



CITY OF TUALATIN
 18880 SW Martinazzi Ave
 Tualatin, OR 97062-7092
 Phone: (503) 692-2000
 Fax: (503) 692-0147

**DEVELOPMENT APPLICATION:
 SUBDIVISION/PARTITION/
 PROPERTY LINE ADJUSTMENT**

Application for: Subdivision Partition Property Line Adjustment

Project Address: 20270 & 20320 SW 93rd Avenue Planning District: RL

Project Tax Map Number: 2S1 26AB Tax Lot Number(s): 03500 & 03600

Property Owner(s): Marie A. Flabetich, trustee of the Marie A. Flabetich Trust
Revocable Living Trust, under a Trust Agreement dated May 24, 1994

Property Owner's Address: 1764 Dalton Drive, Eugene, OR 97404-2308

Owner's Phone Number: 541-689-8975 Fax Number: N/A

Owner's Email Address: LHJH1936@MSN.COM

Owner's Signature: Jane M. Heiler Date: 5-2-13

Owner's Signature: _____ Date: _____

Owner's Signature: _____

Applicant's Name: Kurt Dalbey, Mission Homes Northwest, LLC

Applicant's Address: P.O. Box 1689, Lake Oswego, OR 97035

Applicant's Phone Number: 503-781-1814 Fax Number: 503-570-8869

Applicant's Email Address: kdalbey@gmail.com

Applicant's Signature: [Signature] Date: 4/30/13

Consultant's Name: Lee Leighton, AICP

Consultant's Company: Westlake Consultants, Inc.

Consultant's Address: 15115 SW Sequoia Parkway, Suite 150, Tigard, OR 97224

Consultant's Phone Number: 503-684-0652 Fax Number: 503-624-0157

Consultant's Email Address: lleighton@westlakeconsultants.com

Direct Communication to: Owner Applicant Consultant

Existing Use: Residence Proposed Use: 8 detached houses

Total Acreage: 1.74 acres No. of Lots/Parcels: 8

Average Lot/Parcel Width: 58 Feet Average Lot/Parcel Area: 8,208 SF

Subdivision Name (if applicable): Mission Woods

Receipt Number: 815914 Fee: \$ 2,700 Job Number: SB 13-02
 By: JD Date: 5/13/13

Mission Woods

Residential Subdivision

May 17, 2013

Mission Woods

Residential Subdivision

Prepared for:

Kurt Dalbey

Mission Homes Northwest, LLC

PO Box 1689

Lake Oswego, Or 97035

Phone: (503) 781-1814

Prepared by:

Westlake Consultants, Inc.

15115 SW Sequoia Parkway, Suite 150

Tigard, Oregon 97224

Phone: (503) 684-0652

Fax: (503) 624-0157

Contact: Lee Leighton, AICP

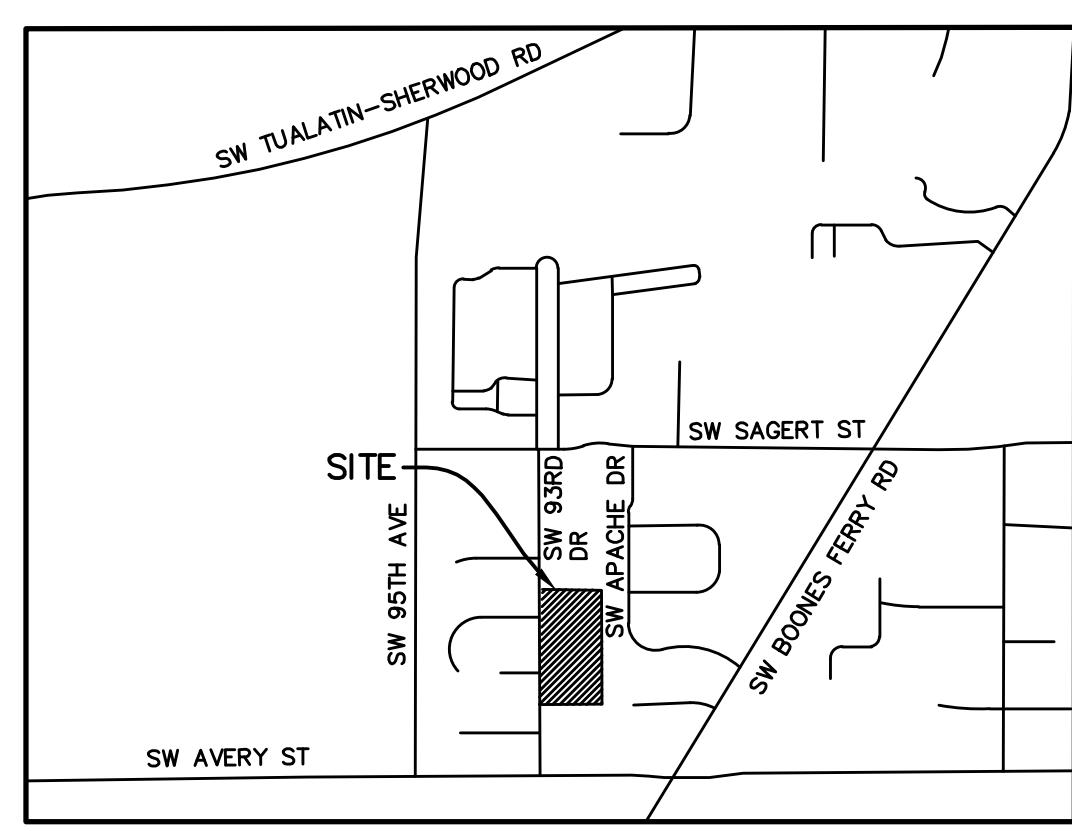
PRELIMINARY PLANS FOR MISSION WOODS TUALATIN, OREGON

WESTLAKE
CONSULTANTS INC.
ENGINEERING ♦ SURVEYING ♦ PLANNING
PACIFIC CORPORATE CENTER
15115 S.W. SEQUOIA PARKWAY SUITE 150
TIGARD, OREGON 97224
(503) 884-0652
FAX (503) 884-0157

