associated with each of the two alignment alternatives. The travel demand model was used to assess how local and regional trips may change with each of the roadway connections as well as to understand overall travel patterns within the site vicinity.

Intersection Operations

Existing conditions were reviewed at three intersections to establish a baseline for comparison of near-term and 20-year conditions assuming construction of the alternative roadway extensions. The three study intersections are:

- Leslie Road/Rachel Road
- S Bermuda Road/E Reata Road
- Leslie Road/E Reata Road

Intersection operations were evaluated using *2000 Highway Capacity Manual* analysis procedures. The City of Richland seeks to maintain Level of Service (LOS) "E" or better at unsignalized intersections per Table 3-1 of the *Richland Transportation Plan*.

EXISTING CONDITIONS

The existing conditions analysis identifies site conditions and the current operational and geometric characteristics of the transportation system in the vicinity of the property and along the two Queensgate Extension alignment alternatives. The purpose of this section is to set the stage for a basis of comparison to future conditions. The study intersections and The Vista site were visited and inventoried in March 2015.

Geometric Considerations

Today, S Bermuda Road is a two-lane facility with a posted 35 mile per hour speed limit. Rachel Road is also a two-lane facility but with a posted 25 mile per hour speed limit. In addition to having a lower posted speed limit, Rachel Road accommodates more closely spaced residential driveways and more horizontal and vertical curvature compared to S Bermuda Road.

Both roadways provide a connection to Leslie Road and ultimately I-82. Rachel Road connects directly with Leslie Road whereas S Bermuda Road connects via E Reata Road, which is a designated arterial within City limits (collector roadway within Benton County jurisdiction west of City limits). E Reata Road is a two-lane facility with a 40 mile per hour posted speed limit.

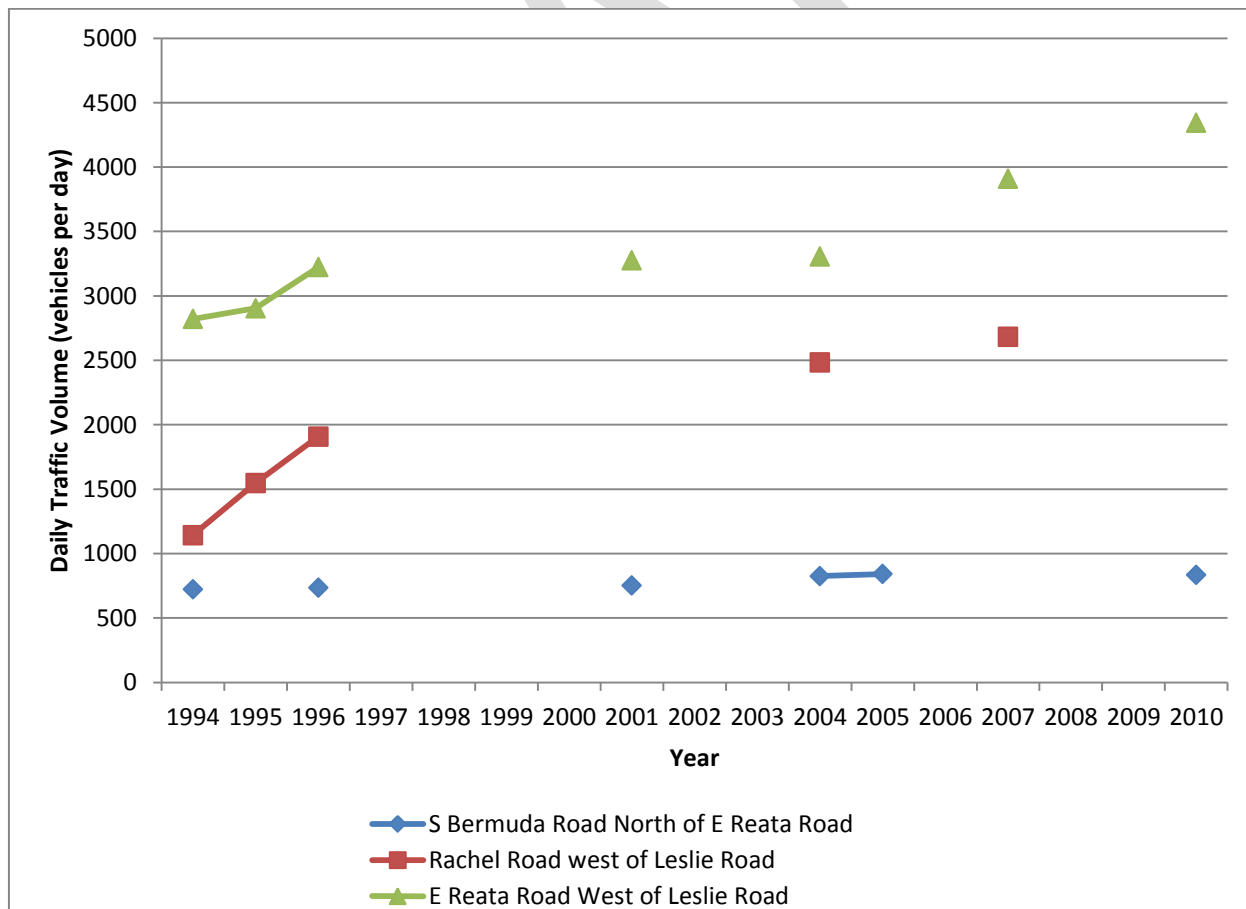
In addition to the connectivity offered by either alignment to Leslie Road, Clover Road links Rachel Road and S Bermuda Road today. The existing Clover Road connection serves local trips and is not expected materially affect either Queensgate Extension routing alternative.

Leslie Road is a designated by the City as an arterial and has a posted 40 mile per hour speed limit. The roadway has a three-lane section (one lane in each direction plus a center left-turn lane) near Rachel Road and a four-lane section near E Reata Road (two southbound lanes, one northbound lane, and one northbound left-turn lane). Leslie Road provides an important connection between either of the Queensgate extension alternatives and the regional transportation system.

24-hour Traffic Counts

The Benton County Road Department provided 24-hour historical count data for the study roadways. This data is summarized in Exhibit 1 below. This information was used to understand how traffic patterns have changed in the site vicinity during the past twenty years. Based on the counts, S Bermuda Road traffic volumes have average about 1% annual growth, Rachel Road about 10% annual growth, and E Reata Road about 3% annual growth.

Exhibit 1. Daily Traffic Volume Trends



As shown in the exhibit, S Bermuda Road has experienced relatively low growth over the past twenty years as compared to both E Reata Road and Rachel Road. However, all three roads are accommodating traffic volumes well below their capacity and consistent with their functional classification designation. The data shown in the tables also confirms that either alignment alternative can be accommodated without the need to widen any of the study roadways beyond a 3-lane cross-section.

Intersection Operations

Weekday morning (7:00-9:00 AM) and evening (4:00-6:00 PM) traffic counts were conducted at the three study intersections to establish a baseline of comparison for the near-term and 20-year analyses (refer to Attachment 1). Figure 3 summarizes the peak hour traffic counts collected as well as the existing intersection lane configurations and traffic control devices.

As shown in the figure, all intersections were found to operate within City standards and at a LOS "E" or better.

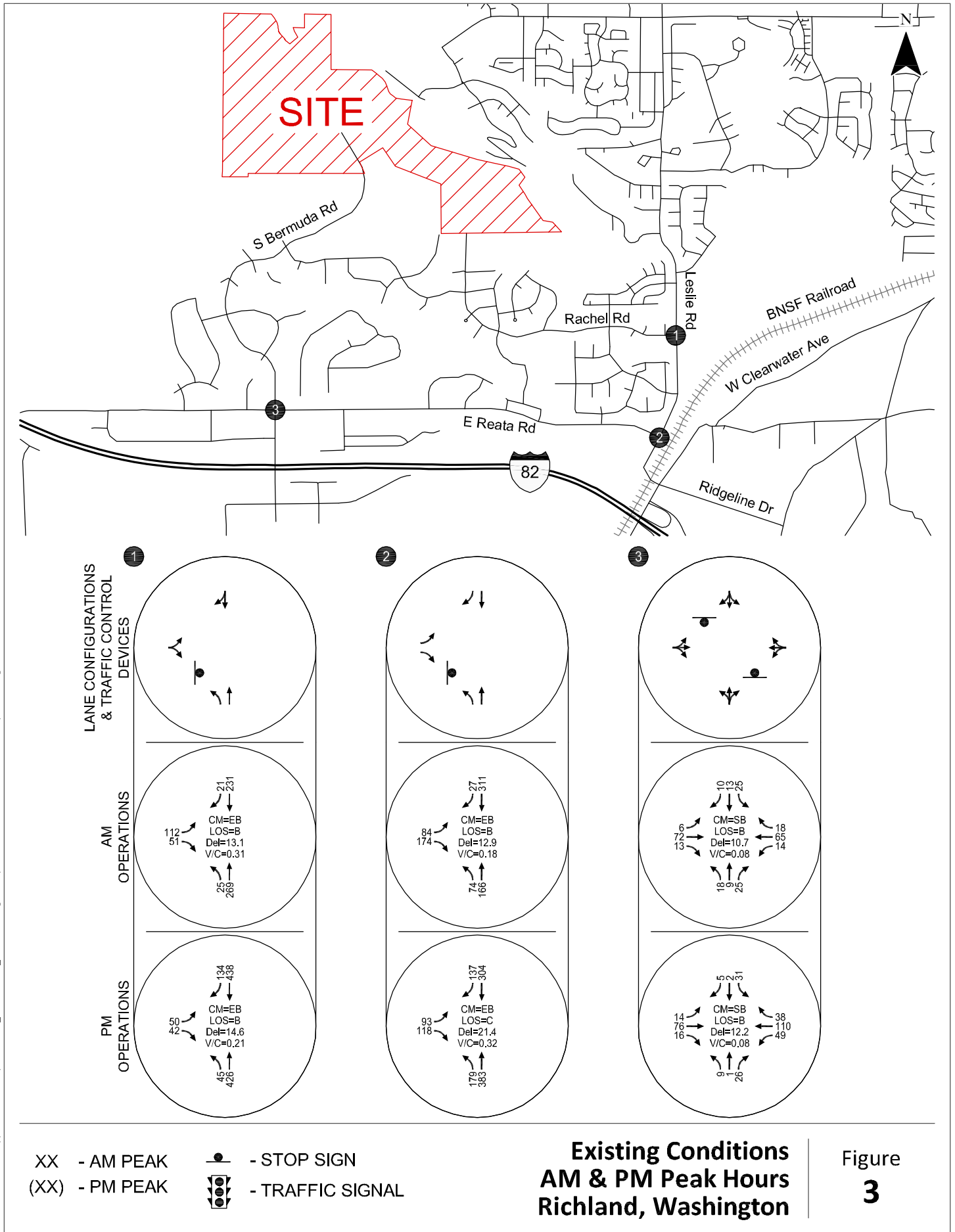


Figure 3

SITE DEVELOPMENT TRIP GENERATION

Pahlisch Homes, in cooperation with the Bauder family, is proposing development of up to 470 residential homes on 140 acres of property in southwest Richland.

A trip generation estimate was prepared based on information provided in the *Trip Generation Manual, 9th Edition* (Reference 1). Table 1 summarizes the daily, weekday AM, and weekday PM peak hour trips. Note the daily trips have been rounded to the nearest 10 and peak hour trips to the nearest 5.

Table 1. Trip Generation Estimate for The Vista Site

Land Use Category	ITE Code	Size (Units)	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total Trips	In	Out	Total Trips	In	Out
Single Family Homes	210	470	4,470	355	90	265	470	295	175

ESTIMATED TRIP DISTRIBUTION PATTERN

Existing travel patterns, land use, and roadway connectivity were assessed in conjunction with BFCOG travel demand model data and other transportation impact studies nearby to develop a reasonable trip distribution for the site-generated trips. The estimated trip distribution pattern is shown in Figure 4.

2020 FUTURE CONDITIONS WITH THE VISTA

Future year 2020 traffic conditions were evaluated assuming buildout of the 470 single family homes within the Vista. This analysis was completed assuming extension of Queensgate Drive to S. Bermuda Road in Alternative 1 and to Rachel Road in Alternative 2. Based on BFCOG modeling, a two percent annual growth rate was assumed along each of the study roadways¹.

The operations analysis at the three study intersections was prepared for the two alignment alternatives assuming:

- Queensgate Drive does not connect with Gage Boulevard
- Queensgate Drive does not connect with Badger Mountain Parkway

Link-based review of volume-to-capacity ratios generated by the BFCOG travel demand model in the site vicinity indicate that Queensgate Road, Leslie Road, Rachel Road, Bermuda Road, and E Reata Road are all projected to operate well under capacity regardless of which Queensgate Drive extension alternative is pursued. The model also suggests that the routes will be relatively uncongested and that

¹ Based on a cordon line assumed around the study intersections, BFCOG modeling projects an average of approximately 1.4% growth per year between 2010 and 2020.

the travel times are relatively comparable. In general, the modeling results indicate that neither traffic capacity nor travel times are “differentiators” when selecting an alternative.

