CITY OF Salem AT YOUR SERVICE

Land Use Application

Planning/Permit Application Center
City Hall / 555 Liberty St. SE / Room 320 / Salem, OR 97301-3513
503-588-6173 * planning@cityofsalem.net
If you need the following translated in Spanish, please call 503-588-6256.
Si usted necesita lo siguiente traducido en español, por favor llame 503-588-6256.

(For office use only)
Permit #: 19-125355

Application type

Please describe the type of land use action requested:
Subdivision Modification (SUB #19-05)

Work site location and information

Street address or location of subject property	6719 Devon Avenue
Total size of subject property	19.89 Acres
Assessor tax lot numbers	083W22C/Tax Lot 300
Existing use structures and/or other improvements on site	SFD and Vacant
Zoning	RA
Comprehensive Plan Designation	'Developing Residential'
Project description	Modify SUB 19-05 to allowed the approved subdivision to be phased

People information

	Name	Full Mailing Address	Phone Number and Email address
Applicant	HSF Development LLC	3425 Boone Road SE Salem, Oregon 97317	
Agent	Brandie Dalton Land-Use Planner	Multi/Tech Engineering, LLC 1155 SE 13th Street, Salem, OR 97302	503-363-9227 bdalton@mtengineering.net

Project information

Neighborhood Association	South Gateway Neighborhood Association
Have you contacted the Neighborhood Association?	○ Yes ⊙ No
Date Neighborhood Association contacted	
Describe contact with the affected Neighborhood Association (The City of Salem recognizes, values, and supports the involvement of residents in land use decisions affecting neighborhoods across the city and strongly encourages anyone requesting approval for any land use proposal to contact the affected neighborhood association(s) as early in the process as possible.)	
Have you contacted Salem-Keizer Transit?	○ Yes ⊙ No
Date Salem-Keizer Transit contacted	
Describe contact with Salem-Keizer Transit	

Authorization by property owner(s)/applicant

***If the applicant and/or property owner is a Limited Liability Company (LLC), please also provide a list of all members of the LLC with your application.**

Copyright release for government entities: I hereby grant permission to the City of Salem to copy, in whole or part, drawings and all other materials submitted by me, my agents, or representatives. This grant of permission extends to all copies needed for administration of the City's regulatory, administrative, and legal functions, including sharing of information with other governmental entities.

Authorizations: Property owners and contract purchasers are required to authorize the filing of this application and must sign below.

- **All signatures represent that they have full legal capacity to and hereby do authorize the filing of this application and certify that the information and exhibits herewith submitted are true and correct.**
- **I (we) hereby grant consent to the City of Salem and its officers, agents, employees, and/or independent contractors to enter the property identified above to conduct any and all inspections that are considered appropriate by the City to process this application.**
- **I (we) hereby give notice of the following concealed or unconcealed dangerous conditions on the property:**

Electronic signature certification: By attaching an electronic signature (whether typed, graphical or free form) I certify herein that I have read, understood and confirm all the statements listed above and throughout the application form.

Authorized Signature: _____

Print Name: Chris Jundt Date: 12/9/2019

Address (include ZIP):

Authorized Signature:

Print Name: _____ Date: _____

Address (include ZIP):

(For office use only)		
Received by Brandon Pike	Date: Dec. 9, 2019	Receipt Number: 19-125355

Not using Internet Explorer?
Save the file to your computer and email to planning@cityofsalem.net.

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Print Name: Chris Jundt Date: 12/9/2019

Address (include ZIP):

Authorized Signature: _____

Print Name: _____ Date: _____

Address (include ZIP):

(For office use only)		
Received by	Date:	Receipt Number:

Not using Internet Explorer?
Save the file to your computer and email to planning@cityofsalem.net.

AmeriTitle

THIS SPACE RESERVED FOR RECORDER'S USE

After recording return to:
HSF Development, LLC
3425 Boone Road SE
Salem, OR 97317

Until a change is requested all tax statements shall be sent to the following address:
HSF Development, LLC
3425 Boone Road SE
Salem, OR 97317
File No. 179268AM

REEL 4009 PAGE 121
MARION COUNTY
BILL BURGESS, COUNTY CLERK
10-27-2017 11:30 am.
Control Number 481502 $ 51.00
Instrument 2017 00056188

STATUTORY WARRANTY DEED

Susan Ballard and Edward Kirasich, not as tenants in common but with right of survivorship ,

Grantor(s), hereby convey and warrant to

HSF Development, LLC, an Oregon limited liability company

Grantee(s), the following described real property in the County of Marion and State of Oregon free of encumbrances except as specifically set forth herein:

Lots 12 and 13, SUNNYSIDE FRUIT FARMS No. 8, Marion County, Oregon

The true and actual consideration for this conveyance **PURSUANT TO AN IRC 1031 TAX DEFERRED EXCHANGE ON BEHALF OF GRANTOR/GRANTEE.**

The above-described property is free of encumbrances except all those items of record, if any, as of the date of this deed and those shown below, if any:

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

AmeriTitle 179268AM

Dated this 20 day of Oct, 2017

Susan Ballard

Edward Kirasich

State of Oregon } ss
County of Marion}

On this 20 day of October, 2017, before me, Tasha Walery a Notary Public in and for said state, personally appeared Susan Ballard and Edward Kirasich, known or identified to me to be the person(s) whose name(s) is/are subscribed to the within Instrument and acknowledged to me that he/she/they executed same.
IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notary Public for the State of Oregon
Residing at: Keizer
Commission Expires: 10-14-18

OFFICIAL STAMP
TASHA MARIE WALERY
NOTARY PUBLIC - OREGON
COMMISSION NO. 933073
MY COMMISSION EXPIRES OCTOBER 14, 2018

REEL: 4009 PAGE: 121

October 27, 2017, 11:30 am.

CONTROL #: 481502

State of Oregon
County of Marion

I hereby certify that the attached instrument was received and duly recorded by me in Marion County records:

FEE: $ 51.00

BILL BURGESS
COUNTY CLERK

THIS IS NOT AN INVOICE.

Business Name Search

New Search | Printer Friendly

Business Entity Data

10-31-2017
09:03

Registry Nbr	Entity Type	Entity Status	Jurisdiction	Registry Date	Next Renewal Date	Renewal Due?
1086161-94	DLLC	ACT	OREGON	02-11-2015	02-11-2018	
Entity Name	HSF DEVELOPMENT LLC					
Foreign Name						

New Search | Printer Friendly

Associated Names

Type	PPB	PRINCIPAL PLACE OF BUSINESS				
Addr 1	3425 BOONE RD SE					
Addr 2						
CSZ	SALEM	OR	97317		**Country**	UNITED STATES OF AMERICA

Please click here for general information about registered agents and service of process.

Type	AGT	REGISTERED AGENT	**Start Date**	02-11-2015	**Resign Date**	
Of Record	158720-88	CORPORATION SERVICE COMPANY				
Addr 1	1127 BROADWAY STREET NE STE 310					
Addr 2						
CSZ	SALEM	OR	97301		**Country**	UNITED STATES OF AMERICA

Type	MAL	MAILING ADDRESS				
Addr 1	3425 BOONE ROAD SE					
Addr 2						
CSZ	SALEM	OR	97317		**Country**	UNITED STATES OF AMERICA

Type	MGR	MANAGER			**Resign Date**	
Name	CHRIS		JUNDT			
Addr 1	3425 BOONE RD SE					
Addr 2						

CSZ	SALEM	OR	97317		Country	UNITED STATES OF AMERICA

Type	MGR	MANAGER			Resign Date	
Name	ANTHONY	R	KREITZBERG			
Addr 1	3425 BOONE RD SE					
Addr 2						
CSZ	SALEM	OR	97317		Country	UNITED STATES OF AMERICA

Type	MGR	MANAGER			Resign Date	
Name	KELLEY	D	HAMILTON			
Addr 1	3425 BOONE ROAD SE					
Addr 2						
CSZ	SALEM	OR	97317		Country	UNITED STATES OF AMERICA

New Search Printer Friendly

Name History

Business Entity Name	Name Type	Name Status	Start Date	End Date
HSF DEVELOPMENT LLC	EN	CUR	02-11-2015	

Please read before ordering Copies.

New Search Printer Friendly

Summary History

Image Available	Action	Transaction Date	Effective Date	Status	Name/Agent Change	Dissolved By
	AMENDED ANNUAL REPORT	01-13-2017		FI		
	AMENDED ANNUAL REPORT	01-20-2016		FI		
	CHANGE OF REGISTERED AGENT/ADDRESS	03-24-2015		FI		
	ARTICLES OF ORGANIZATION	02-11-2015		FI	Agent	

ARTICLES OF ORGANIZATION

Corporation Division
www.filinginoregon.com

E-FILED
Feb 11, 2015
OREGON SECRETARY OF STATE

REGISTRY NUMBER

108616194

TYPE

DOMESTIC LIMITED LIABILITY COMPANY

1. ENTITY NAME

HSF DEVELOPMENT LLC

2. MAILING ADDRESS

3425 BOONE ROAD SE
SALEM OR 97317 USA

3. NAME & ADDRESS OF REGISTERED AGENT

15872088 - CORPORATION SERVICE COMPANY

285 LIBERTY ST NE
SALEM OR 97301 USA

4. ORGANIZERS

ANTHONY RAY KREITZBERG

3425 BOONE RD SE
SALEM OR 97317 USA

5. MEMBERS/MANAGERS

MANAGER

KELLEY D HAMILTON

3425 BOONE ROAD SE
SALEM OR 97317 USA

6. DURATION

PERPETUAL

7. MANAGEMENT

This Limited Liability Company will be manager-managed by one or more managers

8. OPTIONAL PROVISIONS

To the fullest extent permitted under the law of Oregon, as such law exists or may hereafter be amended, LLC shall defend, indemnify, and hold harmless each Member and/or Manager of LLC against any and all claims and liabilities to which such Member and/or Manager has or becomes subject by reason of serving or having served as such Member and/or Manager or by reason of any action alleged to have been taken, omitted, or neglected by such Member and/or Manager in his, her or its capacity as Member or Manager. LLC may provide indemnification to employees and agents of LLC. This indemnification will not be exclusive of any other rights to which any person

may be entitled under statute, agreement, resolution, contract, or otherwise.

The company elects to indemnify its members, managers, employees, agents for liability and related expenses under ORS 63.160 to 63.170.

By my signature, I declare as an authorized authority, that this filing has been examined by me and is, to the best of my knowledge and belief, true, correct, and complete. Making false statements in this document is against the law and may be penalized by fines, imprisonment, or both.

By typing my name in the electronic signature field, I am agreeing to conduct business electronically with the State of Oregon. I understand that transactions and/or signatures in records may not be denied legal effect solely because they are conducted, executed, or prepared in electronic form and that if a law requires a record or signature to be in writing, an electronic record or signature satisfies that requirement.

ELECTRONIC SIGNATURE

NAME

ANTHONY RAY KREITZBERG

TITLE

ORGANIZER

DATE SIGNED

02-11-2015

OPERATING AGREEMENT

of

HSF DEVELOPMENT LLC

OPERATING AGREEMENT

OF

HSF DEVELOPMENT LLC

an Oregon Limited Liability Company

THE OWNERSHIP INTERESTS REFLECTED IN THIS OPERATING AGREEMENT MAY REPRESENT SECURITIES THAT HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION UNDER THE SECURITIES ACT OF 1933. SUCH OWNERSHIP INTERESTS MAY NOT BE OFFERED FOR SALE, SOLD, TRANSFERRED, PLEDGED, OR OTHERWISE DISPOSED OF BY A MEMBER IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933 AND APPLICABLE STATE SECURITIES LAWS OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT REGISTRATION UNDER THE SECURITIES ACT OF 1933 IS NOT REQUIRED.

The undersigned Member(s), desiring to form a limited liability company under the Oregon Limited Liability Company Act, hereby agree as follows:

ARTICLE 1
FORMATION

1.1 Name. The name of the limited liability company (the "LLC") is "HSF Development LLC ".

1.2 Articles of Organization. Articles of Organization for the LLC were filed with the Oregon Secretary of State on February 11, 2015.

1.3 Effective Date. The effective date of adoption of this Operating Agreement ("Agreement") for the LLC is February 11, 2015.

1.4 Federal Employer Identification Number. The federal employer identification number (EIN) assigned to the LLC is EIN # 47-3162006.

1.5 Duration. The LLC shall continue until terminated as provided in this Agreement or under Oregon law.

1.6 Principal Place of Business. The principal office of the LLC shall initially be located at 3425 Boone Road SE, Salem, Oregon 97317. The Members may relocate the principal office or establish additional offices from time to time.

1.7 Registered Office and Registered Agent. The LLC's initial registered office shall be at 285 Liberty Street NE, Salem, Oregon 97301, and the name of its initial registered agent at such address shall be Corporation Service Company.

1.8 Management of LLC. The LLC shall be managed by a Manager or Managers.

1.9 Purposes and Powers. The primary purpose and general character of the business of the LLC is to initially acquire the property described in Exhibit "A" and develop the property into single family residential housing. The LLC may also acquire and develop other properties for this purpose. This general undertaking of the LLC will be referred to in this Agreement as "the Project". This LLC shall be a single-purpose entity; provided, however, that the LLC may have more than one asset and may engage in any lawful business permitted under Oregon law or the laws of any jurisdiction in which the LLC may do business if to do so does not constitute a breach of any contractual, trust deed, note, mortgage or other obligation of the LLC.

1.10 Title to Property. All LLC property shall be owned by the LLC as an entity, and no Member shall have any ownership interest in such property in the Member's individual name or right, and any Member's interest in the LLC shall be personal property for all purposes. Except as otherwise provided in this Agreement, the LLC shall hold all LLC property in the name of the LLC and not in the name or names of any Member or Members. However, if the Managers decide it is appropriate, a Member or the trustee of a trust which is a Member of the LLC may hold an LLC asset in his or her individual name in trust for the LLC.

ARTICLE 2
MEMBERS, CONTRIBUTIONS, AND INTERESTS

2.1 Initial Members. Each of the Member(s) agree to make the following contributions, receive the following Membership Units, and have the following initial capital accounts:

Member Name	Description of Contribution	Membership Units	%
Kelley D. Hamilton, Trustee of the Kelley D. Hamilton Trust dated April 1, 2008 ("Hamilton")	A bundle of contract rights, development concepts and reputation described in Exhibit B, attached hereto and made a part hereof by this reference.	1,000	100%

2.2 Certificates of Membership Units. The LLC may, but is not required to, issue each Member a Certificate of Membership indicating the Membership Units owned by each Member.

2.3 Other Business of Members. Any Member may engage independently or with others in other business and investment ventures of every nature and description and shall have no obligation to account to the LLC for such business or investments or for business or investment opportunities.

2.4 Additional Contributions. In addition to the capital contributions listed above, additional capital contributions shall be accepted from existing Members only if all the Members unanimously approve and set the maximum total amount of the additional capital contributions. If the Members unanimously agree to make additional capital contributions, the Members shall make additional capital contributions on a pro-rata basis in proportion to their Membership Units or as otherwise may be unanimously agreed among the Members.

2.5 No Interest on Capital Contributions. No interest shall be paid on capital contributions.

2.6 Capital Accounts. The LLC shall establish and maintain capital accounts with respect to each Member in accordance with the rules found in Treas. Reg. Section 1.704-1(b).

ARTICLE 3
MEMBER MEETINGS

3.1 Annual Meeting. An annual meeting of the Members may be held at a time, date and place specified by the Managers and communicated by notice to the Members. At such annual meeting, the Members shall transact all business, which is properly brought before the meeting.

3.2 Special Meetings. A special meeting of Members shall be held if the Managers requests such meeting by providing notice of the time, date, place and purpose of the meeting to the Members. A special meeting of Members shall be held if any Member requests such meeting by signing, dating and delivering to the LLC's registered office a written demand for the meeting, which describes the purpose or purposes for which such meeting is to be held. All special meetings shall be held at a time, date and place designated by the Managers specified in the notice of this special meeting prepared by the Managers. In the event a Member requests a special meeting, the Managers shall set the date of such meeting not more than 30 days after receiving notice of the Member's request.

3.3 Notice of Meeting. Notice of the time, date and place of each Member meeting shall be mailed to each Member not earlier than 60 days nor less than 10 days before the meeting date. The notice must include a description of the time, date, place and purpose for which the meeting is called.

3.4 Record Date. The persons entitled to notice of and to vote at a Member meeting and their respective ownership interests shall be determined on the date on which the notice of the meeting was first mailed or otherwise delivered to Members (the record date).

3.5 Quorum. The presence, in person or by proxy, of Members holding at least 50% of the Membership Units shall constitute a quorum.

3.6 Proxies. A Member may be represented at a meeting by a person or entity holding such Member's written proxy.

3.7 Voting. On each matter requiring action by the Members, each Member shall be entitled to one vote for each Membership Unit. Whenever the phrase "Majority of the Members" or "Majority of the Membership Units" is used in relation to voting, it means the decision voted on requires the affirmative vote of more than 50% of the Membership Units. Unless otherwise provided in this Agreement, all matters requiring action by the Members shall be approved by vote of a Majority of the Membership Units.

3.8 Meeting of all Members. Notwithstanding any other provision of this Agreement, if all of the Members hold a meeting at any time and place, such meeting shall be valid without call or notice; and any lawful action taken at such meeting shall be the action of the Members.

3.9 Action Without Meeting. Any action required or permitted to be taken by the Members at a meeting may be taken without a meeting if a consent in writing, describing the

action taken, is signed by all of the Members and is included in the minutes or filed with the LLC's record of meetings.

3.10 Meetings by Telephone. Meetings of the Members may be held by telephone conference or by any other means of communication by which all participants can communicate with each other simultaneously during the meeting, and such participation shall constitute presence in person at the meeting.

3.11 Actions Requiring Unanimous Vote of Members. The following actions require the unanimous approval of the Members:

3.11.1 Admitting an additional Member;

3.11.2 Issuing additional Membership Units;

3.11.3 Amending or restating the Articles of Organization or this Agreement;

3.11.4 Electing a Manager who is not:

3.11.4.1 the trustor of a trust that is a Member of the LLC; nor

3.11.4.2 a Member of the LLC.

3.11.5 Merging the LLC with another entity;

3.11.6 Except as specifically provided in this Agreement, borrowing funds from any person or entity which requires the personal guarantee of all of the Members;

3.11.7 Requiring additional capital contributions; or

3.11.8 Allowing the LLC to loan LLC funds to a Member or entity owned by any Member.

ARTICLE 4
MANAGEMENT

4.1 Management by Managers. The LLC shall be managed by one (1) or more Managers who shall be elected by the affirmative vote of a Majority of the Membership Units. The Managers shall not be compensated for serving as Managers unless otherwise agreed by the holders of a Majority of the Membership Units. However, the Managers may be reasonably compensated for services provided to the LLC which are not merely services incident to serving as Manager.

4.2 Initial Managers and Replacement of Managers. The initial Managers of the LLC shall be Kelley D. Hamilton, Chris Jundt and Anthony R. Kreitzberg. The initial Managers shall continue as Managers until replaced by the affirmative vote of a Majority of the Membership Units.

4.3 Removal of Manager by Members. By affirmative vote of Members owning a Majority of the Membership Units, the Members, in such Members' sole discretion, may remove

one or more Managers. In the event of the removal of one or more Managers, the remaining Manager or Managers, if any, shall serve as Manager of the LLC. In the event of the removal of a sole Manager or all of the Managers, a replacement Manager shall be elected by an affirmative vote of a Majority of Membership Units. However, in the event the Members fail to elect a new Manager by the affirmative vote of a Majority of the Membership Units, the selection of a Manager shall be determined according to the dispute resolution provisions in this Agreement. In such event, until a new Manager is selected, the Members of the LLC shall act as Managers.

4.4 Election of Managers. Once properly elected, a Manager shall serve until such time as the Manager's death, resignation, removal, or at such time as a new Manager is properly elected by the Members. Upon replacement or removal of the initial Managers, the name of the newly-elected Managers and the date upon which such Managers is elected shall be set out in the space provided below and initialed by Members owning a Majority of the Membership Units electing such Managers. Unless this original Agreement so reflects a managerial change, it is conclusively presumed that the initial Managers continue as Manager of this LLC.

Manager	Date of Election	Member's Initials
_____	_____	_____
_____	_____	_____
_____	_____	_____

4.5 Manager Powers. All Managers shall have the right to participate in the management of the LLC, and each Manager shall have authority to make all decisions relating in any way to the LLC except decisions requiring unanimous approval of the Members of the LLC as provided in this Agreement.

4.6 Borrowing. The Managers are authorized to borrow funds and pledge assets to secure funds. The Managers may borrow funds from all or any Member and in such case shall pay interest at the rate of four percent (4%) per annum above *Wall Street Journal* published prime rate. No distribution shall be made from the LLC until all loans from Members have been paid in full.

4.7 Other Activities. The Managers may have other business interests and may engage in other activities in addition to those relating to the LLC. This Section does not change each Manager's duty to act in a manner that the Manager reasonably believes to be in the best interests of the LLC.

4.8 Meetings. If more than one Manager is elected, the Managers may hold meetings at such place and time as is agreed upon by the Managers. No written notice of such meeting is necessary.

4.9 Vacancy. If a vacancy occurs in the office of the Managers, the vacancy shall be filled by the affirmative vote of Members owning a Majority of the Membership Units.

ARTICLE 5
ACCOUNTING AND RECORDS

5.1 Books of Account. The LLC's books and records, a register showing the names, addresses, and Membership Units of the Members, and a copy of this Agreement shall be maintained at the principal office of the LLC; and each Member shall have access thereto at all reasonable times. The Managers shall keep books and records of the operation of the LLC which are appropriate and adequate for the LLC's business and for the carrying out of this Agreement. Accounting records shall be kept in accordance with a comprehensive income tax basis of accounting.

5.2 Fiscal Year. The fiscal year of the LLC shall be the calendar year.

5.3 Tax Returns. The Managers shall cause all required federal and state income tax returns for the LLC to be prepared and timely filed with the appropriate authorities. Within 90 days after the end of each fiscal year or such later date as the Members may agree by majority vote, each Member shall be furnished a statement suitable for use in the preparation of the Member's income tax return, showing the amounts of any distributions, contributions, gains, losses, profits, or credits allocated to the Member during such fiscal year. No Member may obtain damages of any kind or other relief against the LLC for failure to complete the accounting and tax returns within 90 days but may demand records, hire an accountant, and be reimbursed for actual expenses.

ARTICLE 6
ALLOCATIONS AND DISTRIBUTIONS

6.1 Allocations of Income and Loss for Tax Purposes. Subject to the Special Allocations and Limitations set forth herein and in Appendices hereto, the profits and losses of the LLC for each fiscal year will be allocated among the Members pro rata in proportion to their Membership Units. All items of income, gain, loss, deduction, and credit shall be allocated among all Members in proportion to their Membership Units.

6.2 Distributions. Other than distributions in liquidation of the LLC as provided in this Agreement, the Managers, in the Managers' sole discretion, shall authorize cash distributions to the Members as may be reasonable in view of the cash reserves of the LLC. Such distribution shall be made to all Members *pro rata*, based upon each Member's percent of Membership Units.

6.3 Tax Consequences. It is understood that Members may have varying tax consequences relating to distributions from the LLC, and the LLC makes no representations, warranties, or promises relating to the tax obligations or consequences of any Member.

6.4 Distributions in Liquidation. Distributions in liquidation of the LLC or a Member's interest in the LLC, shall be made to the Members in the manner provided in this Agreement.

6.5 Allocation of Income and Loss. Members will be allocated income to the extent of the distributions paid to them. Except as otherwise provided herein, all other income, expenses and/or losses shall be allocated among the Members *pro rata*, based upon each Member's percent of Membership Units.

6.6 Special Allocations and Limitations. In order to comply with federal income tax regulations regarding the substantial economic effect of company allocations in the special circumstances described in Appendix 6.6, all allocations of company income, gain, loss, and deductions are subject to the special allocations, definitions, and limitations found in Appendix 6.6.

ARTICLE 7
TRANSFERS OF INTEREST

7.1 Permitted Transfers. Notwithstanding any other provision of this Agreement, the Members agree that the following transfers shall be permitted transfers and shall not be deemed a transfer restricted under this Agreement:

7.1.1 Any transfer from one existing Member of the LLC to another existing Member of the LLC.

7.1.2 Any transfer from an individual Member to a trust of which the individual Member is the trustor or from a trust which is a Member to the individual who is the trustor of such trust; provided, however, that such Member shall provide the LLC with a Certification of Trust complies with the laws of the state in which the LLC is organized.

7.1.3 Any transfer from a Member to the spouse of the Member or a trust for the benefit of the spouse or children of the Member or its trustor or to a family LLC, the Members of which are such spouse or children. Provided, however, that this LLC shall be entitled to a copy of the certification of such trust and/or Agreement of such LLC; and provided further that such spouse, trust, and/or LLC shall become a signatory to this Agreement.

7.2 Security Interest in Member's Units as Collateral. A Member shall not be allowed to grant a security interest in Member's Membership Units as collateral for a loan unless such Member has previously obtained the written consent to do so from Members owning a Majority of the Membership Units. Such security interest shall: (a) include only the Member's right to receive distributions; (b) not act in any way to encumber any LLC property; and (c) only encumber the Member's Membership Units in the LLC. Such consent shall not be unreasonably withheld. In the event that a Member requests such consent, such Member shall pay all of the LLC's and remaining Members' expenses incurred in determining whether consent should be granted, including but not limited to the costs for attorney fees, accounting fees, title reports, UCC reports, credit reports, review and verification of credit applications, document preparation, recording fees, if any.

7.3 Restriction on Sale. Except as otherwise specifically provided herein, this Agreement is personal to the named members and none of them, individually, jointly, as trustor, trustee, or beneficiary of a trust shall in any manner or by operation of law sell, exchange, assign, pledge, give, or otherwise transfer or encumber all or any part of any interest in this LLC without obtaining the prior written consent of Members owning a Majority of the Membership Units of

the LLC. Under this Agreement, the word "transfer" means the voluntary or involuntary, direct or indirect, sale, transfer, license, sublease, *inter vivos* transfer, testamentary disposition, or other disposition of a Member's Membership Units, including but not limited to any change in ownership as a result of divorce, insolvency, bankruptcy, operation of law or otherwise, and any change in ownership upon the death of a Member by will, declaration, transfer in trust, or under the laws of intestate succession of any state. It is expressly agreed by each Member that no Member shall make or enter into any agreement or contract with a third party or make any will, trust agreement, deed, or gift which would tend to amend, alter, abrogate the provisions, or act in contravention of the terms of this Agreement. The provisions of this Agreement shall be binding upon all persons claiming the rights of any Member, including but not limited to the spouse, heirs, personal representatives, administrators, trustees, trustors, creditors, and beneficiaries of any trust of any Member.

7.4 Events Requiring Sale of Membership Units of a Member. The following shall govern voluntary and mandatory sales of LLC Membership Units by Members:

7.4.1 *Deadlock.* If any disagreement shall arise among the Members creating a deadlock in decision making relating to the operations of the LLC thus hindering the ability to carry on the business of the LLC, the disagreement shall be resolved in accordance with the Dispute Resolution Provisions of this Agreement. If any Member of this LLC is unwilling to abide by the decision obtained through the dispute resolution process relating to a deadlock or otherwise, then such dissenting Member shall offer Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such dissenting Member's Membership Units without deduction for minority status or lack of marketability.

7.4.2 *Desire to Sell/Death of a Member.* If any Member desires to no longer be a Member of the LLC or to sell such Member's Membership Units, then such Member shall offer such Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such Membership Units, without deduction for minority status or lack of marketability. Upon the death of any Member or the grantor of any trust that is a Member, the Membership Units owned by such Member shall be offered to the LLC and the remaining Members for the fair market value of such Membership Units, without deduction for minority status or lack of marketability.

7.4.3 *Other Events Requiring Sale.* Upon the occurrence of any of the following events relating to any Member, such Member shall offer to sell Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such Member's Membership Units, with deduction for minority ownership and lack of marketability: (i) the Member makes an assignment for the benefit of creditors; (ii) the Member files a voluntary petition for bankruptcy; (iii) the Member is adjudicated a bankrupt or insolvent; (iv) the Member files a petition or answer seeking for the Member any reorganization, arrangement for the benefit of creditors, composition of debts and assets, readjustment of debts and assets, liquidation of assets, or dissolution of marriage or similar relief under any statute, law, or regulation, or any other event not otherwise mentioned in this Section 7.4.

7.5 Valuation of Membership Units of a Member. In every instance involving the voluntary or mandatory purchase or sale of Membership Units in this LLC, if the parties cannot agree on the fair market value with or without discount for minority ownership and/or marketability of the LLC Membership Units of any Member whose Membership Units must be

voluntarily or mandatorily sold as described above, then the fair market value issue, with or without discount for minority ownership or marketability, shall be resolved in accordance with the dispute resolution provisions in this Agreement. The decision obtained through the dispute resolution procedure shall be binding on the parties. Such fair market value with or without discount, as the case may be, is referred to herein as the "Purchase Price".

7.6 Options to Purchase Membership Units of a Member. In every instance involving the voluntary or mandatory purchase or sale of Membership Units in this LLC and after the fair market value with or without discounts for minority ownership and/or marketability has been determined by agreement or through the dispute resolution procedure established in this Agreement, then:

7.6.1 *First Option to LLC.* For a period not exceeding 60 days from the date a Purchase Price for the Membership Units has been determined, the LLC shall have the option to purchase such Membership Units, which option may be exercised by giving written notice of the LLC's intent to purchase such Units at the Purchase Price which shall be paid pursuant to the terms provided in this Agreement to the transferring Member or the transferring Member's estate and shall be secured by the Membership Units so transferred.

7.6.2 *Second Option to Non-transferring Members.* If the LLC does not exercise its right to purchase Membership Units as provided above, the remaining Members, jointly or severally, shall have the option to purchase all such Membership Units at the Purchase Price determined pursuant to the terms of this Agreement. The non-transferring Members shall provide written notice of intent to exercise their option at any time within 60 days following the last date by which the LLC may give notice of its intent to exercise such rights. If more than one non-transferring Member desires to purchase all or any portion of such Membership Units, such Membership Units shall be purchased by such non-transferring Members in proportions upon which they agree or, in the absence of some other agreement among the non-transferring Members, in proportion to the existing Membership Units of each non-transferring Member.

7.7 Payment for Member's Membership Units. The LLC or the remaining Members, as the case may be, in their sole discretion, shall choose one of the following methods for payment of the Purchase Price for a Member's Membership Units purchased pursuant to this Agreement:

7.7.1 In cash within 30 days of the exercise of the option to purchase; or

7.7.2 In monthly installments amortized over a period of 25 years, including interest on the unpaid balance at the rate of 8% per annum, with no penalty for prepayment. If such deferred payment is opted by either the LLC or the remaining Members, such Purchase Price shall be memorialized by an installment note of the LLC or the non-transferring, purchasing Members, payable to the transferring Member or the transferring Member's estate. The installment note shall be secured by the Membership Units purchased by the LLC or the remaining Members, as the case may be; and the entire balance due on such installment note shall be due and payable in full upon the sale of all or substantially all of the LLC assets unless the sale is part of a tax deferred exchange.

7.8 Substituted Parties. Except in the case of permitted transfers defined in Section 7.1, upon any transfer of Membership Units, the transferee shall not become a fully

substituted Member with full membership rights unless and until: (a) the transferee is approved as a substitute Member by remaining Members holding all of the remaining Membership Units; (b) the transferee delivers to the LLC any and all personal financial statements or other information requested by the LLC; (c) the transferee pays for any credit reports requested by the LLC; (d) the transferee pays for all legal documentation necessary to effectuate the transfer, including legal costs of the LLC; and (e) the transferee executes and delivers to the LLC all documents necessary or appropriate in the opinion of counsel for the LLC to effect the transfer and to confirm the agreement of the permitted assignee to be bound by the provisions of this Agreement.

7.8.1 Upon any transfer of Membership Units in which the transferee is not admitted as a substitute Member, the Membership Units held by such transferee shall not include any right to participate in management of the LLC, including any right to vote, consent to, or approve any actions of the Manager and shall not include any right to information about the LLC, its operations or its financial condition. In addition, if the transferee is not admitted as a substitute Member, the transferee shall be allocated distributions for tax purposes, but the distribution of funds to such Member shall not be made. Such funds shall be held in a suspense account by the LLC until such time as such transferee is admitted as a substitute Member or upon dissolution of the LLC. Following any transfer to a transferee who is not admitted as a substitute Member, the transferring Member's power and right to vote or consent to any matters submitted to the Members to receive any distributions shall be terminated; and any Membership Units of the remaining Members for purposes only of such votes, consents, and participation in management shall be proportionately increased until such time, if any, as such transferee becomes admitted as a substitute Member.

7.9 Failure to Exercise Option. If neither the LLC nor the non-transferring Members agree to purchase the Membership Units of a Member who offers to or is required to offer to sell such Member's Membership Units to the LLC and/or the remaining Members as provided above, the restrictions of this Agreement on transfer of such Membership Units shall be removed; except that: (i) such Membership Units shall not be sold or transferred in any way to any third party for a purchase price less than the Purchase Price determined under the paragraph entitled **Valuation of Membership Units of a Member**, (ii) such Membership Units shall not be sold on terms more favorable to the purchaser than those provided in the paragraph entitled **Payment for Member's Membership Units**, and (iii) the rights of the transferee of such Membership Units shall be restricted as provided in the paragraph entitled **Substituted Parties** in this Agreement, and (iv) if such Membership Units are not sold by such Member within one (1) year of the determination of the Purchase Price pursuant to the provisions of this Agreement, then the provisions and restrictions of this Agreement relating to the transfer of Membership Units shall apply, and the options of the LLC and the remaining Members shall be reinstated.

ARTICLE 8
DISSOLUTION AND WINDING UP OF THE LLC

8.1 Dissolution. Except as otherwise provided in this Agreement, the LLC shall be dissolved: (a) at the time, if any, for dissolution specified in the Articles of Organization; (b) within four (4) years of the sale, transfer, or other disposition of all of the assets of the LLC unless otherwise agreed by the Members; (c) upon the agreement of Members owning more than 50% of the Membership Units of this LLC. Provided, however, that, if such dissolution would

constitute an event of default of any contractual obligation of the LLC, then the LLC shall not be dissolved.

8.2 Winding Up. Upon the dissolution of the LLC, the assets shall be liquidated as promptly as is consistent with obtaining their fair market value, and the proceeds shall be applied and distributed and allocated as promptly as is commercially reasonable in the following order:

8.2.1 To the payment and discharge of the expenses of liquidation.

8.2.2 To the payment and discharge of all of the debts and liabilities of the LLC to persons or organizations other than the Members.

8.2.3 To the payment and discharge of any debts and liabilities to Members.

8.2.4 To the Members in the amount of the positive balances in their respective capital accounts on the date of distribution. If the amount available for such distribution to the Members is insufficient to bring all their positive capital account balances to zero, then payment shall be made on a pro-rata basis to all the Members in the same proportion that the positive balance in the capital account of each Member bears to the aggregate amount of the positive balances in the capital accounts of all Members.

8.2.5 Any proceeds remaining shall be distributed to the Members on a pro rata basis in proportion to their Membership Units.

8.3 Tax Consequences. It is understood that the Members may have varying consequences relating to distributions upon liquidation of the LLC, and the LLC makes no representations, warranties or promises relating to the tax obligations or consequences of any Member. To the extent of any negative capital account after distribution of all liquidation proceeds relating to any Member, the LLC shall release the Member from the obligation of repaying the negative capital account; and the Member shall be responsible for paying any tax liability that may result therefrom.

ARTICLE 9
INDEMNIFICATION

9.1 Indemnification. To the fullest extent permitted under the law of the state of organization of the LLC, as such law exists or may hereafter be amended, the LLC shall defend, indemnify, and hold harmless each Member and/or Manager of the LLC against any and all claims and liabilities to which such Member and/or Manager has or shall become subject by reason of serving or having served as such Member and/or Manager or by reason of any action alleged to have been taken, omitted, or neglected by such Member and/or Manager. The LLC may provide indemnification to employees and agents of the LLC. The indemnification provided in this Section shall not be exclusive of any other rights to which any person may be entitled under statute, agreement, resolution, contract, or otherwise.

9.2 Limitation of Liability. Members managing the LLC shall not be liable to the LLC or its Members for monetary damages or otherwise for conduct as Member and/or Manager except to the extent that the Limited Liability Company Act of the state in which this LLC was organized, as it now exists or may hereafter be amended, prohibits elimination or limitation of

Manager or Member liability. No repeal or amendment of this Section of this Agreement or of the Limited Liability Company Act of the state in which this LLC was organized shall adversely affect any right or protection of a Manager or Member for actions or omissions prior to the repeal or amendment.

ARTICLE 10
AMENDMENTS

10.1 By Members. The Members may amend or repeal the provisions of this Agreement by unanimous agreement of the Members set forth in writing or by unanimous action taken at a meeting of Members called for that purpose. This Agreement may not be amended or repealed by oral agreement of the Members.

ARTICLE 11
MISCELLANEOUS

11.1 Additional Documents. Each Member shall execute such additional documents and take such actions as are reasonably requested in order to complete or confirm the transactions contemplated by this Agreement.

11.2 Dispute Resolution. In the event there is any dispute between or among the parties to this Agreement relating in any way to this Agreement, the parties must mediate such dispute before commencing any legal action. No party to this Agreement can bring legal action or demand mandatory arbitration against another party to this Agreement without first participating in mediation, unless one party refuses to submit to mediation and legal action is brought to specifically enforce this mandatory mediation provision of this Agreement. If the parties cannot agree upon the person to act as the mediator, then the U.S. Arbitration and Mediation Service of Portland, Oregon, shall select a person to act as the mediator. The mediator's charges and expenses shall be split by the parties on a 50/50 basis. Mediation fees and costs do not include each party's attorney fees and costs. Each party shall be responsible for his or her own attorney fees and costs at mediation. Should the dispute not be resolved by mediation, the parties agree to submit any dispute between the parties relating in any way to this Agreement to binding arbitration with the U.S. Arbitration and Mediation Service of Portland, Oregon, and shall utilize such service's rules of procedure. If the parties cannot agree upon an individual to act as the arbitrator, then the U.S. Arbitration and Mediation Service of Portland, Oregon, shall select a person to act as the arbitrator. If the dispute goes to arbitration, the prevailing party shall be entitled to such party's attorney's fees and costs incurred in the arbitration process. The decision of an arbitrator shall be final and not subject to any appeal and shall be enforceable in a court of competent jurisdiction. The arbitration provisions in this Agreement shall not be enforced in the event every indispensable and necessary party to the arbitration cannot be brought within the jurisdiction of the arbitrator. In that event, or in the event that this dispute resolution paragraph is deemed to be unenforceable as to any party, actual or alleged, then the parties, actual or alleged, to this Agreement may enter into any litigation filed by such parties relating hereto.

11.2.1 *Dispute Resolution in the Event of a Deadlock.* In any instance in which there is a deadlock between or among multiple parties, such decision shall be referred to the dispute resolution procedure described above. In such event, the LLC shall pay all costs of mediation and arbitration. The decision of the arbitrator shall be final and not be subject to any appeal and shall be enforceable in a court of competent jurisdiction.

11.2.2 *Loss of Rights for Failure to Submit to Dispute Resolution.* Except as provided above in this section 11.2, anyone who refuses to submit to the dispute resolution provisions of this Agreement shall lose all rights under this Agreement including the right to receive any income or property under this Agreement.

11.3 Governing Law. This Agreement shall be governed by the law of the state of Oregon where the LLC was organized.

11.4 Headings. Headings in this Agreement are for convenience only and shall not affect its meaning.

11.5 Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of the remaining provisions.

11.6 Third-party Beneficiaries. The provisions of this Agreement are intended solely for the benefit of the Members and shall create no rights or obligations enforceable by any third party, including creditors of the LLC, except as otherwise provided by applicable law.

This Operating Agreement is entered into effective February 11, 2015 by the undersigned.

SOLE MEMBER:

Kelley D. Hamilton Trust dated April 1, 2008

By _____
Kelley D. Hamilton, Trustee

EXHIBIT A
List of Lots

	Lot #	
Holder Lots	36	
	37	
	38	
	39	
	40	
	41	
	42	
	43	
	44	5604 Wigeon, Salem
	58	
	61	
	62	
	64	5620 Cinnamon Teal, Salem
	65	
	66	
	69	5625 Wigeon, Salem
	70	5635 Wigeon, Salem
	74	291 Gadwall
	75	
	76	
	77	
	78	
Independence	54	769 Morning Glory, Independence
	55	759 Morning Glory, Independence
Newport	1	835 Jeffries Ct, Newport
West Salem	284	Mayfly West, Salem
	342	Deer Ridge Estates

EXHIBIT B

Description of Capital Contribution of Hamilton

1. All guarantees and warranties owned by Hamilton that in any way affect the real property on which LLC will construct improvements.

2. All permits, licenses, approvals, and consents issued to Hamilton or their assigns and required for the development or construction of the Project.

3. All designs, plans, specifications, engineering, or layout documents for the Project.

4. All approvals, consents, guarantees, and agreements issued to or obtained by Hamilton to facilitate construction of the Project and/or financing therefor.

5. Any and all agreements and commitments for construction financing and/or any other financing required for construction of the Project.

6. All other development rights and other intangible property, prepaid assets, and other unamortized assets owned by Hamilton relating to the Project, including Hamilton's development reputation and credibility.

APPENDIX 6.6

6.6.1 *Adjusted Capital Account Deficit* means a deficit balance in any Member's Capital Account at the end of any fiscal year, after adjustment to reflect any Adjustment Items, to the extent that the deficit exceeds the amount of a member's shares of Company Minimum Gain and Member Non-recourse Debt minimum Gain (if any) that the Member is deemed to be obligated to restore pursuant to Treasury Regulation §§1.704-2(g)(1) and 1.704-2(i)(5).

6.6.2 *Adjustment Items* means adjustments, allocations, and distributions described in Treasury Regulation §§1.704-1(b)(2)(ii)(d)(4), (5), and (6).

6.6.3 *Capital Account* means the account maintained for each Member pursuant to Section 2.5.

6.6.4 *Company Minimum Gain* means, as of any date, the amount of gain, if any, that would be recognized by the Company for federal income tax purposes, as if it disposed of property in a taxable transaction on that date in full satisfaction of any non-recourse liability secured by the property, computed in accordance with Treasury Regulation §1.704-2(d)(1).

6.6.5 *Member Non-recourse Debt* has the same meaning as "partner non-recourse debt" set forth in Treasury Regulation §1.704-2(b)(4).

6.6.6 *Member Non-recourse Debt Minimum Gain* means an amount, with respect to each Member non-recourse Debt, equal to the Company Minimum Gain that would result if such Member Non-recourse Debt were treated as a non-recourse Liability, determined pursuant to Treasury Regulation §1.704-2(i)(2) and (3).

6.6.7 *Member Non-recourse Deductions* has the same meaning as "partner non-recourse deductions" set forth in Treasury Regulation §1.704-2(i)(2). The amount of Member non-recourse Deductions with respect to a Member non-recourse Debt for a Company fiscal year equals the excess, if any, of" (A) the net increase, if any, in the amount of the Company minimum Gain attributable to such Member Non-recourse Debt during the fiscal year over (B) the aggregate amount of any distribution during the fiscal year to the Member that bears the economic risk of loss for such Member Non-recourse Debt to the extent the distributions are from proceeds of the Member Non-recourse Debt and are allocable to an increase in Member Non-recourse Debt Minimum Gain attributable to the Member Non-recourse Debt, determined pursuant to Treasury Regulation §1.704-2(i).

6.6.8 *Non-recourse Deductions* has the meaning set forth in Treasury Regulation §1.704-2(c). The amount of Non-recourse Deduction for a Company fiscal year equals excess, if any, of the net increase, if any, in the amount of Company Minimum Gain during that fiscal year over the aggregate amount of any distributions during that fiscal year of proceeds of a non-recourse Liability that are allocable to an increase in Company Minimum Gain, determined pursuant to Treasury Regulation §1.704-2(c).

6.6.9 *Non-recourse Liability* has the meaning set forth in Treasury Regulation §1.704-2(b)(3).

6.6.10 *Limitations on Allocations of Loss.* In no event will any Company loss or deduction, or item thereof, be allocated to any Member to the extent that the member has, or would have as a result of the allocation, an Adjusted Capital Account Deficit in the Member's Capital Account as of the end of the Company taxable year to which the allocation relates. Any loss or deduction, the allocation of which to a Member is disallowed by the foregoing restriction, will be reallocated to those Members who do not have an Adjusted Capital Account Deficit as of the end of such taxable year.

6.6.11 *Company Minimum Gain Chargeback.* If there is a net decrease in Company Minimum Gain during any Company taxable year, each Member will be specially allocated, before any other allocation of Company income, gain, loss, or deduction for the taxable year, items of Company income and gain for the taxable year (and, if necessary, subsequent years) in proportion to and to the extent of an amount equal to each Member's share of the net decrease in Company Minimum Gain determine in accordance with Treasury Regulation §1.704-2(g)(2). This Paragraph is intended to comply with and will be interpreted consistently with the "minimum gain chargeback" provisions of Treasury Regulation §1.704-2(f).

6.6.12 *Member Non-recourse Debt Minimum Gain Chargeback.* Notwithstanding any other provision of Article 6 of the Agreement or this Appendix 6.6, except paragraph 6.6.11. of this Appendix, if there is a net decrease in Member Non-recourse Debt minimum Gain attributable to a Member Non-recourse Debt during any taxable year of the Company, each Member who has a share of the Member non-recourse Debt Minimum Gain attributable to such Member Non-recourse Debt, determined in accordance with Treasury Regulation §1.704-2(i)(5), will be specially allocated items of Company income and gain for such year (and, if necessary, subsequent years) in an amount equal to such Member's share of the net decrease in Member Non-recourse Debt, determined in accordance with Treasury Regulation §1.704-2(i)(4). Allocations pursuant to this Paragraph 6.6.12 will be made in proportion to the respective amounts required to be allocated to each Member pursuant thereto. The items to be so allocated will be determined in accordance with Treasury Regulation §1.704-2(i)(4). This Paragraph 6.6.12 is intended to comply with, and will be interpreted consistently with, the partner non-recourse debt minimum gain chargeback provisions of Treasury Regulations §1.704-2(i)(4).

6.6.13 *Qualified Income Offset.* Notwithstanding any other provision of the Agreement or this Appendix except Paragraphs 6.6.11 and 6.6.12 of this Appendix 6.6, in the event any Member for any reason receives an Adjustment Item for any fiscal year that results in an Adjusted Capital Account Deficit for that Member, the Member will be specially allocated items of Company income and gain (consisting of a pro rata portion of each item of Company income, including gross income, and gain for the year) in an amount and manner sufficient to eliminate the Adjusted Capital Account Deficit, if any, created by such Adjustment Item as quickly as possible. This Paragraph 6.6.13 is intended to comply with the "qualified income offset" requirements of Treasury Regulation §1.704-1(b)(2)(ii)(d) and will be interpreted and applied consistently therewith.

6.6.14 *Offsetting Allocations.* Any special allocations of items of income, gain, loss, or deduction pursuant to Paragraphs 6.6.11, 6.6.12 or 6.6.13 of this Appendix 6.6 will be taken into

account in computing subsequent allocations of Company income, gain, loss or deduction pursuant to Article 6 so that the net amount of any items so allocated and all other income, gain, loss, deductions, and items thereof allocated to each Member pursuant to Article 6 will, to the extent possible, be equal to the net amount that would have been allocated to each Member pursuant to Article 6 if the special allocation had not occurred.

6.6.15 *Allocations with respect to Contributed or Revalued Property.* Notwithstanding any other provision of Article 6 of this Agreement, in the event Internal Revenue Code ("IRC") §704(c) or IRC §704(c) principles applicable under Treasury Regulation §1.704-1(b)(2)(iv) require allocations of Company income, gain, loss, or deductions for income tax purposes in a manner different than otherwise provided in Article 6 of this Agreement, the provisions of IRC §704(c) and the regulations thereunder will control such allocations among the Members for income tax purposes. Any item of income, gain, loss, and deduction with respect to any property (other than cash) that has been contributed to the Company by a Member or that has been revalued for Capital Account purposes under this Agreement pursuant to Treasury Regulation §1.704-1(b)(2)(iv) and which is required or permitted to be allocated to such Member for income tax purposes under IRC §704(c) so as to take into account the variation between the tax basis of such contributed or revalued property and its fair market value at the time of its contribution or revaluation will be allocated solely for income tax purposes in the manner so required or permitted under IRC §704(c) using the method described in Treasury Regulation §1.704-3 (or any successor regulation) selected by the Manager.

OPERATING AGREEMENT

of

HSF DEVELOPMENT LLC

OPERATING AGREEMENT

OF

HSF DEVELOPMENT LLC

an Oregon Limited Liability Company

THE OWNERSHIP INTERESTS REFLECTED IN THIS OPERATING AGREEMENT MAY REPRESENT SECURITIES THAT HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION UNDER THE SECURITIES ACT OF 1933. SUCH OWNERSHIP INTERESTS MAY NOT BE OFFERED FOR SALE, SOLD, TRANSFERRED, PLEDGED, OR OTHERWISE DISPOSED OF BY A MEMBER IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933 AND APPLICABLE STATE SECURITIES LAWS OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT REGISTRATION UNDER THE SECURITIES ACT OF 1933 IS NOT REQUIRED.

The undersigned Member(s), desiring to form a limited liability company under the Oregon Limited Liability Company Act, hereby agree as follows:

ARTICLE 1
FORMATION

1.1 Name. The name of the limited liability company (the "LLC") is "HSF Development LLC ".

1.2 Articles of Organization. Articles of Organization for the LLC were filed with the Oregon Secretary of State on February 11, 2015.

1.3 Effective Date. The effective date of adoption of this Operating Agreement ("Agreement") for the LLC is February 11, 2015.

1.4 Federal Employer Identification Number. The federal employer identification number (EIN) assigned to the LLC is EIN # 47-3162006.

1.5 Duration. The LLC shall continue until terminated as provided in this Agreement or under Oregon law.

1.6 Principal Place of Business. The principal office of the LLC shall initially be located at 3425 Boone Road SE, Salem, Oregon 97317. The Members may relocate the principal office or establish additional offices from time to time.

1.7 Registered Office and Registered Agent. The LLC's initial registered office shall be at 285 Liberty Street NE, Salem, Oregon 97301, and the name of its initial registered agent at such address shall be Corporation Service Company.

1.8 Management of LLC. The LLC shall be managed by a Manager or Managers.

1.9 Purposes and Powers. The primary purpose and general character of the business of the LLC is to initially acquire the property described in Exhibit "A" and develop the property into single family residential housing. The LLC may also acquire and develop other properties for this purpose. This general undertaking of the LLC will be referred to in this Agreement as "the Project". This LLC shall be a single-purpose entity; provided, however, that the LLC may have more than one asset and may engage in any lawful business permitted under Oregon law or the laws of any jurisdiction in which the LLC may do business if to do so does not constitute a breach of any contractual, trust deed, note, mortgage or other obligation of the LLC.

1.10 Title to Property. All LLC property shall be owned by the LLC as an entity, and no Member shall have any ownership interest in such property in the Member's individual name or right, and any Member's interest in the LLC shall be personal property for all purposes. Except as otherwise provided in this Agreement, the LLC shall hold all LLC property in the name of the LLC and not in the name or names of any Member or Members. However, if the Managers decide it is appropriate, a Member or the trustee of a trust which is a Member of the LLC may hold an LLC asset in his or her individual name in trust for the LLC.

ARTICLE 2
MEMBERS, CONTRIBUTIONS, AND INTERESTS

2.1 Initial Members. Each of the Member(s) agree to make the following contributions, receive the following Membership Units, and have the following initial capital accounts:

Member Name	Description of Contribution	Membership Units	%
Kelley D. Hamilton, Trustee of the Kelley D. Hamilton Trust dated April 1, 2008 ("Hamilton")	A bundle of contract rights, development concepts and reputation described in Exhibit B, attached hereto and made a part hereof by this reference.	1,000	100%

2.2 Certificates of Membership Units. The LLC may, but is not required to, issue each Member a Certificate of Membership indicating the Membership Units owned by each Member.

2.3 Other Business of Members. Any Member may engage independently or with others in other business and investment ventures of every nature and description and shall have no obligation to account to the LLC for such business or investments or for business or investment opportunities.

2.4 Additional Contributions. In addition to the capital contributions listed above, additional capital contributions shall be accepted from existing Members only if all the Members unanimously approve and set the maximum total amount of the additional capital contributions. If the Members unanimously agree to make additional capital contributions, the Members shall make additional capital contributions on a pro-rata basis in proportion to their Membership Units or as otherwise may be unanimously agreed among the Members.

2.5 No Interest on Capital Contributions. No interest shall be paid on capital contributions.

2.6 Capital Accounts. The LLC shall establish and maintain capital accounts with respect to each Member in accordance with the rules found in Treas. Reg. Section 1.704-1(b).

ARTICLE 3
MEMBER MEETINGS

3.1 Annual Meeting. An annual meeting of the Members may be held at a time, date and place specified by the Managers and communicated by notice to the Members. At such annual meeting, the Members shall transact all business, which is properly brought before the meeting.

3.2 Special Meetings. A special meeting of Members shall be held if the Managers requests such meeting by providing notice of the time, date, place and purpose of the meeting to the Members. A special meeting of Members shall be held if any Member requests such meeting by signing, dating and delivering to the LLC's registered office a written demand for the meeting, which describes the purpose or purposes for which such meeting is to be held. All special meetings shall be held at a time, date and place designated by the Managers specified in the notice of this special meeting prepared by the Managers. In the event a Member requests a special meeting, the Managers shall set the date of such meeting not more than 30 days after receiving notice of the Member's request.

3.3 Notice of Meeting. Notice of the time, date and place of each Member meeting shall be mailed to each Member not earlier than 60 days nor less than 10 days before the meeting date. The notice must include a description of the time, date, place and purpose for which the meeting is called.

3.4 Record Date. The persons entitled to notice of and to vote at a Member meeting and their respective ownership interests shall be determined on the date on which the notice of the meeting was first mailed or otherwise delivered to Members (the record date).

3.5 Quorum. The presence, in person or by proxy, of Members holding at least 50% of the Membership Units shall constitute a quorum.

3.6 Proxies. A Member may be represented at a meeting by a person or entity holding such Member's written proxy.

3.7 Voting. On each matter requiring action by the Members, each Member shall be entitled to one vote for each Membership Unit. Whenever the phrase "Majority of the Members" or "Majority of the Membership Units" is used in relation to voting, it means the decision voted on requires the affirmative vote of more than 50% of the Membership Units. Unless otherwise provided in this Agreement, all matters requiring action by the Members shall be approved by vote of a Majority of the Membership Units.

3.8 Meeting of all Members. Notwithstanding any other provision of this Agreement, if all of the Members hold a meeting at any time and place, such meeting shall be valid without call or notice; and any lawful action taken at such meeting shall be the action of the Members.

3.9 Action Without Meeting. Any action required or permitted to be taken by the Members at a meeting may be taken without a meeting if a consent in writing, describing the

action taken, is signed by all of the Members and is included in the minutes or filed with the LLC's record of meetings.

3.10 Meetings by Telephone. Meetings of the Members may be held by telephone conference or by any other means of communication by which all participants can communicate with each other simultaneously during the meeting, and such participation shall constitute presence in person at the meeting.

3.11 Actions Requiring Unanimous Vote of Members. The following actions require the unanimous approval of the Members:

3.11.1 Admitting an additional Member;

3.11.2 Issuing additional Membership Units;

3.11.3 Amending or restating the Articles of Organization or this Agreement;

3.11.4 Electing a Manager who is not:

3.11.4.1 the trustor of a trust that is a Member of the LLC; nor

3.11.4.2 a Member of the LLC.

3.11.5 Merging the LLC with another entity;

3.11.6 Except as specifically provided in this Agreement, borrowing funds from any person or entity which requires the personal guarantee of all of the Members;

3.11.7 Requiring additional capital contributions; or

3.11.8 Allowing the LLC to loan LLC funds to a Member or entity owned by any Member.

ARTICLE 4
MANAGEMENT

4.1 Management by Managers. The LLC shall be managed by one (1) or more Managers who shall be elected by the affirmative vote of a Majority of the Membership Units. The Managers shall not be compensated for serving as Managers unless otherwise agreed by the holders of a Majority of the Membership Units. However, the Managers may be reasonably compensated for services provided to the LLC which are not merely services incident to serving as Manager.

4.2 Initial Managers and Replacement of Managers. The initial Managers of the LLC shall be Kelley D. Hamilton, Chris Jundt and Anthony R. Kreitzberg. The initial Managers shall continue as Managers until replaced by the affirmative vote of a Majority of the Membership Units.

4.3 Removal of Manager by Members. By affirmative vote of Members owning a Majority of the Membership Units, the Members, in such Members' sole discretion, may remove

one or more Managers. In the event of the removal of one or more Managers, the remaining Manager or Managers, if any, shall serve as Manager of the LLC. In the event of the removal of a sole Manager or all of the Managers, a replacement Manager shall be elected by an affirmative vote of a Majority of Membership Units. However, in the event the Members fail to elect a new Manager by the affirmative vote of a Majority of the Membership Units, the selection of a Manager shall be determined according to the dispute resolution provisions in this Agreement. In such event, until a new Manager is selected, the Members of the LLC shall act as Managers.

