



City of Yelm
EST. 1924
WASHINGTON
"Pride of the Prairie"

AMENDED
NOTICE OF DECISION

DATE: **March 22, 2021**
PROJECT NAME: Mountain Meadows Administrative Subdivision
PROJECT LOCATION: 8818 Burnett Road SE, Yelm, WA
PARCEL NUMBERS: 21713310400, 21713310401, 21713310402
CASE NUMBER: 2020.0341.PR0011

NOTICE IS HEREBY GIVEN that the Community Development Department issued an **AMENDED** Administrative Subdivision Approval to Henrietta Morey at the above-referenced location.

The complete decision may be viewed on the City's website at www.yelmwa.gov and choosing 'I Want To' then 'View' then 'Public Notices' from the menu system. A copy of the decision may also be obtained at the Community Development Department in City Hall at 106 2nd Street SE, Yelm, WA 98597 during normal business hours for a fee of 15 cents per page. For additional information, please contact the Community Development Department at (360) 458-3835.



City of Yelm

EST. 1924

WASHINGTON

"Pride of the Prairie"

ADMINISTRATIVE SUBDIVISION 2020. 0341.PR0011

AMENDED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION

INTRODUCTION

Henrietta Morey filed an administrative subdivision application to the City of Yelm to subdivide 4.4 acres into 22 residential parcels located at 8818 Burnett Road SE.

The application package includes 4 exhibits, submitted by Henrietta Morey, including application, preliminary development plans, an updated environmental checklist, and a preliminary drainage report. A full list of exhibits is described below.

- Exhibit A: Preliminary Subdivision Application
- Exhibit B: Preliminary Subdivision Drawings
- Exhibit C: Updated SEPA Checklist
- Exhibit D: No Effect Prairie Gopher Study
- Exhibit E: Preliminary Drainage Report
- Exhibit F: Previous Preliminary Subdivision Approval
- Exhibit G: Boundary Line Adjustment recorded 2017
- Exhibit H: Public Comment

Having fully considered the record, the Site Plan Review Committee enters the following:

A Boundary Line Adjustment (BLA) recorded in 2017 placed specific conditions from the original subdivision approval on parcel 21713310401. The BLA did not include the specific condition of frontage and utility improvements on Burnett Road. The findings and conditions relating to Burnett Road frontage and utility improvements for parcel 21713310401 were removed from this approval.

FINDINGS OF FACT

1.

Henrietta Morey proposes to subdivide a 4.4-acre parcel into 22 residential lots located at 8818 Burnett Road SE, identified by Assessor's Tax Parcel Numbers 21713310400 and 21713310402.

2.

The site received preliminary subdivision approval on July 20, 2005, City of Yelm Permit # 20050121. The original subdivision review and approval included 3 parcels, 21713310400, 21713310401, and 21713310402, which includes a parcel improved with a duplex, a parcel with an outbuilding, and an undeveloped parcel.

A Mitigated Determination of Nonsignificance (MDNS) for the preliminary subdivision was issued on May 31, 2005 which included the following conditions:

1. The developer shall mitigate transportation impacts based on the new residential P.M. peak hour trips generated by the project. The Transportation Facility Charge (TFC) shall be based on 1.01 new peak hour trips per residential unit. The proponent will be responsible for a TFC of \$757.50 per dwelling unit which is payable at time of building permit. Credit should be given for the existing multi-family dwelling.
2. Prior to final subdivision approval, the developer shall complete the following transportation improvements:
 - a. The east half of Burnett Road shall be improved to City Standards for a Neighborhood Collector along the property frontage.
 - b. All interior streets shall be improved to City Standards for a Local Access Residential.
 - c. The interior street shall be connected to the right-of-way provided to the south, with full street improvements completed to 89th Street. The cost of these improvements shall be the responsibility of the applicant.
3. The driveway entrance to the existing duplex shall be located on the new interior street.

4. Temporary erosion control systems to be approved by the City of Yelm.
5. The developer shall provide at least 5% of total acreage as qualified open space.
6. The developer shall enter into an agreement with Yelm Community Schools to mitigate project.

The original subdivision was not constructed, and the preliminary approval expired.

The properties also received a Boundary Line Adjustment (BLA) approval in 2017.

While the BLA placed specific conditions from the original subdivision approval on parcel 21713310401, the BLA did not include the specific condition of frontage and utility improvements on Burnett Road. The condition of Burnett Road frontage and utility improvements for parcel 21713310401 are removed from this approval.

The application materials submitted with this application state that the duplex will connect to City water and sewer, as well as decommissioning the onsite systems, however the conceptual site plan depicts that the parcel is not part of this project.

The Recorded Boundary Line Agreement placed specific conditions on Parcel 21713310401 at the time of development of Parcel B, or Lot 1, 2, or 3 of SS2414. These include:

1. The septic drainfield easement located on Parcel B shall be vacated
2. The 100' well radius benefitting Parcel A shall be vacated
3. The current driveway access to Parcel A shall be relocated from its current location on Burnett Road SE to that area then required by the City, the cost and responsibility shall be borne by the owner/developer
4. The well and septic systems for Parcel A shall be decommissioned
5. Parcel A shall connect to City water and sewer service

The property is located on Burnett Road, north of State Route 510. The property is identified by Assessor's Tax Parcel Numbers 21713310400, 21713310401, 21713310402.

The proposal is comprised of 3 parcels, bound on the north and east by vacant land, to the south by a residential subdivision, and to the west by single family residential units

located in Thurston County. The properties are currently developed with a duplex, and an older out-building.

The proposed site plan does not adequately address existing conditions.

3.

The property is zoned Moderate Density Residential (R-6) which is codified at Chapter 18.32 YMC. The R-6 zone is intended for residential development at a density of not less than three and not more than six units per acre. [Section 18.32.040(A) YMC].

The proposed site plan adequately addresses density.

4.

Henrietta Morey submitted an administrative subdivision application on November 12, 2020, which was determined to be complete on November 24, 2020. The application materials included a preliminary site plan, preliminary drainage report, a no effect prairie gopher study, and an updated environmental checklist.

5.

As required by Section 18.10.080, and 18.10.080(E) YMC, the Yelm Community Development Department mailed a Notice of Application to local and state agencies and surrounding property owners on November 24, 2020. Notice was published on the City's website and published in the Nisqually Valley News on 25, 2020. Additionally, as required by Section 58.17.095 RCW, the property was posted in 5 conspicuous places with notification that no public hearing would be held unless requested. The public comment period ended on December 15, 2020.

Comments were received by an adjacent property owner with concerns about safety of pedestrians wishing to access SR510 Yelm Loop walking paths.

The project's impacts do not warrant the extension of the Burnett Road sidewalk to SR 510 Yelm Loop. The request was forwarded to the City of Yelm Public Works Department for consideration of upcoming sidewalk improvement projects.

6.

Henrietta Morey submitted an updated environmental checklist that included a no effect prairie gopher study.

The 2005 MDNS reflects Transportation Facility Charge fees that were in existence in 2005. Since that time, the impact fees have changed.

Review of the updated checklist and supporting documentation show that the only amendment to the original MDNS required is to reflect current transportation facility charges.

The May 31, 2005 MDNS mitigating condition #1 should be amended to reflect that a "Transportation Facility Charge is due and payable at building permit issuance. This fee is subject to change. The existing duplex is not subject to a transportation facility charge.

The May 31, 2005 MDNS is hereby adopted as amended.

7.

Chapter 18.16 YMC requires a determination that the infrastructure facilities necessary to serve a proposed development are in place or planned for and properly funded with a reasonable expectation that the facilities will be in place at the time needed to preserve adopted levels of service.

Concurrency with sewer infrastructure is met when the project is within an area approved for sewer pursuant to the adopted sewer comprehensive plan for the City and improvements necessary to provide facilities and services are present to meet the needs of the proposed development.

The existing duplex is currently served by an onsite sewer system and connection to City sewer service is a condition of approval.

Connection of the existing and new construction to the sewer system satisfies concurrency requirements.

Concurrency with water infrastructure means the project is within an area approved for municipal water service pursuant to the adopted water comprehensive plan for the City and improvements necessary to provide services are present.

Concurrency for subdivisions is met when, at the time of preliminary approval, the planned infrastructure identified in the six-year improvement program and water rights acquisition program of the water system plan are sufficient to provide for the proposed land division.

The State Subdivision Act, Chapter 58.17 RCW, requires that the City of Yelm make a written determination that appropriate provisions are made for potable water supplies as part of the preliminary land division process.

The level of service for water infrastructure is the ability to provide potable water to the consumer for use and fire protection in accordance with adopted health and environmental regulations. [Section 18.16.030 YMC]

The City has been planning since 1994 for the acquisition of new water rights, which were approved by the Washington State Department of Ecology in 2010. This approval was appealed and was upheld by the Pollution Control Hearings Board and by Superior Court but was overturned by the Washington Supreme Court on October 8, 2015.

The Washington State Legislature adopted the 2018 Streamflow Restoration Act. The act requires the Washington Department of Ecology to issue new water rights for up to 5 pilot projects in order to monitor and report the effectiveness of out of kind mitigation for new water rights.

A preliminary subdivision is valid for 5 years of the date of approval. [Section 58.17.140 RCW]. Once preliminary subdivision approval is granted, civil plans are prepared, approved, and the construction, inspection, and approval of required improvements such as streets, sidewalks, water and sewer mains, and stormwater facilities is completed. A final subdivision is then submitted for approval by the local legislative authority. Only after final subdivision approval can homes be constructed on the new lots and the water demand is seen.

The existing duplex is served by an onsite exempt well. Connection to City water service and decommissioning of the exempt well is a condition of approval.

Connection of the existing and new construction to the water system satisfies concurrency requirements.

Concurrency with transportation infrastructure means that the project completes frontage improvements, makes off-site improvements required for the safe movement of traffic and pedestrians if impacted by traffic from the development, and pays a traffic facilities charge.

The parcel fronts Burnett Road SE, which is considered a Neighborhood Collector street, and is not constructed to City Standards. Half-street improvements to Burnett Road, the construction of internal streets, and payment of Transportation Facilities charges are mitigating conditions of the 2005 MDNS and are conditions of approval.

Completion of transportation improvements and payment of Transportation Facility Charges satisfies concurrency requirements.

Concurrency with school infrastructure means the developer pays a school impact fee at the time of construction.

Payment of the School Impact Fee at the time of building permit issuance satisfies concurrency requirements.

Concurrency with fire protection means the developer pays a fire impact fee at the time of construction.

Payment of the Fire Impact Fee at the time of building permit issuance satisfies concurrency requirements.

8.

Title 18 YMC is the Unified Development Code for the City of Yelm and establishes standards for development within the various zoning districts. The subject property is identified by the Zoning Map as being within the Moderate Density Residential zoning district. (R-6). Surrounding properties are vacant or residentially developed.

Residential development at a minimum of 3 units per acre, and a maximum of 6 units per acre is allowed in the R-6 zone as a permitted use. [Section 18.32.040 YMC]

Setbacks for residential development in the R-6 zone require a 15-foot setback from a local access street, with a minimum driveway approach of 20 feet. Side yard setbacks are 5 feet, and rear yard setbacks are 25 feet. [Section 18.32.040 YMC] Maximum building

height is 35 feet. [Section 18.32.040 YMC]. Residential uses require two parking spaces per dwelling unit. [Section 18.54.030(A) YMC].

The conceptual site plan shows conformance with these requirements.

9.

Title 18 YMC provides guidance and regulation for site planning during development. Chapter 18.55 establishes landscaping requirements for various types of development.

Perimeter landscape includes an 8-foot planter area with a combination of evergreen and deciduous trees. For residential development, a solid wood fence is acceptable on side and rear yards. [Section 18.55.020(B) YMC]

Streetscape landscaping includes planter strip with ground cover and street trees and is a required element of the construction of frontage improvements. [Section 18.55.020(C) YMC]

Stormwater facility landscaping includes incorporating onsite landscaping. [Section 18.55.020(E) YMC].

A performance assurance device is required for maintenance of the required landscaping until the homeowners' association becomes responsible for landscape maintenance. [Section 18.55.070(E)]

The proposed site plan does not adequately address landscaping requirements.

Chapter 18.56 establishes minimum requirements for the provision of recreation and/or preservation of open space. For single-family residential developments, a minimum of 5 percent of the gross area shall be dedicated as open space. [Section 18.56.010(B) YMC]. The parcels total approximately 4.4 acres, which requires 0.24 acres of open space.

To qualify as open space, the area should be dedicated as an active recreation park, or other use found by the Site Plan Review Committee to further the purpose of the chapter.

The preliminary plans show the underground stormwater tract as open space but does not show how the space will be improved to meet recreational open space standards.

Chapter 18.57 requires the preservation of trees during development. Site plans should provide location of all trees to be retained and removed that exceed 8-inches in

diameter. Tree replacement mitigation of 1 to 1 is appropriate for the removal of trees over 8 inches in diameter.

The site is mostly void of trees with the exception of several located in the southwestern corner. It is unclear at this time the number of trees that exceed 8-inch diameter.

The proposed site plan does not adequately address tree preservation.

Mailboxes for the site shall be cluster box units (CBU) and placed on site. [Section 18.59.080 YMC]

The proposed site plan does not show mailbox type or placement.

10.

The Yelm Critical Areas and Resource Lands, Chapter 18.21 YMC provides protection for critical aquifer recharge areas, frequently flooded areas, wetlands, geologically hazardous areas, and fish and wildlife habitat conservation areas.

All of Yelm is identified as a critical aquifer recharge area. Compliance with Federal, State, and County water source protection regulations and with the City's adopted stormwater regulations is required to protect the aquifer. [Section 18.21.070 (C) YMC]

The Mazama Pocket Gopher has been listed as a threatened species by the Washington Department of Fish and Wildlife since at least 2008. Yelm has protected this species through the implementation of the Critical Areas Code. When a development occurs on property suspected to be occupied by the Mazama Pocket Gopher, the Community Development Department has required the applicant prepare a critical areas report which would include mitigation measures if it were determined that pocket gophers would be impacted by the proposed development. The Washington Department of Fish and Wildlife is provided with notice of all threshold determinations issued pursuant to the State Environmental Policy Act and the City consults with the Department when a critical areas report is required.

In April 2014, the U.S. Fish and Wildlife Service listed the Yelm subspecies of the Mazama Pocket Gopher as threatened under the Endangered Species Act. While the City of Yelm is not responsible for implementation or enforcement of the Endangered Species Act, it

consults with the Service and provides notice to applicants that the pocket gopher is a federally protected species and a permit from the U.S. Fish and Wildlife Service may be required.

A preliminary reconnaissance by Key Environmental Solutions, LLC found no occurrence of Mazama Gopher on the site.

Compliance with Yelm's requirements under the Critical Areas Code does not ensure compliance with the provisions of the Endangered Species Act. The applicant should contact the US Fish and Wildlife Service with any questions about compliance with Federal standards for threatened species.

11.

Impervious surfaces create stormwater runoff which, when uncontrolled and untreated can create health, safety, and environmental hazards. The City of Yelm has adopted the most current Stormwater Management Manual for Western Washington as issued by the Washington State Department of Ecology, which requires all development to treat and control stormwater on site.

The proposal includes runoff treatment by Baysaver Bayfilter cartridges, and storage achieved with Stormtech chambers, which have received a general use level designation for basic treatment by Ecology.

The conceptual plan shows a utility easement for stormwater drainage along the southern property line, in location of required rear yard setbacks for lots 15 – 22.

The location of the storm drain line within the required rear yard setbacks poses several issues, including access for maintenance, probability of fencing, sheds and other structures constructed over the line, and possible planting of trees and shrubs over the line. This issue should be addressed within the CCR's for the development, as well as clearly marked and limitations described on the face of the subdivision map.

12.

All of Yelm is considered a critical aquifer discharge area. The control and treatment of stormwater is required to protect the critical aquifer. The City has adopted the latest

edition of the Stormwater Management Manual for Western Washington (SMMWW) published by the Washington Department of Ecology. [Section Chapter 18.27 YMC].

Approved stormwater management provides protection to the aquifer.

13.

Chapter 13.04 YMC and Chapter 6 of the Development Guidelines establish requirements for connection to the City's water system.

Water service connections are by a service line and water meter in the public right-of-way. [Section 13.04.110 YMC]. Duplex developments are calculated at 100 percent of an equivalent residential unit (ERU) per unit. [Section 13.04.120 YMC].

There is an existing 10-inch water main located at the southern property line of parcel 21713310400. The main is required to be extended along the property frontage of Burnett Road. The line shall also be extended in the internal roadways, connecting to the 8-inch main located in 89th Way SE. This main will serve fire hydrants and individual services.

The duplexes shall connect to City water service and the existing well decommissioned pursuant to Ecology standards, and any water rights associated with the well dedicated to the City of Yelm.

Fire protection to the buildings must be provided per the International Fire Code. The specific requirements for installation of additional fire hydrants will be determined during civil plan review. The International building code (IBC) provides occupancy ratings for different types of uses. The fire coverage system for the proposed use must meet IBC requirements.

Identified in the 2002 City of Yelm Water Comprehensive Plan is a requirement to install fire hydrant locks as part of the City's water conservation and accountability program.

14.

Chapter 13.08 YMC and Chapter 7 of the Development Guidelines establish requirements for connection to the City's sewer system.

The property is located in the City of Yelm's STEP sewer system service area. There is an existing 4-inch sewer main located at the southern property line of parcel 21713310400.

The main is required to be extended along the property frontage of Burnett Road. The line shall also be extended in the internal roadways, connecting to the 2-inch main located in 89th Way SE.

The duplexes shall be connected to City sewer service, and the onsite septic system abandoned pursuant to Thurston County Health Department standards.

15.

Frontage improvements are required as part of development in the City. [Section 18.16.050 YMC]

Half-street improvements are required on parcel 21713310400. Burnett Road shall be constructed to a Neighborhood Collector Street standard, which requires a 16-foot travel lane, vertical curb, a 7-foot planter strip with street trees 35 feet on center and “No Parking” signs, a 5-foot sidewalk, and street lighting.

Streets within the subdivision will be constructed to the local access standard and dedicated to the City upon final subdivision approval. A local access street includes two 11-foot travel lanes, two 7-foot parking lanes, a concrete rolled edge curb and gutter, a 6-foot planter strip with street trees 35 feet on center, a 5-foot sidewalk on one side of the street, and street lighting.

Section 18.52.090 YMC requires subdivisions to provide for continuation of streets existing in adjoining subdivisions. The Burnett Estates subdivision to the south provided right-of-way at 89th Way SE for this future connection. The internal street shall connect to the south at 89th Way SE, with full street improvements completing 89th Way to 89th Avenue.

Traffic Facilities Charges are payable at building permit issuance. Credit is given for the existing duplex.

These improvements are mitigating conditions in the adopted 2005 MDNS.

16.

Prior to final subdivision approval application, an addressing map shall be submitted to the City for addressing.

A short subdivision name must be reserved with the Thurston County Auditor's Office prior to final subdivision submittal.

CONCLUSIONS OF LAW

Section 18.14.050 YMC requires written findings prior to a decision on a preliminary subdivision.

The applicant has established that the proposed subdivision adequately provides for the public health, safety, and general welfare and for such open spaces, drainage ways, streets, sanitary wastes, parks and recreation, schools, sidewalks, and that the public use and interest will be served by the subdivision of the property, if conditioned as recommended in this report.

The preliminary subdivision, if conditioned as recommended in this report, is in conformance with the Yelm-Thurston County Joint Comprehensive Plan, the City of Yelm Unified Development Code, and the City of Yelm Development Guidelines.

DECISION

In accordance with the analysis above, the Site Plan Review Committee issues the following decision:

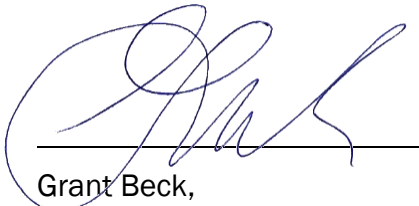
The Administrative Subdivision is hereby approved as proposed, subject to the following conditions:

1. The preliminary subdivision map shall be updated to reflect all conditions of the recorded Boundary Line Agreement to Parcel A, as part of the development proposal to include driveway relocation.
2. The Mitigated Determination of Nonsignificance issued May 31, 2005, with mitigating condition #1 amended to reflect most current Transportation Facility Charges, is hereby referenced, and considered conditions of this approval.
3. The internal street shall connect to the south at 89th Way SE, with full street improvements completed from the new internal street connection at 89th Way SE to 89th Avenue SE.
4. Civil plan submission shall include a detailed landscape plan showing how required perimeter, streetscape, and open space landscaping is intended to be met.
5. The detailed landscape plan shall include recreational improvements that meet the qualified uses for opens space such as active recreation or play equipment.

6. The detailed landscape plan shall include a tree preservation plan of trees over 8 inches in diameter that are to be removed and mitigated at a 1-1 replanting basis.
7. At final subdivision, the applicant shall provide a performance assurance device in order to provide for maintenance of the required landscape for this subdivision, until the homeowner's association becomes responsible for the landscaping maintenance. The performance assurance drive shall be 150 percent of the anticipated cost to maintain the landscaping for three years.
8. Civil plan submission shall include the location of cluster box unit mailboxes.
9. Civil plan submission shall include stormwater facilities designed in accordance with the most current Stormwater Management Manual for Western Washington. Best Management Practices (BMP's) are required during construction.
10. The stormwater plan shall be submitted with civil engineering plans and shall include an operation and maintenance plan.
11. Storm water treatment facilities shall be located in a separate recorded tract owned and maintained by the homeowner's association.
12. All roof drain runoff shall be infiltrated on each lot utilizing individual drywells.
13. The stormwater system shall be held in common by the Homeowners Association. The Homeowners Agreement shall include provisions for the assessment of fees against individual lots for the maintenance and repair of the stormwater facilities.
14. The CCR's and Final Subdivision Maps shall clearly show the stormdrain easements, and any restrictions to development on or over the easement.
15. Each dwelling unit within the subdivision shall connect to the City water system. The connection fee and meter fee will be established at the time of building permit issuance.
16. The existing well serving the duplex shall be decommissioned per Washington State Department of Ecology standards, and the duplex connected to City water service. Any water rights associated with the well shall be dedicated to the City of Yelm.
17. All conditions for cross connection control as required in Section 246-290-490 WAC.
18. The civil engineering plans shall include the location of fire hydrants consistent with the Yelm Development Guidelines and applicable fire codes. The plan shall include fire flow calculations for all existing and proposed hydrants and the installation of hydrant locks on all fire hydrants required and installed as part of development.
19. The applicant shall be responsible for the installation of hydrant locks on all fire hydrants required and installed as part of development. The proponent shall coordinate with the Yelm Public Works Department to purchase and install required hydrant locks.

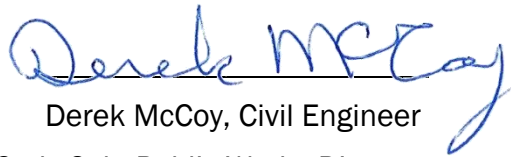
20. Each dwelling within the subdivision shall connect to the City S.T.E.P. sewer system. The connection fee and inspection fee will be established at the time of building permit issuance.
21. The existing septic system serving the duplex shall be abandoned per the Thurston County Department of Health standards, and the duplex connected to City sewer service.
22. Street lighting will be required. Civil plan submittal shall include a lighting design plan for review and approval.
23. Prior to the submission final plat application, the proponent will provide the Community Development Department an addressing map for approval.
24. Prior to final plat application, a subdivision name must be reserved with the Thurston County Auditor's Office.

AMENDED this 22nd day of March, 2021.



Grant Beck,

Community Development Director for Cody Colt, Public Works Director



Derek McCoy, Civil Engineer

AMENDED 22nd day of March, 2021.