Figures 4 and 5 illustrate future 2020 background conditions (before site development), anticipated routing of site-generated trips, and total traffic conditions (with site development) assuming Queensgate Drive extension to S Bermuda Road. Figures 5 and 6 illustrate future 2020 conditions before and after site development assuming the Queensgate Drive extension to Rachel Road.

Analysis of the study intersections found that all of the intersections operate acceptably assuming the Queensgate Drive extension to Rachel Road. The Bermuda Road extension alternative results in eastbound delays at the E Reata Road/Leslie Road intersection causing a LOS “F” condition for the westbound left-turn movement during the weekday PM peak hour. The LOS “F” could be mitigated through signalization of the intersection, an improvement identified as an anticipated future need in the *Richland Transportation Plan*. Appendix 2 includes the intersection analysis worksheets.

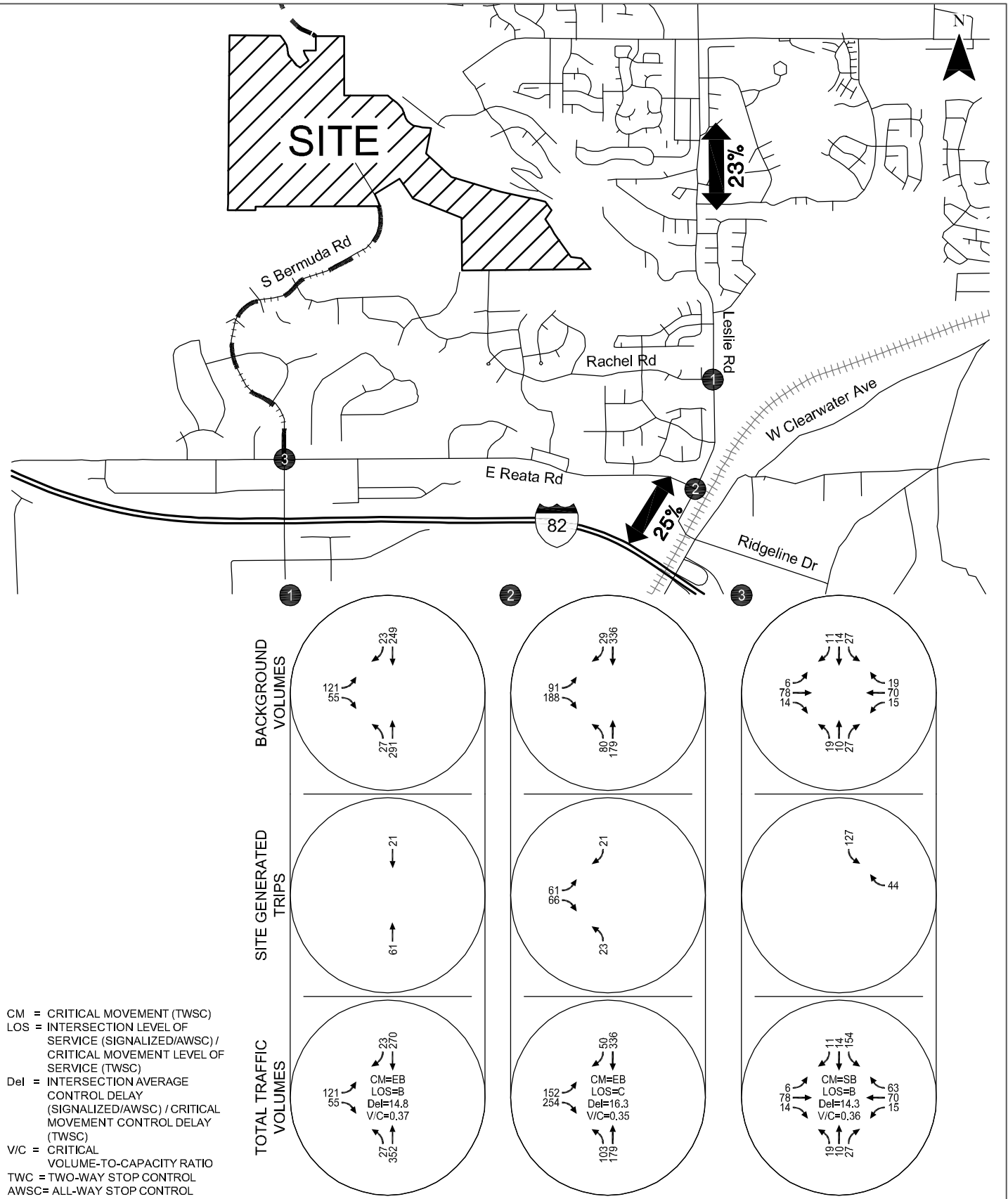
While signalization of the E Reata Road/Leslie Road intersection would implement a previously identified improvement consistent with the City’s plans, the specific implementation timeline for signalization will be dependent both on the extent of re-routing of existing traffic that occurs with completion of the Queensgate Drive extension and the rate at which trips from The Vista actually impact the E Reata Road/Leslie Road intersection, pending construction and occupancy of the new homes. For these reasons, we recommend the E Reata Road/Leslie Road intersection operations be monitored during phased buildout of The Vista and that the intersection be signalized if and when warranted.

Turn Lane Considerations

The Washington State Department of Transportation (WSDOT) has defined traffic-volume based turn lane guidelines within the *WSDOT Design Manual* (Reference 3). Left-turn lane guidelines are provided in section 1310.04(2)(a) while right-turn lane guidelines are provided in section 1310.04(3).

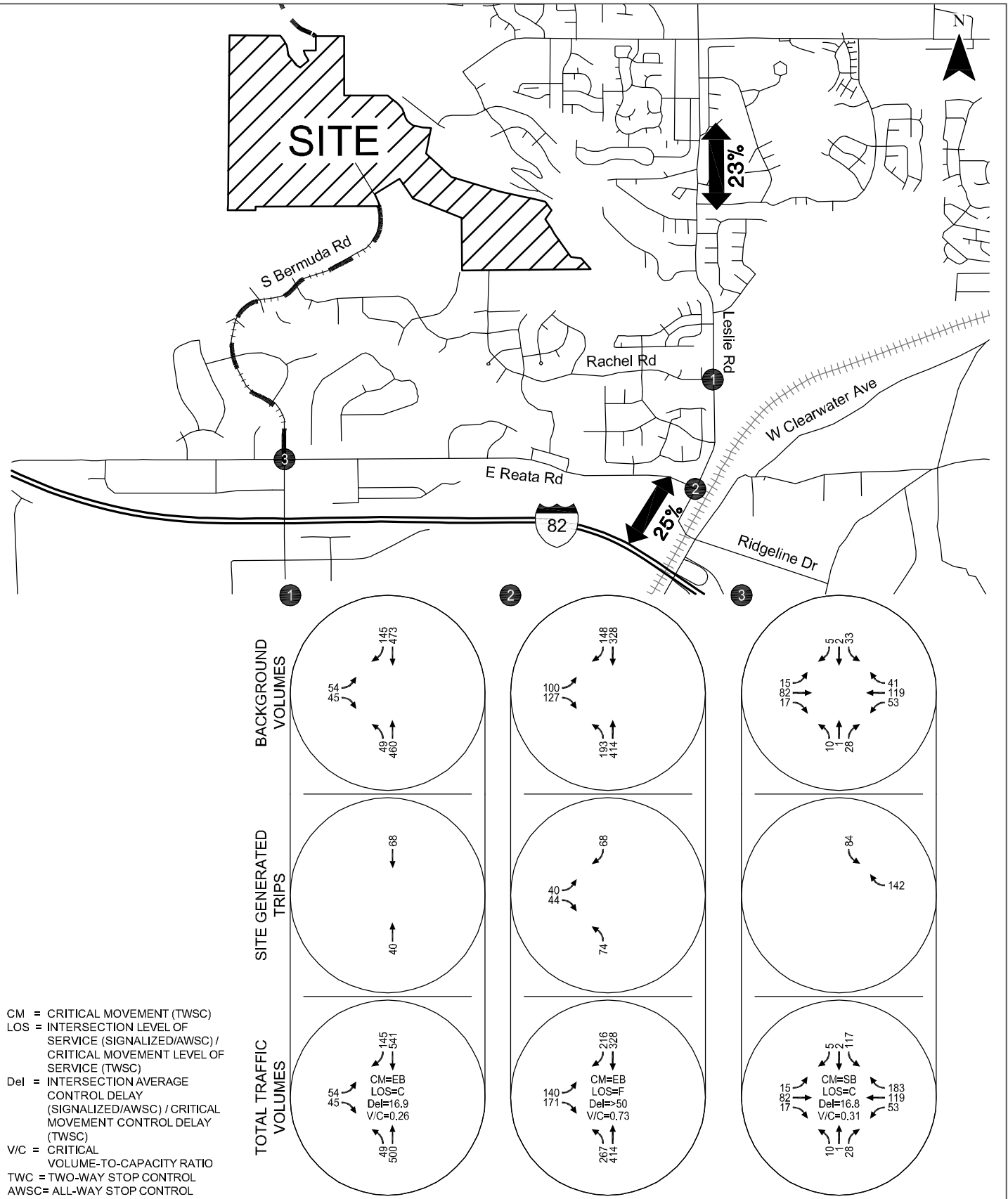
Left-turn lanes are already in place at two of the three study intersections. As such, we reviewed the potential need for left-turn lanes at the S Bermuda Road/E Reata Road intersection. Our analysis found that forecast traffic volumes at the intersection would not meet the WSDOT guidelines for providing a left-turn lane on E Reata Road in 2020 regardless of whether the S Bermuda Road or Rachel Road alignment alternative is chosen.

The WSDOT right-turn lane guidelines suggest the need for a westbound right-turn lane at the S Bermuda Road/E Reata Road intersection with the S Bermuda Road alternative. This right-turn lane is not needed in 2020 if the Rachel Road alternative is chosen. Provision of a right-turn would be appropriate in conjunction with site development of The Vista assuming the S Bermuda Road alternative is selected. Subject to County staff direction and/or further future analysis completed after partial site development at The Vista, it appears provision of the right-turn lane would be appropriate in conjunction with occupancy of the 150th home at the Bauder site.



Year 2020 Conditions with Bermuda Road Connection
Weekday AM Peak Hour
Richland, Washington