4.4 Election of Managers. Once properly elected, a Manager shall serve until such time as the Manager's death, resignation, removal, or at such time as a new Manager is properly elected by the Members. Upon replacement or removal of the initial Managers, the name of the newly-elected Managers and the date upon which such Managers is elected shall be set out in the space provided below and initialed by Members owning a Majority of the Membership Units electing such Managers. Unless this original Agreement so reflects a managerial change, it is conclusively presumed that the initial Managers continue as Manager of this LLC.

Manager	Date of Election	Member's Initials
_____	_____	_____
_____	_____	_____
_____	_____	_____

4.5 Manager Powers. All Managers shall have the right to participate in the management of the LLC, and each Manager shall have authority to make all decisions relating in any way to the LLC except decisions requiring unanimous approval of the Members of the LLC as provided in this Agreement.

4.6 Borrowing. The Managers are authorized to borrow funds and pledge assets to secure funds. The Managers may borrow funds from all or any Member and in such case shall pay interest at the rate of four percent (4%) per annum above *Wall Street Journal* published prime rate. No distribution shall be made from the LLC until all loans from Members have been paid in full.

4.7 Other Activities. The Managers may have other business interests and may engage in other activities in addition to those relating to the LLC. This Section does not change each Manager's duty to act in a manner that the Manager reasonably believes to be in the best interests of the LLC.

4.8 Meetings. If more than one Manager is elected, the Managers may hold meetings at such place and time as is agreed upon by the Managers. No written notice of such meeting is necessary.

4.9 Vacancy. If a vacancy occurs in the office of the Managers, the vacancy shall be filled by the affirmative vote of Members owning a Majority of the Membership Units.

ARTICLE 5
ACCOUNTING AND RECORDS

5.1 Books of Account. The LLC's books and records, a register showing the names, addresses, and Membership Units of the Members, and a copy of this Agreement shall be maintained at the principal office of the LLC; and each Member shall have access thereto at all reasonable times. The Managers shall keep books and records of the operation of the LLC which are appropriate and adequate for the LLC's business and for the carrying out of this Agreement. Accounting records shall be kept in accordance with a comprehensive income tax basis of accounting.

5.2 Fiscal Year. The fiscal year of the LLC shall be the calendar year.

5.3 Tax Returns. The Managers shall cause all required federal and state income tax returns for the LLC to be prepared and timely filed with the appropriate authorities. Within 90 days after the end of each fiscal year or such later date as the Members may agree by majority vote, each Member shall be furnished a statement suitable for use in the preparation of the Member's income tax return, showing the amounts of any distributions, contributions, gains, losses, profits, or credits allocated to the Member during such fiscal year. No Member may obtain damages of any kind or other relief against the LLC for failure to complete the accounting and tax returns within 90 days but may demand records, hire an accountant, and be reimbursed for actual expenses.

ARTICLE 6
ALLOCATIONS AND DISTRIBUTIONS

6.1 Allocations of Income and Loss for Tax Purposes. Subject to the Special Allocations and Limitations set forth herein and in Appendices hereto, the profits and losses of the LLC for each fiscal year will be allocated among the Members pro rata in proportion to their Membership Units. All items of income, gain, loss, deduction, and credit shall be allocated among all Members in proportion to their Membership Units.

6.2 Distributions. Other than distributions in liquidation of the LLC as provided in this Agreement, the Managers, in the Managers' sole discretion, shall authorize cash distributions to the Members as may be reasonable in view of the cash reserves of the LLC. Such distribution shall be made to all Members *pro rata*, based upon each Member's percent of Membership Units.

6.3 Tax Consequences. It is understood that Members may have varying tax consequences relating to distributions from the LLC, and the LLC makes no representations, warranties, or promises relating to the tax obligations or consequences of any Member.

6.4 Distributions in Liquidation. Distributions in liquidation of the LLC or a Member's interest in the LLC, shall be made to the Members in the manner provided in this Agreement.

6.5 Allocation of Income and Loss. Members will be allocated income to the extent of the distributions paid to them. Except as otherwise provided herein, all other income, expenses and/or losses shall be allocated among the Members *pro rata*, based upon each Member's percent of Membership Units.

6.6 Special Allocations and Limitations. In order to comply with federal income tax regulations regarding the substantial economic effect of company allocations in the special circumstances described in Appendix 6.6, all allocations of company income, gain, loss, and deductions are subject to the special allocations, definitions, and limitations found in Appendix 6.6.

ARTICLE 7
TRANSFERS OF INTEREST

7.1 Permitted Transfers. Notwithstanding any other provision of this Agreement, the Members agree that the following transfers shall be permitted transfers and shall not be deemed a transfer restricted under this Agreement:

7.1.1 Any transfer from one existing Member of the LLC to another existing Member of the LLC.

7.1.2 Any transfer from an individual Member to a trust of which the individual Member is the trustor or from a trust which is a Member to the individual who is the trustor of such trust; provided, however, that such Member shall provide the LLC with a Certification of Trust complies with the laws of the state in which the LLC is organized.

7.1.3 Any transfer from a Member to the spouse of the Member or a trust for the benefit of the spouse or children of the Member or its trustor or to a family LLC, the Members of which are such spouse or children. Provided, however, that this LLC shall be entitled to a copy of the certification of such trust and/or Agreement of such LLC; and provided further that such spouse, trust, and/or LLC shall become a signatory to this Agreement.

7.2 Security Interest in Member's Units as Collateral. A Member shall not be allowed to grant a security interest in Member's Membership Units as collateral for a loan unless such Member has previously obtained the written consent to do so from Members owning a Majority of the Membership Units. Such security interest shall: (a) include only the Member's right to receive distributions; (b) not act in any way to encumber any LLC property; and (c) only encumber the Member's Membership Units in the LLC. Such consent shall not be unreasonably withheld. In the event that a Member requests such consent, such Member shall pay all of the LLC's and remaining Members' expenses incurred in determining whether consent should be granted, including but not limited to the costs for attorney fees, accounting fees, title reports, UCC reports, credit reports, review and verification of credit applications, document preparation, recording fees, if any.

7.3 Restriction on Sale. Except as otherwise specifically provided herein, this Agreement is personal to the named members and none of them, individually, jointly, as trustor, trustee, or beneficiary of a trust shall in any manner or by operation of law sell, exchange, assign, pledge, give, or otherwise transfer or encumber all or any part of any interest in this LLC without obtaining the prior written consent of Members owning a Majority of the Membership Units of

the LLC. Under this Agreement, the word "transfer" means the voluntary or involuntary, direct or indirect, sale, transfer, license, sublease, *inter vivos* transfer, testamentary disposition, or other disposition of a Member's Membership Units, including but not limited to any change in ownership as a result of divorce, insolvency, bankruptcy, operation of law or otherwise, and any change in ownership upon the death of a Member by will, declaration, transfer in trust, or under the laws of intestate succession of any state. It is expressly agreed by each Member that no Member shall make or enter into any agreement or contract with a third party or make any will, trust agreement, deed, or gift which would tend to amend, alter, abrogate the provisions, or act in contravention of the terms of this Agreement. The provisions of this Agreement shall be binding upon all persons claiming the rights of any Member, including but not limited to the spouse, heirs, personal representatives, administrators, trustees, trustors, creditors, and beneficiaries of any trust of any Member.

7.4 Events Requiring Sale of Membership Units of a Member. The following shall govern voluntary and mandatory sales of LLC Membership Units by Members:

7.4.1 *Deadlock.* If any disagreement shall arise among the Members creating a deadlock in decision making relating to the operations of the LLC thus hindering the ability to carry on the business of the LLC, the disagreement shall be resolved in accordance with the Dispute Resolution Provisions of this Agreement. If any Member of this LLC is unwilling to abide by the decision obtained through the dispute resolution process relating to a deadlock or otherwise, then such dissenting Member shall offer Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such dissenting Member's Membership Units without deduction for minority status or lack of marketability.

7.4.2 *Desire to Sell/Death of a Member.* If any Member desires to no longer be a Member of the LLC or to sell such Member's Membership Units, then such Member shall offer such Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such Membership Units, without deduction for minority status or lack of marketability. Upon the death of any Member or the grantor of any trust that is a Member, the Membership Units owned by such Member shall be offered to the LLC and the remaining Members for the fair market value of such Membership Units, without deduction for minority status or lack of marketability.

7.4.3 *Other Events Requiring Sale.* Upon the occurrence of any of the following events relating to any Member, such Member shall offer to sell Member's Membership Units in the LLC to the LLC and the remaining Members for the fair market value of such Member's Membership Units, with deduction for minority ownership and lack of marketability: (i) the Member makes an assignment for the benefit of creditors; (ii) the Member files a voluntary petition for bankruptcy; (iii) the Member is adjudicated a bankrupt or insolvent; (iv) the Member files a petition or answer seeking for the Member any reorganization, arrangement for the benefit of creditors, composition of debts and assets, readjustment of debts and assets, liquidation of assets, or dissolution of marriage or similar relief under any statute, law, or regulation, or any other event not otherwise mentioned in this Section 7.4.

7.5 Valuation of Membership Units of a Member. In every instance involving the voluntary or mandatory purchase or sale of Membership Units in this LLC, if the parties cannot agree on the fair market value with or without discount for minority ownership and/or marketability of the LLC Membership Units of any Member whose Membership Units must be

voluntarily or mandatorily sold as described above, then the fair market value issue, with or without discount for minority ownership or marketability, shall be resolved in accordance with the dispute resolution provisions in this Agreement. The decision obtained through the dispute resolution procedure shall be binding on the parties. Such fair market value with or without discount, as the case may be, is referred to herein as the "Purchase Price".

7.6 Options to Purchase Membership Units of a Member. In every instance involving the voluntary or mandatory purchase or sale of Membership Units in this LLC and after the fair market value with or without discounts for minority ownership and/or marketability has been determined by agreement or through the dispute resolution procedure established in this Agreement, then:

7.6.1 *First Option to LLC.* For a period not exceeding 60 days from the date a Purchase Price for the Membership Units has been determined, the LLC shall have the option to purchase such Membership Units, which option may be exercised by giving written notice of the LLC's intent to purchase such Units at the Purchase Price which shall be paid pursuant to the terms provided in this Agreement to the transferring Member or the transferring Member's estate and shall be secured by the Membership Units so transferred.

7.6.2 *Second Option to Non-transferring Members.* If the LLC does not exercise its right to purchase Membership Units as provided above, the remaining Members, jointly or severally, shall have the option to purchase all such Membership Units at the Purchase Price determined pursuant to the terms of this Agreement. The non-transferring Members shall provide written notice of intent to exercise their option at any time within 60 days following the last date by which the LLC may give notice of its intent to exercise such rights. If more than one non-transferring Member desires to purchase all or any portion of such Membership Units, such Membership Units shall be purchased by such non-transferring Members in proportions upon which they agree or, in the absence of some other agreement among the non-transferring Members, in proportion to the existing Membership Units of each non-transferring Member.

7.7 Payment for Member's Membership Units. The LLC or the remaining Members, as the case may be, in their sole discretion, shall choose one of the following methods for payment of the Purchase Price for a Member's Membership Units purchased pursuant to this Agreement:

7.7.1 In cash within 30 days of the exercise of the option to purchase; or

7.7.2 In monthly installments amortized over a period of 25 years, including interest on the unpaid balance at the rate of 8% per annum, with no penalty for prepayment. If such deferred payment is opted by either the LLC or the remaining Members, such Purchase Price shall be memorialized by an installment note of the LLC or the non-transferring, purchasing Members, payable to the transferring Member or the transferring Member's estate. The installment note shall be secured by the Membership Units purchased by the LLC or the remaining Members, as the case may be; and the entire balance due on such installment note shall be due and payable in full upon the sale of all or substantially all of the LLC assets unless the sale is part of a tax deferred exchange.

7.8 Substituted Parties. Except in the case of permitted transfers defined in Section 7.1, upon any transfer of Membership Units, the transferee shall not become a fully

substituted Member with full membership rights unless and until: (a) the transferee is approved as a substitute Member by remaining Members holding all of the remaining Membership Units; (b) the transferee delivers to the LLC any and all personal financial statements or other information requested by the LLC; (c) the transferee pays for any credit reports requested by the LLC; (d) the transferee pays for all legal documentation necessary to effectuate the transfer, including legal costs of the LLC; and (e) the transferee executes and delivers to the LLC all documents necessary or appropriate in the opinion of counsel for the LLC to effect the transfer and to confirm the agreement of the permitted assignee to be bound by the provisions of this Agreement.

7.8.1 Upon any transfer of Membership Units in which the transferee is not admitted as a substitute Member, the Membership Units held by such transferee shall not include any right to participate in management of the LLC, including any right to vote, consent to, or approve any actions of the Manager and shall not include any right to information about the LLC, its operations or its financial condition. In addition, if the transferee is not admitted as a substitute Member, the transferee shall be allocated distributions for tax purposes, but the distribution of funds to such Member shall not be made. Such funds shall be held in a suspense account by the LLC until such time as such transferee is admitted as a substitute Member or upon dissolution of the LLC. Following any transfer to a transferee who is not admitted as a substitute Member, the transferring Member's power and right to vote or consent to any matters submitted to the Members to receive any distributions shall be terminated; and any Membership Units of the remaining Members for purposes only of such votes, consents, and participation in management shall be proportionately increased until such time, if any, as such transferee becomes admitted as a substitute Member.

7.9 Failure to Exercise Option. If neither the LLC nor the non-transferring Members agree to purchase the Membership Units of a Member who offers to or is required to offer to sell such Member's Membership Units to the LLC and/or the remaining Members as provided above, the restrictions of this Agreement on transfer of such Membership Units shall be removed; except that: (i) such Membership Units shall not be sold or transferred in any way to any third party for a purchase price less than the Purchase Price determined under the paragraph entitled **Valuation of Membership Units of a Member**, (ii) such Membership Units shall not be sold on terms more favorable to the purchaser than those provided in the paragraph entitled **Payment for Member's Membership Units**, and (iii) the rights of the transferee of such Membership Units shall be restricted as provided in the paragraph entitled **Substituted Parties** in this Agreement, and (iv) if such Membership Units are not sold by such Member within one (1) year of the determination of the Purchase Price pursuant to the provisions of this Agreement, then the provisions and restrictions of this Agreement relating to the transfer of Membership Units shall apply, and the options of the LLC and the remaining Members shall be reinstated.

ARTICLE 8
DISSOLUTION AND WINDING UP OF THE LLC

8.1 Dissolution. Except as otherwise provided in this Agreement, the LLC shall be dissolved: (a) at the time, if any, for dissolution specified in the Articles of Organization; (b) within four (4) years of the sale, transfer, or other disposition of all of the assets of the LLC unless otherwise agreed by the Members; (c) upon the agreement of Members owning more than 50% of the Membership Units of this LLC. Provided, however, that, if such dissolution would

constitute an event of default of any contractual obligation of the LLC, then the LLC shall not be dissolved.

8.2 Winding Up. Upon the dissolution of the LLC, the assets shall be liquidated as promptly as is consistent with obtaining their fair market value, and the proceeds shall be applied and distributed and allocated as promptly as is commercially reasonable in the following order:

8.2.1 To the payment and discharge of the expenses of liquidation.

8.2.2 To the payment and discharge of all of the debts and liabilities of the LLC to persons or organizations other than the Members.

8.2.3 To the payment and discharge of any debts and liabilities to Members.

8.2.4 To the Members in the amount of the positive balances in their respective capital accounts on the date of distribution. If the amount available for such distribution to the Members is insufficient to bring all their positive capital account balances to zero, then payment shall be made on a pro-rata basis to all the Members in the same proportion that the positive balance in the capital account of each Member bears to the aggregate amount of the positive balances in the capital accounts of all Members.

8.2.5 Any proceeds remaining shall be distributed to the Members on a pro rata basis in proportion to their Membership Units.

8.3 Tax Consequences. It is understood that the Members may have varying consequences relating to distributions upon liquidation of the LLC, and the LLC makes no representations, warranties or promises relating to the tax obligations or consequences of any Member. To the extent of any negative capital account after distribution of all liquidation proceeds relating to any Member, the LLC shall release the Member from the obligation of repaying the negative capital account; and the Member shall be responsible for paying any tax liability that may result therefrom.

ARTICLE 9
INDEMNIFICATION

9.1 Indemnification. To the fullest extent permitted under the law of the state of organization of the LLC, as such law exists or may hereafter be amended, the LLC shall defend, indemnify, and hold harmless each Member and/or Manager of the LLC against any and all claims and liabilities to which such Member and/or Manager has or shall become subject by reason of serving or having served as such Member and/or Manager or by reason of any action alleged to have been taken, omitted, or neglected by such Member and/or Manager. The LLC may provide indemnification to employees and agents of the LLC. The indemnification provided in this Section shall not be exclusive of any other rights to which any person may be entitled under statute, agreement, resolution, contract, or otherwise.

9.2 Limitation of Liability. Members managing the LLC shall not be liable to the LLC or its Members for monetary damages or otherwise for conduct as Member and/or Manager except to the extent that the Limited Liability Company Act of the state in which this LLC was organized, as it now exists or may hereafter be amended, prohibits elimination or limitation of

Manager or Member liability. No repeal or amendment of this Section of this Agreement or of the Limited Liability Company Act of the state in which this LLC was organized shall adversely affect any right or protection of a Manager or Member for actions or omissions prior to the repeal or amendment.

ARTICLE 10
AMENDMENTS

10.1 By Members. The Members may amend or repeal the provisions of this Agreement by unanimous agreement of the Members set forth in writing or by unanimous action taken at a meeting of Members called for that purpose. This Agreement may not be amended or repealed by oral agreement of the Members.

ARTICLE 11
MISCELLANEOUS

11.1 Additional Documents. Each Member shall execute such additional documents and take such actions as are reasonably requested in order to complete or confirm the transactions contemplated by this Agreement.

11.2 Dispute Resolution. In the event there is any dispute between or among the parties to this Agreement relating in any way to this Agreement, the parties must mediate such dispute before commencing any legal action. No party to this Agreement can bring legal action or demand mandatory arbitration against another party to this Agreement without first participating in mediation, unless one party refuses to submit to mediation and legal action is brought to specifically enforce this mandatory mediation provision of this Agreement. If the parties cannot agree upon the person to act as the mediator, then the U.S. Arbitration and Mediation Service of Portland, Oregon, shall select a person to act as the mediator. The mediator's charges and expenses shall be split by the parties on a 50/50 basis. Mediation fees and costs do not include each party's attorney fees and costs. Each party shall be responsible for his or her own attorney fees and costs at mediation. Should the dispute not be resolved by mediation, the parties agree to submit any dispute between the parties relating in any way to this Agreement to binding arbitration with the U.S. Arbitration and Mediation Service of Portland, Oregon, and shall utilize such service's rules of procedure. If the parties cannot agree upon an individual to act as the arbitrator, then the U.S. Arbitration and Mediation Service of Portland, Oregon, shall select a person to act as the arbitrator. If the dispute goes to arbitration, the prevailing party shall be entitled to such party's attorney's fees and costs incurred in the arbitration process. The decision of an arbitrator shall be final and not subject to any appeal and shall be enforceable in a court of competent jurisdiction. The arbitration provisions in this Agreement shall not be enforced in the event every indispensable and necessary party to the arbitration cannot be brought within the jurisdiction of the arbitrator. In that event, or in the event that this dispute resolution paragraph is deemed to be unenforceable as to any party, actual or alleged, then the parties, actual or alleged, to this Agreement may enter into any litigation filed by such parties relating hereto.

11.2.1 *Dispute Resolution in the Event of a Deadlock.* In any instance in which there is a deadlock between or among multiple parties, such decision shall be referred to the dispute resolution procedure described above. In such event, the LLC shall pay all costs of mediation and arbitration. The decision of the arbitrator shall be final and not be subject to any appeal and shall be enforceable in a court of competent jurisdiction.

11.2.2 *Loss of Rights for Failure to Submit to Dispute Resolution.* Except as provided above in this section 11.2, anyone who refuses to submit to the dispute resolution provisions of this Agreement shall lose all rights under this Agreement including the right to receive any income or property under this Agreement.

11.3 Governing Law. This Agreement shall be governed by the law of the state of Oregon where the LLC was organized.

11.4 Headings. Headings in this Agreement are for convenience only and shall not affect its meaning.

11.5 Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of the remaining provisions.

11.6 Third-party Beneficiaries. The provisions of this Agreement are intended solely for the benefit of the Members and shall create no rights or obligations enforceable by any third party, including creditors of the LLC, except as otherwise provided by applicable law.

This Operating Agreement is entered into effective February 11, 2015 by the undersigned.

SOLE MEMBER:

Kelley D. Hamilton Trust dated April 1, 2008

By _____
Kelley D. Hamilton, Trustee

EXHIBIT A
List of Lots

	Lot #	
Holder Lots	36	
	37	
	38	
	39	
	40	
	41	
	42	
	43	
	44	5604 Wigeon, Salem
	58	
	61	
	62	
	64	5620 Cinnamon Teal, Salem
	65	
	66	
	69	5625 Wigeon, Salem
	70	5635 Wigeon, Salem
	74	291 Gadwall
	75	
	76	
	77	
	78	
Independence	54	769 Morning Glory, Independence
	55	759 Morning Glory, Independence
Newport	1	835 Jeffries Ct, Newport
West Salem	284	Mayfly West, Salem
	342	Deer Ridge Estates

EXHIBIT B

Description of Capital Contribution of Hamilton

1. All guarantees and warranties owned by Hamilton that in any way affect the real property on which LLC will construct improvements.

2. All permits, licenses, approvals, and consents issued to Hamilton or their assigns and required for the development or construction of the Project.

3. All designs, plans, specifications, engineering, or layout documents for the Project.

4. All approvals, consents, guarantees, and agreements issued to or obtained by Hamilton to facilitate construction of the Project and/or financing therefor.

5. Any and all agreements and commitments for construction financing and/or any other financing required for construction of the Project.

6. All other development rights and other intangible property, prepaid assets, and other unamortized assets owned by Hamilton relating to the Project, including Hamilton's development reputation and credibility.

APPENDIX 6.6

6.6.1 *Adjusted Capital Account Deficit* means a deficit balance in any Member's Capital Account at the end of any fiscal year, after adjustment to reflect any Adjustment Items, to the extent that the deficit exceeds the amount of a member's shares of Company Minimum Gain and Member Non-recourse Debt minimum Gain (if any) that the Member is deemed to be obligated to restore pursuant to Treasury Regulation §§1.704-2(g)(1) and 1.704-2(i)(5).

6.6.2 *Adjustment Items* means adjustments, allocations, and distributions described in Treasury Regulation §§1.704-1(b)(2)(ii)(d)(4), (5), and (6).

6.6.3 *Capital Account* means the account maintained for each Member pursuant to Section 2.5.

6.6.4 *Company Minimum Gain* means, as of any date, the amount of gain, if any, that would be recognized by the Company for federal income tax purposes, as if it disposed of property in a taxable transaction on that date in full satisfaction of any non-recourse liability secured by the property, computed in accordance with Treasury Regulation §1.704-2(d)(1).

6.6.5 *Member Non-recourse Debt* has the same meaning as "partner non-recourse debt" set forth in Treasury Regulation §1.704-2(b)(4).

6.6.6 *Member Non-recourse Debt Minimum Gain* means an amount, with respect to each Member non-recourse Debt, equal to the Company Minimum Gain that would result if such Member Non-recourse Debt were treated as a non-recourse Liability, determined pursuant to Treasury Regulation §1.704-2(i)(2) and (3).

6.6.7 *Member Non-recourse Deductions* has the same meaning as "partner non-recourse deductions" set forth in Treasury Regulation §1.704-2(i)(2). The amount of Member non-recourse Deductions with respect to a Member non-recourse Debt for a Company fiscal year equals the excess, if any, of" (A) the net increase, if any, in the amount of the Company minimum Gain attributable to such Member Non-recourse Debt during the fiscal year over (B) the aggregate amount of any distribution during the fiscal year to the Member that bears the economic risk of loss for such Member Non-recourse Debt to the extent the distributions are from proceeds of the Member Non-recourse Debt and are allocable to an increase in Member Non-recourse Debt Minimum Gain attributable to the Member Non-recourse Debt, determined pursuant to Treasury Regulation §1.704-2(i).

6.6.8 *Non-recourse Deductions* has the meaning set forth in Treasury Regulation §1.704-2(c). The amount of Non-recourse Deduction for a Company fiscal year equals excess, if any, of the net increase, if any, in the amount of Company Minimum Gain during that fiscal year over the aggregate amount of any distributions during that fiscal year of proceeds of a non-recourse Liability that are allocable to an increase in Company Minimum Gain, determined pursuant to Treasury Regulation §1.704-2(c).

6.6.9 *Non-recourse Liability* has the meaning set forth in Treasury Regulation §1.704-2(b)(3).

6.6.10 *Limitations on Allocations of Loss.* In no event will any Company loss or deduction, or item thereof, be allocated to any Member to the extent that the member has, or would have as a result of the allocation, an Adjusted Capital Account Deficit in the Member's Capital Account as of the end of the Company taxable year to which the allocation relates. Any loss or deduction, the allocation of which to a Member is disallowed by the foregoing restriction, will be reallocated to those Members who do not have an Adjusted Capital Account Deficit as of the end of such taxable year.

6.6.11 *Company Minimum Gain Chargeback.* If there is a net decrease in Company Minimum Gain during any Company taxable year, each Member will be specially allocated, before any other allocation of Company income, gain, loss, or deduction for the taxable year, items of Company income and gain for the taxable year (and, if necessary, subsequent years) in proportion to and to the extent of an amount equal to each Member's share of the net decrease in Company Minimum Gain determine in accordance with Treasury Regulation §1.704-2(g)(2). This Paragraph is intended to comply with and will be interpreted consistently with the "minimum gain chargeback" provisions of Treasury Regulation §1.704-2(f).

6.6.12 *Member Non-recourse Debt Minimum Gain Chargeback.* Notwithstanding any other provision of Article 6 of the Agreement or this Appendix 6.6, except paragraph 6.6.11. of this Appendix, if there is a net decrease in Member Non-recourse Debt minimum Gain attributable to a Member Non-recourse Debt during any taxable year of the Company, each Member who has a share of the Member non-recourse Debt Minimum Gain attributable to such Member Non-recourse Debt, determined in accordance with Treasury Regulation §1.704-2(i)(5), will be specially allocated items of Company income and gain for such year (and, if necessary, subsequent years) in an amount equal to such Member's share of the net decrease in Member Non-recourse Debt, determined in accordance with Treasury Regulation §1.704-2(i)(4). Allocations pursuant to this Paragraph 6.6.12 will be made in proportion to the respective amounts required to be allocated to each Member pursuant thereto. The items to be so allocated will be determined in accordance with Treasury Regulation §1.704-2(i)(4). This Paragraph 6.6.12 is intended to comply with, and will be interpreted consistently with, the partner non-recourse debt minimum gain chargeback provisions of Treasury Regulations §1.704-2(i)(4).

6.6.13 *Qualified Income Offset.* Notwithstanding any other provision of the Agreement or this Appendix except Paragraphs 6.6.11 and 6.6.12 of this Appendix 6.6, in the event any Member for any reason receives an Adjustment Item for any fiscal year that results in an Adjusted Capital Account Deficit for that Member, the Member will be specially allocated items of Company income and gain (consisting of a pro rata portion of each item of Company income, including gross income, and gain for the year) in an amount and manner sufficient to eliminate the Adjusted Capital Account Deficit, if any, created by such Adjustment Item as quickly as possible. This Paragraph 6.6.13 is intended to comply with the "qualified income offset" requirements of Treasury Regulation §1.704-1(b)(2)(ii)(d) and will be interpreted and applied consistently therewith.

6.6.14 *Offsetting Allocations.* Any special allocations of items of income, gain, loss, or deduction pursuant to Paragraphs 6.6.11, 6.6.12 or 6.6.13 of this Appendix 6.6 will be taken into

account in computing subsequent allocations of Company income, gain, loss or deduction pursuant to Article 6 so that the net amount of any items so allocated and all other income, gain, loss, deductions, and items thereof allocated to each Member pursuant to Article 6 will, to the extent possible, be equal to the net amount that would have been allocated to each Member pursuant to Article 6 if the special allocation had not occurred.

6.6.15 *Allocations with respect to Contributed or Revalued Property.* Notwithstanding any other provision of Article 6 of this Agreement, in the event Internal Revenue Code ("IRC") §704(c) or IRC §704(c) principles applicable under Treasury Regulation §1.704-1(b)(2)(iv) require allocations of Company income, gain, loss, or deductions for income tax purposes in a manner different than otherwise provided in Article 6 of this Agreement, the provisions of IRC §704(c) and the regulations thereunder will control such allocations among the Members for income tax purposes. Any item of income, gain, loss, and deduction with respect to any property (other than cash) that has been contributed to the Company by a Member or that has been revalued for Capital Account purposes under this Agreement pursuant to Treasury Regulation §1.704-1(b)(2)(iv) and which is required or permitted to be allocated to such Member for income tax purposes under IRC §704(c) so as to take into account the variation between the tax basis of such contributed or revalued property and its fair market value at the time of its contribution or revaluation will be allocated solely for income tax purposes in the manner so required or permitted under IRC §704(c) using the method described in Treasury Regulation §1.704-3 (or any successor regulation) selected by the Manager.

AmeriTitle
320 Church St. NE, Salem, OR 97301
PHONE (503)581-1431 FAX (503)364-8716

September 28, 2018
File Number: 262404AM
Report No.: **1**
Title Officer: Matt Paslay
Escrow Officer: Tasha Walery

PRELIMINARY TITLE REPORT

Property Address: 6719 Devon Ave SE, Salem, OR 97306

Policy or Policies to be issued:	Liability	Premium
ALTA LENDER'S RESIDENTIAL (X) EXTENDED ( ) STANDARD	$100,000.00	$473.00
Proposed Insured:		
Endorsements: OTIRO - End 209.10-06, 222-06 and 208.1-06		$100.00
Local Government Lien Search		$40.00

We are prepared to issue ALTA (06/17/06) title insurance policy(ies) of Old Republic National Title Insurance Company, in the usual form insuring the title to the land described as follows:

Legal description attached hereto and made a part hereof marked Exhibit "A"

and dated as of 20th day of September, 2018 at 7:30 a.m., title is vested in:

HSF Development LLC, an Oregon Limited Liability Company

The estate or interest in the land described or referred to in this Preliminary Title Report and covered herein is:

FEE SIMPLE

Except for the items properly cleared through closing, Schedule B of the proposed policy or policies will not insure against loss or damage which may arise by reason of the following:

GENERAL EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.

3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

4. Any encroachment (of existing improvements located on the subject Land onto adjoining Land or of existing improvements located on adjoining Land onto the subject Land) encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the subject Land.

5. Any lien, or right to a lien, for services, labor, material, equipment rental, or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the Public Records.

EXCEPTIONS 1 THROUGH 5 ABOVE APPLY TO STANDARD COVERAGE POLICIES AND MAY BE MODIFIED OR ELIMINATED ON AN EXTENDED COVERAGE POLICY.

SPECIAL EXCEPTIONS:

Tax Information:
Taxes assessed under Code No. 92400230 Account No. R93743 Map No. 08S-03W-22C 300
NOTE: The 2017-2018 Taxes: $5,508.75, are Paid

6. The 2018-2019 Taxes: A lien not yet due or payable.
7. City liens, if any, of the City of Salem.
8. The property lies within and is subject to the levies and assessments of the Marion Soil and Water Conservation District.
9. The rights of the public in and to that portion of the herein described property lying within the limits of public roads, streets or highways.
10. Rights of the public and governmental bodies in and to that portion of said premises now or at any time lying below the high water line of unnamed creek, including any ownership rights which may be claimed by the State of Oregon as to any portion now or at any time lying below the ordinary high water line.

    Such rights and easements for navigation and fishing as may exist over that portion of the property now or at any time lying beneath the waters of unnamed creek.

    All matters arising from any shifting in the course of unnamed creek including but not limited to accretion, reliction and avulsion.
11. Unrecorded leaseholds, if any, and the rights of vendors and holders of security interest in personal property of tenants to remove said personal property at the expiration of the term.

12. The Company will require a copy the Operating Agreement (including any approvals of withdrawal of member(s) or acceptance of new member(s)) and the Articles of Organization of HSF Development, LLC for its examination prior to closing. Any conveyance or encumbrance of the Limited Liability Company's property must be executed by all of the members unless otherwise provided for in the Operating Agreement.

    The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

13. Annexation Agreement, including the terms and provisions thereof,
    Recorded: January 4, 2018
    Instrument No.: Reel: 4032 Page: 399

14. Resolution 2018-24, including the terms and provisions thereof,
    Recorded: June 14, 2018
    Instrument No.: Reel: 4088 Page: 67

15. Any statutory lien for labor or material, which now has gained, or hereafter may gain priority over the lien of the insured mortgage.

    To remove this item, the Company will require an affidavit and indemnity on a form supplied by the Company.

    IF THE ABOVE EXCEPTION IS TO BE REMOVED FROM A FORTHCOMING POLICY PRIOR TO THE EXPIRATION OF THE STATUTORY LIEN PERIOD, THE COMPANY MUST BE CONTACTED REGARDING ITS UNDERWRITING REQUIREMENTS FOR EARLY ISSUE.

16. Persons in possession or claiming the right of possession.

    To remove this item, the Company will require an affidavit and indemnity on a form supplied by the Company.

INFORMATIONAL NOTES:

NOTE: As of the date hereof, there are no matters against the party(ies) shown below which would appear as exceptions to coverage in a title insurance product:
Parties:
HSF Development LLC

NOTE: We find no activity in the past 24 months regarding transfer of title to subject property.

NOTE: The following is the last deed of record affecting said land,
Document: Statutory Warranty Deed
Grantor: Susan Ballard and Edward Kirasich, not as tenants in common but with right of survivorship
Grantee: HSF Development, LLC, an Oregon Limited Liability Company
Recorded: October 27, 2017
Instrument No.: Reel; 4009 Page: 121

NOTE: Any map or sketch enclosed as an attachment herewith is furnished for information purposes only to assist in property location with reference to streets and other parcels. No representation is made as to accuracy and the company assumes no liability for any loss occurring by reason of reliance thereon.

NOTE: Your application for title insurance was placed by reference to only a street address or tax identification number. Based on our records, we believe that the legal description in this report covers the parcel(s) of Land that you requested. If the legal description is incorrect, the parties to the transaction must notify the Company and/or the settlement company in order to prevent errors and to be certain that the correct parcel(s) of Land will appear on any documents to be recorded in connection with this transaction and on the policy of title insurance.

THIS PRELIMINARY TITLE REPORT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

This report is preliminary to the issuance of a policy of title insurance and shall become null and void unless a policy is issued and the full premium paid.

End of Report

"Superior Service with Commitment and Respect for Customers and Employees"

EXHIBIT "A"
LEGAL DESCRIPTION

Lots 12 and 13, SUNNYSIDE FRUIT FARMS NO. 8, Marion County, Oregon.

Devon Avenue

Subdivision Application

Modification-December 9, 2019

BACKGROUND:

On July 17, 2017, Pre-Application Conference (PRE-AP) 17-57 was held with the City staff to discuss the development of property located at 6719 Devon Avenue SE.

On June 11, 2018, the subject property was annexed into the City of Salem on June 11, 2018, by City Council.

On May 29, 2018, Urban Growth Area Permit (UGA) 17-06 was approved by staff on May 29, 2018.

On July 29, 2019, SUB19-05 was approved for the subject property. The approval allows the site to develop about 19.74 acres into an 84-lot single family subdivision.

PROPOSAL:

The applicant is requesting a modification to the SUB19-05 approval to allow the subdivision to be developed in three (3) Phases.

Phase 1: Lots 1-42
Phase 2: Lots 43-65
Phase 3: Lots 66-84

SITE VICINITY and CHARACTERISTICS:

The subject property is located at 6719 Devon Avenue. The subject property is identified as 083W22C/Tax Lots 300.

The surrounding properties are zoned and used as follows:

North:	RA (Residential Agriculture) and RS (Single Family Residential); vacant land
East:	Across Devon Avenue; RS (Single Family Residential); vacant lots, and existing single-family dwellings
South:	Outside City Limits, Marion County-UT; vacant land and existing single-family dwellings
West:	Outside City Limits, Marion County-UT; vacant land and existing single-family dwellings

CRITERIA AND APPLICANT'S REASONS ADDRESSING UDC 205.010(d)(1):

The proposed modification does not change or impact compliance with the required criteria.

The intent of the subdivision code is providing for orderly development through the application of appropriate rules and regulations. Pursuant to the application of the current enabling statutes, these regulations are those cited in UDC 205.010(d) and UDC 205.015(d). The decision criteria for subdivisions without a concurrent variance under UDC 205.010(d) and UDC 205.015(d) must be found to exist before an affirmative decision may be made for a subdivision application.

(1) The tentative subdivision plan complies with the standards of this Chapter and with all applicable provisions of the UDC, including, but not limited to, the following:

Findings: The Salem Revised Code (SRC), which includes the Salem Zoning Code, implements the Salem Area Comprehensive Plan land use goals, and governs

development of property within the city limits. The subdivision process reviews development for compliance with city standards and requirements contained in the Subdivision Code, Zoning Code, Salem TSP and the Water, Sewer and Storm Drain System Master Plans, and adopted design documents applicable to residential development. The proposed meets all applicable provisions of the Salem Revised Code.

(A) Lot standards, including, but not limited to, standards for lot area, lot width and depth, lot frontage and designation of front and rear lot lines.

Findings: The proposal does not require any variances to lot development standards specified in the Code.

Minimum Lot Area and Dimensions: As shown on the site plan, all 84 lots meet lot size (4,000 square feet) and lot dimension (40' by 70') standards as required under UDC Chapters 510 and 511. The proposed lots range in size from 5,933 square feet to 10,727 square feet in size, with and average lot size of 6,884 square feet.

Additional reviews occur at the time of building permits to assure compliance with the zoning code. Compliance with conditions of approval to satisfy the subdivision ordinance is also checked prior to city staff signing the final subdivision plat.

The proposal can conform to applicable conditions imposed as necessary to ensure that development conforms to the standards of the subdivision code and with existing development and public facilities. As shown on the site plans, all lots meet the required lot size, lot depth, and lot width. At the time of development of the lots, building permits will be required. Setbacks will be reviewed for compliance at the time of building permit submittal. The proposed subdivision is and will be in compliance with lot standard requirements and required access.

Therefore, this criteria has been met.

(B) City infrastructure standards.

Findings: Water, sewer, storm drainage plans will be submitted to the Public Works Department for final plat and construction plan approval at the final plat stage. The tentative site plan illustrates the location of the public utility lines. The proposal meets applicable Salem Area Comprehensive Plan Residential Policies for properties within the Urban Growth Boundary. The proposal encourages the efficient use of developable residential land. Public facilities and services are or will be available to serve the site, including services such as water, sanitary and storm sewer and fire/life/safety services.

The applicant is proposing to divide the subject property into 84 single family residential

lot, with three lots designated for stormwater detention (located north of Lot 82, east of Lot 37, and south of Lot 36). There is also a lot for an S-4 water pump station located between Lots 79 and 80.

Therefore, this criteria has been met.

(C) Any special development standards, including, but not limited to, floodplain development, special setbacks, geological or geotechnical analysis, and vision clearance.

Findings: There are no wetlands or floodplains located on the subject property.

A geological assessment is required for this site. There are landslide hazards identified on the site. A geological assessment has been provided as part of this application packet. This criteria has been met.

(2) The tentative subdivision plan does not impede the future use or development of the property or adjacent land.

Findings: The proposal is for the entire subject property and will be developed into 84 lots. As shown on the site plan. Therefore, a shadow plan is not required.

The properties to the northeast and northwest have the potential to be developed or currently have development approvals. The properties to the west and south are vacant, they are also located outside the City limits. Two stub streets have been provided to the northeast and northwest properties, two stub streets and a pedestrian path have been provided to the south, and a connection to Lone Oak to the west for future development. Due to the topography of the lot to the west, an additional street connection to the west is not feasible.

The applicant has provided sufficient information to show how all the proposed street connections will be provided.

All proposed lots and surrounding properties have direct access onto the existing internal street system. The subdivision does not impede the future use of the property or adjacent land. Adequate connections to adjacent properties have been provided for future development.

Therefore, this criteria has been met.

(3) Development within the tentative subdivision plan can be adequately served by City infrastructure.

Findings: Water, sewer, storm drainage plans will be submitted to the Public Works Department for final plat and construction plan approval at the final plat stage. The tentative site plan illustrates the location of the public utility lines. The proposal meets applicable Salem Area Comprehensive Plan Residential Policies for properties within the Urban Growth Boundary. The proposal encourages the efficient use of developable residential land. Public facilities and services are or will be available to serve the site, including services such as water, sanitary and storm sewer and fire/life/safety services.

The subject property is within ½ mile from Creekside Golf Course to the north, Rees Hill Park and Battle Creek Elementary School to the east. Therefore, the subject property is served by parks.

Water, sewer, storm drainage plans will be submitted to the Public Works Department for final plat and construction plan approval at the final plat stage. The tentative site plan illustrates the location of the public utility lines. On-site detention and a pump station are being provided within the proposed subdivision.

In conclusion, the location and design of the proposed subdivision allows for public sanitary sewer, water service, and storm drainage to be conveniently provided.

Therefore, this criterion has been satisfied.

Proposed Stormwater Management System:

Findings: Stormwater quality and quantity are required for this development. An LID (low impact development) Stormwater technique will be used to mitigate the increase in pollutants contributed from development. This system may also be used to provide storage and water quantity control. The exact system will be determined at the time of design. Any proposed technique will meet City of Salem Stormwater Management standards in means and methods to provide all aspects of Stormwater management.

A Preliminary Drainage Report dated October 12, 2018 was provided and approved as part the original approval.

(4) The street system in and adjacent to the tentative subdivision plan conforms to the Salem Transportation System Plan.

Findings: The major street system is in place due to prior development. Devon Avenue is located to the east of the site and Lone Oak Road is located northwest of the site. Devon Avenue is designated as a 'local street' and Lone Oak Road is designated as a

'collector' on the Salem Transportation System Plan.

The existing and proposed street systems conform to the City's Transportation Plan. All street design and improvements will be determined through the subdivision review process and regulated through the Conditions of Approval. The applicant is also requesting an alternative street standard to allow Lone Oak Road, One Avenue, and Two Avenue to exceed a 12-percent street grade. However, the proposed internal streets will be designed to street standards.

The applicant is requesting an alternative street standard to street grade. As shown on the street section provided, Lone Oak Road will have a 12.25% street grade. One Avenue will have a 14.68% street grade, and Two Avenue will have a 15% street grade. Due to the topography of the site and the proposed street alignments with existing streets, along with required stub street connections, these proposed streets within the subdivision exceed the street grade allowed. The applicant's engineer has provided a detailed memo address the alternative street standard criteria. See attached memo dated May 16, 2019.

Alternative street standards were approved with the original subdivision approval.

The intent of the maximum street grade is to allow vehicles to climb and descend the street safely in all conditions. The internal streets proposed will provide safe and efficient circulation throughout the subdivision. As shown on the street sections provided, there is only curtain sections of each street that will exceed the allowed street grade. All streets within the proposed subdivision will be designed to provide safe and efficient conditions.

There are several access points provided throughout the proposed subdivision which provide alternative access options.

The intent of the standard is being met; therefore, the proposal equally meets the intent of the maximum street grade standard.

The major street network in the area has been established and is consistent with the Transportation System Plan which implements the Comprehensive Plan. Public Works Department will address any applicable requirements for right-of-way conveyance that might be required because of this subdivision.

Therefore, the existing street system and proposed street improvements will be in compliance with the STSP.

Transportation Planning Rule Review:

The City of Salem's TPR encourages a reduction in automobile trips by capitalizing on

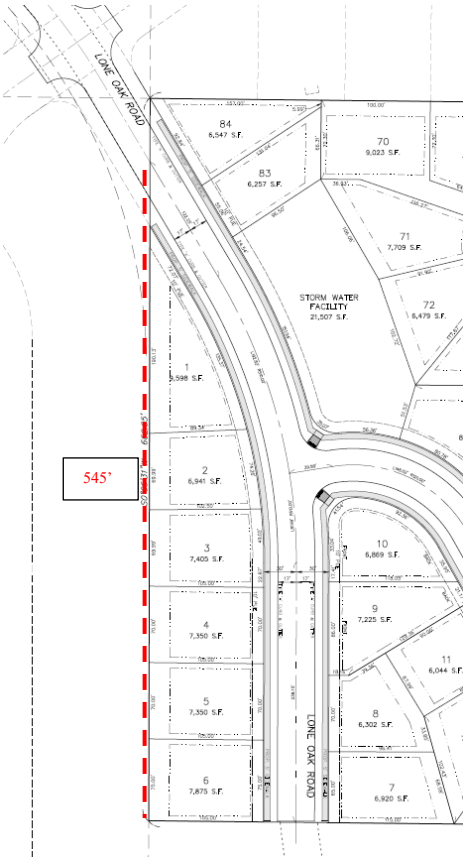
transit opportunities and by creating an environment that encourages people to walk. The proposed subdivision is a "limited land use decision" pursuant to Oregon Revised Statute (ORS) 197.015 and has therefore been reviewed for consistency with the State's TPR multi-modal connectivity requirements.

In conclusion, the development will provide bicycle and pedestrian facilities on-site to encourage people to walk and reduce vehicle trips. The development on the property will allow residents to reduce vehicle usage, by the convenience of bicycle and pedestrian paths to and from the uses and existing sidewalk system. Therefore, the proposed subdivision is in compliance with the intent of the TPR to reduce vehicle usage and encourage other modes of transportation to and from the site.

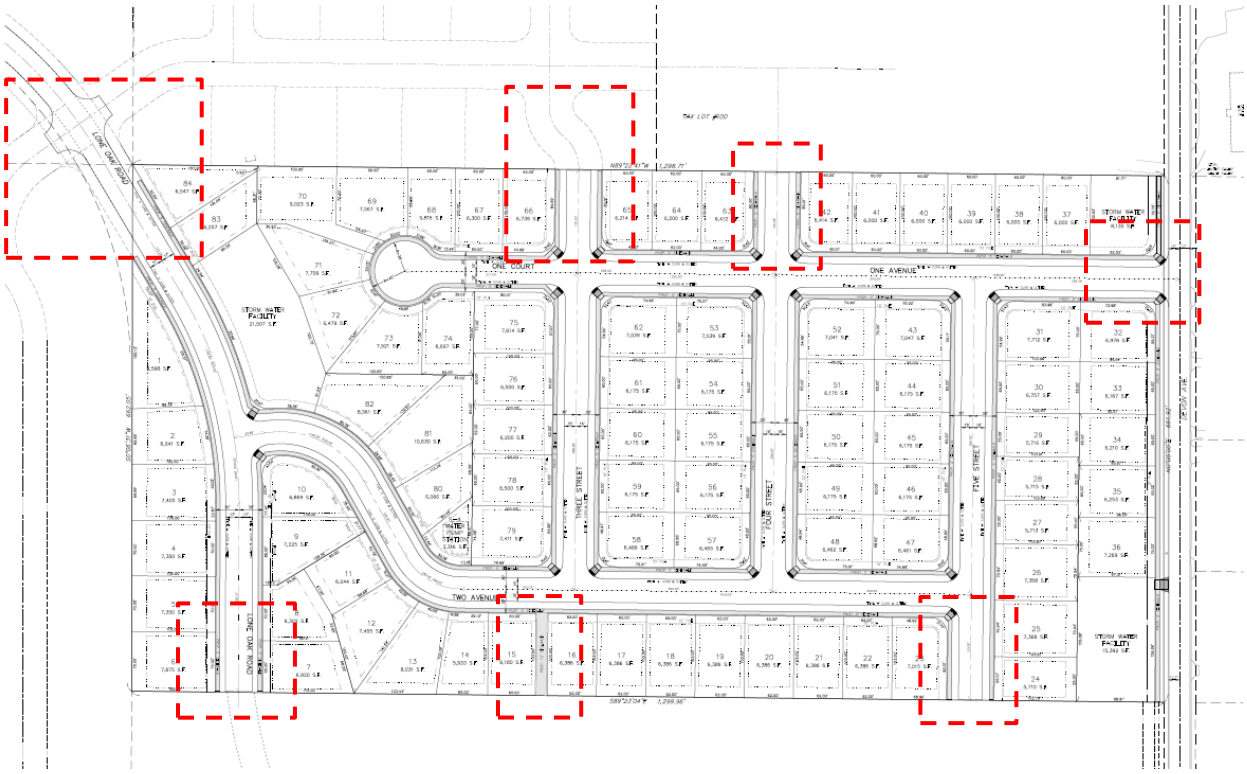
(5) The street system in and adjacent to the tentative subdivision plan is designed so as to provide for the safe, orderly, and efficient circulation of traffic into, through, and out of the subdivision.

Findings: The subject property is located in a developed and developing area where improved streets and sidewalks exist and continue with new development. The local street system serving the development provides the necessary connections and access to the local streets and circulation system serving this residential neighborhood.

Block Length: Blocks shall be a maximum of 600 feet between street centerlines. The length of the blocks was taken into consideration at the time of design layout. The block lengths within the subdivision do not exceed 600 feet in length. There are more than enough street connections within the proposed development.



The properties to the northeast and northwest have the potential to be developed or currently have development approvals. The properties to the west and south are vacant, they are also located outside the City limits. Two stub streets have been provided to the northeast and northwest properties, two stub streets and a pedestrian path have been provided to the south, and a connection to Lone Oak to the west for future development. Due to the topography of the lot to the west, an additional street connection to the west is not feasible.



Two street connections have been provided to the north (northwest and northeast), two street connections to the south along with a pedestrian path, a street connection to the east onto Devon Avenue has been provided, and a connection to Lone Oak to the west. By providing these connections, block length and connectivity have been met.

As shown on the site plan, the proposed subdivision provides a safe an efficient circulation pattern in the development for vehicles and pedestrians.

Access to, within, and from the development must be consistent with applicable requirements of the Transportation Planning Rule Requirements (TPR) that requires that development provide connectivity between land uses and transportation. Under the Rule, developments are responsible for providing for the safe and efficient circulation of vehicles, bicycles, and pedestrians into, through, and out of a development. The proposal develops the subject property within an established residential area where local and arterial streets and mass transit facilities exist. These facilities connect the transportation system to the surrounding residential neighborhoods.

The proposal develops the subject property within an established residential area where local and arterial streets and mass transit facilities exist. These facilities connect the transportation system to the surrounding residential neighborhoods.

The Public Works Department will address the level of street improvements that are roughly proportional to assure conformance to the development to subdivision code and

applicable transportation system plan requirements. Completion of conditions of approval prior to the signing of the final plat will satisfy this criterion for the subdivision application.

In conclusion, the proposed street plan provides the best economic, safe, and efficient circulation of traffic possible under the circumstances. The proposed subdivision demonstrates this review criterion can be met.

Therefore, this criterion has been satisfied.

(6) The tentative subdivision plan provides safe and convenient bicycle and pedestrian access from within the subdivision to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. For purposes of this criterion, neighborhood activity centers include, but are not limited to, existing or planned schools, parks, shopping areas, transit stops, or employment centers.

Findings: The subdivision is served with adequate transportation infrastructure and the street system adjacent the property conforms to the Transportation System Plan and provides for safe, orderly, and efficient circulation of traffic into, through, and out of the subject property on to the public street system.

Therefore, via paved streets and sidewalks, safe and convenient bicycle and pedestrian access will be provided to the site and to adjacent neighborhoods.

Therefore, this criteria has been met.

(7) The tentative subdivision plan mitigates impacts to the transportation system consistent with the approved Traffic Impact Analysis, where applicable.

Findings: The proposal is for an 84-lot subdivision. The size of the proposed subdivision does not warrant the need for a Traffic Impact Analysis. The proposed subdivision plan mitigates impacts to transportation system by providing adequate access and circulation for all 84-lots.

Therefore, this criterion has been met.

(8) The tentative subdivision plan takes into account the topography and vegetation of the site so the need for variances is minimized to the greatest extent practicable.

Findings: All lots are in compliance with the UDC/SRC. Therefore, no variances have been requested.

(9) The tentative subdivision plan takes into account the topography and vegetation of the site, such that the least disruption of the site, topography, and vegetation will result from the reasonable development of the lots.

Findings: The subdivision code requires City approval of lots be suitable for the general purpose for which they are likely to be developed. No lots can be of such a size or configuration that is detrimental to public health, safety, or welfare or sanitary needs of users of the parcel or lot.

The subdivision plan takes into consideration the topography and vegetation of the site. The proposed lots are of sufficient size and dimensions to permit future development. The lot dimensions are illustrated on the tentative site plan and are in conformance to the minimum standards in UDC 510 and 511. Final conformance to minimum lot size and buildable lot area will be confirmed when the final plat is submitted to the City for review and approval.

There are 63 trees located within the boundary of the site. Fifty-two (52) trees are designated for removal, with eleven (11) trees designated to remain. Seventeen (17%) percent of the trees on the site will be preserved. Trees designated for removal are within the right-of-way, the building envelop or within an area close to the building envelope but have the potential of being damaged during grading and construction.

Due to the required street extension to the north, south and west, several trees had to be removed to accommodate the pedestrian and vehicle extensions. Therefore, the removal of these 52 trees is necessary for development of the site.

There are no heritage or significant trees (Oregon White Oak) on the site.

The layout of the lots takes into consideration the topography and vegetation of the site. All lots are in compliance with the UDC. Therefore, no variances have been requested.

Therefore, this criteria has been met.

10) When the tentative subdivision plan requires an Urban Growth Preliminary Declaration under SRC Chapter 200, the tentative subdivision plan is designed in a manner that ensures that the conditions requiring the construction of on-site infrastructure in the Urban Growth Preliminary Declaration will occur, and, if off-site improvements are required in the Urban Growth Preliminary Declaration, construction of any off-site improvements is assured.

Findings: The property and development are located inside the Urban Service Area (USA). However, an Urban Growth Preliminary Declaration is required and has been approved. Urban Growth Area Permit (UGA) 17-06 was approved by staff on May 29, 2018. As required by code, all requirements of the UGA will be met prior to development or recording of the final plat.

Therefore, this criterion has been met.

TREE CONSERVATION/REMOVAL PLAN

There are 63 trees located within the boundary of the site. Fifty-two (52) trees are designated for removal, with eleven (11) trees designated to remain. Seventeen (17%) percent of the trees on the site will be preserved. Trees designated for removal are within the right-of-way, the building envelop or within an area close to the building envelope but have the potential of being damaged during grading and construction.

Due to the required street extension to the north, south and west, several trees had to be removed to accommodate the pedestrian and vehicle extensions. Therefore, the removal of these 52 trees is necessary for development of the site.

There are no heritage or significant trees (Oregon White Oak) on the site.

CLASS-2 ADJUSTMENT

The applicant is requesting an adjustment to SRC 803.035(c):

> ***(c) Alignment and Grade. All streets shall be designed with a vertical alignment that conforms to the Public Works Design Standards. No grade of parkway, major arterial, or minor arterial shall exceed 6 percent. No grade of a collector street shall exceed 8 percent. No grade of a local street shall exceed 12 percent.***

Lone Oak Road runs north/south through the development and is designated as a 'collector' street. One Avenue and Two Avenue run east/west through the site and are designated as 'local' streets. The applicant is requesting an adjustment to allow Lone Oak Road to exceed the 8 percent street grade allowed, and an adjustment to allow One Avenue and Two Avenue to exceed the 12 percent street grade allowed.

The applicant has addressed criteria for Alternative Street Standards. See attached memo dated May 16, 2019.

Adjustment Criteria-SRC 250.005(d)(2) Criteria

> ***(A) The purpose underlying the specific development standard proposed for adjustment is:***
>
> ***(i) Clearly inapplicable to the proposed development; or***
> ***(ii) Equally or better met by the proposed development.***

(B) If located within a residential zone, the proposed development will not detract from the livability or appearance of the residential area.

(C) If more than one adjustment has been requested, the cumulative effect of all the adjustments result in a project which is still consistent with the overall purpose of the zone.

Applicant Findings:

(A) The applicant is requesting an adjustment to street grade. As shown on the street section provided, Lone Oak Road will have a 12.25% street grade. One Avenue will have a 14.68% street grade, and Two Avenue will have a 15% street grade. Due to the topography of the site and the proposed street alignments with existing streets, along with required stub street connections, these proposed streets within the subdivision exceed the street grade allowed.

(B) The intent of the maximum street grade is to allow vehicles to climb and descend the street safely in all conditions. The internal streets proposed will provide safe and efficient circulation throughout the subdivision. As shown on the street sections provided, there is only curtain sections of each street that will exceed the allowed street grade. All streets within the proposed subdivision will be designed to provide safe and efficient conditions.

There are several access points provided throughout the proposed subdivision which provide alternative access options.