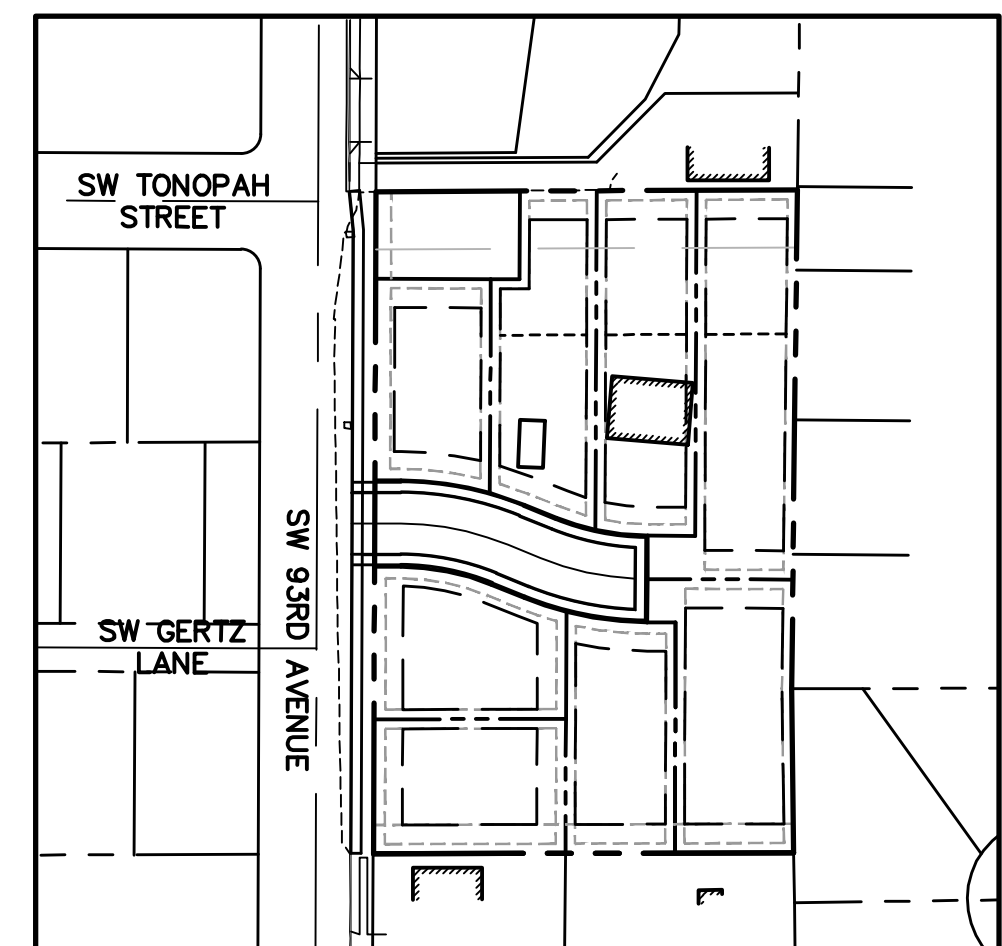
MISSION WOODS
TUALATIN, OR
COVER SHEET

SHEET INDEX

NAME:	NO.
COVER SHEET	P100
EXISTING CONDITIONS	P200
SITE PLAN	P300
GRADING PLAN	P400
UTILITY PLAN	P500



VICINITY MAP
NOT TO SCALE



LOCATION MAP
SCALE: 1"=100'

PROPERTY DESCRIPTION

TAX MAP + LOT:
TAX MAP 2S1 26AB, TAX LOT 3500 AND 3600

SITE SIZE:
1.74 ACRES

ZONING DESIGNATION:
RL LOW-DENSITY RESIDENTIAL

PROPOSAL:
8-LOT RESIDENTIAL SUBDIVISION
(SINGLE FAMILY DETACHED)

STREET ADDRESS

20270-20320 SW 93RD AVENUE
TUALATIN, OR 97062

APPLICANT

MISSION HOMES NW, LLC
PO BOX 1689
LAKE OSWEGO, OR 97035
PHONE: (503) 781-1814
FAX: (503) 570-8828
CONTACT: KURT DALBEY

ENGINEER / SURVEYOR

WESTLAKE CONSULTANTS, INC.
PACIFIC CORPORATE CENTER
15115 S.W. SEQUOIA PARKWAY,
SUITE 150 TIGARD, OREGON 97224
PHONE: (503) 684-0652
FAX: (503) 624-0157
CONTACT: LEE LEIGHTON, AICP

BENCHMARK

ELEVATIONS BASED ON WASHINGTON COUNTY
BENCHMARK NO. 448

ELEVATION: 231.978
DATUM: NGVD 29

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 852-001-0010 THROUGH OAR 852-001-0080. YOU MAY OBTAIN COPIES OF THESE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1887).

UTILITY STATEMENT: THE UNDERGROUND UTILITIES SHOWN ARE PER FIELD MARKINGS AND RECORD DRAWINGS PROVIDED BY THE RESPECTIVE UTILITY AGENCIES. LOCATION OF NON-OBSERVABLE AND/OR UNDERGROUND UTILITIES ARE SHOWN FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE.

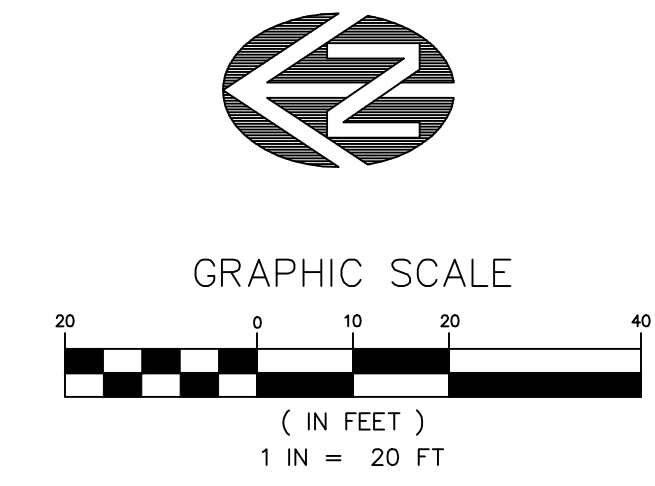
UTILITY VERIFICATION: CONTRACTOR SHALL POTHOLE TO VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION AND SHALL PROVIDE WESTLAKE CONSULTANTS, INC. 72-HOURS NOTICE OF ANY POTENTIAL CONFLICTS.

THESE DRAWINGS ARE THE PROPERTY OF WESTLAKE CONSULTANTS INC. (WCI) AND ARE NOT TO BE REPRODUCED IN ANY MANNER EXCEPT WITH THE WRITTEN PERMISSION OF WCI