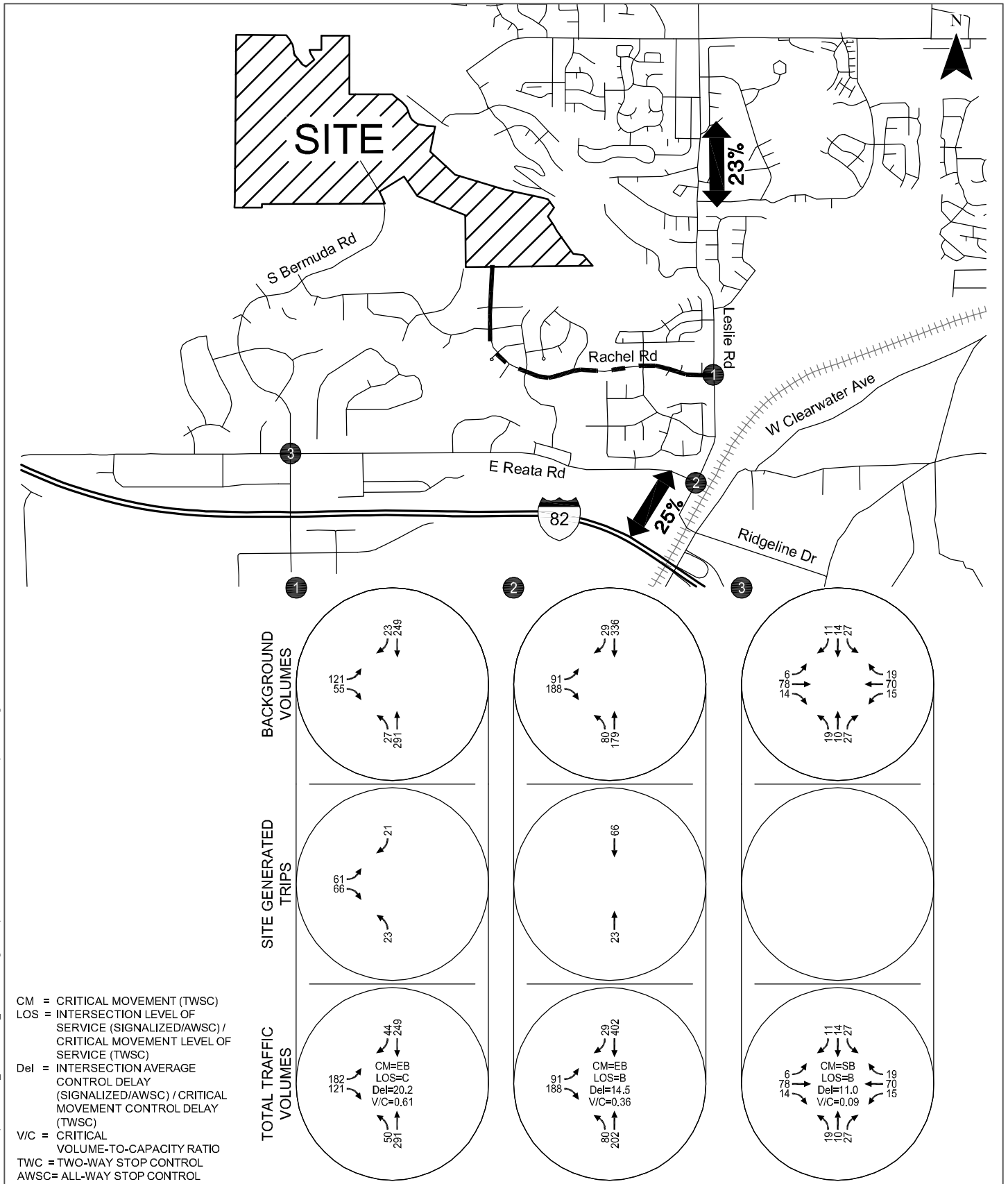
Figure
4



**Year 2020 Conditions with Bermuda Road Connection
Weekday PM Peak Hour
Richland, Washington**

Figure
5

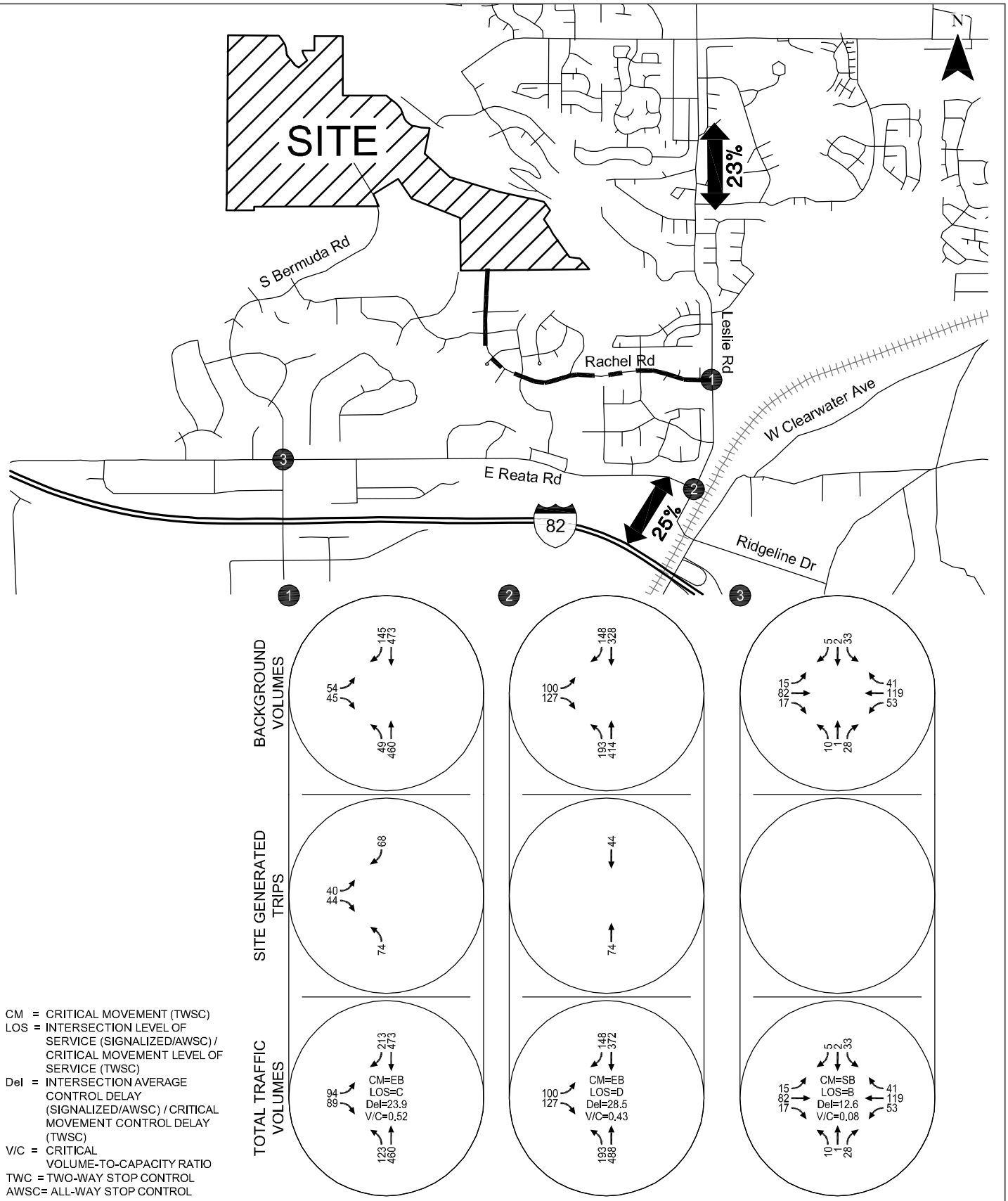
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**Year 2020 Conditions with Rachel Road Connection
Weekday AM Peak Hour
Richland, Washington**

**Figure
6**

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**Year 2020 Conditions with Rachel Road Connection
Weekday PM Peak Hour
Richland, Washington**

**Figure
7**

2036 FUTURE CONDITIONS

Future year 2036 traffic conditions were evaluated assuming construction and occupancy of several new neighborhoods in the vicinity and additional street connectivity, including:

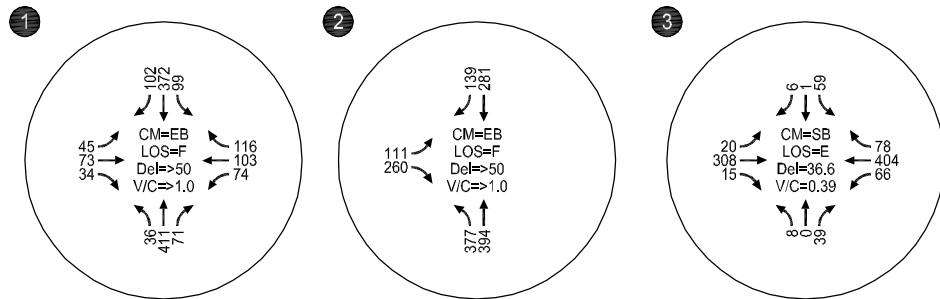
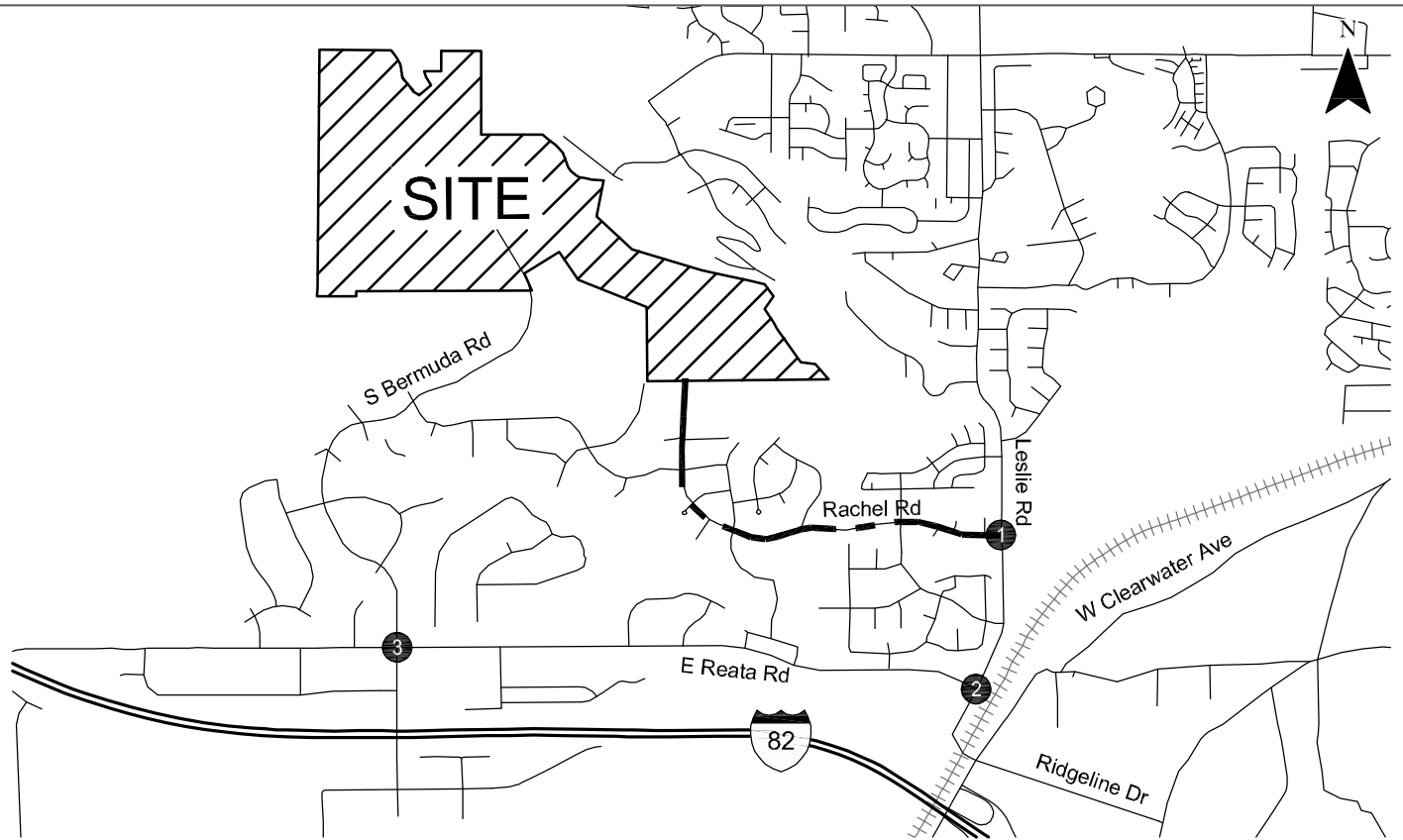
- the Badger Mountain Subarea Plan²², including completion of Badger Mountain Parkway between Queensgate Drive and Dallas Road;
- the 470 single family homes proposed within the Vista;
- development of up to 1,177 residential homes lands adjacent to the Bauder property; and,
- the extension of Gage Boulevard to Queensgate Drive

Based on these assumptions, year 2036 traffic volumes at the three study intersections were developed for two alternatives – Alternative 1 assuming extension of Queensgate Drive to S Bermuda Road and Alternative 2 assuming extension of Queensgate Drive to Rachel Road in Alternative 2. The year 2036 weekday PM peak hour volumes were calculated using year 2030 turn movement projections developed from the BFCOG travel demand modeling that were post-processed following NCHRP 2-55 analysis procedures. The resultant year 2030 volumes were grown by a two percent annual growth rate to develop year 2036 intersection turning movement volumes.

Figure 8 illustrates future 2036 weekday PM peak hour traffic conditions assuming Queensgate Drive extension to S Bermuda Road. Figure 9 illustrates future 2036 weekday PM peak hour conditions assuming the Queensgate Drive extension to Rachel Road. Appendix 3 includes the intersection analysis worksheets. Analysis of the study intersections under year 2036 conditions found:

- Operations of the Rachel Road/Leslie Road intersection require mitigation regardless of the Queensgate Drive extension alternative selected (under both scenarios, the future modeling assumes a new eastern extension of Rachel Road between Leslie Road and Steptoe Street to the east per the *Richland Transportation Plan*). Acceptable operations can be provided either via signalization or installation of a roundabout. Further, neither Rachel Road or Leslie Road need to be widened beyond a three-lane cross-section to accommodate future traffic volumes.
- Operations of the E Reata Road/Leslie Road intersection require mitigation regardless of the Queensgate Drive extension alternative selected. As was noted in the discussion of 2020 conditions, signalization of the intersection was identified as an anticipated future need in the *Richland Transportation Plan*.
- WSDOT Design Manual Guidelines suggest the need for providing both a westbound right-turn lane and a westbound left-turn lane on E Reata Road at S Bermuda Road in 2036, again regardless of the Queensgate Drive extension alternative selected (operations would improve to level of service "D" with the turn lanes for both options).