The intent of the standard is being met; therefore, the proposal equally meets the intent of the maximum street grade standard.

(C) Due to topography and existing streets in this area, the proposed streets are typical of streets within existing subdivisions within Salem. The streets will be designed to public works standards and will provide efficient circulation throughout the development and to existing surrounding neighborhoods, therefore, the greater street grade will not distract from the livability or appearance of the residential area.

(D) The applicant is not requesting more than one adjustment. Therefore, this criteria is not applicable.

PHASED SUBDIVISION 205-015(D)

Criteria. A tentative phased subdivision plan shall be approved if all of the following criteria are met:

(1) The tentative phased subdivision plan meets all of the criteria for tentative subdivision plan approval set forth in SRC 205.010(d).

Applicant Findings: The subject property is about 19.74 acres in size and zoned RA (Residential Agriculture). The subject property is located at 6719 Devon Avenue. The subject property is identified as 083W22C/Tax Lots 300. The applicant is proposing to divide the subject property into 84 single family residential lot, with four lots designated for stormwater detention.

The applicant is requesting a modification to the SUB19-05 approval to allow the subdivision to be developed in three (3) Phases.

Phase 1: Lots 1-42
Phase 2: Lots 43-65
Phase 3: Lots 66-84

The proposed phased subdivision meets all the criteria for a tentative subdivision as outlined above under SRC 205.010(d).

(2) Connectivity for streets and City utilities between each phase ensures the orderly and efficient construction of required public improvements among all phases.

Applicant Findings: The subject property is located in a developed and developing area where improved streets and sidewalks exist and continue with new development. The local street system serving the development provides the necessary connections and access to the local streets and circulation system serving this residential neighborhood.

Block Length: Blocks shall be a maximum of 600 feet between street centerlines. The length of the blocks was taken into consideration at the time of design layout. The block lengths within the subdivision do not exceed 600 feet in length. There are more than enough street connections within the proposed development.

The properties to the northeast and northwest have the potential to be developed or currently have development approvals. The properties to the west and south are vacant, they are also located outside the City limits. Two stub streets have been provided to the northeast and northwest properties, two stub streets and a pedestrian path have been provided to the south, and a connection to Lone Oak to the west for future development. Due to the topography of the lot to the west, an additional street

connection to the west is not feasible.

Two street connections have been provided to the north (northwest and northeast), two street connections to the south along with a pedestrian path, a street connection to the east onto Devon Avenue has been provided, and a connection to Lone Oak to the west. By providing these connections, block length and connectivity have been met.

As shown on the site plan, the proposed subdivision provides a safe an efficient circulation pattern in the development for vehicles and pedestrians.

Access to, within, and from the development must be consistent with applicable requirements of the Transportation Planning Rule Requirements (TPR) that requires that development provide connectivity between land uses and transportation. Under the Rule, developments are responsible for providing for the safe and efficient circulation of vehicles, bicycles, and pedestrians into, through, and out of a development. The proposal develops the subject property within an established residential area where local and arterial streets and mass transit facilities exist. These facilities connect the transportation system to the surrounding residential neighborhoods.

The proposed phased subdivision will not impede the future development of other phases as shown on the site plan. All phases will have access to the internal street system and the existing street system.

Each phase will ensure the orderly and efficient construction of the required improvements as required by Conditions of Approval and Code compliance. Therefore, this criteria has been met.

(3) Each phase is substantially and functionally self-contained and self-sustaining with regard to required public improvements.

Applicant Findings: Each phase is required to provide the needed improvements to accommodate that phase. Due to the required conditions of approval and City standards all three (3) Phases will be functionally self-contained and self-sustaining as shown on the site plans.

(4) Each phase is designed in such a manner that all phases support the infrastructure requirements for the phased subdivision as a whole.

Applicant Findings: The applicant will be required to comply with conditions of approval that will be designed to ensure that the phases are developed to support the infrastructure requirements for each phase and the subdivision as a whole. See attached site plans.

MODIFICATION CRITERIA-UDC 205-070(D)

Criteria. An application for modification pursuant to this section shall be approved if all of the following criteria are met:

(1) The proposed modification is not substantially inconsistent with the conditions of the original approval; and

Applicant Findings: The modification is in substantial conformance with the original approval and conditions of approval. The modification will not revise or eliminate any of the Conditions of Approval for SUB19-05. The modification is only to create Phase lines as shown on the site plan.

The applicant is requesting a modification to the SUB19-05 approval to allow the subdivision to be developed in three (3) Phases.

Phase 1: Lots 1-42
Phase 2: Lots 43-65
Phase 3: Lots 66-84

Therefore, the modification is not and will not be inconsistent with conditions of original approval.

(2) The proposed modification will not result in significant changes to the physical appearance of the development, the use of the site, and the impacts on surrounding properties.

Applicant Findings: The proposed modification does not result in significant physical changes as shown on the site plan. The only changes are the Phase lines within the approved subdivision. The addition of Phase lines is not a significant change.

Conclusion

The SUB19-05 was approved with 84 lots; the modification is for to add Phase lines to the already approved subdivision.

The applicant is requesting a modification to the SUB19-05 approval to allow the subdivision to be developed in three (3) Phases.

Phase 1: Lots 1-42
Phase 2: Lots 43-65
Phase 3: Lots 66-84

The proposed modification is in compliance with all applicable Code and the original Conditions of Approval. All Conditions of Approval will be met as specified in the SUB19-05, along with requirements of this proposed modified decision.

#6502

CITY OF Salem AT YOUR SERVICE

Pre-Application Report

Community Development Department
Planning Division

555 Liberty Street SE/Room 305
Phone: 503-588-6173
www.cityofsalem.net/zoning

Case Number / AMANDA No.	PRE-AP17-57 / 17-112572-PA
Conference Date and Time	July 17, 2017 at 3:15 pm
Applicant:	MSF Development
Representative:	Multi-Tech Engineering Services, Inc.
Case Manager	Christopher Green, AICP CSG

Pre-Application Conference Required: __X__ **Yes** _____ **No**

Project Description & Property Information	
Project Description	Annexation and development of an 80-lot subdivision for residential development on approximately 19.89 acres just south of the City limits.
Property Address	6719 Devon Avenue SE
Assessor's Map and Tax Lot Number	083W22C00300
Existing Use	Rural residential; vacant
Neighborhood Association	N/A
Adjacent Neighborhood Association	South Gateway Neighborhood Association
Comprehensive Plan Map Designation	Developing Residential
Zoning	UT (Marion County – Urban Transition)
Overlay Zone	N/A
Urban Service Area	The subject property is located outside the City's Urban Service Area. ***Note:*** *Because the property is located outside the Urban Service Area, an Urban Growth Preliminary Declaration may be required for development of the subject property. See comments from Public Works Department.*
Urban Renewal Area	N/A
Past Land Use Actions	N/A

Planning Division Comments

Proposal

Annexation and development of an 80-lot subdivision for residential development on approximately 19.89 acres just south of the City limits.

Additional Planning Comments

- Connectivity to adjacent undeveloped properties is required to the extent that existing or approved development on those properties allows for extension of a safe, efficient street network. In the case of the subject property, this includes multiple street connections to the property to the south (currently shown) and a westward connection from the Lone Oak Road extension to serve Tax Lot 900. The configuration of the currently approved Oak Ridge Estates tentative subdivision on the abutting property to the north does not allow a direct connection from the subject property. In the event that the configuration of the Oak Ridge Estates development changes, a subdivision on the subject property would be required to provide an additional northward connection to Tax Lot 200.

- Based on the level of detail provided, the proposed subdivision appears to meet most development standards. Because the plans provided are conceptual, staff cannot evaluate compliance with more specific standards such as lot dimensions at this time.

Agency Comments

- Staff from the Fire Department submitted comments referring to comments shared in the pre-application conference related to the need to develop a second fire department access for review and approval, or the need to install fire sprinklers in all structures. Fire hydrants will be required, spacing will be determined based on if structures have fire sprinklers or not.

- Staff from the Community Development Department, Building and Safety Division, submitted comments indicating no issues with the proposal at this time.

- Staff from the Public Works Department address issues related to utilities, transportation, and other infrastructure requirements in a separate memo.

- Salem-Keizer Mass Transit District ("Cherriots") submitted comments indicating that the development would be approximately 1.5 miles from the closest transit service. There are no plans at this time to expand service in the vicinity.

Required Land Use Applications

The land use applications checked in the table below have been preliminarily identified as being required for development of the subject property (annexation with comprehensive plan change and zone change) based upon the information provided by the applicant at the time of the pre-application conference. Additional land use applications (urban growth area preliminary declaration, conditional use, site plan review, multiple family residential design review, driveway approach permit) may be required depending on the specific proposal at the time of future development.

The application submittal packets for these applications, which include a summary of the review procedure, submittal requirements, and approval criteria, are attached to this report.

The applicable land use application fees for these applications can be found on the Planning Division's website at the following location: http://new.cityofsalem.net/CityDocuments/planning-fees.pdf#search=land%20use%20fee

Required Land Use Applications					
Zoning		**Site Plan Review**			
	Conditional Use		Class 1 Site Plan Review		
	Comprehensive Plan Change		Class 2 Site Plan Review		
	Zone Change		Class 3 Site Plan Review		
	Temporary use Permit – Class 1	**Design Review**			
	Temporary Use Permit – Class 2		Class 1 Design Review		
	Non-Conforming Use Extension, Alteration, Expansion, or Substitution		Class 2 Design Review		
	Manufactured Dwelling Park Permit		Class 3 Design Review		
Land Divisions		**Historic Design Review**			
	Property Line Adjustment		Major		Minor Commercial
	Property Boundary Verification		Major		Minor Public
	Replat		Major		Minor Residential
	Partition	**Wireless Communication Facilities**			
X	Subdivision		Class 1 Permit		
	Phased Subdivision		Class 2 Permit		
	Planned Unit Development Tentative Plan		Class 3 Permit		
	Manufactured Dwelling Park Subdivision		Temporary		
Relief			Adjustment		
	Adjustment – Class 1	**Other**			
	Adjustment – Class 2	X	Annexation (voter approval)		
	Variance		Annexation (voter-exempt)		
Natural Resources			Sign Adjustment		
X	Tree Conservation Plan		Sign Conditional Use		
	Tree Conservation Plan Adjustment		Sign Variance		
	Tree Removal Permit		SWMU Zone Development Phasing Plan		
	Tree Variance	X	Urban Growth Preliminary Declaration		
	Willamette Greenway Permit – Class 1		Validation of Unit of Land		
	Willamette Greenway Permit – Class 2		Class 2 Driveway Approach Permit		

Consolidated Land Use Application Procedures

When multiple land use applications are required or proposed for a development, the City's land use procedures ordinance (SRC Chapter 300) provides alternatives methods for how such applications may be processed.

The applications may be processed individually in sequence, concurrently, or consolidated into a single application. Where multiple applications proposed to be consolidated include an application subject to review by the Historic Landmarks Commission, the application subject to Historic Landmarks Commission review shall be processed individually in sequence or concurrently.

Multiple land use applications consolidated into a single application shall be accompanied by the information and supporting documentation required for each individual land use action. Review of the application shall be according to the highest numbered procedure type and the highest Review Authority required for any of the land use applications proposed to be consolidated.

Multiple applications processed concurrently require the filing of separate applications for each land use action. Each application shall be reviewed separately according to the applicable procedure type and Review Authority, and processed simultaneously.

Annexation Review Process

Subject to SRC Table 260-1, the existing Developing Residential designation of the property on the Comprehensive Plan Map would result in an automatic zone change to RA (Residential Agriculture) or RS (Single Family Residential) upon annexation. Therefore, no concurrent comprehensive plan change or zone change would be necessary to develop the property as a single family residential subdivision.

The proposed annexation would be a petitioner-initiated annexation subject to the review procedure, submittal requirements, and criteria of SRC Chapter 260, except it would be exempt from requirements related to sending the proposed annexation to the voters if all of the property owners sign the petition. To be exempt from the voter annexation process, the applicant must provide a current deed and a list of all owners of the property, and all of these owners must sign the annexation petition.

The City Council will hold a public hearing to receive public testimony and comments regarding the proposed annexation. Following the public hearing, the City Council will determine whether or not to approve the proposed annexation. If the City Council approves the proposed annexation, it will adopt an ordinance to annex the subject property inside the city limits and withdraw the subject property from special service districts.

The City will notify the State of the territory proposed for annexation. The effective date of the annexation is the date on which the City files the annexation records with the Oregon Secretary of State.

Subdivision Review Process

The review procedure, submittal requirements, and approval criteria for subdivisions can be found under Chapter 205 (Land Division and Reconfiguration). The submittal requirements for a subdivision application are included under SRC 205.030.

Subdivision Approval Criteria. In order for a subdivision to be approved it must be demonstrated that the subdivision meets the approval criteria identified below. The burden is on the applicant to submit sufficient information to demonstrate conformance with the approval criteria.

Tentative Subdivision Plan (SRC 205.010(d)): A tentative subdivision plan shall be approved if all of the following criteria are met:

(1) The tentative subdivision plan complies with the standards of this Chapter and with all applicable provisions of the UDC, including, but not limited to, the following:

(A) Lot standards, including, but not limited to, standards for lot area, lot width and depth, lot frontage and designation of front and rear lot lines.

(B) City infrastructure standards.

(C) Any special development standards, including, but not limited to, floodplain development, special setbacks, geological or geotechnical analysis, and vision clearance.

(2) The tentative subdivision plan does not impede the future use or development of the property or adjacent land.

(3) Development within the tentative subdivision plan can be adequately served by City infrastructure.

(4) The street system in and adjacent to the tentative subdivision plan conforms to the Salem Transportation System Plan.

(5) The street system in and adjacent to the tentative subdivision plan is designed so as to provide for the safe, orderly, and efficient circulation of traffic into, through, and out of the subdivision.

(6) The tentative subdivision plan provides safe and convenient bicycle and pedestrian access from within the subdivision to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. For purposes of this criterion, neighborhood activity centers include, but are not limited to, existing or planned schools, parks, shopping areas, transit stops, or employment centers.

(7) The tentative subdivision plan mitigates impacts to the transportation system consistent with the approved Traffic Impact Analysis, where applicable.

(8) The tentative subdivision plan takes into account the topography and vegetation of the site so the need for variances is minimized to the greatest extent practicable.

(9) The tentative subdivision plan takes into account the topography and vegetation of the site, such that the least disruption of the site, topography, and vegetation will result from the reasonable development of the lots.

(10) When the tentative subdivision plan requires an Urban Growth Preliminary Declaration under SRC Chapter 200, the tentative subdivision plan is designed in a manner that ensures that the conditions requiring the construction of on-site infrastructure in the

Urban Growth Preliminary Declaration will occur, and, if off-site improvements are required in the Urban Growth Preliminary Declaration, construction of any off-site improvements is assured.

If the tentative subdivision is approved, public construction plans for required streets and public infrastructure to serve the subdivision must be reviewed and approved by the City's Public Works Department, the required streets and public infrastructure must be constructed, and a final subdivision plat must be prepared by a land surveyor for recording with the County. Before the final subdivision plat can be recorded with the County, however, it must first be reviewed and signed by the City Surveyor and the Urban Planning Administrator.

Development Standards

Future development of the property will primarily be subject to the provisions of the following chapters of the SRC:

Land Use Application & Development Review Chapters

- SRC Chapter 200 - Urban Growth Management
- SRC Chapter 205 – Land Division and Reconfiguration
- SRC Chapter 260 – Annexation Procedures

Zoning & Development Standards Chapters

- SRC Chapter 86 – Trees and Shrubs
- SRC Chapter 511 – RS – Single Family Residential
- SRC Chapter 800 - General Development Standards
- SRC Chapter 802 - Public Improvements
- SRC Chapter 803 - Streets and Right-of-Way Improvements
- SRC Chapter 804 - Driveway Approaches
- SRC Chapter 805 - Vision Clearance
- SRC Chapter 806 - Off-Street Parking, Loading, and Driveways
- SRC Chapter 808 - Preservation of Trees and Vegetation
- SRC Chapter 810 - Landslide Hazards
- All other applicable provisions of the Salem Revised Code

RS Zone Standards *(SRC Chapter 511)*

The subject property is currently zoned by Marion County as UT (Urban Transition). Upon annexation, the subject property will be automatically rezoned to RA (Residential Agriculture) or RS (Single Family Residential). SRC 265.015(a)(2) provides that when property zoned RA is subject to an approved tentative subdivision plan, the property is automatically rezoned to RS (Single Family Residential) on the date of recording the final subdivision plat with the County. As such, the following summary of applicable development standards is based on the future RS zoning of the property once the final subdivision plat is recorded.

The following summary of applicable development standards is based on the future RS zoning of the property.

- **Use:** The subject property is proposed to be subdivided into approximately 212 lots in order to allow for the development of single family dwellings. The allowed uses within the RS zone are established under SRC 511.005, Table 511-1. Single family dwellings are a

permitted use within the RS zone. Duplexes are permitted on corner lots 7,000 square feet or larger.

- **Lot Standards:** Lot standards within the RS zone are established under SRC 511.010(a), Table 511-2. A summary of the lot standards for single family dwellings within the RS zones is provided in the table below.

RS Zone Lot Standards		
Lot Area	Min. 4,000 sq. ft.	
	Min. 5,500 sq. ft.	Applicable to infill lots.
Lot Width	Min. 40 ft.	
Lot Depth	Min. 70 ft.	
	Min. 120 ft.	Applicable to double frontage lots *(lots with front and rear lots lines abutting a street).*
	Max. 300% of average lot width	
Street Frontage	Min. 40 ft.	
	Min. 30 ft.	Applicable to lots fronting on the turnaround of a cul-de-sac street or the outside curve of a curved street having a radius of 200 feet or less and a direction change of 60 degrees or more. In no case shall the lot width be less than 40 ft. at the front building setback line.

- **Setbacks:** Setbacks for buildings and accessory structures within the RS zone are established under SRC 511.010, Table 511-3. A summary of the required setbacks for single family dwellings within the RS zone is provided in the table below.

RS Zone Setbacks		
Abutting Street	Min. 12 ft.	Applicable along local streets.
	Min. 20 ft.	Applicable along collector or arterial streets.
Interior Front *(Infill Lot)*	Min. 12 ft.	
Interior Side	Min. 5 ft.	
	Min. 10 ft.	Applicable to infill lots *(flag lots)* where the interior side setback abuts lots zoned RA and RS.

RS Zone Setbacks		
Interior Rear	Min. 14 ft.	Applicable to any portion of a building not more than one-story in height.
	Min. 20 ft.	Applicable to any portion of a building greater than one-story in height.

Garage Setback: In addition to the setbacks identified above, the off-street parking, loading, and driveways chapter of the code (SRC Chapter 806) requires, pursuant to SRC 806.025(b), garages facing a street or flag lot accessway to be setback a minimum of 20 feet in order to accommodate a driveway and enough space for vehicles to park on the driveway without projecting into the street right-of-way.

- **Lot Coverage:** Lot coverage requirements within the RS zone are established under SRC 511.010(c), Table 511-4. The maximum lot coverage for single family and two family buildings and accessory structures within the RS zone is 60 percent.

- **Height:** Maximum height limitations within the RS Zone are established under SRC 511.010(c), and Table 511-4. The maximum building height for new single family or two family dwellings within the RS zone is 35 feet. The maximum height for accessory structures within the RS zone is 15 feet.

- **Garages Required:** Pursuant to SRC 511.010(e), each new dwelling constructed within the RS zone after February 8, 2006, is required to have a garage that is constructed of like materials and color as the dwelling and which can be attached to, or detached from, the dwelling.

General Development Standards *(SRC Chapter 800)*

Flag Lots: The applicant's proposal includes four flag lots. SRC 800.025 establishes standards for flag lots and the flag lot accessways to serve them. The lot area and dimensions for flag lots shall conform to the above identified lot area and dimension requirements of the RS zone, provided, however, the above identified lot area and dimension requirements must be met exclusive of the flag lot accessway serving the lots. SRC Chapter 800, Table 800-1, establishes the following standards for flag lot accessways:

Table 800-1: Flag Lot Accessway Standards			
Number of Lots Served by Accessway	**Maximum Length**	**Total Width**	**Paved Width**
1-2 Lots (Residential Zoned Property)	150 ft.(1)	Min. 20 ft.	Min. 15 ft.
3-4 Lots (Residential Zoned Property)	400 ft.(1)	Min. 25 ft.	Min. 20 ft.
Limitations and Qualifications (1) Maximum flag lot accessway length shall not apply where geographic features make it impractical, and when approved by the Planning Administrator following review and recommendation by the Fire Marshal.			

A maximum of 4 lots may be served by a flag lot accessway. Flag lot accessway grade shall conform to the Salem Fire Prevention Code. Flag lot accessways greater than 150 feet in length shall include a turnaround meeting Salem Fire Prevention Code standards. SRC 800.025(e) also places a limit on the maximum number of flag lots that can be included in a subdivision. Not more than 15 percent of the lots within a subdivision can be developed as flag lots.

Street Standards *(SRC Chapter 803)*

Required street improvements are addressed specifically in the comments provided by the Public Works Department. The streets within the proposed subdivision must conform to the standards included in SRC Chapter 803 (Streets and Right-of-Way Improvements). Identified below are some important standards from SRC Chapter 803 that affect the layout of streets within proposed subdivisions.

- **Street Spacing/Block Standards *(SRC 803.030):***

  - **Length:** Maximum 600 feet from right-of-way line to right-of-way line, unless greater length justified by special conditions.

  - **Width:** Maximum 400 feet / Minimum 120 feet.

- **Street Connectivity *(SRC 803.035(a))*:** Applicants submitting preliminary development plans shall provide for local streets oriented to or connecting with existing or planned streets, existing or planned schools, parks, shopping areas, transit stops, and employment centers located within one half mile of the development. Applicants shall also provide for the extension of local streets to adjoining undeveloped properties and eventual connection with the existing street system. Connections to existing or planned streets and undeveloped properties along the border of the property shall be provided at no greater than 600-foot intervals unless physical conditions make a street connection impossible or it would violate the provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995.

  As described earlier in this memo, street connectivity is required to adjacent properties and street spacing/block length standards must be met unless topographic conditions or adjacent developments make those connections impracticable. Based on the conceptual layout provided at this time, it appears that the row of lots on the west side of the Lone Oak Road extension exceed the block length standard, and a street connection is needed to the abutting property to the west. The subject property is approximately 1,304 feet in width, so at least one southward connection is needed between the existing Devon Avenue SE and the proposed extension of Lone Oak Road SE. If only one southward connection is made in the space between these streets, it must be located to allow blocks on either side to meet the street spacing standards set forth in SRC 803.030.

  Street Grade *(SRC 808.035(c))*:

  - **Parkway and Arterial Streets:** Max. 6%
  - **Collector Street:** Max. 8%
  - **Local Street:** Max. 12%

  The proposed streets within the subdivision will be local streets and must therefore conform to a maximum grade of 12 percent.

- **Cul-de-sac Length *(SRC 803.035(f))*:**

  - **Length:** Maximum 800 ft., provided no portion of the cul-de-sac is more than 400 feet from an intersecting street or cul-de-sac unless physical constraints make it impractical.

Natural Resources

- ***Trees (SRC Chapter 808):*** There are trees present on the subject property. The City's tree preservation ordinance (SRC Chapter 808) protects Heritage Trees, Significant Trees *(including Oregon White Oaks with diameter-at-breast-height of 24 inches or greater)*, trees and native vegetation in riparian corridors, and trees on lots and parcels greater than 20,000 square feet. The tree preservation ordinance defines "tree" as, "any living woody plant that grows to 15 feet or more in height, typically with one main stem called a trunk, which is 10 inches or more dbh, and possesses an upright arrangement of branches and leaves."

  Because there are trees present on the subject property, a tree conservation plan will be required in conjunction with the proposed subdivision. Under the City's tree preservation ordinance, tree conservation plans are required to preserve all heritage trees, significant trees, trees and native vegetation within riparian corridors, and a minimum of 25 percent of the remaining trees on the property.

  If less than 25 percent of the existing trees on the property are proposed for preservation, the applicant must show that only those trees reasonably necessary to accommodate the development are designated for removal.

- ***Wetlands (SRC Chapter 809):*** According to the Salem-Keizer Local Wetland Inventory (LWI), there are no wetland areas mapped on the subject property.

- ***Landslide Hazard Susceptibility (SRC Chapter 810):*** According to the City's adopted landslide hazard susceptibility maps, there are large areas on the subject property with 2 landslide hazard points. There are 3 activity points associated with subdivisions. Pursuant to the City's landslide hazard ordinance (SRC Chapter 810), the cumulative total of 5 points indicates a moderate landslide hazard risk and a geologic assessment may be required in conjunction with the proposed development.

Neighborhood Association Contact Information

Staff recommends that applicants/property owners contact the neighborhood association regarding their proposals as soon as possible. This allows for the neighborhood association to be involved early in the process and helps to identify any potential issues that might arise.

Neighborhood Association(s):	South Gateway Neighborhood Association
Meeting Date, Time, & Location:	2nd Thursday of each month, 6:30 p.m. Our Savior's Lutheran Church 1770 Baxter Road SE
Neighborhood Association Chair	T.J. Sullivan tj@huggins.com

Specific contact information for neighborhood representatives may also be obtained by contacting the City's Neighborhood Enhancement Division at 503-588-6207 or by visiting the City's website: http://www.cityofsalem.net/south-gateway-neighborhood-association.

Salem Revised Code Available On-Line

For specific reference to the requirements of the Salem Revised Code (SRC) discussed in this report, the code can be accessed on-line through the City's website at: http://www.cityofsalem.net/Pages/salem-revised-code.aspx

DEVON ESTATES PHASE 1

SEC. 22, T. 8 S., R. 3 W., W.M.
CITY OF SALEM
MARION COUNTY, OREGON

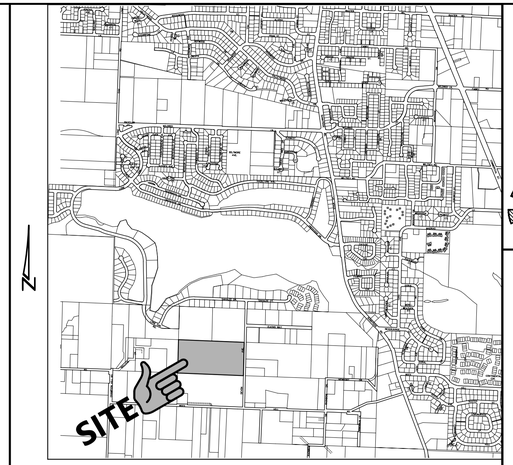
Owner / Developer:

HSF Development, LLC

3245 BOONE ROAD SE
SALEM, OREGON 97317

T.B.M. 487.21 NGVD 29
ALUMINUM CAP CENTERLINE MONUMENT AT THE INTERSECTION OF SAHALEE DR. AND LONE OAK ROAD

LONE OAK ROAD SE
SAHALEE CT SE
TAX LOT #100
N89°22'41"W 1,298.71'
LONE OAK ROAD
S0°06'31"W 662.05'
ONE COURT
ONE AVENUE
ONE AVENUE
STORM WATER FACILITY
STORM WATER FACILITY
THREE STREET
FOUR STREET
FIVE STREET
PHASE 1
PHASE 2
PHASE 3
S-4 WATER PUMP STATION
TWO AVENUE
TWO AVENUE
STORM WATER FACILITY
N0°00'00"E 661.92'
S89°23'04"E 1,299.96'
LONE OAK ROAD
LONE OAK ROAD
REES HILL ROAD SE



VICINITY MAP

N
W E
S
0' 80'
1 INCH
SCALE: 1" = 80'

MULTI/TECH
ENGINEERING SERVICES, INC.
1155 13th ST. S.E. SALEM, OR. 97302
PH. (503) 363-9227 FAX (503) 364-1260
www.mtengineering.net office@mtengineering.net

OVERALL SITE PLAN

DEVON ESTATES PHASE 1

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.

DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

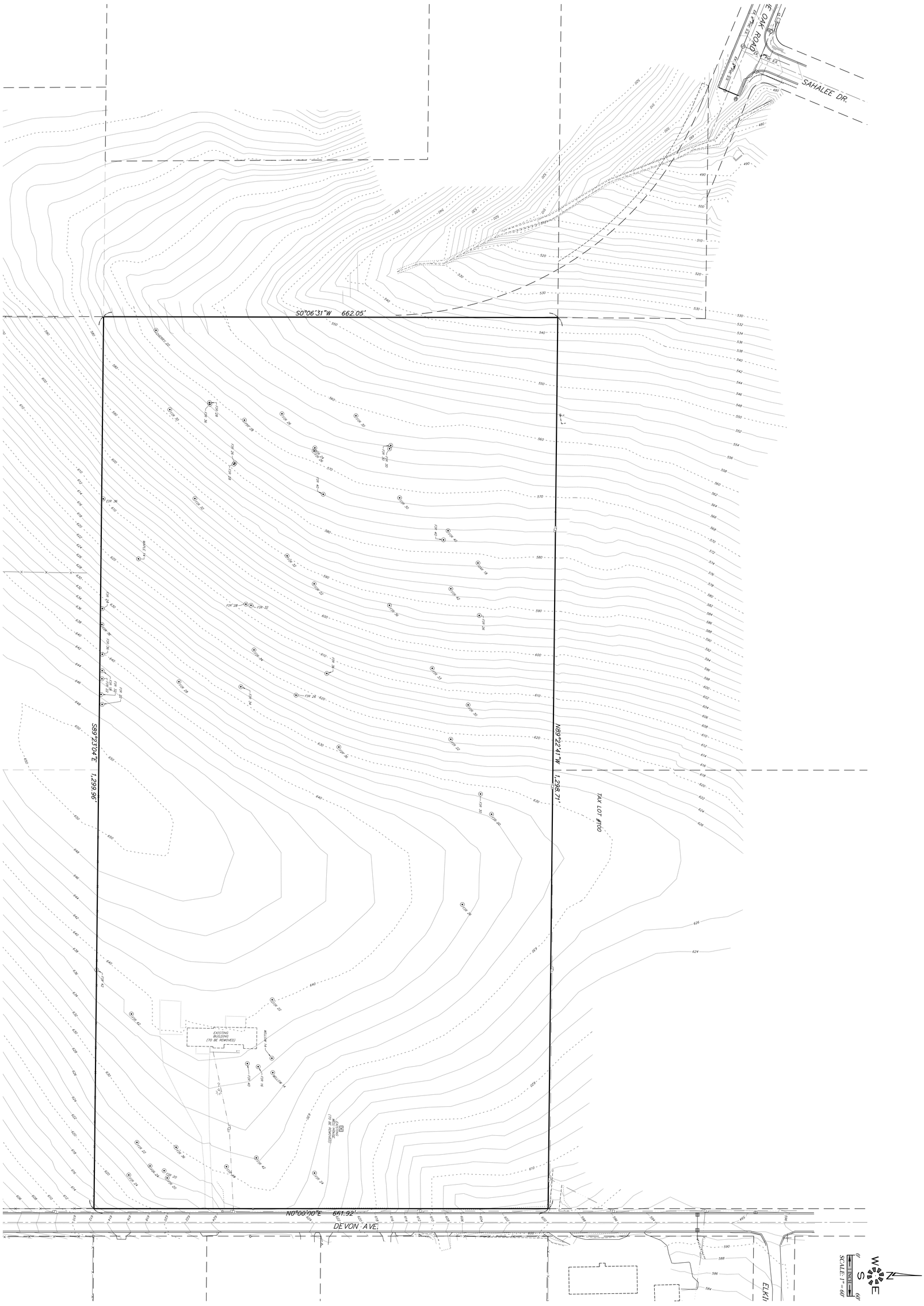
6502sitePlan 100SITE
Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN
As-Built: ____

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK GORENZ
EXPIRES: 06-30-2021

JOB # 6502

100

J:\6500-6599\6502-DevonAvenueSubdivision\Dwg20\6502SitePlan.dwg, 100SITE, 12/6/2019 9:44:02 AM, PSaunders



P102

JOB # 6502

EXPIRES: 06-30-2019

6502p P102XC

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN

DEVON ESTATES

EXISTING CONDITIONS PLAN - ONSITE -

MULTI/TECH
ENGINEERING SERVICES, INC.
1155 13th ST. S.E. SALEM, OR. 97302
PH. (503) 363 - 9227 FAX (503) 364-1260
www.mtengineering.net office@mtengineering.net

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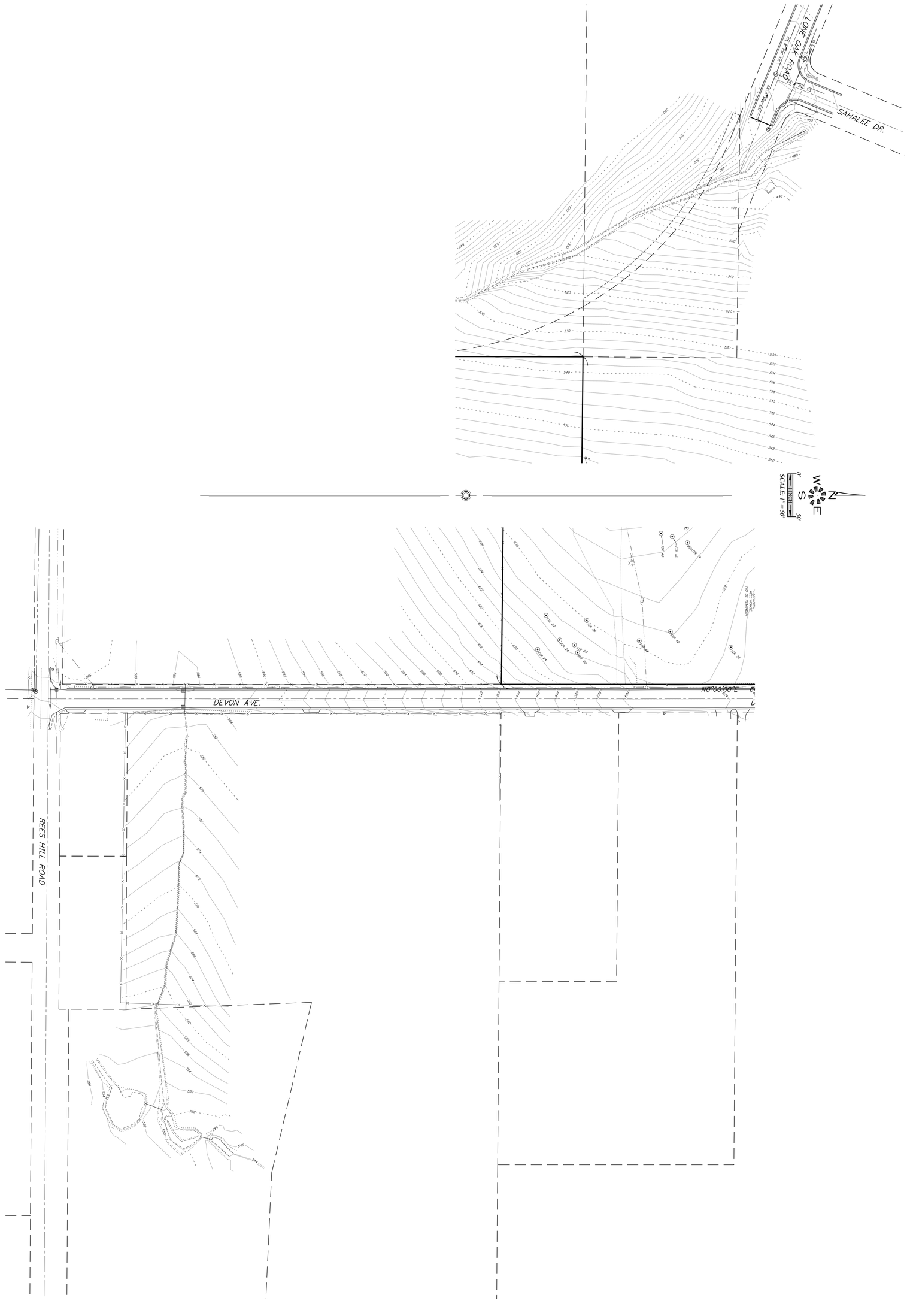

P103	JOB # 6502	EXPIRES: 06-30-2019	6502p P103XC Design: M.D.G. Drawn: P.H.S. Checked: B.M.G. Date: NOV. 2017 Scale: AS SHOWN	NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER. DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.	**DEVON ESTATES**

EXISTING CONDITIONS PLAN - OFFSITE -

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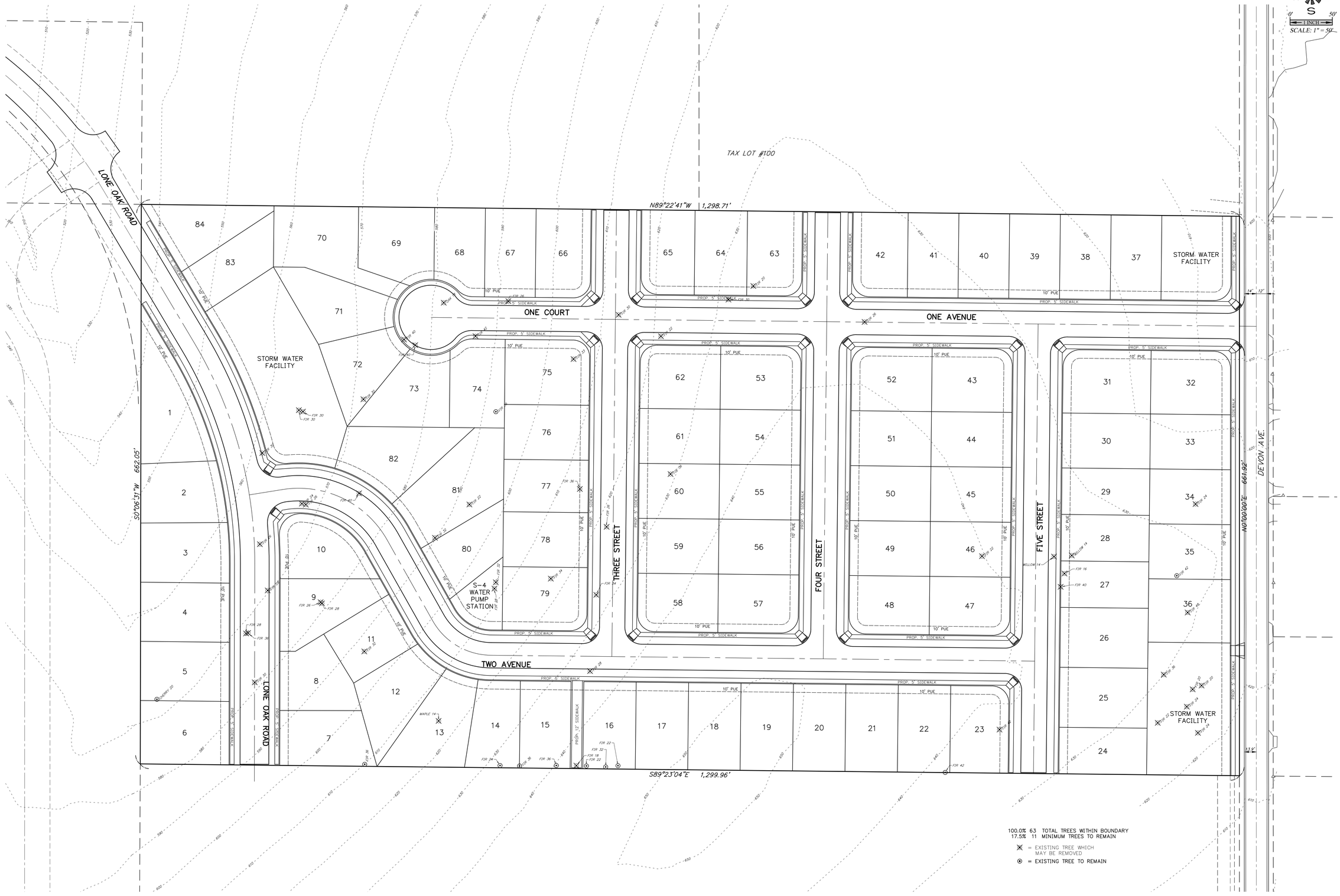

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TREE CONSERVATION PLAN

DEVON ESTATES

P.H.S. 06/24/2019
6502D P104TREE

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ

EXPIRES: 06-30-2019

JOB # 6502

P104

1. REVISED LOT LAYOUT

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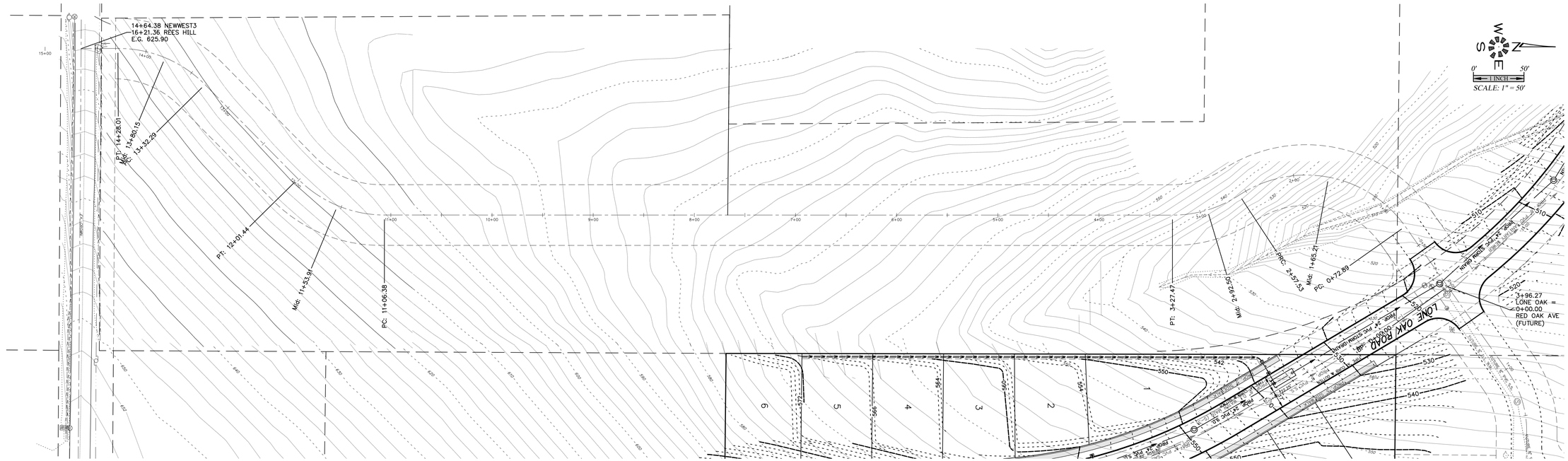

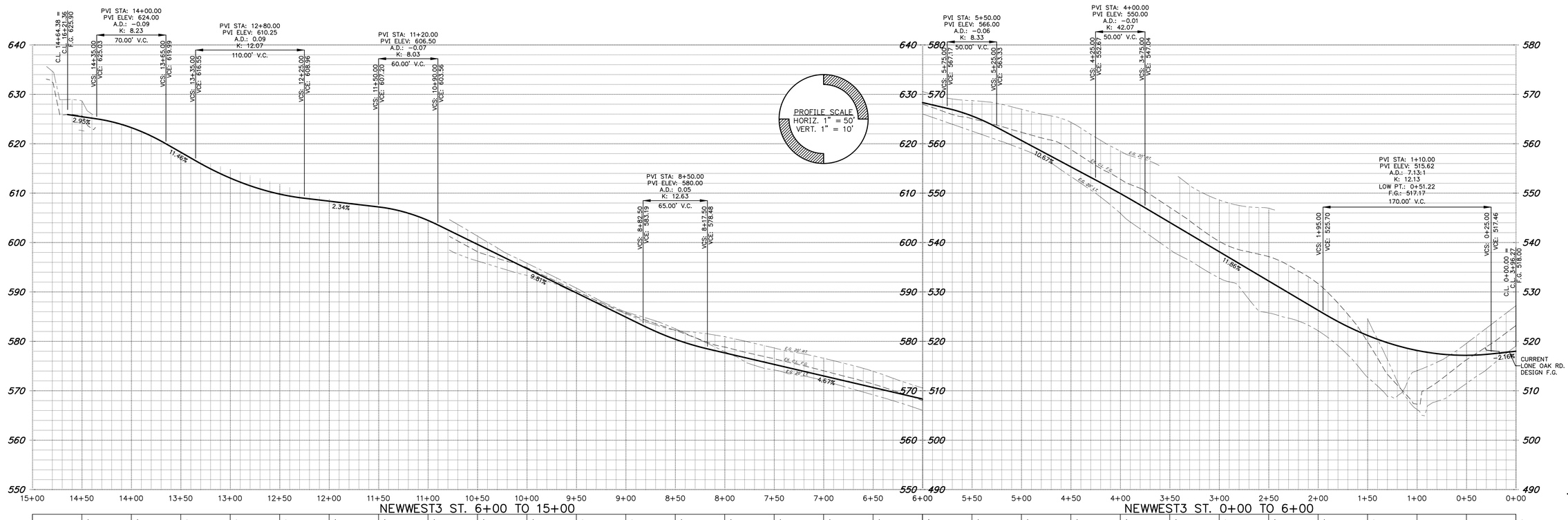

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FUTURE STREET CONNECTION

DEVON ESTATES

MULTI/TECH ENGINEERING EXEMPT FROM LIABILITY IF NOT STAMPED APPROVED

NOT FOR CONSTRUCTION UNLESS STAMPED APPROVED HERE

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.

DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

P.H.S. 06/17/2019
6502p P511STS

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN
As-Built: ----

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2019

JOB # 6502

P511

1. REVISED ALIGNMENT

J:\6500-6599\6502-DevonAvenueSubdivision\Dwg\6502s.dwg, P511STS, 6/18/2019 12:15:58 PM, PSaunders

CITY OF Salem AT YOUR SERVICE

Tree Conservation Plan Application

Planning/Permit Application Center
City Hall / 555 Liberty St. SE / Room 320 / Salem, OR 97301-3513
503-588-6173 * planning@cityofsalem.net
If you need the following translated in Spanish, please call 503-588-6256.
Si usted necesita lo siguiente traducido en español, por favor llame 503-588-6256.

(For office use only)
Permit #:

Work site location and information

Street address or location of subject property	6719 Devon Avenue SE
Lot size	19.74 Acres
Proposed use or type of development	SFD Subdivision

People information

	Name	Full Mailing Address	Phone Number and Email address
Applicant	HSF Development, LLC	3425 Boone Road SE Salem, Oregon 97317	503-363-9227

Project information

How many trees are on the property (10" or more dbh)? (**Tree** means any living, standing, woody plant that grows to 15 feet or more in height, typically with one main stem called a trunk, which is 10 inches or more in dbh, and possesses an upright arrangement of branches and leaves (SRC 808.005(n)). **dbh** means diameter at breast height. Diameter at breast height is a tree's diameter measured in inches at 4½ feet above grade.).	63
How many trees are proposed for removal? Removal means to cut down a tree or remove 30% or more of the crown, trunk, or root system of a tree; or to damage a trees so as to cause the tree to decline or die.	52
How many trees are proposed for preservation?	11
What percentage of the total trees will be preserved?	17.5%
If any riparian corridors are present on the site, name of the waterway The riparian corridor boundary is measured 50 feet horizontally from the top of bank on each side of a stream with the exception of the Willamette River, which measures 75 feet horizontally form the top of bank.	NA
How many trees within a riparian corridor are proposed for removal?	0
What type of native vegetation within a riparian corridor proposed for removal? A list of native vegetation can be found in the Tree and Vegetation Technical Manual (SRC 808.005(o)).	NA
How many Oregon White Oaks 24" or more dbh are proposed for removal?	0

Authorization by property owner(s)/applicant

***If the applicant and/or property owner is a Limited Liability Company (LLC), please also provide a list of all members of the LLC with your application.**

Copyright release for government entities: I hereby grant permission to the City of Salem to copy, in whole or part, drawings and all other materials submitted by me, my agents, or representatives. This grant of permission extends to all copies needed for administration of the City's regulatory, administrative, and legal functions, including sharing of information with other governmental entities.

Electronic signature certification: By attaching an electronic signature (whether typed, graphical or free form) I certify herein that I have read, understood and confirm all the statements listed above and throughout the application form.

Authorized Signature: Brandie Dalton

Print Name: Brandie Dalton Date: 9-12-19

Submittal requirements

1) **Site Plan**: Of a size and form and in the number of copies meeting the standards established by the Planning Administrator, containing information found in SRC 808.035(c)(1).
2) **Written Statement**: If the proposed tree conservation plan results in removal of significant trees, trees or native vegetation in a riparian corridor or shows preservation of less than 25 percent of the trees on site, a statement shall be provided demonstrating that there are no reasonable design alternatives that would enable preservation of such trees.
3) **Additional items that may be submitted or requested**: When a riparian corridor is located on the property, the tree conservation plan shall include the information found in SRC 808.035(c)(2).

Appeal and review

The decision on a Tree Conservation Plan may be appealed, pursuant to SRC 300.1010. Only the applicant or the owner of the subject property have standing to appeal the decision of a Tree Conservation Plan. The decision of Hearings Officer on appeal shall be the final decision of the City.

Not using Internet Explorer?
Save the file to your computer and email to planning@cityofsalem.net.

CITY OF Salem AT YOUR SERVICE

City of Salem, Oregon
Community Development Department
Planning Division

Permit Application Center
Phone: 503-588-6213
Fax: 503-588-6005
www.cityofsalem.net/planning
@Salem_Planning

Expedited Land Division Application Form (ORS 197.360-380)

What is an Expedited Land Division?

The expedited land division process provides an alternative to the standard procedures for certain land division requests. An applicant may choose to use the expedited land division process if their land division request meets all of the applicable requirements specified in Oregon Revised Statute (ORS) 197.360 (see reverse side). The steps in this procedure differ from the regular subdivision procedure, but still include a public review and opportunity for appeal. The steps are described in ORS 197.365-375.

Is it faster than the regular subdivision process?

The expedited land division process is intended to streamline the regular land use process that land divisions normally follow under state law, which allows up to 120 days for final city approval. In Salem, however, the typical processing time for a land division application (subdivision, partition, or replat) that meets city standards and is complete when submitted, is far less than the 120 days that state law allows. Therefore, in Salem, in many cases there is no difference in processing time between a regular land division and expedited land division.

What are the requirements to qualify for the Expedited Land Division process?

ORS 197.360 lists the requirements to qualify for an expedited land division review. These requirements are summarized below. The full text of ORS 197.360 is included on the reverse side of this form.

The proposed land division (i.e. subdivision, partition, or replat):

1. Must be on residentially zoned land and must be solely for the purposes of residential use;
2. Must not create building lots that provide for dwellings or accessory buildings within areas that contain natural resource protections, such as, but not limited to, the Willamette Greenway;
3. Must satisfy all City street standards and connectivity requirements; and
4. Must either:
    a. *Create enough lots or parcels to allow building residential units at 80 percent or more of the maximum net density permitted by the zoning designation of the site; or*
    b. *Will be sold or rented to households with incomes below 120 percent of the median family income for the county in which the project is built.*

Why am I receiving this application form for Expedited Land Division now?

The expedited land division process has existed since 1995; however, the 2015 Oregon Legislature required that all land division applicants be notified of the expedited land division option and how to apply.

Are you applying for an Expedited Land Division?

Yes ☐ **No** ☒ (If yes, then attach a written description of how the proposal satisfies ORS 197.360)

Applicant Name: HSF Development, LLC Telephone: 503-363-9227

Applicant Mailing Address: 3425 Boone Rd. SE

Site Address: 6719 Dexon Ave

Brandie Dalton Brandie Dalton 7-5-18

(Signature) (Print Name) (Date)

CITY OF Salem AT YOUR SERVICE

City of Salem, Oregon
Community Development Department
Planning Division

Permit Application Center
Phone: 503-588-6213
Fax: 503-588-6005
www.cityofsalem.net/planning
@Salem_Planning

Application Form: Tree Conservation Plan

Applicant Name: HSF Development, LLC Telephone: 503-363-9207

If the applicant and/or property owner is a Limited Liability Company (LLC), please also provide a list of all members of the LLC with your land use application.

Applicant Mailing Address: 3425 Boone Rd SE, Salem 97317

Site Address: 6719 Devon Avenue SE

Proposed Use or Type of Development: S.D. Lot Size (sq. ft.): 19.74 acres

How many trees[1] are on the property (10" or more dbh[2])? 63

How many trees are proposed for removal[3]? 47 How many trees are proposed for preservation? 16

What percentage of the total trees will be preserved? 25 %

Are any riparian corridors[4] present on the site? Yes ☐ No ☒ If yes, name of waterway? _____

Are any of the following proposed for removal?

- Oregon white oak 24" or more dbh[2] Yes ☐ No ☒ If yes, how many? _____
- Tree within a riparian corridor[4] Yes ☐ No ☒ If yes, how many? _____
- Native vegetation in a riparian corridor[4] Yes ☐ No ☒ If yes, what type? _____

Brandie Dalton (Signature) Brandie Dalton (Print Name) 7-5-18 (Date)

Submittal Requirements:

1) *Site Plan:* Of a size and form and in the number of copies meeting the standards established by the Planning Administrator, containing information found in SRC 808.035(c)(1).
2) *Written Statement:* If the proposed tree conservation plan results in removal of significant trees, trees or native vegetation in a riparian corridor or shows preservation of less than 25 percent of the trees on site, a statement shall be provided demonstrating that there are no reasonable design alternatives that would enable preservation of such trees.
3) *Additional items that may be submitted or requested:* When a riparian corridor is located on the property, the tree conservation plan shall include the information found in SRC 808.035(c)(2).

Appeal and Review:

The decision on a Tree Conservation Plan may be appealed, pursuant to SRC 300.1010. Only the applicant or the owner of the subject property have standing to appeal the decision of a Tree Conservation Plan. The decision of Hearings Officer on appeal shall be the final decision of the City.

[1]Tree means any living, woody plant that is at least 10" dbh and 15' in height, typically with one main stem (trunk) and an upright arrangement of branches & leaves.

[2]dbh means diameter at breast height. Diameter at breast height is a tree's diameter measured in inches at 4½ feet above grade.

[3]Removal means to cut down a tree or remove 30% or more of the crown, trunk, or root system of a tree; or to damage a trees so as to cause the tree to decline or die.

[4]Riparian Corridor is a boundary is measured 50 feet horizontally from the top of bank on each side of a stream with the exception of the Willamette River, which is measured 75 feet horizontally from the top of bank.

CITY OF Salem
AT YOUR SERVICE

Traffic Engineering Section
Public Works Department
555 Liberty Street SE, Room 325 Telephone: 503-588-6211
Salem, Oregon 97301-3513 TTY: 503-588-6292

Trip Generation Estimate

Street _____

Bin # _____ TGE # _____

Date Received _____

Section 1 (To be completed by applicant.)

Applicant Name: Mark Grenz, P.E Telephone: 503-363-9227

Applicant Mailing Address: 1155 13th St SE, Salem, OR 97302

Location of New Development: 6719 Devon Ave
(Please provide street address. If unknown, provide approximate address and geographical description/nearest cross streets.)

Description and Size of New Development: 86-Lot Subdivision
(e.g., 150 single-family homes, 20,000 sq. ft. office addition, 12-pump gas station, 50-student day care, additional parking, etc.)

Description and Size of Existing/Past Development, if any (note whether to remain or be removed): Vacant

Planning Action Involved, if any: Subdivision
(e.g., zone change, subdivision, partition, conditional use, PUD, mobile home park, etc.)

Building Permit Involved: Yes ☐ No ☒

Section 2 (To be completed by City staff.)

Proposed Use	Existing Use
Development Quantity:	Development Quantity:
ITE Land Use Code:	ITE Land Use Code:
Trip Generation Rate/Equation:	Trip Generation Rate or Equation:
Average Daily Trips:	Average Daily Trips:
ELNDT Adjustment Factors	**ELNDT Adjustment Factors**
Trip Length: Linked Trip:	Trip Length: Linked Trip:
TSDC Trips:	TSDC Trips:

Section 3 (To be completed by City staff.)

Transportation Impact Analysis (TIA)

Net Increase in Average Daily Trips: _____
(Proposed use minus existing use.)

☐ A TIA **will** be required:
- ☐ Arterial/Collector—1000 Trip/day Threshold
- ☐ Local Street/Alley—200 Trip/day Threshold
- ☐ Other: _____

☐ A TIA **will not** be required.

Transportation Systems Development Charge

Net Increase in TSDC Trips: _____
(Proposed use minus existing use.)

☐ A TSDC **will** be required.
(Fee determined by Development Services.)

☐ A TSDC **will not** be required.

(For additional information, refer to the back of this application.)

Section 4 (To be completed by City staff.)

Remarks: Date: _____

cc: ☐ Chief Development Services Engineer
☐ Community Development
☐ Building Permit Application
☐ _____ By: _____

6502

PRELIMINARY DRAINAGE REPORT
FOR

Devon Estates
Salem, Oregon

Prepared For:
HSF Development, LLC
3245 Boone Road SE
Salem, Oregon 97317

July 1, 2019

MULTI/TECH
ENGINEERING SERVICES, INC.