REVISIONS	DATE	DESCRIPTION	DESIGNER	CHECKED

SHEET
P100
JOB NO. 2312-03

05/16/13 SUBMITTAL



MISSION WOODS
TUALATIN, OR

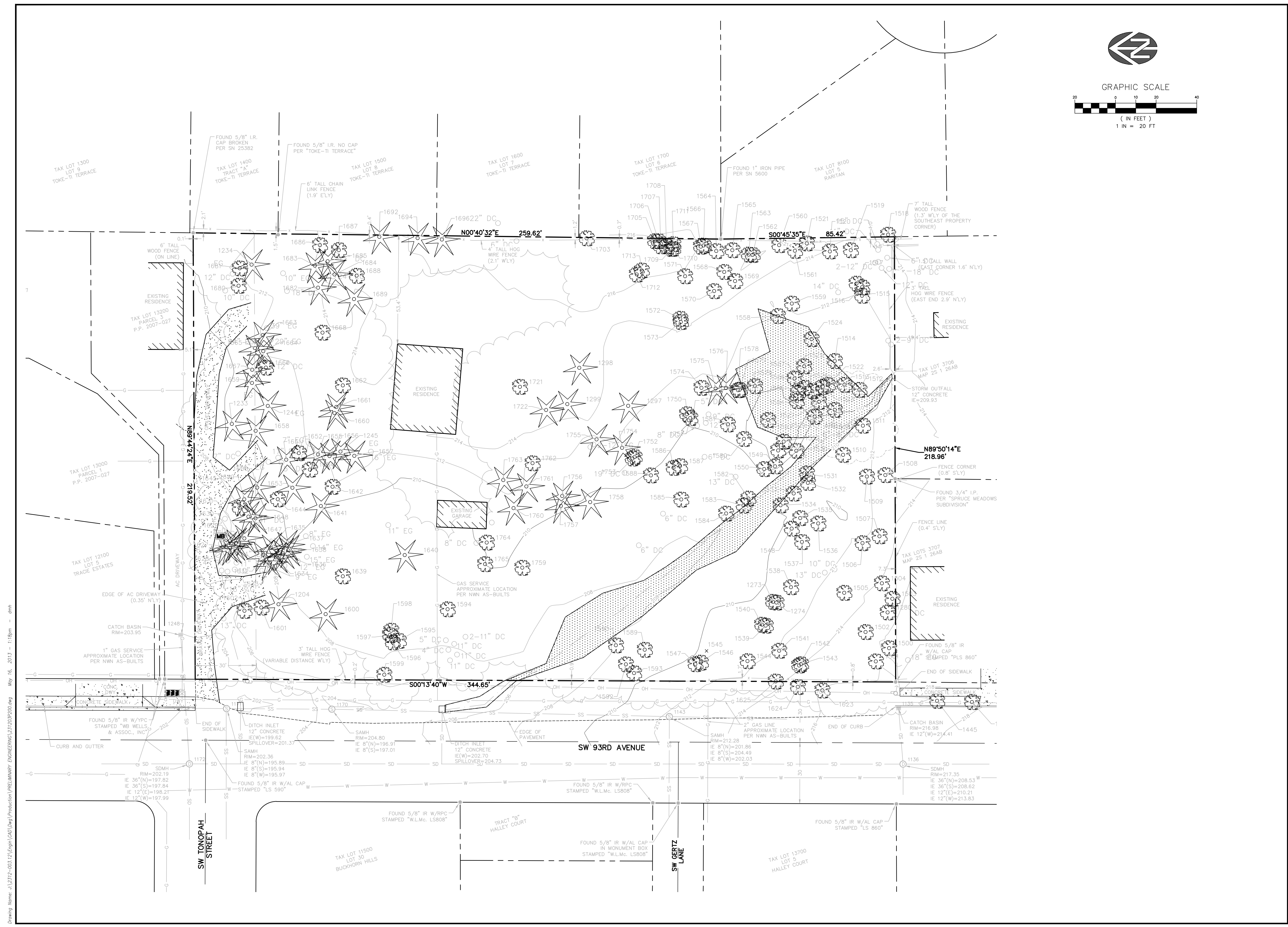
EXISTING CONDITIONS PLAN

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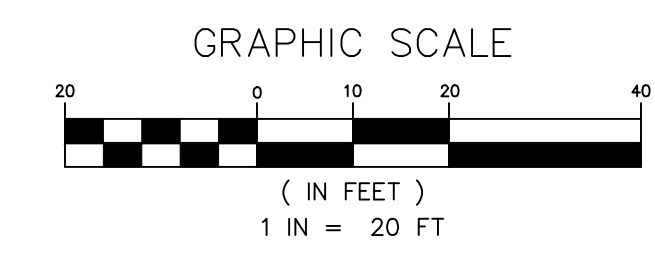
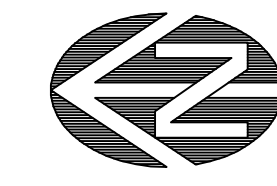
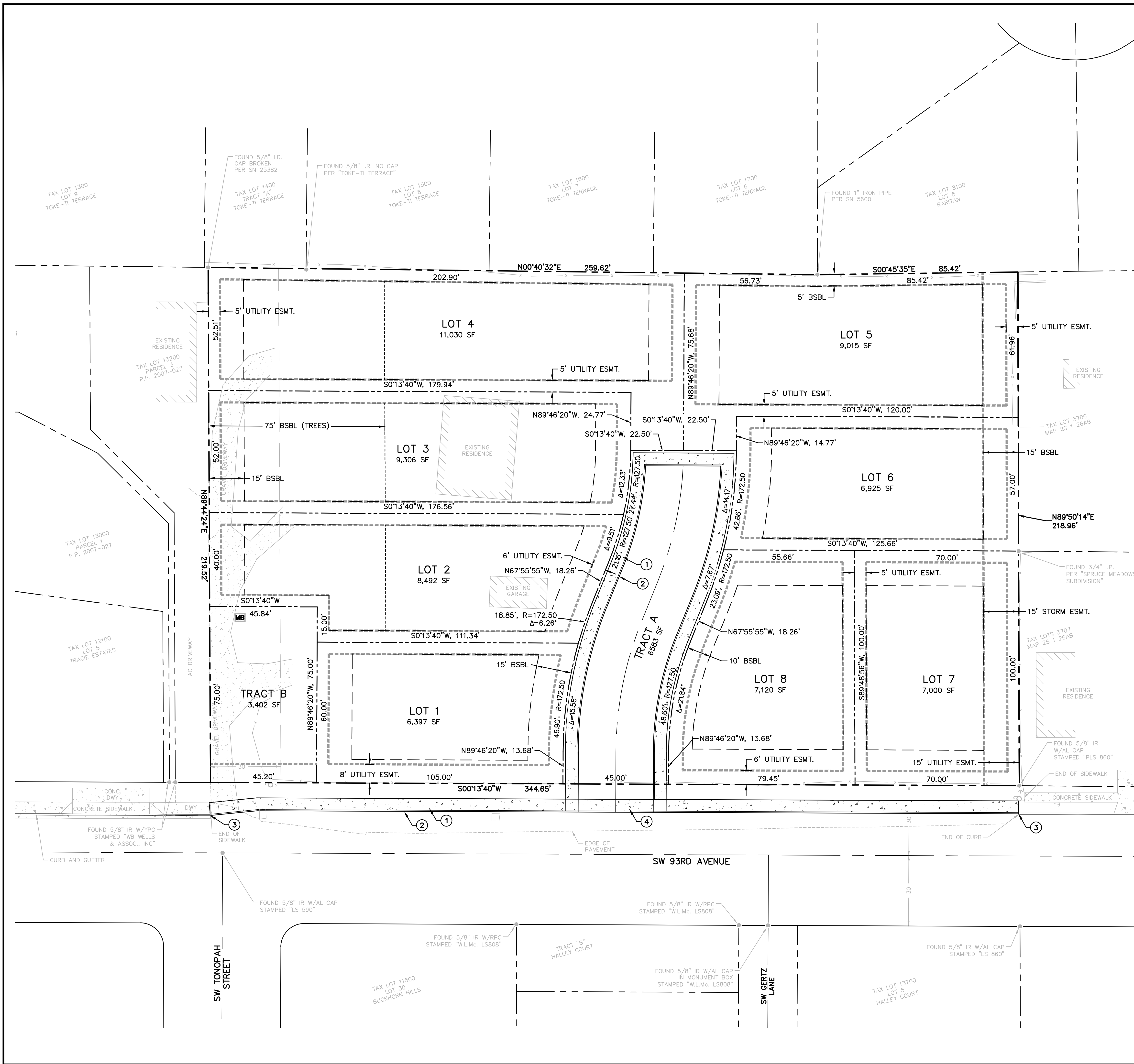
SHEET
P200
JOB NO. 2312-03

05/16/13 SUBMITTAL



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Drawing Name: \\1212-00312\Eng\1212\Proj\Production\PRELIMINARY\ENGINEERING\231204P300.dwg May 16, 2013 - 3:23pm - dmh



CONSTRUCTION KEYNOTES:

- ① INSTALL 5' CONCRETE SIDEWALK.
- ② INSTALL STANDARD CURB & GUTTER.
- ③ MATCH EXISTING SIDEWALK, CURB & GUTTER
- ④ INSTALL 32' COMMERCIAL DRIVEWAY.

LOT LAYOUT (PRELIMINARY PLAT)

TOTAL AREA = 1.74 ACRES
 MINIMUM SETBACKS [TDC §40.070]:
 FRONT 15'
 GARAGE 20'
 SIDE 5' (10' STREET)
 REAR 15'

ALL LOTS WILL HAVE A 6-FOOT PUBLIC UTILITY EASEMENT (PUE) ADJACENT TO THE STREET AND A 5-FOOT PUBLIC UTILITY EASEMENT ADJACENT TO ALL SIDE AND REAR LOT LINES. [TDC §74.330]
 THE MAXIMUM BUILDING AREA FOR ALL LOTS IS BASED ON MINIMUM FRONT, SIDE AND REAR SETBACKS. [TDC §40.070] HOWEVER, THE APPLICANT INTENDS TO BE THE HOMEBUILDER FOR ALL LOTS AND INTENDS TO CONSERVE EXISTING TREES IN THE REAR YARDS OF LOTS 2, 3 AND 4 BY SITING HOMES WITH REAR YARD SETBACKS OF AT LEAST 75 FEET, AS ILLUSTRATED.