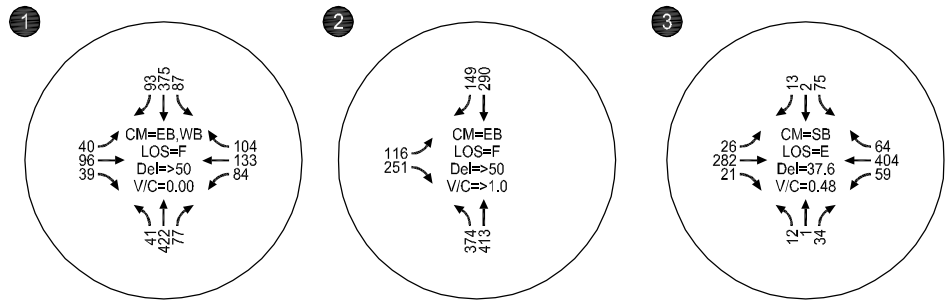
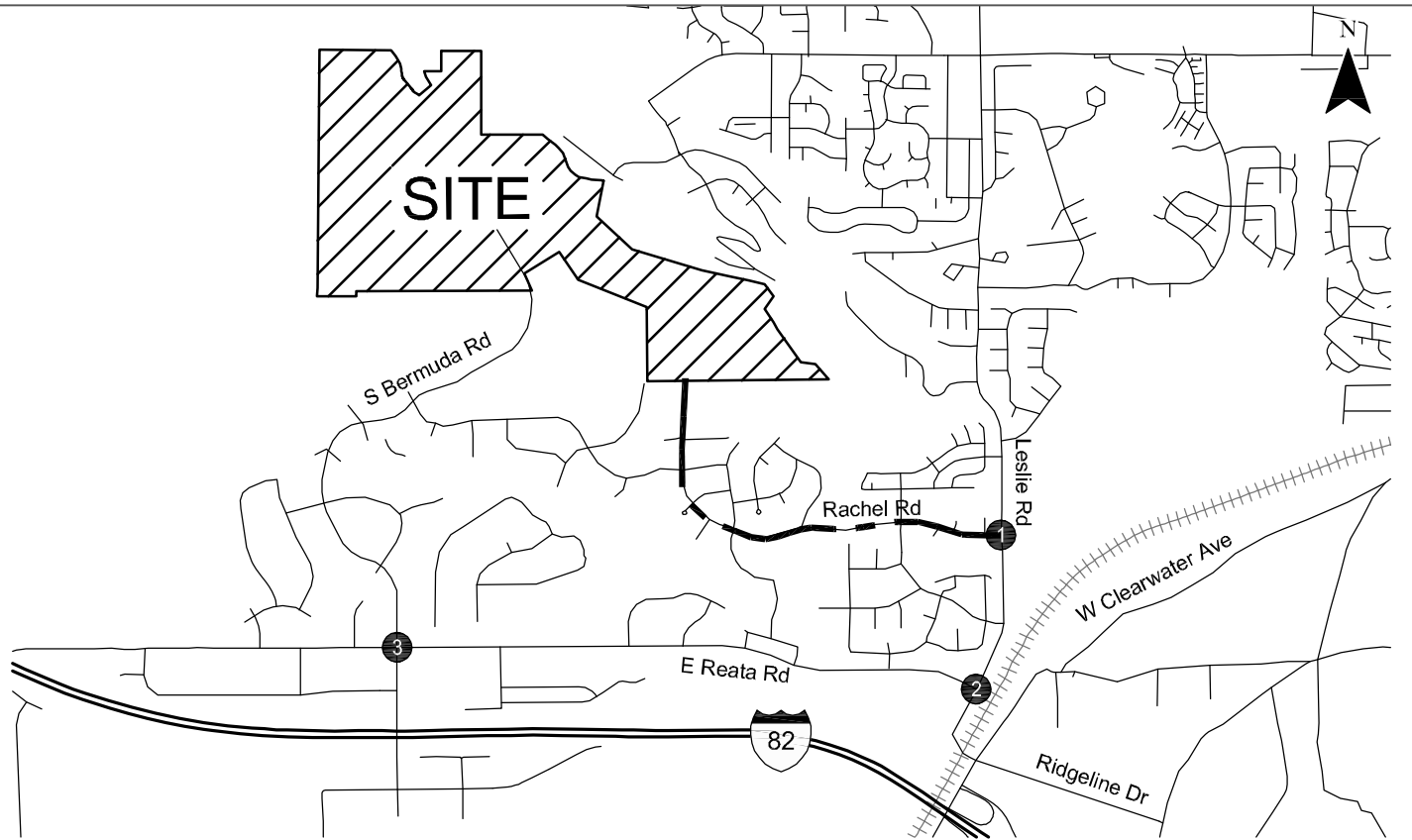
²² As documented in the April 2010 *Badger Mountain Subarea Plan - Transportation* study, accounting for the trips generated assuming the "Alternative 1" southern connection of the site to Queensgate Drive (as identified in Figure 4.1 of the report)



CM = CRITICAL MOVEMENT (TWS/C)
 LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWS/C)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWS/C)
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
 TWS/C = TWO-WAY STOP CONTROL
 AWS/C = ALL-WAY STOP CONTROL

**Year 2036 Weekday PM Peak Hour
 Assuming Queensgate Drive Extension to Bermuda Rd
 Richland, Washington**

**Figure
 8**



CM = CRITICAL MOVEMENT (TWSO)
 LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSO)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSO)
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
 TWSO = TWO-WAY STOP CONTROL
 AWSC = ALL-WAY STOP CONTROL

**Year 2036 Weekday PM Peak Hour
 Assuming Queensgate Drive Extension to Rachel Rd
 Richland, Washington**

**Figure
 9**

SUMMARY FINDINGS & CONCLUSIONS

Based on the analysis presented in this letter, we conclude that the proposed Vista site development could be supported through extension of Queensgate Drive south to connect with S Bermuda Road or Rachel Street. BFCOG travel demand modeling determined that either extension alignment choice is viable and that roadway link capacity is not a differentiator in comparing the two alternative routes.

From a transportation systems perspective:

- Either extension alternative can be supported at the link level from a roadway capacity perspective. None of the study roadways would need to be widened beyond a three-lane cross-section to support year 2036 conditions regardless of the alignment option.
- Both alternatives would require signalization of the E Reata Road/Leslie Road intersection. The need for this improvement was identified in the Richland Transportation Plan as well. The timing of signalization will depend on the construction and occupancy of new homes in the area and should therefore be monitored to determine if and when it is warranted.
- Forecast traffic volumes at the S. Bermuda Road/E Reata Road intersection would not meet the WSDOT guidelines for providing a left-turn lane on E Reata Road in 2020 regardless of whether the S Bermuda Road or Rachel Road alignment alternative is chosen. However, this improvement would be needed in year 2036.
- The WSDOT right-turn lane guidelines suggest the need for a westbound right-turn lane in 2020 at the S Bermuda Road/E Reata Road intersection with the S Bermuda Road alternative. This improvement is needed in year 2036 regardless of the alignment route chosen.

In the final assessment, the route alignment extension choice should be judged based on construction feasibility as well as impacts to existing neighborhoods. Traffic capacity is not a differentiator between the options.

Should the S Bermuda Road alternative be selected, improvements are recommended at both the S Bermuda Road/E Reata Road intersection and the Leslie Road/E Reata Road intersections as part of The Vista development. These improvements will be needed to support the 20-year buildout of the overall area and should be coordinated with adopted City of Richland plans and policies.

- We recommend the Leslie Road/E Reata Road intersection operations be monitored during phased buildout of The Vista beginning after completion of the first 200 homes at The Vista and that the intersection be signalized if and when warranted.
- Subject to County direction and/or further future analysis completed after partial site development at The Vista, we recommend provision of a westbound right-turn lane on E

Reata Road at S Bermuda Road in conjunction with occupancy of the 150th home at the Bauder site.

Please contact us if you have any questions or wish to discuss our findings.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Julia Kuhn, PE
Senior Principal Engineer

Chris Brehmer, PE
Principal Engineer

Cc: Chad Bettsworth, PE; Pahlisch Homes, Inc.
Jason Mattox, PE; HDJ Design Group, PLLC

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1. Institute of Transportation Engineers. *Trip Generation Manual*, 9th Edition. 2012.
2. City of Richland. Richland Transportation Plan. 2005.
3. Washington State Department of Transportation. *WSDOT Design Manual*. November 2015.

ATTACHMENTS

Appendix 1: Intersection Traffic Counts

Appendix 2: 2020 Intersection Analysis Worksheets

Appendix 3: 2036 Intersection Analysis Worksheets



Engineering +
Environmental

Exhibit 12

Geotechnical Engineering Report

Westcliffe Heights
Richland, Washington

Prepared for:
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Pahlisch Homes
1020 N. Center Parkway Suite A
Kennewick, Washington 99336

March 24, 2017
Project No. HDJ4234.000

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March 24, 2017

**Geotechnical Engineering Report
Westcliffe Heights
Richland, Washington**

Prepared for:
Chad Bettsworth
Pahlisch Homes
1020 N. Center Parkway Suite A
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Prepared by:



03/24/2017

Adam Swenson, PE
Geotechnical Engineer

Reviewed by:

A handwritten signature in black ink, appearing to read "Ryan White".

Ryan White, PE, GE (OR)
Geotechnical Discipline Lead

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Appendix A – Field Explorations

Table A-1	Terminology Used to Describe Soil and Rock
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Appendix B – Laboratory Testing

1.0 INTRODUCTION

1.1 General

PBS Engineering and Environmental Inc. (PBS) is pleased to present this geotechnical engineering report for the Westcliffe Heights project in Richland, Washington. This report presents the results of our geotechnical explorations, testing, and analyses for the proposed development. The general location of the site is shown on the Vicinity Map, Figure 1. The approximate locations of our explorations in relation to existing site features are shown on the Site Plan, Figure 2.

Previous reporting for the site has been submitted by Foundation Engineering, Inc. (FEI, August 2016). The report provided recommendations regarding the excavatability of the site soils and maximum temporary/permanent slope inclinations. Recommendations provided in the FEI report for these components of the project supersede recommendations made in this report.

1.2 Purpose and Scope

The purpose of PBS' services was to develop geotechnical design and construction recommendations in support of the planned site development. This was accomplished by performing the following scope of services.

1.2.1 Geologic Map Review

Geologic maps of the site area were reviewed for information regarding geologic conditions and hazards at or near the site.

1.2.2 Subsurface Exploration

PBS completed eight test pits at the site (designated as TP-1 through TP-8). The test pits were advanced to depths up to 19 feet below the existing ground surface (bgs). The explorations were logged and representative soil samples were collected by a member of the PBS geotechnical engineering staff.

1.2.3 Field Infiltration Testing

PBS completed four infiltration tests within in three test pits, TP-1, TP-3, and TP-6, near areas where the proposed new stormwater systems will be located. Open-hole, falling head, infiltration testing was completed at depths between 8 and 17 feet bgs.

1.2.4 Soils Testing

The samples were returned to our laboratory and classified in general accordance with the Unified Soil Classification, Visual-Manual Procedure. Laboratory tests included grain-size analysis and moisture content.

1.2.5 Geotechnical Engineering Analysis

Data collected during the subsurface exploration, literature research, and laboratory testing was used to develop specific geotechnical design and construction recommendations for the proposed site development.

1.2.6 Report Preparation

This Geotechnical Engineering Report summarizes the results of our explorations and analyses, including information relating to the following:

- Exploration logs and site plan showing approximate exploration locations

- Laboratory test results
- Infiltration test results
- Discussion of subsurface conditions
- Discussion of critical areas indicated at the site as defined by the City of Richland, including steep slopes and erosion
- Earthwork, grading, and fill recommendations:
 - fill slope inclinations
 - structural fill materials and preparation
 - wet/cold weather considerations
 - utility trench excavation and backfill requirements
- Seismic design criteria in accordance with the 2015 International Building Code (IBC) with Washington amendments

1.3 Project Understanding

Current plans include developing the approximately 63-acre site for residential development in Richland, Washington. The site has been unused in recent years, but portions near the bottom of the slope may have been previously used for agricultural purposes.

1.4 Field Exploration

Eight test pits (TP-1 through TP-8) were excavated to depths up to 19 feet bgs by Mahaffey Enterprises, Inc., of Kennewick, Washington, using a Komatsu track-mounted excavator equipped with a 42-inch toothed bucket. The approximate test pit locations are shown on the Site Plan, Figure 2. Interpreted test pit logs and field exploration methods are presented in Appendix A – Field Explorations.

1.5 Laboratory Testing

Soil samples obtained during our explorations were returned to the laboratory to aid in soil classification and to evaluate their general physical properties and engineering characteristics. Laboratory testing included grain-size analysis and moisture contents. Laboratory test results are included on the exploration logs in Appendix A.

2.0 SITE CONDITIONS

2.1 Surface Description

The approximately 140-acre site is long, oriented in the southeast-northwest direction, and is of a non-descript shape. The site is bordered to the north by the north slope of Little Badger Mountain, to the west and south by agricultural land, and to the east by an undeveloped south-facing hillside. The site is generally undeveloped, covered by grasses, weeds, and some native vegetation.

The site generally slopes downward to the south and southwest. The ground surface elevations range from approximately 900 feet above mean sea level (amsl) near the western extent of the site to about 1100 feet amsl near the eastern extent of the site (PBS survey, 2016).

Multiple areas within the proposed development are designated as critical areas due to high erosion potential and/or steep slopes. Steep slopes are defined as slopes exceeding 40 percent (2.5H:1V [horizontal to vertical]). Steep slopes, as defined by the City of Richland,

are present over roughly 15 percent of the site. The inclinations of site slopes are as steep as 75 percent (1.33H:1V), but are generally 20 percent (5H:1V) or flatter.

Preliminary site grading plans generally show fill will be placed in low areas of the site to raise or flatten site grades and facilitate stormwater drainage. Current plans include construction of new roadways, stormwater drainage and infiltration facilities, and installation of utilities.