1155 13th Street SE
Salem OR 97302
www.mtengineering.net

PHONE: (503) 363-9227
FAX: (503) 364-1260
EMAIL: mgrenz@mtengineering.net

Contents

INTRODUCTION

The Devon Estates development is a proposed 86 lot subdivision located south of Sahalee Court SE and west of Devon Avenue SE. The parcel of land to be developed is Tax Lot 300 of Marion County Assessor's Map 08 3W 22C. A vicinity map and supporting maps are in Appendix A of this report.

Project Site

Green Stormwater Infrastructure (GSI) to the Maximum Extent Feasible (MEF) is being used for the new developed areas along the easterly side of the development per City of Salem Administrative Rules, Chapter 109, Division 004, Stormwater System, Appendix 4E (Standards). Because of natural steep slopes at approximately 10 percent, stormwater quality will be proposed as Manufactured Treatment Technologies; Contech Stormwater Solutions Inc. stormfilters using ZPG media devices for the westerly side of the development. Stormwater flow control facilities will be constructed to meet the City of Salem standards.

Existing Conditions

The 19.7-acre site is generally rectangular in the shape. Surface conditions consists of grass, brush and minimal trees. There are no identified wetlands, streams or sensitive areas located on the property. A topographical high point is located on the southerly side of the site. Drainage from this high point flows westerly and easterly. The maximum relief is approximately 112-feet with a high point elevation of 651. The abutting properties are zoned single family residential with nearby public improvements that include minimal storm water conveyance systems. Infrastructure will be designed and constructed to connect to these systems. Appendix A contains multiple maps of the site.

Soils

The Natural Resources Conservation Service (NRCS) Soil Resource Report for Marion County was used to determine a Hydrological Soil Group classification for runoff calculations. The report identifies the site soils to be Jory, Nekia and Salkum soils. The predominate soils are in the hydrologic soil group C. The report is in Appendix B.

Infiltration

Infiltration testing was performed at the site to determine percolation rate of the soil. Test results recommend design infiltration rates between 0.3 and 0.4 inches per hour. Appendix B contains an excerpt from the geotechnical report with recommended infiltration rates.

Water Quality Methodology

Because of the poor percolation rates of the soils and natural steep slopes located on the site, green stormwater facilities will be designed as volume control facilities with off-site water quality swales for the easterly side. Volume control facilities with Manufactured Treatment Technology devices for the westerly side.

Water Quality Analysis

Water quality flow rates will be calculated with HydroCAD 10.00. The Santa Barbara Unit Hydrograph method will be used to generate the hydrographs. A Type 1A storm and a 24-hour rainfall depth of 1.38 inches per hour will be used to determine the water quality flow rate.

Water Quality Swale Design

The proposed water quality swale will provide water quality treatment by slowing the stormwater down, allowing for the removal of pollutants through sedimentation, adsorption onto surrounding

vegetation, filtration and biological uptake. The swale will be designed per the City of Salem design standards.

Manufactured Treatment Technology Design

The proposed manufactured treatment device will be CONTECH Stormwater Solutions storm filters using ZPG media. The system will be designed in accordance to the manufacturer's recommendations per City of Salem design standards.

Stormwater Quantity Analysis

Stormwater quantity (Flow Control) is proposed to be handled by on-site detention. Runoff from the developed basins will be routed to the facilities that ultimately controls runoff to pre-developed flow rates. It should be noted that the site currently has three independent drainage basins and were analyzed independently.

Per Subsection 4.2(p)(3)(A) of the standards, one-half of the post development peak runoff rate of the two-year storm must be equal to or less than one-half of the peak runoff rate of the pre-developed two-year, 24-hour storm. This also applies to the 10-year, 24-hour storm event. Because the facility will be a volume based, the system will retain the 100-year event for post-developed conditions and control the flow to pre-developed conditions.

The pre-developed flow rates were calculated using HydroCAD 10.00. Table 1 below lists the 24-hour rainfall depths used for the analysis of each storm event. Please note that the 2-year event was halved and then analyzed.

Table 1

Storm Event (year)	24-hour Rainfall Depth (in)
Half of 2	1.1
10	3.2
100	4.4
WQ	1.38

For the pre-developed conditions, a time of concentration of 22.2 minutes was calculated for Basin 1, 21.6 minutes for Basin 2A and 18.6 minutes for Basin 2B. The time of concentration data is in Appendix C. The calculations are incorporated in the HydroCAD output located in Appendix D. The entire area was

classified as "City of Salem Pre-Development, HSG C" with a Curve Number (CN) of 72. A pre-developed basin map is in Appendix A. Because portions of Devon Avenue will drain into the Basin 2 systems, the areas were included in the pre-developed areas. The portion of the right-of-way was assumed to be impervious and a CN value of 98 was used in the analysis.

The Santa Barbara Unit Hydrograph method was used to generate the hydrographs. A Type 1A rainfall distribution was used with the above rainfall depths. Table 2 below identifies the allowable pre-developed release rates for each storm event.

Table 2

Storm Event	Basin #1 Allowable Release Rate (cfs)	Basin #2A Allowable Release Rate (cfs)	Basin #2B Allowable Release Rate (cfs))
1/2 of 2-year	0.09	0.05	0.02
10-year	2.61	1.25	0.61
100-year	5.04	2.37	1.12

The post-developed flow rates were calculated using HydroCAD 10.00. A time of concentration of 10 minutes was assumed for all basins. The calculations are incorporated in the HydroCAD output located in Appendix D. Each on-site basin was classified as 60 percent "Impervious, HSG C" with a CN of 98 and 40 percent “> 75% Grass cover, HSG C” with a CN of 74. This was based on code setback requirements and City street section standards. Off-site areas contributing to the development’s drainage system were classified as "City of Salem Pre-Development, HSG C" with a Curve Number (CN) of 72 or “Impervious, HSG C” with a CN of 98. Table 3 below lists the CN values for the developed areas that will contribute storm water runoff to the detention systems. A developed basin map is in Appendix A.

Table 3

Basin	Impervious Area (Ac) CN = 98	Landscape Area (Ac) CN = 74	Exist. Impervious Area (AC) CN = 98	TOTAL Area (Ac)	Composite CN
Basin 1A	6.25	4.16	0	10.41	88
Basin 1B	0.64	0.43	0	1.07	88
Basin 2A	0.84	0.57	0.15	1.56	89
Basin 2B	4.11	2.74	0.18	7.03	89

Table 4 below identifies the calculated detention volume requirements for each storm event. The required detention was determined by taking the differential runoff volume from each hydrograph between the pre-developed and post-developed conditions for the three storm events and multiplying by 0.80. Multiplying by 0.80 gives the best approximation for facility sizing and reduces design iterations.

Table 4

Storm Event	Basin #1A Detention Volume (cf)	Basin #2A Detention Volume (cf)	Basin #2B Detention Volume (cf)
1/2 of 2-year	15,000	750	10,400
10-year	26,400	0	35,300
100-year	28,300	0	50,200

A 1.07-acre portion of Basin 1, developed Basin 1B, will not drain into the detention pond that will serve the westerly side of the development. To compensate for this uncontrolled release, a portion of the off-site runoff flowing through the system will be metered. In other words, off-site flow rates will be reduced to mirror uncontrolled release rates from Basin 1B.

It should be noted that the existing 5.39-acre Basin 2A historically drained to a County system along Devon Avenue SE just north of the site near the intersection with Elkins Way SE. The outlet of this system drains to an undefined system. Table 2 above identifies the flow rates. The developed Basin 2A will be reduced to 1.41-acres with flow rates at or below pre-developed conditions.

The proposed detention systems will be pond facilities located near the lowest point in each basin to maximize the capture of runoff. A basin map has been provided in Appendix A showing the locations of the detention ponds.

Stormwater Quality Analysis

Water quality flow rates were calculated using HydroCAD 10.00. The Santa Barbara Unit Hydrograph method was used to generate the hydrographs. A Type 1A rainfall distribution was used with a 1.38 rainfall depth. Appendix E contains the analysis.

Because of natural slopes that exceed 10 percent for Basin 1, a design exception for implementing green stormwater infrastructure to the maximum extent feasible is being requested to allow for a manufactured stormwater treatment facility to treat runoff from Basin 1A. A copy of the design exception request is in Appendix E.

The proposed facility is a Contech StormFilter system using ZPG media. The filters will be in a vault with a high flow bypass to convey larger storm events. The media filters will be the 27-inch height type that have the capacity to treat 22.5 gpm per filter. Because a 1.07-acres portion will not drain into the detention and water quality facility, the system will be sized as if the basin was draining into it. This will allow the future upstream development to be treated by the facility. Table 5 below identifies flow rates and required treatment filters. Appendix E contains the analysis and a generic plan of the Contech system.

Table 5

Storm Event	Basin 1A & 1B WQ Flow Rate (cfs)	Basin 1A & 1B WQ Flow Rate (gpm)	Required Filters	System Capacity (Filters)
WQ	2.0	898	40	48

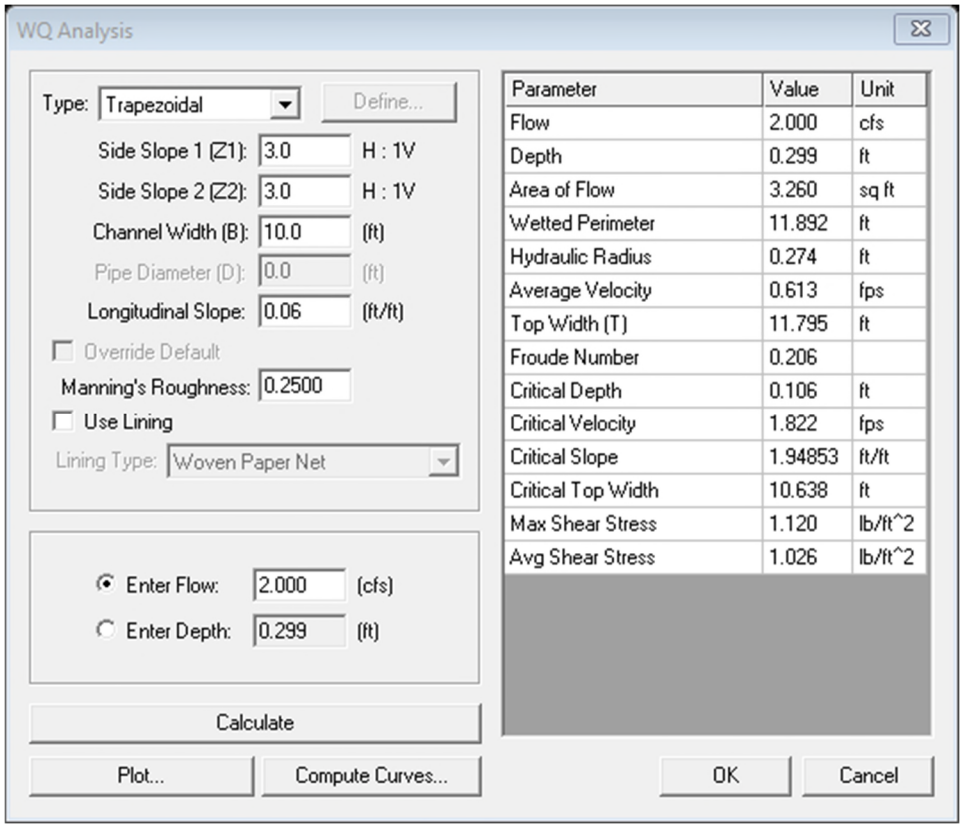
Because of natural slopes that exceed 7 percent for Basin 2, a water quality swale is being proposed downstream to the south and adjacent to the east of Devon Avenue. A post-development basin map is in Appendix A. Because Basin 2A is not capable of being serve by a water quality facility, the entire length of Devon Avenue will be treated by the facility as a suitable exchange. Both basins drain to Powell Creek. Table 6 below contains the water quality flow rates as well as the 100-year flow rate for conveyance. Note that Basin 2A are being included in the table. This is being provided to demonstrate that off-site flows will be equal or greater than that basin.

Table 6

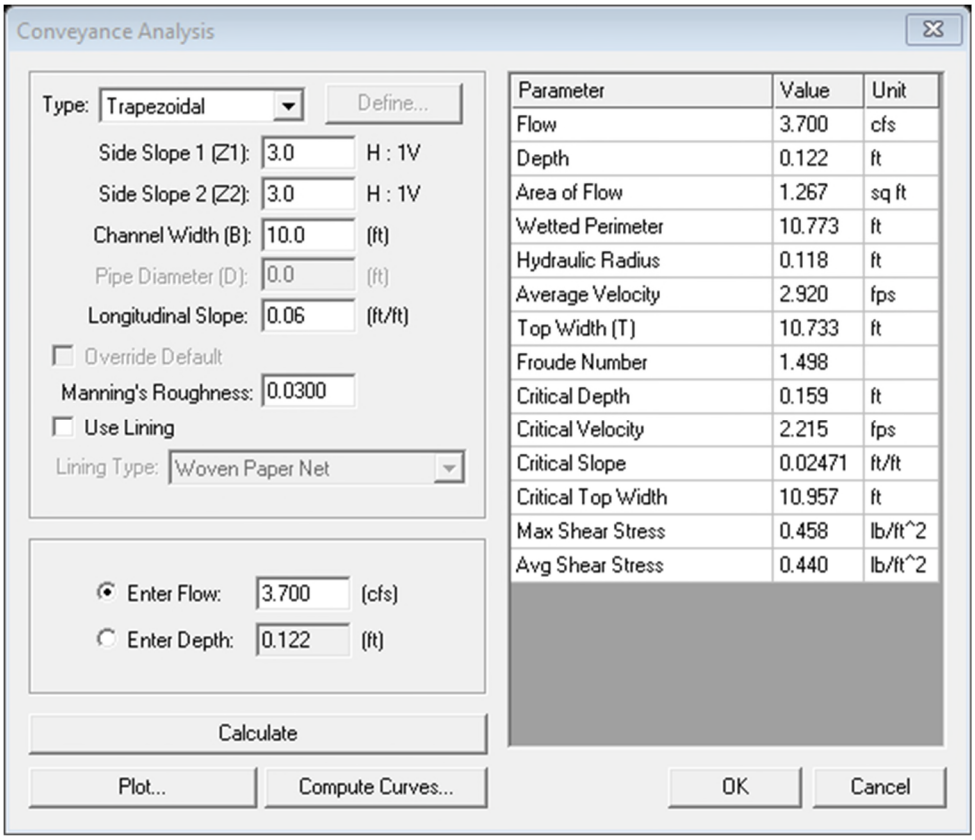
Storm Event	Basin 2A WQ Flow Rate (cfs)	Basin 2B WQ Flow Rate (cfs)	Basin OS1 WQ Flow Rate (cfs)	Basin OS2 WQ Flow Rate (cfs)
WQ	0.08 *	0.04	0.14	0.07
100-year		1.12	0.47	2.11

* Will not enter the WQ facility

The program Hydraulic Toolbox 4.2 from the Federal Highway Administration (FHWA) was used to analysis the swale. The calculated WQ flow rate for the swale is 0.25 cfs. A design flow rate of 2.0 cfs was used in the analysis. The swale will have a width of 10-feet with side slopes at 3:1 and a longitudinal slope of 6.0 percent. The analysis yields an average velocity of 0.613 feet per second. With a length of 550-feet, the average hydraulic residence time is calculated to be 897 seconds or 15 minutes, which exceeds the required 9 minutes residence time. The maximum depth is 0.299 feet or 3.6 inches. Below is the computer output of the analysis.



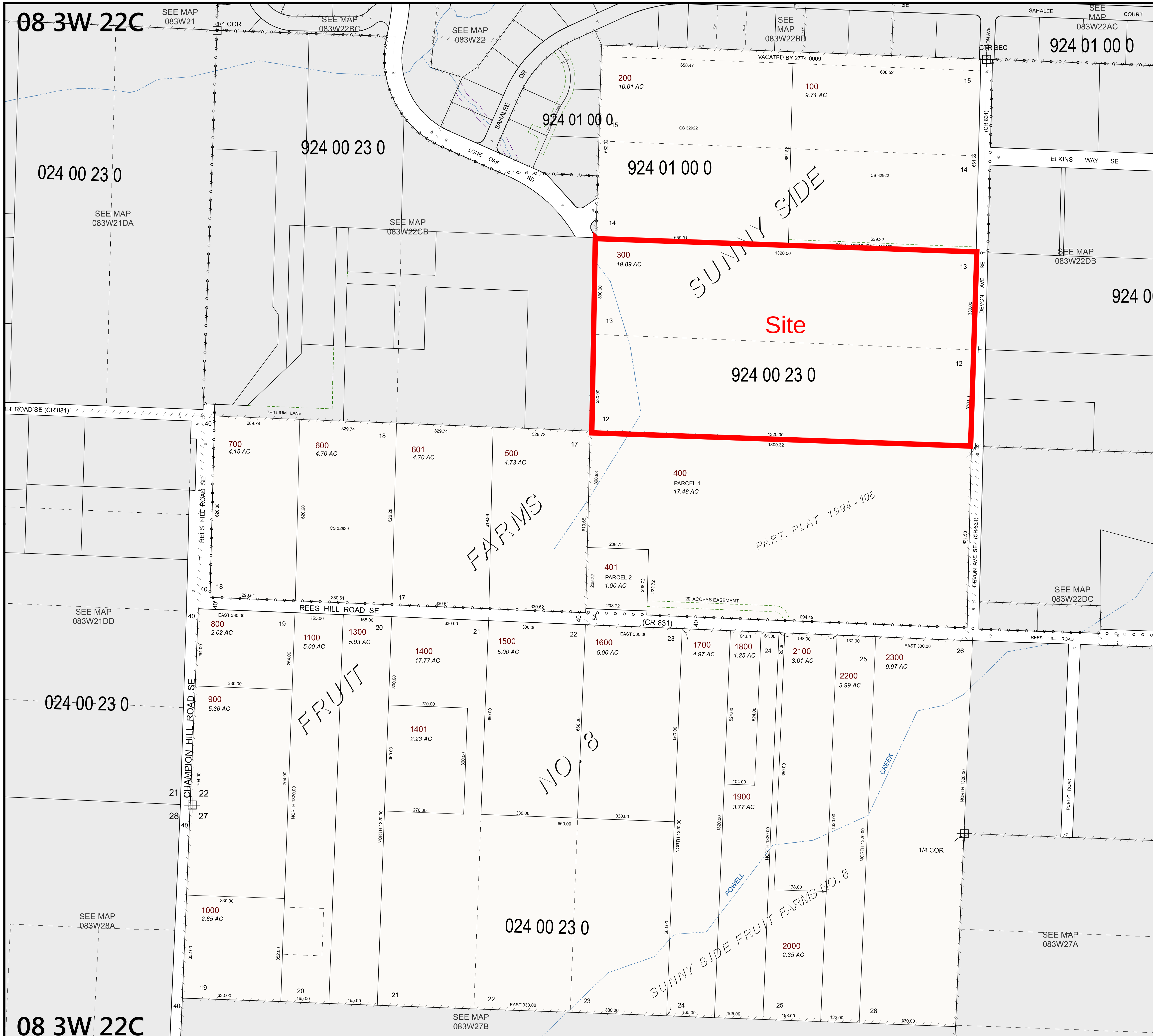
The calculated 100-year flow rate of 3.70 cfs was used in the analysis. The analysis yields an average velocity of 2.92 feet per second. The maximum depth is 0.122 feet or 1.5 inches. Below is the computer output of the analysis.



CONCLUSION

Based on the presented information, the preliminary design can meet the City of Salem water quality and quantity standards. If there are any questions regarding this analysis or the design, please contact Matthew Hendrick at Multi/Tech Engineering by phone at (503) 363-9227 or via e-mail at mhendrick@mtengineering.net.

Appendix A


08 3W 22C
Site
924 00 23 0
924 01 00 0
024 00 23 0
300
19.89 AC
400
PARCEL 1
17.48 AC
401
PARCEL 2
1.00 AC
100
9.71 AC
200
10.01 AC
SUNNY SIDE
FARMS
FRUIT
NO. 8
PART. PLAT 1994 - 106
SUNNY SIDE FRUIT FARMS NO. 8
REES HILL ROAD SE
(CR 831)
CHAMPION HILL ROAD SE
DEVON AVE SE
ELKINS WAY SE
LONE OAK RD
SAHALEE DR
TRILLIUM LANE
POWELL CREEK
SEE MAP 083W21
SEE MAP 083W22BC
SEE MAP 083W22
SEE MAP 083W22BD
SEE MAP 083W22AC
SEE MAP 083W21DA
SEE MAP 083W22CB
SEE MAP 083W22DB
SEE MAP 083W22DC
SEE MAP 083W21DD
SEE MAP 083W28A
SEE MAP 083W27B
SEE MAP 083W27A
700
4.15 AC
600
4.70 AC
601
4.70 AC
500
4.73 AC
800
2.02 AC
900
5.36 AC
1000
2.65 AC
1100
5.00 AC
1300
5.03 AC
1400
17.77 AC
1401
2.23 AC
1500
5.00 AC
1600
5.00 AC
1700
4.97 AC
1800
1.25 AC
1900
3.77 AC
2000
2.35 AC
2100
3.61 AC
2200
3.99 AC
2300
9.97 AC
1/4 COR
CTR SEC

08 3W 22C
SALEM

MARION COUNTY, OREGON

SW1/4 SEC22 T8S R3W W.M.
SCALE 1" = 200'

LEGEND

LINE TYPES

Taxlot Boundary	Historical Boundary
Road Right-of-Way	Easement
Railroad Right-of-Way	Railroad Centerline
Private Road ROW	Taxcode Line
Subdivision/Plat Bndry	Map Boundary
Waterline - Taxlot Bndry	Waterline - Non Bndry

CORNER TYPES

1/16TH Section Cor.	1/4 Section Cor.
DLC Corner	Section Corner

NUMBERS

Tax Code Number
000 00 00 0

Acreage
0.25 AC

All acres listed are Net Acres, excluding any portions of the taxlot within public ROWs

NOTES

Tick Marks: A tick mark in the road indicates that the labeled dimension extends into the public ROW

CANCELLED NUMBERS

1200

DISCLAIMER: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY

Assessors Office
Cartography Dept

FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT www.co.marion.or.us

PLOT DATE: 1/24/2018

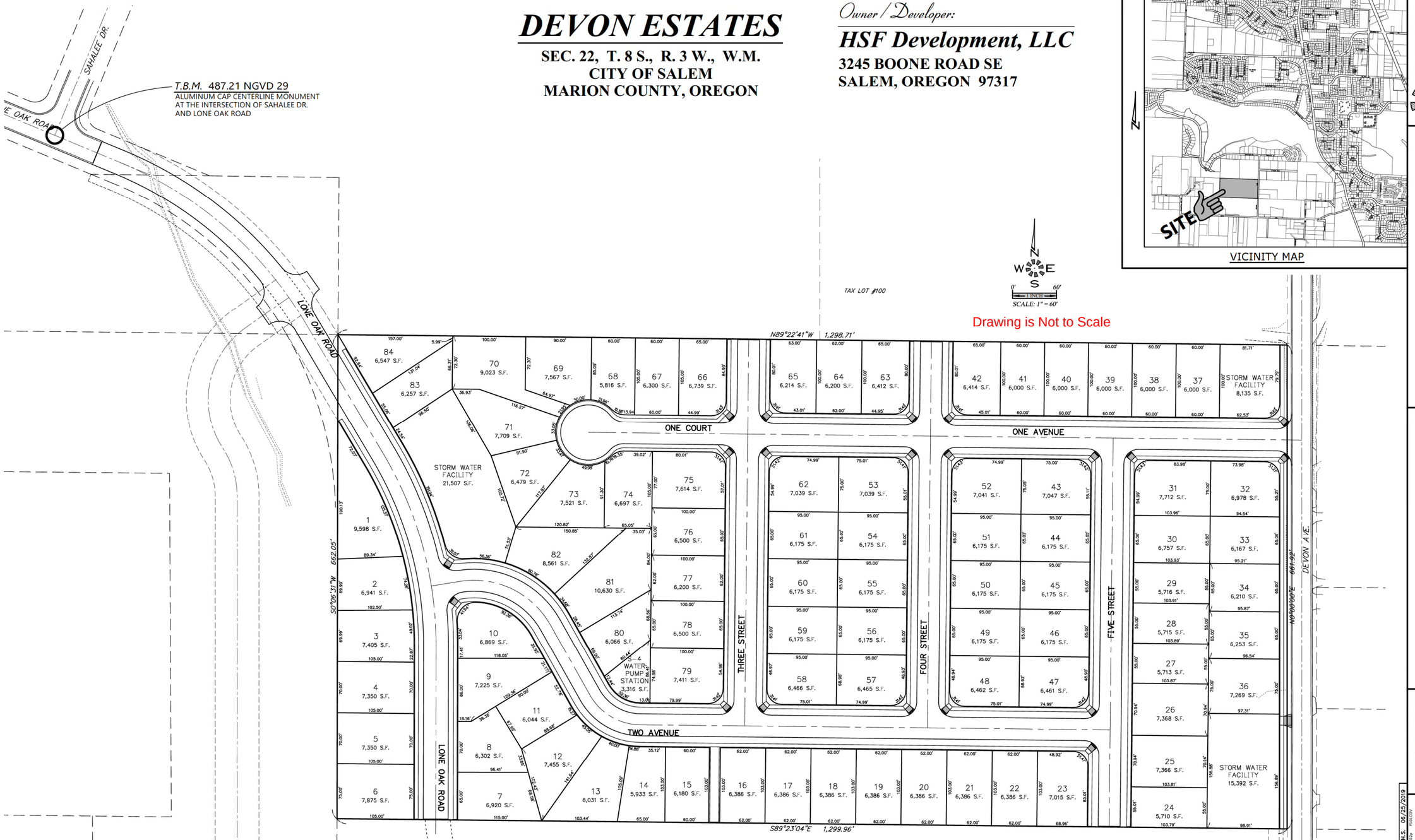
SALEM
08 3W 22C

DEVON ESTATES

SEC. 22, T. 8 S., R. 3 W., W.M.
CITY OF SALEM
MARION COUNTY, OREGON

Owner / Developer:

HSF Development, LLC
3245 BOONE ROAD SE
SALEM, OREGON 97317



Drawing is Not to Scale

SCALE: 1" = 60'

VICINITY MAP

UTILITIES:	
CABLE	COMCAST
POWER	P.G.E.
PHONE	CENTURY LINK
GAS	N.W. NATURAL
STORM DRAIN, SANITARY SEWER, WATER	CITY OF SALEM

PARCEL SIZE:	
DEVELOPABLE AREA	19.745 Ac.
NUMBER OF UNITS	85
DENSITY	4.30 UNITS/Ac.
LARGEST	10,727 S.F.
SMALLEST	5,933 S.F.
AVERAGE	6,884 S.F.
EXISTING ZONE	RA

PRELIMINARY SHEET INDEX

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www.mtengineering.net office@mtengineering.net

COVER SHEET

DEVON ESTATES

P.H.S. 06/25/2019

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ

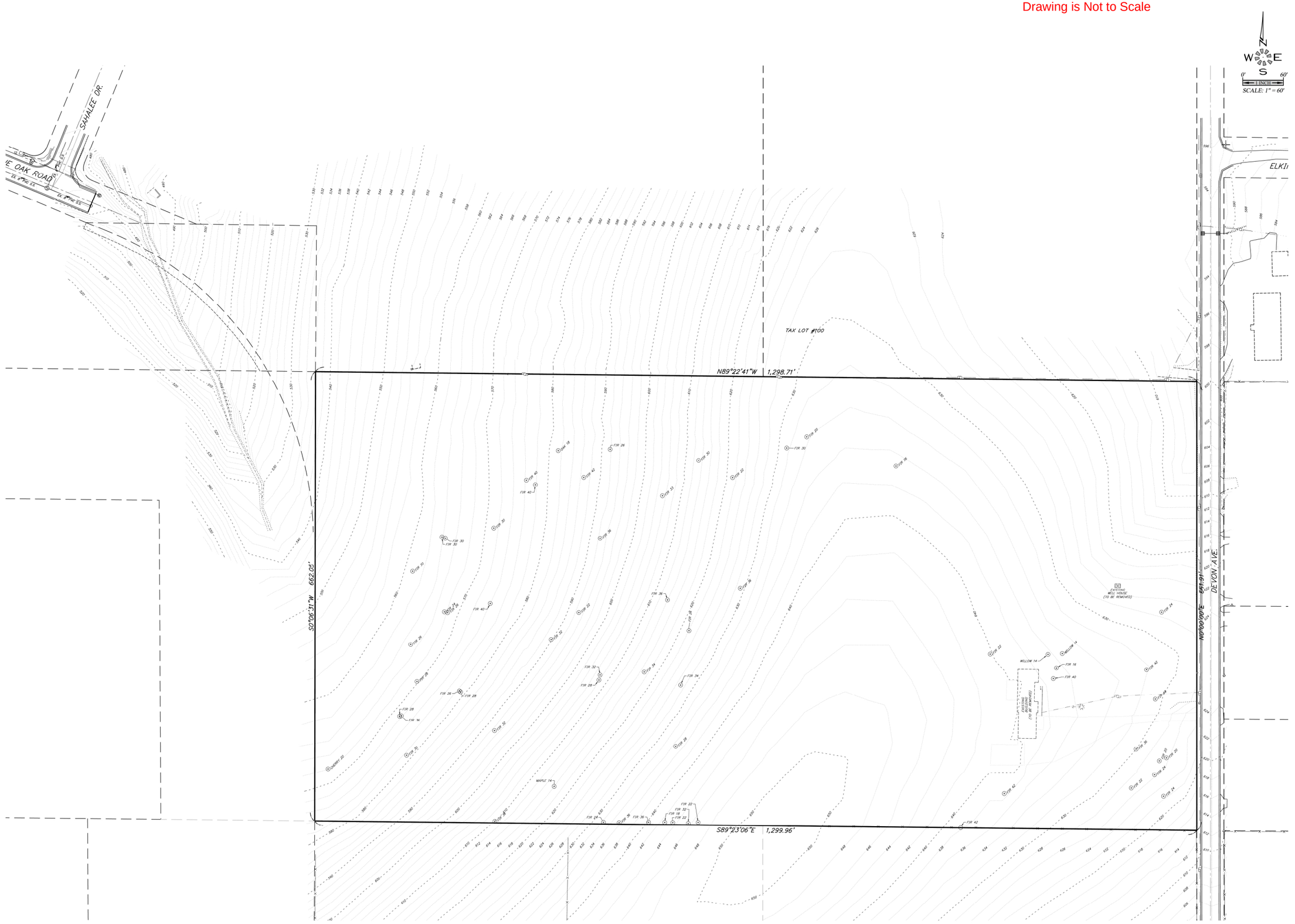
EXPIRES: 06-30-2019

JOB # 6502

1. REVISED LOT LAYOUT

P101

Drawing is Not to Scale



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EXISTING CONDITIONS PLAN

DEVON ESTATES

6502p P102XC

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUNE 14, 2005
MARK D. GRENZ

EXPIRES: 06-30-2019

JOB # 6502

P102

J:\6500-6599\6502-DevonAvenueSubdivision\Dwg\6502p.dwg, P102XC, 5/3/2019 10:26:13 AM, PSanders

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PREDEVELOPED BASIN MAP

BASIN #1
12.06 Acres**

BASIN #2A
5.39 Acres**

BASIN #2B
2.30 Acres**

#2A-(OFFSITE)
1.115 Ac.*

#2B-(OFFSITE)
0.122 Ac.*

N
W E
S
NOT TO SCALE

* IMPERVIOUS SURFACE HSG C CN = 98
** CITY OF SALEM PREDEVELOPED HSG C CN=79

6502p.dwg/BASIN1

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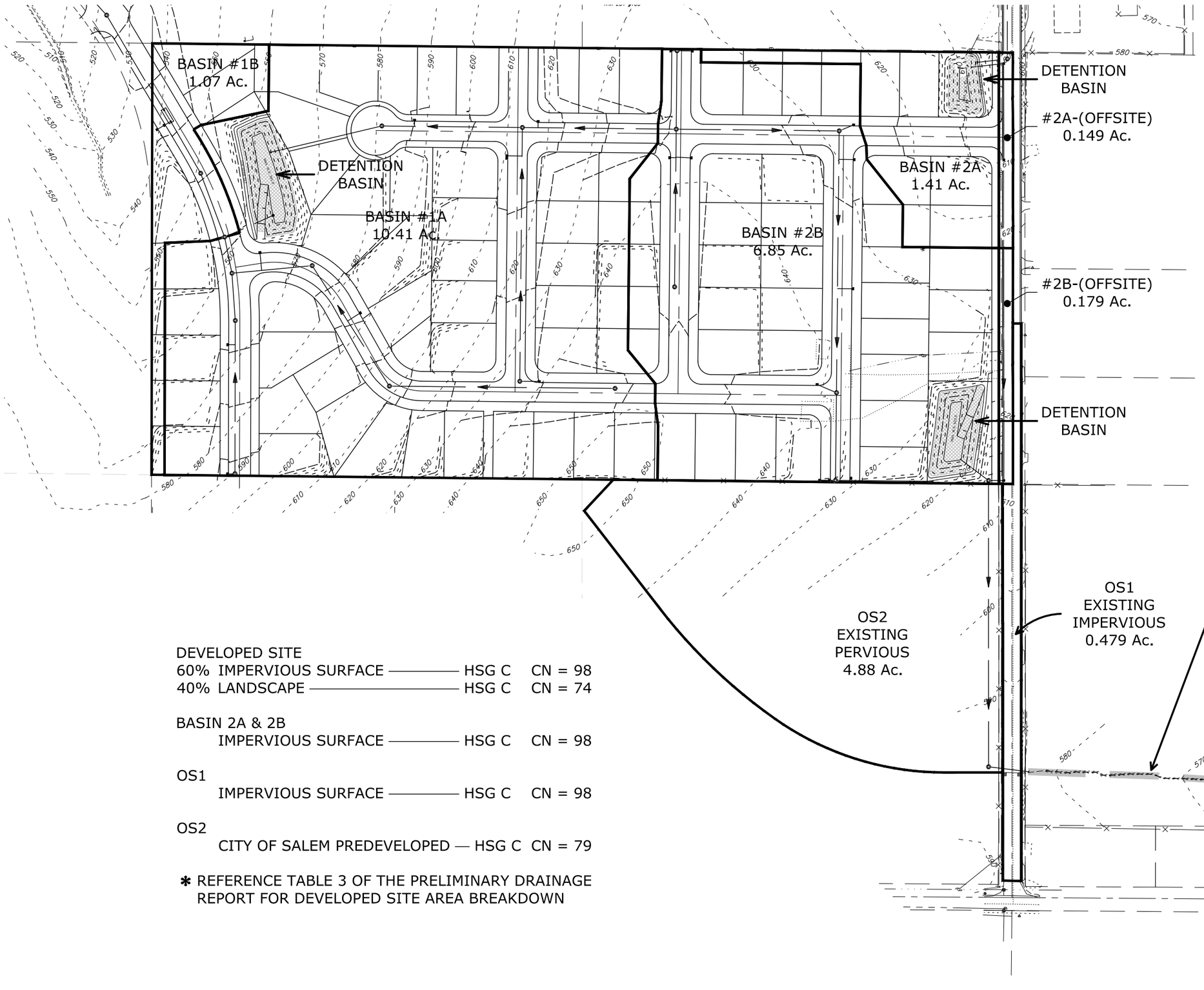
POST-DEVELOPED BASIN MAP



N
W E
S
NOT TO SCALE

DEVELOPED SITE
60% IMPERVIOUS SURFACE ———— HSG C CN = 98
40% LANDSCAPE ———— HSG C CN = 74

BASIN 2A & 2B
IMPERVIOUS SURFACE ———— HSG C CN = 98

OS1
IMPERVIOUS SURFACE ———— HSG C CN = 98

OS2
CITY OF SALEM PREDEVELOPED — HSG C CN = 79

✱ REFERENCE TABLE 3 OF THE PRELIMINARY DRAINAGE REPORT FOR DEVELOPED SITE AREA BREAKDOWN

6502p.dwg/BASIN2

J:\6500-6599\6502-DevonAvenueSubdivision\Dwg\6502p.dwg, BASIN2, 7/1/2019 11:34:23 AM, PSaunders

Appendix B

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Marion County Area, Oregon

Devon Estates

October 11, 2018

Hydrologic Soil Group—Marion County Area, Oregon
(Devon Estates)

Map Scale: 1:2,190 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Marion County Area, Oregon
Survey Area Data: Version 15, Sep 18, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 15, 2015—Jun 23, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
JoC	Jory silty clay loam, 7 to 12 percent slopes	C	1.8	8.8%
JoD	Jory silty clay loam, 12 to 20 percent slopes	C	10.3	50.5%
NeB	Nekia silty clay loam, 2 to 7 percent slopes	C	7.1	34.7%
NeC	Nekia silty clay loam, 7 to 12 percent slopes	C	0.4	1.8%
SlB	Salkum silty clay loam, basin, 0 to 6 percent slopes	B	0.8	4.1%
Totals for Area of Interest			**20.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

All roof drainage should be directed into conduits that carry runoff water away from the residential structures to a suitable outfall. Roof downspouts should not be connected to foundation drains. A minimum ground slope of about 2 percent is generally recommended in unpaved areas around the proposed new residential structures.

Groundwater was not encountered at the site in any of the exploratory test pits (TH-#1 through TH-#8) at the time of excavation to depths of at least 7 feet beneath existing site grades. Additionally, surface water ponding was not observed at the site during our field exploration work. However, the northeasterly portion of the site contains an existing seasonal drainage basin feature. Further, groundwater elevations in the area and/or across the subject property may fluctuate seasonally and may temporarily pond/perch near the ground surface during periods of prolonged rainfall.

As such, based on our current understand of the possible site grading required to bring the subject site and/or residential lots to finish design grade(s), we are of the opinion that an underslab drainage system is not required for the proposed single-family residential structures. However, a perimeter foundation drain is recommended for any perimeter footings and/or below grade retaining walls. A typical recommended perimeter footing/retaining wall drain detail is shown on Figure No. 4. Further, due to our understanding that various surface infiltration ditches and/or swales may be utilized for the project as well as the relatively low infiltration rates of the near surface sandy, clayey silt subgrade soils anticipated within and/or near to the foundation bearing level of the proposed residential structures, we are generally of the opinion that storm water detention and/or disposal systems should not be utilized within the residential lots and/or around the proposed residential structures unless approved by the Geotechnical Engineer.

Design Infiltration Rates

Based on the results of our field infiltration testing, we recommend using the following infiltration rate to design any on-site near surface storm water infiltration and/or disposal systems for the project:

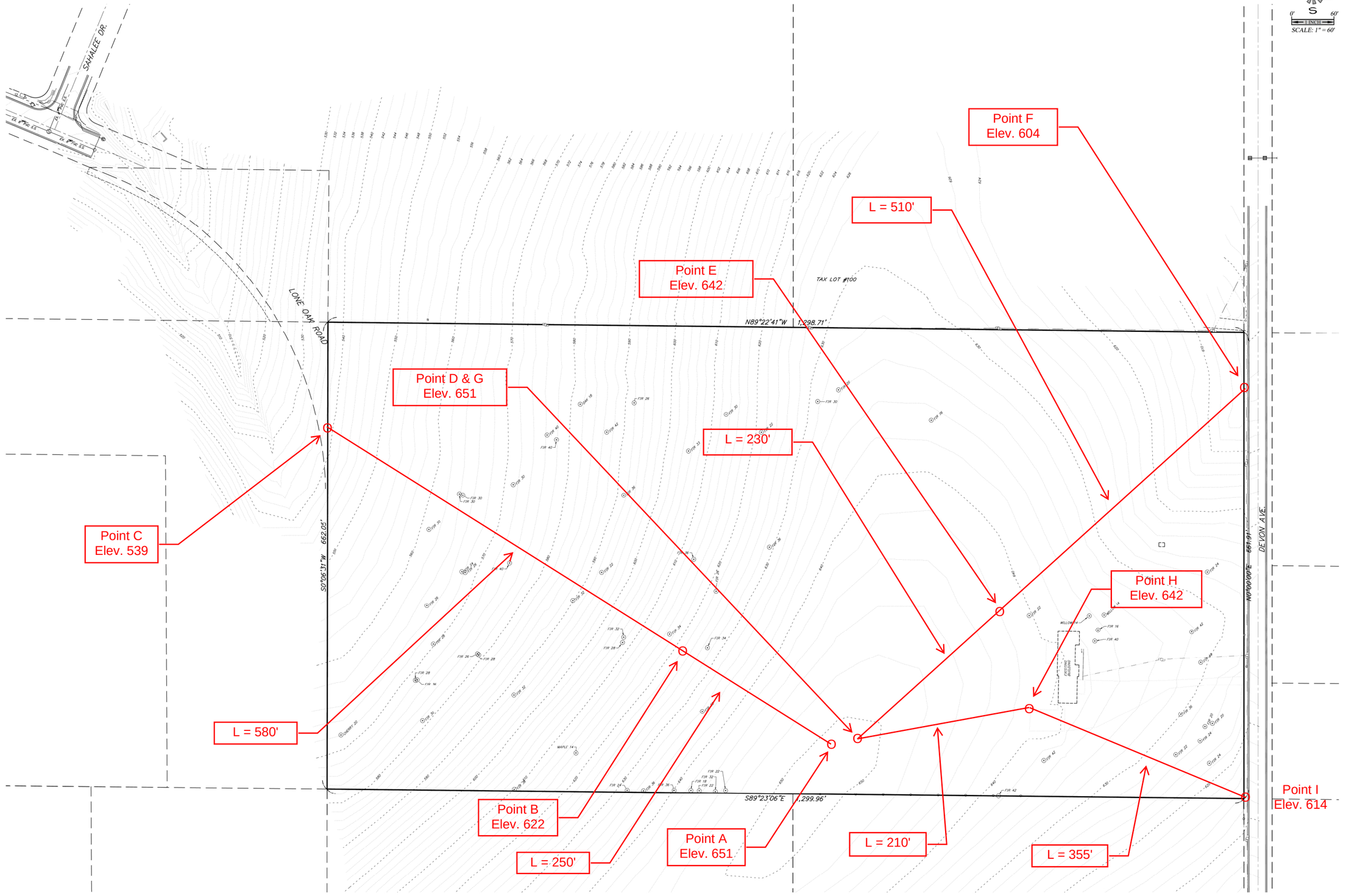
Subgrade Soil Type	**Recommended Infiltration Rate**
sandy, clayey SILT (ML)	0.3 to 0.4 inches per hour (in/hr)

Note: A safety factor of two (2) was used to calculate the above recommended design infiltration rate. Additionally, given the gradational variability of the on-site sandy, clayey sit subgrade soils beneath the site as well as the anticipation of some site grading for the project, it is generally recommended that field testing be performed during and/or following construction of any on-site storm water infiltration system(s) in order to confirm that the above recommended design infiltration rates are appropriate.

Appendix C

Time of Concentration

Drawing is NOT to Scale



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EXISTING CONDITIONS PLAN

DEVON ESTATES

Design: M.D.G.
Drawn: P.H.S.
Checked: B.M.G.
Date: NOV. 2017
Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUNE 14, 2013
MARK D. GRENZ
EXPIRES: 06-30-2019

JOB # 6502

P102

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Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Devon Estates (Basin #1)	M. Hendrick	10/2018
Location	**Checked**	**Date**
Salem, Oregon		

Check one: ☑ Present ☐ Developed

Check one: ☑ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	A-B	
1.	Surface description (Table 4D-4)	Meadow/Pasture/Farm	
2.	Manning's roughness coefficient, n (Table 4D-4)	0.15	
3.	Flow length, L (total L † 300 ft) ft	250	
4.	Two-year 24-hour rainfall, P_2 in	2.2	
5.	Land slope, s ft/ft	0.116	
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr	0.20	+ = 0.20

Shallow concentrated flow

	Segment ID	B-C	
7.	Surface description (paved or unpaved)	Forest & Meadow	
8.	Flow length, L ft	580	
9.	Watercourse slope, s ft/ft	0.143	
10.	Average velocity, V (figure 3-1) ft/s	0.95	
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.17	+ = 0.17

Channel flow

	Segment ID		
12.	Cross sectional flow area, a ft^2		
13.	Wetted perimeter, p_w ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft		
15	Channel slope, s ft/ft		
16.	Manning's roughness coefficient, n		
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s		
18.	~~Flow~~ length, L ft		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr		+ =

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) Hr 0.37

0.37 Hrs = 22.2 Minutes

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Devon Estates (Basin #2)	M. Hendrick	10/2018
Location	**Checked**	**Date**
Salem, Oregon		

Check one: ☑ Present ☐ Developed

Check one: ☑ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	D-E	
1.	Surface description (Table 4D-4)	Meadow/Pasture/Farm	
2.	Manning's roughness coefficient, n (Table 4D-4)	0.15	
3.	Flow length, L (total L † 300 ft) ft	230	
4.	Two-year 24-hour rainfall, P_2 in	2.2	
5.	Land slope, s ft/ft	0.039	
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr	0.29 +	= 0.29

Shallow concentrated flow

	Segment ID	E-F	
7.	Surface description (paved or unpaved)	Pasture	
8.	Flow length, L ft	510	
9.	Watercourse slope, s ft/ft	0.075	
10.	Average velocity, V (figure 3-1) ft/s	2.0	
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.07 +	= 0.07

Channel flow

	Segment ID		
12.	Cross sectional flow area, a ft^2		
13.	Wetted perimeter, p_w ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft		
15	Channel slope, s ft/ft		
16.	Manning's roughness coefficient, n		
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s		
18.	~~Flow~~ length, L ft		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	+	=
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) Hr		0.36

0.36 Hrs = 21.6 Minutes

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Devon Estates (Basin #3)	M. Hendrick	5/2019
Location	**Checked**	**Date**
Salem, Oregon		

Check one: ☑ Present ☐ Developed

Check one: ☑ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	G-H	
1.	Surface description (Table 4D-4)	Meadow/Pasture/Farm	
2.	Manning's roughness coefficient, n (Table 4D-4)	0.15	
3.	Flow length, L (total L † 300 ft) ft	210	
4.	Two-year 24-hour rainfall, P_2 in	2.2	
5.	Land slope, s ft/ft	0.043	
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr	0.26	+ = 0.26

Shallow concentrated flow

	Segment ID	H-I	
7.	Surface description (paved or unpaved)	Pasture	
8.	Flow length, L ft	355	
9.	Watercourse slope, s ft/ft	0.079	
10.	Average velocity, V (figure 3-1) ft/s	2.0	
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.05	+ = 0.05

Channel flow

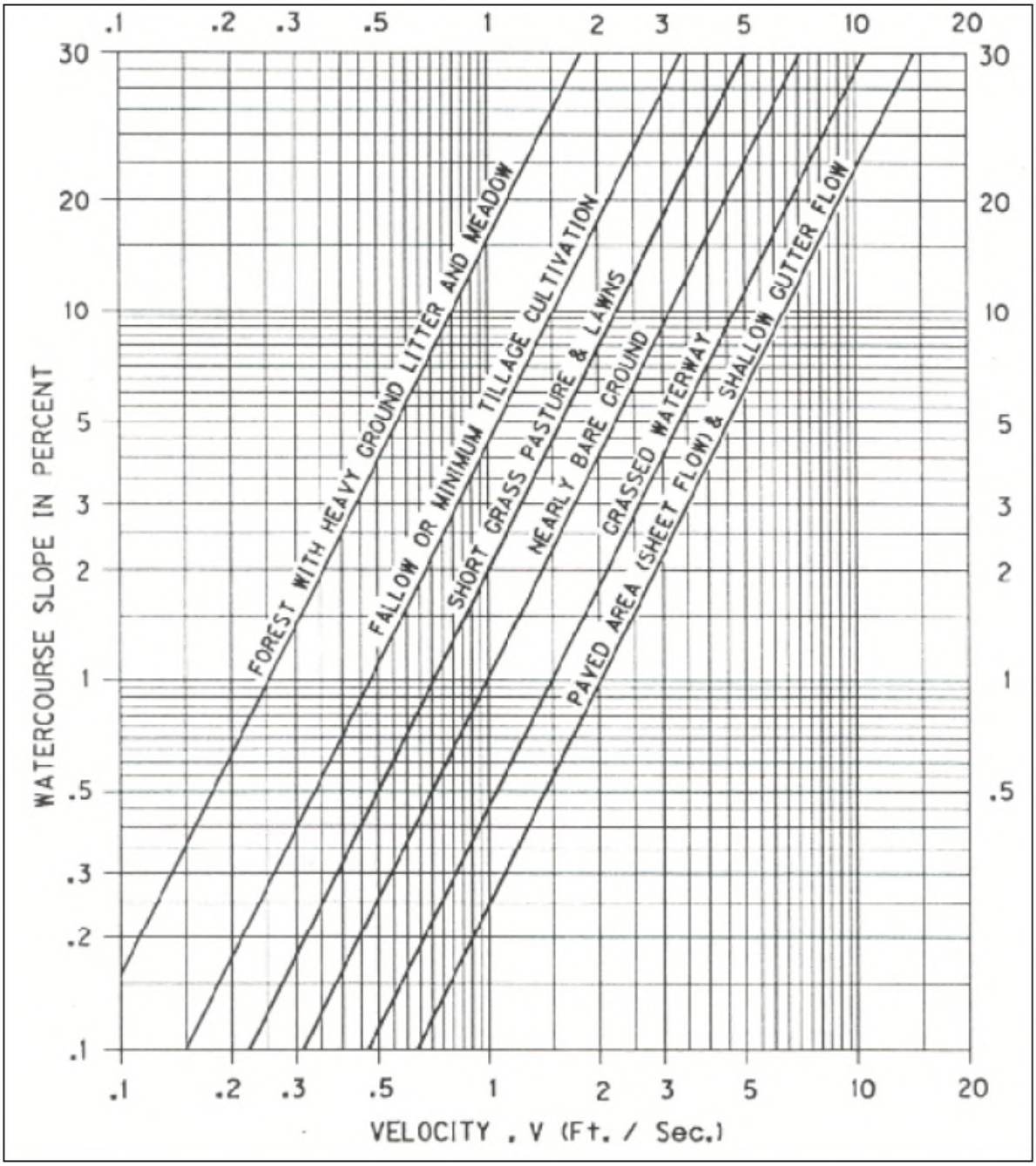
	Segment ID		
12.	Cross sectional flow area, a ft^2		
13.	Wetted perimeter, p_w ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft		
15	Channel slope, s ft/ft		
16.	Manning's roughness coefficient, n		
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s		
18.	~~Flow~~ length, L ft		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr		+ =

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) Hr 0.31

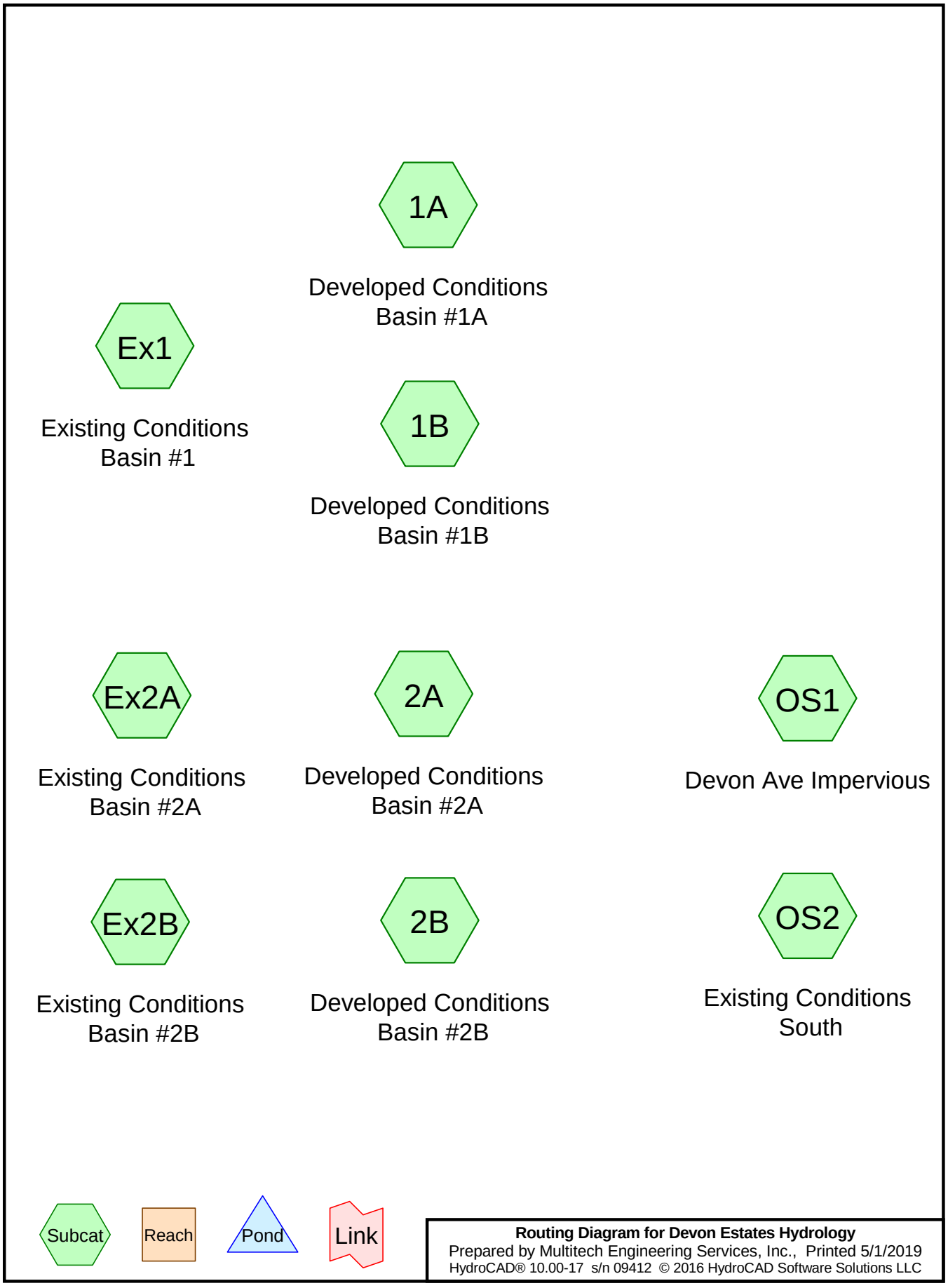
0.31 Hrs = 18.6 Minutes

Manning's Roughness Coefficients for Overland Sheet Flow	
Surface Types:	**n**
Impervious Areas	0.014
Gravel Pavement	0.02
Developed: Landscape Areas (Except Lawns)	0.08
Undeveloped: Meadow, Pasture, or Farm	0.15
Developed: Lawns	0.24
Pre-developed: Mixed	0.30
Pre-developed: Woodland and Forest	0.40
Development Types:	**n**
Commercial Development	0.015
Industrial Development, Heavy	0.04
Industrial Development, Light	0.05
Dense Residential (over 6 units/acre)	0.08
Normal Residential (3 to 6 units/acre)	0.20
Light Residential (1 to 3 units/acre)	0.30
Parks	0.40

Table 4D-4. Manning's Roughness Coefficients for Overland Sheet Flow


.1
.2
.3
.5
1
2
3
5
10
20
30
20
10
5
3
2
1
.5
.3
.2
.1
WATERCOURSE SLOPE IN PERCENT
FOREST WITH HEAVY GROUND LITTER AND MEADOW
FALLOW OR MINIMUM TILLAGE CULTIVATION
SHORT GRASS PASTURE & LAWNS
NEARLY BARE GROUND
GRASSED WATERWAY
PAVED AREA (SHEET FLOW) & SHALLOW GUTTER FLOW
VELOCITY , V (Ft. / Sec.)