LEGEND

- BUILDING SETBACK LINE (BSBL)
- - - REAR YARD TREE SETBACK
- UTILITY EASEMENT LINE

WESTLAKE
 CONSULTANTS INC.
 ENGINEERING • SURVEYING • PLANNING
 10000 SW 10TH AVENUE SUITE 150
 TIGARD, OREGON 97224
 (503) 884-0982
 FAX (503) 884-0157

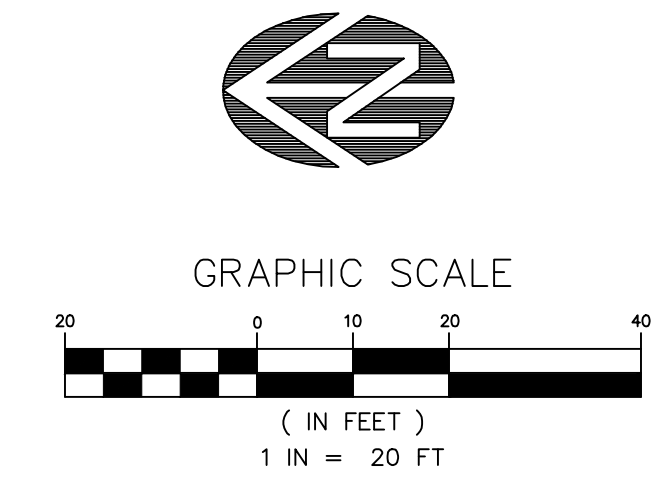
MISSION WOODS
 TUALATIN, OR
 SITE PLAN / PRELIMINARY PLAT

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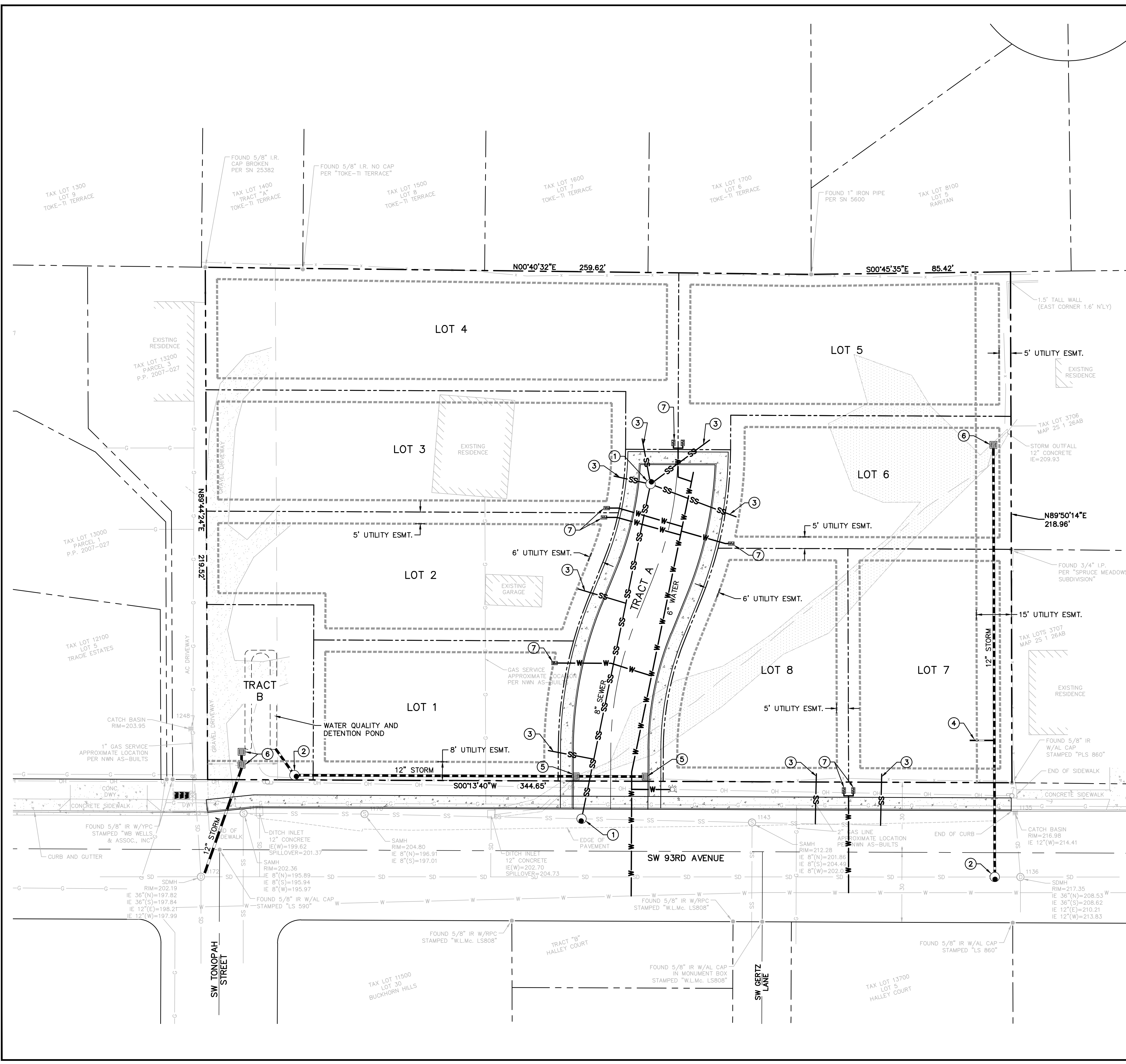
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 JOB NO. 2312-03

05/16/13 SUBMITTAL



CONSTRUCTION KEYNOTES:

- ① INSTALL 48" STANDARD SANITARY MANHOLE.
- ② INSTALL 48" STANDARD STORM MANHOLE.
- ③ INSTALL 4" SANITARY LATERAL.
- ④ INSTALL 4" STORM LATERAL.
- ⑤ INSTALL CG-2 INLET.
- ⑥ INSTALL DITCH INLET.
- ⑦ INSTALL 1" WATER METER SERVICE.



WESTLAKE CONSULTANTS INC.
 ENGINEERING ♦ SURVEYING ♦ PLANNING
 10000 SW 10TH AVENUE SUITE 150
 TUALATIN, OREGON 97224
 (503) 884-0682
 FAX (503) 884-0157

MISSION WOODS
 TUALATIN, OR
 UTILITY PLAN

THESE DRAWINGS ARE THE PROPERTY OF WESTLAKE CONSULTANTS INC. (WCI) AND ARE NOT TO BE REPRODUCED IN ANY MANNER EXCEPT WITH THE WRITTEN PERMISSION OF WCI

REVISIONS	DATE	DESCRIPTION	DESIGN	CHECKED

SHEET
P500
 JOB NO. 2312-03

05/16/13 SUBMITTAL

Drawing Name: J:\2312-03\12\Eng\1201\1201P500.dwg May 16, 2013 - 12:27pm - dmh

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Exhibits

A	Application Form
B	Preliminary Subdivision Plan Drawings (11x17" reduced)
C	Neighborhood/Developer Meeting Documentation
D	Washington County Surveyor Plat Name Reservation
E	Clean Water Services Service Provider Letter
F	Map and Form of Mailing Label Sheets for Notices
G	Certification of Sign Posting
H	Excerpts from Tualatin Transportation System Plan (TSP)
I	Storm Drainage Report
J	Wetland Documentation and Permitting
K	Arborist's Report
L	Title Report

Narrative Project Description

Mission Woods Subdivision proposes to create eight lots for detached single-family residential construction in the City of Tualatin. The rectangular project site contains 1.74 acres of land located on the east side of SW 93rd Avenue in the area between SW Avery Street and SW Sagert Street. There is one existing residence, which will be removed (20270-20320 SW 93rd Avenue; Tax Map 2S1 26AB, Tax Lots 03500 & 03600). Surrounding development consists entirely of detached single-family residences.

Three of the proposed eight lots will have frontage on SW 93rd Avenue, and at least two will have driveway access directly onto it. The remaining six (or possibly five) lots will have access by way of a new shared vehicular access drive (commonly referred to as a “private street”) extending into the site from SW 93rd Avenue. The four northerly lots will have extra-deep rear yards, in which the Applicant intends to retain many of the large Douglas fir trees that are in good condition.

All utilities necessary to serve the proposed subdivision are available in SW 93rd Avenue. Project construction will include street improvements (widening, curb & gutter, sidewalk, street trees and other elements) along the SW 93rd Avenue frontage.

A copy of the City of Tualatin application form is provided in Exhibit A. Full-size drawings have been submitted with this application; Exhibit B contains a reduced-size (11” x 17”) set.

Findings of Compliance with Applicable Regulations

TDC Chapter 36: Subdividing, Partitioning and Property Line Adjustments

Section 36.070 Land Divisions and Property Line Adjustments.

(1) *All land divisions shall be created by a subdivision or partition plat and must comply with ORS Chapter 92 and this Chapter.*

Applicant’s Response: This narrative, together with drawings and other exhibits, provides evidence demonstrating that the proposed development complies with all applicable regulations of the City of Tualatin and ORS Chapter 92.