2.2 Geologic Setting

2.2.1 Regional Geology

The site lies within the Pasco Basin, a structural and topographical low area that lies in the Columbia River Plateau physiographic province in southeast Washington and Northeast Oregon. This province consists of a series of flood basalt flows of the Columbia River Basalt Group (CRBG) of the Miocene Epoch and early Pliocene Epoch (between 17 and 6 million years ago) in age, forming an extensive volcanic plateau. The thick basalt of the CRBG forms the bedrock of the region. Crossing the Columbia Basin is a northwest-trending tectonic feature called the Olympic Wallowa Lineament (OWL). Right-lateral displacement on this transform structure influenced the formation of the Pasco Basin.

The Pasco Basin lies within a tectonic subdivision of the Columbia River physiographic province known as the Yakima Fold Belt (Riedel, et al., 1991). Deformation of the basalt flows has since occurred, generally attributed to regional north-south compression and associated folding, strike-slip faulting, and thrusting. This deformation of the basalt has generally led to a series of east-west trending anticlinal ridges and synclinal valleys that trend from North 50° west to North 50° east. The anticlines often have steeply dipping north flanks and more gently dipping southerly flanks.

2.2.2 Local Geology

Geologic maps show that surficial geology in the vicinity of the site consists of members of the CRBG (Mvsem [Elephant Mountain] and Mvsp [Pomona]), Quaternary flood deposits (Qfs), and wind-deposited loess (Ql). The flood deposits originated during the Pleistocene Period. These deposits formed when the Wallula Gap, located south of the site, temporarily dammed floodwaters catastrophically released from glacial Lake Missoula upon failure of an ice dam. This constriction resulted in the formation of Lake Lewis, which extended eastward from the Gap and into the Pasco Basin area, which was in existence only a few weeks at time. Repeated flooding produced by repeated ice dam failures resulted in layered sediment (Rockwell, 1979).

The southwestern base of Badger Mountain geology is mapped as loess (Ql). The wind-deposited soil consists primarily of silt and fine sand. The loess is shown as Holocene to Pleistocene Epoch in age.

2.3 Subsurface Conditions

2.3.1 Soil and Bedrock

PBS has summarized the subsurface units as follows:

<i>SILT:</i>	Homogeneous, non-plastic sandy silt was encountered at the ground surface to between 1 foot and 14.5 feet bgs. Consistency of the observed silt appeared to vary from medium stiff to stiff.
--------------	--

Carbonate cementation of the silt soils was observed in TP-2 and TP-3.

Stiff silt was also encountered at a depth of 6 feet bgs, beneath the gravel in test pit TP-1, and extended to the 12-foot depth explored. The silt contained 29 to 30 percent sand.

GRAVEL

Gravel was encountered in TP-1, TP-3, and TP-6 at varying depths. The gravel was encountered as shallow as at the ground surface up to a depth of 6 feet bgs. The coarse subrounded to subangular gravel was often stained with carbonate deposits. The gravel was encountered in a matrix of silt and sand. Based on the excavator's difficulty in excavation, relative density of the gravel was generally dense to very dense.

BASALT

Very weak to medium weak (R1 to R3) basalt bedrock was encountered in six test pits, TP-2 and TP-4 through TP-8. Basalt was encountered between the depths of 1 and 14.5 feet bgs up to the maximum depth explored. Large, cobble-sized, carbonate stained pieces of basalt were encountered, as the basalt was often encountered in a highly-fractured state. Less often, the basalt was found in a severely-weathered state (TP-5) at a depth of 2 feet bgs. The rock was discolored and easily broken. Underlying the severely-weathered basalt the excavation encountered very severely weathered basalt resembling clay at a depth of 16 feet bgs.

2.3.2 Groundwater

Groundwater was not encountered to the depths explored during excavation of the test pits. Existing information regarding the groundwater depths in the general project area were obtained from local well logs available on the Washington Department of Ecology well log database website. Groundwater is likely found at a depth below 100 feet bgs.

Perched groundwater may be encountered at the project site due to variations in fill, alluvial deposits, and bedrock contact depths and will fluctuate due to variations in rainfall, irrigation, and the season.

2.3.3 Infiltration Testing

PBS completed four infiltration tests in three separate test pits. One test was conducted in TP-1, two in TP-3, and one in TP-6. Tests were conducted at depths of approximately 12 feet (TP-1), 8 and 17 feet (TP-3), and 10 feet bgs (TP-6). The tests were completed in general accordance with the procedures of open-pit falling head testing summarized in the Stormwater Management Manual for Eastern Washington. The test pits were excavated to the test depth and filled with water to approximately 4.8 feet (TP-1), 4.0 feet and 3.5 feet (TP-3), and 3.2 feet deep (TP-6), saturating the surrounding soils. The water was then allowed to drain and the water depth was recorded at regular, timed intervals using a pressure transducer, data logger, and by manual measurement.

The following Table 1 presents test depth, the measured infiltration rates, and soil classification.

Table 1. Infiltration and Laboratory Test Results

Test Pit	Depth of Infiltration Test (feet bgs)	Infiltration Rate¹ (inches/hour)	Soil Classification
TP-1	12	4.8	Sandy Silt (ML)
TP-3	8	7.0	Sandy Silt (ML)
TP-3	17	4.0	Cemented Silt with Sand (ML)
TP-6	10	1.6	Weathered Fractured Basalt

1. Field-measured infiltration rate.

Design infiltration rates are determined to account for the planned level of pre-treatment, maintenance, vegetation, siltation, etc. Field-measured infiltration rates are typically reduced by a factor of two to four for use in design. Based on the results of field testing and our analyses, we recommend using a factor of 2.5.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Geotechnical Design Considerations

The subsurface conditions at the site consist of loose to medium dense sandy silt. The on-site soils can be reused as structural fill if properly moisture conditioned. Excavation with conventional equipment is feasible throughout the site, though additional work may be required for excavation of cemented soils and fractured bedrock.

Special consideration should be made for clay soils, such as those encountered at depth in TP-5. The FEI report provides recommendations for what to do with the clay soils.

3.2 Critical Areas Review

The site consists of varying topography with a fairly consistent slope trending down to the south and southwest. The City of Richland Code defines steep slopes as slopes inclined at greater than 40 percent (approximately 2.5H:1V slope). Recommendations regarding some of the steep slopes are provided in the FEI report.

Steep slopes can be associated with geologic hazards, such as possible slope instability and soil erosion. Instability of slopes is more likely to occur when soils are wet, while soil erosion is more likely when large amounts of water flow over the ground surface.

Due to the extent of site grading and the proximity of existing structures, it may be necessary to slope and/or temporarily shore excavations during construction. Outside the development area, site slopes show no obvious signs of recent instability such as exposed soil, scarps, seeps, etc.

3.3 Critical Areas Recommendations

Based on our observations, slopes at the site show no signs of recent instability. Erosion of site soils where slopes are steeper can be controlled with site grading, use of erosion control matting, and/or rock blankets. Site grading and drainage design shall control all surface

drainage, including any potential on-site stormwater flow. Mitigation of this geohazard by site grading design will essentially reduce the geohazard to a level that is less than the conditions observed at the time of exploration.

We recommend that mass grading activities associated with the critical areas be executed in accordance with the civil engineering design plans. Mitigation of the erosion hazard at this site will be addressed by the civil engineering plans for the site, which will include site grading and stormwater management plans.

3.4 Site Stormwater Management

The stormwater management for the site shall comply with the Eastern Washington Stormwater Management Manual (Ecology, 2004). Stormwater disposal/infiltration devices require registration with the Washington State Department of Ecology as Underground Injection and Control (UIC) facilities. Stormwater disposal systems shall be designed per area requirements.

The perimeter ground surface and hard-scaping should be sloped to drain away from all structures. Gutters should be tight-lined to a suitable discharge and maintained as free flowing. Cut or fill slopes shall be prepared and maintained to control erosion in accordance with area requirements.

3.5 Seismic Design Criteria

The seismic design parameters, in accordance with the 2015 IBC, are summarized in Table 2.

Table 2. IBC Seismic Design Parameters

Parameter	Short Period	1 Second
Maximum Credible Earthquake Spectral Acceleration	$S_s = 0.43 \text{ g}$	$S_1 = 0.16 \text{ g}$
Site Class	D	
Site Coefficient	$F_a = 1.46$	$F_v = 2.15$
Adjusted Spectral Acceleration	$S_{MS} = 0.62 \text{ g}$	$S_{M1} = 0.35 \text{ g}$
Design Spectral Response Acceleration Parameters	$S_{DS} = 0.41 \text{ g}$	$S_{D1} = 0.23 \text{ g}$
Design Spectral Peak Ground Acceleration	0.17 g	

g – acceleration due to gravity

4.0 CONSTRUCTION RECOMMENDATIONS

4.1 Site Preparation

Construction of the proposed development will require removal of loose silt for mass grading activities or in-place compaction during the dry season. In general, this material can be reused as structural fill by placing and compacting it in lifts as structural fill during dry conditions. Once any loose soils are removed, the exposed subgrade should be moisture conditioned and compacted using a large, smooth-drum, vibratory roller making a minimum of four to six overlapping passes until the subgrade is relatively dense and well-keyed. The near-surface soils should then be replaced in lifts of up to 12 inches (uncompacted thickness) and compacted as structural fill. Due to the variability of the near-surface soils

present at the site, the subgrade should be evaluated by PBS personnel by observing proofrolls (described in the following section of this report) of the structural fill as it is prepared. Specific recommendations for preparation of structural fill are included in the following sections of this report.

Based on the results of our geotechnical exploration and analyses, we believe the near-surface silt soils may be reused as structural fill. However, this will require the removal of any organic material. The use of native soil also depends on the contractor's ability to moisture condition the soil to within a few percent of the optimum moisture content, as well as apply the required energy using adequately sized compaction equipment during site grading.

4.1.1 Proofrolling/Subgrade Verification

Following site preparation and prior to placing aggregate base for the foundations, building pad, or pavement section, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. The subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If evaluation of the subgrades occur during wet conditions, or if proofrolling the subgrades will result in disturbance, they should be evaluated by qualified PBS personnel using a steel foundation probe. We recommend that PBS be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be recompacted or excavated to firm ground and replaced with structural fill.

4.1.2 Wet/Freezing Weather and Wet Soil Conditions

Surficial soils at the site consist primarily of silt with sand, which may be recompacted during wet conditions. Areas containing variable amounts of silt could possibly be encountered during construction. During wet conditions, these areas may require over-excavation and replacement. Site earthwork and subgrade preparation should not be completed during freezing conditions.

Protection of the subgrade is the responsibility of the contractor. Soils that have been disturbed during site preparation activities, or soft or loose zones identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

4.2 Excavation

All excavations should be made in accordance with applicable OSHA and state regulations. The contractor is responsible for adherence to the Occupational Safety and Health Administration (OSHA) requirements. Near-surface soils encountered at the site consist of loose to medium dense sandy silt; some sloughing and caving should be anticipated.

Trench cuts may stand relatively vertical to a depth of approximately 4 feet bgs, provided no groundwater seepage is present in the trench walls. Open excavation techniques may be used provided the excavation is configured in accordance with the OSHA requirements, groundwater seepage is not present, and with the understanding that some sloughing may occur. The trench walls should be flattened if sloughing occurs or seepage is present. If shallow groundwater is observed during construction, use of a trench shield or other approved temporary shoring is recommended for cuts that extend below groundwater seepage, or if vertical walls are desired for cuts deeper than 4 feet bgs.

4.3 Structural Fill

Structural fills should be placed over subgrade that has been prepared in accordance with the Site Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. A wide range of material may be used as structural fill; however, all material used should be free of organic matter or other unsuitable materials and should meet the specifications provided in the 2016 Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT, SS 2016), depending on the application. A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill is provided as follows.

4.3.1 Near-Surface Soils

Based on our geotechnical exploration, loose to medium dense silt with sand and the weathered fractured basalt encountered at the site may be suitable for mass grading applications during the dry season provided any encountered debris is removed. If the onsite soils are used as fill for mass grading, the silt and the fractured basalt materials should be worked together to create a stable fill material. Additionally, the fill should be free of any organic or deleterious material with grain-size typically less than 6 inches in diameter. Cobbles measuring more than 6 inches in diameter shall make up no more than five percent of the fill by weight. The material should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D 1557 (modified Proctor), with a maximum uncompacted lift thickness of 12 inches. Due to the rocky nature of the native fill material, visual inspection of the material and methods of processing and compaction by a member of the PBS geotechnical engineering staff is recommended.

4.3.2 Imported Granular Materials

Imported granular material used during periods of wet weather or for haul roads, building pad subgrades, staging areas, etc., should be pit or quarry run rock, crushed rock, or crushed gravel and sand, and should meet the specifications provided in WSDOT SS 9-03.14(2) – Select Borrow. In addition, the imported granular material should be well graded between coarse and fine and of the fraction passing the US Standard No. 4 Sieve, less than 5 percent by dry weight should pass the US Standard No. 200 Sieve.