Appendix D


1A
Developed Conditions
Basin #1A
Ex1
Existing Conditions
Basin #1
1B
Developed Conditions
Basin #1B
Ex2A
Existing Conditions
Basin #2A
2A
Developed Conditions
Basin #2A
OS1
Devon Ave Impervious
Ex2B
Existing Conditions
Basin #2B
2B
Developed Conditions
Basin #2B
OS2
Existing Conditions
South
Subcat
Reach
Pond
Link
Routing Diagram for Devon Estates Hydrology
Prepared by Multitech Engineering Services, Inc., Printed 5/1/2019
HydroCAD® 10.00-17 s/n 09412 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment Ex1: Existing Conditions Basin #1

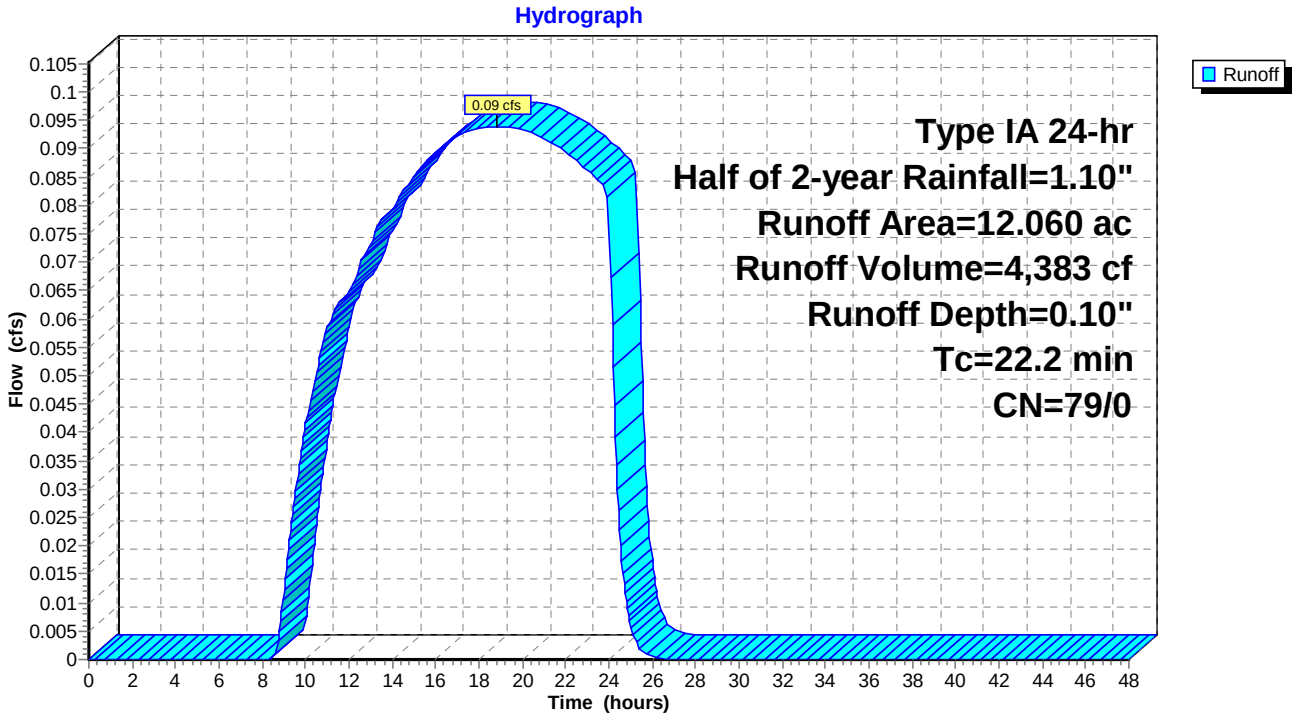
Runoff = 0.09 cfs @ 18.85 hrs, Volume= 4,383 cf, Depth= 0.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
*	12.060	79	City of Salem Pre-developed, HSG C
	12.060	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex1: Existing Conditions Basin #1



Summary for Subcatchment Ex2A: Existing Conditions Basin #2A

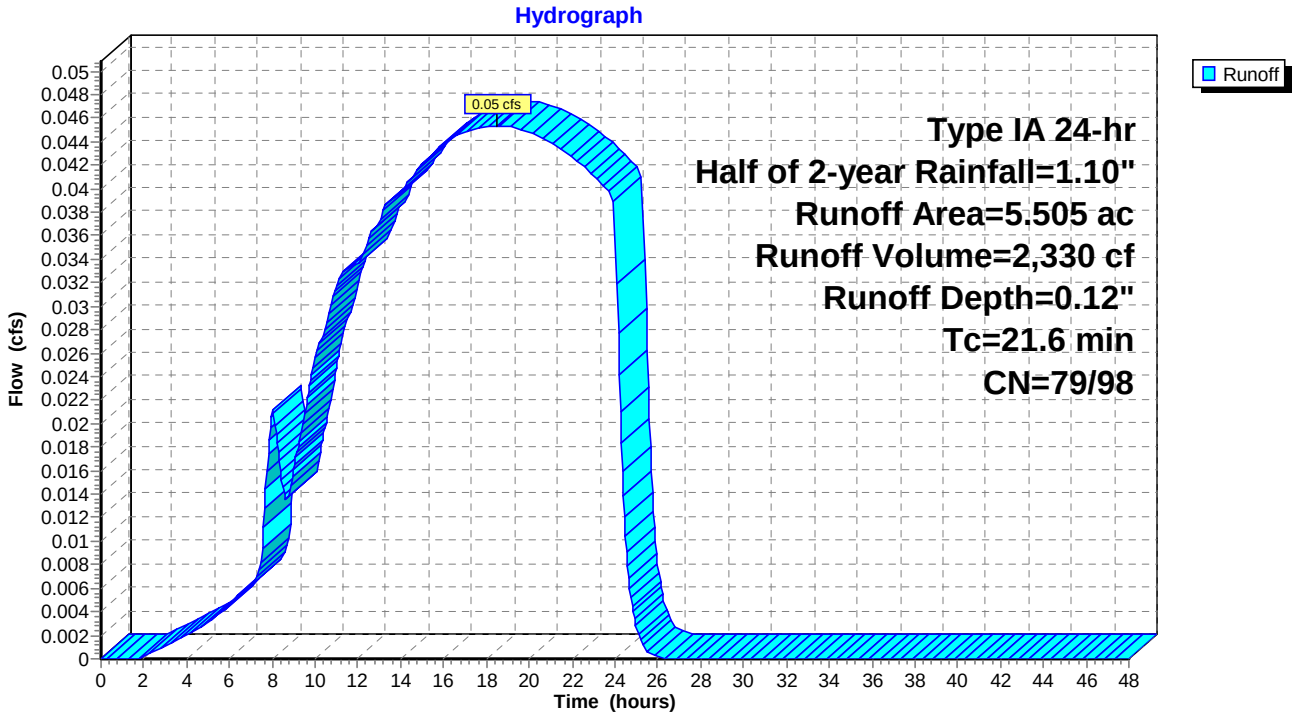
Runoff = 0.05 cfs @ 18.46 hrs, Volume= 2,330 cf, Depth= 0.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
*	5.390	79	City of Salem Pre-developed, HSG C
	0.115	98	Paved roads w/curbs & sewers, HSG C
	5.505	79	Weighted Average
	5.390	79	97.91% Pervious Area
	0.115	98	2.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2A: Existing Conditions Basin #2A



Summary for Subcatchment Ex2B: Existing Conditions Basin #2B

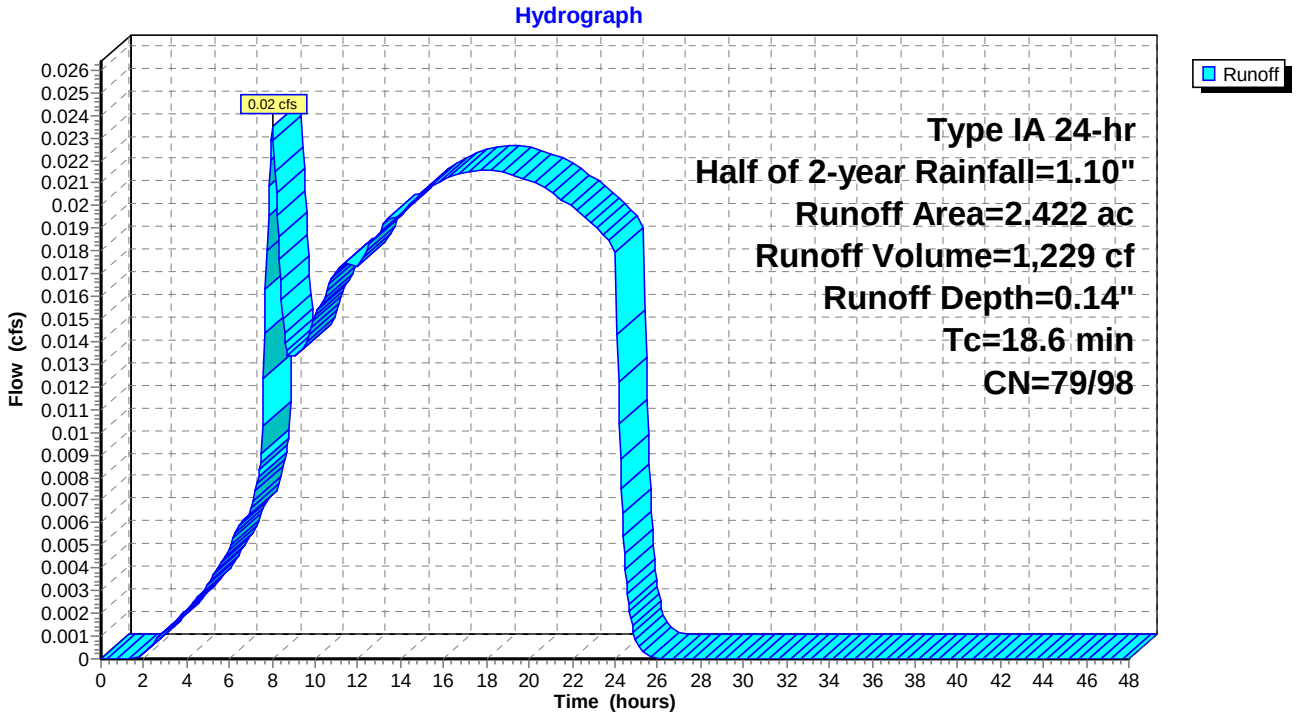
Runoff = 0.02 cfs @ 8.01 hrs, Volume= 1,229 cf, Depth= 0.14"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
*	2.300	79	City of Salem Pre-developed, HSG C
	0.122	98	Paved roads w/curbs & sewers, HSG C
	2.422	80	Weighted Average
	2.300	79	94.96% Pervious Area
	0.122	98	5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2B: Existing Conditions Basin #2B



Summary for Subcatchment 1A: Developed Conditions Basin #1A

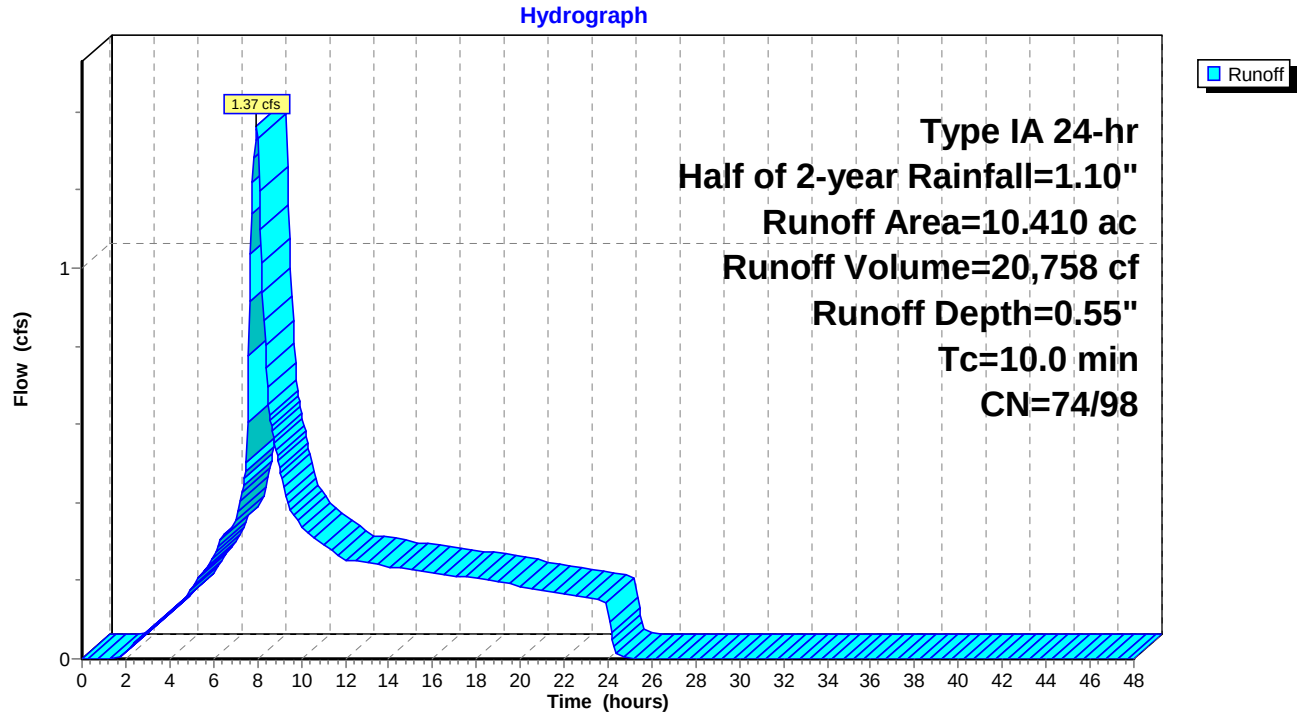
Runoff = 1.37 cfs @ 7.98 hrs, Volume= 20,758 cf, Depth= 0.55"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
	4.160	74	>75% Grass cover, Good, HSG C
*	6.250	98	Impervious surface, HSG C
	10.410	88	Weighted Average
	4.160	74	39.96% Pervious Area
	6.250	98	60.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1A: Developed Conditions Basin #1A



Summary for Subcatchment 1B: Developed Conditions Basin #1B

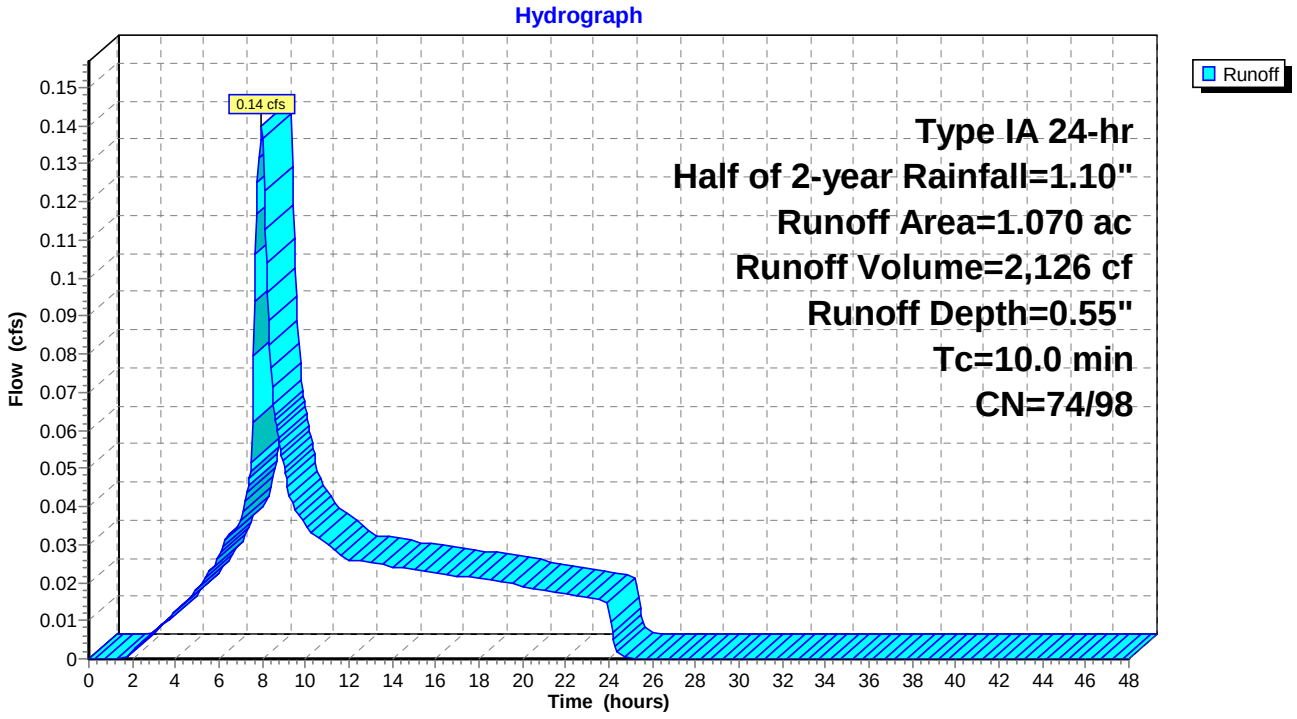
Runoff = 0.14 cfs @ 7.98 hrs, Volume= 2,126 cf, Depth= 0.55"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
	0.430	74	>75% Grass cover, Good, HSG C
*	0.640	98	Impervious surface, HSG C
	1.070	88	Weighted Average
	0.430	74	40.19% Pervious Area
	0.640	98	59.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1B: Developed Conditions Basin #1B



Summary for Subcatchment 2A: Developed Conditions Basin #2A

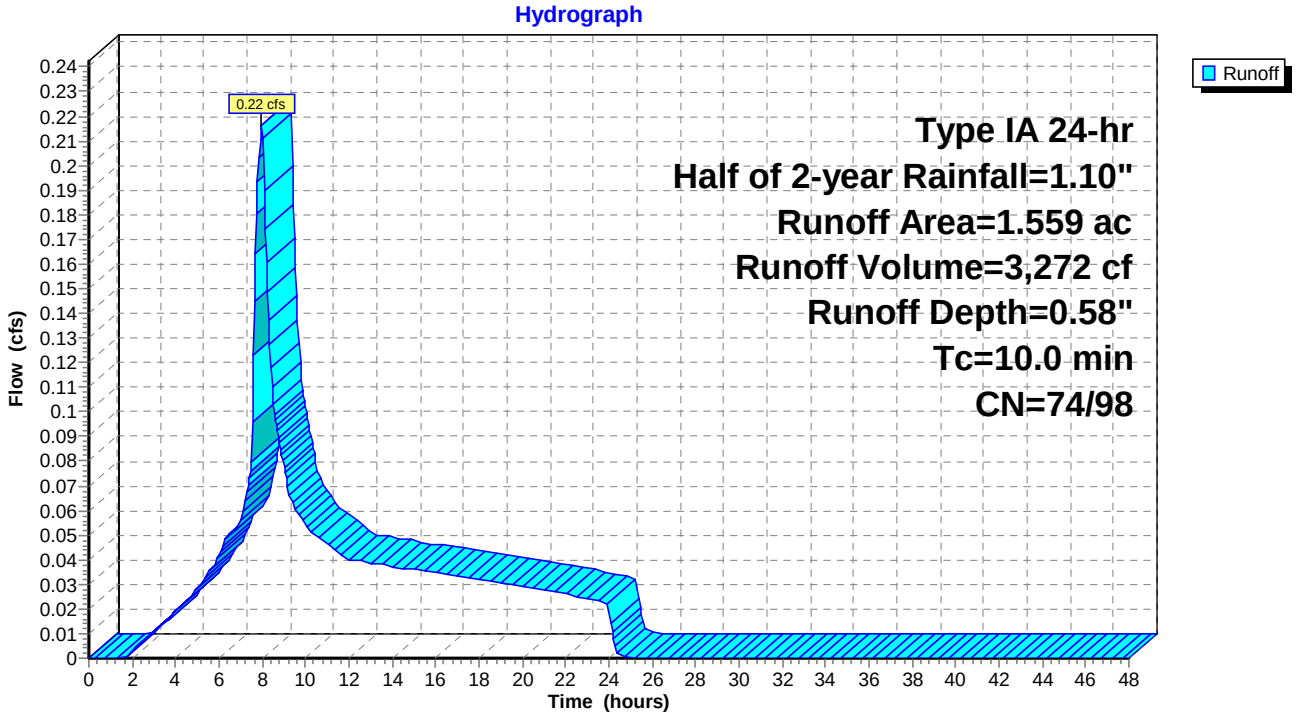
Runoff = 0.22 cfs @ 7.98 hrs, Volume= 3,272 cf, Depth= 0.58"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
	0.570	74	>75% Grass cover, Good, HSG C
*	0.840	98	Impervious surface, HSG C
	0.149	98	Paved roads w/curbs & sewers, HSG C
	1.559	89	Weighted Average
	0.570	74	36.56% Pervious Area
	0.989	98	63.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2A: Developed Conditions Basin #2A



Summary for Subcatchment 2B: Developed Conditions Basin #2B

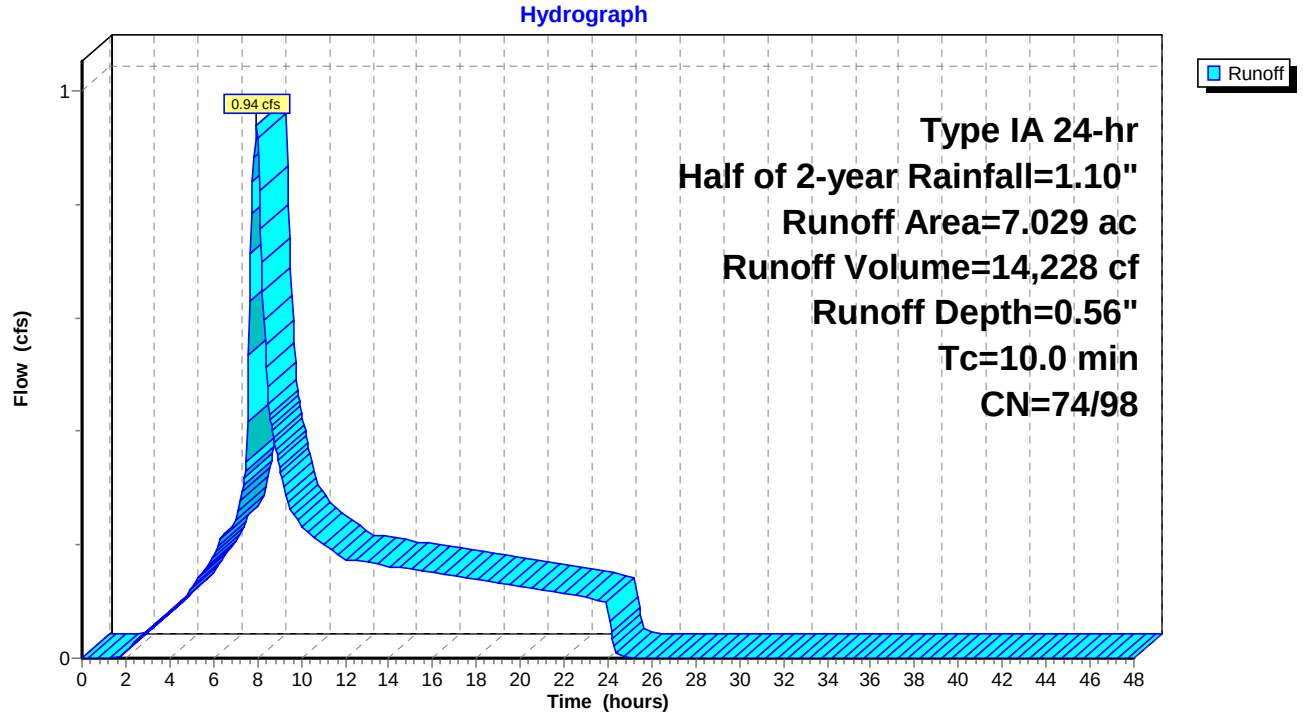
Runoff = 0.94 cfs @ 7.98 hrs, Volume= 14,228 cf, Depth= 0.56"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Half of 2-year Rainfall=1.10"

	Area (ac)	CN	Description
	2.740	74	>75% Grass cover, Good, HSG C
*	4.110	98	Impervious surface, HSG C
	0.179	98	Paved roads w/curbs & sewers, HSG C
	7.029	89	Weighted Average
	2.740	74	38.98% Pervious Area
	4.289	98	61.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2B: Developed Conditions Basin #2B



Summary for Subcatchment Ex1: Existing Conditions Basin #1

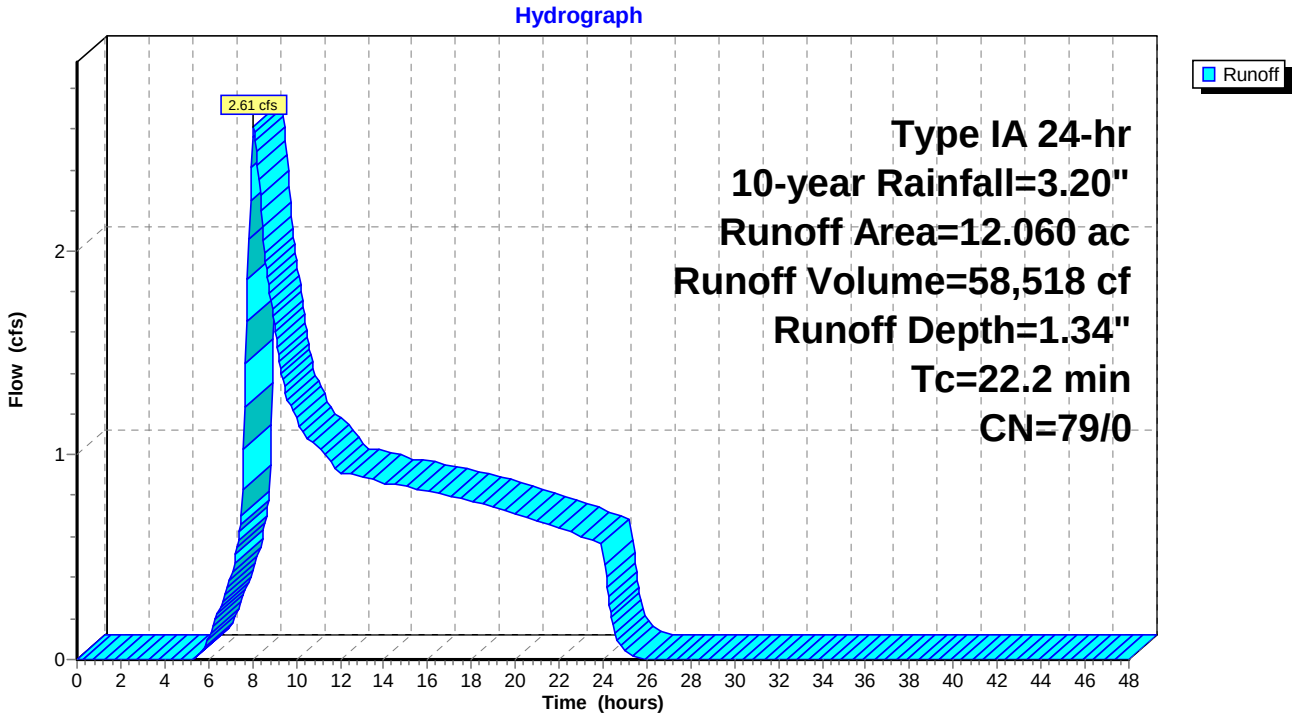
Runoff = 2.61 cfs @ 8.06 hrs, Volume= 58,518 cf, Depth= 1.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
*	12.060	79	City of Salem Pre-developed, HSG C
	12.060	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex1: Existing Conditions Basin #1



Summary for Subcatchment Ex2A: Existing Conditions Basin #2A

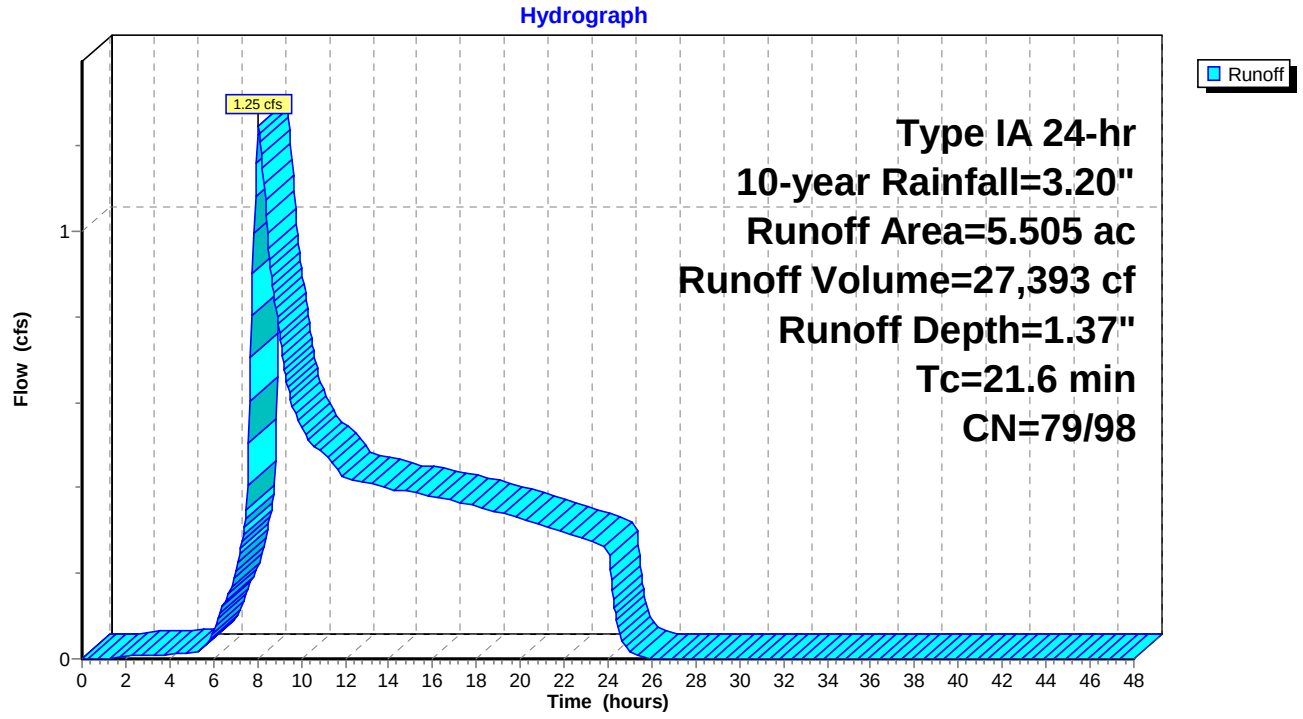
Runoff = 1.25 cfs @ 8.05 hrs, Volume= 27,393 cf, Depth= 1.37"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
*	5.390	79	City of Salem Pre-developed, HSG C
	0.115	98	Paved roads w/curbs & sewers, HSG C
	5.505	79	Weighted Average
	5.390	79	97.91% Pervious Area
	0.115	98	2.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2A: Existing Conditions Basin #2A



Summary for Subcatchment Ex2B: Existing Conditions Basin #2B

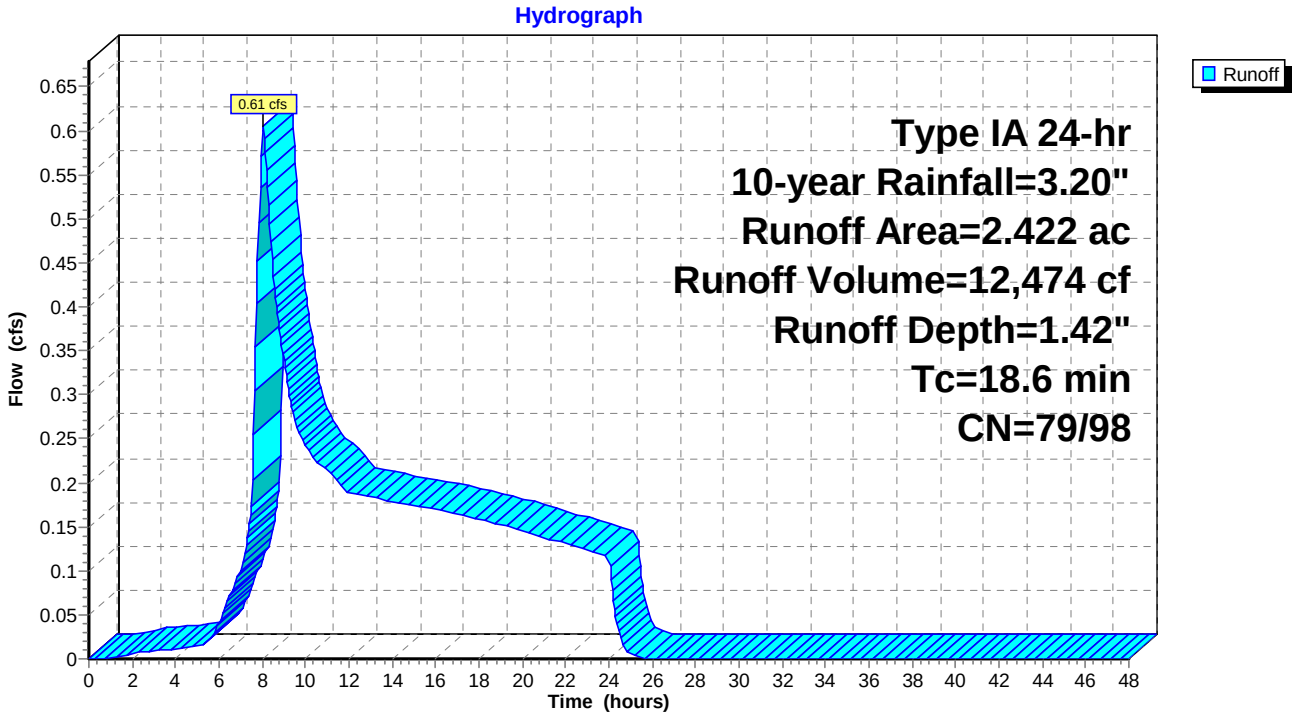
Runoff = 0.61 cfs @ 8.04 hrs, Volume= 12,474 cf, Depth= 1.42"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
*	2.300	79	City of Salem Pre-developed, HSG C
	0.122	98	Paved roads w/curbs & sewers, HSG C
	2.422	80	Weighted Average
	2.300	79	94.96% Pervious Area
	0.122	98	5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2B: Existing Conditions Basin #2B



Summary for Subcatchment 1A: Developed Conditions Basin #1A

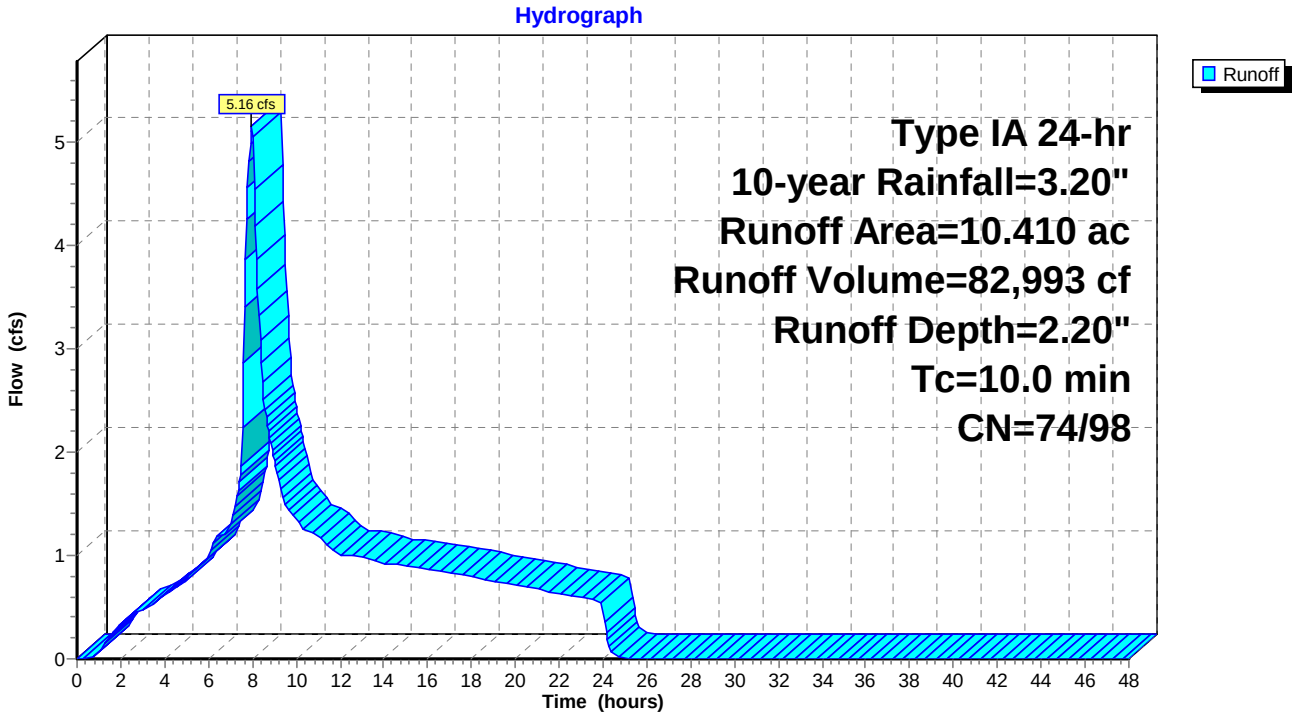
Runoff = 5.16 cfs @ 7.98 hrs, Volume= 82,993 cf, Depth= 2.20"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
	4.160	74	>75% Grass cover, Good, HSG C
*	6.250	98	Impervious surface, HSG C
	10.410	88	Weighted Average
	4.160	74	39.96% Pervious Area
	6.250	98	60.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1A: Developed Conditions Basin #1A



Summary for Subcatchment 1B: Developed Conditions Basin #1B

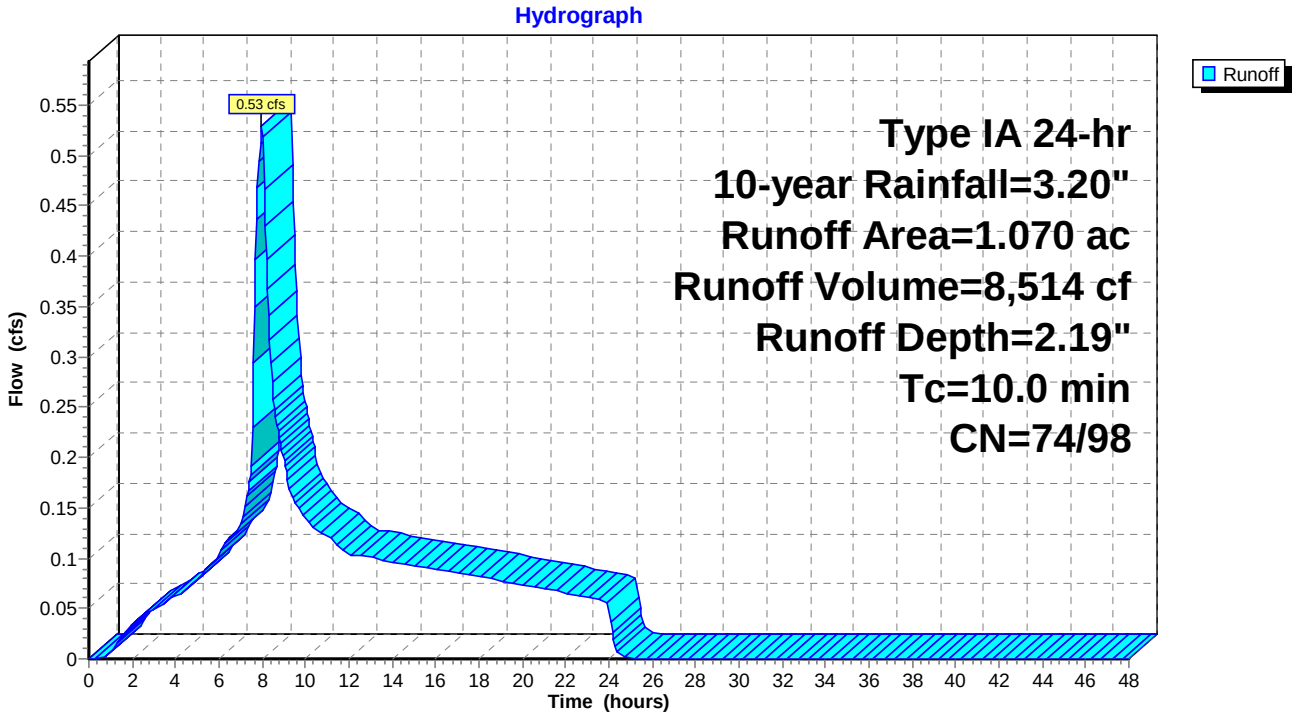
Runoff = 0.53 cfs @ 7.98 hrs, Volume= 8,514 cf, Depth= 2.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
	0.430	74	>75% Grass cover, Good, HSG C
*	0.640	98	Impervious surface, HSG C
	1.070	88	Weighted Average
	0.430	74	40.19% Pervious Area
	0.640	98	59.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1B: Developed Conditions Basin #1B



Summary for Subcatchment 2A: Developed Conditions Basin #2A

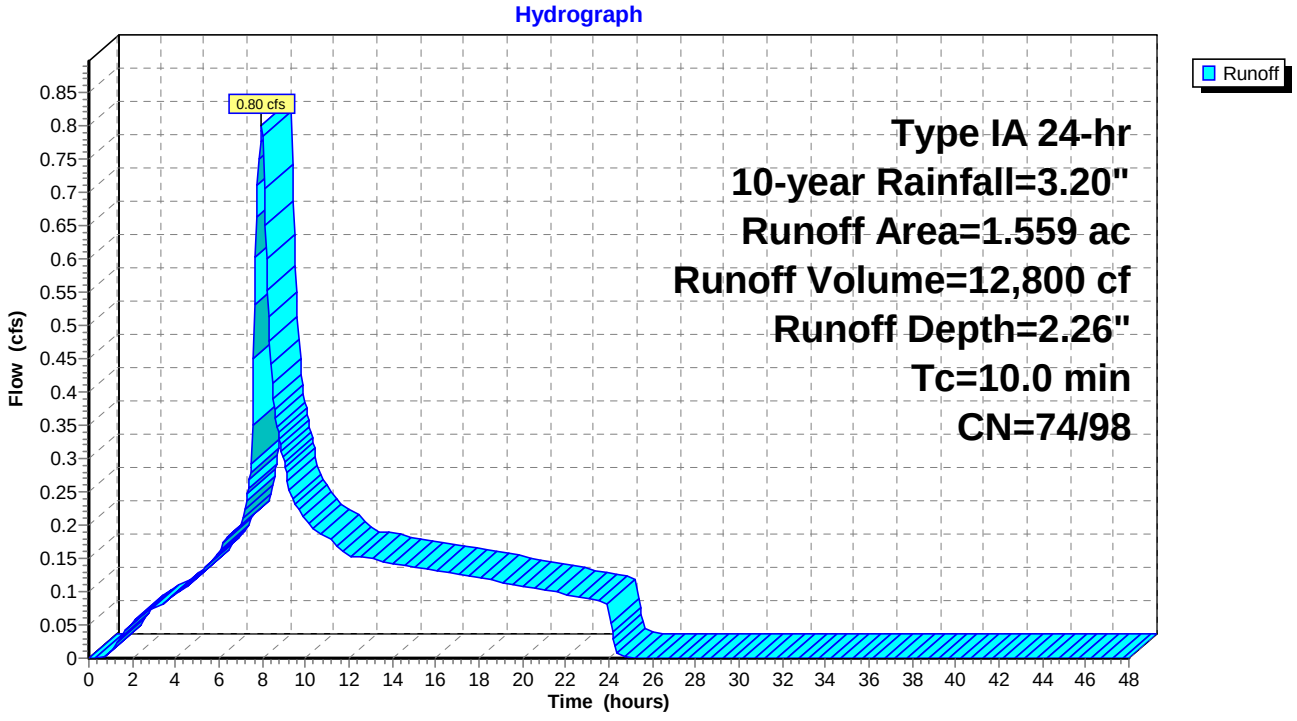
Runoff = 0.80 cfs @ 7.98 hrs, Volume= 12,800 cf, Depth= 2.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
	0.570	74	>75% Grass cover, Good, HSG C
*	0.840	98	Impervious surface, HSG C
	0.149	98	Paved roads w/curbs & sewers, HSG C
	1.559	89	Weighted Average
	0.570	74	36.56% Pervious Area
	0.989	98	63.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2A: Developed Conditions Basin #2A



Summary for Subcatchment 2B: Developed Conditions Basin #2B

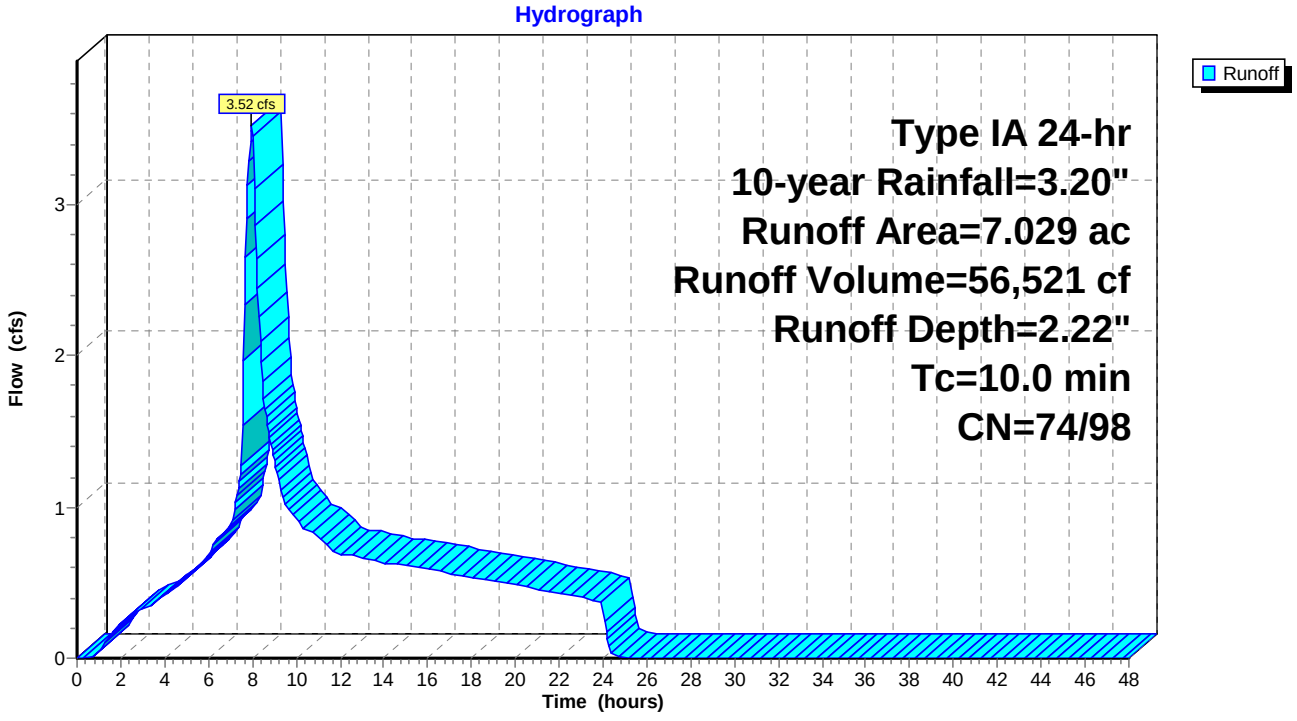
Runoff = 3.52 cfs @ 7.98 hrs, Volume= 56,521 cf, Depth= 2.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.20"

	Area (ac)	CN	Description
	2.740	74	>75% Grass cover, Good, HSG C
*	4.110	98	Impervious surface, HSG C
	0.179	98	Paved roads w/curbs & sewers, HSG C
	7.029	89	Weighted Average
	2.740	74	38.98% Pervious Area
	4.289	98	61.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2B: Developed Conditions Basin #2B



Summary for Subcatchment Ex1: Existing Conditions Basin #1

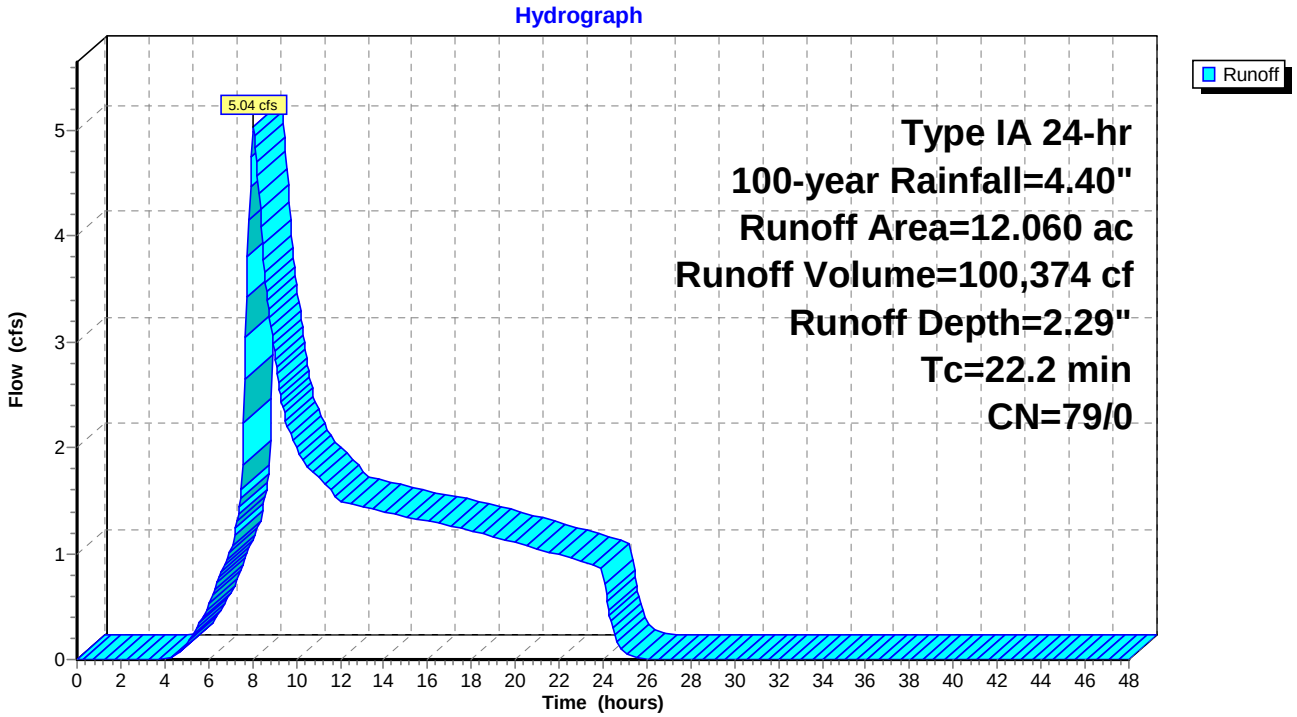
Runoff = 5.04 cfs @ 8.05 hrs, Volume= 100,374 cf, Depth= 2.29"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	12.060	79	City of Salem Pre-developed, HSG C
	12.060	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex1: Existing Conditions Basin #1



Summary for Subcatchment Ex2A: Existing Conditions Basin #2A

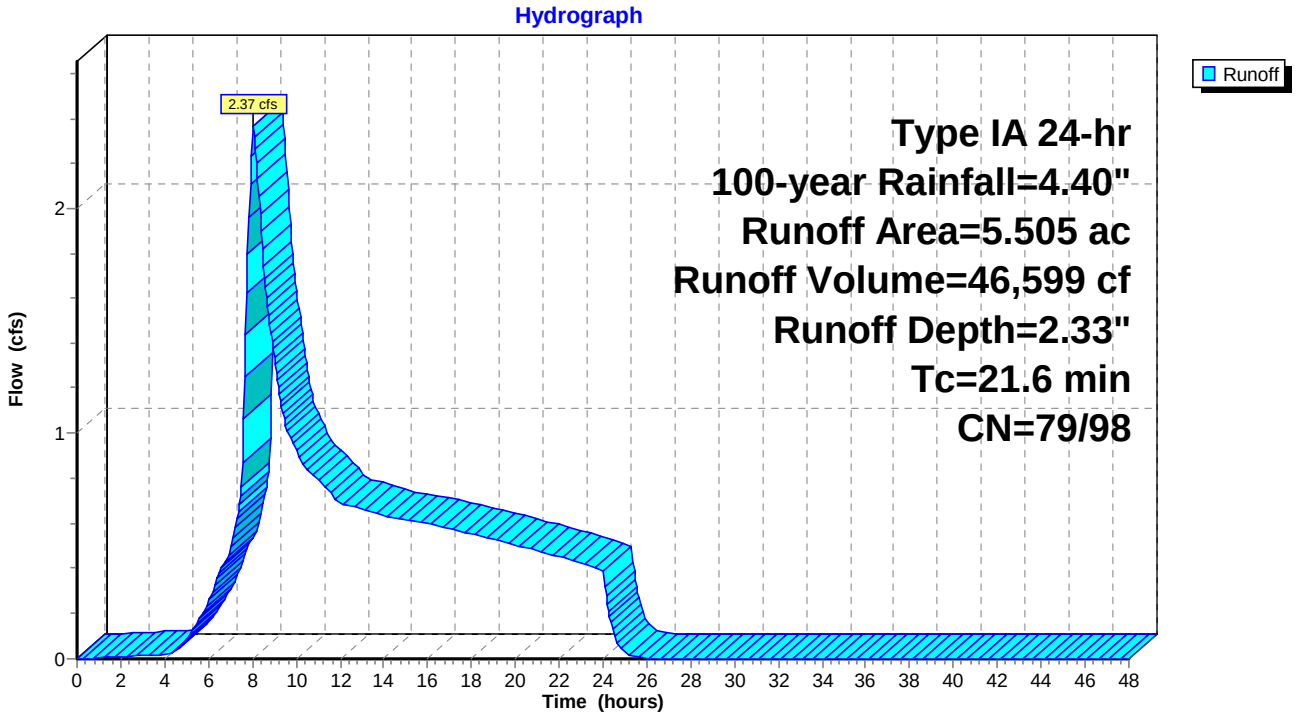
Runoff = 2.37 cfs @ 8.04 hrs, Volume= 46,599 cf, Depth= 2.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	5.390	79	City of Salem Pre-developed, HSG C
	0.115	98	Paved roads w/curbs & sewers, HSG C
	5.505	79	Weighted Average
	5.390	79	97.91% Pervious Area
	0.115	98	2.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2A: Existing Conditions Basin #2A



Summary for Subcatchment Ex2B: Existing Conditions Basin #2B

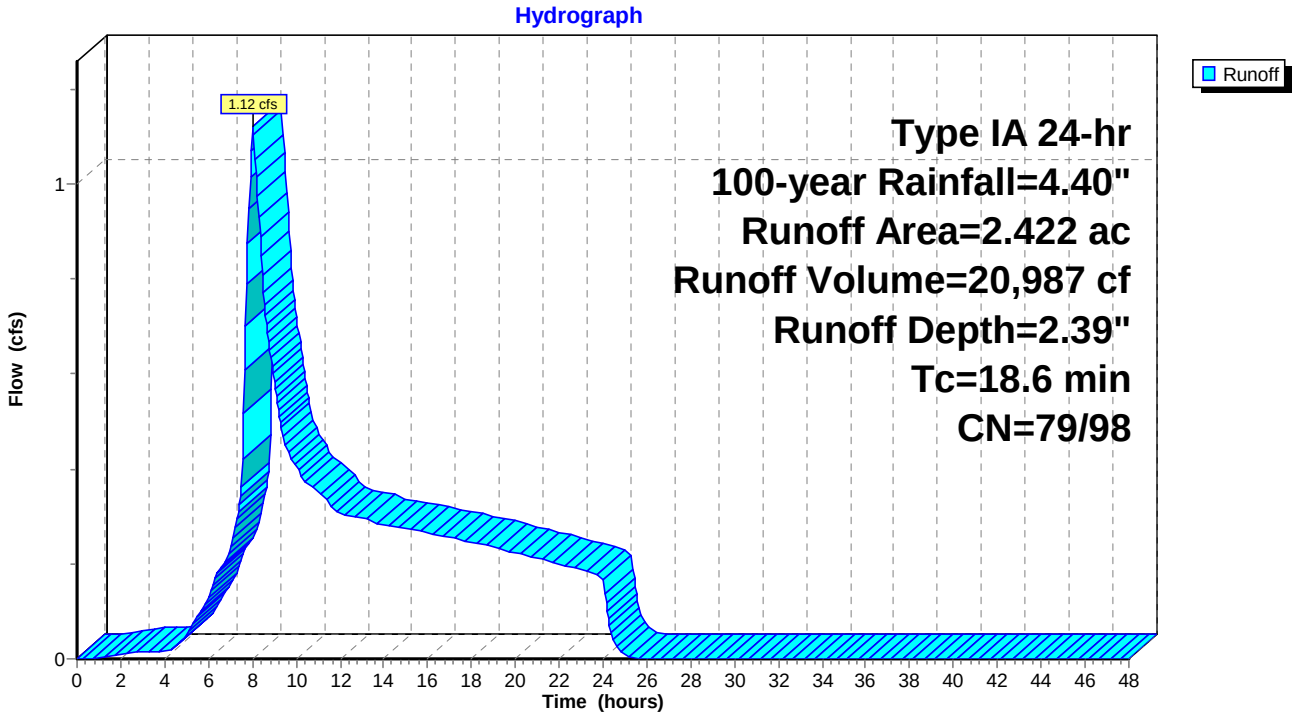
Runoff = 1.12 cfs @ 8.03 hrs, Volume= 20,987 cf, Depth= 2.39"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	2.300	79	City of Salem Pre-developed, HSG C
	0.122	98	Paved roads w/curbs & sewers, HSG C
	2.422	80	Weighted Average
	2.300	79	94.96% Pervious Area
	0.122	98	5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2B: Existing Conditions Basin #2B