Tami Merriman,

Associate Planner

APPEAL

The Site Plan Review Committee's decision in this matter may be appealed pursuant to Chapter 18.10 YMC, to the City of Yelm Hearing Examiner no later than 21 days from the date of this decision. An appeal must be in writing, contain specific factual objections, and include the appeal fee of \$1,250.00.

Application

Permit Type

Ministerial Permits

- ☐ Ministerial Site Plan Review
- ☐ Boundary Line Adjustment
- ☐ Home Occupation
- ☐ Other

Administrative Permits

- ☐ Administrative Site Plan Review
- ☒ Administrative Subdivision
- ☐ Administrative Variance
- ☐ Short Subdivision

Quasi-Judicial Permits

- ☐ Binding Site Plan
- ☐ Planned Residential Dev.
- ☐ Mixed Use Development
- ☐ Variance
- ☐ Critical Area Exception
- ☐ Subdivision
- ☐ Special Use Permit

Plans Upload

Prelim Plat Plans.pdf	1.4MB
Preliminary Drainage Report.pdf	6.77MB
SEPA Checklist.pdf	210.37KB

You may upload multiple Files. Files must be in .PDF, .TIF or Image Format.

Business or Development Name: *

Mountain Meadows

Description of proposed development: *

Subdivide two parcels totaling 4.4-acres into 22 single-family residential lots with associated public roadway, storm drainage, and public/private utility improvements

Applicant Name & Contact Information

First Name *

Henrietta

Last Name *

Morey

Phone *

(253) 377-8400

Email *

moreyrealestate@g
mail.com

Applicant Address *

Street Address

PO Box 202

Address Line 2

none

City

Kapowsin

Postal / Zip Code

98344

State / Province / Region

Washington

Country

USA

Owner Name & Contact Information

First Name	Last Name	Phone	Email
Henrietta	Morey	(253) 377-8400	moreyrealestate@gmail.com

Owner Address

Street Address

PO Box 202

Address Line 2

none

City

Kapowsin

Postal / Zip Code

98344

State / Province / Region

Washington

Country

USA

Representative Name & Contact Information

First Name	Last Name	Phone	Email
Chris	Merritt	(360) 705-2474	chris@olyeng.com

Representative Address

Street Address

PO Box 12690

Address Line 2

none

City

Olympia

Postal / Zip Code

98508

State / Province / Region

WA

Country

USA

Property Information

Property Address *

Street Address

8818 Burnett Rd. SE

City

Yelm

Postal / Zip Code

98597

State / Province / Region

Washington

Legal Description

Parcel # * (?)

<http://www.geodata.org/parcelinfo/>

21713310400 & 21713310402

Size of Site

4.4-acres

Number of Lots

22

Gross Floor Area

0

Signature

By submitting this application to the City of Yelm, you affirm that all answers, statements, and information contained in and submitted with this application are complete and accurate to the best of your knowledge and that you are the owner of the property or duly authorized by the owner to act on their behalf. Permission is granted to representatives of the City to enter upon and inspect the property as reasonably necessary to process the application



For Internal Use Only

Date Received

11/12/2020

Receipt #:

15547

Deposit Amount:

\$ 750.00

Project/Permit #: *

2020.0341.PR0011

Comments / Edits

SURVEY NOTE

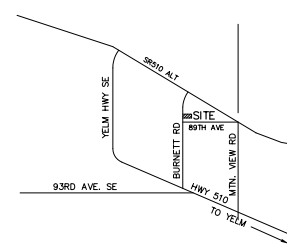
THE TOPOGRAPHIC SURVEY AND BOUNDARY INFORMATION DEPICTED HEREON WAS PROVIDED BY JWH CONSTRUCTION SERVICES, MARCH 2005 AND OBTAINED FROM CITY RECORDS. THE AS-BUILT LOCATIONS OF THE EXISTING IMPROVEMENTS AT THE TIE-IN POINTS ALONG BURNETT RD. AND 89TH WAY WILL NEED TO BE SURVEYED PRIOR TO PREPARATION OF THE CIVIL CONSTRUCTION PLANS.

THIS SURVEY INFORMATION WAS NOT FIELD VERIFIED BY OLYMPIC ENGINEERING AND OLYMPIC ENGINEERING ASSUMES NO LIABILITY IN THE ACCURACY OF THIS INFORMATION OR FOR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

PRELIMINARY PLAT OF MOUNTAIN MEADOWS

SECTION 13, TOWNSHIP 17 NORTH, RANGE 1 EAST, W.M.
YELM, WASHINGTON

VICINITY MAP
N.T.S.



VERTICAL DATUM
DATUM: NGVD '29

THURSTON COUNTY CONTROL POINT NO. RTH
8342: FOUND 1.5" IRON PIPE W/ TACK IN
CASE MON, 11' SOUTH AND 2' WEST CENTER OF
INTERSECTION OF YELM AVE AND 93RD AVE.
ELEVATION = 342.902' NGVD '29

THURSTON COUNTY CONTROL POINT NO. RTH
836: FOUND 2.0" IRON PIPE W/ TACK IN CASE
MON AT THE CENTER OF INTERSECTION OF
YELM AVE AND MOUNTAIN VIEW ROAD.
ELEVATION = 343.888' NGVD '29

NO	CURVE	DELTA	RADIUS	LENGTH	CHORD	CHORD BRS
C1	18°22'24"	100.00	32.07	31.93	N 82°14'07" E	
C2	18°22'24"	100.00	32.07	31.93	N 82°14'07" E	
C3	90°00'00"	100.00	157.08	141.42	S 43°54'41" E	

ZONING: RR 1/5

ZONING: R-4

PROJECT INFORMATION

APPLICANT: HENRIETTA MOREY
P.O. BOX 202
KAPOWSN, WA 98344

PARCEL NOS: 21713310400 & 21713310402

SITE ADDRESS: 8818 BURNETT ROAD SW
YELM, WA 98597

ZONING: R-6

SITE AREA: 44.389 ACRES (191,177 SF)

LOTS: 22

DENSITY: 5 UNITS/ACRE

AVG. LOT SIZE: 6,437 SF

OPEN SPACE AREA: 0.25 AC (5,778)

GRADING: \$1,800 CY CUT, \$1,200 CY FILL
(FOR APPLICATION PURPOSES ONLY)

SOILS: SPANAWAY GRAVELLY SANDY LOAM
(HSG A)

SANITARY SEWER: CITY OF YELM

WATER: CITY OF YELM

FIRE DISTRICT: YELM

SCHOOL DISTRICT: YELM

BUILDING SETBACKS: 15' FRONT, 6' SIDE, 25' REAR

FEMA FIRM DESIGNATION: ZONE X (PANEL #53067C0335E)

LEGEND

EXISTING	PROPOSED	
W	W	WATER LINE
FW	FW	FIRE HYDRANT
	GV	GATE VALVE
	TB	THRUST BLOCKING
	SDW	SINGLE/DUAL WATER METER
	BSA	BLOWOFF ASSEMBLY
	SDS	SINGLE/DUAL SEWER BOXES
	PLP	PIG LAUNCH PORT
	CB	CATCH BASIN
	SD	STORM DRAIN LINE
	SEE	SPOT ELEVATION
	SFD	SURFACE FLOW DIRECTION
	UTP	UTILITY POLE
	DT	TELEPHONE PEDESTAL
	OH	OVERHEAD POWER
	W	WELL
	P	MAILBOX

BURNETT ROAD WESTERLY RIGHT OF WAY NOTE:
20 FEET OF RIGHT OF WAY SHOWN HEREON IS PER
SURVEYS OF RECORD, HOWEVER, RESEARCH OF THE
RECORDS OF THE COUNTY RIGHT OF WAY OFFICE
REVEALED NO DEDICATION DEEDS.

NOTE: AN ADDITIONAL 2' OF PLANTER
STRIP AND RIGHT-OF-WAY
DEDICATION WIDTH ARE PROPOSED TO
MATCH THE EXISTING IMPROVEMENTS
AND RIGHT-OF-WAY WIDTHS TO THE
SOUTH.

ZONING: RR 1/5

ZONING: R-6

SCALE: 1"=40 FEET
0 20 40 80
MERIDIAN: THURSTON COUNTY SHORT SUBDIVISION
SS-2414 VOL. 25, PAGE 244, A.F. NO.
9107050017

LOCATIONS OF EXISTING IMPROVEMENTS ARE
BASED ON CITY RECORDS AND WILL NEED TO
BE SURVEYED PRIOR TO PREPARATION OF THE
CIVIL CONSTRUCTION PLANS (SEE SURVEY NOTE
ABOVE)

SHEET INDEX

1. PRELIMINARY PLAT MAP
2. PRELIMINARY UTILITY AND DRAINAGE PLAN
3. PRELIMINARY DETAILS

PRELIMINARY PLAT MAP

DESIGNED BY: CHM
DRAWN BY: CHM
CHECKED BY: CHM
SCALE: 1" = 40'
DATE: 11/5/2020



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OLYMPIC
ENGINEERING
Civil Engineering - Land Planning - Project Management

JOB NUMBER:
20047
DRAWING NAME:
20047_PLAT

SHEET: 1 OF 3

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

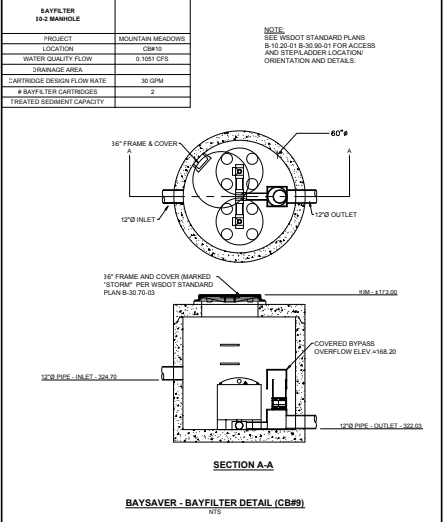
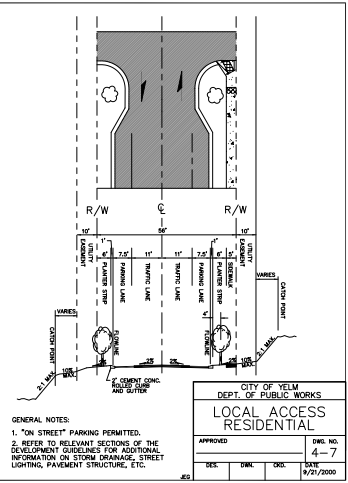
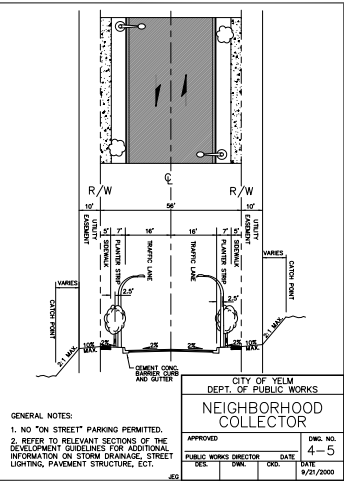
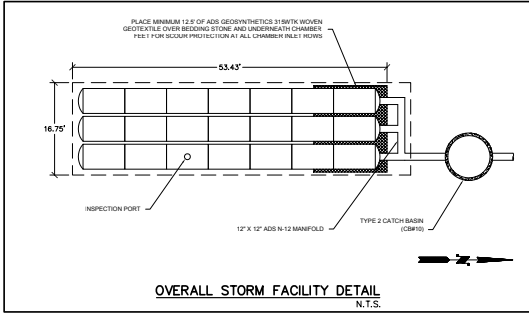
MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D. FINAL FILL: FILL MATERIAL FOR LAYER D STARTS FROM THE TOP OF THE C LAYER TO THE BOTTOM OF EXISTING PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE D LAYER.	ANY SOLID ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBBASE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C. INITIAL FILL: FILL MATERIAL FOR LAYER C STARTS FROM THE TOP OF THE EMBEDED STONE LAYER TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE C LAYER.	GRANULAR WELL-GRADED SOLID AGGREGATE MIXTURES: <35% FINES OR PROCESSED AGGREGATE. OR: MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LAYERS OF THIS LAYER.	AASHTO M448: A-1, A-2.4, A-3 OR AASHTO M43: 3, 3S, 4, 4S, 5, 5S, 6, 6S, 7, 7S, 8, 8S, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 4" (100 mm) MAX LIFTS TO A MIN. 90% PROCTOR DENSITY FOR WELL-GRADED SOLID AGGREGATE AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE. FORCE NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B. EMBEDED STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE C LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4" (19 mm) TO 1 1/2" (38 mm).	AASHTO M47: 3, 3S, 4, 4S, 5, 5S, 6, 6S, 7, 7S, 8, 8S, 9, 10	NO COMPACTION REQUIRED.
A. FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4" (19 mm) TO 1 1/2" (38 mm).	AASHTO M43: 3, 3S, 4, 4S, 5, 5S, 6, 6S, 7, 7S, 8, 8S, 9, 10	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M47) STONE."
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR A LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 4" (100 mm) MAX LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAMPING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

ADD GEOTEXTILES 8017 NON WOVEN GEOTEXTILES ALL AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS.

INFLTRATION SURFACE SHALL BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION

NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2622 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" OR ASTM F2622 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE IN ACCORDANCE WITH ASTM F2797 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING CAPACITY OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL RESISTIVE CAPACITIES.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER C IS PLACED, ANY SOL MATERIAL CAN BE PLACED IN LAYER D UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER C ON UP TO THE SITE DESIGN ENGINEER'S DISCRETION.



DESIGNED BY: CMW
DRAWN BY: CMW
CHECKED BY: N.T.S.
SCALE: 11/5/2020
DATE: 11/5/2020

11/5/2020

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Yelm, WA 98598
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OLYMPIC ENGINEERING
Civil Engineering - Land Planning - Project Management

JOB NUMBER: 20047
DRAWING NAME: 20047_DET1

SHEET: 3 of 3

REVISION

NO. DATE

YELM WASHINGTON

SEPA ENVIRONMENTAL CHECKLIST

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.

The help links in this checklist are intended to assist users in accessing guidance on the checklist questions. Links are provided to the specific sections of the guidance applicable to the questions. However, the links may not work correctly on all devices. If the links do not work on your device, open the guidance at www.ecy.wa.gov/programs/sea/sepa/apguide/EnvChecklistGuidance.html and navigate to the appropriate section.

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:
Mountain Meadows
2. Name of applicant:
Henrietta Morey
3. Address and phone number of applicant and contact person:
PO Box 202
Kapowsin, WA 98344
(253) 377-8400
4. Date checklist prepared:
November 5, 2020
5. Agency requesting checklist:
City of Yelm, WA
6. Proposed timing or schedule (including phasing, if applicable):
The infrastructure will be completed in one phase with anticipated substantial construction completion by winter/spring 2022. At this time it is unknown when the homes will be completed.
7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
None at this time
8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
None at this time
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.
Department of Ecology Stormwater Permit; grading permit; right-of-way encroachment permit; preliminary and final plat approvals
11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.
Subdivide two parcels totalling 4.4-acres into 22 single-family residential lots with associated public roadway, public/private utilities, and storm drainage improvements.
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.
NE ¼ of the SE ¼ of Section 13, Township 17 North, Range 1 East, W.M.
8818 Burnett Road SE
Yelm, WA 98597
Parcel Numbers: 21713310400 & 21713310402

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)?

Approximately 7%

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.

Spanaway Gravelly Sandy Loam (HSG A) per the NRCS.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

None known

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.

Approximately 3,500 cubic yards of grading will be required to construct the proposed improvements (roadways, utility trenches, storm drainage facility).

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

Erosion can occur during construction of the proposed improvements. An erosion and sedimentation control plan will be prepared meeting City of Yelm requirements and Best Management Practices (BMP's) will be implemented during and after construction to prevent and control erosion.

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

Approximately 58% (roadways, sidewalks, homes, driveways, patios, walkways)

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

An erosion and sedimentation control plan will be prepared meeting City of Yelm requirements and Best Management Practices (BMP's) will be implemented during and after construction to prevent and control erosion.

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.

Emissions from typical construction equipment and dust during construction; emissions from vehicles after the project is completed. Quantities are unknown.

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:

None

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.
No.
- 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.
No.
- 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.
Yes. Groundwater will be withdrawn from existing municipal wells for domestic uses associated with the proposal. Quantities are currently unknown.
- 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.

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 from the proposed public roadway areas will be collected and routed to an on-site stormwater treatment and detention/infiltration facility. All stormwater runoff generated by the proposed site improvements will be contained and fully infiltrated on-site.
- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Not likely. A pollution source control plan will be a part of a storm drainage maintenance agreement that will be recored at the county auditor's office prior to final project approval. This plan will outline the Best Management Practices to help reduce the potential for any waste materials to enter ground water.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.
No

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

Stormwater runoff from the proposed public roadway areas will be collected and routed to an on-site stormwater treatment and detention/infiltration facility. All stormwater runoff generated by the proposed site improvements will be contained and fully infiltrated on-site.

4. Plants

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

☐ deciduous tree: alder, maple, aspen
☒ 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?

The majority of on-site vegetation (fir trees, grass) will be removed as needed to construct the proposed improvements and future homesites.

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

None known

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

Street trees will be provided along the public roadways per city requirements. It is anticipated that each lot will be landscaped as they develop.

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

None known

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 known

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

Unknown

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

None

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

None known

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.

Electricity and natural gas will be used for heating and general electrical needs for the homes.

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:

The proposed homes will meet or exceed Washington State energy code requirements.

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.

None known

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

None known

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 known

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

b. Noise

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

No existing noises will affect the proposal.

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.

Short-term: Construction equipment noise during construction

Long-term: Noises typical to vehicle traffic for a residential community

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

Construction hours will be limited to city approved hours

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.

The site currently contains an old barn. Adjacent parcels are residential. The proposal will not affect land uses on nearby or adjacent properties.

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?

Unknown but unlikely

1) 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

c. Describe any structures on the site.

Barn

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

Yes, a barn will be demolished.

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

Residential, R-6

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

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.

No

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

Approximately 55 residents

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 project will meet City of Yelm zoning code 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.

22 units, middle income housing.

- 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?

Building code allows for up to a 35' building height. It is anticipated that the future homes will be sided with cement fiber siding with various patterns.

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

None

- b. 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?

Public street lighting and exterior building lighting from dusk to dawn

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

Not likely. Light fixtures will be shielded.

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

None known

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

Light fixtures will be shielded.

12. Recreation

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

The Yelm High School is located 0.8-miles away from the project site and Yelm City Park and Cochrane Memorial Park are located approximately 2-miles away.

- 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:

A sports court (volleyball, pickleball, etc.) and/or an outdoor play structure will be provided in the proposed open space tract to help meet the city's recreation/open space requirements.

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.

None listed per the Washington State Department of Archaeology & Historic Preservation website (WISAARD database).

- 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.

None observed on or near the site and no listings in the WISAARD database.

- 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.

Review of Washington State Department of Archaeology & Historic Preservation website (WISAARD database).

- 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 at this time.

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.

A new internal public roadway will be constructed, connecting Burnett Rd. SE to 89th Way SE/89th Ave.

- 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?

The nearest Intercity Transit stop is located at the Yelm High School which is approximately 0.8-miles away from the project site.

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

Approximately 44 total off-street parking spaces will be provided (minimum 2 spaces per home per city zoning requirements).

- 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).

No

- 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 209 vehicle trips per day will be generated by the project with peak hours between 4 p.m - 6 p.m. per the Trip Generation Manual prepared by the Institute of Transportation Engineers.

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:

Traffic mitigation fees will be paid if required

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 new public service facilities are proposed; however, the project will increase the need on existing public services.

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

Mitigation fees will be paid as required.

16. Utilities

a. Circle utilities currently available at the site:

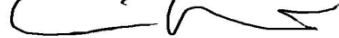
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

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.

City of Yelm water and sanitary sewer, refuse/recycling service from Pacific Disposal; telecommunications from Fairpoint Communications and Comcast; electricity and natural gas from Puget Sound Energy

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 Chris Merritt

Position and Agency/Organization Olympic Engineering

Date Submitted: November 5, 2020



Key Environmental Solutions, LLC.

September 23, 2020

City of Yelm
Community Development
Attn: Tami Merriman, Associate Planner
106 2nd St SE
Yelm, WA 98597

Re: Mountain Meadows Preliminary Plat Prairie Habitat Critical Area Recon and ESA No Effect Letter, Thurston County Parcels #21713310400 and 21713310402. Located at 8818 Burnett Road SE, Yelm, Washington, Section 13, Township 17 North, Range 01 East, W.M., and in accordance with the *Thurston County Critical Areas Ordinance Title 24.03 (Definitions)*, *Interim Prairie Ordinance 14542*, *WDFW Management Recommendations for Washington Priority Habitats Oregon White Oak Woodlands* and *WDFW Habitat Management Recommendations for the Mazama Pocket Gophers* and following the 2018 USFWS Mazama Pocket Gopher Screening Protocol.

Dear Ms. Merriman,

Key Environmental Solutions, LLC. (KES) has completed a Prairie Habitat Area Recon on the above referenced parcels located at 8818 Burnett Road SE, Yelm, Washington. Fieldwork was conducted on August 31, 2020.

Project Description and Findings

The parcels reviewed are approximately 4.37 acres located in eastern Thurston County, in the city of Yelm. Both are currently undeveloped, except for a barn on parcel 21713310400. The parcel was reviewed for prairie habitat and Mazama Pocket Gophers. When the site is developed with single family or multi-family units, there will be not any “Take” of any state or federally listed species. There will be “**No Effect**” on prairie habitat, Mazama Pocket Gophers or any other critical areas or buffer impacted.

KES reviewed Washington Department of Fish and Wildlife’s (WDFW) Priority Habitat Species (PHS) lists and maps and no listed species were found to occur onsite. Adjacent areas were also looked at for any critical areas or listed species, and none were found to occur.

Vegetation on the parcel consists of:

Common Name	Sc. Name	Status	Notes
Black hawthorn	<i>Crataegus douglasii</i>	FAC	
Camas, common	<i>Camassia quamash</i>	FACW	Little
Canada thistle	<i>Cirsium arvense</i>	FACU	
common dandelion	<i>Taraxacum officinale</i>	FACU	
common vetch	<i>Vicia sativa</i>	FAC	
cut-leaf blackberry	<i>Rubus laciniatus</i>	FACU	
Douglas fir	<i>Pseudotsuga menziesii</i>	FACU	
hairy cat's ear	<i>Hypochaeris radicata</i>	FACU	
Himalayan blackberry	<i>Rubus armenicus</i>	FACU	
Juniper haircap moss	<i>Polytrichum juniperinum</i>	FACU	Dense
klamath weed	<i>Hypericum perforatum</i>	FACU	
lamb's quarter	<i>Chenopodium album</i>	FACU	
meadow fescue	<i>Festuca pratensis</i>	FACU	
orchardgrass	<i>Dactylis glomerata</i>	FACU	
pepper weed	<i>Lepidium latifolium</i>	FACU	
plantain	<i>Plantago lanceolata</i>	FAC	
Scotch broom	<i>Cytisus scoparius</i>	FACU	
sheep sorrel	<i>Rumex acetosella</i>	FACU	
Snowberry	<i>Symphoricarpos albus</i>	FACU	

The project area was required to be reviewed due to the presence of prairie soils. KES reviewed the Natural Resource Conservation Service Soils (NRCS) maps and verified that prairie soils did not exist in the project area.

Soil Types	Prairie Soil
Spanaway gravelly sandy loam, 0 to 3 % slopes	Yes

Mapped prairie soils do not necessarily mean that the area is a prairie –vegetation, landuse, development, and historical land practices may have changed the soil conditions. Current site conditions may or may not accurately reflect mapped soils. Conversely, prairies may be found in areas where the soils are not mapped as prairie soils.

Federal ESA Species, Habitats and No Effect

There are no Federal ESA species or habitats that exist within the parcel. There will be “No Effect” and/or “No Take” from the proposed project.

Historically, the parcel was part of a farm that was used to raise horses. There were no mounds of any kind found to occur onsite.