Imported granular material should be placed in lifts with a maximum uncompacted thickness of 9 inches, and be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

During wet conditions, where imported granular material is placed over potentially soft-soil subgrades, we recommend a geotextile be placed between the subgrade and imported granular material. Depending on site conditions, the geotextile should meet WSDOT SS 9-33.2 – Geosynthetic Properties for soil separation or stabilization. The geotextile should be installed in conformance with WSDOT SS 2-12.3 – Construction Geosynthetic (Construction Requirements) and, as applicable, WSDOT SS 2-12.3(2) – Separation or WSDOT SS 2-12.3(3) – Stabilization. As an alternative to the use of the geotextile, the use of cobbles measuring 3 to 6 inches may be used for soil stabilization or as deemed suitable by the geotechnical engineer of record.

4.3.3 Base Aggregate

Base aggregate for floor slabs should be clean, crushed rock or crushed gravel. The base aggregate should contain no deleterious materials, meet specifications provided in WSDOT SS 9-03.12(1)A – Gravel Backfill for Foundations (Class A), and have less than

5 percent (by dry weight) passing the US Standard No. 200 Sieve. The imported granular material should be placed in one lift and compacted to at least 95 percent of the maximum dry density, as determined by ASTM D 1557.

4.3.4 Foundation Base Aggregates

Imported granular material placed at the base of excavations for spread footings, slabs-on-grade, and other below-grade structures should be clean, crushed rock or crushed gravel, and sand that is well graded between coarse and fine. The granular materials should contain no deleterious materials, have a maximum particle size of 1½-inch, and meet WSDOT SS 9-03.12(1)A – Gravel Backfill for Foundations (Class A). The imported granular material should be placed in one lift and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

4.3.5 Trench Backfill

Trench backfill placed beneath, adjacent to, and for at least 2 feet above utility lines (i.e., the pipe zone) should consist of well-graded granular material with a maximum particle size of 1 inch and less than 10 percent by dry weight passing the US Standard No. 200 Sieve. The pipe bedding should also meet the standards prescribed by City of Richland specifications, where WSDOT SS 9-03.12(3) – Gravel Backfill for Pipe Zone Bedding applies. The pipe zone backfill should be compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department.

Within pavement areas or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with a maximum particle size of 3 inches, less than 10 percent by dry weight passing the US Standard No. 200 Sieve, and should meet standards prescribed by WSDOT SS 9-03.19 – Bank Run Gravel for Trench Backfill. This material should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department. The upper 2 feet of the trench backfill should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D 1557.

Outside of structural improvement areas (e.g., roadway alignments or building pads), trench backfill placed above the pipe zone should consist of excavated material free of wood waste, debris, clods, or rocks greater than 6 inches in diameter and meet WSDOT SS 9-03.14 – Borrow and WSDOT SS 9-03.15 – Native Material for Trench Backfill. This general trench backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department.

5.0 ADDITIONAL SERVICES AND CONSTRUCTION OBSERVATIONS

In most cases, other services beyond completion of a geotechnical engineering report are necessary or desirable to complete the project. Occasionally, conditions or circumstances arise that require the performance of additional work that was not anticipated when the geotechnical report was written. PBS offers a range of environmental, geological, geotechnical, and construction services to suit the varying needs of our clients.

PBS should be retained to review the plans and specifications for this project before they are finalized. Such a review allows us to verify that our recommendations and concerns have been adequately addressed in the design.

Satisfactory earthwork performance depends on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. We recommend that PBS be retained to observe general excavation, stripping, and fill placement and compaction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without express written consent of the Client and PBS. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, field explorations, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the Client is responsible for ensuring that PBS is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated soil and rock conditions and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples in test pits. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project. Therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of services for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on- and off-site), or other factors may change over time and could materially affect our findings. Therefore, this report should not be relied upon after three years from its issue, or in the event that the site conditions change.

7.0 REFERENCES

- International Building Code. (IBC). (2015). International Building Code. Country Club Hills, IL: International Code Council, Inc. Washington State Amendments to the International Building Code 2009 Edition, Effective July 1, 2010.
- Riedel, Stephen, et al. (1991). Field Trip Guide to the Geology of the Pasco Basin and Surrounding Area, South-Central Washington, Washington State University.
- Rockwell International. (1979). Compilation Geologic Map of the Pasco Basin, South Central Washington. RHO-BWI-ST-4, Rockwell Hanford Operations Energy Systems Group.
- Washington State Department of Ecology. (2004). Stormwater Management Manual for Eastern Washington, publication number 04-10-076.
- Washington State Department of Transportation (WSDOT SS). (2016). Standard Specifications for Road, Bridge, and Municipal Construction, M 41-10, Olympia, Washington.

FIGURES

E:\Projects\4234-00\Geotechnical\GeoDWG\HDJ4234.000 FIG1-2.dwg Mar 23, 2017 03:17pm brandonw



SOURCE © 2016 GOOGLE EARTH PRO.



WASHINGTON



SCALE: 1" = 2,500'

PREPARED FOR: PAHLISCH HOMES



PROJECT #
HDJ4234.000

DATE
MAR 2017

VICINITY MAP
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

FIGURE

1

\\pbsenv\lan\Projects\ HDJ Pasco Projects\Projects\4234-00\Geotechnical\GeoDWG\HDJ4234-000_FIG1-2.dwg Mar 17, 2017 04:12pm jimb



SOURCE: © 2016 GOOGLE EARTH PRO.

LEGEND

■ TP-1 TEST PIT NUMBER AND APPROXIMATE LOCATION



SCALE: 1" = 500'

PREPARED FOR: PAHLISCH HOMES



PROJECT #
HDJ4234.000

DATE
MAR 2017

SITE PLAN
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

FIGURE

2

APPENDIX A

Field Explorations

APPENDIX A – FIELD EXPLORATIONS

A1.0 GENERAL

PBS explored subsurface conditions at the project site by excavating eight test pits on August 10, 2016. The approximate locations of the explorations, designated TP-1 through TP-8, are shown on Figure 2. The procedures and techniques used to excavate the test pits, collect samples, and other field techniques are described in detail in the following paragraphs. Unless otherwise noted, all soil sampling and classification procedures were performed in general accordance with applicable ASTM standards. “General accordance” means that certain local and common drilling and descriptive practices may have been followed.

A2.0 TEST PITS

A2.1 Excavation and Sampling

The test pits were excavated using a track-mounted excavator, equipped with a 42-inch toothed-bucket, provided and operated by Mahaffey Industries Inc. of Kennewick, Washington, and were advanced to depths up to approximately 19 feet bgs. The test pits were observed by a member of the PBS geotechnical engineering staff who located the general areas for exploration and maintained a detailed log of the subsurface conditions and materials encountered during the course of the work. Representative disturbed samples were taken at selected depths in the test pits for classification and for physical testing in the PBS laboratory. The disturbed samples were sealed in plastic bags.

A2.2 Test Pit Logs

Test pit logs describe the subsurface conditions and types of materials encountered in the test pits and the depths where the materials or conditions changed, although the changes may be gradual. Each test pit log shows the depths of the samples obtained.

A3.0 MATERIAL DESCRIPTION

Initially, soil samples were classified visually in the field. Consistency, color, relative moisture, degree of plasticity, and other distinguishing characteristics of the soil samples were noted. Afterward, the samples were reexamined in the PBS laboratory, various standard classification tests were conducted, and the field classifications were modified where necessary. The terminology used in the soil classifications and other modifiers are defined in the attached Table A-1, Terminology Used to Describe Soil and Rock.

Soil Descriptions

Soils exist in mixtures with varying proportions of components. The predominant soil, i.e., greater than 50 percent based on total dry weight, is the primary soil type and is capitalized in our log descriptions (SAND, GRAVEL, SILT, or CLAY). Smaller percentages of other constituents in the soil mixture are indicated by use of modifier words in general accordance with the ASTM D2488-06 Visual-Manual Procedure. "General Accordance" means that certain local and common descriptive practices may have been followed. In accordance with ASTM D2488-06, group symbols (such as GP or CH) are applied on the portion of soil passing the 3-inch (75mm) sieve based on visual examination. The following describes the use of soil names and modifying terms used to describe fine- and coarse-grained soils.

Fine-Grained Soils (50% or greater fines passing 0.075 mm, No. 200 sieve)

The primary soil type, i.e., SILT or CLAY is designated through visual-manual procedures to evaluate soil toughness, dilatency, dry strength, and plasticity. The following outlines the terminology used to describe fine-grained soils, and varies from ASTM D2488 terminology in the use of some common terms.

Primary soil NAME, Symbols, and Adjectives			Plasticity Description	Plasticity Index (PI)
SILT (ML & MH)	CLAY (CL & CH)	ORGANIC SOIL (OL & OH)		
SILT		Organic SILT	Non-plastic	0 – 3
SILT		Organic SILT	Low plasticity	4 – 10
SILT/Elastic SILT	Lean CLAY	Organic SILT/ Organic CLAY	Medium Plasticity	10 – 20
Elastic SILT	Lean/Fat CLAY	Organic CLAY	High Plasticity	20 – 40
Elastic SILT	Fat CLAY	Organic CLAY	Very Plastic	>40

Modifying terms describing secondary constituents, estimated to 5 percent increments, are applied as follows:

Description	% Composition	
With Sand	% Sand ≥ % Gravel	15% to 25% plus No. 200
With Gravel	% Sand < % Gravel	
Sandy	% Sand ≥ % Gravel	≤30% to 50% plus No. 200
Gravelly	% Sand < % Gravel	

Borderline Symbols, for example CH/MH, are used when soils are not distinctly in one category or when variable soil units contain more than one soil type. **Dual Symbols**, for example CL-ML, are used when two symbols are required in accordance with ASTM D2488.

Soil Consistency terms are applied to fine-grained, plastic soils (i.e., $PI \geq 7$). Descriptive terms are based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84, as follows. SILT soils with low to non-plastic behavior (i.e., $PI < 7$) may be classified using relative density.

Consistency Term	SPT N-value	Unconfined Compressive Strength	
		tsf	kPa
Very soft	Less than 2	Less than 0.25	Less than 24
Soft	2 – 4	0.25 – 0.5	24 – 48
Medium stiff	5 – 8	0.5 – 1.0	48 – 96
Stiff	9 – 15	1.0 – 2.0	96 – 192
Very stiff	16 – 30	2.0 – 4.0	192 – 383
Hard	Over 30	Over 4.0	Over 383

Soil Descriptions

Coarse - Grained Soils (less than 50% fines)

Coarse-grained soil descriptions, i.e., SAND or GRAVEL, are based on the portion of materials passing a 3-inch (75mm) sieve. Coarse-grained soil group symbols are applied in accordance with ASTM D2488-06 based on the degree of grading, or distribution of grain sizes of the soil. For example, well-graded sand containing a wide range of grain sizes is designated SW; poorly graded gravel, GP, contains high percentages of only certain grain sizes. Terms applied to grain sizes follow.

Material NAME	Particle Diameter	
	Inches	Millimeters
SAND (SW or SP)	0.003 – 0.19	0.075 – 4.8
GRAVEL (GW or GP)	0.19 – 3	4.8 – 75
Additional Constituents:		
Cobble	3 – 12	75 – 300
Boulder	12 – 120	300 – 3050

The primary soil type is capitalized, and the fines content in the soil are described as indicated by the following examples. Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 percent. Other soil mixtures will have similar descriptive names.

Example: Coarse-Grained Soil Descriptions with Fines

>5% to < 15% fines (Dual Symbols)	≥15% to < 50% fines
Well graded GRAVEL with silt: GW-GM	Silty GRAVEL: GM
Poorly graded SAND with clay: SP-SC	Silty SAND: SM

Additional descriptive terminology applied to coarse-grained soils follow.

Example: Coarse-Grained Soil Descriptions with Other Coarse-Grained Constituents

Coarse-Grained Soil Containing Secondary Constituents	
With sand or with gravel	≥ 15% sand or gravel
With cobbles; with boulders	Any amount of cobbles or boulders.

Cobble and boulder deposits may include a description of the matrix soils, as defined above.

Relative Density terms are applied to granular, non-plastic soils based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84.