Summary for Subcatchment 1A: Developed Conditions Basin #1A

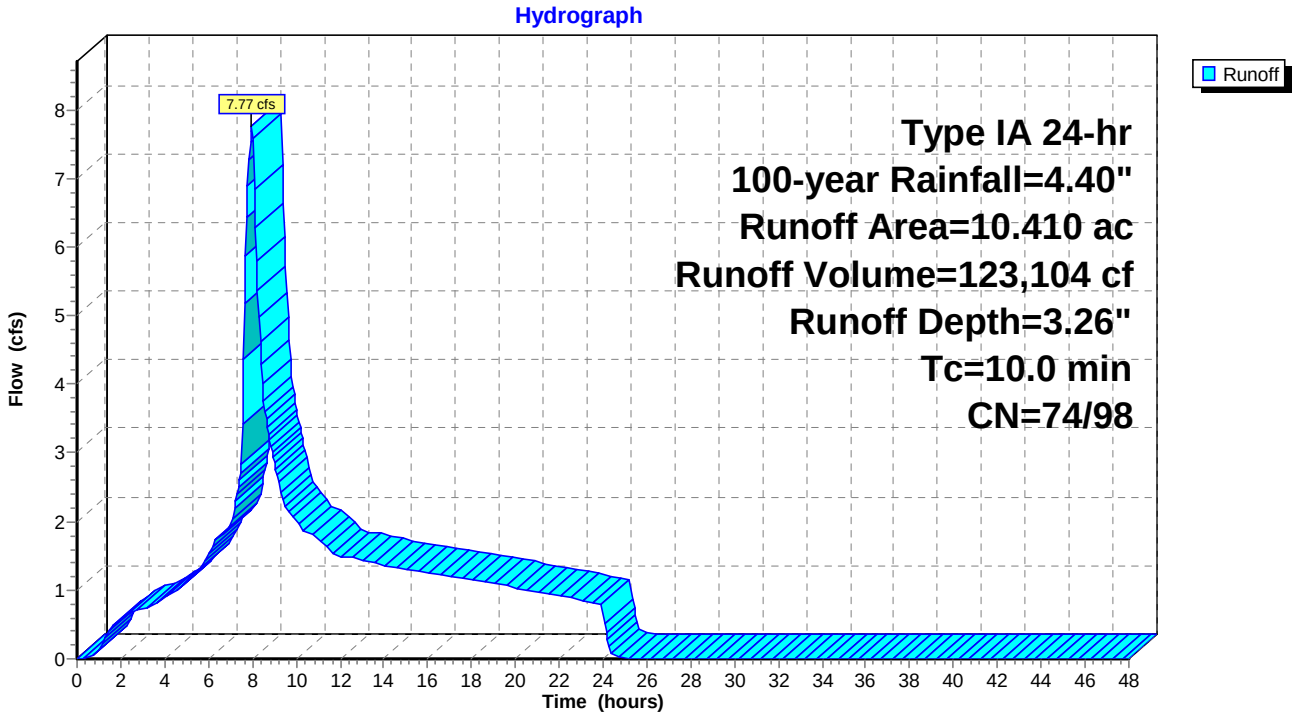
Runoff = 7.77 cfs @ 7.98 hrs, Volume= 123,104 cf, Depth= 3.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
	4.160	74	>75% Grass cover, Good, HSG C
*	6.250	98	Impervious surface, HSG C
	10.410	88	Weighted Average
	4.160	74	39.96% Pervious Area
	6.250	98	60.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1A: Developed Conditions Basin #1A



Summary for Subcatchment 1B: Developed Conditions Basin #1B

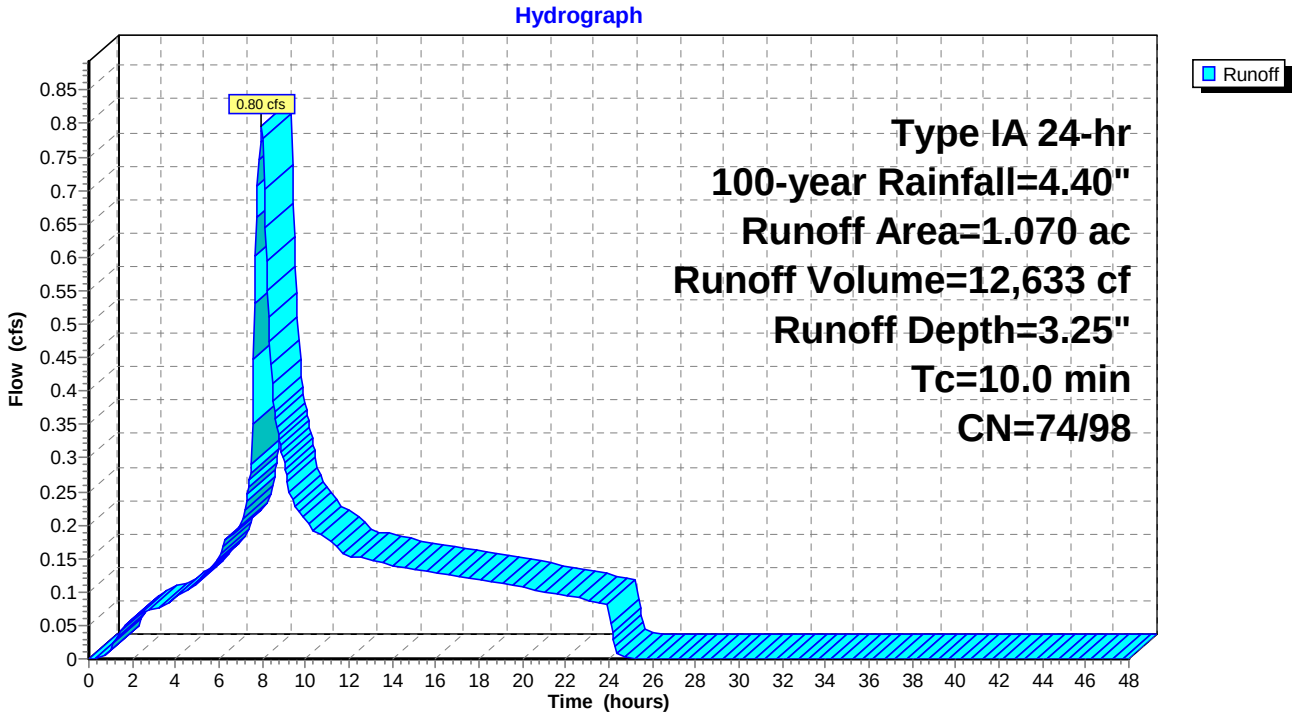
Runoff = 0.80 cfs @ 7.98 hrs, Volume= 12,633 cf, Depth= 3.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
	0.430	74	>75% Grass cover, Good, HSG C
*	0.640	98	Impervious surface, HSG C
	1.070	88	Weighted Average
	0.430	74	40.19% Pervious Area
	0.640	98	59.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1B: Developed Conditions Basin #1B



Summary for Subcatchment 2A: Developed Conditions Basin #2A

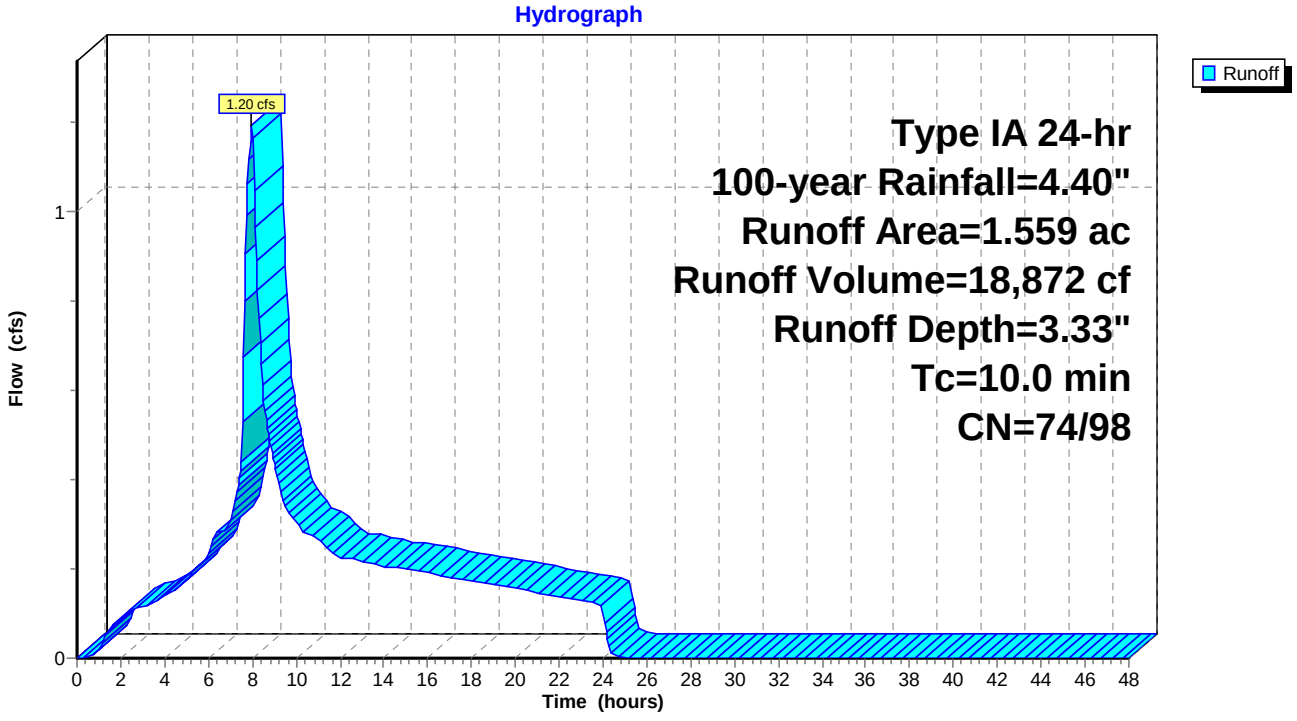
Runoff = 1.20 cfs @ 7.98 hrs, Volume= 18,872 cf, Depth= 3.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
	0.570	74	>75% Grass cover, Good, HSG C
*	0.840	98	Impervious surface, HSG C
	0.149	98	Paved roads w/curbs & sewers, HSG C
	1.559	89	Weighted Average
	0.570	74	36.56% Pervious Area
	0.989	98	63.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2A: Developed Conditions Basin #2A



Summary for Subcatchment 2B: Developed Conditions Basin #2B

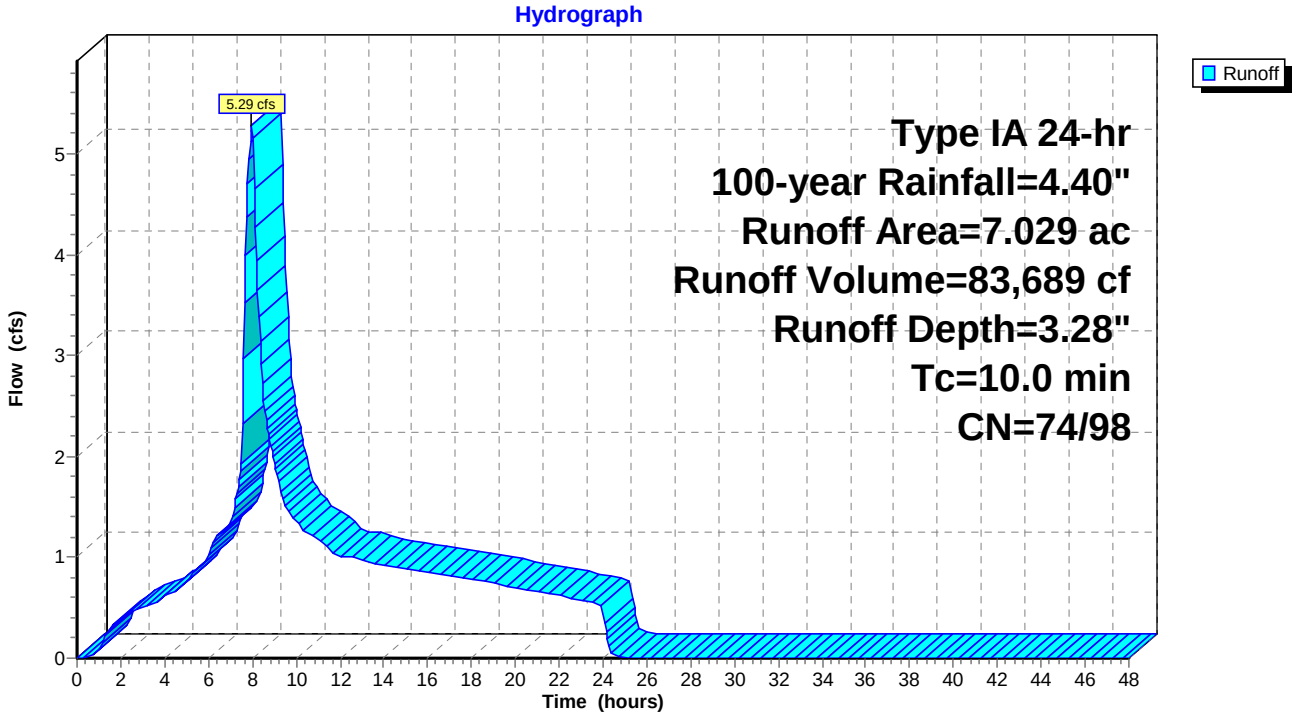
Runoff = 5.29 cfs @ 7.98 hrs, Volume= 83,689 cf, Depth= 3.28"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

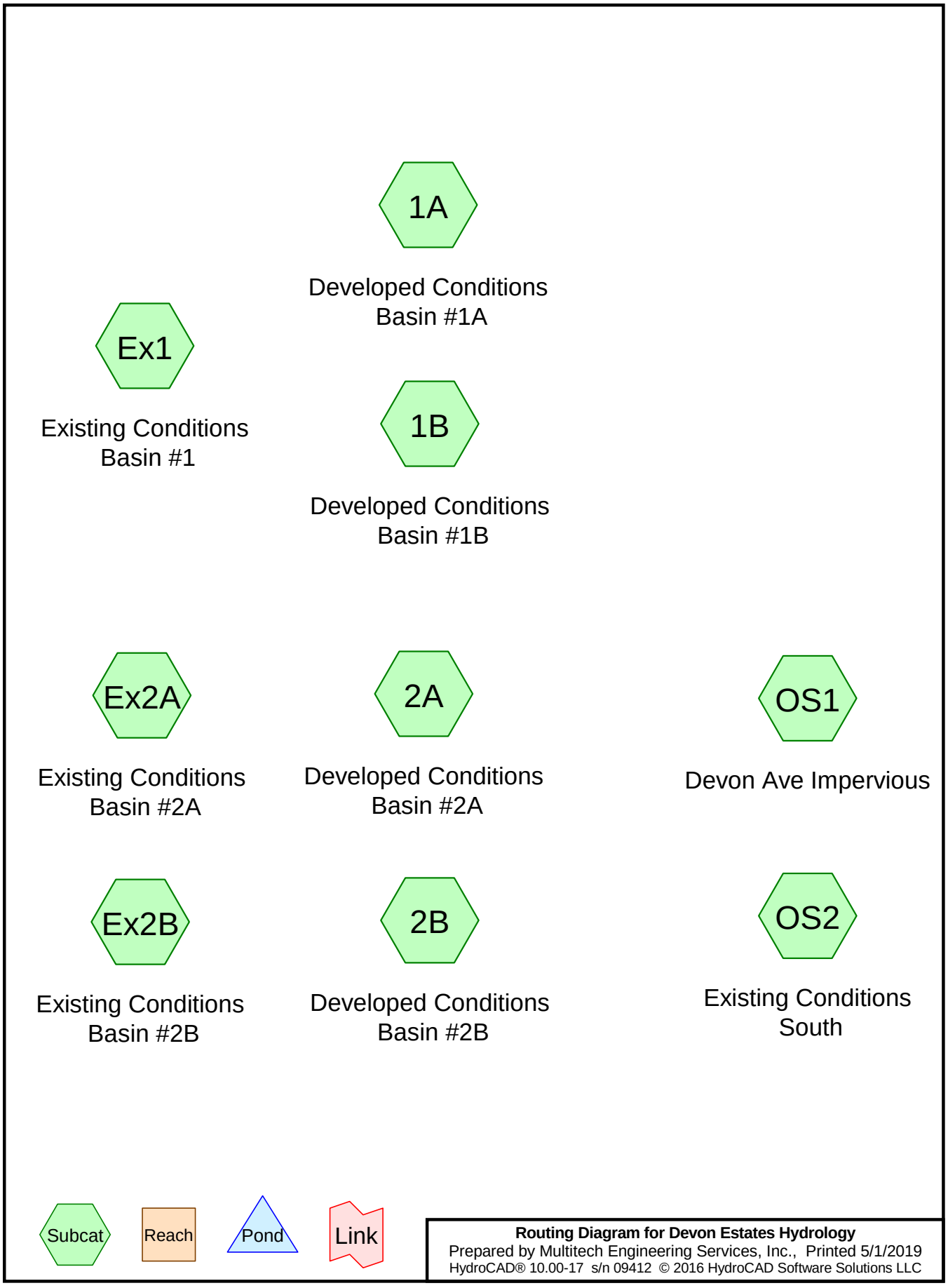
	Area (ac)	CN	Description
	2.740	74	>75% Grass cover, Good, HSG C
*	4.110	98	Impervious surface, HSG C
	0.179	98	Paved roads w/curbs & sewers, HSG C
	7.029	89	Weighted Average
	2.740	74	38.98% Pervious Area
	4.289	98	61.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment 2B: Developed Conditions Basin #2B



Appendix E


1A
Developed Conditions
Basin #1A
Ex1
Existing Conditions
Basin #1
1B
Developed Conditions
Basin #1B
Ex2A
Existing Conditions
Basin #2A
2A
Developed Conditions
Basin #2A
OS1
Devon Ave Impervious
Ex2B
Existing Conditions
Basin #2B
2B
Developed Conditions
Basin #2B
OS2
Existing Conditions
South
Subcat
Reach
Pond
Link
Routing Diagram for Devon Estates Hydrology
Prepared by Multitech Engineering Services, Inc., Printed 5/1/2019
HydroCAD® 10.00-17 s/n 09412 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1A: Developed Conditions Basin #1A

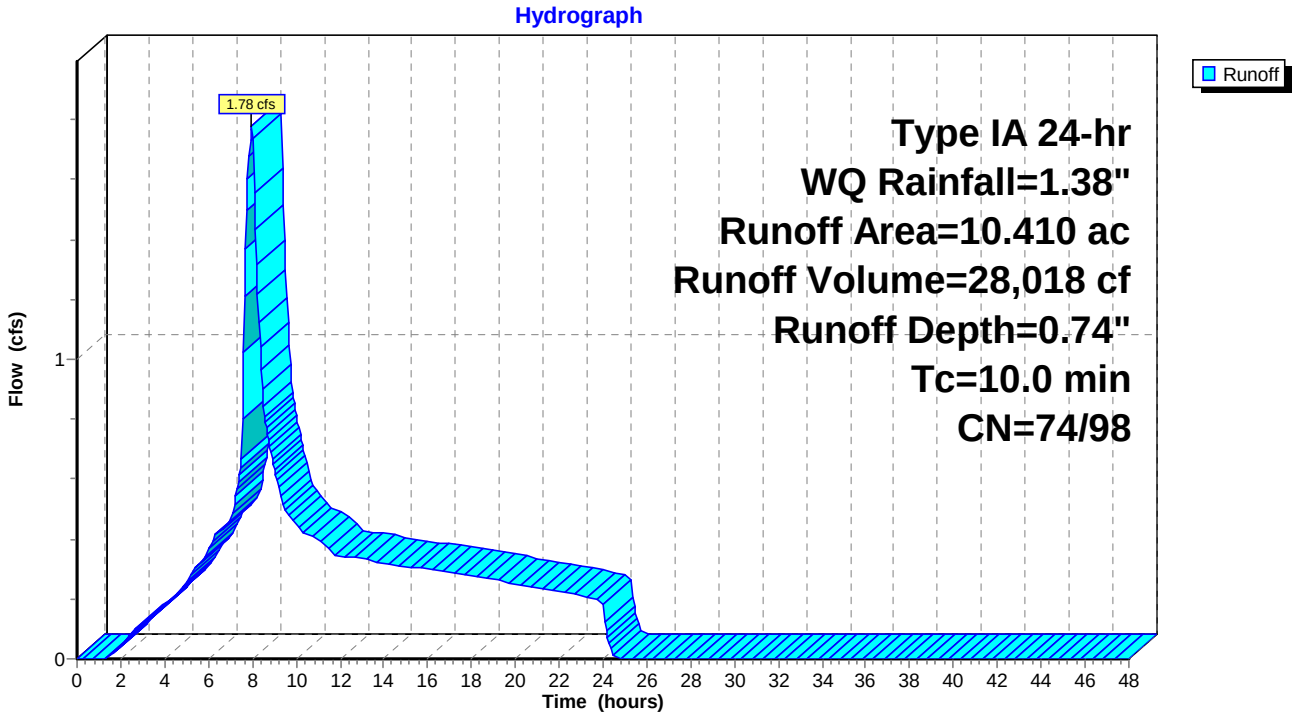
Runoff = 1.78 cfs @ 7.98 hrs, Volume= 28,018 cf, Depth= 0.74"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
	4.160	74	>75% Grass cover, Good, HSG C
*	6.250	98	Impervious surface, HSG C
	10.410	88	Weighted Average
	4.160	74	39.96% Pervious Area
	6.250	98	60.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1A: Developed Conditions Basin #1A



Summary for Subcatchment 1B: Developed Conditions Basin #1B

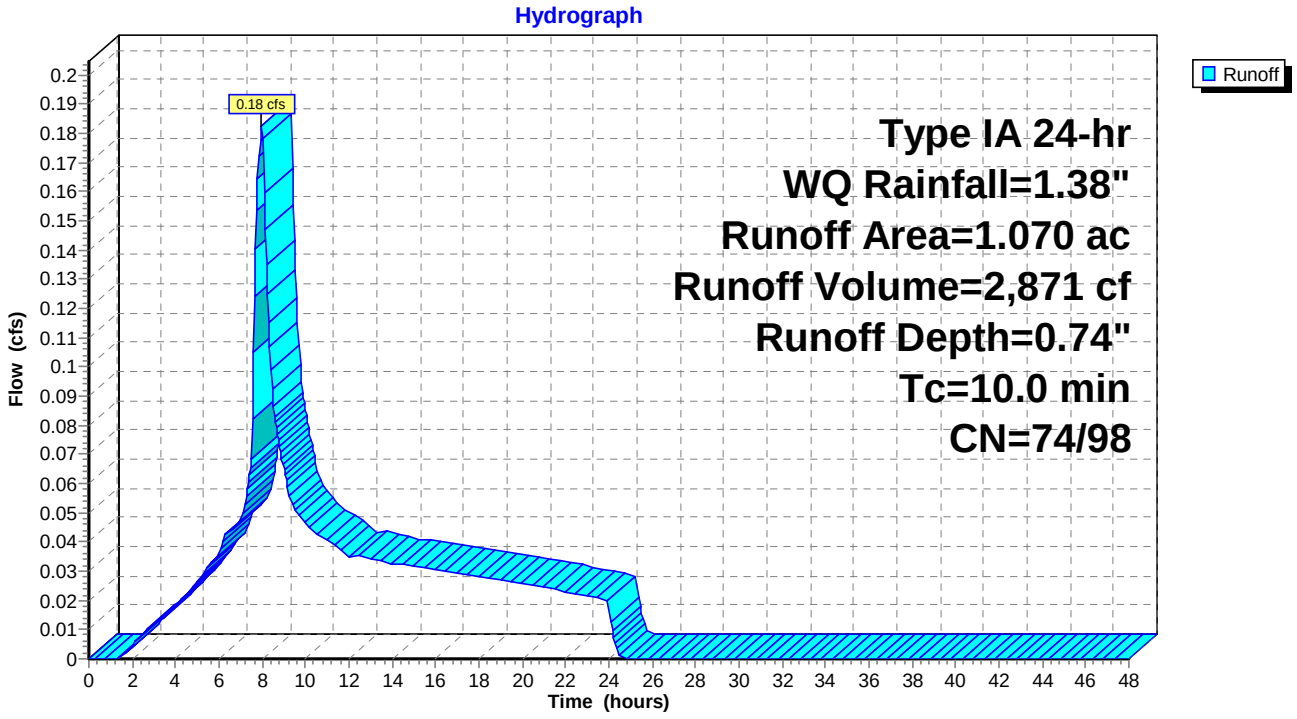
Runoff = 0.18 cfs @ 7.98 hrs, Volume= 2,871 cf, Depth= 0.74"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
	0.430	74	>75% Grass cover, Good, HSG C
*	0.640	98	Impervious surface, HSG C
	1.070	88	Weighted Average
	0.430	74	40.19% Pervious Area
	0.640	98	59.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct Entry**

Subcatchment 1B: Developed Conditions Basin #1B



Summary for Subcatchment Ex2A: Existing Conditions Basin #2A

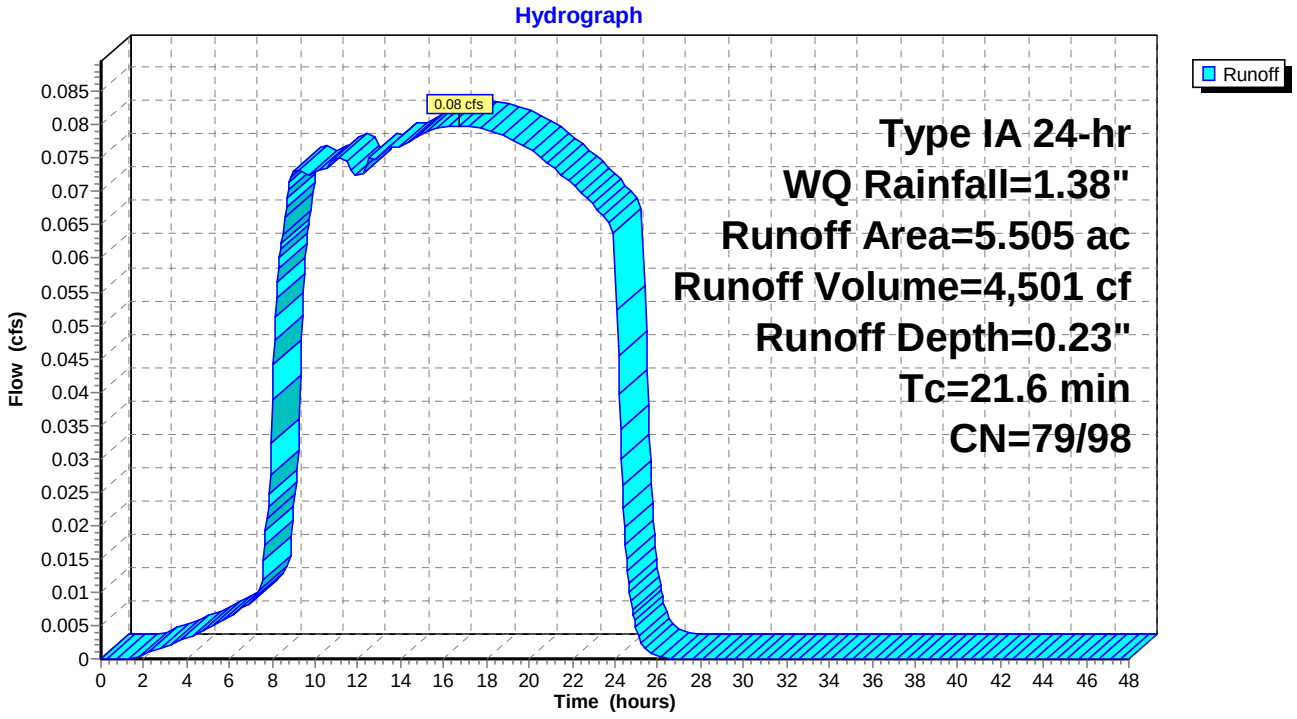
Runoff = 0.08 cfs @ 16.70 hrs, Volume= 4,501 cf, Depth= 0.23"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
*	5.390	79	City of Salem Pre-developed, HSG C
	0.115	98	Paved roads w/curbs & sewers, HSG C
	5.505	79	Weighted Average
	5.390	79	97.91% Pervious Area
	0.115	98	2.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2A: Existing Conditions Basin #2A



Summary for Subcatchment Ex2B: Existing Conditions Basin #2B

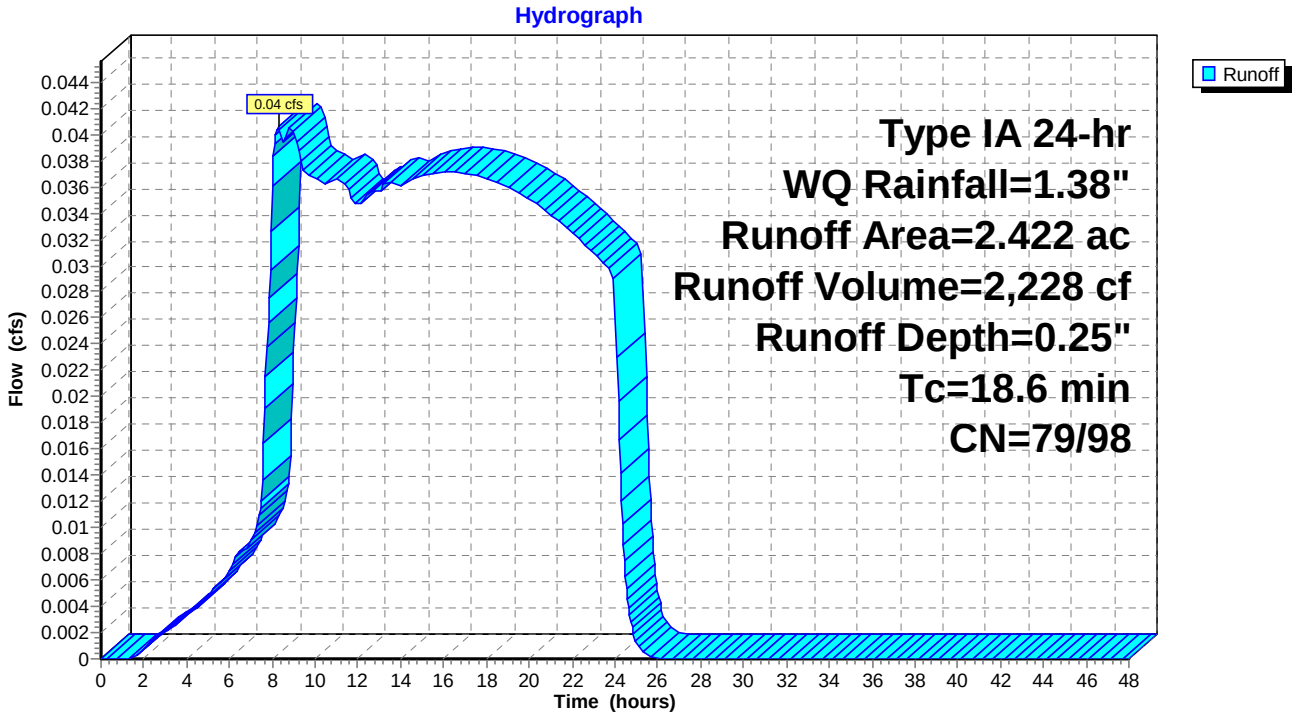
Runoff = 0.04 cfs @ 8.28 hrs, Volume= 2,228 cf, Depth= 0.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
*	2.300	79	City of Salem Pre-developed, HSG C
	0.122	98	Paved roads w/curbs & sewers, HSG C
	2.422	80	Weighted Average
	2.300	79	94.96% Pervious Area
	0.122	98	5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2B: Existing Conditions Basin #2B



Summary for Subcatchment OS1: Devon Ave Impervious

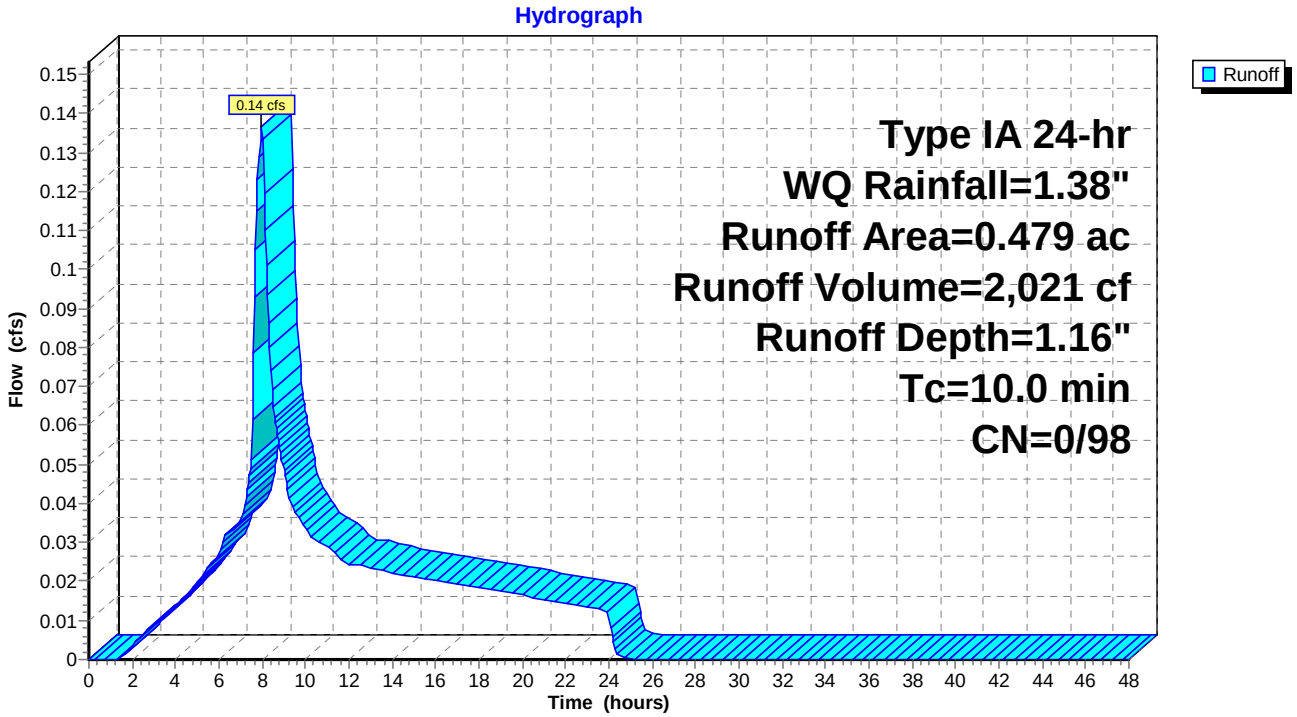
Runoff = 0.14 cfs @ 7.98 hrs, Volume= 2,021 cf, Depth= 1.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
*	0.479	98	Impervious surface, HSG C
	0.479	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment OS1: Devon Ave Impervious



Summary for Subcatchment OS2: Existing Conditions South

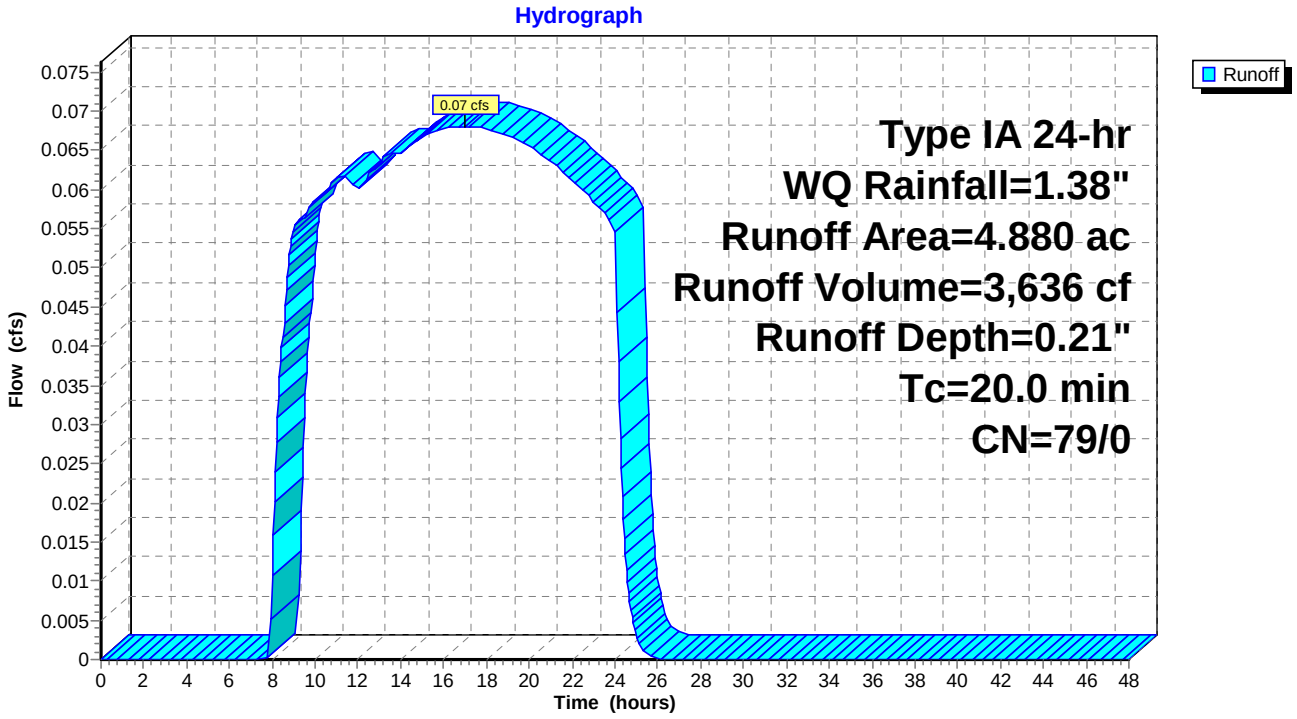
Runoff = 0.07 cfs @ 16.99 hrs, Volume= 3,636 cf, Depth= 0.21"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (ac)	CN	Description
*	4.880	79	City of Salem Pre-developed, HSG C
	4.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry, TR-55 Worksheet**

Subcatchment OS2: Existing Conditions South



Summary for Subcatchment Ex2B: Existing Conditions Basin #2B

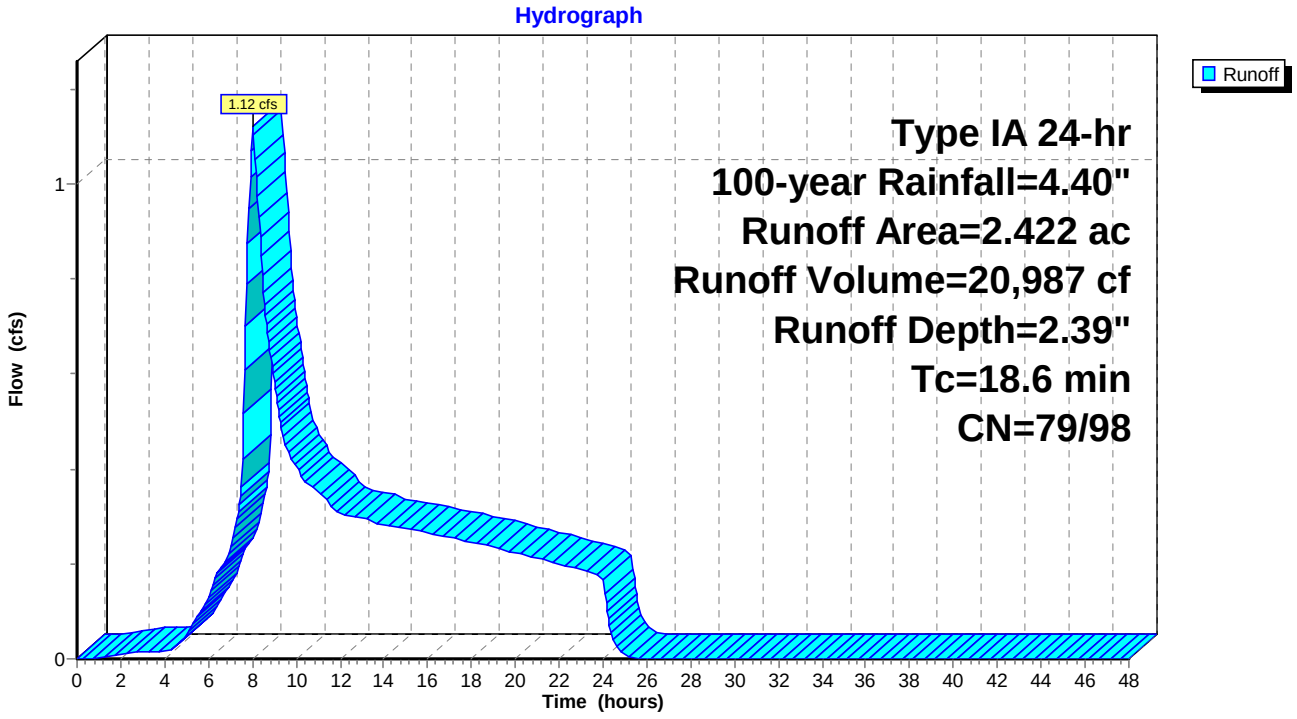
Runoff = 1.12 cfs @ 8.03 hrs, Volume= 20,987 cf, Depth= 2.39"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	2.300	79	City of Salem Pre-developed, HSG C
	0.122	98	Paved roads w/curbs & sewers, HSG C
	2.422	80	Weighted Average
	2.300	79	94.96% Pervious Area
	0.122	98	5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6					**Direct Entry, TR-55 Worksheet**

Subcatchment Ex2B: Existing Conditions Basin #2B



Summary for Subcatchment OS1: Devon Ave Impervious

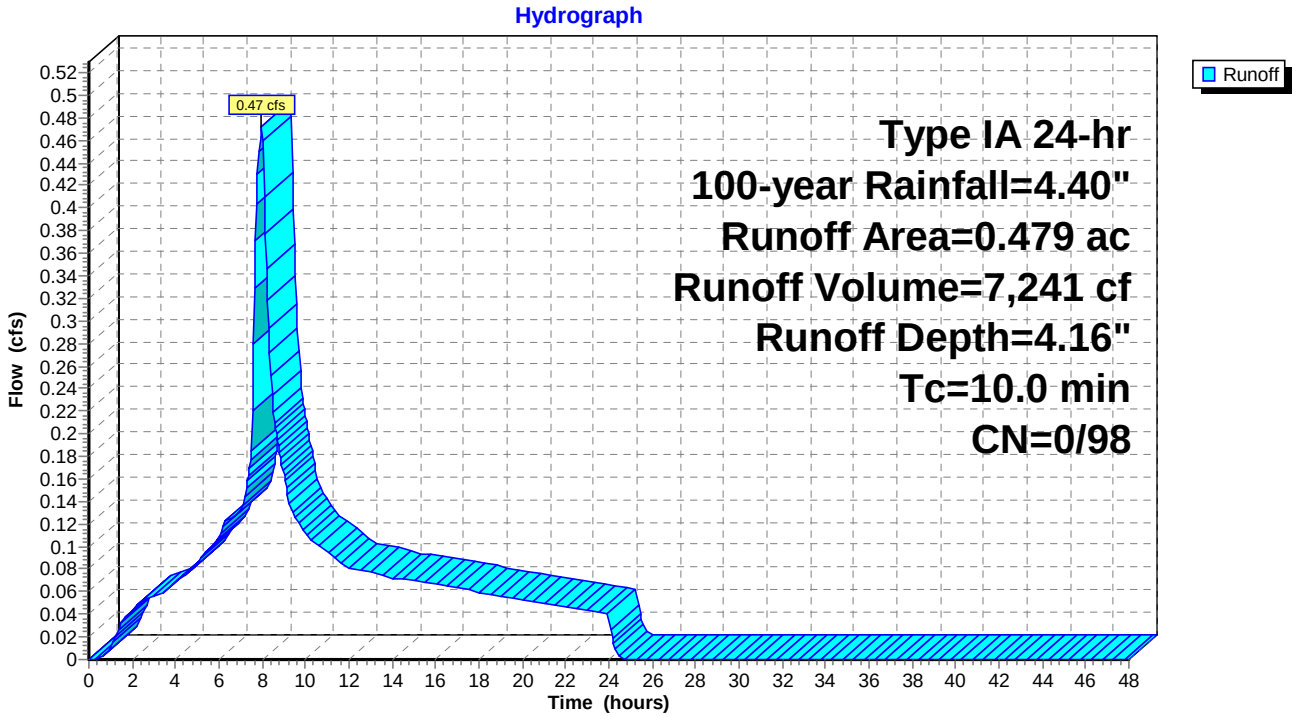
Runoff = 0.47 cfs @ 7.98 hrs, Volume= 7,241 cf, Depth= 4.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	0.479	98	Impervious surface, HSG C
	0.479	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Direct entry**

Subcatchment OS1: Devon Ave Impervious



Summary for Subcatchment OS2: Existing Conditions South

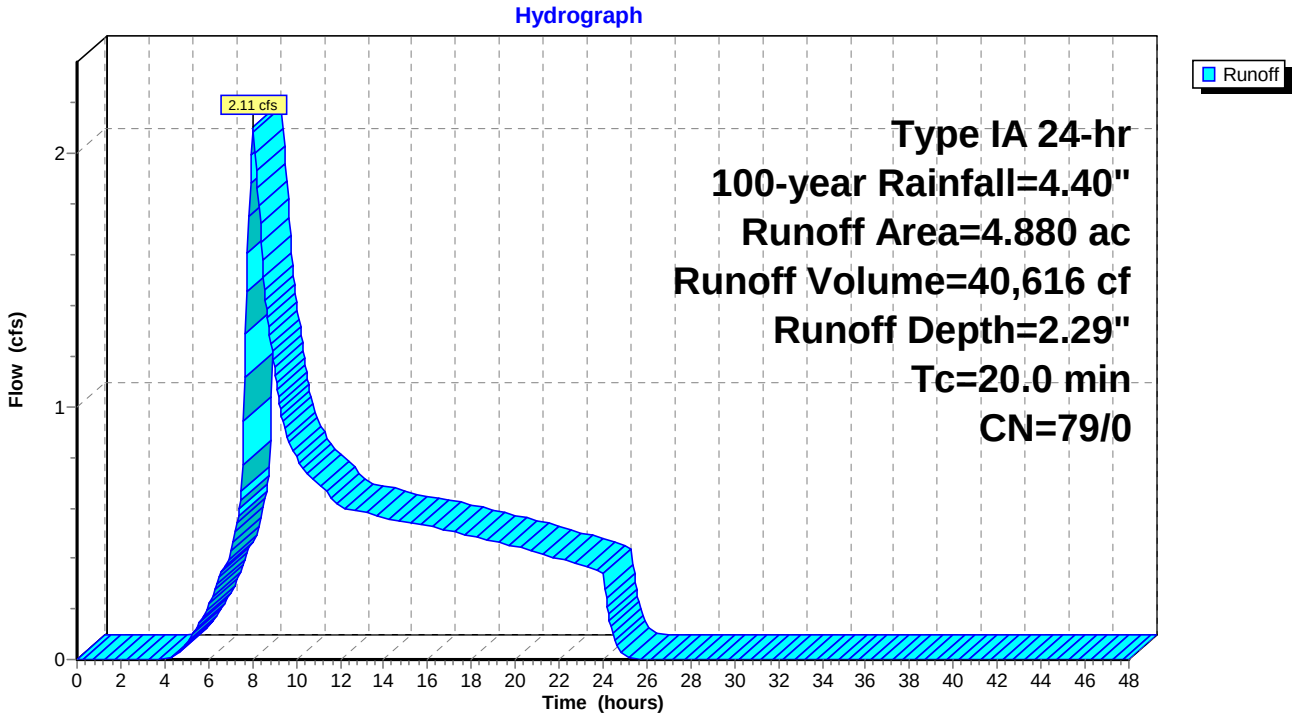
Runoff = 2.11 cfs @ 8.04 hrs, Volume= 40,616 cf, Depth= 2.29"

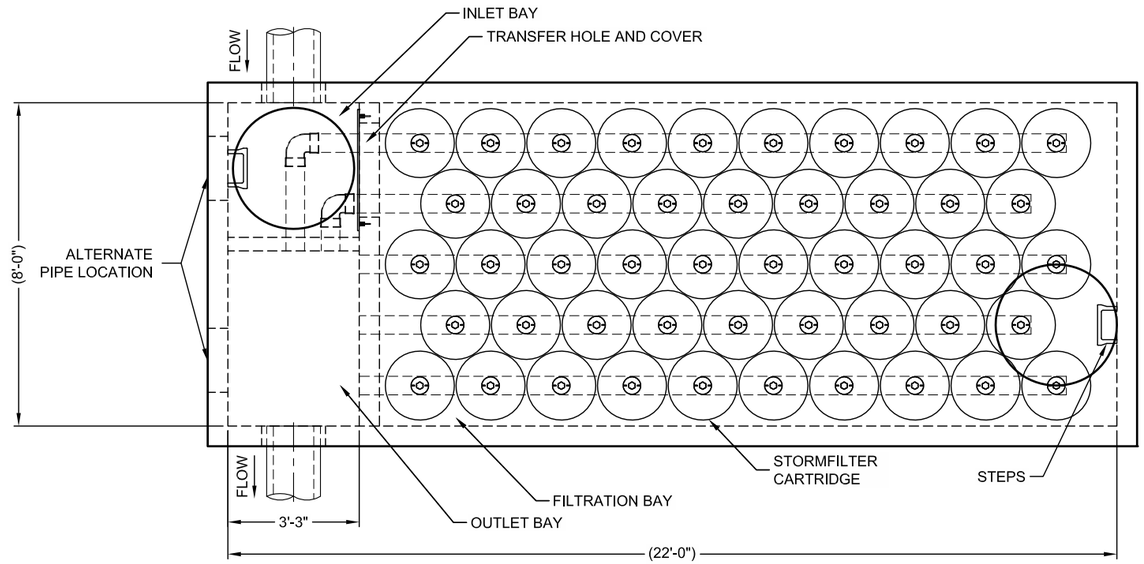
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-year Rainfall=4.40"

	Area (ac)	CN	Description
*	4.880	79	City of Salem Pre-developed, HSG C
	4.880	79	100.00% Pervious Area

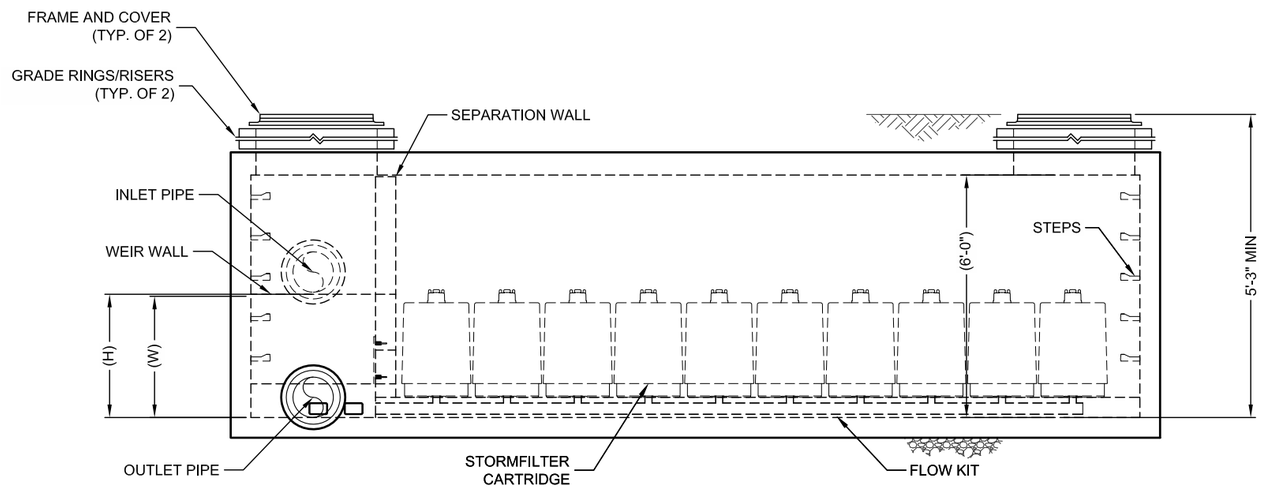
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry, TR-55 Worksheet**

Subcatchment OS2: Existing Conditions South





PLAN VIEW



ELEVATION

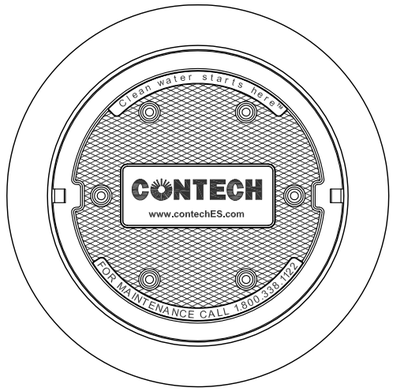
STORMFILTER DESIGN NOTES

- THE 8' x 22' PEAK DIVERSION STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.
- THE PEAK DIVERSION STORMFILTER IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR RIGHT INLET CONFIGURATION.
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
HEIGHT OF WEIR (W)	3.00'			2.25'			1.75'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB ® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE	*	*	*
OUTLET PIPE	*	*	*

UPSTREAM RIM ELEVATION	*
DOWNSTREAM RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7-INCHES**. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **38 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH® ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

THE STORMWATER MANAGEMENT STORMFILTER 8' x 22' PEAK DIVERSION STORMFILTER STANDARD DETAIL

Design Exception Request

2014 City of Salem's Public Works Administrative Rules Chapter 109, Division 004

Grantham Crest Subdivision (Previously Devon Estates)

Division	Section	Exception	Reason	City Engineer Approval Initials	Date
Stormwater System	4E.7	Allow non-GSI facilities, Manufactured Treatment Technologies, to mitigate the impacts of runoff from 60 percent of the development	The proposed subdivision is located on natural steep slopes that exceed 10 percent for the westerly portion of the development where the proposed Manufactured Treatment Technology will be located. Steep slopes of this nature do not allow GSI facilities to be constructed and are not feasible. The maximum slope for a swale is 6 percent. For planter facilities, concrete check dams would be required every 2-feet.		

REDMOND GEOTECHNICAL SERVICES

Geotechnical Investigation

and

Geologic Hazard Assessment Services

Proposed Devon Avenue Residential Subdivision Site

Tax Lot No. 300 (Lots 13 and 14)

6719 Devon Avenue SE

Salem (Marion County), Oregon

for

Multi/Tech Engineering Services, Inc.

Project No. 1001.052.G
August 11, 2017

REDMOND GEOTECHNICAL SERVICES

August 11, 2017

Mr. Mark D. Grenz
Multi/Tech Engineering Services, Inc.
1155 13th Street SE
Salem, Oregon 97302

Dear Mr. Grenz:

Re: Geotechnical Investigation and Geologic Hazard Assessment Services, Proposed Devon Avenue Residential Subdivision Site, Tax Lot No. 300 (Lots 13 and 14), 6719 Devon Avenue SE, Salem (Marion County), Oregon

Submitted herewith is our report entitled "Geotechnical Investigation and Geologic Hazard Assessment Services, Proposed Devon Avenue Residential Subdivision Site, Tax Lot No. 300 (Lots 13 and 14), 6719 Devon Avenue SE, Salem (Marion County), Oregon". The scope of our services was outlined in our formal discussions with Mr. Mark D. Grenz of Multi/Tech Engineering Services, Inc on June 29, 2017. Verbal authorization of our services was provided by Mr. Mark D. Grenz on June 29, 2017.

During the course of our investigation, we have kept you and/or others advised of our schedule and preliminary findings. We appreciate the opportunity to assist you with this phase of the project. Should you have any questions regarding this report, please do not hesitate to call.