Section 36.080 Approval of Streets and Ways.

(1) *The subdivision or partition plat shall provide for the dedication of all public rights-of-way, reserve strips, easements, tracts and accessways, together with public improvements therein approved and accepted for public use.*

(a) *The applicant shall comply with the requirements of TDC Chapter 74, Public Improvement Requirements.*

(b) *The applicant shall comply with the design and construction standards set forth in the Public Works Construction Code.*

(c) *The applicant shall provide evidence to the City that property intended to be dedicated to the public is free of all liens, encumbrances, claims and encroachments.*

- (2) *The subdivision or partition plat shall indicate the ownership and location of private easements and tracts, and the ownership and location of private improvements within public rights-of-way and easements.*
- (3) *Approval of the subdivision or partition plat by the City shall constitute acceptance of all public rights-of-way, reserve strips, easements, tracts and accessways shown thereon, as well as public facilities located therein. [Ord. 590-83 §1, 4/11/83]*

Response: This is an application for preliminary plat approval. The Applicant's evidence illustrates how right-of-way dedication, construction of utilities and streets, and all other improvements necessary to satisfy Tualatin Development Code requirements will be completed in conjunction with the final subdivision plat process.

Section 36.090 Issuance of Building Permits. [detailed provisions omitted for brevity]

Response: The Applicant acknowledges, and will comply with, the limitations placed on issuance of building permits prior to completion of the final plat and all public improvements associated with the subdivision.

PROCEDURE FOR SUBDIVIDING

Section 36.110 Approval Required.

- (1) *No land may be subdivided or replatted except in accordance with this Chapter and if a variance or minor variance is requested to the dimensional standards of the lots, or the minimum lot size, in accordance with the approval criteria in TDC Chapter 33.*
- (2) *The procedure for review and action on subdivision applications, and requested variances and minor variances, is intended to provide orderly and expeditious processing of such applications and to require conditions of development approval to protect the health and safety of the citizens. [Ord. 590-83 §1, 04/11/83; Ord. 1009-98 §11, 11/9/98; Ord. 1096-02 §17, 01/28/02]*

Section 36.120 Applications and Filing Fee.

- (1) *A request for a Subdivision shall be subject to a Neighborhood/Developer Meeting pursuant to TDC 31.063.*
- (2) *The applicant shall discuss the preliminary plans with the City Engineer in a pre-application conference prior to submitting an application. An applicant for a subdivision shall conduct a Neighborhood/Developer Meeting subject to TDC 31.063. Following the pre-application conference and the Neighborhood/Developer Meeting, the applicant shall prepare and submit a City of Tualatin development application, available from the City Engineer.*

Response: The Applicant and members of his design team met with City staff (Tony Doran, Bill King and Will Harper) on October 22, 2012 in a pre-application conference. Following that work session, the design team prepared a notice area mailing list and provided it to Tony Doran for review and confirmation before sending notices of the Neighborhood/ Developer Meeting. That meeting was held on the evening of Thursday, February 21st, 2013, at the Juanita Pohl Center in Tualatin Community Park. Tony Doran attended and responded to several questions

from citizens in the course of the meeting. Affidavits and other process documentation, including copies of mailed notices and the on-site notice posting, are provided in Exhibit C.

- (3) *The application shall contain:*
- (a) *the proposed plat name, approved by the County Surveyor;*
 - (b) *the names, addresses and telephone numbers of the property owners and applicants, and when applicable, the name and address of the design engineer or surveyor;*
 - (c) *the signatures of the property owners and applicants; and*
 - (d) *the site location by address and current County Tax Assessor's map and tax lot numbers.*
 - (e) *A description of the manner in which the proposed division complies with each of the expedited criterion for an Expedited Subdivision Application.*
 - (f) *If a variance or minor variance is requested to the dimensional standards of the lots, or the minimum lot size, adequate information to show compliance with the approval criteria in TDC Chapter 33.*
 - (g) *A "Service Provider Letter" from Clean Water Services indicating that a "Stormwater Connection Permit" will likely be issued.*
 - (h) *The information on the Neighborhood/Developer Meeting specified in TDC 31.063(10).*
 - (i) *If a railroad-highway grade crossing provides or will provide the only access to the subject property, the applicant must indicate that fact in the application, and the City must notify the ODOT Rail Division and the railroad company that the application has been received.*

Response: The Washington County Surveyor Plat Name Reservation per subsection (a) is contained in Exhibit D. The submitted application form contains the information and signatures required by subsections (b) through (d). Subsections (d) and (e) are not applicable because this is not a request for Expedited Subdivision, Variance or Minor Variance review. The Service Provider Letter from Clean Water Services, pursuant to subsection (g), is contained in Exhibit E. Neighborhood meeting documentation, pursuant to subsection (h), is contained in Exhibit C. Subsection (i) is not applicable because access does not involve a railroad-highway grade crossing.

- (4) *The subdivision application shall be submitted to the City Engineer, along with:*
- (a) *the subdivision plan;*
 - (b) *preliminary utility plans for streets, water, sanitary sewer and storm drainage;*
 - (c) *a black and white 8&1/2" x 11" site plan suitable for reproduction;*
 - (d) *a completed City fact sheet;*
 - (e) *a Clean Water Services Service Provider letter; and*
 - (f) *other supplementary material as may be required, such as:*
 - (i) *deed restrictions; or*
 - (ii) *for all non-buildable areas or tracts to be dedicated or reserved for public use, a statement of ownership, use, covenants, conditions, limitations and responsibility for maintenance.*

Response: Drawings and other evidence necessary to understand and evaluate this application have been included in the submitted materials, including the specific items listed in this Section for which the City Engineer has provided a form or direction to the Applicant.

- (5) *The following general information shall be shown on the subdivision plan:
[detailed list of items omitted for brevity]*

Response: The preliminary subdivision plan set includes all of the items required by this Section. (See Exhibit B.)

- (6) *The subdivision application shall be accompanied by a nonrefundable fee as established by City Council resolution. The subdivision application shall not be accepted until the fee has been paid to the City. This fee does not apply towards any building permit or other fees that may later be required.*

Response: The Applicant has paid the application fee.

- (7) *The applicant shall submit, along with the subdivision application:*
(a) *A list of mailing recipients pursuant to TDC .31.064(1).*
(b) *Proof of sign posting pursuant to TDC 31.064(2).*

Response: Exhibit F contains a map provided to the Applicant by City of Tualatin staff to delineate the required notice area, and a copy of the forms for printing the corresponding set of mailing labels. The Applicant has posted a Notice/Subdivision sign at the site using the sign template provided by the City, as documented by the completed form provided in Exhibit G.

- (8) *Unless otherwise specified in the subdivision application, or approval, or in express direction from the City Engineer, any material submitted by the applicant with a subdivision application which exceeds the TDC requirements shall be considered a part of the subdivision plan approval.*

Response: All materials submitted by the Applicant in connection with this request are intended for the record.

- (9) *The applicant has the burden of demonstrating compliance with the applicable development regulations.*

Response: The Applicant has presented substantial evidence to demonstrate compliance with all applicable development regulations.

- (10) *The applicable time period for action on the subdivision application shall not commence until the City Engineer has determined that the application is complete.*
(a) *If the City Engineer fails to make such determination of completeness within 30 days of the date of its submission, or re-submission, the subdivision application shall be deemed complete upon the expiration of the 30-day period for purposes of commencing the applicable time period, unless:*
(i) *the application lacks information required to be submitted; or*

- (ii) *the required fees have not been submitted; or*
 - (iii) *the City Engineer has notified the applicant in writing of the deficiencies in the application within 30 days of submission of the subdivision application.*
- (b) *The City Engineer may subsequently require correction of any information found to be in error or submission of additional information not specified in this Chapter, as the City Engineer deems necessary to make an informed decision.*

Response: This subsection provides procedural guidance to City staff and requires no statement form the Applicant.