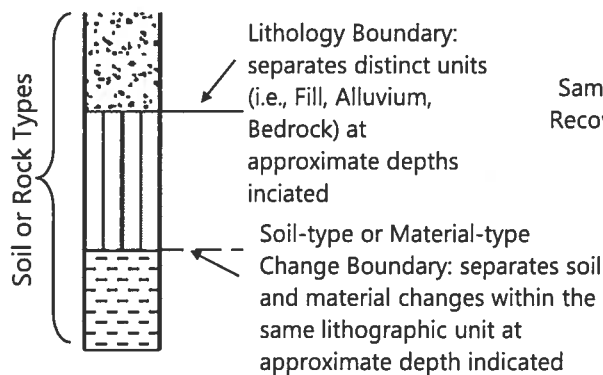
Relative Density Term	SPT N-value
Very loose	0 – 4
Loose	5 – 10
Medium dense	11 – 30
Dense	31 – 50
Very dense	> 50

SAMPLING DESCRIPTIONS

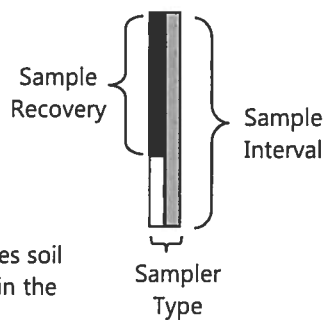
SPT Drive Sampler Standard Penetration Test ASTM D 1586	Shelby Tube Push Sampler ASTM D 1587	Specialized Drive Samplers (Details Noted on Logs)	Specialized Drill or Push Sampler (Details Noted on Logs)	Grab Sample	Rock Coring Interval	Screen (Water or Air Sampling)	Water Level During Drilling/Excavation	Water Level After Drilling/Excavation
								

LOG GRAPHICS

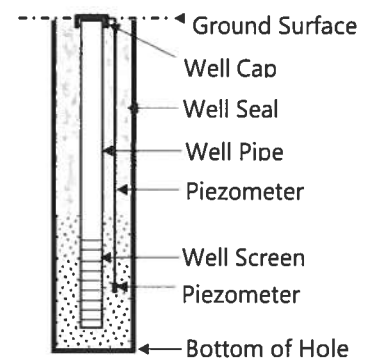
Soil and Rock



Sampling Symbols



Instrumentation Detail



Geotechnical Testing Acronym Explanations

PP	Pocket Penetrometer	HYD	Hydrometer Gradation
TOR	Torvane	SIEV	Sieve Gradation
DCP	Dynamic Cone Penetrometer	DS	Direct Shear
ATT	Atterberg Limits	DD	Dry Density
PL	Plasticity Limit	CBR	California Bearing Ratio
LL	Liquid Limit	RES	Resilient Modulus
PI	Plasticity Index	VS	Vane Shear
P200	Percent Passing US Standard No. 200 Sieve	bgs	Below ground surface
OC	Organic Content	MSL	Mean Sea Level
CON	Consolidation	HCL	Hydrochloric Acid
UC	Unconfined Compressive Strength		



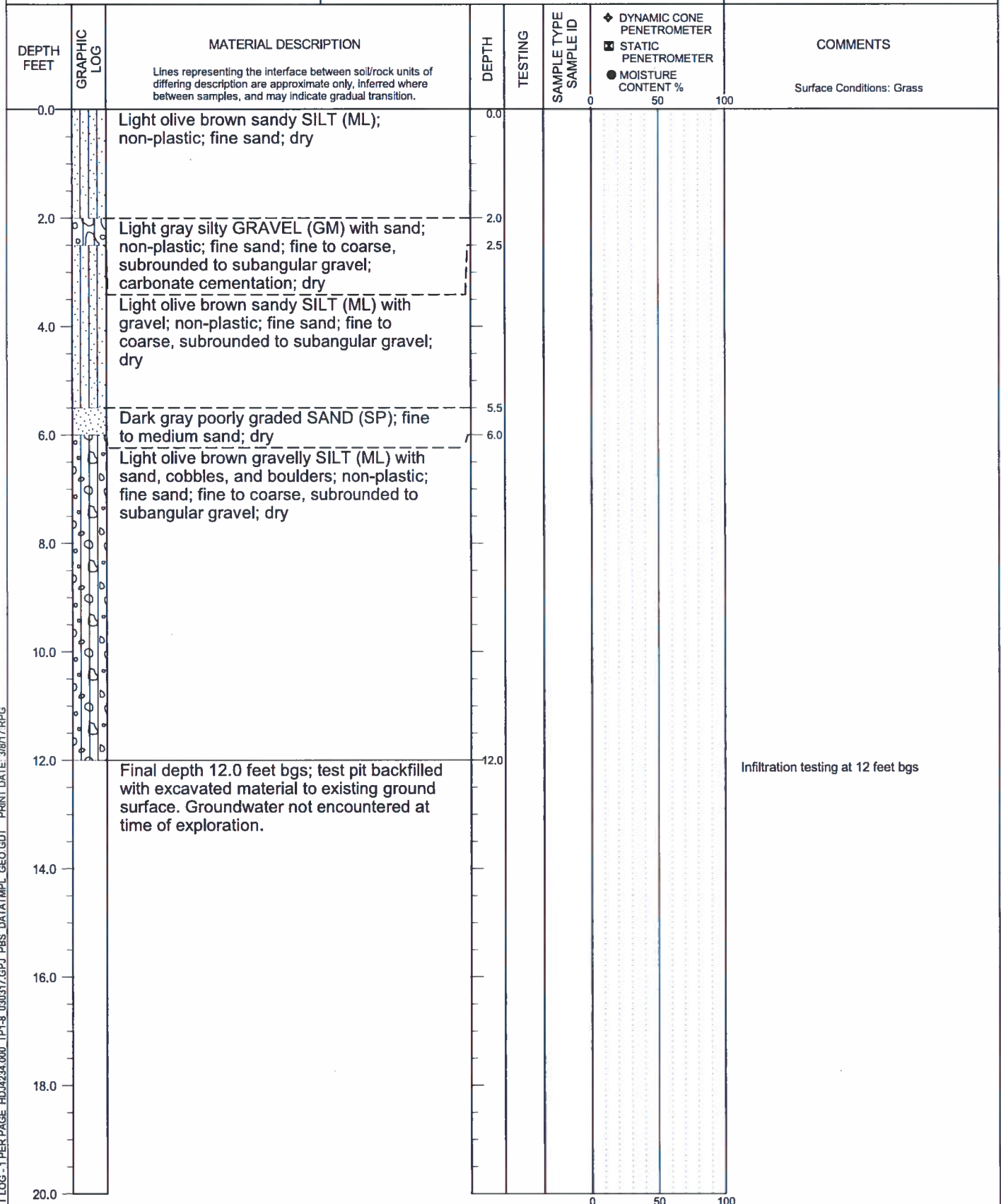
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-1

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-1 LOCATION:
(See Site Plan)

Lat: 46.22193 Long: -119.29499



TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP-1-8 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A1
Page 1 of 1



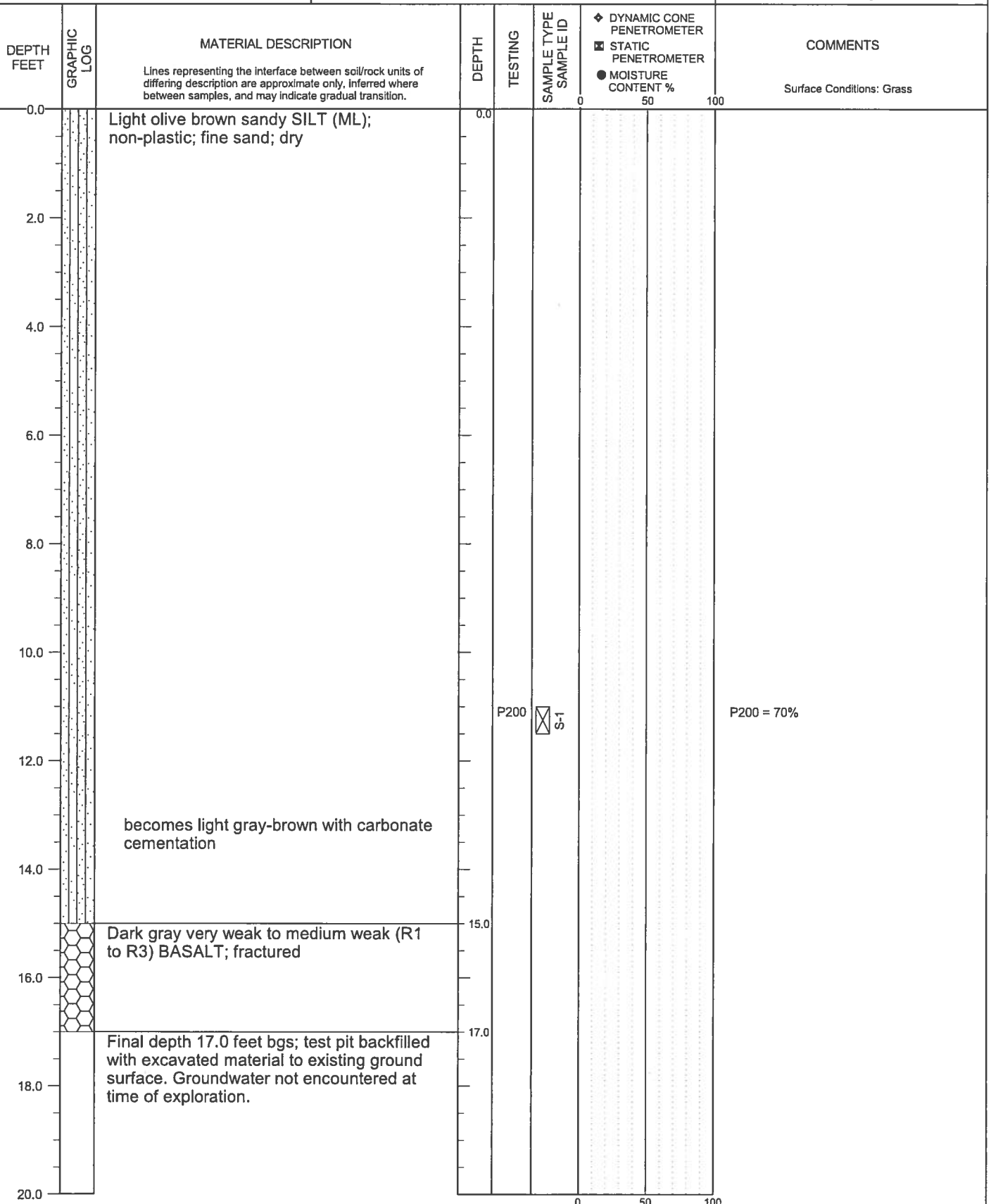
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-2

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-2 LOCATION:
(See Site Plan)

Lat: 46.21884 Long: -119.29145



TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP1-8 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/8/17.RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A2
Page 1 of 1



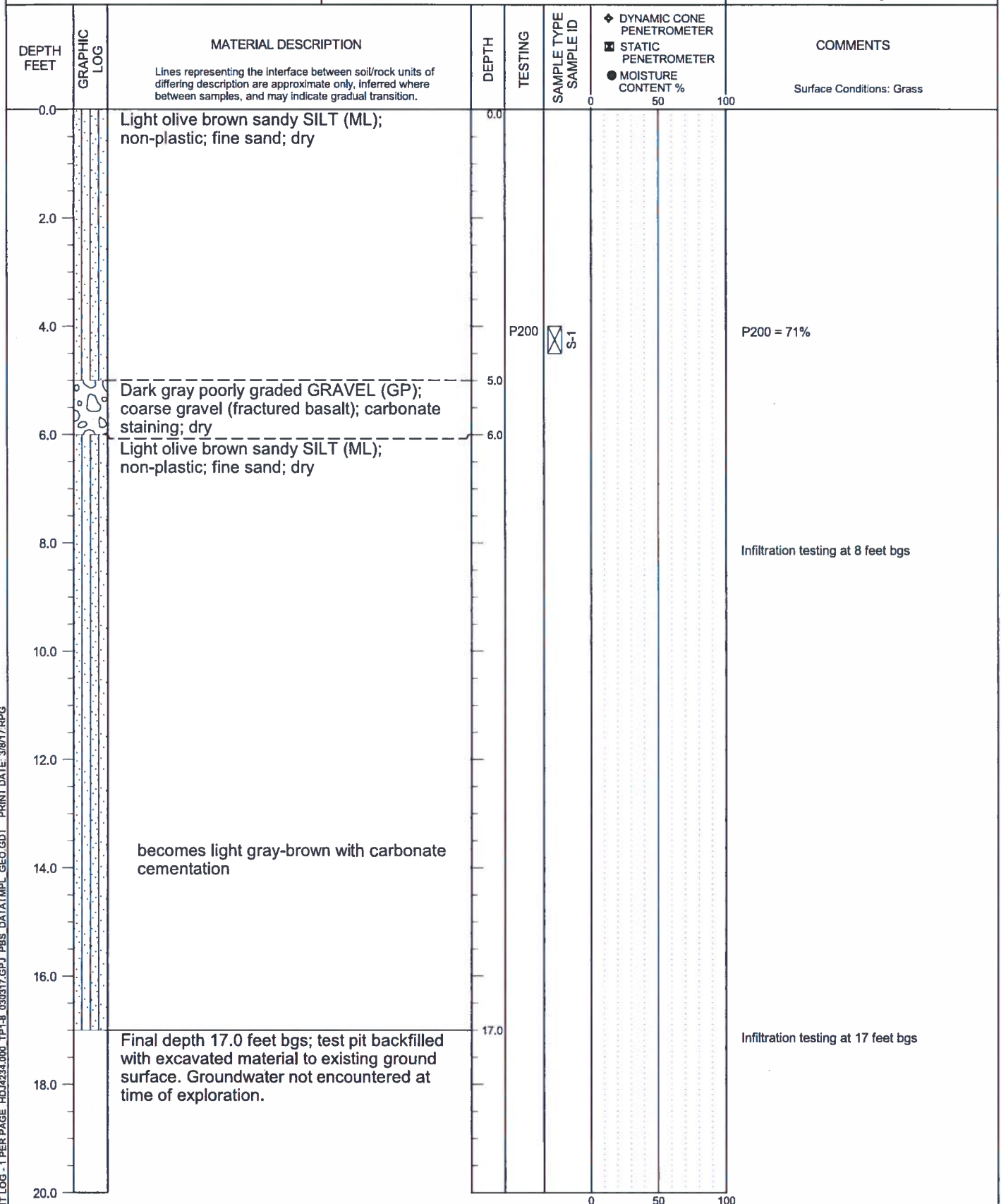
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-3