Sincerely,

Daniel M. Redmond, P.E., G.E.
President/Principal Engineer

12-3-18

PO Box 20547 • Portland, Oregon 97294 • Fax 503/286-7176 • Phone 503/285-0598

TABLE OF CONTENTS

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GEOTECHNICAL INVESTIGATION AND GEOLOGIC HAZARD ASSESSMENT
PROPOSED DEVON AVENUE RESIDENTIAL DEVELOPMENT SITE
TAX LOT NO. 300 (LOTS 13 AND 14)
6719 DEVON AVENUE SE
SALEM (MARION COUNTY) OREGON

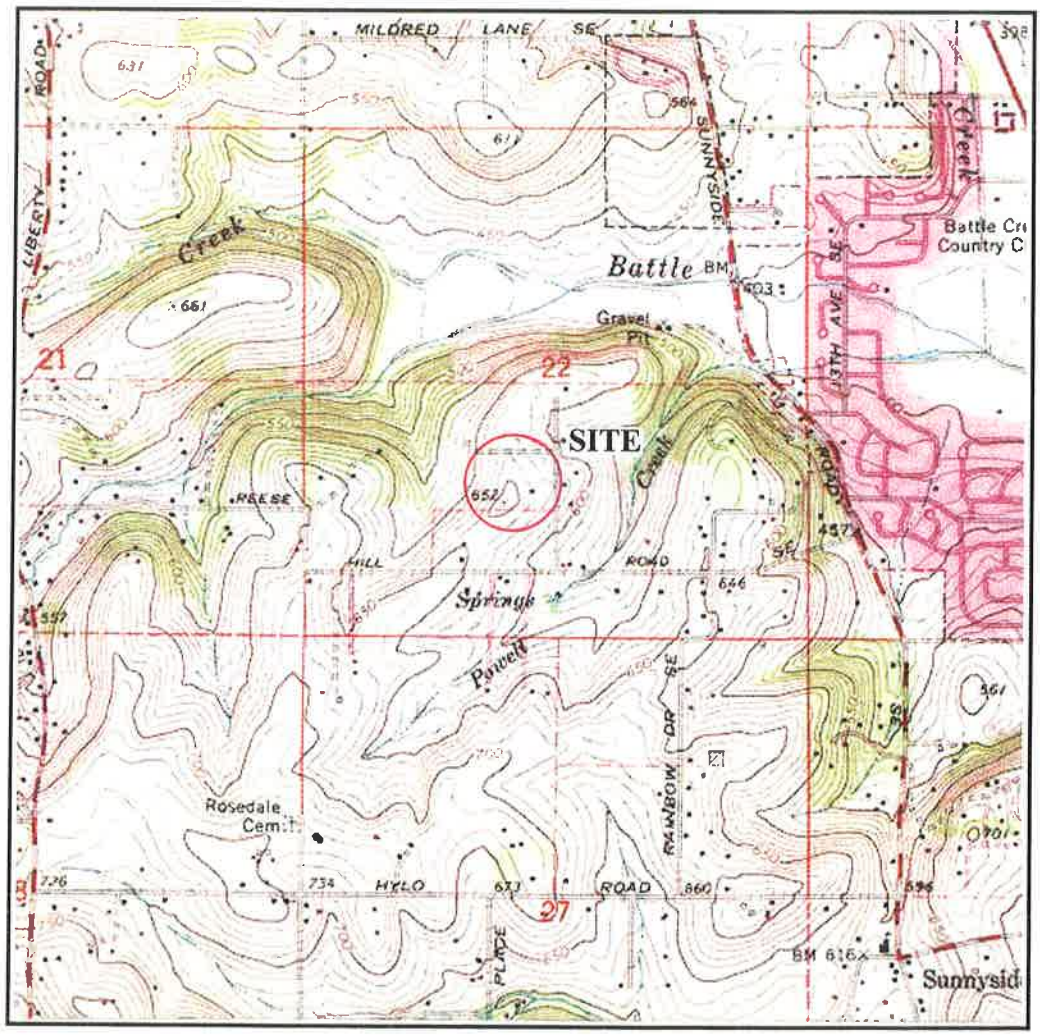
INTRODUCTION

Redmond Geotechnical Services, LLC is please to submit to you the results of our Geotechnical Investigation and Geologic Hazard Assessment at the site of the proposed new residential development located to the west of Devon Avenue SE and to the north of Reese Hill Road SE in Salem (Marion County), Oregon. The general location of the subject site is shown on the Site Vicinity Map, Figure No. 1. The purpose of our geotechnical investigation and geologic hazard study services at this time was to explore the existing subsurface soils and/or groundwater conditions across the subject site and to evaluate any potential concerns with regard to potential slope failure at the site as well as to develop and/or provide appropriate geotechnical design and construction recommendations for the proposed new residential development project.

PROJECT DESCRIPTION

We understand that present plans are to develop the subject property into new single-family residential lots. Although the project is still in the preliminary planning stages, we understand that the proposed new residential development will consist of the construction of approximately ninety (90) new single-family residential lots ranging in size from about 6,000 to 10,000 square feet (see Site Exploration Plan, Figure No. 2). The new residential homes are anticipated to be of two- and/or three-story structures constructed with wood framing. Support of the new residential structures is anticipated to consist primarily of conventional shallow strip (continuous) footings although some individual (column) footings may also be required. Structural loading information, although unavailable at this time, is anticipated to be fairly typical and light for this type of wood-frame single-family residential structure and is expected to result in maximum dead plus live continuous (strip) and individual (column) footing loads on the order of about 1.5 to 2.5 kips per lineal foot (klf) and 10 to 25 kips, respectively.

Although a site grading plan is not available at this time, we understand that both cuts and fills are presently planned for the residential project. In general, relatively minor cuts and/or fills (i.e., 5 to 8 feet) will be required across the proposed residential lots as well as the proposed new public street improvements. In this regard, due to the existing and/or finish grade sloping site conditions, some of the proposed new single-family residential structures and/or lots may also include the construction of a partial below grade floor(s) and/or retaining walls.



SIDNEY QUADRANGLE
OREGON
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 SALEM 15' QUADRANGLE

SCALE 1:24 000

1 0 1/2 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SITE VICINITY MAP

Project No. 1001.052.G	**DEVON AVENUE SUBDIVISION** **TL 300, 6719 DEVON AVENUE SE**	Figure No. 1

Other associated site improvements for the project will include construction of new public street improvements along Devon Avenue SE as well as new local residential streets. Additionally, the project will include the construction of new underground utility services as well as new concrete curbs and sidewalks. Further, we understand that the project will also include the collection of storm water from hard and//or impervious surfaces (i.e., roofs and pavements) for possible on-site treatment and/or disposal in a storm water system designed by the project civil engineer.

SCOPE OF WORK

The purpose of our geotechnical and/or geologic studies was to evaluate the overall subsurface soil and/or groundwater conditions underlying the subject site with regard to the proposed new residential development and construction at the site and any associated impacts or concerns with respect to potential slope failure at the site as well as provide appropriate geotechnical design and construction recommendations for the project. Additionally, due to the moderately steep sloping site gradients, a slope stability analysis was also performed.

Specifically, our geotechnical investigation and landslide hazard study performed as a collaboration with Northwest Geological Services, Inc. (NWGS, Inc.) included the following scope of work items:

1. Review of available and relevant geologic and/or geotechnical investigation reports for the subject site and/or area.

2. A detailed field reconnaissance and subsurface exploration program of the soil and ground water conditions underlying the site by means of eight (8) exploratory test pit excavations. The exploratory test pits were excavated to depths ranging from about five (5) to six (6) feet beneath existing site grades at the approximate locations as shown on the Site Exploration Plan, Figure No. 2. Additionally, field infiltration testing was also performed within two (2) of the test pit excavations.

3. Laboratory testing to evaluate and identify pertinent physical and engineering properties of the subsurface soils encountered relative to the planned site development and construction at the site. The laboratory testing program included tests to help evaluate the natural (field) moisture content and dry density, maximum dry density and optimum moisture content, expansion index, gradational characteristics, Atterberg Limits and (remolded) direct shear strength tests as well as "R"-value tests.

4. A literature review and engineering evaluation and assessment of the regional seismicity to evaluate the potential ground motion hazard(s) at the subject site. The evaluation and assessment included a review of the regional earthquake history and sources such as potential seismic sources, maximum credible earthquakes, and reoccurrence intervals as well as a discussion of the possible ground response to the selected design earthquake(s), fault rupture, landsliding, liquefaction, and tsunami and seiche flooding.

5. Engineering analyses utilizing the field and laboratory data as a basis for furnishing recommendations for foundation support of the proposed new residential structures. Recommendations include maximum design allowable contact bearing pressure(s), depth of footing embedment, estimates of foundation settlement, lateral soil resistance, and foundation subgrade preparation. Additionally, construction and/or permanent subsurface water drainage considerations have also been prepared. Further, our report includes recommendations regarding site preparation, placement and compaction of structural fill materials, suitability of the on-site soils for use as structural fill, criteria for import fill materials as well as preparation of foundation, pavement and/or floor slab subgrades.

6. Flexible pavement design and construction recommendations for the proposed new public street improvements.

SITE CONDITIONS

Site Geology

The subject site and/or area is underlain by highly weathered Basalt bedrock deposits and/or residual soils of the Columbia River Basalt formation. A more detailed description of the site geology across and/or beneath the site is presented in the Geologic Hazard Study in Appendix B.

Surface Conditions

The subject proposed new residential development property consists of one (1) rectangular shaped tax lot (Tax Lot 300) which includes Lots 13 and 14 and encompasses a total plan area of approximately 19.89 acres. The proposed residential development property is roughly located to the west of Devon Avenue SE and to the north of Reese Hill Road SE. The easterly portion of the subject proposed residential development site is presently improved and contain existing single-family residential homes while the remainder of the site is unimproved and consist of existing open land. Surface vegetation across the site generally consists of a light to moderate growth of grass, weeds and brush as well as numerous small to large size trees. Additionally, an existing seasonal drainage basin is located along the westerly portion of the site.

Topographically, the site is characterized as gently to moderately sloping terrain (10 to 25 percent) descending downward from the central portion of the site towards the west and east with overall topographic relief estimated at about seventy (70) feet and ranges from a low about Elevation 580 feet near the northwesterly corner of the subject site to a high of about Elevation 650 near the central portion of the site.

Subsurface Soil Conditions

Our understanding of the subsurface soil conditions underlying the site was developed by means of eight (8) exploratory test pits excavated to depths ranging from about five (5) to six (6) feet beneath existing site grades on July 11, 2017 with a John Deere 200C track-mounted excavator.

The location of the exploratory test pits were located in the field by marking off distances from existing and/or known site features and are shown in relation to the proposed new residential structures and/or site improvements on the Site Exploration Plan, Figure No. 2. Detailed logs of the test pit explorations, presenting conditions encountered at each location explored, are presented in the Appendix, Figure No's. A-5 through A-8.

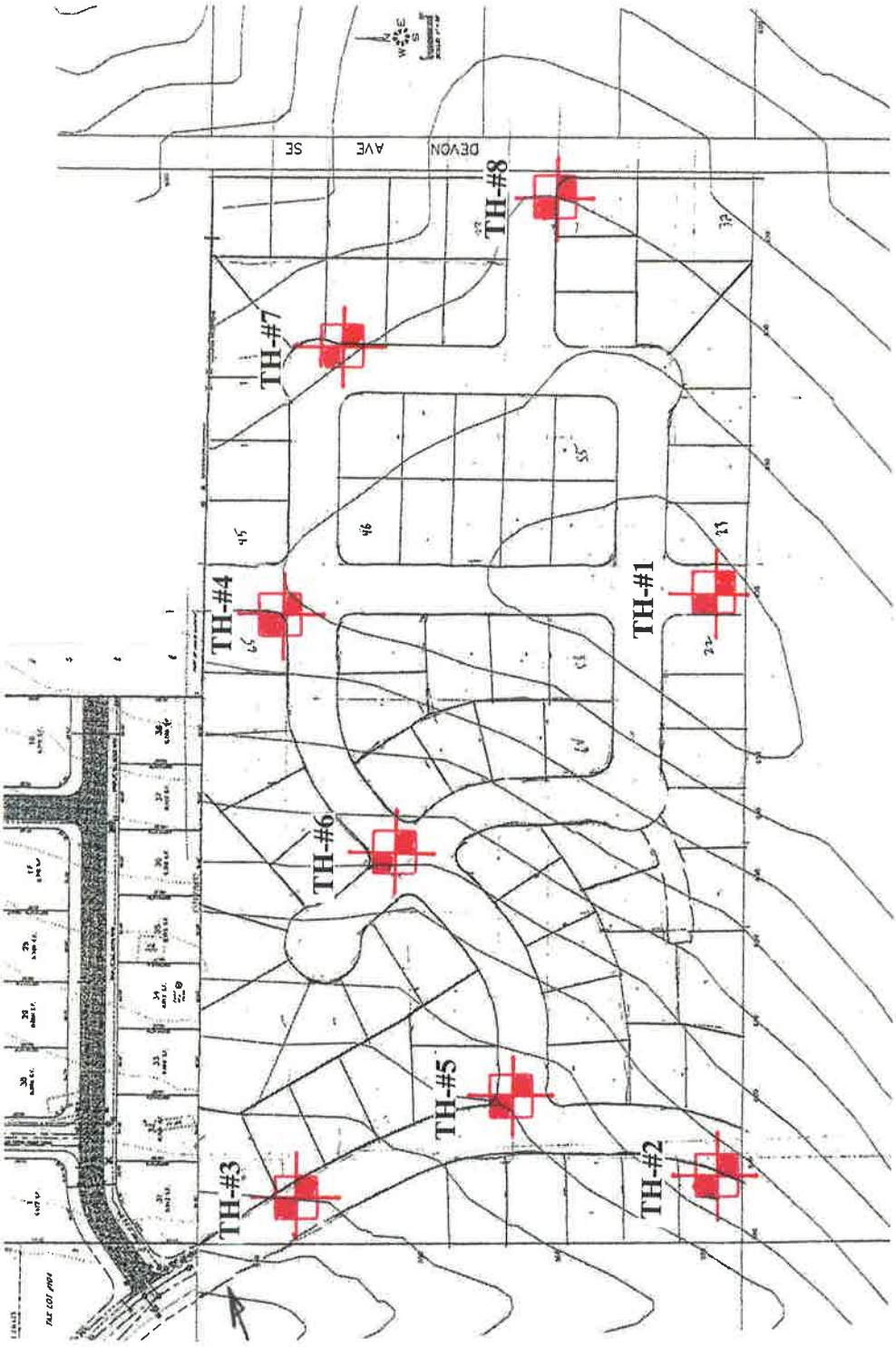
The exploratory test pit excavations were observed by staff from Redmond Geotechnical Services, LLC who logged each of the test pit explorations and obtained representative samples of the subsurface soils encountered across the site. Additionally, the elevation of the exploratory test pit excavations were referenced from the proposed Site Development Plan prepared by Project Delivery Group. and should be considered as approximate. All subsurface soils encountered at the site and/or within the exploratory test pit excavations were logged and classified in general conformance with the Unified Soil Classification System (USCS) which is outlined on Figure No. A-4.

The test pit explorations revealed that the subject site is underlain by native soil deposits comprised of highly weathered bedrock and/or residual soils composed of a surficial layer of dark brown, moist, soft, organic, sandy, clayey silt topsoil materials to depths of about 6 to 12 inches. These surficial topsoil materials were inturn underlain by residual soils composed of medium to reddish--brown, moist to very moist, medium stiff to stiff, sandy, clayey silt to a depth of about two (2) to four (4) feet beneath the existing site and/or surface grades. These upper clayey silt (residual) subgrade soils are best characterized by relatively low to moderate strength and moderate compressibility. These upper clayey silt subgrade soils were inturn underlain by medium to orangish-brown, moist to very moist, medium dense becoming dense at depth, clayey, silty sand to highly weathered bedrock deposits to the maximum depth explored of about six (6) feet beneath the existing site and/or surface grades. These clayey, silty sand subgrade soils and/or highly weathered bedrock deposits are best characterized by relatively moderate to high strength and low compressibility.

Groundwater

Groundwater was generally not encountered within any of the exploratory test pit explorations (TH-#1 through TH-#8) at the time of excavation to depths of at least six (6) feet beneath existing surface grades. However, the westerly portion of the subject property is bounded by an existing seasonal drainage basin and/or surface feature.

In this regard, although groundwater elevations at the site may fluctuate seasonally in accordance with rainfall conditions and/or associated with runoff within the westerly drainage basins as well as changes in site utilization, we are generally of the opinion that the static water levels and/or surface water ponding not observed during our recent field exploration work generally reflect a high seasonal groundwater level(s) at and/or beneath the site.



SITE EXPLORATION PLAN

Project No. 1001.052.G	**DEVON AVENUE SUBDIVISION** **TL 300, 6719 DEVON AVENUE SE**	Figure No. 2

INFILTRATION TESTING

We performed two (2) field infiltration tests at the site on July 11, 2017. The infiltration tests were performed in test holes TH-#2 and TH-#3 at depths of between two (2) to three (3) feet beneath the existing site and/or surface grades. The subgrade soils encountered in the infiltration test hole consisted of sandy, clayey silt.

The infiltration testing was performed in general conformance with current EPA and/or the City of Salem Department of Public Works Administrative Rules Chapter 109 Division 004 Appendix C Encased Falling Head test method which consisted of advancing a 6-inch diameter PVC pipe approximately 6 inches into the exposed soil horizon at each test location. Using a steady water flow, water was discharged into the pipe and allowed to penetrate and saturate the subgrade soils. The water level was adjusted over a two (2) hour period and allowed to achieve a saturated subgrade soil condition consistent with the bottom elevation of the surrounding test pit excavation. Following the required saturating period, water was again added into the PVC pipe and the time and/or rate at which the water level dropped was monitored and recorded. Each measurable drop in the water level was recorded until a consistent infiltration rate was observed and/or repeated.

Based on the results of the field infiltration testing at the site, we have found that the native sandy, clayey silt subgrade soil deposits posses an ultimate infiltration rate on the order of about 0.6 to 0.8 inches per hour (in/hr).

LABORATORY TESTING

Representative samples of the on-site subsurface soils were collected at selected depths and intervals from various test pit excavations and returned to our laboratory for further examination and testing and/or to aid in the classification of the subsurface soils as well as to help evaluate and identify their engineering strength and compressibility characteristics. The laboratory testing consisted of visual and textural sample inspection, moisture content and dry density determinations, maximum dry density and optimum moisture content, expansion index, gradation analyses and Atterberg Limits as well as (remolded) direct shear strength and "R"-value tests. Results of the various laboratory tests are presented in the Appendix, Figure No's. A-9 through A-13.

SEISMICITY AND EARTHQUAKE SOURCES

The seismicity of the southwest Washington and northwest Oregon area, and hence the potential for ground shaking, is controlled by three separate fault mechanisms. These include the Cascadia Subduction Zone (CSZ), the mid-depth intraplate zone, and the relatively shallow crustal zone. Descriptions of these potential earthquake sources are presented below.

The CSZ is located offshore and extends from northern California to British Columbia. Within this zone, the oceanic Juan de Fuca Plate is being subducted beneath the continental North American Plate to the east. The interface between these two plates is located at a depth of approximately 15 to 20 kilometers (km). The seismicity of the CSZ is subject to several uncertainties, including the maximum earthquake magnitude and the recurrence intervals associated with various magnitude earthquakes. Anecdotal evidence of previous CSZ earthquakes has been observed within coastal marshes along the Washington and Oregon coastlines. Sequences of interlayered peat and sands have been interpreted to be the result of large Subduction zone earthquakes occurring at intervals on the order of 300 to 500 years, with the most recent event taking place approximately 300 years ago. A study by Geomatrix (1995) and/or USGS (2008) suggests that the maximum earthquake associated with the CSZ is moment magnitude (Mw) 8 to 9. This is based on an empirical expression relating moment magnitude to the area of fault rupture derived from earthquakes that have occurred within Subduction zones in other parts of the world. An Mw 9 earthquake would involve a rupture of the entire CSZ. As discussed by Geomatrix (1995) this has not occurred in other subduction zones that have exhibited much higher levels of historical seismicity than the CSZ. However, the 2008 USGS report has assigned a probability of 0.67 for a Mw 9 earthquake and a probability of 0.33 for a Mw 8.3 earthquake. For the purpose of this study an earthquake of Mw 9.0 was assumed to occur within the CSZ.

The intraplate zone encompasses the portion of the subducting Juan de Fuca Plate located at a depth of approximately 30 to 50 km below western Washington and western Oregon. Very low levels of seismicity have been observed within the intraplate zone in western Oregon and western Washington. However, much higher levels of seismicity within this zone have been recorded in Washington and California. Several reasons for this seismic quiescence were suggested in the Geomatrix (1995) study and include changes in the direction of Subduction between Oregon, Washington, and British Columbia as well as the effects of volcanic activity along the Cascade Range. Historical activity associated with the intraplate zone includes the 1949 Olympia magnitude 7.1 and the 1965 Puget Sound magnitude 6.5 earthquakes. Based on the data presented within the Geomatrix (1995) report, an earthquake of magnitude 7.25 has been chosen to represent the seismic potential of the intraplate zone.

The third source of seismicity that can result in ground shaking within the Vancouver and southwest Washington area is near-surface crustal earthquakes occurring within the North American Plate. The historical seismicity of crustal earthquakes in this area is higher than the seismicity associated with the CSZ and the intraplate zone. The 1993 Scotts Mills (magnitude 5.6) and Klamath Falls (magnitude 6.0), Oregon earthquakes were crustal earthquakes.

Liquefaction

Seismic induced soil liquefaction is a phenomenon in which lose, granular soils and some silty soils, located below the water table, develop high pore water pressures and lose strength due to ground vibrations induced by earthquakes. Soil liquefaction can result in lateral flow of material into river channels, ground settlements and increased lateral and uplift pressures on underground structures.

Buildings supported on soils that have liquefied often settle and tilt and may displace laterally. Soils located above the ground water table cannot liquefy, but granular soils located above the water table may settle during the earthquake shaking.

Our review of the subsurface soil test pit logs from our exploratory field explorations (TH-#1 through TH-#8) and laboratory test results indicate that the site is generally underlain by medium stiff to stiff, sandy, clayey silt soils and/or medium dense to dense highly weathered bedrock deposits to depths of at least 6.0 feet beneath existing site grades. Additionally, groundwater was generally not encountered within any of the exploratory test pit excavations (TH-#1 through TH-#8) at the site during our field exploration work to depths of at least 6.0 feet.

As such, due to the medium stiff to stiff and/or cohesive nature of the sandy, clayey silt subgrade soils and/or medium dense to dense highly weathered bedrock deposits beneath the site, it is our opinion that the native sandy, clayey silt subgrade soil and/or highly weathered bedrock deposits located beneath the subject site have a very low potential for liquefaction during the design earthquake motions previously described.

Landslides

No ancient and/or active landslides were observed or are known to be present on the subject site. Additionally, development of the subject site into the planned residential homes sites does not appear to present a potential geologic and/or landslide hazard provided that the site grading and development activities conform with the recommendations presented within this report. A more detailed assessment of the potential landslide hazard of the subject site is presented in the Geologic Hazard Study in Appendix B.

Surface Rupture

Although the site is generally located within a region of the country known for seismic activity, no known faults exist on and/or immediately adjacent to the subject site. As such, the risk of surface rupture due to faulting is considered negligible.

Tsunami and Seiche

A tsunami, or seismic sea wave, is produced when a major fault under the ocean floor moves vertically and shifts the water column above it. A seiche is a periodic oscillation of a body of water resulting in changing water levels, sometimes caused by an earthquake. Tsunami and seiche are not considered a potential hazard at this site because the site is not near to the coast and/or there are no adjacent significant bodies of water.

Flooding and Erosion

Stream flooding is a potential hazard that should be considered in lowland areas of Marion County and Salem. The FEMA (Federal Emergency Management Agency) flood maps should be reviewed as part of the design for the proposed new residential structures and site improvements. Elevations of structures on the site should be designed based upon consultants reports, FEMA (Federal Emergency Management Agency), and Marion County requirements for the 100-year flood levels of any nearby creeks, streams and/or drainage basins.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the results of our field explorations, laboratory testing, and engineering analyses, it is our opinion that the site is presently stable and suitable for the proposed new single-family residential development and its associated site improvements provided that the recommendations contained within this report are properly incorporated into the design and construction of the project.

The primary features of concern at the site are 1) the presence of highly moisture sensitive clayey and silty (residual) subgrade soils across the site, 2) the presence of gently to moderately sloping site conditions across the proposed new residential lots and/or home sites, and 3) the relatively low infiltration rates anticipated within the near surface clayey and silty subgrade soils.

With regard to the moisture sensitive clayey and silty residual subgrade soils, we are generally of the opinion that all site grading and earthwork activities be scheduled for the drier summer months which is typically June through September.

In regards to the gently to moderately sloping site conditions across the proposed new residential home sites and/or lots, we are of the opinion that site grading and/or structural fill placement should be minimized where possible and should generally limit cuts and/or fills to about eight (8) feet or less without the approval of the Geotechnical Engineer. Additionally, where existing site slopes and/or surface grades exceed about 20 percent (1V:5H) and in order to construct the proposed new residential lots and/or new local residential streets, benching and keying of all fills into the natural site slopes may be required.

With regard to the relatively low infiltration rates anticipated within the residual clayey and silty subgrade soils beneath the site, we generally do not recommend any storm water infiltration within structural and/or embankment fills. However, some limited storm water infiltration may be feasible within the lower westerly portion of the subject property as well as the proposed residential lots and/or areas of the site where the existing and/or finish slope gradients are no steeper than about 20 percent (1V:5H). In this regard, we recommend that all proposed storm water detention and/or infiltration systems for the project be reviewed and approved by Redmond Geotechnical Services, LLC.

The following sections of this report provide specific recommendations regarding subgrade preparation and grading as well as foundation and floor slab design and construction for the new residential development project.

Site Preparation

As an initial step in site preparation, we recommend that the proposed new residential building sites and/or lots as well as their associated structural and/or site improvement area(s) be stripped and cleared of all existing improvements, any existing unsuitable fill materials, surface debris, existing vegetation, topsoil materials, and/or any other deleterious materials present at the time of construction. In general, we envision that the site stripping to remove existing vegetation and topsoil materials will generally be about 6 to 12 inches. However, localized areas requiring deeper removals, such as existing undocumented and/or unsuitable fill materials as well as old foundation remnants, will likely be encountered and should be evaluated at the time of construction by the Geotechnical Engineer. The stripped and cleared materials should be properly disposed of as they are generally considered unsuitable for use/reuse as fill materials.

Following the completion of the site stripping and clearing work and prior to the placement of any required structural fill materials and/or structural improvements, the exposed subgrade soils within the planned structural improvement area(s) should be inspected and approved by the Geotechnical Engineer and possibly proof-rolled with a half and/or fully loaded dump truck. Areas found to be soft or otherwise unsuitable should be over-excavated and removed or scarified and recompacted as structural fill. During wet and/or inclement weather conditions, proof rolling and/or scarification and recompaction as noted above may not be appropriate.

The on-site native sandy, clayey silt (residual) subgrade soil materials are generally considered suitable for use/reuse as structural fill materials provided that they are free of organic materials, debris, and rock fragments in excess of about 6 inches in dimension. However, if site grading is performed during wet or inclement weather conditions, the use of some of the on-site native soil materials which contain significant silt and clay sized particles will be difficult at best. In this regard, during wet or inclement weather conditions, we recommend that an import structural fill material be utilized which should consist of a free-draining (clean) granular fill (sand & gravel) containing no more than about 5 percent fines. Representative samples of the materials which are to be used as structural fill materials should be submitted to the Geotechnical Engineer and/or laboratory for approval and determination of the maximum dry density and optimum moisture content for compaction.

In general, all site earthwork and grading activities should be scheduled for the drier summer months (June through September) if possible. However, if wet weather site preparation and grading is required, it is generally recommended that the stripping of topsoil materials be accomplished with a tracked excavator utilizing a large smooth-toothed bucket working from areas yet to be excavated. Additionally, the loading of strippings into trucks and/or protection of moisture sensitive subgrade soils will also be required during wet weather grading and construction.

In this regard, we recommend that areas in which construction equipment will be traveling be protected by covering the exposed subgrade soils with a woven geotextile fabric such as Mirafi FW404 followed by at least 12 inches or more of crushed aggregate base rock. Further, the geotextile fabric should have a minimum Mullen burst strength of at least 250 pounds per square inch for puncture resistance and an apparent opening size (AOS) between the U.S. Standard No. 70 and No. 100 sieves.

All structural fill materials placed within the new building and/or pavement areas should be moistened or dried as necessary to near (within 3 percent) optimum moisture conditions and compacted by mechanical means to a minimum of 92 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Structural fill materials should be placed in lifts (layers) such that when compacted do not exceed about 8 to 9 inches. Additionally, all fill materials placed within five (5) lineal feet of the perimeter (limits) of the proposed residential structures and/or pavements should be considered structural fill. Additionally, due to the sloping site conditions, we recommend that all structural fill materials planned in areas where existing surface and/or slope gradients exceed about 20 percent (1V:5H) be properly benched and/or keyed into the native (natural) slope subgrade soils. In general, a bench width of approximately ten (10) feet and a keyway depth of approximately two (2) foot is recommended. However, the actual bench width and keyway depth should be determined at the time of construction by the Geotechnical Engineer. Further, all fill slopes should be constructed with a finish slope surface gradient no steeper than about 2H:1V.

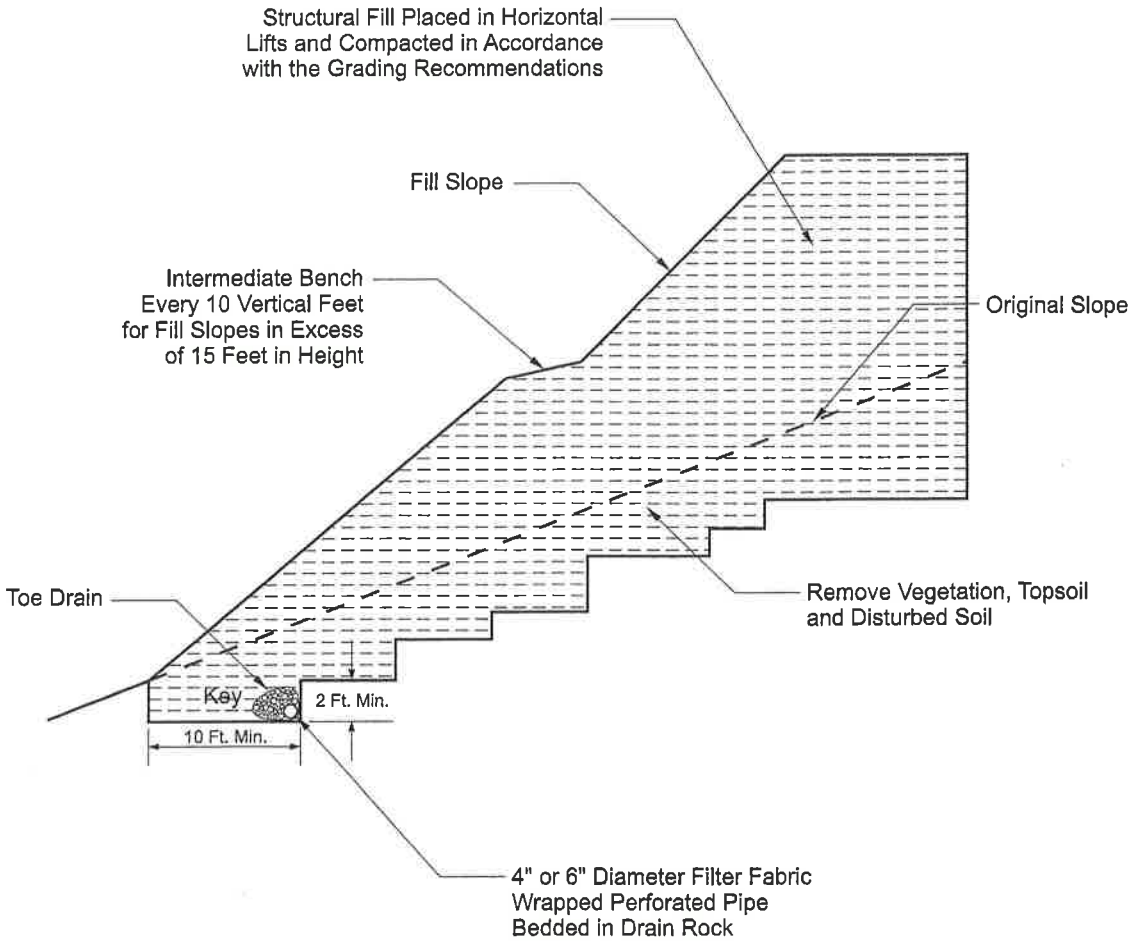
As such, settlement sensitive site and/or surface improvements (i.e., concrete curbs and sidewalks) should not be constructed until after primary consolidation and/or settlement has been completed. All aspects of the site grading, including a review of the proposed site grading plan(s), should be approved and/or monitored by a representative of Redmond Geotechnical Services, LLC.

Foundation Support

Based on the results of our investigation, it is our opinion that the site of the proposed new residential development is suitable for support of the two- and/or three-story wood-frame structures provided that the following foundation design recommendations are followed. The following sections of this report present specific foundation design and construction recommendations for the planned new residential structures.

Shallow Foundations

In general, conventional shallow continuous (strip) footings and individual (spread) column footings may be supported by approved native (untreated) subgrade soil materials and/or silty structural fill soils based on an allowable contact bearing pressure of about 2,000 pounds per square foot (psf). This recommended allowable contact bearing pressure is intended for dead loads and sustained live loads and may be increased by one-third for the total of all loads including short-term wind or seismic loads.



TYPICAL FILL SLOPE DETAIL

Project No. 1001.052.G	**DEVON AVENUE SUBDIVISION TL 300, 6719 DEVON AVENUE SE**	Figure No. 3

In general, continuous strip footings should have a minimum width of at least 16 inches and be embedded at least 18 inches below the lowest adjacent finish grade (includes frost protection). Individual column footings (where required) should be embedded at least 18 inches below grade and have a minimum width of at least 24 inches. Additionally, if foundation excavation and construction work is planned to be performed during wet and/or inclement weather conditions, we recommend that a 2 to 4 inch layer of compacted crushed rock be used to help protect the exposed foundation bearing surfaces until the placement of concrete.

Total and differential settlements of foundations constructed as recommended above and supported by approved native subgrade soils or by properly compacted structural fill materials are expected to be well within the tolerable limits for this type of lightly loaded wood-frame structure and should generally be less than about 1-inch and 1/2-inch, respectively.

Allowable lateral frictional resistance between the base of the footing element and the supporting subgrade bearing soil can be expressed as the applied vertical load multiplied by a coefficient of friction of 0.30 and 0.50 for native silty subgrade soils and/or import gravel fill materials, respectively. In addition, lateral loads may be resisted by passive earth pressures on footings poured "neat" against in-situ (native) subgrade soils or properly backfilled with structural fill materials based on an equivalent fluid density of 250 pounds per cubic foot (pcf). This recommended value includes a factor of safety of approximately 1.5 which is appropriate due to the amount of movement required to develop full passive resistance.

Floor Slab Support

In order to provide uniform subgrade reaction beneath concrete slab-on-grade floors, we recommend that the floor slab area be underlain by a minimum of 6 inches of free-draining (less than 5 percent passing the No. 200 sieve), well-graded, crushed rock. The crushed rock should help provide a capillary break to prevent migration of moisture through the slab. However, additional moisture protection can be provided by using a 10-mil polyolefin geo-membrane sheet such as StegoWrap.

The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Where floor slab subgrade materials are undisturbed, firm and stable and where the underslab aggregate base rock section has been prepared and compacted as recommended above, we recommend that a modulus of subgrade reaction of 150 pci be used for design.

Retaining/Below Grade Walls

Retaining and/or below grade walls should be designed to resist lateral earth pressures imposed by native soils or granular backfill materials as well as any adjacent surcharge loads. For walls which are unrestrained at the top and free to rotate about their base, we recommend that active earth pressures be computed on the basis of the following equivalent fluid densities:

Non-Restrained Retaining Wall Pressure Design Recommendations

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Silt (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	35	30
3H:1V	60	50
2H:1V	90	80

For walls which are fully restrained at the top and prevented from rotation about their base, we recommend that at-rest earth pressures be computed on the basis of the following equivalent fluid densities:

Restrained Retaining Wall Pressure Design Recommendations

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Silt (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	45	35
3H:1V	65	60
2H:1V	95	90

The above recommended values assume that the walls will be adequately drained to prevent the buildup of hydrostatic pressures. Where wall drainage will not be present and/or if adjacent surcharge loading is present, the above recommended values will be significantly higher.

Backfill materials behind walls should be compacted to 90 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Special care should be taken to avoid over-compaction near the walls which could result in higher lateral earth pressures than those indicated herein. In areas within three (3) to five (5) feet behind walls, we recommend the use of hand-operated compaction equipment.

Pavements

Flexible pavement design for the proposed street improvements along the west side of Devon Avenue SE as well as the proposed new street improvements for the residential development project was determined in accordance with the City of Salem Department of Public Works Administrative Rules Chapter 109-006 (Street Design Standards) Section 6 dated January 1, 2014.

Specifically, on July 11, 2016, samples of the subgrade soils from the existing and/or proposed public streets were collected by means of various test hole excavations. The subgrade soils encountered in the test holes located across the proposed residential subdivision site as well as along the westerly side of the existing pavement grade of Devon Avenue SE and/or across the proposed new public street improvement areas generally consisted of native and/or residual soils comprised of medium to reddish-brown, medium stiff to stiff, sandy, clayey SILT (ML).

The subgrade soil samples collected at the site were tested in the laboratory in accordance with the ASTM Vol. 4.08 Part D-2844-69 (AASHTO T-190-93) test method for the determination of the subgrade soil "R"-value and expansion pressure. The results of the "R"-value testing was then converted to an equivalent Resilient Modulus (M_{RSG}) in accordance with current AASHTO methodology. The results of the laboratory "R"-value tests revealed that the subgrade soils have an apparent "R"-value of between 28 and 30 with an average "R"-value of 29 (see Figure No. A-12). Using the current AASHTO methodology for converting "R"-value to Resilient Modulus (M_{RSG}), the subgrade soils have a Resilient Modulus (M_{RSG}) of about 5,865 psi which is classified a "Fair" (M_{RSG} = 5,000 psi to 10,000 psi).

In addition to the above, Dynamic Cone Penetration (DCP) tests were performed along the proposed new interior public street alignment at approximate 100- to 200-feet intervals. The results of the DCP tests found that the underlying native sandy, clayey silt subgrade soils have a DCP value of between 3 to 4 blows per 2-inches which correlates to a California Bearing Ratio (CBR) of between 12 and 15. Using current AASHTO methodology for converting CBR to Resilient Modulus (M_{RSG}), the subgrade soils have a Resilient Modulus (M_{RSG}) of between 10,637 and 12,392 psi with an average M_{RSG} of 11,530 psi which is classified as "Fair" (M_{RSG} = 5,000 psi to 10,000 psi).

Devon Avenue SE

The following documents and/or design input parameters were used to help determine the flexible pavement section design for improvements to Devon Avenue SE:

- **Street Classification:** Collector Street
- **Design Life:** 20 years
- **Serviceability:** 4.2 initial, 2.5 terminal
- **Traffic Loading Data:** 1,000,000 18-kip EAL's
- **Reliability Level:** 90%
- **Drainage Coefficient:** 1.0 (asphalt), 0.8 (aggregate)
- **Asphalt Structural Coefficient:** 0.41
- **Aggregate Structural Coefficient:** 0.10

Based on the above design input parameters and using the design procedures contained within the AASHTO 1993 Design of Pavement Structures Manual, a Structural Number (SN) of 4.1 was determined.

In this regard, we recommend the following flexible pavement section for the new improvements to Devon Avenue SE:

Material Type	Pavement Section (inches)
Asphaltic Concrete	5.0
Aggregate Base Rock	14.0

Local Residential Streets

The following documents and/or design input parameters were used to help determine the flexible pavement section design for new local residential streets:

- **Street Classification:** Local Residential Street
- **Design Life:** 25 years
- **Serviceability:** 4.2 initial, 2.5 terminal
- **Traffic Loading Data:** 100,000 18-kip EAL's
- **Reliability Level:** 90%
- **Drainage Coefficient:** 1.0 (asphalt), 0.8 (aggregate)
- **Asphalt Structural Coefficient:** 0.41
- **Aggregate Structural Coefficient:** 0.10

Based on the above design input parameters and using the design procedures contained within the AASHTO 1993 Design of Pavement Structures Manual, a Structural Number (SN) of 2.6 was determined.

In this regard, we recommend the following flexible pavement section for the construction of new Local Residential Streets:

Material Type	Pavement Section (inches)
Asphaltic Concrete	4.0
Aggregate Base Rock	10.0

Wet Weather Grading and Soft Spot Mitigation

Construction of the proposed new public street improvements is generally recommended during dry weather. However, during wet weather grading and construction, excavation to subgrade can proceed during periods of light to moderate rainfall provided that the subgrade remains covered with aggregate. A total aggregate thickness of 8-inches may be necessary to protect the subgrade soils from heavy construction traffic. Construction traffic should not be allowed directly on the exposed subgrade but only atop a sufficient compacted base rock thickness to help mitigate subgrade pumping.

If the subgrade becomes wet and pumps, no construction traffic shall be allowed on the road alignment. Positive site drainage away from the street shall be maintained if site paving will not occur before the on-set of the wet season.

Depending on the timing for the project, any soft subgrade found during proof-rolling or by visual observations can either be removed and replaced with properly dried and compacted fill soils or removed and replaced with compacted crushed aggregate. However, and where approved by the Geotechnical Engineer, the soft area may be covered with a bi-axial geogrid and covered with compacted crushed aggregate.

Soil Shrink-Swell and Frost Heave

The results of the laboratory "R"-value tests indicate that the native subgrade soils possess a low to moderate expansion potential. As such, the exposed subgrade soils should not be allowed to completely dry and should be moistened to near optimum moisture content (plus or minus 3 percent) at the time of the placement of the crushed aggregate base rock materials. Additionally, exposure of the subgrade soils to freezing weather may result in frost heave and softening of the subgrade. As such, all subgrade soils exposed to freezing weather should be evaluated and approved by the Geotechnical Engineer prior to the placement of the crushed aggregate base rock materials.

Excavation/Slopes

Temporary excavations of up to about four (4) feet in depth may be constructed with near vertical inclinations. Temporary excavations greater than about four (4) feet but less than eight (8) feet should be excavated with inclinations of at least 1 to 1 (horizontal to vertical) or properly braced/shored. Where excavations are planned to exceed about eight (8) feet, this office should be consulted. All shoring systems and/or temporary excavation bracing for the project should be the responsibility of the excavation contractor. Permanent slopes should be constructed no steeper than about 2H to 1V unless approved by the Geotechnical Engineer.

Depending on the time of year in which trench excavations occur, trench dewatering may be required in order to maintain dry working conditions if the invert elevations of the proposed utilities are located at and/or below the groundwater level. If groundwater is encountered during utility excavation work, we recommend placing trench stabilization materials along the base of the excavation. Trench stabilization materials should consist of 1-foot of well-graded gravel, crushed gravel, or crushed rock with a maximum particle size of 4 inches and less than 5 percent fines passing the No. 200 sieve. The material should be free of organic matter and other deleterious material and placed in a single lift and compacted until well keyed.

Surface Drainage/Groundwater

We recommend that positive measures be taken to properly finish grade the site so that drainage waters from the residential structures and landscaping areas as well as adjacent properties or buildings are directed away from the new residential structures foundations and/or floor slabs.

All roof drainage should be directed into conduits that carry runoff water away from the residential structures to a suitable outfall. Roof downspouts should not be connected to foundation drains. A minimum ground slope of about 2 percent is generally recommended in unpaved areas around the proposed new residential structures.

Groundwater was not encountered at the site in any of the exploratory test pits (TH-#1 through TH-#8) at the time of excavation to depths of at least 7 feet beneath existing site grades. Additionally, surface water ponding was not observed at the site during our field exploration work. However, the northeasterly portion of the site contains an existing seasonal drainage basin feature. Further, groundwater elevations in the area and/or across the subject property may fluctuate seasonally and may temporarily pond/perch near the ground surface during periods of prolonged rainfall.

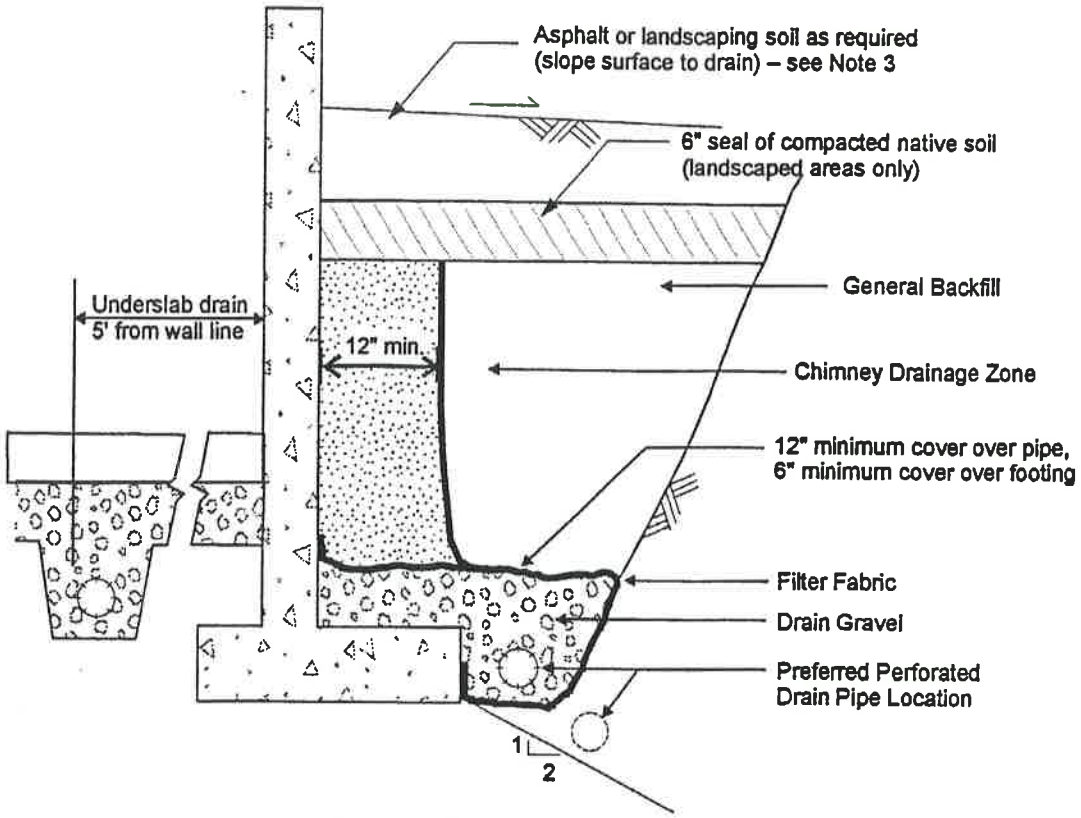
As such, based on our current understand of the possible site grading required to bring the subject site and/or residential lots to finish design grade(s), we are of the opinion that an underslab drainage system is not required for the proposed single-family residential structures. However, a perimeter foundation drain is recommended for any perimeter footings and/or below grade retaining walls. A typical recommended perimeter footing/retaining wall drain detail is shown on Figure No. 4. Further, due to our understanding that various surface infiltration ditches and/or swales may be utilized for the project as well as the relatively low infiltration rates of the near surface sandy, clayey silt subgrade soils anticipated within and/or near to the foundation bearing level of the proposed residential structures, we are generally of the opinion that storm water detention and/or disposal systems should not be utilized within the residential lots and/or around the proposed residential structures unless approved by the Geotechnical Engineer.

Design Infiltration Rates

Based on the results of our field infiltration testing, we recommend using the following infiltration rate to design any on-site near surface storm water infiltration and/or disposal systems for the project:

Subgrade Soil Type	**Recommended Infiltration Rate**
sandy, clayey SILT (ML)	0.3 to 0.4 inches per hour (in/hr)

Note: A safety factor of two (2) was used to calculate the above recommended design infiltration rate. Additionally, given the gradational variability of the on-site sandy, clayey sit subgrade soils beneath the site as well as the anticipation of some site grading for the project, it is generally recommended that field testing be performed during and/or following construction of any on-site storm water infiltration system(s) in order to confirm that the above recommended design infiltration rates are appropriate.



SCHEMATIC - NOT TO SCALE

NOTES:

1. Filter Fabric to be non-woven geotextile (Amoco 4545, Mirafi 140N, or equivalent)
2. Lay perforated drain pipe on minimum 0.5% gradient, widening excavation as required. Maintain pipe above 2:1 slope, as shown.
3. All-granular backfill is recommended for support of slabs, pavements, etc. (see text for structural fill).
4. Drain gravel to be clean, washed ¾" to 1½" gravel.
5. General backfill to be on-site gravels, or ¾""-0 or 1½"-0 crushed rock compacted to 92% Modified Proctor (AASHTO T-180).
6. Chimney drainage zone to be 12" wide (minimum) zone of clean washed, medium to coarse sand or drain gravel if protected with filter fabric. Alternatively, prefabricated drainage structures (Miradrain 6000 or similar) may be used.

PERIMETER FOOTING/RETAINING WALL DETAIL

Project No. 1001.052.G	DEVON AVENUE SUBDIVISION TL 300, 6719 DEVON AVENUE SE	Figure No. 4

Seismic Design Considerations

Structures at the site should be designed to resist earthquake loading in accordance with the methodology described in the latest edition (2014) of the State of Oregon Structural Specialty Code (OSSC) and/or Amendments to the 2015 International Building Code (IBC). The maximum considered earthquake ground motion for short period and 1.0 period spectral response may be determined from the Oregon Structural Specialty Code and/or from the National Earthquake Hazard Reduction Program (NEHRP) "Recommended Provisions for Seismic Regulations for New Buildings and Other Structures" published by the Building Seismic Safety Council.

We recommend Site Class "C" be used for design. Using this information, the structural engineer can select the appropriate site coefficient values (F_a and F_v) from the 2015 IBC to determine the maximum considered earthquake spectral response acceleration for the project. However, we have assumed the following response spectrum for the project:

Table 1. Recommended Seismic Design Parameters

Site Class	S_S	S_1	Fa	Fv	S_{MS}	S_{M1}	S_{DS}	S_{D1}
C	0.917	0.435	1.033	1.365	0.947	0.594	0.631	0.396

Notes: 1. S_S and S_1 were established based on the USGS 2015 mapped maximum considered earthquake spectral acceleration maps for 2% probability of exceedence in 50 years.

2. Fa and Fv were established based on IBC 2015 tables using the selected S_S and S_1 values.

CONSTRUCTION MONITORING AND TESTING

We recommend that **Redmond Geotechnical Services, LLC** be retained to provide construction monitoring and testing services during all earthwork operations for the proposed new residential development. The purpose of our monitoring services would be to confirm that the site conditions reported herein are as anticipated, provide field recommendations as required based on the actual conditions encountered, document the activities of the grading contractor and assess his/her compliance with the project specifications and recommendations. It is important that our representative meet with the contractor prior to any site grading to help establish a plan that will minimize costly over-excavation and site preparation work. Of primary importance will be observations made during site preparation and stripping, structural fill placement, footing excavations and construction as well as retaining wall backfill.

CLOSURE AND LIMITATIONS

This report is intended for the exclusive use of the addressee and/or their representative(s) to use to design and construct the proposed new single-family residential structures and their associated site improvements described herein as well as to prepare any related construction documents. The conclusions and recommendations contained in this report are based on site conditions as they presently exist and assume that the explorations are representative of the subsurface conditions between the explorations and/or at other locations across the study area. The data, analyses, and recommendations herein may not be appropriate for other structures and/or purposes. We recommend that parties contemplating other structures and/or purposes contact our office. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report. Additionally, the above recommendations are contingent on Redmond Geotechnical Services, LLC being retained to provide all site inspections and constriction monitoring services for this project. Redmond Geotechnical Services, LLC will not assume any responsibility and/or liability for any engineering judgment, inspection and/or testing services performed by others.

It is the owners/developers responsibility for insuring that the project designers and/or contractors involved with this project implement our recommendations into the final design plans, specifications and/or construction activities for the project. Further, in order to avoid delays during construction, we recommend that the final design plans and specifications for the project be reviewed by our office to evaluate as to whether our recommendations have been properly interpreted and incorporated into the project.

If during any future site grading and construction, subsurface conditions different from those encountered in the explorations are observed or appear to be present beneath excavations, we should be advised immediately so that we may review these conditions and evaluate whether modifications of the design criteria are required. We also should be advised if significant modifications of the proposed site development are anticipated so that we may review our conclusions and recommendations.

LEVEL OF CARE

The services performed by the Geotechnical Engineer for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in the area under similar budget and time restraints. No warranty or other conditions, either expressed or implied, is made.

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Appendix "A"

Test Pit Logs and Laboratory Test Data

APPENDIX

FIELD EXPLORATIONS AND LABORATORY TESTING

FIELD EXPLORATION

Subsurface conditions at the site were explored by excavating eight (8) exploratory test pits (TH-#1 through TH-#8) on July 11, 2017. The approximate location of the test pit explorations are shown in relation to the proposed new residential lots and the associated site improvements on the Site Exploration Plan, Figure No. 2.

The test pits were excavated using track-mounted excavating equipment in general conformance with ASTM Methods in Vol. 4.08, D-1586-94 and D-1587-83. The test pits were excavated to depths ranging from about 5.0 to 6.0 feet beneath existing site grades. Detailed logs of the test pits are presented on the Log of Test Pits, Figure No's. A-5 through A-8. The soils were classified in accordance with the Unified Soil Classification System (USCS), which is outlined on Figure No. A-4.

The exploration program was coordinated by a field engineer who monitored the excavating and exploration activity, obtained representative samples of the subsurface soils encountered, classified the soils by visual and textural examination, and maintained continuous logs of the subsurface conditions. Disturbed and/or undisturbed samples of the subsurface soils were obtained at appropriate depths and/or intervals and placed in plastic bags and/or with a thin walled ring sample.

Groundwater was not encountered in any of the exploratory test pits (TH-#1 through TH-#8) at the time of excavating to depths of at least 6.0 feet beneath existing surface grades.

LABORATORY TESTING

Pertinent physical and engineering characteristics of the soils encountered during our subsurface investigation were evaluated by a laboratory testing program to be used as a basis for selection of soil design parameters and for correlation purposes. Selected tests were conducted on representative soil samples. The program consisted of tests to evaluate the existing (in-situ) moisture-density, maximum dry density and optimum moisture content, expansion index, gradational characteristics, and Atterberg Limits as well as direct shear strength and "R"-value tests.

Dry Density and Moisture Content Determinations

Density and moisture content determinations were performed on both disturbed and relatively undisturbed samples from the test pit explorations in general conformance with ASTM Vol. 4.08 Part D-216. The results of these tests were used to calculate existing overburden pressures and to correlate strength and compressibility characteristics of the soils. Test results are shown on the test pit logs at the appropriate sample depths.

Maximum Dry Density

Two (2) Maximum Dry Density and Optimum Moisture Content tests were performed on representative samples of the on-site sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-1557. This tests were conducted to help establish various engineering properties for use as structural fill. The test results are presented on Figure No. A-9.

Expansion Index

Two (2) Expansion Index tests were performed on representative samples of the near surface clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-4829-95. The tests were conducted to help evaluate the expansive properties of the near surface soils and their potential impact to residential foundations. The test results are presented on Figure No. A-9.

Atterberg Limits

Two (2) Liquid Limit (LL) and Plastic Limit (PL) tests were performed on representative samples of the sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-4318-85. These tests were conducted to facilitate classification of the soils and for correlation purposes. The test results appear on Figure No. A-10.

Gradation Analysis

Two (2) Gradation analyses were performed on representative samples of the sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-422. The test results were used to classify the soil in accordance with the Unified Soil Classification System (USCS). The test results are shown graphically on Figure No. A-11.

Direct Shear Strength Test

One (1) Direct Shear Strength test was performed on an undisturbed and/or remolded sample at a continuous rate of shearing deflection (0.02 inches per minute) in accordance with ASTM Vol. 4.08 Part D-3080-79. The test results were used to determine engineering strength properties and are shown graphically on Figure No. A-12.

"R"-Value Tests

Two (2) "R"-value tests were performed on remolded sandy, clayey silt subgrade soil samples in accordance with ASTM Vol. 4.08 Part D-2844. The test results were used to help evaluate the subgrade soils supporting and performance capabilities when subjected to traffic loading. The test results are shown on Figure No. A-13.