- (11) *The City Engineer shall prepare the standard form of Development Application for subdivision plans, including provisions which will best accomplish the intent of this section. [Ord. 590-83 §1, 4/11/83; Ord. 931-94 §3, 9/12/94; Ord. 933-94 §12, 11/28/94; Ord. 954-95 §2, 12/11/95; Ord. 1009-98 §12, 11/9/98; Ord. 1070-01 §6, 4/9/01; Ord. 1096-02 §18, 1/28/02; Ord. 1157-04, 3/8/04; Ord. 1149-03, 10/13/03; Ord. 1096-02, 1/28/02; Ord. 1070-01, 4/9/01; Ord. 1304-10 §19, 4/14/10]*

Response: The Applicant has prepared and submitted this request using the forms provided by the City Engineer for that purpose.

Section 36.130 Phasing. [detailed provisions omitted for brevity]

Response: This Section is not applicable because the Applicant has not requested approval for implementation in multiple phases.

Section 36.140 Review Process.

[Subsections (1) through (7), (9) and (10) provide procedural guidance and are omitted for brevity]

- (8) *Approval or denial of a subdivision shall be based upon and accompanied by a brief statement that*
- (a) *explains the criteria and standards considered relevant to the decision;*
 - (b) *states the facts relied upon in making the decision; and*
 - (c) *explains the justification for the decision based on the criteria, standards and facts set forth.*

Response: The Applicant has submitted this narrative statement and recommended findings, together with the accompanying drawings and other Exhibits, to provide information the City Engineer can use in preparing the statement required by subsection 8.

Section 36.160 Subdivision Plan Approval.

- (1) *A subdivision or expedited subdivision application shall not be approved unless the City Engineer first finds that adequate public improvements are, or will be, made available to serve the proposed subdivision.*

Response: The preliminary subdivision plans indicate where public improvements are present adjacent to the Subject Property, including street improvement conditions and existing City utility services. The plans also indicate how water and sewer utility services will be extended to serve the proposed lots, storm water quality treatment and detention will be achieved, and street widening improvements will be constructed to satisfy all applicable development standards. (See full-size plan drawings; reduced copies in Exhibit B.)

- (2) *The City Engineer may approve, approve with conditions, or deny the application based upon demonstrated compliance with applicable City regulations. The City Engineer's decision shall be supported by written findings and reasons for the decision. Findings and reasons may consist of references to the applicable Tualatin Development Code (TDC) or Tualatin Municipal Code (TMC), provisions or special studies. The decision shall also include an explanation of the rights of each party to request a review of the decision.*
- (3) *One copy of the subdivision plan and decision shall be filed with both the City Recorder and the City Engineer.*
- (4) *The decision of the City Engineer on a subdivision shall become final 14 calendar days after the date the notice of the decision is given, unless the applicant submits a written request for review.*
- (5) *The approval for the subdivision shall expire 2 years from the date the decision is issued unless the applicant requests an extension and the City Engineer approves it pursuant to Subsection (6).*

Response: These subsections provide procedural guidance and require no statement from the Applicant.

- (6) *Before approving an extension of a subdivision approval, the City Engineer shall find the request meets these criteria: [detailed provisions omitted for brevity]*

Response: This provision is not applicable because this is not a request for an extension.

- (7) *A subdivision plan approval may include restrictions and conditions. These restrictions and conditions shall be reasonably conceived to:*
 - (a) *protect the public from the potentially deleterious effects of the proposal;*
 - (b) *fulfill the need for public facilities and services created by the proposal, or increased or in part attributable to the impacts of the proposal; or*
 - (c) *further the implementation of the requirements of the TDC. [Ord. 590-83 §1, 4/11/83; Ord. 933-94 §13 and 14, 11/28/94; Ord. 954-95 §4, 12/11/95; Ord. 1009-98 §16, 11/9/98; Ord. 1026-99 §17, 8/9/99. Ord. 1058-00 §2, 9/25/00; Ord. 1096-02 §22, 01/28/02; Ord. 1272-08 §2, 11/10/08; Ord. 1333-11 §3, 9/12/11]*

Response: This submittal provides plans showing how all applicable development standards will be satisfied by the proposed development, together with evidence demonstrating the feasibility of doing so. The Applicant understands that conditions of approval will be used to clarify specific construction requirements for the benefit of all parties.

*Section 36.161 Requests for Review of Subdivision and Partition Decision.
[detailed provisions omitted for brevity]*

Response: This Section is not applicable because this application is not a request for review of a prior decision. The Applicant retains the right to request review of the City Engineer's decision on this application.

*Section 36.162 Modifications to Subdivision Plan Approval.
[detailed provisions omitted for brevity]*

Response: This Section is not applicable because this application is not a request to modify a prior decision.

Section 36.170 Subdivision Plat. [detailed provisions omitted for brevity]

Section 36.172 Information on Subdivision Plat. [detailed provisions omitted for brevity]

Section 36.174 Agreement for Public Improvements. [detailed provisions omitted for brevity]

Section 36.176 Approval of the Subdivision Plat by the City. [detailed provisions omitted for brevity]

Section 36.178 Recording of Subdivision Plat. [detailed provisions omitted for brevity]

Response: These Sections are not applicable because this application is not a request for approval of a final subdivision plat.

LOT REQUIREMENTS

Section 36.410 Double Frontage and Reverse Frontage. (detailed provisions omitted for brevity)

Response: This Section is not applicable because the proposed lot layout will not create any double-frontage or reverse-frontage lots.

Section 36.420 Existing Structures and Appurtenances.

- (1) Any existing structures proposed to be demolished shall be removed prior to the City approval of the subdivision or partition plat. Any structures determined to be a historic City landmark shall be reviewed in accordance with TDC Chapter 68.
- (2) Any existing wells shall be abandoned in the manner prescribed by State and County regulations prior to the City approval of the subdivision or partition plat.
- (3) Any existing underground fuel or oil tanks, septic tanks and similar underground storage tanks shall be removed or filled as required by the Department of Environmental Quality prior to the City's approval of the subdivision or partition plat. [Ord. 590-83 §1, 4/11/83.]

Response: The Applicant will demolish all existing structures, abandon wells, and remove underground tanks in compliance with this Section prior to final plat approval. None of the structures on the site are designated historic City landmarks.

Section 36.430 Large Lots.

When subdividing, partitioning or adjusting land into large lots which at some future time are possible to be resubdivided, repartitioned or readjusted to a size which more closely conforms to the other lots in the subdivision or area, the applicant shall submit a future streets plan. The future streets plan shall indicate that proposed large lots be of such size and shape and contain such building site restrictions as will provide for the extension and opening of streets at such intervals and the subsequent division of any such large lot into smaller size lots which meet the requirements of the TDC. [Ord. 590-83 §1, 4/11/83]

Response: This Section is not applicable because this proposal does not include any large lot suitable for further partitioning or other redevelopment in the future.

Section 36.440 Monuments.

Survey markers and monumentation shall be placed as required by State law. Any monuments that are disturbed before all improvements are completed shall be replaced by the applicant to conform to the requirements of State law. [Ord. 590-83 §1, 4/11/83]

Response: The applicant's Surveyor will set monuments, including re-setting monuments disturbed during construction, as required by State law.

Section 36.450 Side Lot Lines.

The side lines of lots, as far as practicable, shall run at right angles to the street upon which the lots face. [Ord. 590-83 §1, 4/11/83]

Response: The Subject Property is a small, infill development site containing only 1.74 acres. Because of its rectangular shape, side lot lines for all proposed lots are perpendicular to the site's perimeter boundaries. However, the short proposed shared vehicular access drive (Tract A) has a reverse-curve alignment that is designed to (1) intersect SW 93rd Avenue at a point that maintains satisfactory intersection spacing in relation to the SW Tonopah Street and SW Gertz Lane intersections, and (2) shift southward at the east in order to maximize the depth of Lots 2, 3 and 4 on the north side of the Subject Property as a strategy for maximizing conservation of the mature, healthy Douglas fir trees in the northeastern portion of the site, within the rear yards of those Lots. This "tweak" of the shared access drive's centerline alignment will also add visual interest, giving its curb lines and the homes' front yards a more organic, relaxed appearance. By contrast, making side lot lines run strictly perpendicular to the proposed access drive's alignment would produce irregularly-shaped lots with awkwardly shaped building envelope areas. Alternatively, straightening the access drive alignment would reduce the size of the rear-yard areas at the northeast, where the Applicant is seeking to preserve and retain the existing mature trees. Therefore, the proposed side lot lines run perpendicular to the proposed access drive to the extent practicable in light of other important site considerations.