KES has performed one site visit as required. KES determined that parcel does not meet the definition of prairie from USFWS and that there has been no Mazama Gopher occurrence found on adjacent parcels or anywhere in the vicinity.

There is a subdivision directly to the south of the parcels.

It is KES's professional opinion that development of these parcels will not impact any prairie species or any other critical areas and should be permitted. KES concurs with the proposed site plan.



Looking east across parcel.



Looking east across parcel



Looking west across parcel.



Looking north across parcel.



Looking south across parcel.



Looking northwest across parcel.

Professional Standard of Care:

Please be advised that KES personnel has provided professional services that are in accordance with the degree of care and skill generally accepted in the performance of this environmental evaluation. Fish and Wildlife Habitat Assessments together with wetland delineations, mitigation plans, classifications, ratings, streamtyping, riparian planting plans, ordinary high water line determinations, fish removal and other critical area analysis should be reviewed and approved by the agency with permitting authority and potentially other agencies with regulatory authority prior to extensive site design or development. No warranties are expressed or implied by this assessment until approved by the appropriate resource and permitting agency.

The findings expressed in this report are based on field investigations, best available data, best available science, and our professional judgement. The services described in this report were performed consistent with generally accepted professional consulting principles and practices.

The services performed were consistent with our agreement with our client. Key Environmental Solutions, LLC, (KES) is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. KES does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.

Thank you for the opportunity to evaluate this project and please contact us if you have any questions regarding this information, our findings, conclusions, or recommendations at (360) 942-3184 or (360) 562-5763.

Sincerely,



Key McMurry

Owner/Professional Stream and Wildlife Biologist, SPWS





Morey Soils

Legend

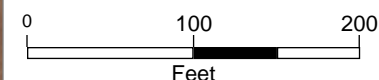
Gopher Indicator Soils

- Less Preferred
- More Preferred

Soils (USDA)

- Alderwood gravelly sandy loam, 0 to 3% slopes
- Alderwood gravelly sandy loam, 15 to 30% slopes
- Alderwood gravelly sandy loam, 3 to 15% slopes
- Alderwood gravelly sandy loam, 30 to 50% slopes
- Baldhill very stony sandy loam, 0 to 3% slopes
- Baldhill very stony sandy loam, 15 to 30% slopes
- Baldhill very stony sandy loam, 3 to 15% slopes
- Baldhill very stony sandy loam, 30 to 50% slopes
- Baumgard loam, 10 to 40% slopes
- Baumgard loam, 40 to 65% slopes
- Baumgard-Pheene Complex, 40 to 65% slopes
- Baumgard-Pheene complex, 10 to 40% slopes
- Baumgard-Rock outcrop complex, 40 to 65% slopes
- Bellingham silty clay loam
- Boisfort silt loam, 20 to 40% slopes
- Boisfort silt loam, 5 to 20% slopes
- Bunker gravelly silt loam, 30 to 65% slopes
- Bunker gravelly silt loam, 5 to 30% slopes
- Bunker-Boisfort complex, 40 to 65% slopes

Scale 1: 2,028



Map Created Using GeoData Public Website

Published: 8/30/2020

Note:



The information included on this map has been compiled by Thurston County staff from a variety of sources and is subject to change without notice. Additional elements may be present in reality that are not represented on the map. Ortho-photos and other data may not align. The boundaries depicted by these datasets are approximate. This document is not intended for use as a survey product. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. Thurston County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. In no event shall Thurston County be liable for direct, indirect, incidental, consequential, special, or tort damages of any kind, including, but not limited to, lost revenues or lost profits, real or anticipated, resulting from the use, misuse or reliance of the information contained on this map. If any portion of this map or disclaimer is missing or altered, Thurston County removes itself from all responsibility from the map and the data contained within. The burden for determining fitness for use lies entirely with the user and the user is solely responsible for understanding the accuracy limitation of the information contained in this map. Authorized for 3rd Party reproduction for personal use only.

Site Name and Parcel #	Parcel #: <u>21713310400, 21713310402</u> Project #: <u>770.01</u> Site/Landowner: <u>Henrietta Morey</u>
How were the data collected? (circle the method for each)	Transect: Trimble Garmin Aerial Mounds Trimble Garmin Aerial Notes: _____
Field Team Personnel: (Indicate all staff present, CIRCLE who filled out form)	Name: Key McMurry, Key Environmental Solutions, LLC Name: Name:
Others onsite (name/affiliation)	Landowner
Site visit # (CIRCLE all that apply)	1st 2 nd Unable to screen Notes:
Do onsite conditions preclude the need for further visits?	Yes No Dense woody cover that encompasses the entire site (trees/shrubs) that appears to preclude any potential MPG use. Impervious Compacted Graveled Flooded Other _____ Notes: Very Rocky, compacted
Describe visibility for mound detection:	Poor Fair Good Notes:
Request mowing? (CIRCLE and DESCRIBE WHERE MOWING IS NEEDED and SHOW ON AERIAL PHOTO	Yes No N/A Notes:

Mounds observed over the whole site are characteristic of: Quantify or describe amount of each type and approx. # of mounds <i>Group = 3 mounds or more</i>	MPG Mounds	Likely MPG Mounds	Indeterminate	Likely Mole Mounds	Mole Mounds
	N/A	N/A	N/A	0	0
	No MPG mounds (circle)				
MPG mounds in GPS? (CIRCLE and DESCRIBE) If MPG mounds present, entered in GPS?	None All Most Some Notes: Yes No N/A				
Does woody vegetation onsite match aerial photo?	Yes No - describe differences and show on parcel map/aerial:				
What portion(s) of the property was screened? (CIRCLE and DESCRIBE)	All Part - describe and show on parcel map/aerial:				
Notes -	Describe, and show on parcel map/aerial if applicable:				
Team reviewed and agreed to data recorded on form? (CIRCLE, and EXPLAIN if "No")	Yes No Reviewed by initials: <u> KM </u> <u> </u> <u> </u> <u> </u> Notes:				

Appendix A. Figure 1: Prairie Habitat Assessment Field Data Form

2019 Thurston County Critical Areas Ordinance (CAO) Prairie Screening Data Sheet

Parcel Number: 21713310400, 21713310402	CAO prairie criteria met? Yes or No
Property Owner: Henrietta Morey	Mima mounds present? Yes or No
Surveyor(s): Key McMurry, Key Environmental Solutions	Oaks (<i>Quercus garryana</i>) present? Yes or No
Date: 8/31/2020	Mature:
Composition of Vegetation:	Sapling:
	Seedling:

X Target species	Class* (circle)
<i>Apocynum androsaemifolium</i>	1 2 3 4 5 N/A
<i>Balsamorhiza deltoidea</i>	Present / Absent
<i>Bistorta bistortoides</i>	Present / Absent
<i>Brodiaea coronaria</i>	1 2 3 4 5 N/A
<i>Camassia leichtlinii</i>	1 2 3 4 5 N/A
<i>Camassia quamash</i>	Present / Absent
<i>Carex densa</i>	Present / Absent
<i>Carex feta</i>	1 2 3 4 5 N/A
<i>Carex inops ssp. inops</i>	1 2 3 4 5 N/A
<i>Carex tumulicola</i>	1 2 3 4 5 N/A
<i>Carex unilateralis</i>	1 2 3 4 5 N/A
<i>Castilleja hispida</i>	1 2 3 4 5 N/A
<i>Castilleja levisecta</i>	Present / Absent
<i>Danthonia californica</i>	1 2 3 4 5 N/A
<i>Delphinium menziesii</i>	1 2 3 4 5 N/A
<i>Delphinium nuttallii</i>	1 2 3 4 5 N/A
<i>Deschampsia cespitosa</i>	1 2 3 4 5 N/A
<i>Deschampsia danthonioides</i>	1 2 3 4 5 N/A
<i>Dodecatheon hendersonii</i>	1 2 3 4 5 N/A
<i>Downingia yina</i>	1 2 3 4 5 N/A
<i>Erigeron speciosus</i>	1 2 3 4 5 N/A
<i>Eriophyllum lanatum</i>	Cover: m ² N/A
<i>Eryngium petiolatum</i>	Present / Absent
<i>Festuca roemerii</i> (F. <i>idahoensis</i>)	1 2 3 4 5 N/A
<i>Fragaria virginiana</i>	Cover: m ² N/A
<i>Fritillaria affinis</i>	1 2 3 4 5 N/A
<i>Hieracium scouleri</i>	1 2 3 4 5 N/A
<i>Hosackia pinnata</i> (<i>Lotus pinnatus</i>)	Present / Absent
<i>Koeleria macrantha</i> (K. <i>cristata</i>)	1 2 3 4 5 N/A
<i>Leptosiphon bicolor</i> (<i>Linanthus b.</i>)	1 2 3 4 5 N/A
<i>Lomatium bradshawii</i>	Present / Absent
<i>Lomatium nudicaule</i>	1 2 3 4 5 N/A
<i>Lomatium triternatum</i>	1 2 3 4 5 N/A
<i>Lomatium utriculatum</i>	Present / Absent

<i>Lupinus albicaulis</i>	1 2 3 4 5 N/A
<i>Lupinus lepidus</i> var. <i>lepidus</i>	1 2 3 4 5 N/A
<i>Lupinus polyphyllus</i>	1 2 3 4 5 N/A
<i>Micranthes integrifolia</i> (<i>Saxifraga i.</i>)	Present / Absent
<i>Micranthes oregana</i> (<i>Saxifraga o.</i>)	1 2 3 4 5 N/A
<i>Microseris laciniata</i>	Present / Absent
<i>Perideridia gairdneri</i>	1 2 3 4 5 N/A
<i>Plagiobothrys figuratus</i>	1 2 3 4 5 N/A
<i>Plectritis congesta</i>	Present / Absent
<i>Polemonium carneum</i>	Present / Absent
<i>Potentilla gracilis</i>	Present / Absent
<i>Ranunculus alismifolius</i>	1 2 3 4 5 N/A
<i>Ranunculus occidentalis</i>	Present / Absent
<i>Ranunculus orthorhynchus</i>	1 2 3 4 5 N/A
<i>Sericocarpus rigidus</i>	Present / Absent
<i>Sidalcea malviflora</i> var. <i>virgata</i>	Present / Absent
<i>Silene scouleri</i>	Present / Absent
<i>Sisyrinchium idahoense</i>	1 2 3 4 5 N/A
<i>Solidago missouriensis</i>	1 2 3 4 5 N/A
<i>Solidago simplex</i> (S. <i>spatulata</i>)	1 2 3 4 5 N/A
<i>Toxicoscordion venenosum</i> var. <i>venenosum</i> (<i>Zigadenus venenosus</i>)	1 2 3 4 5 N/A
<i>Trifolium willdenowii</i> (T. <i>tridentatum</i>)	1 2 3 4 5 N/A
<i>Triteleia grandiflora</i>	1 2 3 4 5 N/A
<i>Triteleia hyacinthina</i>	1 2 3 4 5 N/A
<i>Veratrum californicum</i>	1 2 3 4 5 N/A
<i>Veratrum viride</i>	1 2 3 4 5 N/A
<i>Viola adunca</i>	1 2 3 4 5 N/A
<i>Viola praemorsa</i> var. <i>nuttallii</i>	1 2 3 4 5 N/A

*Species Count Class:

1 = < 25
2 = 25 - 49
3 = 50 - 74
4 = 75 - 100
5 = > 100

Prairie Plant Manual:

<https://www.thurstoncountywa.gov/planning/planningdocuments/cao-prairie-plant-manual-4.23.2018.pdf>

Non-CAO vegetation

Species or codons (i.e. "HYPRAD" for <i>Hypochaeris radicata</i>)	Notes
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Prairie Habitat Criteria: If at any point at least three target species, totaling in general at least 25 plants each are encountered within about 5 meters of each other (WDFW 2015), the area in question meets the criteria to be established as occurrence of prairie. For certain plants such as WNHP rare plants (indicated here in bold), or species which serves as nectar or host plants for both TCB and either SCC or SGCN butterflies (indicated here with underline), presence is enough to meet prairie habitat criteria for such species, even if their count is less than 25 individual plants. CAO wet and dry prairie plant lists can be found in Tables 24.25-7 and 24.25-8, respectively. More info available at: <https://www.thurstoncountywa.gov/planning/Pages/hcp-prairie-review.aspx>

Mima mounds and oak habitat definitions can be found in TCC 24.03.010



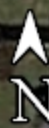
Wetland Types

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Google Earth

© 2020 Google

August 31, 2020



100 ft

Mountain Meadows

Yelm, Washington

Stormwater Site Plan Report

November 5, 2020

Prepared by:



PO Box 12690
Olympia, WA 98508
360.705.2474
www.olyeng.com

STORMWATER SITE PLAN REPORT

MOUNTAIN MEADOWS

Yelm, Washington
November 5, 2020

Project Information

Prepared for: Henrietta Morey

Contact: Henrietta Morey
PO Box 202
Kapowsin, WA 98344

Reviewing Agency

Jurisdiction: City of Yelm
Project Number: _____
Project Contact: Tami Merriman, Associate Planner

References

WSDOE *Stormwater Management Manual for Western Washington, 2014 ed. (Stormwater Manual)*

Project Engineer

Prepared by: Olympic Engineering, Inc.
PO Box 12690
Olympia, WA 98508
(360) 705-2474
www.olyeng.com

Contact: Chris Merritt, PE
OE Project: 20047
File Number: 20047_pdr.doc



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APPENDICES

Appendix 1 – Preliminary Drainage Plans
Appendix 2 – Preliminary Drainage Calculations
Appendix 3 - Soils Report

PART 1 – PROJECT OVERVIEW

Site Address:	8818 Burnett Rd. SE Yelm, WA 98597
Parcel Number:	21713310400 & 21713310402
Total Proposed Lease Area:	±4.389 Acres
Zoning:	R-6
Section, Township, Range:	Section 13 Township 17 North Range 1 East, W.M.

Proposed Improvements

The proposed project will include subdividing two parcels totaling 4.389-acres into 22 single-family residential lots with associated roadway, frontage, water, sanitary sewer, storm drainage, landscaping, and private/public utility improvements.

PART 2 – EXISTING CONDITONS SUMMARY

The site contains an existing barn that will be demolished and removed. Topography is gently sloping down from east to west at an average slope of approximately 2-3%. Site vegetation consists mainly of pasture grasses and scotch bloom with a few conifer trees located mainly in the southwestern portion of the site.

The Natural Resources Conservation Service (NRCS) Soil Survey of Thurston County classifies the on-site and surrounding area soils as Spanaway Gravelly Sandy Loam (HSG A). A Soils Report was prepared by Parnell Engineering, dated September 18, 2020 and the soils encountered were consistent with the Spanaway classification. Two test pits were dug to a depth of 168" below-grade and no groundwater, or indications of, were encountered. See Soils Report in Appendix.

Per FEMA FIRM Map Panel #53045C0335E, the project site and surrounding areas are within Zone X. The Zone X designation signifies areas that are outside of the 0.2% annual chance floodplain.

There are no known critical areas (wetlands, streams, steep slopes, etc.) located on or within the immediate vicinity of the project site.

The site and surrounding area are located in a Category I Critical Aquifer Recharge Area (CARA). All stormwater management BMP's will meet or exceed DDECM requirements.

PART 3 – OFF-SITE ANALYSIS

The project site is bounded by Burnett Rd. SE to the west; by undeveloped parcels to the east and north; and by developed residential parcels to the south.

There are no apparent indications of stormwater runoff entering the project site from surrounding properties and there does not appear to be any noticeable stormwater runoff from the subject parcel onto adjacent parcels.

Stormwater runoff from the Burnett Rd. frontage currently sheet flows to a roadside ditch. There is no known ultimate outfall point other than infiltration within the ditch.

All stormwater runoff generated by the proposed improvements will be dispersed and/or infiltrated on-site; therefore, a quantitative off-site analysis and/or mitigation is not warranted.

PART 4 – PERMANENT STORMWATER CONTROL PLAN

Applicable Minimum Requirements

The minimum requirements for stormwater development and redevelopment sites are listed in Section I-2.4 of Volume I of the Stormwater Manual. Based on the thresholds given in this section, the proposed project must address or comment on Minimum Requirements #1 through #9. These requirements have been addressed as follows:

Minimum Requirement #1 – Preparation of Stormwater Site Plans:

A Stormwater Site Plan has been prepared (see Site Plan).

Minimum Requirement #2 – Construction Stormwater Pollution Prevention Plan (SWPPP):

A SWPPP meeting city requirements will be provided with the final Stormwater Site Plan Report.

Minimum Requirement #3 – Source Control of Pollution:

A Pollution Source Control Program will be prepared and provided prior to final project approval, if required.

Minimum Requirement #4 – Preservation of Natural Drainage Systems and Outfalls:

There are no known natural drainage systems or outfalls located on or immediately adjacent to the proposed lease area.

Minimum Requirement #5 – On-Site Stormwater Management:

This project will meet the LID Performance Standard. The proposed stormwater Best Management Practices (BMP's) are as follows:

Lawn and Landscape Areas:

- All disturbed areas, including the roadside planter areas and future individual lot lawn/landscape areas, will contain soils meeting the Post-Construction Soil Quality and Depth (BMP T5.13) requirements.

Roof Areas:

- It is anticipated that Stormwater runoff from the future individual lot roof areas will be tightlined to individual lot downspout infiltration trenches (BMP T5.10A) for detention and 100% infiltration of stormwater runoff from the roof areas. See Minimum Requirement #7 below for additional information.

Other Hard Surface Areas:

- Stormwater runoff from east half of the Burnett Rd. frontage and the on-site roadway will be collected and conveyed to a Type 2 catch basin containing Baysaver Bayfilter™ cartridges for treatment. Treated stormwater will be conveyed to a below-grade Infiltration Trench (BMP T7.20) consisting of StormTech chambers for storage and 100% infiltration. See Minimum Requirement #6 and #7 below for additional information.
- Stormwater runoff from the improved portion of 89th Way will sheet flow to the existing storm drainage system located along 89th Ave. and ultimately be conveyed through a bioswale and into a detention pond located in Burnett Estates. There is only 2,462 sf of net new hard surface area associated with the 89th Way improvements and the existing Burnett Estates stormwater system has capacity to accommodate this additional runoff.
- It is anticipated that stormwater runoff from the future individual lot driveway, walkway, and patio areas will be sheet flow dispersed (BMP T5.12) onto adjacent lawn/landscape areas. Soils within the dispersion areas will meet the Post-Construction Soil Quality and Depth (BMP T5.13) requirements.

Modeling Narrative

- Stormwater runoff from all proposed hard surface areas are being infiltrated and are considered “non-effective”; therefore, they can be excluded from the hard surface area threshold determination of Minimum Requirement #7.
- In order to help meet the flow control requirement, stormwater runoff from the individual lot lawn/landscape and dispersed driveway/walkway/patio areas have been routed to a Compost Amended Vegetated Filter Strip (CAVFS) in WWHM. See Minimum Requirement #7 below for additional information.

- All lawn/landscape areas will meet the Post-Construction Soil Quality and Depth (BMP T5.13) requirements and have been modeled as “pasture” in WWHM.
- The roof areas have been excluded from WWHM as they are not being routed to the main stormwater facility and they will be sized per prescriptive sizing standards for 100% infiltration.
- The pre-developed land coverage has been modeled as “pasture”.
- The project has a single Threshold Discharge Area (TDA).
- Parnell Engineering recommended a 20”/hr design infiltration rate for the below-grade infiltration facility; however, a 15”/hr rate was used in WWHM to be conservative.

Parcel Area: 4.389 acres
 Off-Site Area: 0.101 acres (East half of Burnett Rd.)
 Off-Site Area: 0.202 acres (89th Way SE)
 Total Project Area: 4.692 acres

Project Areas Pre-Developed (Acres)			
	Sub-Basin #1	Sub-Basin #2	Total
Roadway	0.054	0.114	0.168
Roof	0.039		0.039
Pasture/Brush	4.397		4.397
Lawn/Landscape		0.088	0.088
Total	4.490	0.202	4.692

Project Areas Post-Developed (Acres)			
	Sub-Basin #1	Sub-Basin #2	Total
Roadway	0.645 ¹	0.127 ¹	0.772
Sidewalks	0.086 ¹	0.023 ¹	0.109
Roof (assumed on lots)	1.010 ^{1,2,3}		1.010
Driveways (w/in R/W)	0.061 ¹		0.061
Driveway (assumed on lots)	0.253 ³		0.253
Misc. (Walkway/ Patio) (assumed on lots)	0.505 ³		0.505
Lawn/Landscape (assumed on lots)	1.736 ³		1.736
Lawn/Landscape (w/in R/W)	0.194 ¹	0.052 ¹	0.246
Total	4.490	0.202	4.692

- 1 "Non-effective" hard surface areas as these areas are being infiltrated.
- 2 Infiltrated hard surfaces (roof areas) not being routed to the main stormwater facility have been excluded from the post-developed scenario in WWHM.
- 3 It has been assumed that each lot will have a total of 3,500 sf of hard surface coverage (2,000 sf roof, 500 sf driveway, 1,000 sf walkway/patios) and the remaining lot area will consist of lawn/landscape.

Minimum Requirement #6 – Runoff Treatment:

This project will create more than 5,000 square-feet of new total pollution-generating hard surface (PGHS) area; therefore, a Runoff Treatment facility is required.

Two Baysaver Bayfilter™ cartridges (BFC 30 gpm) will provide treatment of stormwater runoff from all pollution generating hard surface (PGHS) areas (parking lot and sidewalks contributing to the parking lot). Per WWHM modeling results, this project is required to treat a 15-minute water quality flow rate of 0.1051 cfs.

$$0.1223 \text{ cfs} / 0.067 \text{ cfs/cartridge} = 1.83 \text{ (Use two 30 gpm cartridges)}$$

The Washington State Department of Ecology issued a "General Use Level Designation for Basic Treatment" for this filter when using a 30 gpm/cartridge design flow rate (see Appendix).

Minimum Requirement #7 – Flow Control:

This project will create less than 10,000 square-feet of "effective" hard surface area, there will be less than a 0.15-cfs increase in the 100-year recurrence interval flow frequency from the pre- to post-developed condition, and less than 2.5-acres of native vegetation will be converted to pasture; however, more than ¾-acre of vegetation will be converted to lawn/landscape; therefore, Flow Control is applicable. See Minimum Requirement #5 above for a detailed description of the proposed Stormwater Management BMP's.

Per WWHM, the project meets the LID Performance Standard.

In order to reduce the effective hard surface area and to help meet the flow control requirement, stormwater runoff from the individual lot lawn/landscape and dispersed driveway/walkway/patio areas have been routed to a Compost Amended Vegetated Filter Strip (CAVFS) in WWHM.

Per the WWHM user's manual, *"The CAVFS surface area automatically receives rainfall and produces evapotranspiration. Due to this model input the CAVFS surface area should be excluded from the basin element's total surface area."* Since the entire lawn/landscape area essentially is a CAVFS, the basin element area would become zero. However, to be conservative, the total proposed lawn/landscape surface area has been routed to the CAVFS. Furthermore, only the lawn/landscape area adjacent to the driveways along with the down-slope yard areas have been utilized as a CAVFS.

In this situation, the CAVFS is intended to be a flow control facility with infiltration to the underlying soils. A 3"/hr infiltration rate of the underlying soils was used in WWHM (A 4"/hr rate for the surface soils was recommended in the Soils Report prepared by Parnell Engineering and a 3"/hr rate is typical for amended soils).

The 4' high infiltration trench will provide for 1.6' of freeboard. At a maximum ponding depth of 2.4', the facility will draw down in 1.9 hours $(2.4' \times 12") / 15" / \text{hr} = 1.9 \text{ hours}$).

Minimum Requirement #8 – Wetlands Protection:

There are no known wetlands on or immediately adjacent to the project site; therefore, this Minimum Requirement is not applicable.

Minimum Requirement #9 – Operation and Maintenance:

An operation and maintenance manual will be prepared prior to final project approval. The owner will be responsible for maintaining all stormwater facilities located on-site.