The following figures are attached and complete the Appendix:

Figure No. A-4	Key To Exploratory Test Pit Logs
Figure No's. A-5 through A-8	Log of Test Pits/Dynamic Cone
Figure No. A-9	Maximum Density & Expansion Index Test Results
Figure No. A-10	Atterberg Limits Test Results
Figure No. A-11	Gradation Test Results
Figure No. A-12	Direct Shear Strength Test Results
Figure No. A-13	Results of "R"-Value Tests
Figure No's. A-14 and A-15	Field Infiltration Test Results

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS — LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

DEFINITION OF TERMS

	U.S. STANDARD SERIES SIEVE			CLEAR SQUARE SIEVE OPENINGS				
	200	40	10	4	3/4"	3"	12"	
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS	
	FINE	MEDIUM	COARSE	FINE	COARSE			

GRAIN SIZES

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT†
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

CLAYS AND PLASTIC SILTS	STRENGTH‡	BLOWS/FOOT†
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

†Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

‡Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

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KEY TO EXPLORATORY TEST PIT LOGS
Unified Soil Classification System (ASTM D-2487)

DEVON AVENUE SUBDIVISION
TL 300, 6719 DEVON AVENUE SE

PROJECT NO.	DATE	
1001.052.G	8/11/17	Figure A-4

BACKHOE COMPANY: Gene S McMurrin BUCKET SIZE: 24 inches DATE: 7/11/17

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
TEST PIT NO. TH-#1 ELEVATION						
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
	X			21.1		
					ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
	X			14.8		
5					SM/RK	Medium to orangish-brown, moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 6.0 feet No groundwater encountered at time of exploration
10						
15						
TEST PIT NO. TH-#2 ELEVATION						
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
	X			33.5		
					ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist to very moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 6.0 feet No groundwater encountered at time of exploration
10						
15						

LOG OF TEST PITS

PROJECT NO. 1001.052.G | DEVON AVENUE SUBDIVISION | FIGURE NO. A-5

BACKHOE COMPANY: Gene S. McMurrin BUCKET SIZE: 24 inches DATE: 7/11/17

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#3 ELEVATION
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
	X			26.6	ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
	X			15.1		
5					SM/RK	Medium to orangish-brown, moist to very moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						
						TEST PIT NO. TH-#4 ELEVATION
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
	X			20.5	ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						

LOG OF TEST PITS

PROJECT NO. 1001.052.G | DEVON AVENUE SUBDIVISION | FIGURE NO. A-6

BACKHOE COMPANY: Gene S. McMurrin BUCKET SIZE: 24 inches DATE: 7/11/17

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#5 ELEVATION
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist to very moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						
						TEST PIT NO. TH-#6 ELEVATION
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 6.0 feet No groundwater encountered at time of exploration
10						
15						

LOG OF TEST PITS

PROJECT NO. 1001.052.G | DEVON AVENUE SUBDIVISION | FIGURE NO. A-7

BACKHOE COMPANY: Gene S. McMurrin BUCKET SIZE: 24 inches DATE: 7/11/17

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#7 ELEVATION
0					ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, moist to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						
						TEST PIT NO. TH-#8 ELEVATION
0	X			19.9	ML	Dark brown, moist, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, moust to very moist, medium stiff to stiff, sandy, clayey SILT
5					SM/RK	Medium to orangish-brown, moist, medium dense to dense, clayey, silty SAND to highly weathered bedrock
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						

LOG OF TEST PITS

PROJECT NO. 1001.052.G | DEVON AVENUE SUBDIVISION | FIGURE NO. A-8

MAXIMUM DENSITY TEST RESULTS

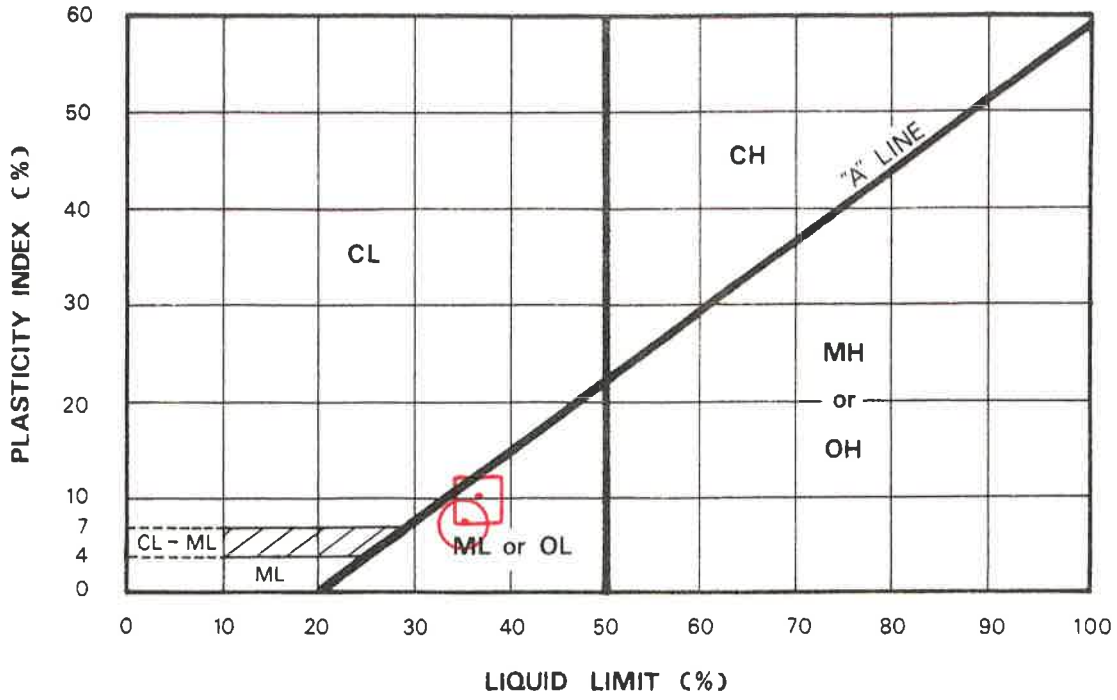
SAMPLE LOCATION	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
TH-#1 @ 1.5'	Medium to reddish-brown, sandy, clayey SILT (ML)	102.0	28.0
TH-#2 @ 1.5'	Medium to reddish-brown, sandy, clayey SILT (ML)	100.0	30.0

EXPANSION INDEX TEST RESULTS

SAMPLE LOCATION	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (pcf)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (%)	EXPANSION INDEX	EXPANSIVE CLASS.

MAXIMUM DENSITY & EXPANSION INDEX TEST RESULTS

PROJECT NO.: 1001.052.G | DEVON AVENUE SUBDIVISION | FIGURE NO.: A-9



KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
⊙	TH-#1	1.5	21.1	35.0	7.2	90.9		ML
▣	TH-#2	1.5	33.5	37.2	10.1	86.3		ML

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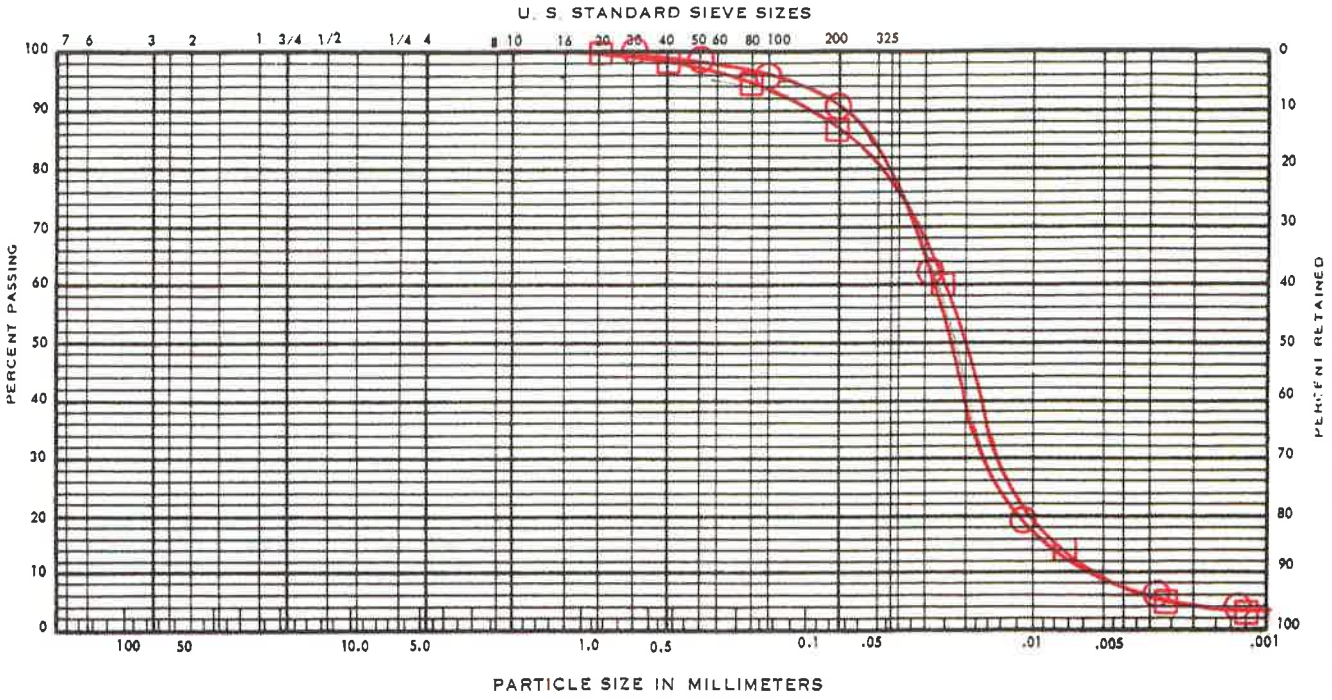
PLASTICITY CHART AND DATA

DEVON AVENUE SUBDIVISION
TL 300, 6719 DEVON AVENUE SE

PROJECT NO.	DATE	
1001.052.G	8/11/17	Figure A-10

UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D 422-72)



COBBLES	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	ELEV. (feet)	UNIFIED SOIL CLASSIFICATION SYMBOL	SAMPLE DESCRIPTION
⊖	TH-#1	1.5		ML	Medium to reddish-brown, sandy, clayey SILT
⊟	TH-#2	1.5		ML	Medium to reddish-brown, sandy, clayey SILT

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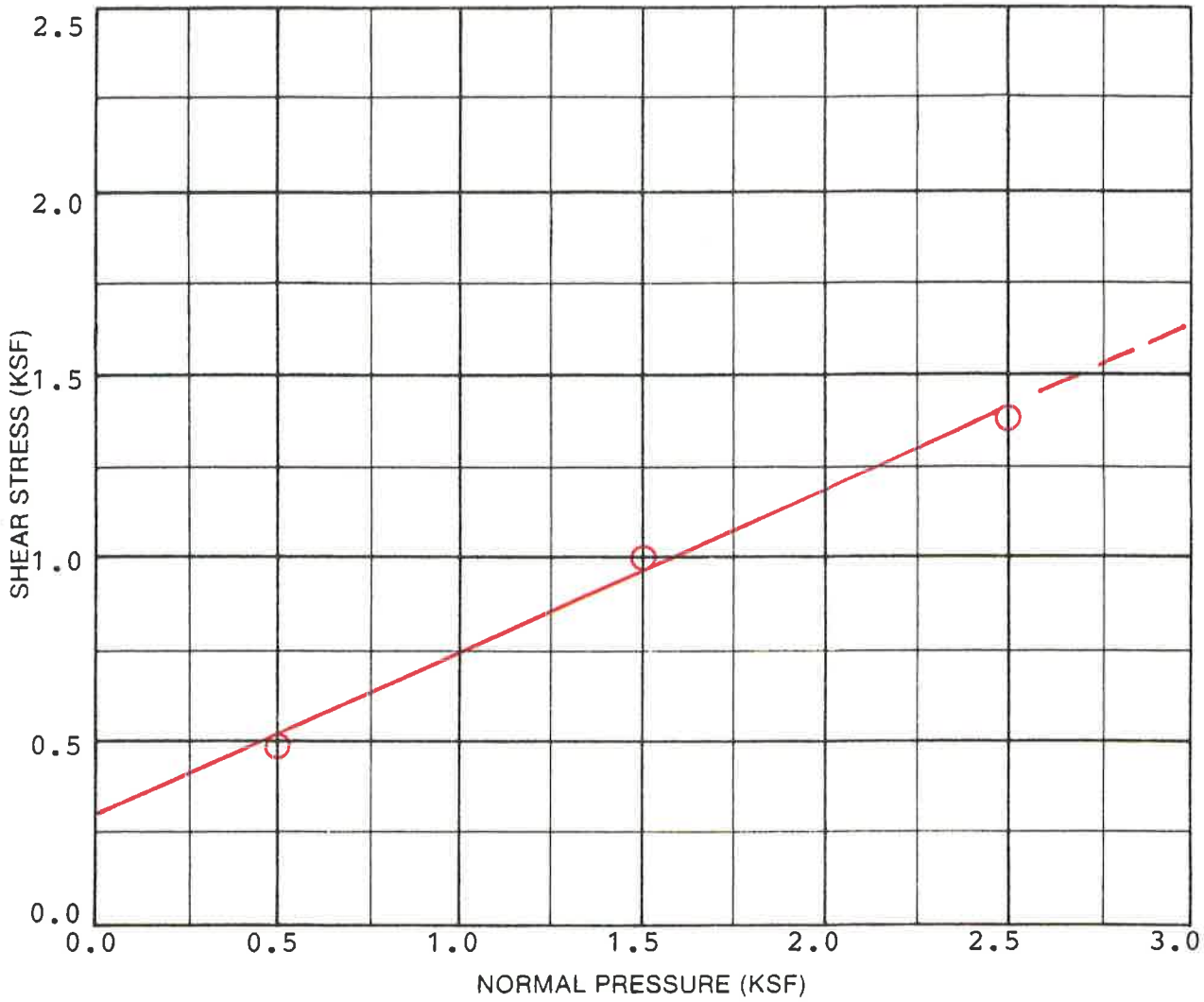
GRADATION TEST DATA

DEVON AVENUE SUBDIVISION
TL 300, 6719 DEVON AVENUE SE

PROJECT NO.	DATE	FIGURE A-11



SAMPLE DATA	
DESCRIPTION: Medium to reddish-brown, sandy, clayey SILT (ML) (Remolded)	
BORING NO.: TH-#2	
DEPTH (ft.): 1.5'	ELEVATION (ft):
TEST RESULTS	
APPARENT COHESION (C): 300 psf	
APPARENT ANGLE OF INTERNAL FRICTION (Φ): 22°	

TEST DATA				
TEST NUMBER	1	2	3	4
NORMAL PRESSURE (KSF)	0.5	1.5	2.5	
SHEAR STRENGTH (KSF)	0.5	1.0	1.4	
INITIAL H_2O CONTENT (%)	30.0	30.0	30.0	
FINAL H_2O CONTENT (%)	30.6	26.1	20.9	
INITIAL DRY DENSITY (PCF)	90.0	90.0	90.0	
FINAL DRY DENSITY (PCF)	90.4	94.6	99.8	
STRAIN RATE: 0.02 inches per minute				

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DIRECT SHEAR TEST DATA

DEVON AVENUE SUBDIVISION
TL 300, 6719 DEVON AVENUE SE

PROJECT NO	DATE	Figure A-12

RESULTS OF R (RESISTANCE) VALUE TESTS

SAMPLE LOCATION: TH-#1

SAMPLE DEPTH: 1.5 feet bgs

Specimen	A	B	C
Exudation Pressure (psi)	219	329	431
Expansion Dial (o.ooo1")	0	1	3
Expansion Pressure (psf)	0	3	9
Moisture Content (%)	30.6	27.4	22.1
Dry Density (pcf)	93.4	98.2	102.6
Resistance Value, "R"	17	29	37
"R"-Value at 300 psi Exudation Pressure = 28			

SAMPLE LOCATION: TH-#2

SAMPLE DEPTH: 1.5 feet bgs

Specimen	A	B	C
Exudation Pressure (psi)	208	326	439
Expansion Dial (0.0001")	0	2	5
Expansion Pressure (psf)	0	6	15
Moisture Content (%)	32.3	28.6	23.9
Dry Density (pcf)	92.1	96.1	100.7
Resistance Value "R"	15	27	35
"R"-Value at 300 psi Exudation Pressure = 26			

Division 004 Appendix C - Infiltration Testing

Location: TL 300, 6719 Devon Avenue SE	**Date:** July 11, 2017	**Test Hole:** TH-#2
Depth to Bottom of Hole: 3.0 feet	**Hole Diameter:** 6 inches	**Test Method:** Encased Falling Head
Tester's Name: Daniel M. Redmond, P.E., G.E. **Tester's Company:** Redmond Geotechnical Services, LLC		**Tester's Contact Number:** 503-285-0598

Depth (feet)	Soil Characteristics
0-0.5	Dark brown Topsoil
0.5-3.0	Medium to reddish-brown, sandy, clayey SILT (ML)

Time	Time Interval (Minutes)	Measurement (inches)	Drop in Water (inches)	Infiltration Rate (inches/hour)	Remarks
10:00	0	24.00	----		Filled w/12" water
10:20	20	24.50	0.50	1.50	
10:40	20	24.92	0.42	1.26	
11:00	20	25.27	0.35	1.05	
11:20	20	25.57	0.30	0.90	
11:40	20	25.83	0.26	0.78	
12:00	20	26.06	0.23	0.69	
12:20	20	26.27	0.21	0.63	
12:40	20	26.47	0.20	0.60	

Infiltration Test Data Table

Division 004 Appendix C - Infiltration Testing

Location: TL 300, 6719 Devon Avenue SE	**Date:** July 11, 2017	**Test Hole:** TH-#3
Depth to Bottom of Hole: 2.0 feet	**Hole Diameter:** 6 inches	**Test Method:** Encased Falling Head
Tester's Name: Daniel M. Redmond, P.E., G.E. **Tester's Company:** Redmond Geotechnical Services, LLC		**Tester's Contact Number:** 503-285-0598

Depth (feet)	Soil Characteristics
0-0.5	Dark brown Topsoil
0.5-2.0	Medium to reddish-brown, sandy, clayey SILT (ML)

Time	Time Interval (Minutes)	Measurement (inches)	Drop in Water (inches)	Infiltration Rate (inches/hour)	Remarks
10:20	0	12.00	----		Filled w/12" water
10:40	20	12.70	0.70	2.10	
11:00	20	13.22	0.52	1.56	
11:20	20	13.66	0.44	1.32	
11:40	20	14.04	0.38	1.14	
12:00	20	14.37	0.33	0.99	
12:20	20	14.67	0.30	0.90	
12:40	20	14.95	0.28	0.84	
1:00	20	15.22	0.27	0.81	

Infiltration Test Data Table

Appendix "B"

Geologic Hazard Assessment

NORTHWEST GEOLOGICAL SERVICES, INC.
Consulting Geologists and Hydrogeologists
2505 N.E. 42nd Avenue, Portland, Oregon 97213-1201
503-249-1093 ngs@teleport.com

Redmond Geotechnical Services, LLC 27 July 2017
P.O. Box 20547
Portland, Oregon 97294

Attn: Dan Redmond

Geological Assessment
8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon

Dear Dan:

The purpose of this letter is to present Northwest Geological Services, Inc. (NGS') Geologic Hazard Assessment for the above referenced property. This study includes the engineering geology tasks required by Salem and Marion County to develop in areas that appear to have potential geologic hazards. We understand that our services are in support of your client's efforts to partition and develop the property for residential use. The current proposal is to partition the site into approximately 80 residential lots with access streets, and infrastructure as needed. The work for this study was done in accordance with your email authorization of 28 June 2017.

1. SCOPE OF STUDY

The scope of our study was limited to the engineering geologic consultation necessary to assess potential slope hazards, as required by Salem and Marion County. Specifically, our work included:

- Obtain and review LIDAR and historic aerial photographs of the site;
- Obtain and review well logs for the site area;
- Review available geologic and geologic hazard investigations of the site and site area;
- Conduct a geologic reconnaissance of the site and adjacent area;
- Evaluate the potential landslide hazards using the information developed; and,
- Prepare this letter describing our work, findings and recommendations.

Our work did not include some items the County may request for Geological Assessments of slope hazard areas. Specifically, the excluded items are: site grading plans showing cuts and fills; and geologic cross sections showing subsurface conditions. We understand the grading plan will be developed as part of the plans for the building permit application for the site. In our opinion, the geology of the site is simple (Sections 3 and 4) and a cross section is not required to comprehend the subsurface conditions. Nor is a grading plan necessary to asses the stability of the natural slopes. However, those items should be developed in the Geotechnical report for the site.

2. SITE SETTING

The site is south of Battle Creek, north of Rees Hill Rd. and west of Devon Ave SE (Figures 1 and 2) in the northeast corner of the southwest quarter of Section 22, T8S/R3W. The 19.89 acre property is currently accessed from Devon Ave SE. City of Salem Zoning Map 8322S (S ½ 22-8S3W) shows the site is zoned RA (Residential Agricultural). The site is in the South Salem Hills Ground Water Limited Area.

2.1 Location and Physiography

The property is south of Battle Creek and straddles the summit of Reese Hill, a NE-SW ridge that extends from Hylo Rd. SE northeast to Battle Creek (Figures 1 and 2). An intermittent tributary of Battle Creek extend N-S just west of the site. Elevations at the site range from about 652 ft in the south central area (i.e., Reese Hill) down to about 546 ft at the NW corner (Figures 1 and 4). Overall slopes are gentle, but local steep areas occur (Figures 1, 2, 4 and Section 3.2). The overall slope west from the crest of Reese Hill averages 11% to 14%. The slope east towards Devon Ave SE averages 4% to 7%. Both west and east slopes have locally irregular topography with small scale areas of slope up to 30% or rarely 50% (Figure 4). These declivities are 4 to 6 ft high by 20 to 50 ft wide mounds. They lack corresponding uphill depressions as one would expect of slope failures.[1]

The west northeast parts of the site – the areas with irregular topography – are currently covered by mixed conifer and deciduous trees with understory brush (Figure 2). The mature trees have significant root mounds because of the shallow site soils (Figures 4 and 7). Additionally, many of the irregularities appear to be remnants of the former prune orchards. The central and east parts of the site are cleared field with scattered mature Douglas Firs in the SW corner. The existing residence and outbuildings are located in the SW corner (Figure 2).

There are no drainage ways on the site. Drainage is by sheet runoff and via small, shallow declivities developed during past logging and farming of the property. Drainage is towards an unnamed tributary of Battle Creek[2] located about just west of the site and Powell Creek east of the site (Figures 1).

The geology of the area around the site (Section 2.3) is very well known. It was mapped by the State (Bella, 1981), for a Portland State MS thesis (Hoffman, 1981), by the USGS (Beeson and Tolan, 2001) and by us for Chinook Estates and Marion County (NGS, 1994, 1997). Figure 5 shows our mapping of the area around the site.[3] All studies found the site underlain by Miocene volcanic rocks of the Columbia River Basalt (Figures 3 and 4) and pre-basalt sedimentary strata at considerable depth (Section 2.3).

2.2 Site Area Geology

The site lies on the north flank of the west Salem Hills. These hills are an anticlinal uplift that extends from the Willamette River north about 10 miles to Salem and from the

1 The detailed topography (Figures 4 and 7) is interpreted from LIDAR flown for DOGAMI in 2009. Reconnaissance and digital images indicate that site clearing has smoothed or removed some irregularities.

2 Informally called Champion Swale by the City and shown as that on the City LIDAR (figures 4 and 7).

3 The geologic interpretation shown on Figure 5 is based on surficial geologic mapping, aerial photo interpretation, and our evaluation of over 200 water well logs (NGS, 1997). Identification of basalt flows is based on our previous experience and several chemical analyses done by Hoffman (1981).

river to east of I-5. Bella (1981) mapped the site as underlain by Columbia River Basalt (CRB), in substantial agreement with earlier mapping by the U.S. Geological Survey (Fox-worthy, 1970). Both studies found the CRB to be at least 350 ft thick in the site area. Our mapping (Figure 5) and review of well logs in the area indicates that the CRB is at least 350 to 400 ft thick beneath the site. The review also suggests the basalt dips gently north and northeast towards Salem.

Mapping by Hoffman (1981) identified the individual flows within the CRB. The east part of the site is underlain by the youngest hi-magnesium flow of the Grande Ronde Basalt (now known as the Sentinel Bluffs). The Winter Water flow of the Grande Ronde Basalt underlies the steeper slopes marginal to the unnamed drainage west of the site (Figures 4 and 5).

In the site area, the upper few feet of the basalt bedrock underlying ridges and hillsides is generally weathered or decomposed to a hard, red-brown gritty, silty clay or clayey silt. However, the original volcanic texture of the basalt is preserved by the weathering. Thus, the basalt is generally recognizable, even when decomposed.[4] The distinction is important, because the marine sedimentary strata are often involved in slope failures. The weathered basalt is generally not involved in slope failures, except where its physical properties have been ignored during development.

2.3 State and City Estimates of Landslide Hazard Susceptibility

The State conducted assessments of potential landslide hazards for Salem and Marion County. These included notably slide-prone parts of the area (OFR O-77-4 by Schlicker, 1977), the west Salem Hills (IMS-6 by Harvey and Peterson, 1998) and IMS-17 (Hofmeister and others, 2000). These assessments were based on the available geologic studies, including the aforementioned NGS studies, information about soils strength and GIS modeling using the USGS topographic DEM.

IMS-6 does not extend east to the site nor is the site in an active or inactive landslide area (e.g., as defined by OFR O-77-4). IMS-17 estimates the site ranges from very low to moderate relative risk of earth-induced landsliding (Figure 6). The latest State estimates are incorporated into SLIDO[5] that shows no nearby active, historic or prehistoric landslides. However, the SLIDO landslide susceptibility map shows no to moderate landslide hazard in agreement with IMS-17 estimates.

In our experience, IMS-6 estimates for water induced landslide risks in areas similar to the site are generally Category 4. Thus, were this site within the area covered by IMS-6, it would likely have a low to moderate risk of water induced landslides.

The City of Salem provides Landslide Hazard Maps based on slope (generally from LIDAR) and available risk assessments from various government sources (Figure 7). Salem's map assigns 2 to 3 landslide hazard points (low to moderate) to the site.

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4 However, the relict volcanic texture in soils derived from weathering of volcanic units can be hard to see on a cloudy or rainy day. Thus, some investigators have incorrectly mapped decomposed Columbia River Basalt as weathered tuffaceous sedimentary strata, Willamette Silt, or even landslide deposits.

5 SLIDO is Oregon State DOGAMI's Statewide Landslide Information Layer for Oregon. SLIDO compiles available DOGAMI & USGS geologic and hazard mapping: http://www.oregongeology.org/sub/slido/

3. SITE SPECIFIC STUDIES

3.1 Previous Site Development

We reviewed available historic topographic maps and aerial photographs[6] for indications of slope failures at and near the site. The aerial photographs were also reviewed to identify potential areas of cut or fill made during previous use or development of the site.

The maps and photos show that the site has a long history of use as orchard and pasture. The 1936 (Figure 8) and 1944 aerial photos, and the 1950s topographic map and aerial photos show the site as mostly prune orchard typical of the area (Meyering, 2008) with a residence in the southwest part. By 1955, the summit area was cleared of trees and used as pasture. The 1967 photos show the orchard was mostly cut with a few conifers starting in the NW and along Devon Ave SE. A few fruit tree remained along the west end of the site. Most of the site appears fallow and unused in 1967 and in 1976. However, the 1971 and 1985 photos show the east 1/3 of the site around the residence mowed, presumably for hay and/or fire control. The remainder appears to be brush and conifers. The 1990 and 1994 images show only a 2 to 3 acre area around the residence was maintained as yard. The remainder was brush and maturing conifers with a few trails cleared through the site. Digital imagery shows that from 2010 through the summer of 2016 the site was progressively cleared, trees thinned and topography between the trees smoothed.

In summary, the historic maps and photos show the site has been farm and/or orchard with a residence since the 1930s. Properties north, east and south have also been small farms and/or low-density residential. Property to the west has been intermittently logged and cleared as wood lot.

No signs of slope instability or failure were observed on the aerial photographs we examined. The resolution of the aerial photos is adequate to see vehicles on roads and relatively minor earthworks. Consequently, we believe that any significant slope failure should have been identifiable on the photos we reviewed.

3.2 Surface and Subsurface Observations

We conducted a walking reconnaissance of the site, and observed road cuts and accessible excavations in the site neighborhood. As noted, we previously mapped the site area and also conducted an assessment of TL 200 immediately north (NGS, 2008), so we reviewed maps and notes our previous work for this study.

At the highest site elevations, the surficial soils are mostly derived from weathering of the basalt bedrock with an admixture of loess blown up from the Willamette floodplain. These soils generally have a thin topsoil of fine to medium sandy clayey SILT with abundant organic material and occasional pebbles, cobbles and boulders of weathered rock. On slopes below the ridgetop, soils are decomposed basalt: red brown, stiff to hard silty sandy CLAY to sandy clayey SILT with sparse to abundant rock fragments.

Four test pits were excavated on 11 July 2017 to assess site soils (Figure 7). TP-1, -2 and -4 found severely weathered Sentinel Bluffs basalt at 3 ft, 3.5 ft and 2.5 ft, respectively. TP-3 found small boulders of weathered Winter Water basalt at 1 ft. The boulders were in a

6 Stereo pairs of aerial photos taken in 1936, 1944, 1955, 1967, 1971, 1976, 1985, 1990 and 2000 were reviewed. We also reviewed USGS, Google Earth and Earth Explorer imagery from 1994-2016.

matrix of severely weathered to decomposed basalt. Practical refusal with the small excavator was reached at depths of 3 to 5 ft in all test pits.

Soils above the weathered basalt were 1 to 2 ft of medium, red brown fine sandy SILT (loess) in TP-1 and -4. Weathered basalt in TP-3 was overlain by medium, red brown clayey SILT that graded to stiff at 2.5 ft and to hard decomposed basalt from 2.5 to 3.5-4 ft. In TP-4 the basalt was overlain by 1 ft of organic SILT topsoil.

The complete natural weathering profile is exposed north of the site in an excavation along Sahalee Dr SE. (Figure 4). About 1/4 mile north of the site, excavations for Lone Oak Rd SE expose unweathered Sentinel Bluffs and Winterwater basalt at depths of 8 to 15 ft.

In summary, soils exposed in the test pits at the site are consistent with soils in the surrounding area: thin, competent surficial soils derived mostly from in-situ weathering of the basalt with an admixture of loess along ridges and uplands. Valley soils are also competent, thin and a mix of colluvium and decomposed basalt.

3.3 Ground Water Observations

No seeps or springs were observed at the site. Springs have been reported at the contact between Sentinel Bluffs and Winterwater Basalt on neighboring properties. The nearest recorded spring is south of the site just south of Rees Hill Rd SE.

Driller's logs of nearby wells indicate that the regional water table is below the elevation of the Battle Creek flood plain. Most wells have modest yields and depths to water of 170 to 250 ft. However, local perched zones occur between the basalt flows. Such perched zones supply the aforementioned springs.

We suspect that the relatively clayey, moderately-low-permeability soils saturate quickly during heavy precipitation. That is because the severely weathered top of the basalt bedrock is shallow and relatively impervious compared to the overlying soils.

4. Interpretation of Site Conditions

The reconnaissance, test pits, area roadcuts and excavations, and historic aerial photographs, confirm that the site is underlain by bedrock consisting of Columbia River Basalt, as mapped previously (NGS, 1994, 1997, 2008). The top of the Basalt is severely weathered to decomposed, but it is still relatively competent material. The relatively fresh bedrock on the slopes is typically covered by 3 to 5 ft of soils (decomposed rock). However, basalt crops out locally and may be found near ground surface anywhere in the immediate site area.[7]

Typically, the soils derived from the basalt creep on moderate and steep slopes. Curved and pistol-butted trees are present on the steepest slopes at the site and these trees are consistent with soil creep. However, the 60 to 80 year-old firs are erect at the tops, indicating that creep is slow enough for the trees to keep up with it.

Available information indicates that the Basalt extends for 350 to 400 ft depth below the site. Site mapping indicates that the flows dip gently north beneath the site. Together

[7] Except that bedrock is at greater depths below the alluvium of the Battle Creek floodplain, north of the site, and its tributaries east and west of the site.

with the competent nature of the site materials, it seems most unlikely to us that there is any significant risk of slope failure involving the bedrock. This interpretation is **supported** by a complete lack of evidence that the site has suffered from slope instability in the past.

However, a few cuts for roads in the area have failed locally where they were too steep or became locally saturated during intense storms. Additionally, our previous experience in the area indicates that careful design and construction is required to use local soils as fill.

5. Conclusions and Recommendations

We found no evidence that slopes at the site have ever failed, nor indication that they will fail under the expected range of future conditions. The site and neighbors have survived severe rainfall events in 1964, 1974, 1994, 1996, 2003, 2006 and most recently December 2016. Numerous slides occurred at other sites in the Salem region during these severe storms.

Even though the site soils have not failed, they do creep, and similar soils have failed locally in overly-steep excavations (NGS, 2008). Consequently, we recommend that foundations be placed on competent material. Foundations and retaining walls should be designed by a qualified professional to withstand forces from soil creep and lateral loads from earthquakes. Given the thin soils and shallow depth to weathered bedrock, this requirement should not be onerous.

Cuts higher than 4 ft and steeper than 1V:2H, and fills more than 2 ft thick, should be designed by a qualified professional and the design reviewed by a geotechnical engineer. Walls, including retaining walls or foundation walls higher than 4 ft, should also be designed by a qualified professional and the design reviewed by a geotechnical Engineer.

Additionally, we recommend against infiltration of large volumes of water into the small volumes of ground, particularly during intense rainfall events such as those noted above. Some slope failures in the Eola and Salem Hills have been caused by injection of large volumes of storm water. Consequently, it is our opinion that surface runoff from roofs and pavements should be dispersed over a broad area to simulate natural conditions. If it is found necessary to dispose of large amounts runoff to the soil, the location and method should be thoroughly evaluated by a qualified professional. Your geotechnical Engineer should also review any such plans.

In our opinion, if you follow the above recommendations, partitioning and development of TL 300 for single family residences as you propose (Figure 9) should not increase the potential for slope hazards on the site or adjacent properties.

6. LIMITATIONS AND LIABILITY

We call your attention to the paragraphs on Warranty and Liability in the General Conditions (dated 1/2016) approved previously by you. Interpretations and recommendations presented herein are based on limited data and observations. Actual subsurface conditions may vary from those inferred from the limited information available to us. If site excavations for development find conditions to differ significantly from those inferred

herein, you should contact us and provide an opportunity for us to review our recommendations for the site.

We thank you for the opportunity to assist you with your project. Please contact us if you have questions about the report.

Yours very truly,
Northwest Geological Services, Inc.

Clive F. (Rick) Kienle, Jr., PhD, CEG
Principal Geologist and Vice President

NGS Reference 235.96-1

7. REFERENCES

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8S/3W-22C Tax Lot 300		
Salem, Marion County, Oregon		
Landslide Hazard Study		
	Site Location Map	
NGS, Inc.	July 2017	Figure 1

8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon
Landslide Hazard Study
Oblique View 23 July 2016 Aerial Image

NGS, Inc.	July 2017	Figure 2

N E SSE

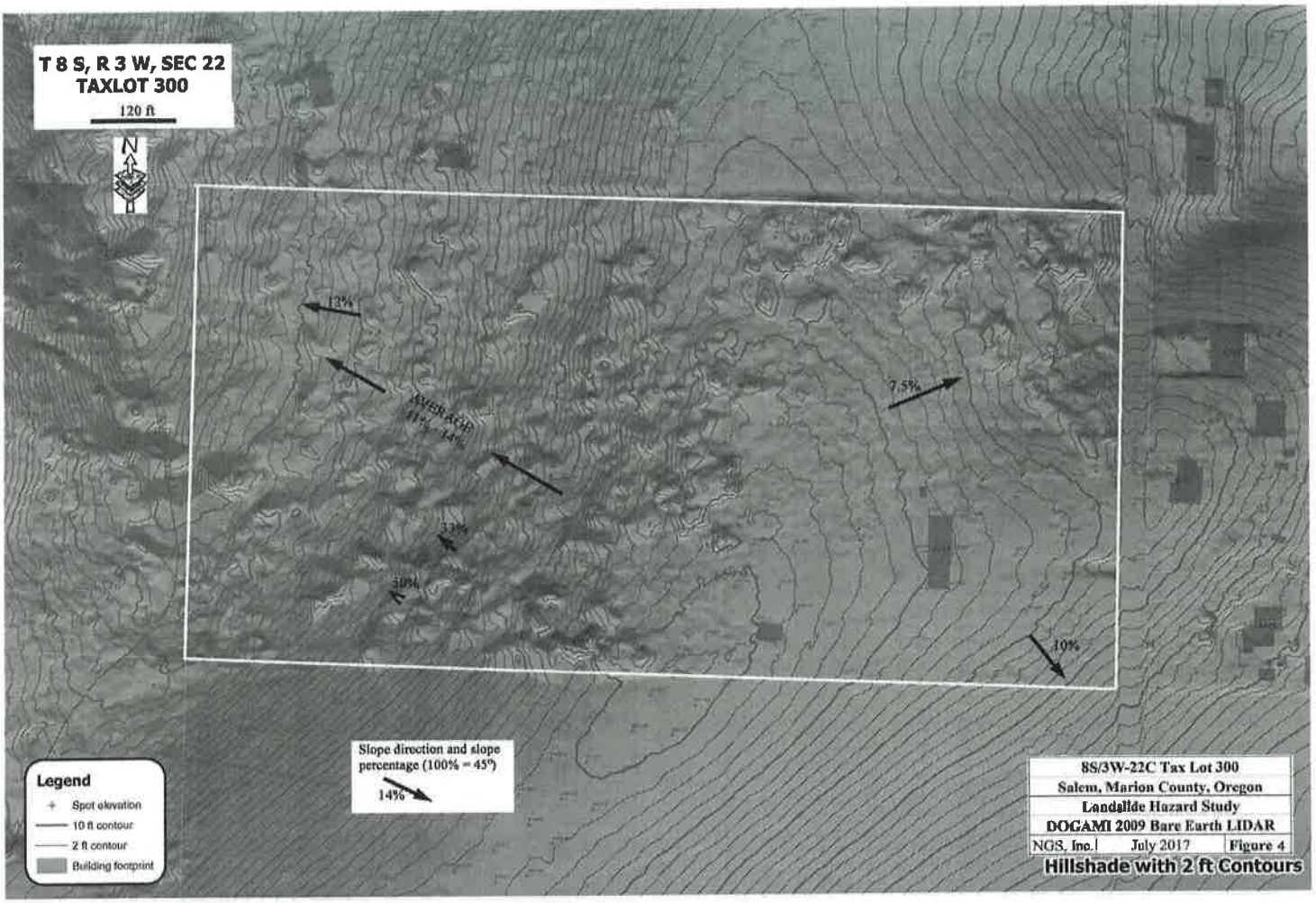
Panorama of central part of site looking N (on left) and around to SSE (on right). Note brush mound at far right behind vehicle.

Mature Douglas Firs at the East end of the site show slight curvature from moderate creep in the thin site soil.

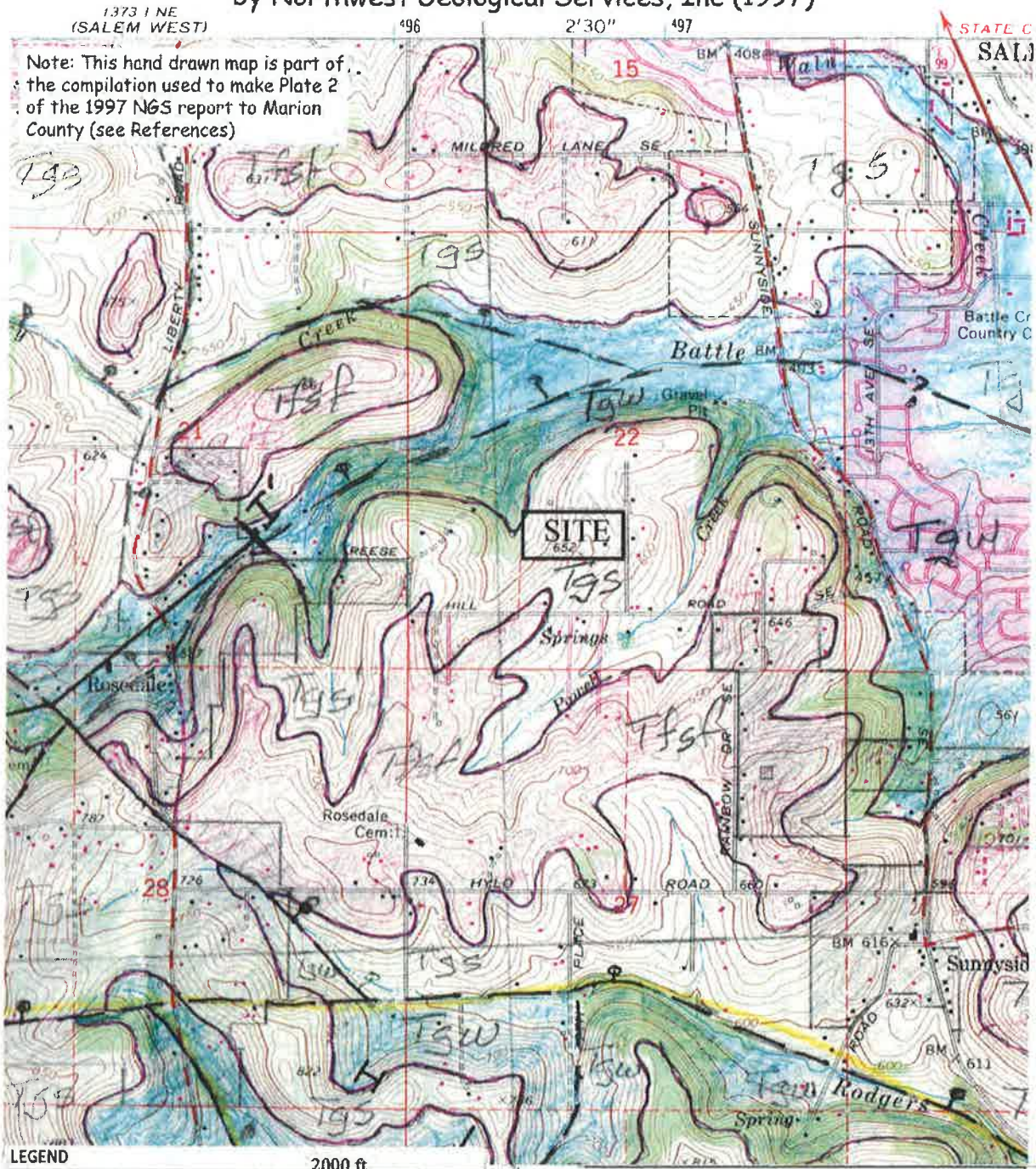
Smooth topography in NE part of site is typical of the entire site with exception of brush-covered piles of soil and woody debris left from clearing old orchard.

Decomposed Sentinel Bluff basalt spoils from test pit TP-1

8S/3W-22C Tax Lot 300		
Salem, Marion County, Oregon		
Landslide Hazard Study		
Site Photographs		
NGS, Inc.	July 2017	Figure 3


T 8 S, R 3 W, SEC 22
TAXLOT 300
120 ft
N
13%
AVERAGE
11% - 14%
33%
30%
7.5%
10%
Slope direction and slope percentage (100% = 45°)
14%
Legend
Spot elevation
10 ft contour
2 ft contour
Building footprint
8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon
Landslide Hazard Study
DOGAMI 2009 Bare Earth LIDAR
NG3, Inc. | July 2017 | Figure 4
Hillshade with 2 ft Contours

Portion of Geologic Map of Sidney Quadrangle by Northwest Geological Services, Inc (1997)



LEGEND

2000 ft

N

Geologic Bedrock Units

Tfs - Basalt of Silver Falls (Frenchman Springs Mamber, Wanapum Basalt)

Tfg - Basalt of Gingko (Frenchman Springs Mamber, Wanapum Basalt)

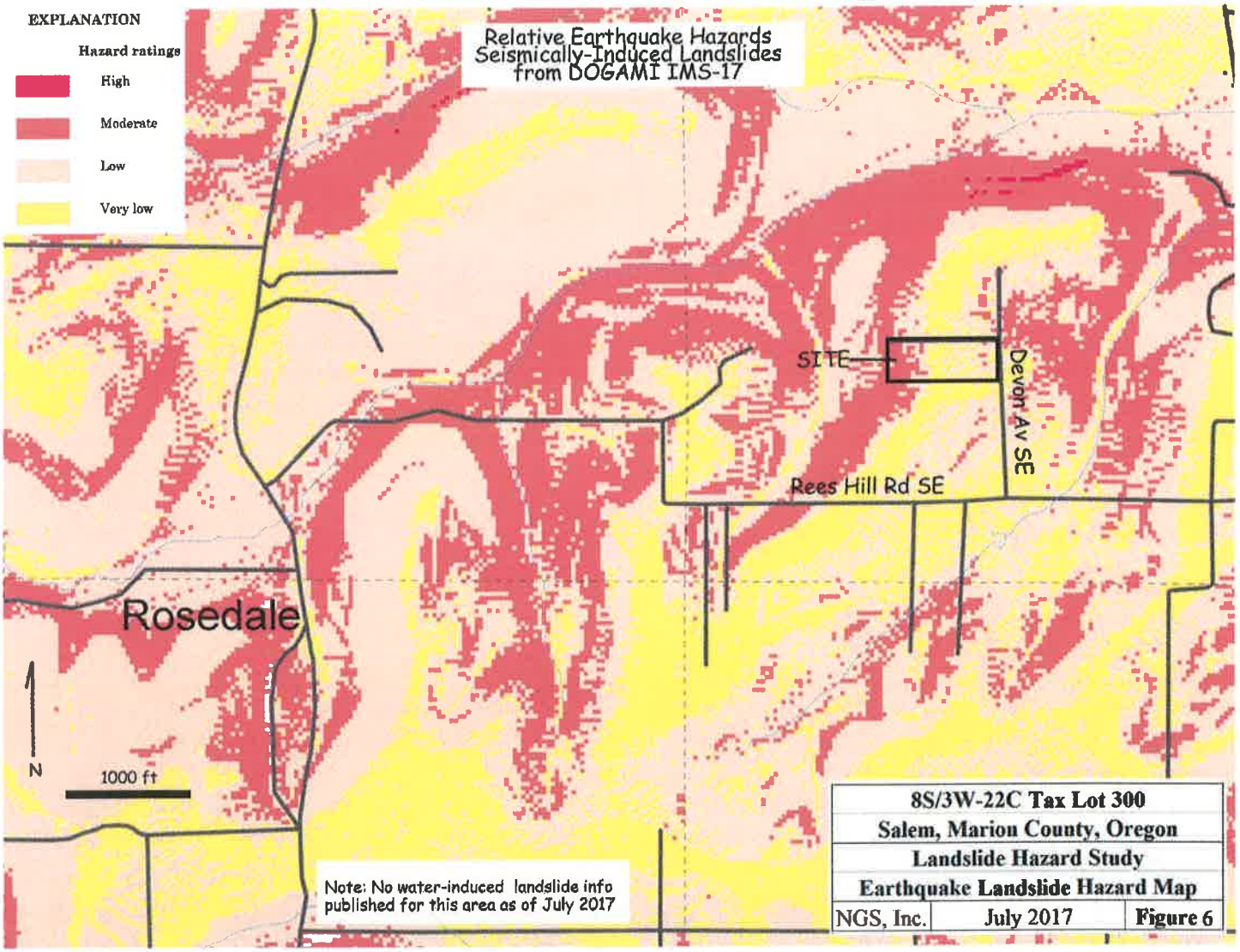
Tgs - Sentinel Bluff Basalt (Grand Ronde Basalt)

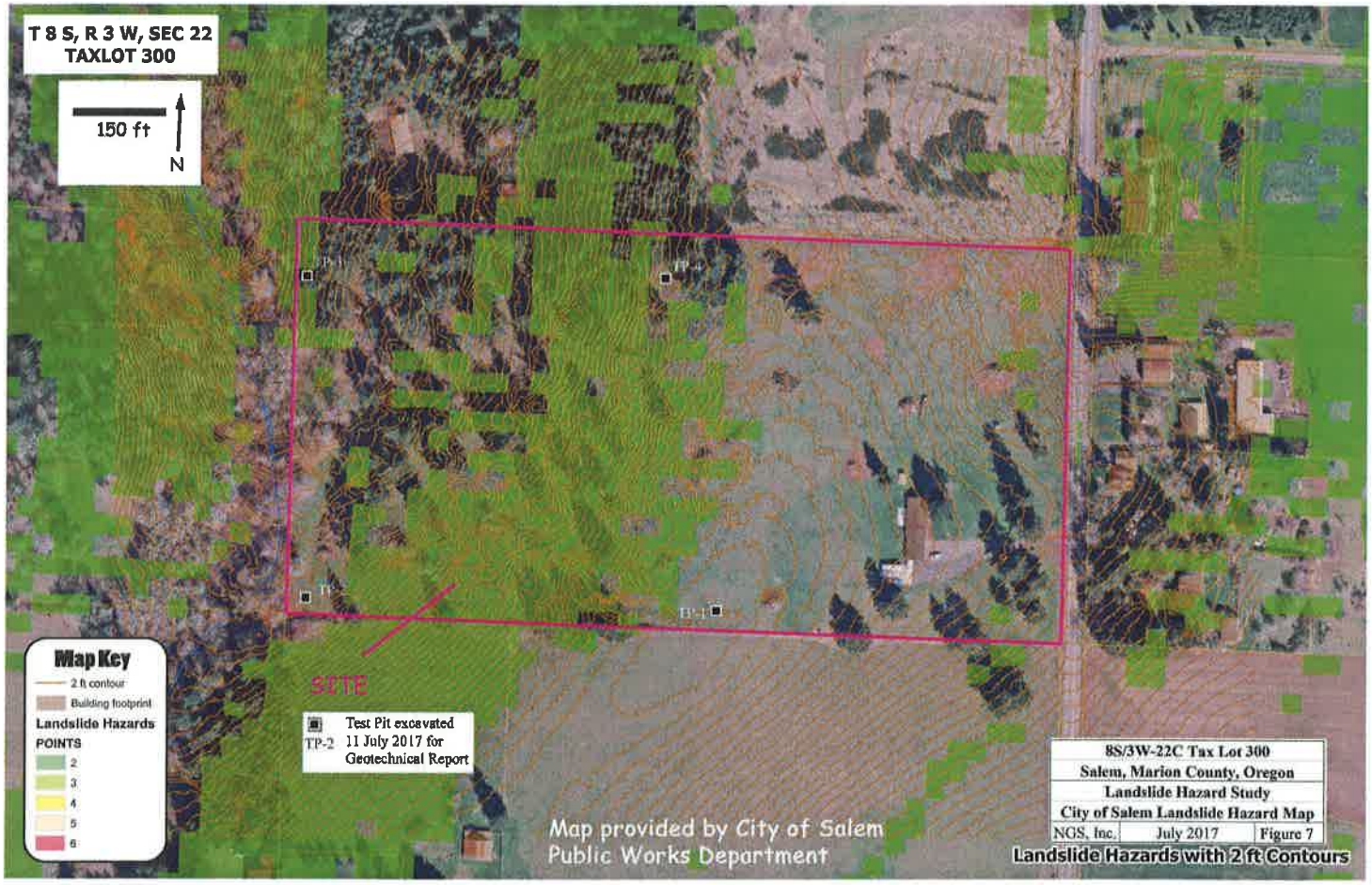
Tgw - Winterwater Basalt (Grande Ronde Basalt)

Geologic Structures

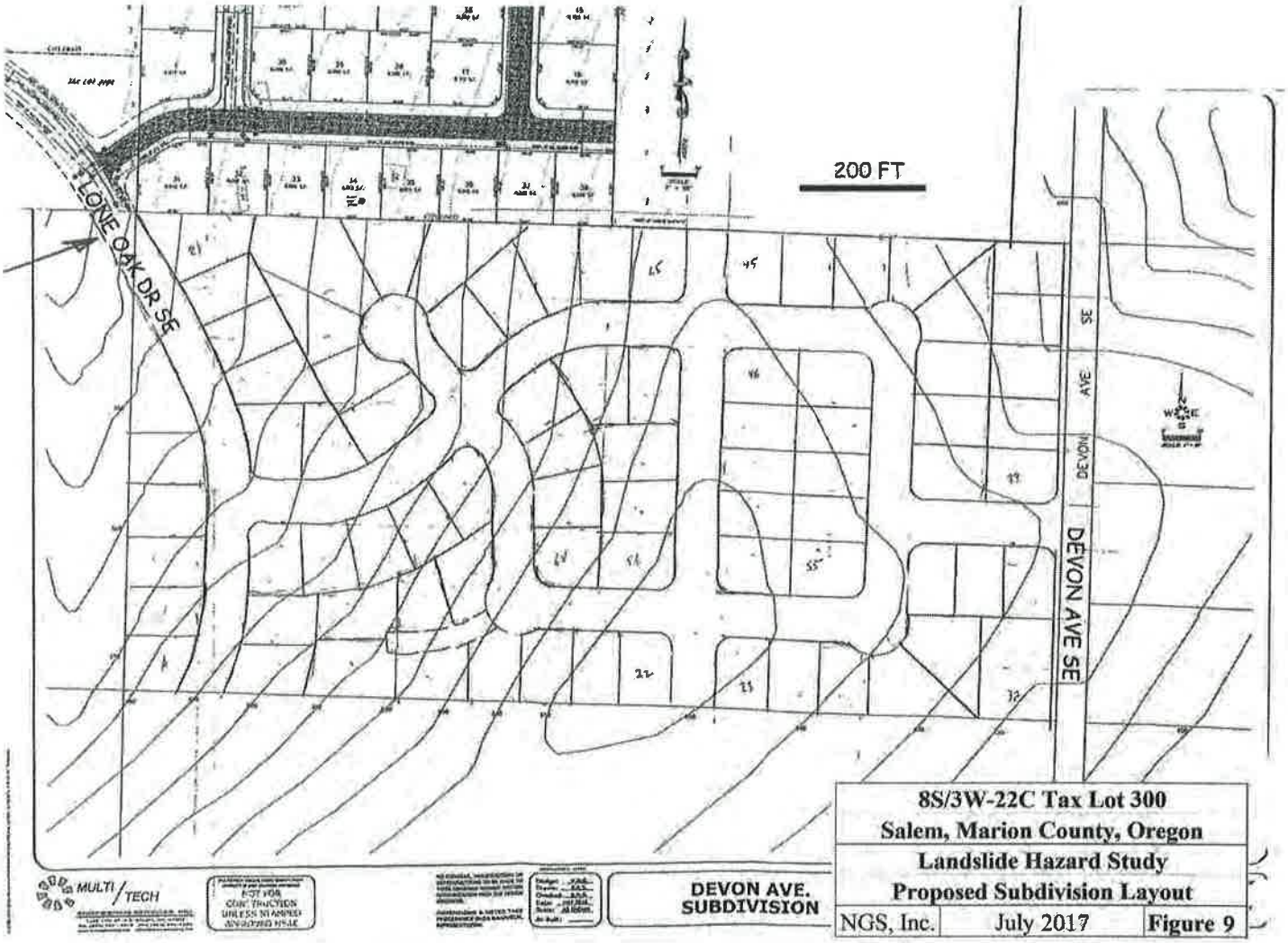
Normal Fault, ball on down side, dashed where approximate

8S/3W-22C Tax Lot 300		
Salem, Marion County, Oregon		
Landslide Hazard Study		
Area Geologic Map		
NGS, Inc.	July 2017	**Figure 5**


EXPLANATION
Hazard ratings
High
Moderate
Low
Very low
Relative Earthquake Hazards
Seismically-Induced Landslides
from DOGAMI IMS-17
SITE
Devon Av SE
Rees Hill Rd SE
Rosedale
N
1000 ft
Note: No water-induced landslide info published for this area as of July 2017
8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon
Landslide Hazard Study
Earthquake Landslide Hazard Map
NGS, Inc.
July 2017
Figure 6


T 8 S, R 3 W, SEC 22
TAXLOT 300
150 ft
N
TP-1
TP-4
TP-3
B-1
SITE
Map Key
2 ft contour
Building footprint
Landslide Hazards
POINTS
2
3
4
5
6
TP-2 Test Pit excavated 11 July 2017 for Geotechnical Report
Map provided by City of Salem Public Works Department
8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon
Landslide Hazard Study
City of Salem Landslide Hazard Map
NGS, Inc. July 2017 Figure 7
Landslide Hazards with 2 ft Contours

8S/3W-22C Tax Lot 300		
Salem, Marion County, Oregon		
Landslide Hazard Study		
1936 Aerial Photograph		
NGS, Inc.	July 2017	Figure 8



8S/3W-22C Tax Lot 300
Salem, Marion County, Oregon
Landslide Hazard Study
Proposed Subdivision Layout

NGS, Inc.	July 2017	**Figure 9**

#6502

MARION COUNTY
SUBDIVISION/CONDOMINIUM NAME REQUEST

Marion County Surveyor – 5155 Silverton Road NE, Salem, OR 97305
Fax 503-588-7970 Phone 503-588-5155

Proposed Subdivision Name : (Please do not use the word "Subdivision" as part of the name.)

NOTE: ***Reserved names expire 2 years from original approval date.***

Grantham Crest

Applicant Name: HSE Development, LLC

Address: 3425 Boone Rd SE
Salem/OR
97317

Owner/Developer: Same as above

Phone: 503-363-9727 Date: 9-21-18

Location: Is the subdivision in a city? Yes ✓ No ____

City Name: Salem

Section: 8 Township: 22 Range: 3W
083W22C/TL 300

Office Use Only

Date Received: 9/21/2018

The Proposed Name is:

X Approved as Submitted ***(approval expires in 2 years)***

____ Not Approved for the following reason(s):

Phil R. Jones Date 9/24/2018
Marion County Surveyor

MARION COUNTY
SUBDIVISION/CONDOMINIUM NAME REQUEST

Marion County Surveyor – 5155 Silverton Road NE, Salem, OR 97305
Fax 503-588-7970 Phone 503-588-5155

Proposed Subdivision Name : (Please do not use the word "Subdivision" as part of the name.)

NOTE: ***Reserved names expire 2 years from original approval date.***

Northstar Phase 2

Applicant Name: Karl Ivanov

Address: 9550 SE Clackamas Rd
Clackamas, OR 97015

Owner/Developer: Karl Ivanov

Phone: 503-655-7933 Date: 9-21-18

Location: Is the subdivision in a city? Yes ✓ No_____

City Name: Salem

Section: 32 Township: 6S Range: 2W

Office Use Only

Date Received: 9/21/2018

The Proposed Name is:

X Approved as Submitted ***(approval expires in 2 years)***

_____ Not Approved for the following reason(s):

Phil R Jones Date 9/24/2018
Marion County Surveyor