Section 36.460 Size and Shape.

- (1) *The lot size, width, shape and orientation shall be appropriate for the location of the lot and shall comply with the planning district standards for the type of development and use contemplated.*
- (2) *These minimum standards shall apply with the following exceptions:
[subsections (a), (b) and (c) are not applicable and are omitted for brevity]*

Response: All of the lots are suitable in size, width, shape and orientation for construction of detached single-family residential construction and use. Lots 2, 3 and 4 are unusually deep for the specific purpose of conserving the large, mature trees that exist in the northeastern part of the Subject Property; however, their dimensions do not violate any of the applicable lot dimensional standards.

Section 36.470 Frontage on Public Streets.

All lots created after September 1, 1979 shall abut a public street, except for the following:

- (1) *Secondary condominium lots, which shall conform to TDC 73.400 and TDC 75;*
- (2) *Lots and tracts created to preserve wetlands, greenways, Natural Areas and Stormwater Quality Control Facilities identified by TDC Chapters 71, 72 Figure 3-4 of the Parks and Recreation Master Plan and the Surface Water Management Ordinance, TMC Chapter 3-5 respectively, or for the purpose of preserving park lands in accordance with the Parks and Recreation Master Plan;*
- (3) *Residential lots where frontage along a public street is impractical due to physical site restraints. Access to lots shall occur via a shared driveway within a tract. The tract shall have no adverse impacts to surrounding properties or roads and may only be approved if it meets the following criteria:*
 - (a) *Does not exceed 250 feet in length,*
 - (b) *If the tract exceeds 150 feet in length, it has a turnaround facility as approved by the Fire Marshal for fire and life safety,*
 - (c) *The tract does not serve more than 6 lots,*
 - (d) *A public street is not needed to provide access to other adjacent properties as required by TDC Chapter 74,*
 - (e) *A recorded document providing for the ownership, use rights, and allocation for liability for construction and maintenance has been submitted to the City Engineer prior to issuance of a building permit, and*
 - (f) *Access easements have been provided to all properties needing access to the driveway.*
- (4) *Lots in the Manufacturing Park Planning District which have access to the public right-of-way in accordance with TDC 73.400 and TDC Chapter 75 via permanent access easement over one or more adjoining properties, creating uninterrupted vehicle and pedestrian access between the subject lot and the public right-of-way. [Ord. 1054-00 §1, 8/14/00]*

Response: Subsections (1), (2) and (4) are not applicable. It is impractical to achieve public street frontage for Lots 2 through 6, so Tract A is configured as a shared driveway meeting all of the specified parameters in subsections (a) through (f). Note that either Lot 1 or Lot 8 may also orient its driveway onto Tract A rather than SW 93rd Avenue without exceeding the limit of six lots in subsection (c). No access through the Subject Property to the east is necessary because its

previous development did not any corridor to which to make a connection. In addition to shared access easement rights to be created by the final plat, the Applicant will record an agreement establishing rights, maintenance responsibilities and other issues with respect to Tract A.

***Tualatin Development Code Chapter 40:
Low Density Residential Planning District (RL)***

Section 40.010 Purpose.

The purpose of this district is to provide low density residential areas in the City that are appropriate for dwellings on individual lots, as well as other miscellaneous land uses compatible with a low density residential environment. [Ord. 590-83 §1, 4/11/83; Ord. 592-83 §6, 6/13/83; Ord. 661-85 §3, 3/25/85; Ord. 956-96 §10, 1/8/96]

Section 40.015 Permitted Density.

Housing density shall not exceed 6.4 units per net acre, except as set forth below:

- (1) The maximum density for small-lot subdivisions, and partitions and subdivisions affected by TDC 40.055, shall not exceed 7.5 dwelling units per net acre.*
- (2) The maximum density for retirement housing in accordance with TDC 34.170(2) shall not exceed 10 dwelling units per net acre. [Ord. 956-96 §11, 1/8/96. by Ord. 1026-99 §21, 8/9/99; Ord. 1272-08 §5, 11/10/08; Ord. 1317-10 §3, 12/13/10]*

Response: The proposed development will have a total of eight dwellings within its total land area of 1.74 acres, corresponding to a residential density of 4.6 dwelling units per acre of land, which is lower than the maximum allowed density.

Section 40.020 Permitted Uses.

- (1) Single-family dwellings, including manufactured homes.
[additional listed Permitted Uses omitted for brevity]*

Response: The proposed subdivision is designed to create eight lots specifically for construction of detached single-family dwellings, which are a Permitted Use in the RL Planning District.

Section 40.030 Conditional Uses Permitted. [detailed provisions omitted for brevity]

Response: This Section is not applicable because no Conditional Use is proposed.

40.050 Lot Size for Permitted Uses.

Except as otherwise provided, the lot size for a single-family dwelling shall be:

- (1) The minimum lot area shall be an average of 6,500 square feet.*
- (2) The average lot width shall be at least 30 feet.*
- (3) When a lot has frontage on a public street, the minimum lot width shall be 50 feet on a street and 30 feet around a cul-de-sac bulb.*
- (4) The maximum building coverage shall be 45 percent.*
- (5) For flag lots, the minimum lot width at the street shall be sufficient to comply with at least the minimum access requirements contained in [TDC 73.400\(7\) - \(12\)](#). [Ord. 590-83 §1, 4/11/83; Ord. 592-83 §6, 6/13/83; Ord. 866-92 §1, 4/27/92; Ord. 920-94 §2, 4/11/94; Ord. 956-96 §12, 1/8/96; Ord. 1010-98 §1, 12/14/98, Ord. 1026-99 § 24, 8/9/99; Ord. 1054-00 §6, 8/14/00; Ord. 1055-00 §1, 8/28/00; Ord. 1272-08 §6, 11/10/08]*

Response: The proposed lots range in size from 6,397 square feet (Lot 1) to 11,030 square feet (Lot 4), with an overall average lot area of 8,160.8 square feet, which exceeds the minimum 6,500 square foot requirement in subsection (1). The narrowest lot is Lot 3, whose width is 52 feet; therefore, all lots exceed the minimum average lot width in subsection (2). Only Lots 1, 7 and 8 have frontage on a public street (SW 93rd Avenue) and their lot widths are 60 feet, 70 feet and a minimum of 55.66 feet, respectively, which exceeds the minimum requirement of subsection (3). Subsection (4) is not applicable at this time because maximum building coverage compliance needs to be determined in conjunction with issuance of building permits for dwellings, which can only occur after the final plat is recorded. Subsection (5) is not applicable because no flag lots are proposed.

*Section 40.055 Lot Size for Greenway and Natural Area Tracts and Lots.
[detailed provisions omitted for brevity]*

Response: This Section is not applicable because no Greenway- or Natural Area Tracts or Lots are proposed.

*Section 40.060 Lot Size for Conditional Uses.
[detailed provisions omitted for brevity]*

Response: This Section is not applicable because no Conditional Use is proposed.

Section 40.070 Setback Requirements for Permitted Uses.

Except as otherwise provided, the setbacks for permitted uses shall be:

- (1) The front yard setback shall be a minimum of 15 feet, except to an unenclosed porch, which shall be 12 feet.*
- (2) The setback to a garage door shall be a minimum of 20 feet.*
- (3) The side yard setback shall be a minimum of five feet.*
- (4) For a corner lot, the following provisions shall apply:
 - (a) one front yard setback shall be a minimum of 15 feet; it shall be determined by the orientation of the structure based on the location of the front door.*
 - (b) the second front yard setback shall be a minimum of 10 feet.**
- (5) The rear yard setback shall be a minimum of 15 feet. [Ord. 590-83 §1, 4/11/83; Ord. 592-83 §6, 6/13/83; Ord. 731-87 §1, 9/14/87; Ord. 743-88 §46, 3/28/88; Ord. 956-96 §15, 1/8/96; Ord. 965-96 §8, 12/9/96; Ord. 1026-99 §27 8/9/99; Ord. 1076-01 §1, 7/9/01]*

Response: As noted above, the overall size and dimensions of all of the proposed lots exceed minimum requirements. This ensures that the new lots have sufficient area for construction of a new single-family dwelling that is compatible with neighboring homes while complying with the building setback requirements of this Section.