PART 5 – SPECIAL REPORTS AND STUDIES

A Soils Report for Evaluating Site Feasibility of Stormwater Infiltration, dated September 18, 2020 has been prepared by Parnell Engineering (see Appendix).

PART 6 – OTHER PERMITS

Right-of-way encroachment and grading permits will be required prior to construction start. A stormwater permit will be obtained from Ecology.

PART 7 – OPERATION AND MAINTENANCE MANUAL

An operation and maintenance manual will be provided prior to final project approval. The owner will be responsible for maintaining all stormwater facilities located on-site.

Appendix 1
Preliminary Drainage Plans

PRELIMINARY PLAT OF MOUNTAIN MEADOWS

SECTION 13, TOWNSHIP 17 NORTH, RANGE 1 EAST, W.M.
YELM, WASHINGTON

SURVEY NOTE

THE TOPOGRAPHIC SURVEY AND BOUNDARY INFORMATION DEPICTED HEREON WAS PROVIDED BY JWH CONSTRUCTION SERVICES, MARCH 2005 AND OBTAINED FROM CITY RECORDS. THE AS-BUILT LOCATIONS OF THE EXISTING IMPROVEMENTS AT THE TIE-IN POINTS ALONG BURNETT RD. AND 89TH WAY WILL NEED TO BE SURVEYED PRIOR TO PREPARATION OF THE CIVIL CONSTRUCTION PLANS.

THIS SURVEY INFORMATION WAS NOT FIELD VERIFIED BY OLYMPIC ENGINEERING AND OLYMPIC ENGINEERING ASSUMES NO LIABILITY IN THE ACCURACY OF THIS INFORMATION OR FOR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

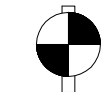
ZONING: RR 1/5

BURNETT ROAD WESTERLY RIGHT OF WAY NOTE:
20 FEET OF RIGHT OF WAY SHOWN HEREON IS PER SURVEYS OF RECORD. HOWEVER, RESEARCH OF THE RECORDS OF THE COUNTY RIGHT OF WAY OFFICE REVEALED NO DEDICATION DEEDS.

PROPOSED NEIGHBORHOOD COLLECTOR 1/2 STREET SECTION
NOTE: AN ADDITIONAL 2' OF PLANTER STRIP AND RIGHT-OF-WAY DEDICATION WIDTH ARE PROPOSED TO MATCH THE EXISTING IMPROVEMENTS AND RIGHT-OF-WAY WIDTHS TO THE SOUTH.

ZONING: RR 1/5

ZONING: R-4



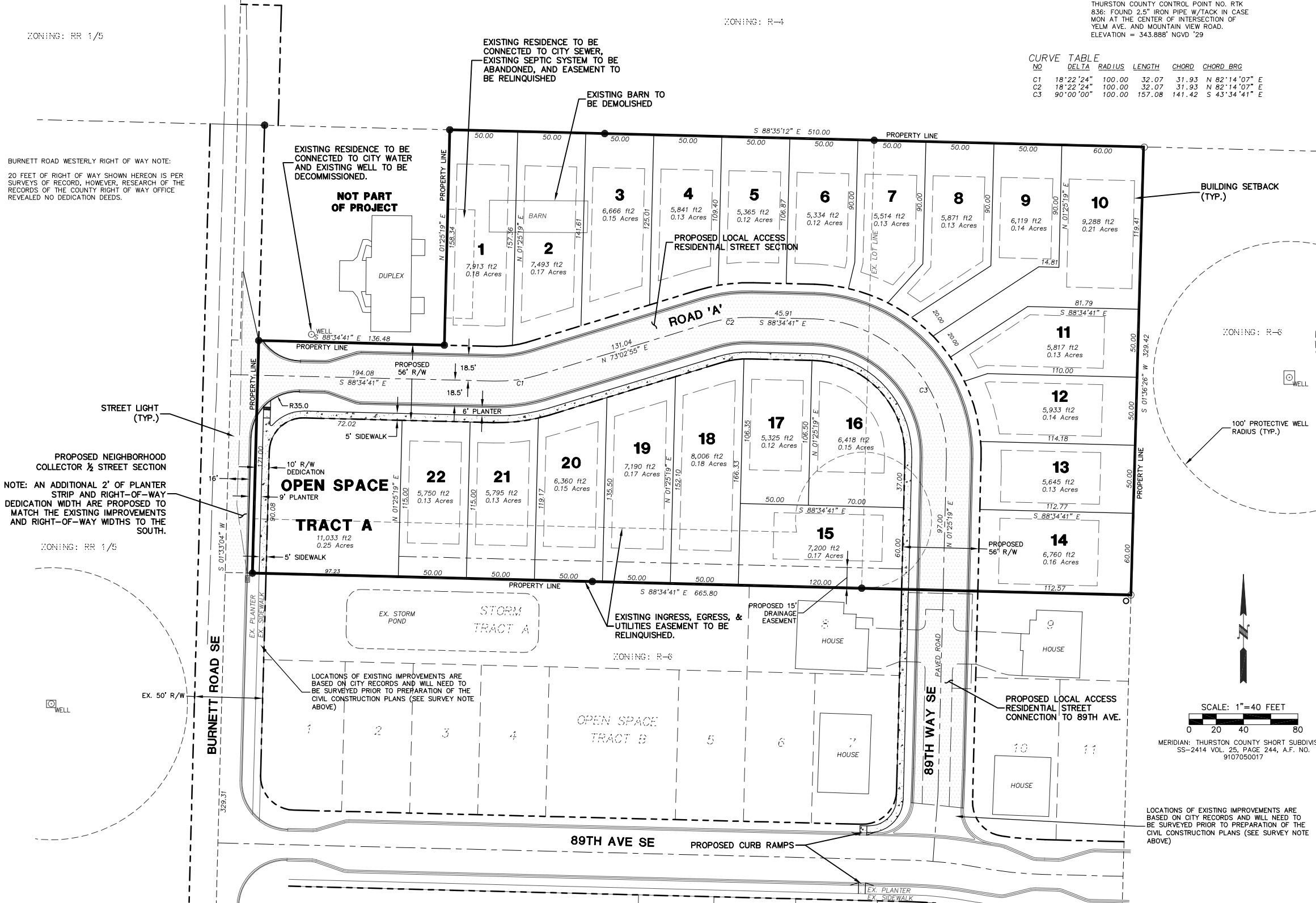
VERTICAL DATUM
DATUM: NGVD '29

THURSTON COUNTY CONTROL POINT NO. RTK 836A2: FOUND 2.5" IRON PIPE W/TACK IN CASE MON, 11" SOUTH AND 2' WEST CENTER OF INTERSECTION OF YELM AVE. AND 93RD AVE. ELEVATION = 342.902' NGVD '29

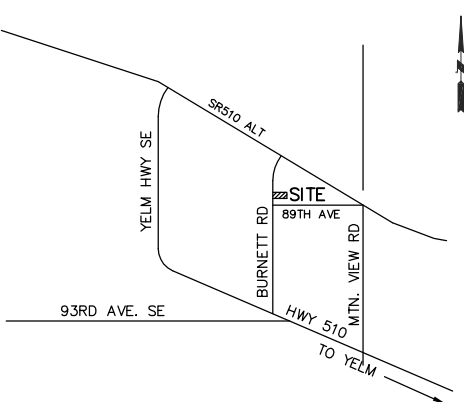
THURSTON COUNTY CONTROL POINT NO. RTK 836: FOUND 2.5" IRON PIPE W/TACK IN CASE MON AT THE CENTER OF INTERSECTION OF YELM AVE. AND MOUNTAIN VIEW ROAD. ELEVATION = 343.888' NGVD '29

CURVE TABLE

NO	DELTA	RADIUS	LENGTH	CHORD	CHORD BRG
C1	18°22'24"	100.00	32.07	31.93	N 82°14'07" E
C2	18°22'24"	100.00	32.07	31.93	N 82°14'07" E
C3	90°00'00"	100.00	157.08	141.42	S 43°34'41" E



VICINITY MAP

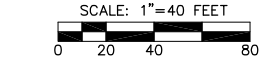


PROJECT INFORMATION

APPLICANT:	HENRIETTA MOREY P.O. BOX 202 KAPOWSIN, WA 98344
PARCEL NOS:	21713310400 & 21713310402
SITE ADDRESS:	8818 BURNETT ROAD SW YELM, WA 98597
ZONING:	R-6
SITE AREA:	±4.389 ACRES (191,177 SF)
# LOTS:	22
DENSITY:	5 UNITS/ACRE
AVG. LOT SIZE:	6,437 SF
OPEN SPACE AREA:	0.25 AC (5.77%)
GRADING:	±1,800 CY CUT, ±1,200 CY FILL (FOR APPLICATION PURPOSES ONLY)
SOILS:	SPANAWAY GRAVELLY SANDY LOAM (HSG A)
SANITARY SEWER:	CITY OF YELM
WATER:	CITY OF YELM
FIRE DISTRICT:	YELM
SCHOOL DISTRICT:	YELM
BUILDING SETBACKS:	15' FRONT, 6' SIDE, 25' REAR
FEMA FIRM DESIGNATION:	ZONE X (PANEL #53067C0335E)

LEGEND

EXISTING	PROPOSED	
— W —	— W —	WATER LINE
W	FH	FIRE HYDRANT
	—	GATE VALVE
	—	THRUST BLOCKING
	—	SINGLE/DUAL WATER METER
	—	BLOWOFF ASSEMBLY
— STEP —	— STEP —	STEP SEWER MAIN
	—	SINGLE/DUAL SEWER BOXES
	—	PIG LAUNCH PORT
	—	CATCH BASIN
	—	STORM DRAIN LINE
	—	SPOT ELEVATION
	—	SURFACE FLOW DIRECTION
	—	STREET LIGHT
	—	UTILITY POLE
	—	TELEPHONE PEDESTAL
	—	OVERHEAD POWER
	—	WELL
	—	MAILBOX



SCALE: 1"=40 FEET
MERIDIAN: THURSTON COUNTY SHORT SUBDIVISION
SS-2414 VOL. 25, PAGE 244, A.F. NO. 9107050017

LOCATIONS OF EXISTING IMPROVEMENTS ARE BASED ON CITY RECORDS AND WILL NEED TO BE SURVEYED PRIOR TO PREPARATION OF THE CIVIL CONSTRUCTION PLANS (SEE SURVEY NOTE ABOVE)

SHEET INDEX

- 1 PRELIMINARY PLAT MAP
- 2 PRELIMINARY UTILITY AND DRAINAGE PLAN
- 3 PRELIMINARY DETAILS

REVISION	DATE	NO.	WASHINGTON
MOUNTAIN MEADOWS			YELM
PRELIMINARY PLAT MAP			
DESIGNED BY:	CMM	DRAWN BY:	CMM
CHECKED BY:	CMM	SCALE:	1" = 40'
DATE:	11/5/2020		
PO Box 12600 Olympia, WA 98508 360.705.2474 www.olympic.com			
OLYMPIC ENGINEERING Full Engineering, Land Division, and Construction Management			
JOB NUMBER: 20047			
DRAWING NAME: 20047_PLAT			
SHEET: 1 OF 3			

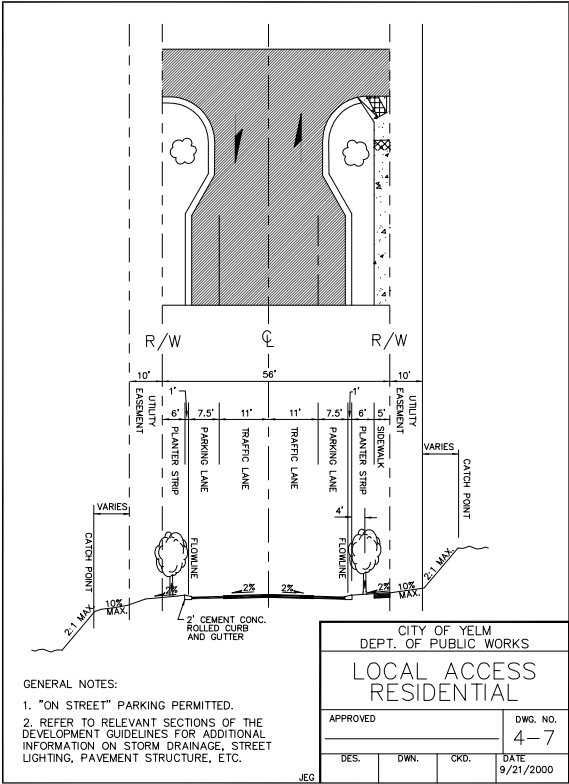
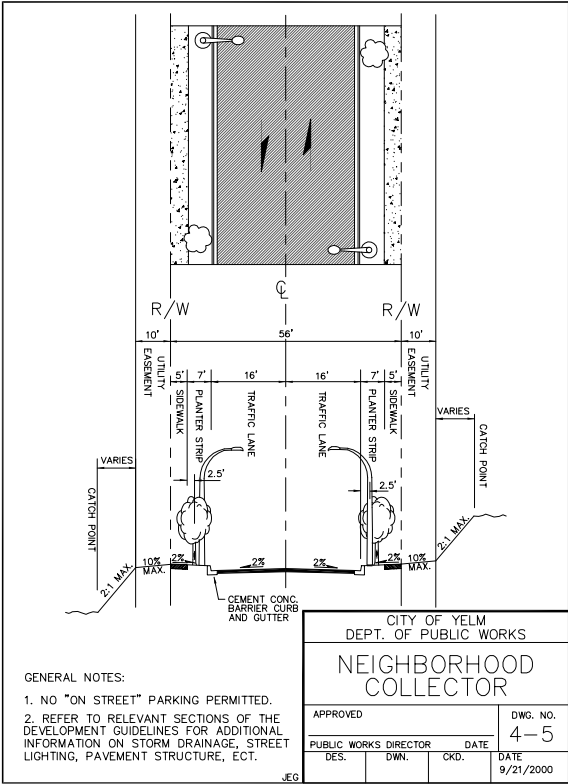
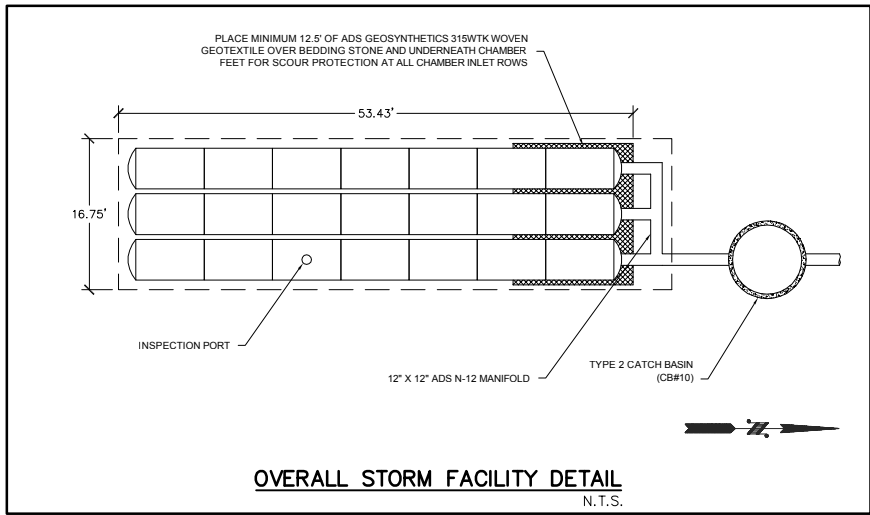
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE. NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER	CLEAN, CRUSHED, ANGULAR STONE. NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. **

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

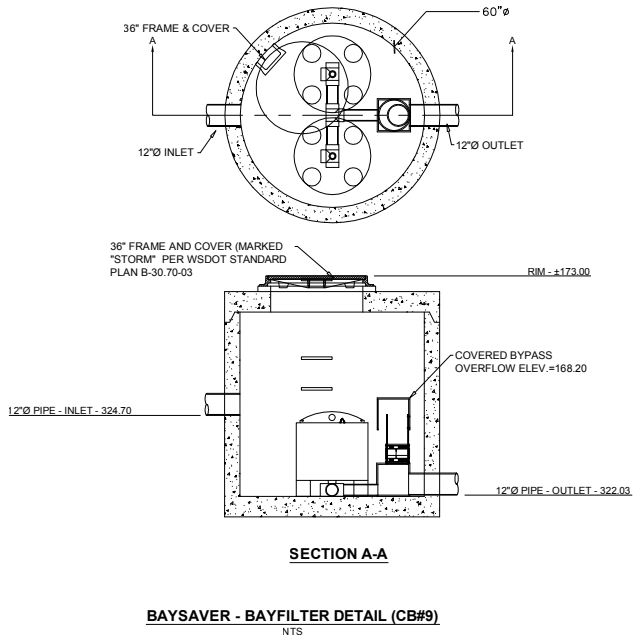
NOTES:

- SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



BAYFILTER 50-2 MANHOLE	
PROJECT	MOUNTAIN MEADOWS
LOCATION	CB#10
WATER QUALITY FLOW	0.1051 CFS
DRAINAGE AREA	
CARTRIDGE DESIGN FLOW RATE	30 GPM
# BAYFILTER CARTRIDGES	2
TREATED SEDIMENT CAPACITY	

NOTE:
SEE WSDOT STANDARD PLANS
B-10.20-01 B-30.90-01 FOR ACCESS
AND STEP/LADDER LOCATION/
ORIENTATION AND DETAILS.



Appendix 2
Preliminary Drainage Calculations

Project: Mountain Meadows



Chamber Model -
Units -

SC-740
Imperial

Number of chambers -
Voids in the stone (porosity) -
Base of Stone Elevation -
Amount of Stone Above Chambers -
Amount of Stone Below Chambers -
Area of system -

21	
40	%
0.00	ft
6	in
12	in
895	sf

☒ Include Perimeter Stone in Calculations

Min. Area - 710 sf min. area

StormTech SC-740 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Total Chamber (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch & St (cubic feet)	Cumulative Chamber (cubic feet)	Elevation (feet)
48	0.00	0.00	29.83	29.83	2010.98	4.00
47	0.00	0.00	29.83	29.83	1981.15	3.92
46	0.00	0.00	29.83	29.83	1951.31	3.83
45	0.00	0.00	29.83	29.83	1921.48	3.75
44	0.00	0.00	29.83	29.83	1891.65	3.67
43	0.00	0.00	29.83	29.83	1861.81	3.58
42	0.05	1.15	29.37	30.53	1831.98	3.50
41	0.16	3.42	28.46	31.89	1801.45	3.42
40	0.28	5.92	27.47	33.39	1769.57	3.33
39	0.60	12.68	24.76	37.44	1736.18	3.25
38	0.80	16.84	23.10	39.93	1698.74	3.17
37	0.95	19.96	21.85	41.81	1658.80	3.08
36	1.07	22.56	20.81	43.37	1616.99	3.00
35	1.18	24.79	19.92	44.71	1573.62	2.92
34	1.27	26.58	19.20	45.78	1528.91	2.83
33	1.36	28.46	18.45	46.91	1483.13	2.75
32	1.45	30.54	17.62	48.15	1436.23	2.67
31	1.52	32.02	17.03	49.04	1388.07	2.58
30	1.58	33.23	16.54	49.77	1339.03	2.50
29	1.64	34.49	16.04	50.53	1289.26	2.42
28	1.70	35.69	15.56	51.25	1238.73	2.33
27	1.75	36.81	15.11	51.92	1187.48	2.25
26	1.80	37.86	14.69	52.55	1135.56	2.17
25	1.85	38.95	14.25	53.21	1083.01	2.08
24	1.89	39.75	13.93	53.69	1029.81	2.00
23	1.93	40.61	13.59	54.20	976.12	1.92
22	1.97	41.47	13.24	54.72	921.92	1.83
21	2.01	42.21	12.95	55.16	867.20	1.75
20	2.04	42.94	12.66	55.60	812.04	1.67
19	2.07	43.57	12.40	55.98	756.44	1.58
18	2.10	44.20	12.15	56.36	700.46	1.50
17	2.13	44.77	11.93	56.69	644.11	1.42
16	2.15	45.23	11.74	56.97	587.41	1.33
15	2.18	45.72	11.55	57.26	530.44	1.25
14	2.20	46.17	11.37	57.53	473.18	1.17
13	2.21	46.35	11.29	57.65	415.65	1.08

12	0.00	0.00	29.83	29.83	358.00	1.00
11	0.00	0.00	29.83	29.83	328.17	0.92
10	0.00	0.00	29.83	29.83	298.33	0.83
9	0.00	0.00	29.83	29.83	268.50	0.75
8	0.00	0.00	29.83	29.83	238.67	0.67
7	0.00	0.00	29.83	29.83	208.83	0.58
6	0.00	0.00	29.83	29.83	179.00	0.50
5	0.00	0.00	29.83	29.83	149.17	0.42
4	0.00	0.00	29.83	29.83	119.33	0.33
3	0.00	0.00	29.83	29.83	89.50	0.25
2	0.00	0.00	29.83	29.83	59.67	0.17
1	0.00	0.00	29.83	29.83	29.83	0.08

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 20047_101920
Site Name: Mountain Meadows
Site Address: 8818 Burnett Rd
City: Yelm
Report Date: 11/4/2020
Gage: Eaton Creek
Data Start: 1955/10/01
Data End: 2011/09/30
Timestep: 15 Minute
Precip Scale: 0.857
Version Date: 2018/10/10
Version: 4.2.16

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Low Flow Threshold for POC3:	50 Percent of the 2 Year
High Flow Threshold for POC3:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Pasture, Flat 4.436

Pervious Total 4.436

Impervious Land Use acre
ROADS FLAT 0.054

Impervious Total 0.054

Basin Total 4.49

Element Flows To:
Surface Interflow Groundwater

Water Quality

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Pasture, Flat	0.194
Pervious Total	0.194
Impervious Land Use	acre
ROADS FLAT	0.645
DRIVEWAYS FLAT	0.061
SIDEWALKS FLAT	0.086
Impervious Total	0.792
Basin Total	0.986

Dummy basin for
determining the water
quality runoff rate

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1 - Roads

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Pasture, Flat	0.194
Pervious Total	0.194
Impervious Land Use	acre
ROADS FLAT	0.645
DRIVEWAYS FLAT	0.061
SIDEWALKS FLAT	0.086
Impervious Total	0.792
Basin Total	0.986

Element Flows To:		
Surface	Interflow	Groundwater
SSD Table 1	SSD Table 1	

Water Quality

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Pasture, Flat	0.194
Pervious Total	0.194
Impervious Land Use	acre
ROADS FLAT	0.645
DRIVEWAYS FLAT	0.061
SIDEWALKS FLAT	0.086
Impervious Total	0.792
Basin Total	0.986

For determining the
water quality runoff rate

Element Flows To:		
Surface	Interflow	Groundwater

Basin 1 - Lots

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Pasture, Flat	1.736
Pervious Total	1.736
Impervious Land Use	acre
DRIVEWAYS FLAT	0.253
SIDEWALKS FLAT	0.505
Impervious Total	0.758
Basin Total	2.494

Lot driveway, walkway,
and patio areas

Element Flows To:			
Surface		Interflow	Groundwater
CAVFS 1 Surface 1		CAVFS 1 Surface 1	

Routing Elements

Predeveloped Routing

Mitigated Routing

SSD Table 1

Depth: 4 ft.
 Discharge Structure: 1
 Riser Height: 3 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2