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-3 LOCATION:
(See Site Plan)

Lat: 46.21954 Long: -119.29194



TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP-1-B 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/6/17.RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A3
Page 1 of 1



WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-4

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-4 LOCATION:
(See Site Plan)

Lat: 46.21995 Long: -119.29119

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	◆ DYNAMIC CONE PENETROMETER ▣ STATIC PENETROMETER ● MOISTURE CONTENT %	COMMENTS Surface Conditions: Grass
0.0		Light olive brown sandy SILT (ML); non-plastic; fine sand; dry	0.0		0	50	100
2.0		Moderately weathered very weak to medium weak (R1 to R3) BASALT; fractured; carbonate stained; dry	2.0				
4.0		becomes slightly weathered					
6.0		Final depth 6.0 feet bgs due to refusal in basalt; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	6.0				
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP-4 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A4
Page 1 of 1



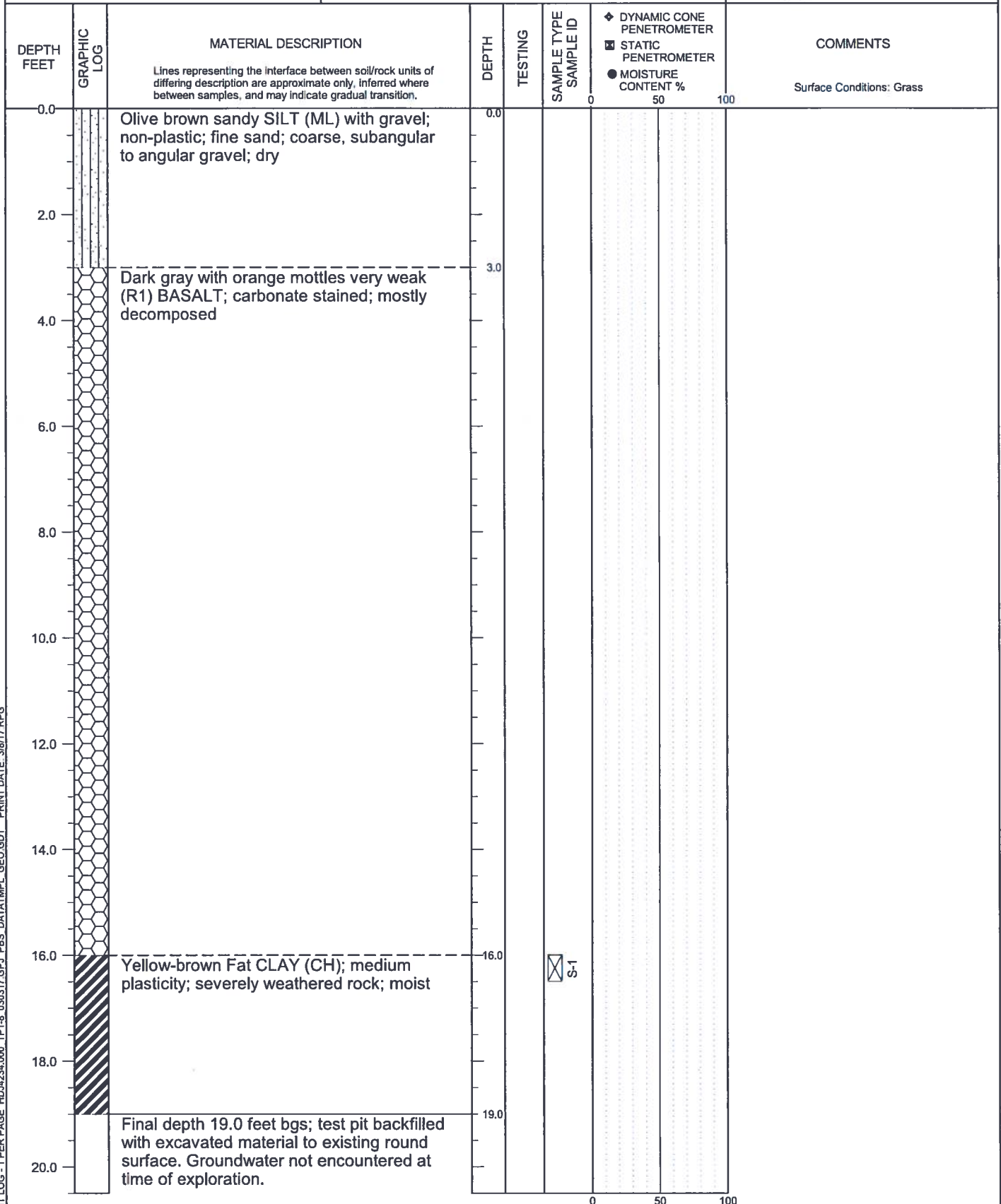
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-5

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-5 LOCATION:
(See Site Plan)

Lat: 46.22100 Long: -119.29128



TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP-5 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A5
Page 1 of 1



WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-6

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-6 LOCATION:
(See Site Plan)

Lat: 46.22069 Long: -119.29153

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	◆ DYNAMIC CONE PENETROMETER ☒ STATIC PENETROMETER ● MOISTURE CONTENT %	COMMENTS	
0.0			0.0		0	50	100	Surface Conditions: Grass
2.0		Light olive brown silty GRAVEL (GM) with sand and cobbles; non-plastic; fine sand; fine to coarse, subrounded to subangular gravel; dry becomes light brown-gray; carbonate stained becomes light olive brown becomes brown with fine to medium sand	6.0					
6.0		Dark gray slightly weathered very weak to medium weak (R1 to R3) BASALT; fractured; carbonate stained; dry	10.0					
10.0		Final depth 10.0 feet bgs due to refusal in basalt; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	12.0					Infiltration testing at 10 feet bgs
14.0			16.0					
16.0			18.0					
18.0			20.0					

TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP1-8 030317.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A6
Page 1 of 1



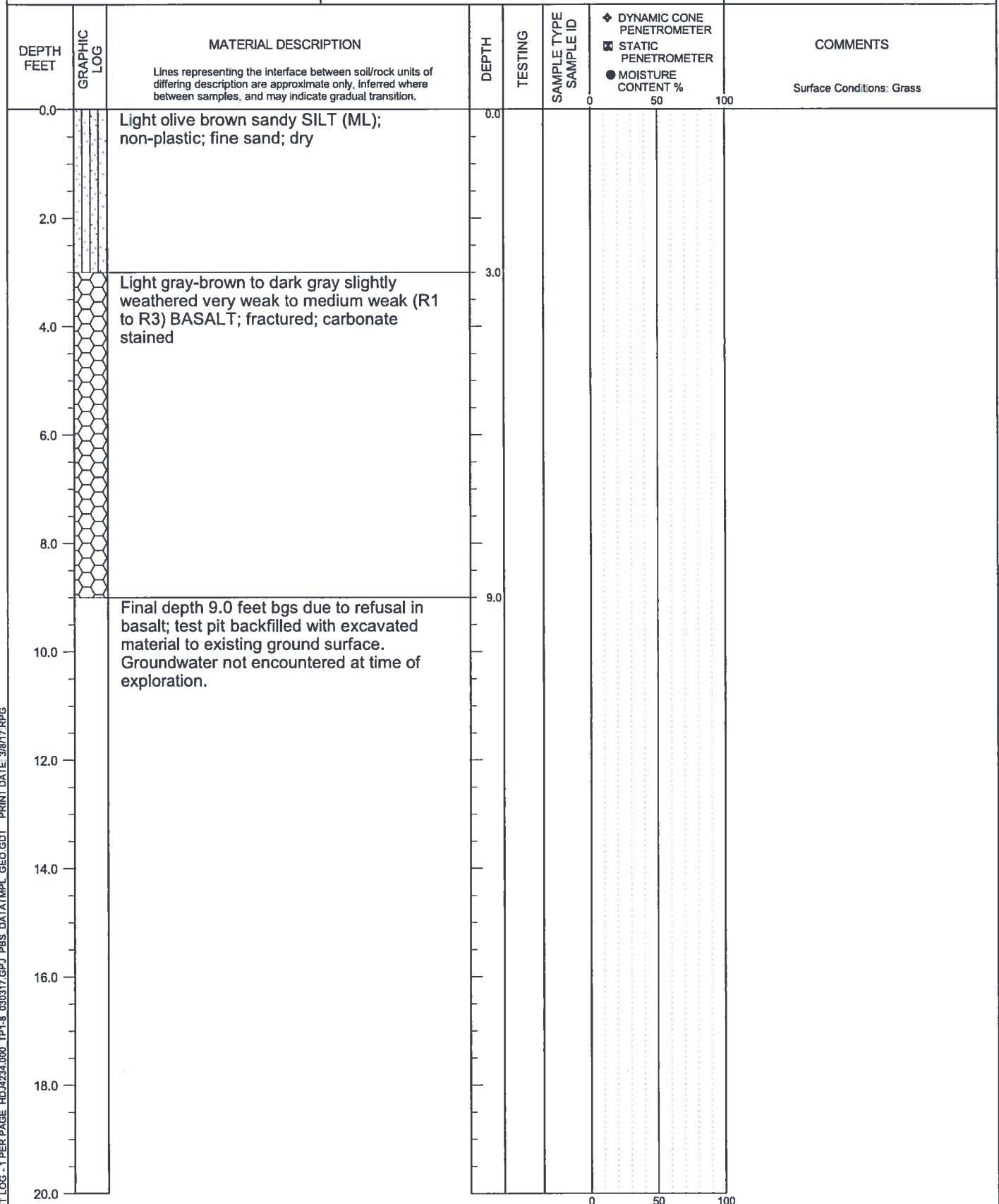
WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-7

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-7 LOCATION:
(See Site Plan)

Lat: 46.21931 Long: -119.29022



TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP1-8 030317.GPJ PBS DATATMPL GEO GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A7
Page 1 of 1



WESTCLIFFE HEIGHTS
RICHLAND, WASHINGTON

TEST PIT TP-8

PBS PROJECT NUMBER:
HDJ4234.000

APPROX. TEST PIT TP-8 LOCATION:
(See Site Plan)

Lat: 46.21866 Long: -119.28811

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	☐ DYNAMIC CONE PENETROMETER ☒ STATIC PENETROMETER ☐ MOISTURE CONTENT %	COMMENTS Surface Conditions: Grass
0.0		Light olive brown sandy SILT (ML); non-plastic; fine sand; dry	0.0		0	50	100
2.0		Light gray-brown slightly weathered very weak to medium weak (R1 to R3) BASALT; fractured; carbonate stained	1.0				
4.0							
6.0							
8.0							
10.0							
12.0							
13.0		Final depth 13.0 feet bgs due to refusal in basalt; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	13.0				
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PAGE HDJ4234.000 TP1-8 030317 GPJ PBS DATATMPL GEO GDT PRINT DATE: 3/8/17 RPG

LOGGED BY: A. Swenson
COMPLETED: 8/10/16

EXCAVATED BY: Mahaffey Enterprises, Inc.
EXCAVATION METHOD: Komatsu 400 LC with 42" Bucket

FIGURE A8
Page 1 of 1

APPENDIX B

Laboratory Testing

APPENDIX B – LABORATORY TESTING

B1.0 GENERAL

Samples obtained during the field explorations were examined in the PBS laboratory. The physical characteristics of the samples were noted and the field classifications were modified where necessary. During the course of examination, representative samples were selected for further testing. The testing program on the soil samples included standard classification tests, which consisted of visual examination, moisture contents, and grain-size analyses. The classification tests yield certain index properties of the soils important to an evaluation of soil behavior. The testing procedures are described in the following paragraphs. Unless otherwise noted, all soil testing and classification procedures followed applicable ASTM standards.

B2.0 CLASSIFICATION TESTS

B2.1 Visual Classification

The soils were classified in accordance with the Unified Soil Classification System with certain other terminology, such as the relative density or consistency of the soil deposits, in general accordance with engineering practice. In determining the soil type (that is, gravel, sand, silt, or clay), the term which best described the major portion of the sample was used. Modifying terminology to further describe the samples is defined in Terminology Used to Describe Soil and Rock in Appendix A.

B2.2 Moisture (Water) Contents

Natural moisture content determinations were made on samples of the fine-grained soils (that is, silts, clays, and silty sands). The natural moisture content is defined as the ratio of the weight of water to dry weight of soil, expressed as a percentage. The results of the moisture content determinations are presented on the test pits logs in Appendix A.

B2.3 Grain-Size Analyses

Wash analyses (P200s) were completed on samples to determine the portion of soil samples passing the No. 200 Sieve (i.e., silt and clay). The results of the P200 testing are presented on the test pit logs in Appendix A.

Looking Northwest



Looking North



Looking East



Looking Southeast



Looking South



Looking West