SSD Table Hydraulic Table

Stage (feet)	Area (ac.)	Volume (ac-ft.)	Outlet Struct	Infilt (cfs)	NotUsed	NotUsed	NotUsed
0.000	0.021	0.000	0.000	0.311	0.000	0.000	0.000
0.083	0.021	0.001	0.000	0.311	0.000	0.000	0.000
0.167	0.021	0.001	0.000	0.311	0.000	0.000	0.000
0.250	0.021	0.002	0.000	0.311	0.000	0.000	0.000
0.333	0.021	0.003	0.000	0.311	0.000	0.000	0.000
0.417	0.021	0.003	0.000	0.311	0.000	0.000	0.000
0.500	0.021	0.004	0.000	0.311	0.000	0.000	0.000
0.583	0.021	0.005	0.000	0.311	0.000	0.000	0.000
0.667	0.021	0.005	0.000	0.311	0.000	0.000	0.000
0.750	0.021	0.006	0.000	0.311	0.000	0.000	0.000
0.833	0.021	0.007	0.000	0.311	0.000	0.000	0.000
0.917	0.021	0.008	0.000	0.311	0.000	0.000	0.000
1.000	0.021	0.008	0.000	0.311	0.000	0.000	0.000
1.083	0.021	0.010	0.000	0.311	0.000	0.000	0.000
1.167	0.021	0.011	0.000	0.311	0.000	0.000	0.000
1.250	0.021	0.012	0.000	0.311	0.000	0.000	0.000
1.333	0.021	0.013	0.000	0.311	0.000	0.000	0.000
1.417	0.021	0.015	0.000	0.311	0.000	0.000	0.000
1.500	0.021	0.016	0.000	0.311	0.000	0.000	0.000
1.583	0.021	0.017	0.000	0.311	0.000	0.000	0.000
1.667	0.021	0.019	0.000	0.311	0.000	0.000	0.000
1.750	0.021	0.020	0.000	0.311	0.000	0.000	0.000
1.833	0.021	0.021	0.000	0.311	0.000	0.000	0.000
1.917	0.021	0.022	0.000	0.311	0.000	0.000	0.000
2.000	0.021	0.024	0.000	0.311	0.000	0.000	0.000
2.083	0.021	0.025	0.000	0.311	0.000	0.000	0.000
2.167	0.021	0.026	0.000	0.311	0.000	0.000	0.000
2.250	0.021	0.027	0.000	0.311	0.000	0.000	0.000
2.333	0.021	0.028	0.000	0.311	0.000	0.000	0.000
2.417	0.021	0.030	0.000	0.311	0.000	0.000	0.000
2.500	0.021	0.031	0.000	0.311	0.000	0.000	0.000
2.583	0.021	0.032	0.000	0.311	0.000	0.000	0.000
2.667	0.021	0.033	0.000	0.311	0.000	0.000	0.000
2.750	0.021	0.034	0.000	0.311	0.000	0.000	0.000
2.833	0.021	0.035	0.000	0.311	0.000	0.000	0.000
2.917	0.021	0.036	0.000	0.311	0.000	0.000	0.000
3.000	0.021	0.037	0.000	0.311	0.000	0.000	0.000
3.083	0.021	0.038	0.168	0.311	0.000	0.000	0.000
3.167	0.021	0.039	0.442	0.311	0.000	0.000	0.000
3.250	0.021	0.040	0.678	0.311	0.000	0.000	0.000
3.333	0.021	0.041	0.800	0.311	0.000	0.000	0.000
3.417	0.021	0.041	0.904	0.311	0.000	0.000	0.000

3.500	0.021	0.042	0.990	0.311	0.000	0.000	0.000
3.583	0.021	0.043	1.069	0.311	0.000	0.000	0.000
3.667	0.021	0.043	1.143	0.311	0.000	0.000	0.000
3.750	0.021	0.044	1.212	0.311	0.000	0.000	0.000
3.833	0.021	0.045	1.278	0.311	0.000	0.000	0.000
3.917	0.021	0.045	1.340	0.311	0.000	0.000	0.000
4.000	0.021	0.046	1.400	0.311	0.000	0.000	0.000

CAVFS 1

CAVFS Length: 1276.00 ft.
 CAVFS Width: 10.00 ft.
 Gravel thickness: 1 ft.
 Material thickness of CAVFS layer: 0.75 ft.
 Slope of CAVFS layer: 0.075 ft.
 Infiltration On
 Infiltration rate: 3
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 119.871
 Total Volume Through Riser (ac-ft.): 0
 Total Volume Through Facility (ac-ft.): 119.879
 Percent Infiltrated: 99.99
 Total Precip Applied to Facility: 3.809
 Total Evap From Facility: 2.485
 Outlet Control
 Overflow Height: 0.5 ft.
 Overflow width: 638 in.
 Element Flows To:
 Outlet 1 Outlet 2

CAVFS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0220	0.0000	0.0000	0.0000
0.1286	0.0220	0.0012	0.0000	0.0000
0.2571	0.0220	0.0023	0.0000	0.0000
0.3857	0.0220	0.0035	0.0000	0.0000
0.5143	0.0220	0.0047	0.0000	0.0000
0.6429	0.0220	0.0059	0.0000	0.0000
0.7714	0.0220	0.0070	0.0000	0.0000
0.9000	0.0220	0.0082	0.0000	0.0000
1.0286	0.0220	0.0095	0.0000	0.0000
1.1571	0.0220	0.0108	0.0001	0.9747
1.2857	0.0220	0.0121	0.0001	0.9747
1.4143	0.0220	0.0134	0.0002	0.9747
1.5429	0.0220	0.0147	0.0002	0.9747
1.6714	0.0220	0.0160	0.0003	0.9747
1.8000	0.0220	0.0172	0.0004	0.9747
1.9286	0.0220	0.0185	0.0006	0.9747
2.0571	0.0220	0.0198	0.0007	0.9747
2.1857	0.0220	0.0211	0.0008	0.9747
2.3143	0.0220	0.0224	0.0010	0.9747
2.4429	0.0220	0.0237	0.0012	0.9747
2.5714	0.0220	0.0250	0.0014	0.9747
2.7000	0.0220	0.0263	0.0017	0.9747
2.8286	0.0220	0.0276	0.0020	0.9747
2.9571	0.0220	0.0289	0.0023	0.9747
3.0857	0.0220	0.0302	0.0026	0.9747
3.2143	0.0220	0.0315	0.0029	0.9747
3.3429	0.0220	0.0327	0.0033	0.9747
3.4714	0.0220	0.0340	0.0037	0.9747
3.6000	0.0220	0.0353	0.0041	0.9747
3.7286	0.0220	0.0366	0.0045	0.9747
3.8571	0.0220	0.0379	0.0050	0.9747
3.9857	0.0220	0.0392	0.0055	0.9747

4.1143	0.0220	0.0405	0.0061	0.9747
4.2429	0.0220	0.0418	0.0066	0.9747
4.3714	0.0220	0.0431	0.0072	0.9747
4.5000	0.0220	0.0444	0.0079	0.9747
4.6286	0.0220	0.0457	0.0085	0.9747
4.7571	0.0220	0.0470	0.0092	0.9747
4.8857	0.0220	0.0482	0.0099	0.9747
5.0143	0.0220	0.0495	0.0107	0.9747
5.1429	0.0220	0.0508	0.0115	0.9747
5.2714	0.0220	0.0521	0.0123	0.9747
5.4000	0.0220	0.0534	0.0132	0.9747
5.5286	0.0220	0.0547	0.0141	0.9747
5.6571	0.0220	0.0560	0.0150	0.9747
5.7857	0.0220	0.0573	0.0160	0.9747
5.9143	0.0220	0.0586	0.0170	0.9747
6.0429	0.0220	0.0599	0.0180	0.9747
6.1714	0.0220	0.0612	0.0191	0.9747
6.3000	0.0220	0.0625	0.0202	0.9747
6.4286	0.0220	0.0637	0.0214	0.9747
6.5571	0.0220	0.0650	0.0226	0.9747
6.6857	0.0220	0.0663	0.0238	0.9747
6.8143	0.0220	0.0676	0.0251	0.9747
6.9429	0.0220	0.0689	0.0264	0.9747
7.0714	0.0220	0.0702	0.0278	0.9747
7.2000	0.0220	0.0715	0.0292	0.9747
7.3286	0.0220	0.0728	0.0306	0.9747
7.4571	0.0220	0.0741	0.0321	0.9747
7.5857	0.0220	0.0754	0.0336	0.9747
7.7143	0.0220	0.0767	0.0352	0.9747
7.8429	0.0220	0.0780	0.0368	0.9747
7.9714	0.0220	0.0793	0.0385	0.9747
8.1000	0.0220	0.0805	0.0402	0.9747
8.2286	0.0220	0.0818	0.0419	0.9747
8.3571	0.0220	0.0831	0.0437	0.9747
8.4857	0.0220	0.0844	0.0455	0.9747
8.6143	0.0220	0.0857	0.0474	0.9747
8.7429	0.0220	0.0870	0.0493	0.9747
8.8714	0.0220	0.0883	0.0513	0.9747
9.0000	0.0220	0.0896	0.0533	0.9747
9.1286	0.0220	0.0909	0.0554	0.9747
9.2571	0.0220	0.0922	0.0575	0.9747
9.3857	0.0220	0.0935	0.0596	0.9747
9.5143	0.0220	0.0948	0.0618	0.9747
9.6429	0.0220	0.0960	0.0641	0.9747
9.7714	0.0220	0.0973	0.0664	0.9747
9.9000	0.0220	0.0986	0.0687	0.9747
10.029	0.0220	0.0999	0.0711	0.9747
10.157	0.0220	0.1012	0.0736	0.9747
10.286	0.0220	0.1025	0.0760	0.9747
10.414	0.0220	0.1038	0.0786	0.9747
10.543	0.0220	0.1051	0.0811	0.9747
10.671	0.0220	0.1064	0.1445	0.9747
10.800	0.0220	0.1077	0.1445	0.9747
10.929	0.0220	0.1090	0.1445	0.9747
11.000	0.0220	0.1097	0.1445	0.9747

CAVFS Hydraulic Table

Stage(feet)Area(ac.)Volume(ac-ft.)Discharge(cfs)To Amended(cfs)Infilt(cfs)

11.000	0.0220	0.1097	0.0000	1.1193	0.0000
11.129	0.0220	0.1125	0.0000	1.1193	0.0000
11.257	0.0220	0.1153	0.0000	1.1193	0.0000
11.386	0.0220	0.1182	0.0000	1.1193	0.0000
11.514	0.0220	0.1210	0.0000	1.1193	0.0000
11.643	0.0220	0.1238	0.0000	1.1193	0.0000
11.700	0.0220	0.1251	0.0000	1.1193	0.0000

CAVFS 1 Surface 1

Element Flows To:

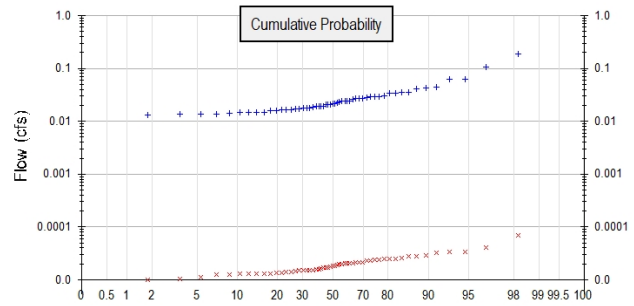
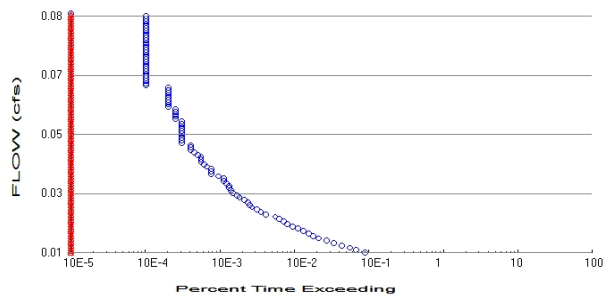
Outlet 1

Outlet 2

CAVFS 1

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 4.436
Total Impervious Area: 0.054

Mitigated Landuse Totals for POC #1

Total Pervious Area: 1.93
Total Impervious Area: 1.55

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.022097
5 year	0.035407
10 year	0.047212
25 year	0.066301
50 year	0.084098
100 year	0.105474

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.000018
5 year	0.000025
10 year	0.00003
25 year	0.000038
50 year	0.000045
100 year	0.000052

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1956	0.062	0.000
1957	0.027	0.000
1958	0.016	0.000
1959	0.018	0.000
1960	0.021	0.000
1961	0.029	0.000
1962	0.022	0.000
1963	0.042	0.000
1964	0.019	0.000
1965	0.022	0.000

1966	0.014	0.000
1967	0.027	0.000
1968	0.016	0.000
1969	0.013	0.000
1970	0.015	0.000
1971	0.062	0.000
1972	0.185	0.000
1973	0.019	0.000
1974	0.027	0.000
1975	0.017	0.000
1976	0.018	0.000
1977	0.026	0.000
1978	0.024	0.000
1979	0.025	0.000
1980	0.017	0.000
1981	0.035	0.000
1982	0.034	0.000
1983	0.034	0.000
1984	0.021	0.000
1985	0.018	0.000
1986	0.019	0.000
1987	0.029	0.000
1988	0.014	0.000
1989	0.035	0.000
1990	0.018	0.000
1991	0.107	0.000
1992	0.021	0.000
1993	0.042	0.000
1994	0.021	0.000
1995	0.031	0.000
1996	0.045	0.000
1997	0.016	0.000
1998	0.028	0.000
1999	0.019	0.000
2000	0.016	0.000
2001	0.015	0.000
2002	0.011	0.000
2003	0.024	0.000
2004	0.024	0.000
2005	0.015	0.000
2006	0.014	0.000
2007	0.023	0.000
2008	0.014	0.000
2009	0.017	0.000
2010	0.029	0.000
2011	0.014	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.1847	0.0001
2	0.1070	0.0000
3	0.0624	0.0000
4	0.0623	0.0000
5	0.0446	0.0000
6	0.0424	0.0000
7	0.0418	0.0000
8	0.0352	0.0000

9	0.0351	0.0000
10	0.0341	0.0000
11	0.0340	0.0000
12	0.0306	0.0000
13	0.0293	0.0000
14	0.0293	0.0000
15	0.0290	0.0000
16	0.0279	0.0000
17	0.0271	0.0000
18	0.0269	0.0000
19	0.0267	0.0000
20	0.0256	0.0000
21	0.0246	0.0000
22	0.0241	0.0000
23	0.0241	0.0000
24	0.0239	0.0000
25	0.0229	0.0000
26	0.0223	0.0000
27	0.0216	0.0000
28	0.0213	0.0000
29	0.0212	0.0000
30	0.0210	0.0000
31	0.0210	0.0000
32	0.0194	0.0000
33	0.0193	0.0000
34	0.0192	0.0000
35	0.0192	0.0000
36	0.0185	0.0000
37	0.0182	0.0000
38	0.0178	0.0000
39	0.0177	0.0000
40	0.0174	0.0000
41	0.0170	0.0000
42	0.0166	0.0000
43	0.0165	0.0000
44	0.0163	0.0000
45	0.0159	0.0000
46	0.0159	0.0000
47	0.0150	0.0000
48	0.0150	0.0000
49	0.0149	0.0000
50	0.0145	0.0000
51	0.0143	0.0000
52	0.0139	0.0000
53	0.0136	0.0000
54	0.0135	0.0000
55	0.0132	0.0000
56	0.0110	0.0000

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0110	1737	0	0	Pass
0.0118	1337	0	0	Pass
0.0125	1081	0	0	Pass
0.0133	843	0	0	Pass
0.0140	659	0	0	Pass
0.0147	527	0	0	Pass
0.0155	416	0	0	Pass
0.0162	355	0	0	Pass
0.0170	305	0	0	Pass
0.0177	262	0	0	Pass
0.0184	219	0	0	Pass
0.0192	185	0	0	Pass
0.0199	157	0	0	Pass
0.0206	143	0	0	Pass
0.0214	122	0	0	Pass
0.0221	109	0	0	Pass
0.0229	82	0	0	Pass
0.0236	70	0	0	Pass
0.0243	62	0	0	Pass
0.0251	53	0	0	Pass
0.0258	49	0	0	Pass
0.0265	47	0	0	Pass
0.0273	42	0	0	Pass
0.0280	36	0	0	Pass
0.0288	34	0	0	Pass
0.0295	29	0	0	Pass
0.0302	28	0	0	Pass
0.0310	26	0	0	Pass
0.0317	26	0	0	Pass
0.0324	24	0	0	Pass
0.0332	22	0	0	Pass
0.0339	22	0	0	Pass
0.0347	19	0	0	Pass
0.0354	15	0	0	Pass
0.0361	15	0	0	Pass
0.0369	15	0	0	Pass
0.0376	13	0	0	Pass
0.0383	12	0	0	Pass
0.0391	11	0	0	Pass
0.0398	11	0	0	Pass
0.0406	11	0	0	Pass
0.0413	10	0	0	Pass
0.0420	9	0	0	Pass
0.0428	8	0	0	Pass
0.0435	8	0	0	Pass
0.0443	8	0	0	Pass
0.0450	6	0	0	Pass
0.0457	6	0	0	Pass
0.0465	6	0	0	Pass
0.0472	6	0	0	Pass
0.0479	6	0	0	Pass
0.0487	6	0	0	Pass
0.0494	6	0	0	Pass

0.0502	6	0	0	Pass
0.0509	6	0	0	Pass
0.0516	6	0	0	Pass
0.0524	5	0	0	Pass
0.0531	5	0	0	Pass
0.0538	5	0	0	Pass
0.0546	5	0	0	Pass
0.0553	5	0	0	Pass
0.0561	4	0	0	Pass
0.0568	4	0	0	Pass
0.0575	4	0	0	Pass
0.0583	4	0	0	Pass
0.0590	4	0	0	Pass
0.0597	4	0	0	Pass
0.0605	4	0	0	Pass
0.0612	4	0	0	Pass
0.0620	4	0	0	Pass
0.0627	2	0	0	Pass
0.0634	2	0	0	Pass
0.0642	2	0	0	Pass
0.0649	2	0	0	Pass
0.0657	2	0	0	Pass
0.0664	2	0	0	Pass
0.0671	2	0	0	Pass
0.0679	2	0	0	Pass
0.0686	2	0	0	Pass
0.0693	2	0	0	Pass
0.0701	2	0	0	Pass
0.0708	2	0	0	Pass
0.0716	2	0	0	Pass
0.0723	2	0	0	Pass
0.0730	2	0	0	Pass
0.0738	2	0	0	Pass
0.0745	2	0	0	Pass
0.0752	2	0	0	Pass
0.0760	2	0	0	Pass
0.0767	2	0	0	Pass
0.0775	2	0	0	Pass
0.0782	2	0	0	Pass
0.0789	2	0	0	Pass
0.0797	2	0	0	Pass
0.0804	2	0	0	Pass
0.0811	2	0	0	Pass
0.0819	2	0	0	Pass
0.0826	2	0	0	Pass
0.0834	2	0	0	Pass
0.0841	2	0	0	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

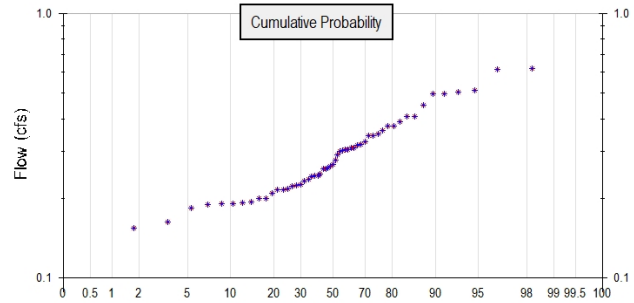
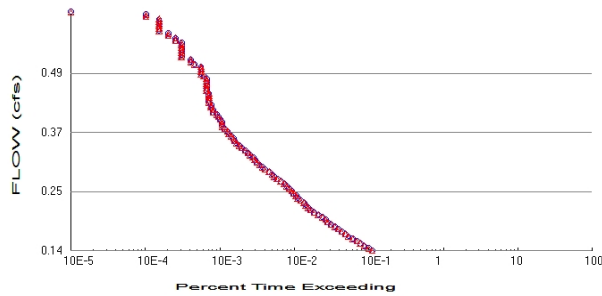
Adjusted for 15 min: 0 cfs.

This page is not displaying correctly and the report is not including the LID durations. Tthis reporting error can happen when infiltrating 100% of the stormwater runoff generated by the project and/or when runoff from the pre-developed scenario is too small for the model to analyze (typical of HSG A/B soils).

POC 2

POC #2 was not reported because POC must exist in both scenarios and both scenarios must have been run.

POC 3



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #3

Total Pervious Area: 0.194
Total Impervious Area: 0.792

Mitigated Landuse Totals for POC #3

Total Pervious Area: 0.194
Total Impervious Area: 0.792

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #3

Return Period	Flow(cfs)
2 year	0.276182
5 year	0.373147
10 year	0.441074
25 year	0.531254
50 year	0.601654
100 year	0.674863

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	Flow(cfs)
2 year	0.276182
5 year	0.373147
10 year	0.441074
25 year	0.531254
50 year	0.601654
100 year	0.674863

Not applicable

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #3

Year	Predeveloped	Mitigated
1956	0.221	0.221
1957	0.391	0.391
1958	0.199	0.199
1959	0.265	0.265
1960	0.311	0.311
1961	0.241	0.241
1962	0.326	0.326
1963	0.449	0.449
1964	0.278	0.278
1965	0.261	0.261
1966	0.199	0.199

1967	0.225	0.225
1968	0.217	0.217
1969	0.194	0.194
1970	0.209	0.209
1971	0.215	0.215
1972	0.346	0.346
1973	0.243	0.243
1974	0.350	0.350
1975	0.247	0.247
1976	0.258	0.258
1977	0.374	0.374
1978	0.318	0.318
1979	0.360	0.360
1980	0.242	0.242
1981	0.504	0.504
1982	0.499	0.499
1983	0.498	0.498
1984	0.302	0.302
1985	0.233	0.233
1986	0.269	0.269
1987	0.292	0.292
1988	0.154	0.154
1989	0.514	0.514
1990	0.236	0.236
1991	0.616	0.616
1992	0.304	0.304
1993	0.622	0.622
1994	0.305	0.305
1995	0.407	0.407
1996	0.321	0.321
1997	0.191	0.191
1998	0.408	0.408
1999	0.258	0.258
2000	0.192	0.192
2001	0.190	0.190
2002	0.149	0.149
2003	0.309	0.309
2004	0.346	0.346
2005	0.215	0.215
2006	0.162	0.162
2007	0.306	0.306
2008	0.191	0.191
2009	0.224	0.224
2010	0.375	0.375
2011	0.183	0.183

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #3

Rank	Predeveloped	Mitigated
1	0.6216	0.6216
2	0.6161	0.6161
3	0.5140	0.5140
4	0.5038	0.5038
5	0.4986	0.4986
6	0.4981	0.4981
7	0.4491	0.4491
8	0.4083	0.4083
9	0.4073	0.4073

10	0.3906	0.3906
11	0.3749	0.3749
12	0.3743	0.3743
13	0.3604	0.3604
14	0.3502	0.3502
15	0.3462	0.3462
16	0.3459	0.3459
17	0.3264	0.3264
18	0.3212	0.3212
19	0.3176	0.3176
20	0.3113	0.3113
21	0.3094	0.3094
22	0.3061	0.3061
23	0.3054	0.3054
24	0.3036	0.3036
25	0.3018	0.3018
26	0.2922	0.2922
27	0.2782	0.2782
28	0.2694	0.2694
29	0.2653	0.2653
30	0.2606	0.2606
31	0.2584	0.2584
32	0.2579	0.2579
33	0.2475	0.2475
34	0.2425	0.2425
35	0.2423	0.2423
36	0.2414	0.2414
37	0.2362	0.2362
38	0.2326	0.2326
39	0.2251	0.2251
40	0.2244	0.2244
41	0.2213	0.2213
42	0.2170	0.2170
43	0.2149	0.2149
44	0.2148	0.2148
45	0.2089	0.2089
46	0.1990	0.1990
47	0.1990	0.1990
48	0.1935	0.1935
49	0.1919	0.1919
50	0.1913	0.1913
51	0.1913	0.1913
52	0.1899	0.1899
53	0.1835	0.1835
54	0.1624	0.1624
55	0.1540	0.1540
56	0.1493	0.1493

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1381	2189	2189	100	Pass
0.1428	1960	1960	100	Pass
0.1475	1720	1720	100	Pass
0.1521	1510	1510	100	Pass
0.1568	1368	1368	100	Pass
0.1615	1195	1195	100	Pass
0.1662	1047	1047	100	Pass
0.1709	954	954	100	Pass
0.1756	856	856	100	Pass
0.1802	760	760	100	Pass
0.1849	688	688	100	Pass
0.1896	611	611	100	Pass
0.1943	551	551	100	Pass
0.1990	517	517	100	Pass
0.2036	467	467	100	Pass
0.2083	412	412	100	Pass
0.2130	361	361	100	Pass
0.2177	326	326	100	Pass
0.2224	301	301	100	Pass
0.2271	280	280	100	Pass
0.2317	264	264	100	Pass
0.2364	239	239	100	Pass
0.2411	219	219	100	Pass
0.2458	207	207	100	Pass
0.2505	193	193	100	Pass
0.2552	181	181	100	Pass
0.2598	168	168	100	Pass
0.2645	155	155	100	Pass
0.2692	144	144	100	Pass
0.2739	129	129	100	Pass
0.2786	116	116	100	Pass
0.2832	104	104	100	Pass
0.2879	99	99	100	Pass
0.2926	90	90	100	Pass
0.2973	79	79	100	Pass
0.3020	73	73	100	Pass
0.3067	67	67	100	Pass
0.3113	62	62	100	Pass
0.3160	58	58	100	Pass
0.3207	55	55	100	Pass
0.3254	50	50	100	Pass
0.3301	47	47	100	Pass
0.3348	43	43	100	Pass
0.3394	39	39	100	Pass
0.3441	36	36	100	Pass
0.3488	33	33	100	Pass
0.3535	31	31	100	Pass
0.3582	30	30	100	Pass
0.3628	28	28	100	Pass
0.3675	26	26	100	Pass
0.3722	25	25	100	Pass
0.3769	23	23	100	Pass
0.3816	21	21	100	Pass

Not applicable

0.3863	21	21	100	Pass
0.3909	21	21	100	Pass
0.3956	20	20	100	Pass
0.4003	19	19	100	Pass
0.4050	18	18	100	Pass
0.4097	16	16	100	Pass
0.4144	16	16	100	Pass
0.4190	15	15	100	Pass
0.4237	15	15	100	Pass
0.4284	14	14	100	Pass
0.4331	14	14	100	Pass
0.4378	14	14	100	Pass
0.4425	14	14	100	Pass
0.4471	14	14	100	Pass
0.4518	13	13	100	Pass
0.4565	13	13	100	Pass
0.4612	13	13	100	Pass
0.4659	13	13	100	Pass
0.4705	13	13	100	Pass
0.4752	13	13	100	Pass
0.4799	12	12	100	Pass
0.4846	11	11	100	Pass
0.4893	11	11	100	Pass
0.4940	11	11	100	Pass
0.4986	11	11	100	Pass
0.5033	9	9	100	Pass
0.5080	8	8	100	Pass
0.5127	8	8	100	Pass
0.5174	6	6	100	Pass
0.5221	6	6	100	Pass
0.5267	6	6	100	Pass
0.5314	6	6	100	Pass
0.5361	6	6	100	Pass
0.5408	6	6	100	Pass
0.5455	6	6	100	Pass
0.5501	5	5	100	Pass
0.5548	5	5	100	Pass
0.5595	4	4	100	Pass
0.5642	4	4	100	Pass
0.5689	3	3	100	Pass
0.5736	3	3	100	Pass
0.5782	3	3	100	Pass
0.5829	3	3	100	Pass
0.5876	3	3	100	Pass
0.5923	3	3	100	Pass
0.5970	2	2	100	Pass
0.6017	2	2	100	Pass

Not applicable

Water Quality

Water Quality BMP Flow and Volume for POC #3

On-line facility volume: 0.1051 acre-feet

On-line facility target flow: 0.1223 cfs.

Adjusted for 15 min: 0.1223 cfs.

Off-line facility target flow: 0.0695 cfs.

Adjusted for 15 min: 0.0695 cfs.

Water quality flow
rate



LID Report

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

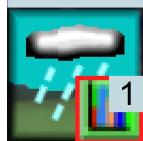
No PERLND changes have been made.

IMPLND Changes

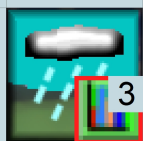
No IMPLND changes have been made.

Appendix

Predeveloped Schematic

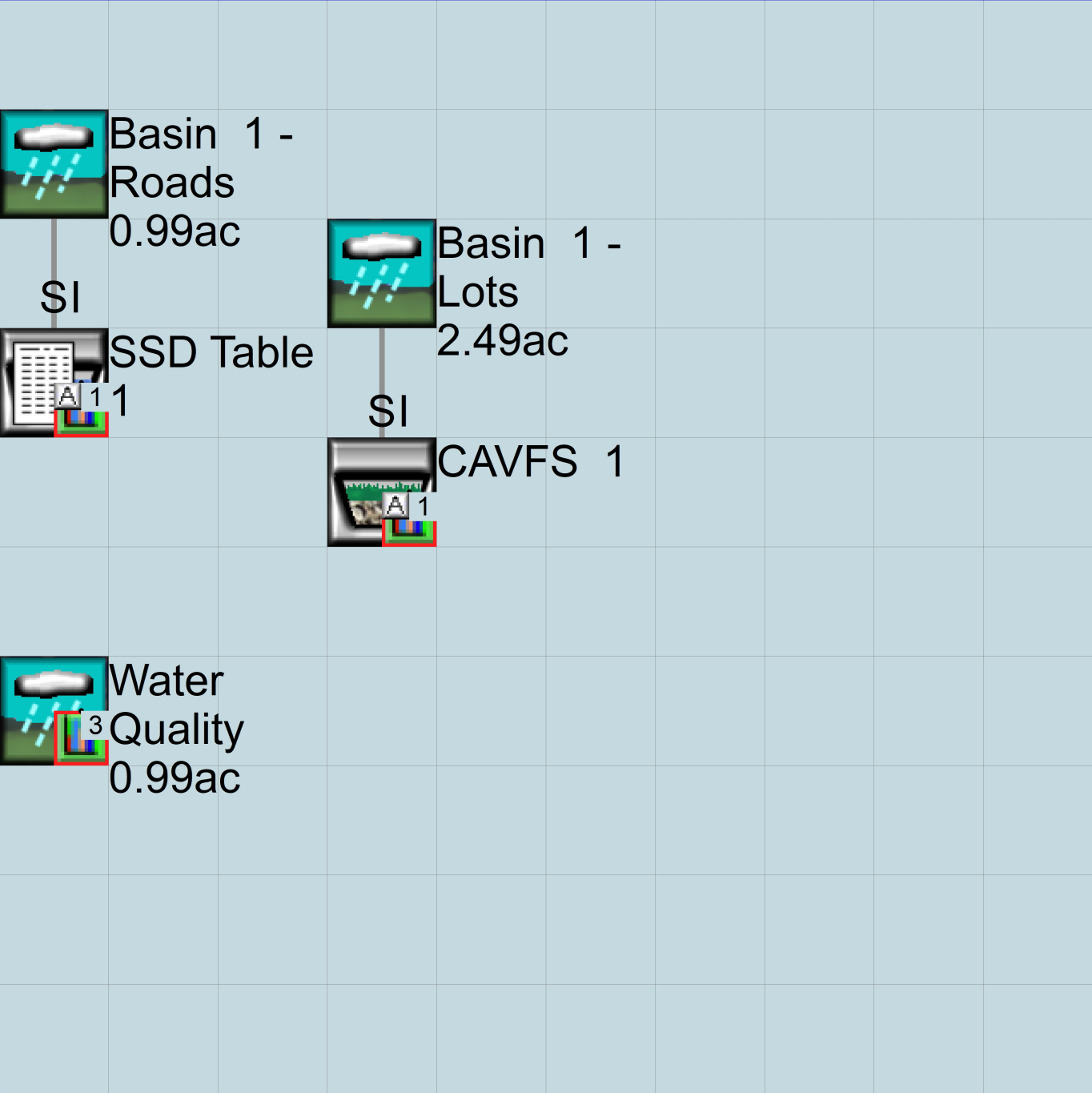


Basin 1
14.49ac



Water
Quality
0.99ac

Mitigated Schematic



Appendix 3
Soils Report

Mountain Meadows

Soils Report For Evaluating Site Feasibility of Stormwater Infiltration BMP's Associated with Roof, Driveway and Road Runoff.

Site Address: 8818 Burnett Road SE, Yelm WA 98597

TPN: 21713310400

Prepared For: Henrietta Morey

PO Box 202

Kapowsin, WA 98344

Contact: Henrietta Morey

(253) 377-8400

moreyrealestate@gmail.com

Prepared By: Parnell Engineering, LLC

10623 Hunters Lane S.E.

Olympia, WA 98513

Contact: William Parnell, P.E.

(360) 491-3243

parnelleng@hotmail.com

PE

PARNELL ENGINEERING, LLC

**SOIL EVALUATION REPORT
FORM 1: GENERAL SITE INFORMATION**

<p>PROJECT TITLE: Mountain Meadows PE PROJECT NO.: 20125 PREPARED BY: William Parnell, P.E.</p>	<p>SHEET: 1 OF 1 DATE: 9/18/2020</p>
<p>1. SITE ADDRESS: 8818 Burnett Road SE, Yelm WA 98597 TPN: 21713310400</p>	
<p>2. PROJECT DESCRIPTION: Proposed plat.</p>	
<p>3. SITE DESCRIPTION: The 2.89 acre irregular shaped project site is currently unoccupied by any building structures. Site relief is gently sloping from east to west, varying in elevation from 340 ft. at the northeast property corner to 328 ft. along the west property line. Site vegetation consists of pasture grasses and scotch bloom with a few conifer trees at the southwest property corner. The project site is bounded to the west by Burnett Road SE and residential property to the north, east and south. The on-site soils are mapped by the Natural Resource Conservation Service (NRCS) as a well-drained Spanaway gravelly sandy loam (110) formed in volcanic ash over gravelly outwash.</p>	
<p>4. SUMMARY OF SOILS WORK PERFORMED: Two test pits were excavated by trackhoe to a maximum depth of 168" below the existing grade. Soils were inspected by entering and visually logging each test pit to a depth of four feet. Soils beyond four feet were inspected by examining backhoe tailings. Soil samples were taken from test pit #1 and #2 at 108" below the existing grade. Grain size analysis method was used to determine the suitability of the representative soil horizons for stormwater infiltration facilities. An initial saturated hydraulic conductivity (Ksat) was calculated and then reduced by correction factors (CFT) to produce an adjusted design infiltration rate Ksat design for facility sizing purposes. Test pit soil log data sheets and grain size analysis data with Ksat calculations are included in this report.</p>	
<p>5. ADDITIONAL SOILS WORK RECOMMENDED: Additional soils work should not be necessary.</p>	
<p>6. FINDINGS: The on-site soils are mapped by NRCS as a Spanaway gravelly sandy loam (110). Test pits revealed soils consistent of a Spanaway series with stratum soils profiling a very gravelly and cobbled fine sandy loam overlying an extremely gravelly and cobbled loamy coarse-fine sand. Winter water table was not present and possible indicators were not obvious. The soil grain size analysis method resulted in adjusted Ksat design values for the following samples: Test pit #1 at 108" below the existing grade - 38.27 in/hr, test pit #2 at 108" below the existing grade - 55.4 in/hr.</p>	
<p>7. RECOMMENDATIONS: The Spanaway series soils are somewhat excessively drained soils found on outwash plains formed in volcanic ash over gravelly outwash. Infiltration rates are generally rapid in the substratum soils. Grain size analysis method resulted in adjusted Ksat design values > 20 in/hr. For the targeted C horizon soils, it is recommended Ksat design(F) values do not exceed 20 in/hr. Please refer to the attached soil gradation test results with Ksat design calculations, associated individual soil log data sheets and test pit/soil log location map.</p> <p>During construction, care must be taken to prevent the erosion of exposed soils. Stormwater drainage facility infiltration surfaces must be properly protected from contamination by the fine-grained upper horizon soils and from compaction by construction site activities. Soils not properly protected may cause stormwater drainage infiltration facilities to not perform as intended.</p>	
<p>I hereby certify that I prepared this report, and conducted or supervised the performance of related work. I certify that I am qualified to do this work. I represent my work to be complete and accurate within the bounds of uncertainty inherent to the practice of soils science, and to be suitable for its intended use.</p> <p>SIGNED: <u>William Parnell</u> DATE: <u>9/18/20</u></p>	



SOIL EVALUATION REPORT FORM 2: SOIL LOG INFORMATION

PROJECT TITLE: Mountain Meadows						SHEET: 1 OF 2	
PROJECT NO.: 20125						DATE: 9/16/2020	
PREPARED BY: William Parnell, PE							
SOIL LOG: #1							
LOCATION: 40 ft. north and 20 ft. east of the southwest property corner. (see attached site plan map)							
1. TYPES OF TEST DONE: Grain size analysis		2. NRCS SOILS SERIES: Spanaway gravelly sandy loam (110)		3. LAND FORM: Outwash plain			
4. DEPOSITION HISTORY: Volcanic ash over gravelly sand		5. HYDROLOGIC SOIL GROUP: A		6. DEPTH OF SEASONAL HW: Unknown			
7. CURRENT WATER DEPTH: Greater than bottom of hole		8. DEPTH TO RESTRICTIVE HORIZONS: Greater than bottom of hole		9. MISCELLANEOUS: Gently sloping			
10. POTENTIAL FOR:				EROSION	RUNOFF	PONDING	
				Slight	Slow	Minimal	
11. SOIL STRATA DESCRIPTION: See Following chart							
12. SITE PERCOLATION RATE: See FSP							
13. FINDINGS & RECOMMENDATIONS: Roots were present to 60". Use a design infiltration rate ≤ 20 in/hr in the C horizon soils.							

Soils Strata Description Soil Log #1

Horz	Depth	Color	Texture	%CL	%ORG	CF	STR	MOT	IND	CEM	ROO	<X>	FSP
A	0"- 14"	10YR3/2	VGrCob SaLm some stones	<15	<12	<45	1SBK	-	-	-	ff	2-6	4
Bw	14"- 18"	10YR3/4	VGrCob SaLm some stones	<12	<8	<45	SG	-	-	-	ff	2-6	6
C1	18"- 60"	10YR5/4	ExGrCobC- FSa some stones	<2	-	<85	SG	-	-	-	ff	>20	≤ 20
C2	60"- 85"	10YR5/2	ExGrCobC- FSa some stones	<2	-	<85	SG	-	-	-	-	>20	≤ 20
C3	85"-168"	10YR5/2	ExGrcobM- FSa some stones	<2	-	<85	SG	-	-	-	-	>20	≤ 20

SOIL EVALUATION REPORT FORM 2: SOIL LOG INFORMATION

PROJECT TITLE: Mountain Meadows						SHEET: 2 OF 2	
PROJECT NO.: 20125						DATE: 9/16/2020	
PREPARED BY: William Parnell, PE							
SOIL LOG: #2							
LOCATION: 40 ft. north and 80 ft. east of the southwest property corner. (see attached site plan map)							
1. TYPES OF TEST DONE: Grain size analysis		2. NRCS SOILS SERIES: Spanaway gravelly sandy loam (110)		3. LAND FORM: Outwash plain			
4. DEPOSITION HISTORY: Volcanic ash over gravelly sand		5. HYDROLOGIC SOIL GROUP: A		6. DEPTH OF SEASONAL HW: Unknown			
7. CURRENT WATER DEPTH: Greater than bottom of hole		8. DEPTH TO RESTRICTIVE HORIZONS: Greater than bottom of hole		9. MISCELLANEOUS: Gently sloping			
10. POTENTIAL FOR:				EROSION	RUNOFF	PONDING	
				Slight	Slow	Minimal	
11. SOIL STRATA DESCRIPTION: See Following chart							
12. SITE PERCOLATION RATE: See FSP							
13. FINDINGS & RECOMMENDATIONS: Roots were present to 28". Use a design infiltration rate ≤ 20 in/hr in the C horizon soils.							

Soils Strata Description Soil Log #2

Horz	Depth	Color	Texture	%CL	%ORG	CF	STR	MOT	IND	CEM	ROO	<X>	FSP
A	0"- 20"	10YR3/2	VGrCob SaLm some stones	<15	<12	<40	1SBK	-	-	-	ff	2-6	4
Bw	20"- 28"	10YR3/4	VGrCob SaLm some stones	<12	<8	<50	SG	-	-	-	ff	2-6	6
C1	28"- 68"	10YR5/4	ExGrCobM- FSa some stones	<2	-	<85	SG	-	-	-	ff	>20	≤ 20
C2	68"-168"	10YR5/2	ExGrCobM- FSa some stones	<2	-	<85	SG	-	-	-	-	>20	≤ 20

Abbreviations

Textural Class (Texture)	Structure (STR)	Grades of Structure
Cobbled - Cob	Granular - Gr	Strong - 3
Stoney - St	Blocky - Blky	Moderate - 2
Gravelly - Gr	Platy - Pl	Weak - 1
Sandy - Sa	Massive - Mas	
Loamy - Lm	Single Grained - SG	
Silty - Si	Sub-Angular Blocky - SBK	
Clayey - Cl		
Coarse - C		
Very - V		
Extremely - Ex		
Fine - F		
Medium - M		

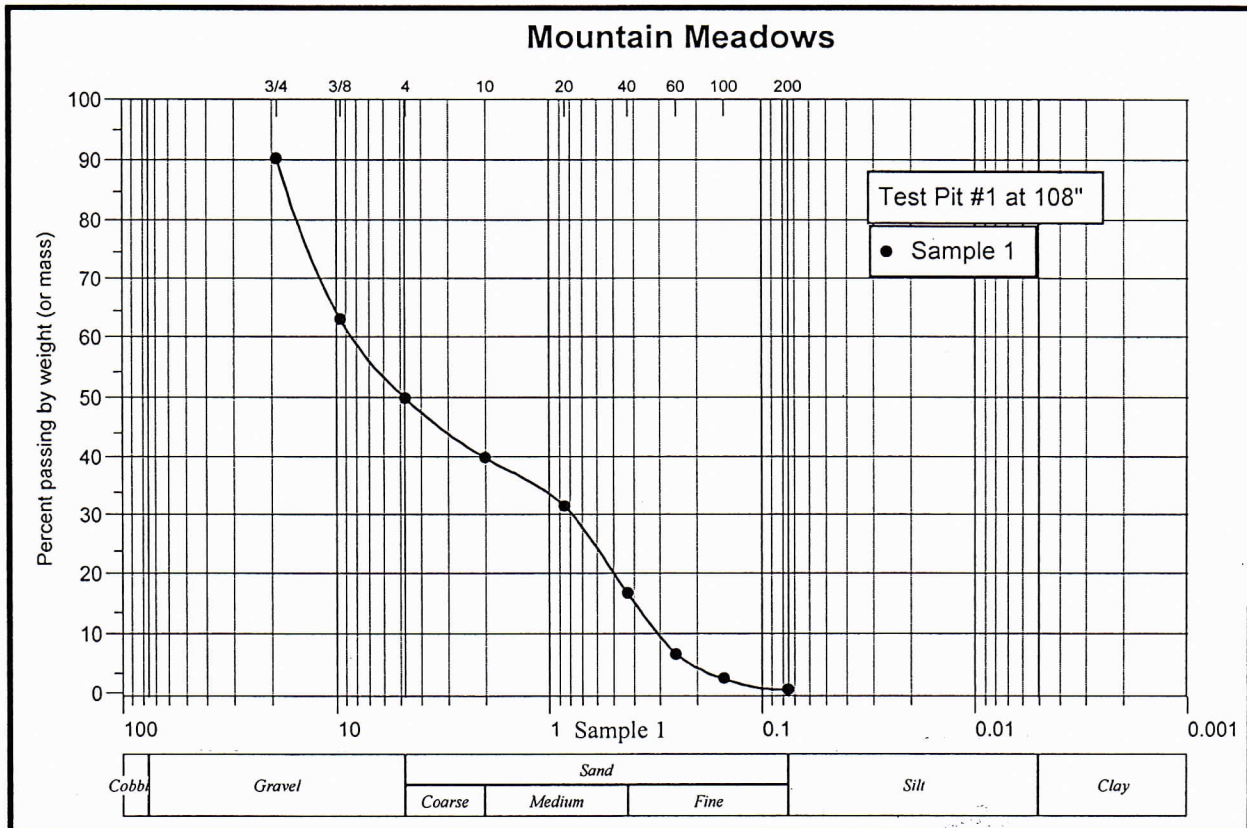
Induration & Cementation (IND) (CEM)
Weak - Wk
Moderate - Mod
Strong - Str

Mottles (MOT)		
1 Letter Abundance	1st Number Size	2nd Letter Contrast
Few - F	Fine - 1	Faint - F
Common - C	Medium - 2	Distinct - D
Many - M	Coarse - 3	Prominent - P

Roots (ROO)	
1st Letter Abundance	2nd Letter Size
Few - f	Fine - f
Common - c	Medium - m
Many - m	Coarse - c

<X> - Generalized range of infiltration rates from NRCS soil survey (<X>)

FSP - Estimated **Design** Field **Saturated** Percolation rate based on horizon specific factors and specific test results.



Ksat Calculations

Test pit #1 - sample #1 taken at 108" below the existing grade

Soil Gradation Test Results: D₁₀ = 0.31
D₆₀ = 8.5
D₉₀ = 19.0
f_{finer} = 0.0117

$$\log_{10}(K_{sat}) = -1.57 + 1.90(D_{10}) + 0.015(D_{60}) - 0.013(D_{90}) - 2.08(f_{finer})$$

$$\log_{10}(K_{sat}) = -1.57 + 1.90(0.31) + 0.015(8.5) - 0.013(19.0) - 2.08(0.0117) = -1.1248$$

$$K_{sat} = 0.0750 \text{ cm/s}$$

$$K_{sat} = 0.0750 \text{ cm/s} \times 0.3937 \text{ in/cm} \times 60 \text{ s/min} \times 60 \text{ min/hr}$$

$$K_{sat} = 106.32 \text{ in/hr}$$

Final Design Infiltration Rate Calculation : Ksat design

$$K_{sat \text{ design}} = K_{sat \text{ initial}} \times CF_T$$

$$K_{sat \text{ initial}} = 106.32 \text{ in/hr}$$

$$CF_T \text{ (Total Correction Factor - July 2016 SWMM)} = CF_v \times CF_t \times CF_m$$

$$CF_v = 1.0 \text{ (two tests pits, no soil variability)}$$

$$CF_t = 0.4 \text{ (grain size method)}$$

$$CF_m = 0.9 \text{ (siltation \& biofouling)}$$

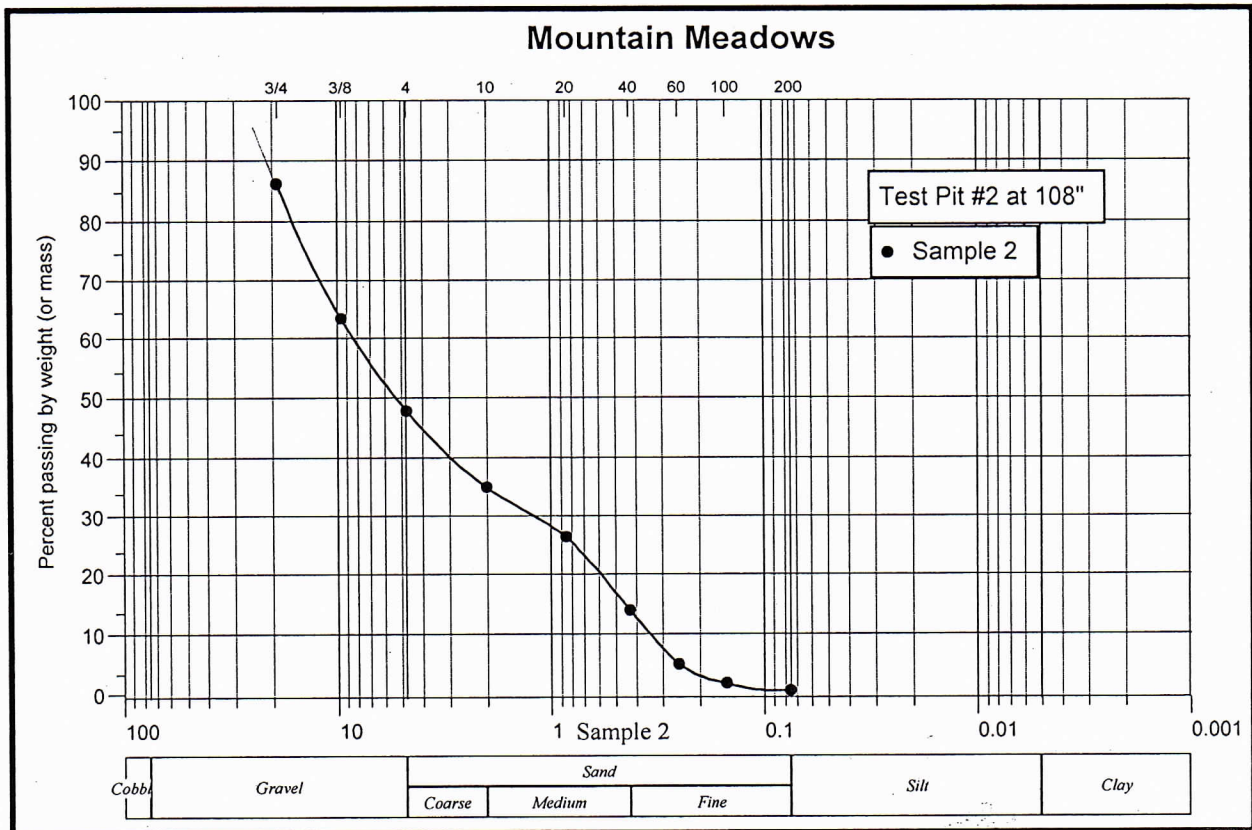
$$CF_T = 1.0 \times 0.4 \times 0.9$$

$$K_{sat \text{ design}} = K_{sat \text{ initial}} \times CF_T$$

$$K_{sat \text{ design}} = 106.32 \text{ in/hr} \times 1.0 \times 0.4 \times 0.9$$

$$K_{sat \text{ design}} = 38.27 \text{ in/hr}$$

For stormwater facility design purposes, use a $K_{sat \text{ design}(F)} \leq 20 \text{ in/hr}$



Ksat Calculations

Test pit #2 - sample #2 taken at 108" below the existing grade

Soil Gradation Test Results: D10 = 0.35
D60 = 7.4
D90 = 11.2
ffines = 0.0128

$\log_{10}(K_{sat}) = -1.57 + 1.90(D_{10}) + 0.015(D_{60}) - 0.013(D_{90}) - 2.08(ffines)$
 $\log_{10}(K_{sat}) = -1.57 + 1.90(0.35) + 0.015(7.4) - 0.013(11.2) - 2.08(0.0128) = -0.9662$
 $K_{sat} = 0.1081 \text{ cm/s}$
 $K_{sat} = 0.1081 \text{ cm/s} \times 0.3937 \text{ in/cm} \times 60 \text{ s/min} \times 60 \text{ min/hr}$
 $K_{sat} = 153.19 \text{ in/hr}$

Final Design Infiltration Rate Calculation : Ksat design

$K_{sat \text{ design}} = K_{sat \text{ initial}} \times CF_T$

$K_{sat \text{ initial}} = 153.19 \text{ in/hr}$

$CF_T \text{ (Total Correction Factor - July 2016 SWMM)} = CF_v \times CF_t \times CF_m$

$CF_v = 1.0$ (two tests pits, no soil variability)

$CF_t = 0.4$ (grain size method)

$CF_m = 0.9$ (siltation & biofouling)

$CF_T = 1.0 \times 0.4 \times 0.9$

$K_{sat \text{ design}} = K_{sat \text{ initial}} \times CF_T$

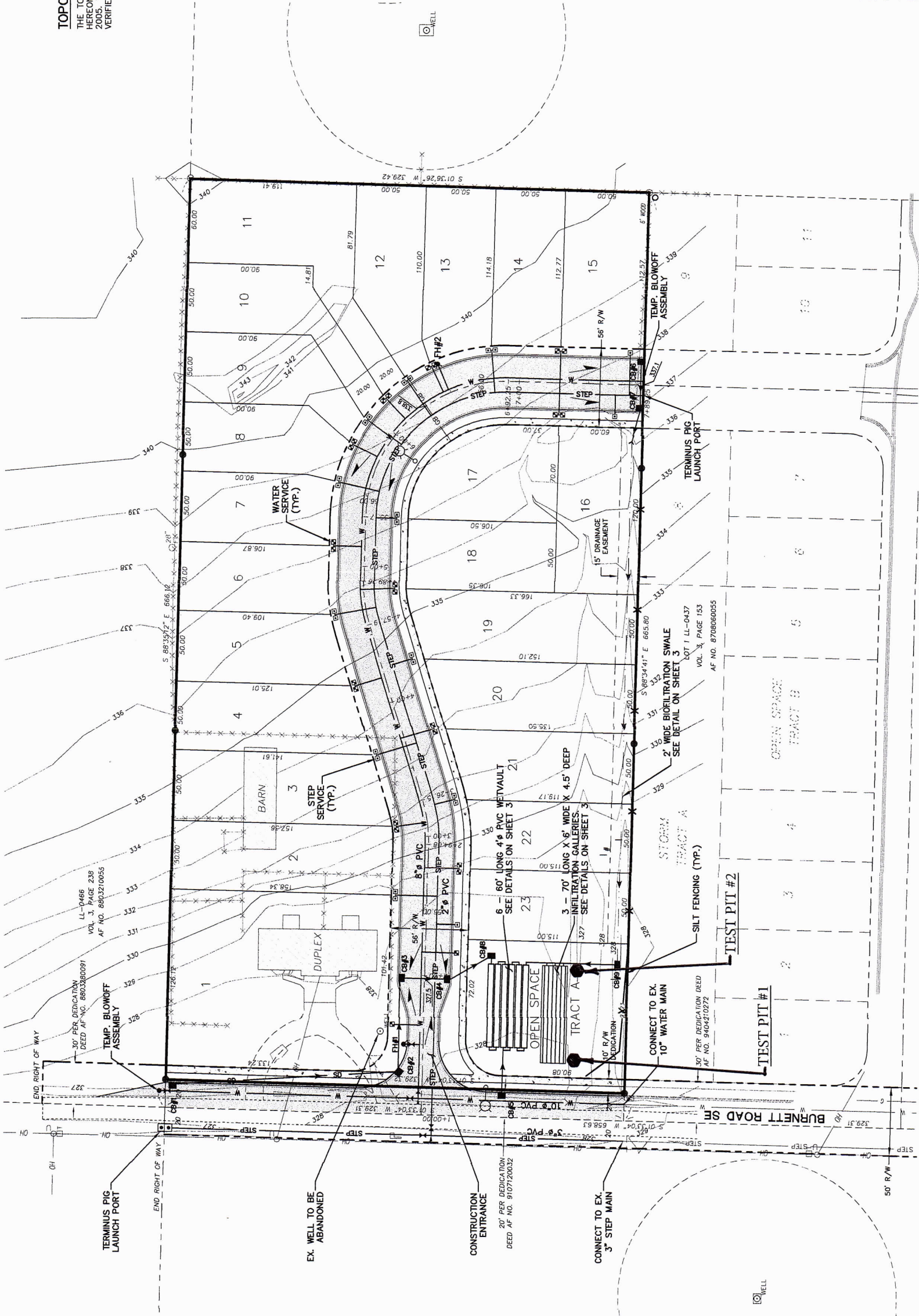
$K_{sat \text{ design}} = 153.19 \text{ in/hr} \times 1.0 \times 0.4 \times 0.9$

$K_{sat \text{ design}} = 55.4 \text{ in/hr}$

For stormwater facility design purposes, use a $K_{sat \text{ design}(F)} \leq 20 \text{ in/hr}$

SEC 13, TWP 17 N, RGE 1 E, W.M.

SOIL LOG TEST PIT LOCATION MAP

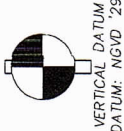


TOPOGRAPHIC NOTE

THE TOPOGRAPHIC SURVEY AND BOUNDARY INFORMATION DEPICTED HEREON WAS PREPARED BY JWH CONSTRUCTION SERVICES, MARCH 2005. TOPOGRAPHIC AND BOUNDARY INFORMATION WAS NOT FIELD VERIFIED BY OLYMPIC ENGINEERING.

THURSTON COUNTY CONTROL POINT NO. RTK 836425 FOUND 2.5" IRON PIPE W/ TACK IN CONCRETE AT SOUTH AND 2" WEST CENTER OF INTERSECTION OF YELM AVE. AND 93RD AVE. ELEVATION = 342.902' NGVD '29

THURSTON COUNTY CONTROL POINT NO. RTK 836 FOUND 2.5" IRON PIPE W/ TACK IN CONCRETE AT THE CENTER OF INTERSECTION OF YELM AVE. AND MOUNTAIN VIEW ROAD. ELEVATION = 343.888' NGVD '29



SCALE: 1"=40 FEET

0 20 40 80

MERIDIAN: THURSTON COUNTY SHORT SUBDIVISION
SS-2414 VOL. 9107050017

DESIGNED BY:		CHECKED BY:		SCALE: 1" = 40'		DATE: 4/15/05	
DRAWN BY:		APPROVED FOR CONSTRUCTION		DEVELOPMENT REVIEW ENGINEER		DATE:	
APPROVAL, EXPIRES:		HENRIETTA MOREY		YELM		WA	
PRELIMINARY UTILITY AND DRAINAGE PLAN		MOUNTAIN MEADOWS PRELIMINARY PLAT		NO.		DATE	
REVISION							

JOB NUMBER: 0

DRAWING NAME:

SHEET: OF

OFFICE OF THE HEARING EXAMINER

CITY OF YELM

REPORT AND DECISION

CASE NO.: SUB-05-0121-YL – Mountain Meadows

APPLICANT:Henrietta Morey

AGENT: Olympic Engineering

SUMMARY OF REQUEST:

The applicant is requesting preliminary plat approval to allow subdivision of approximately 4.88 acres into 23 single family residential lots. The property is zoned R6 Medium Density Residential, which allows up to 6 dwelling units per acre.

SUMMARY OF DECISION:

Request granted, subject to conditions.

PUBLIC HEARING:

After reviewing Planning and Community Development Staff Report and examining available information on file with the application, the Examiner conducted a public hearing on the request as follows:

The hearing was opened on July 5, 2005.

Parties wishing to testify were sworn in by the Examiner.

The following exhibits were submitted and made a part of the record as follows:

EXHIBIT "1" - Planning and Community Development Staff Report and Attachments

TAMI MERRIMAN appeared, presented the Community Development Department Staff Report, and testified that the project is located in the R6 zone classification and that the applicant will retain the existing duplex located near Burnett Road. The balance of the site will consist of newly created single family lots. The internal plat roads to the north and east will be affected by the new bypass corridor and it is not feasible to connect them. They have required a road connection to the south. The Burnett subdivision will provide a

connector road, and the applicant must provide road improvements to the main plat road within said subdivision. The applicant proposes an underground stormwater system with open space on top. The stormwater drainage facilities will be located in a separate tract which the homeowners association must maintain. They cannot have a storm drainage easement, but must have a tract. All lots will have driveway access onto the new internal street which satisfies comprehensive plan policies.

HENRIETTA MOREY appeared and testified that she has owned the property since 1978 and has planned for this subdivision for many years. She will develop the subdivision in accordance with conditions of approval.

No one spoke further in this matter and so the Examiner took the request under advisement and the hearing was concluded.

NOTE: A complete record of this hearing is available in the City of Yelm Community Development Department

FINDINGS, CONCLUSIONS AND DECISION:

FINDINGS:

1. The Hearing Examiner has admitted documentary evidence into the record, heard testimony, and taken this matter under advisement.
2. A Mitigated Determination of Nonsignificance was issued on May 31, 2005.
3. Notice of the date and time of the public hearing was published in the *Nisqually Valley News* in the legal notice section on Friday, June 24, 2005.
4. The applicant has a possessory ownership interest in a rectangular, 4.88 acre parcel of property abutting the east side of Burnett Road north of SR-510 within the City of Yelm. The parcel abuts Burnett Road for 329 feet and measures 666 feet in depth. The applicant proposes to subdivide the parcel into 22 single family residential lots, one duplex lot, and a storm drainage tract which will also provide open space.
5. The preliminary plat map shows an existing duplex structure located on proposed lot one which presently accesses onto Burnett Road. The duplex will remain on lot one, but will access from the new, internal plat road. A barn shown to the east of the duplex will be removed. Access to the site is provided via a single, internal plat road extending east from Burnett Road and turning to the south where it will connect with an internal plat road system of an abutting subdivision to the south. All lots will access onto the internal plat road. The applicant will install an underground infiltration stormwater system in Tract A located at the southeast corner of the intersection of the internal plat road and Burnett Road. The surface of Tract A will remain in open space.

6. In addition to the recently approved subdivision abutting the south property line, surrounding uses include single family residential dwellings within unincorporated Thurston County to the west across Burnett Road, and undeveloped properties to the north and east.
7. The site is located within the Moderate Density Residential (R6) zone classification of the Yelm Municipal Code (YMC). Section 17.15.020(A) YMC authorizes single family residential dwellings and duplexes as outright permitted uses so long as the density does not exceed six dwelling units per gross acre and does not fall below three dwellings units per gross acre. The R6 classification contains no minimum lot size requirement. The preliminary plat proposes a density of 4.91 dwelling units per acre which is consistent with the R6 classification. Section 17.15.050 YMC requires setbacks of 25 feet from collector streets, 35 feet from arterials, and 15 feet from local streets. Minimum side yard setbacks must equal five feet and both side yard setbacks must total 12 feet. Rear yard setbacks must equal 25 feet and the maximum building area coverage cannot exceed 50%, of the lot and the maximum development coverage may not exceed 75% of the lot. The rectangular lots will allow a reasonably sized building pad for single family residential homes which can meet all required setbacks. The preliminary plat will comply with all bulk regulations of the R6 zone classification.
8. Chapter 14.12 YMC requires that a plat applicant dedicate a minimum of 5% of the gross area of the subdivision as usable open space. Open space uses may include environmental interpretation or education, parks, recreation lands, athletic fields, or foot paths/bicycle trails. The applicant's open space tract of 10,350 square feet calculates to 5% of the gross area of the plat. The plat makes appropriate provision for open spaces, parks, and recreation, and playgrounds.
9. A mitigating measure in the MDNS issued pursuant to the authority of the State Environmental Policy Act (SEPA) requires the applicant to enter into a mitigation agreement with the Yelm School District to offset the impacts of school aged children residing in the plat on school services and facilities. Entry of such agreement will assure that the plat makes appropriate provision for schools and school grounds.
10. Traffic mitigation requires the applicant to improve the east half of Burnett Road along the property frontage to City standards for a neighborhood collector road. The applicant must also construct the internal plat road to City standards for a local access residential road. The applicant will also extend the internal plat road across the south property line to the internal plat road of the subdivision to the south. The applicant will construct the connecting internal road on the adjoining parcel. All lots including the duplex will access onto internal plat roads, and entering and stopping sight distance is available at the intersection of the internal plat road and Burnett Road. Conditions do not require extension of the internal plat road to parcels to the

north and east as such parcels will support the SR-510 Yelm loop corridor. The plat makes appropriate provision for streets, roads, alleys, and other public ways.

11. The City of Yelm will provide both domestic water and fire flow to the site. The applicant will extend the water line which currently terminates at its south property line to the north property line of the site. The City will also provide sanitary sewer service to all lots and the applicant will extend the existing sewer line from the south property line to the north property line of the parcel. The plat makes appropriate provision for potable water supplies and sanitary waste.
12. The applicant will construct curbs, gutters, and sidewalks on both sides of the internal plat road and along the east side of Burnett Road across the plat frontage. The applicant must also install adequate street lighting to ensure safety to pedestrians, vehicles, and homeowners. The plat makes appropriate provision for safe walking conditions.

CONCLUSIONS:

1. The Hearing Examiner has jurisdiction to consider and decide the issues presented by this request.
2. The applicant has established that the request for preliminary plat approval is consistent with the R6 zone classification of the YMC and meets all development criteria of the YMC.
3. In accordance with Section 16.12.170 YMC the preliminary plat makes appropriate provision for the public health, safety, and general welfare for open spaces, drainage ways, streets, roads, alleys, transit stops, potable water supplies, sanitary waste, parks and recreation, playgrounds, schools and school grounds, and safe walking conditions.
4. The proposed preliminary plat will serve the public use and interest by providing an attractive location for a single family residential subdivision and therefore should be approved subject to the following conditions:
 1. The proponent shall comply with the mitigation requirements of the MDNS issued on May 31, 2005, which includes:
 - a. The proponent shall mitigate transportation impacts based on the new residential P.M. peak hour trips generated by the project. The Transportation Facility Charge (TFC) shall be based on 1.01 new peak hour trips per residential unit. The proponent will be responsible for a TFC of \$757.50 per dwelling unit which is payable at time of building permit. Credit should be given for the existing multi-family dwelling.

- b. Prior to final subdivision approval, the proponent shall complete the following transportation improvements:
 - i. The east half of Burnett Road shall be improved to City Standards for a *Neighborhood Collector* along the property frontage.
 - ii. All interior streets shall be improved to City Standards for a *Local Access Residential*.
 - iii. *The interior street shall be connected to the right-of-way provided to the south, with full street improvements completed to 89th Street. The cost of these improvements shall be the responsibility of the developer.*
 - c. The driveway entrance to the existing duplex shall be located on the new interior street.
 - d. Temporary erosion control systems to be approved by the City of Yelm.
 - e. The proponent shall provide at least 5% of total acreage as qualified open space.
 - f. The proponent shall enter into an agreement with Yelm Community Schools to mitigate project impacts to the School District.
- 2. Each dwelling unit with the subdivision shall connect to the City water system. The connection fee and meter fee will be established at the time of building permit issuance. The existing well shall be abandoned per Washington State Department of Ecology standards. Any water rights associated with the well shall be deeded to the City of Yelm.
 - 3. All conditions for cross connection control as required in Section 246-290-490 WAC.
 - 4. All planting strips and required landscaping located within any open space, stormwater tract, and along Burnett Road shall be served by an irrigation system with a separate water meter and an approved backflow prevention device.
 - 5. Each dwelling within the subdivision shall connect to the City S.T.E.P. sewer system. The connection fee and inspection fee will be established at the time of building permit issuance. Existing septic systems shall be abandoned per the Thurston County Department of Health standards.
 - 6. The proponent shall design and construct all stormwater facilities in accordance with the 1992 DOE Stormwater Manual, as adopted by the City of Yelm. Best Management Practices (BMP's) are required during construction. A 10-foot setback from all property lines and easements are required for stormwater facilities.

7. The stormwater plan shall be submitted with civil engineering plans and shall include an operation and maintenance plan.
8. Storm water treatment facilities shall be located in a separate recorded tract owned and maintained by the homeowners association.
9. All roof drain runoff shall be infiltrated on each lot utilizing individual drywells.
10. The stormwater system shall be held in common by the Homeowners Association. The Homeowners Agreement shall include provisions for the assessment of fees against individual lots for the maintenance and repair of the stormwater facilities.
11. The proponent shall submit a fire hydrant plan to the Community Development Department for review and approval as part of the civil engineering plans prior to final subdivision approval.
12. The proponent shall submit fire flow calculations for all existing and proposed hydrants. All hydrants must meet minimum City standards.
13. The proponent shall be responsible for the installation of hydrant locks on all fire hydrants required and installed as part of development. The proponent shall coordinate with the Yelm Public Works Department to purchase and install required hydrant locks.
14. Street lighting will be required. Civil plan submittal shall include a lighting design plan for review and approval.
15. Prior to the submission final plat application, the proponent will provide the Community Development Department an addressing map for approval.
16. Prior to final plat application, a subdivision name must be reserved with the Thurston County Auditor's Office.
17. The proponent shall submit a final landscaping and irrigation plan with the civil engineering plans to include the perimeter of the project site, planter strips, and stormwater facilities.
18. The proponent shall provide a performance assurance device in order to provide for maintenance of the required landscaping until the tenant or homeowners' association becomes responsible for landscaping maintenance. The performance assurance device shall be 150 percent of the anticipated cost to maintain the landscaping for three years.
19. The decision set forth herein is based upon representations made and exhibits, including plans and proposals submitted at the hearing conducted

by the hearing examiner. Any substantial change(s) or deviation(s) in such plans, proposals, or conditions of approval imposed shall be subject to the approval of the hearing examiner and may require further and additional hearings.

20. The authorization granted herein is subject to all applicable federal, state, and local laws, regulations, and ordinances. Compliance with such laws, regulations, and ordinances is a condition precedent to the approvals granted and is a continuing requirement of such approvals. By accepting this/these approvals, the applicant represents that the development and activities allowed will comply with such laws, regulations, and ordinances. If, during the term of the approval granted, the development and activities permitted do not comply with such laws, regulations, or ordinances, the applicant agrees to promptly bring such development or activities into compliance.

DECISION:

The request for preliminary plat approval for the Henrietta Morey subdivision is hereby granted subject to the conditions contained in the conclusions above.

ORDERED this 20th day of July, 2005.

STEPHEN K. CAUSSEAU, JR.
Hearing Examiner

TRANSMITTED this 20th day of July, 2005, to the following:

APPLICANT: Henrietta Morey
P.O. Box 202
Kapowsin, WA 98344

AGENT: Olympic Engineering
1252 Devon Loop NE
Olympia, WA 98506

City of Yelm
Tami Merriman
105 Yelm Avenue West
P.O. Box 479

Yelm, Washington 98597

CASE NO.: SUB-05-0121-YL – MOUNTAIN MEADOWS

NOTICE

1. **RECONSIDERATION:** Any interested party or agency of record, oral or written, that disagrees with the decision of the hearing examiner may make a written request for reconsideration by the hearing examiner. Said request shall set forth specific errors relating to:

- A. Erroneous procedures;
- B. Errors of law objected to at the public hearing by the person requesting reconsideration;
- C. Incomplete record;
- D. An error in interpreting the comprehensive plan or other relevant material; or
- E. Newly discovered material evidence which was not available at the time of the

hearing. The term “new evidence” shall mean only evidence discovered after the hearing held by the hearing examiner and shall not include evidence which was available or which could reasonably have been available and simply not presented at the hearing for whatever reason.

The request must be filed no later than 4:30 p.m. on August 3, 2005 (10 days from mailing) with the Community Development Department 105 Yelm Avenue West, Yelm, WA 98597. This request shall set forth the bases for reconsideration as limited by the above. The hearing examiner shall review said request in light of the record and take such further action as he deems proper. The hearing examiner may request further information which

shall be provided within 10 days of the request.

2. **APPEAL OF EXAMINER'S DECISION:** The final decision by the Examiner may be appealed to the city council, by any aggrieved person or agency of record, oral or written that disagrees with the decision of the hearing examiner, except threshold determinations (YMC 15.49.160) in accordance with Section 2.26.150 of the Yelm Municipal Code (YMC).

NOTE: In an effort to avoid confusion at the time of filing a request for reconsideration, please attach this page to the request for reconsideration.

MITIGATED DETERMINATION OF NONSIGNIFICANCE

Proponent: Henrietta Morey

Description of Proposal: Subdivide 4.88 acres into 23 single-family residential lots. The project includes the construction of stormwater facilities, interior streets, and street improvements to Burnett Road.

Location of the Proposal: The project site is located on the east side of Burnett Road, North of Yelm Avenue West (SR 510) Tax Parcel No.'s 21713310400, 21713310401, and 21713310402

Section/Township/Range: Section 13, Township 17 North Range 1 East, W.M.

Threshold Determination: The City of Yelm as lead agency for this action has determined that this proposal does not have a probable significant adverse impact on the environment. Therefore, an environmental impact statement (EIS) will not be 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.

Conditions/Mitigating Measures: SEE ATTACHED

Lead agency: City of Yelm

Responsible Official: Grant Beck, Community Development Director

Date of Issue: May 31, 2005

Comment Deadline: June 14, 2005

Appeal Deadline: June 21, 2005

Grant Beck, Community Development Director

This Mitigated Determination of NonSignificance (MDNS) is issued pursuant to Washington Administrative Code 197-11-340 (2). Comments must be submitted to Tami Merriman, Community Development Department, at City of Yelm, 105 Yelm Avenue West, P.O. Box 479, Yelm, WA 98597, by June 14, 2005, at 5:00 P.M. The City of Yelm will not act on this proposal prior June 21, 2005, at 5:00 P.M.

You may appeal this determination to the Yelm Hearing Examiner, at above address, by submitting a written appeal no later than June 21, 2005 at 5:00 P.M. You should be prepared to make specific factual objections. Contact Grant Beck, Community Development Director, to learn more about the procedures for SEPA appeals. This MDNS is not a permit and does not by itself constitute project approval. The applicant must comply with all applicable requirements of the City of Yelm prior to receiving construction permits which may include but are not limited to the City of Yelm Comprehensive Plan, Zoning Code (Title 17 YMC), Critical Areas Code (Chapter 14.08 YMC), Storm water Drainage Design and Erosion Control Manual (DOE), Uniform Building Code, State Environmental Policy Act (SEPA) (Title 14 YMC), Road Design Standards, Platting and Subdivision Code (Title 16 YMC), and the Shoreline Master Program.

DO NOT PUBLISH BELOW THIS LINE

Published: Nisqually Valley News, Friday, June 3, 2005
 Posted in public areas: Tuesday, May 31, 2005
 Copies to: All agencies/citizens on SEPA mailing list and adjacent property owners
 Dept. of Ecology w/checklist

ATTACHMENT
SEPA Case Number 05-0121

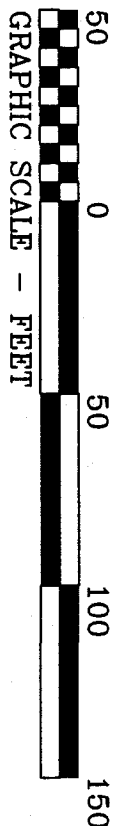
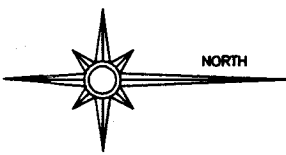
Findings of Fact

1. This Mitigated Determination of Non Significance is based on the project as proposed and the impacts and potential mitigation measures reflected in the following environmental documents:
 - Environmental Checklist (April 2005, prepared by Olympic Engineering.)
 - Preliminary Storm Drainage Report (April 2005, prepared by Olympic Engineering.)
2. The City of Yelm has adopted a concurrency management system as required by the Growth Management Act. Chapter 15.40 Yelm Municipal Code (YMC) Concurrency Management is designed to ensure that the improvements required to support development are available at the time of development. A concurrency determination may be issued for a proposal as it relates to transportation issues when: the development provides on-site frontage improvements; the project makes off-site improvements as necessary to provide for the safe movement of traffic; and the project makes a contribution to projects identified the six year transportation improvement program in the form of a Transportation Facilities Charge.
3. Chapter 16.16 YMC requires that the layout of streets provide for continuation of streets existing in adjoining subdivisions. The property to the north and east of this property is affected by the future SR 510 Yelm Loop corridor. Providing a connecting street to those properties is not feasible. The preliminary plat application approved for the adjoining property to the south provides right-of-way for a connecting street to this site.
4. Section 16.16.050 (YMC) states that lots within a residential subdivision shall be designed so that lots adjacent to arterial and collector streets are not allowed direct access.
5. Chapter 14.12 YMC requires the dedication of open space for all residential development. Section 14.12.050 YMC lists four (4) attributes for qualification of open space. The applicant proposes open space to include recreation.
6. The Yelm School District has adopted a school mitigation requirement based on the demand that new residential units create for additional school services and facilities. Additional demands on the school system will be mitigated through the requirement that the developer enter into a mitigation agreement with the District.

Mitigation Measures

1. The developer shall mitigate transportation impacts based on the new residential P.M. peak hour trips generated by the project. The Transportation Facility Charge (TFC) shall be based on 1.01 new peak hour trips per residential unit. The proponent will be responsible for a TFC of \$757.50 per dwelling unit which is payable at time of building permit. Credit should be given for the existing multi-family dwelling.
2. Prior to final subdivision approval, the developer shall complete the following transportation improvements:
 - a. The east half of Burnett Road shall be improved to City Standards for a *Neighborhood Collector* along the property frontage.
 - b. All interior streets shall be improved to City Standards for a *Local Access Residential*.
 - c. *The interior street shall be connected to the right-of-way provided to the south, with full street improvements completed to 89th Street. The cost of these improvements shall be the responsibility of the applicant.*
3. The driveway entrance to the existing duplex shall be located on the new interior street.
4. Temporary erosion control systems to be approved by the City of Yelm.
5. The developer shall provide at least 5% of total acreage as qualified open space.
6. The developer shall enter into an agreement with Yelm Community Schools to mitigate project impacts to the School District.

BLAM 4561771 1/2



BASIS OF BEARING--HELD S 88°35'12"E ALONG THE NORTH LINE OF LOTS 1 AND 2 AS SHOWN ON SHORT SUBDIVISION NO. SS-2414

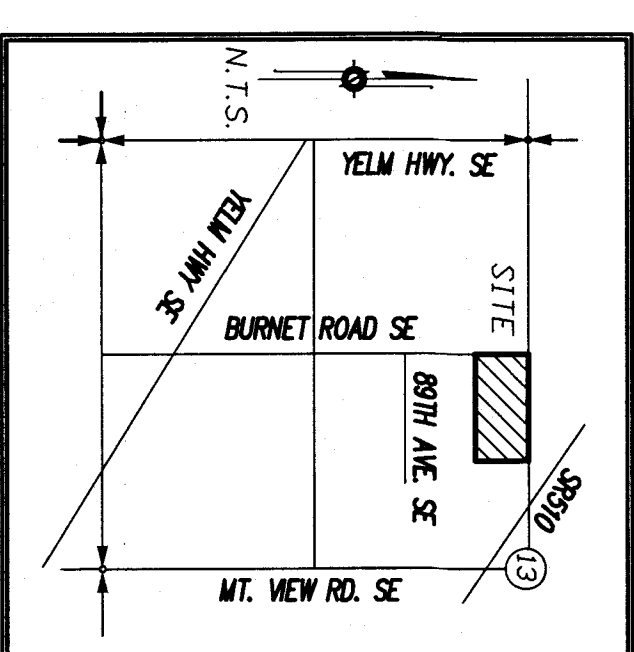
RECORD OF SURVEY FOR
Henrietta Morey
BOUNDARY LINE ADJUSTMENT
A PORTION OF THE NE 1/4 OF THE SW 1/4
SECTION 13, TOWNSHIP 17 NORTH, RANGE 1 EAST OF THE W.M.,
CITY OF YELM, THURSTON COUNTY, WASHINGTON

REFERENCE MATERIALS

1. THURSTON CO. AERIAL AND ASSESSOR MAP FOR SECTION 13-17N-1E, W.M.
2. ALTA COMMITMENT FOR TITLE INSURANCE, CHICAGO TITLE 160013377 LISTING COMMITMENT DATED JULY 29, 2016
3. THE FOLLOWING DOCUMENTS ARE RECORDS OF THE PIERCE

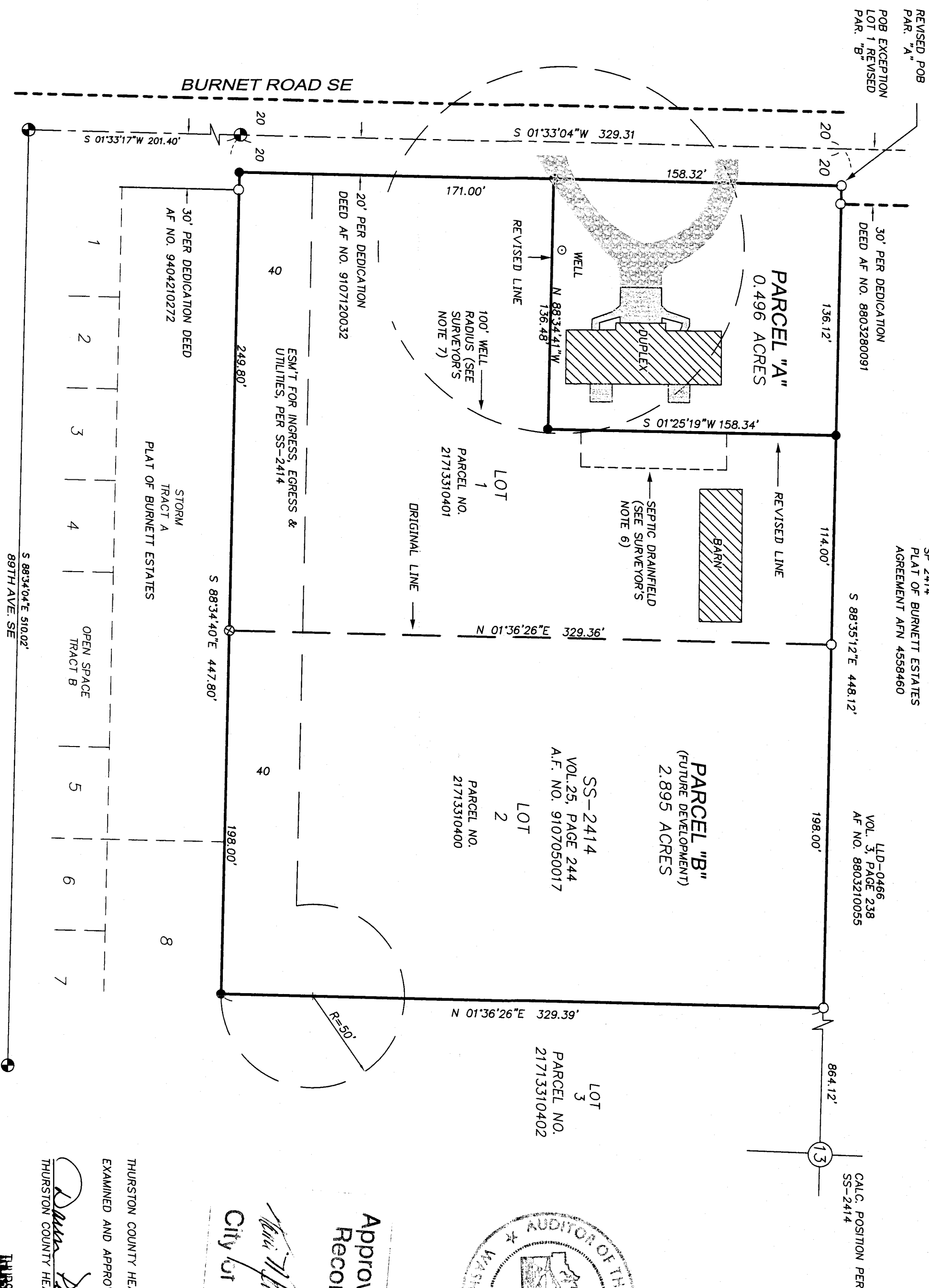
LEGEND

- FOUND MONUMENT IN CASE OR PLAT MON
- ⊗ CALC. PLAT POSITION NOTHING FOUND OR SET
- EXIST. REBAR & CAP,
- SET 5/8" REBAR AND CAP STAMPED "LS 19628"
- ✕ SET MAG SPIKE

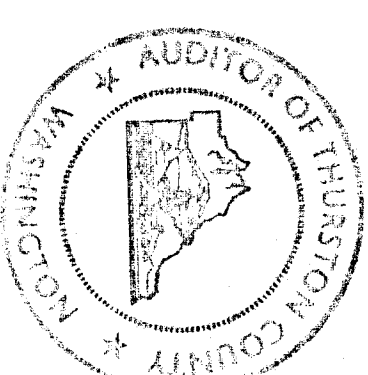


SURVEYOR'S NOTES

1. DATE VISITED SITE AND MONUMENTS: SEPT, 2016
2. SURVEY INSTRUMENT USED: LEICA GPS 1250
3. FIELD METHOD USED: FIELD TRAVERSE.
4. THIS SURVEY COMPLETES WITH ALL STANDARDS AND GUIDELINES OF THE "SURVEY RECORDING ACT" CHAPTER 56.09 RCW AND 332-130 WAC.
5. THE BOUNDARY LINE POSITIONING AS SHOWN WAS CALCULATED BY T.L.K. FROM RECORD DATA AND FIELD LOCATIONS.
6. SEPTIC DRAINFIELD 20' X 80' EASEMENT LOCATED ON PARCEL "B" FOR BENEFIT OF PARCEL "A" TO BE VACATED ON PARCEL "B" OR LOT 1,2 OR 3 OF THURSTON COUNTY SHORT PLAT 2414 DEVELOPMENT REQUIRING PARCEL "A" TO HOOK UP TO CITY OF YELM SEWER LOCATED ON BURNETT ROAD SE THE COST OF WHICH SHALL BE BORNE BY THE OWNER/DEVELOPER OF PARCELS "B" OR LOT 1,2 OR 3 OF SS 2414. PARCEL "A" TO ALLOW UNIMPEDED ACCESS FOR SAID HOOK UP WORK.
7. 100' WELL RADIUS BENEFITING PARCEL "A" AND ENCUMBERING PARCEL "B" TO BE VACATED ON PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414 DEVELOPMENT REQUIRING PARCEL "A" TO HOOK UP TO CITY OF YELM WATER LOCATED ON BURNETT ROAD SE. THE COST OF WHICH SHALL BE BORNE BY THE OWNER/DEVELOPER OF PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414. PARCEL "A" TO ALLOW ACCESS FOR SUCH WORK.
8. AT THE TIME OF DEVELOPMENT OF PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414, THE CURRENT DRIVEWAY ACCESS TO PARCEL "A" SHALL BE RELOCATED FROM ITS CURRENT LOCATION ON BURNETT ROAD SE TO THAT REQUIRED BY THE CITY OF YELM. THE COST OF WHICH IS TO BE BORNE BY OWNER/DEVELOPER OF PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414.
9. AT TIME OF DEVELOPMENT, OWNER/DEVELOPER OF PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414 SHALL BE RESPONSIBLE FOR ALL DECOMMISSIONING OF PARCEL "A" CURRENT SEPTIC SYSTEMS AND WELL, TOGETHER WITH ALL COST ASSOCIATED THERE TO.
10. SHOULD PARCEL "A" DESIRE OR BE COMPELLED BY A GOVERNMENT AUTHORITY TO CONNECT TO CITY OF YELM SEWER AND WATER BEFORE DEVELOPMENT OF PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414, THEN OWNER OF PARCEL "A" SHALL BEAR ALL DUTIES AND COSTS IN FACILITATING SUCH DECOMMISSIONING OF CURRENT SYSTEMS AND HOOK UPS TO CITY OF YELM SERVICE LINES, SAID WELL AND SEPTIC ELIMINATION SHALL EXTINGUISH THE SEPTIC DRAINFIELD EASEMENT AND WELL RADIUS ENCUMBERED ON PARCEL "B" OR LOT 1,2 OR 3 OF SS 2414.
11. NOTES 6-10 SUBJECT TO AGREEMENT UNDER AFN 4558460



Approved for
Recording



THURSTON COUNTY HEALTH OFFICER
EXAMINED AND APPROVED THIS 3rd DAY OF May, 2017.
Anna Hebler
THURSTON COUNTY HEALTH OFFICER

THURSTON COUNTY RECORDER
Shawn Thibault
MAY 3 2017
SHEET 2 OF 2 - REVISED AND ORIGINAL
LEGAL DESCRIPTIONS

SHEET INDEXING

SHEET 1 OF 2 - SURVEY DRAWING
NOTES & REFERENCES

SHEET 2 OF 2 - REVISED AND ORIGINAL
LEGAL DESCRIPTIONS

AUDITOR'S CERTIFICATE

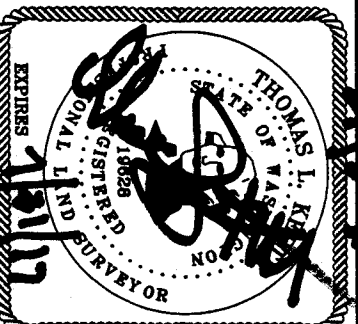
FILED FOR RECORD THIS 3rd DAY OF MAY 20 17
AT 10:54 A.M. UNDER AUDITOR'S FEE NO. 4561771
AT THE REQUEST OF THOMAS L. KERTH, PLS

Thomas L. Kerth
DEPUTY AUDITOR

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST HENRIETTA MOREY.
IN SEPT 2016

T.L.K.
CERTIFICATE NO. 19628



**T.L.K. Land
Surveyors, LLC**
2606 East Main Avenue
Puyallup, Washington 98372

Phone: (253)841-3953 Fax: (253)841-7249

PREPARED FOR:		HENRIETTA MOREY	
		PO BOX 202 KAROMSN, WA. 98344	
DRAWN BY:	S. KERTH	DATE:	SEPT, 2016
CHECKED BY:	T. KERTH	SCALE:	1" = 50'
		JOB NO.:	16-829
		SHEET:	1 OF 2

BLAM 4561771 2/2

RECORD OF SURVEY FOR
Henrietta Morey
BOUNDARY LINE ADJUSTMENT
A PORTION OF THE NE 1/4 OF THE SW 1/4
SECTION 13, TOWNSHIP 17 NORTH, RANGE 1 EAST OF THE W.M.,
CITY OF YELM, THURSTON COUNTY, WASHINGTON

ORIGINAL LEGAL DESCRIPTION

BEING A PORTION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 13, TOWNSHIP 17 NORTH, RANGE 01 EAST OF THE W.M.

PARCEL "A" TAX PARCEL NO. 21713310401

LOT 1 OF SHORT SUBDIVISION NO. SS-2414, AS RECORDED JULY 05, 1991 UNDER RECORDING NO. 9107050017 RECORDS OF THURSTON COUNTY, WASHINGTON.

SUBJECT TO AND TOGETHER WITH EASEMENTS, RESTRICTIONS AND/OR RESERVATIONS OF RECORD.

CONTAINING 1.89 ACRES OF LAND, MORE OR LESS, AS SHOWN ON SAID SS-2414

PARCEL "B" TAX PARCEL NO. 21713310400

LOT 2 OF SHORT SUBDIVISION NO. SS-2414, AS RECORDED JULY 05, 1991 UNDER RECORDING NO. 9107050017 RECORDS OF THURSTON COUNTY, WASHINGTON.

SUBJECT TO AND TOGETHER WITH EASEMENTS, RESTRICTIONS AND/OR RESERVATIONS OF RECORD.

CONTAINING 1.50 ACRES OF LAND, MORE OR LESS, AS SHOWN ON SAID SS-2414.

REVISED LEGAL DESCRIPTION

PARCEL "A"

THAT PORTION OF LOT 1 OF SHORT SUBDIVISION NO. SS-2414 AS RECORDED JULY 05, 1991 UNDER RECORDING NO. 9107050017 RECORDS OF THURSTON COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID LOT 1; THENCE ALONG THE NORTH LINE THEREOF SOUTH 88°35'12"EAST 136.12 FEET; THENCE SOUTH 01°25'19"WEST 158.34 FEET; THENCE NORTH 88°34'41"WEST 136.48 FEET TO THE EAST RIGHT OF WAY MARGIN OF BURNETT ROAD SE AS DEDICATED ON SAID SHORT SUBDIVISION NO. SS-2414; THENCE ALONG SAID RIGHT OF WAY NORTH 01°33'04"EAST 158.32 FEET TO THE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH EASEMENTS, RESTRICTIONS AND/OR RESERVATIONS OF RECORD, INCLUDING THOSE IN SURVEYOR'S NOTES OF HENRIETTA MOREY BOUNDARY LINE ADJUSTMENT MAP.

CONTAINING 0.495 ACRES OF LAND, MORE OR LESS

PARCEL "B"

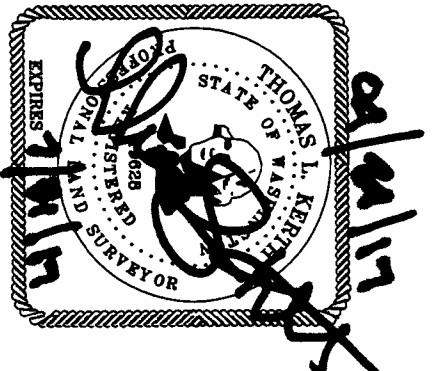
LOTS 1 & 2 OF SHORT SUBDIVISION NO. SS-2414, AS RECORDED JULY 05, 1991 UNDER RECORDING NO. 9107050017 RECORDS OF THURSTON COUNTY, WASHINGTON.

EXCEPT THAT PORTION OF SAID LOT 1, MORE PARTICULARLY AS DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID LOT 1; THENCE ALONG THE NORTH LINE THEREOF SOUTH 88°35'12"EAST 136.12 FEET; THENCE SOUTH 01°25'19"WEST 158.34 FEET; THENCE NORTH 88°34'41"WEST 136.48 FEET TO THE EAST RIGHT OF WAY MARGIN OF BURNETT ROAD SE AS DEDICATED ON SAID SHORT SUBDIVISION NO. SS-2414; THENCE ALONG SAID RIGHT OF WAY NORTH 01°33'04"EAST 158.32 FEET TO THE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH EASEMENTS, RESTRICTIONS AND/OR RESERVATIONS OF RECORD, INCLUDING THOSE IN SURVEYOR'S NOTES OF HENRIETTA MOREY BOUNDARY LINE ADJUSTMENT MAP.

CONTAINING 2.895 ACRES OF LAND, MORE OR LESS.



SHEET 2 OF 2

*ADD NOTE 11 AND REF.
STK 4/25/17
*MADE MINOR CORRECTIONS NOTE
TO STK 4/19/17
*MADE MINOR CORRECTIONS &
ADD HEALTH DEPT BLOCK
STK 3/22/17
* CITY COMMENTS & ADD PG2.
STK 3/13/17

T.L.K. Land
Surveyors, LLC
2606 East Main Avenue
Puyallup, Washington 98372
Phone: (253)841-3953 Fax: (253)841-7249

Tami Merriman

From: [REDACTED]
Sent: Monday, November 30, 2020 12:59 PM
To: Tami Merriman
Subject: [External]Mountain Meadows- 8818 Burnett Rd SE

Good afternoon Tami,

My name is Taryn Ehlig, I'm a resident living off of 89th Ave SE. I just saw the notice of application for the Mountain Meadows development and I had a concern about how this would affect traffic along Burnett Rd.

It's already a fairly busy and narrow road. There's a paved walking trail along SR 510 that is actively used by those of us living in the area, but really no sidewalk to safely access the trail between 89th Ave and 510 along Burnett. Is there any plans for improvement along Burnett, particularly in regards to stretching the sidewalk from 510 to the new residential area?

There is a trail access on 89th at Mountain View Rd. With the new neighborhood going in, I'm concerned we'll see more foot traffic and bicycles along Burnett as I'm sure some of the new residents would also like to enjoy that trail.

Thank you so much for your time!
Taryn Ehlig