*Section 40.080 Setback Requirements for Conditional Uses.
[detailed provisions omitted for brevity]*

Response: This Section is not applicable because no Conditional Use is proposed.

Section 40.085 Setback Requirements Adjacent to the Norwood Expressway.
A setback no less than 50 feet in depth will be provided adjacent to the Norwood Expressway right-of-way. [Ord. 592-83 §69, 6/13/83]

Response: This Section is not applicable because the Subject Property is not adjacent to the Norwood Expressway.

Section 40.090 Projections Into Required Yards.
Cornices, eaves, canopies, decks, sun-shades, gutters, chimneys, flues, belt courses, leaders, sills, pilasters, lintels, ornamental features, and other similar architectural features may extend or project into a required front or rear yard setback area not more than three feet and into a required side yard not more than two feet, or into the required open space as established by coverage standards in this chapter. [Ord. 590-83 §1, 4/11/83; Ord. 592-83 §6, 6/13/83; Ord. 731-87 §2, 9/14/87]

Response: Future construction of dwellings on the proposed lots will be required to comply with the provisions of this Section.

Section 40.100 Structure Height.
Except as otherwise provided, the maximum structure height is 35 feet. [Ord. 590-83 §1, 4/11/83; Ord. 592-83 §6, 6/13/83; Ord. 956-96 §16, 1/8/96; Ord. 965-96 §9, 12/9/96]

Response: Future construction of dwellings on the proposed lots will be required to comply with the provisions of this Section.

Section 40.110 Access.
Refer to TDC 36.470 [see Applicant’s response statement, above] and 73.400.

Section 73.400 Access. *[Subsections applicable to single-family residential development]*
(8) *To afford safe pedestrian access and egress for properties within the City, a sidewalk shall be constructed along all street frontage, prior to use or occupancy of the building or structure proposed for said property. The sidewalks required by this section shall be constructed to City standards, except in the case of streets with inadequate right-of-way width or where the final street design and grade have not been established, in which case the sidewalks shall be constructed to a design and in a manner approved by the City Engineer. Sidewalks approved by the City Engineer may include temporary sidewalks and sidewalks constructed on private property; provided, however, that such sidewalks shall provide continuity with sidewalks of adjoining commercial developments existing or proposed. When a sidewalk is to adjoin a future street improvement, the sidewalk construction shall include construction of the curb and gutter section to grades and alignment established by the City Engineer.*

Response: The Applicant proposes to construct a “half-street” improvement in SW 93rd Avenue along the property frontage, matching and extending the existing curb alignment at the south boundary of the subject property with pavement widening, curb/gutter and storm drainage, sidewalk construction and street trees. The existing curb and sidewalk alignments differ to the north and south of the Subject Property. At the south, the curb is 17.5 feet from the street centerline and there is a five-foot landscape strip between it and the existing four-foot wide

sidewalk. At the north, there is a concrete curb-and-gutter configuration with the curb at 16 feet from the street centerline and a five-foot wide curb-side sidewalk. The submitted plans show the southerly curb line being extended north at 17.5 feet from centerline, with a short taper to match the 16-foot width at the north, and a five-foot curbside sidewalk on SW 93rd Avenue as well as wrapping all the way around the shared private vehicular access drive in Tract A. The wider street width is preferred at this specific location because it minimizes conflict with the positions of two existing sanitary sewer manholes. The Applicant requests a modification of the standard Local Street Design Section in order to match the neighboring curbside sidewalk configuration to the immediate north.

- (10) *Minimum access requirements for residential uses:*
- (a) *Ingress and egress for single-family residential uses, including townhouses, shall be paved to a minimum width of 10 feet. Maximum driveway widths shall not exceed 26 feet for one and two car garages, and 37 feet for three or more car garages. For the purposes of this section, driveway widths shall be measured at the property line.*

Response: All of the proposed lots are wide enough to accommodate homes with two-car garages and driveways meeting these dimensional requirements.

- (15) *Distance between Driveways and Intersections.*
Except for single-family dwellings, the minimum distance between driveways and intersections shall be as provided below. Distances listed shall be measured from the stop bar at the intersection.
- (a) *At the intersection of collector or arterial streets, driveways shall be located a minimum of 150 feet from the intersection.*
- (b) *At the intersection of two local streets, driveways shall be located a minimum of 30 feet from the intersection.*
- (c) *If the subject property is not of sufficient width to allow for the separation between driveway and intersection as provided, the driveway shall be constructed as far from the intersection as possible, while still maintaining the 5-foot setback between the driveway and property line as required by TDC 73.400(14)(b).*
- (d) *When considering a public facilities plan that has been submitted as part of an Architectural Review plan in accordance with TDC 31.071(6), the City Engineer may approve the location of a driveway closer than 150 feet from the intersection of collector or arterial streets, based on written findings of fact in support of the decision. The written approval shall be incorporated into the decision of the City Engineer for the utility facilities portion of the Architectural Review plan under the process set forth in TDC 31.071 through 31.077.*

Response: A driveway configuration onto SW 93rd Avenue is proposed for the common vehicular access drive in Tract A. Its proposed alignment provides a 30-foot separation from SW Gertz Lane (also a private access tract), measured edge-to-edge.

- (16) *Vision Clearance Area.*

- (a) *Local Streets - A vision clearance area for all local street intersections, local street and driveway intersections, and local street or driveway and railroad intersections shall be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 10 feet from the intersection point of the right-of-way lines, as measured along such lines (see Figure 73-2 for illustration).*
- (b) *Collector Streets – [not applicable – detailed provisions omitted for brevity]*
- (c) *Vertical Height Restriction - Except for items associated with utilities or publicly owned structures such as poles and signs and existing street trees, no vehicular parking, hedge, planting, fence, wall structure, or temporary or permanent physical obstruction shall be permitted between 30 inches and 8 feet above the established height of the curb in the clear vision area (see Figure 73-2 for illustration).*

Response: At the corners of Tract A, both Lot 1 and Lot 8 will have a minimum 15-foot front setback and a minimum 10-foot side setback, so no building encroachment into the vision clearance area will be possible. The owners of those lots will have to maintain vegetation in their front yards in compliance with vision clearance requirements.

*Section 40.120 Off-Street Parking and Loading.
Refer to TDC Chapter 73.*

Section 73.370(2) Off-Street Parking Provisions

USE	MINIMUM MOTOR VEHICLE PARKING REQUIREMENT	MAXIMUM MOTOR VEHICLE PARKING REQUIREMENT	BICYCLE PARKING REQUIREMENT	PERCENTAGE OF BICYCLE PARKING TO BE COVERED
<i>Residential Uses:</i>				
<i>(i) Detached single-family dwelling, residential home, residential facilities (located in low density (RL) planning districts) Townhouse</i>	<i>2.00 vehicle parking spaces per dwelling unit, residential home or residential facility (stalls or spaces within a residential garage not included, except as approved in Architectural Review).</i>	<i>None</i>	<i>None Required</i>	<i>N/A</i>

Response: All of the proposed lots have sufficient area and width to allow home construction with two-car garages and two off-street parking spaces. Compliance can be assured at the time of residential building permit issuance

*Section 40.130 Floodplain District.
Refer to TDC Chapter 70.*

Response: This Section is not applicable because the Subject Property is not located within the Floodplain District.

Section 40.140 Community Design Standards.

- (1) *Development of the following is subject to the provisions set forth in TDC 40.140(2) and standards and criteria set forth in TDC Chapter 73, in addition to all other applicable TDC standards:*
 - (a) *A new single-family dwelling.*
 - (b) *[not applicable – omitted for brevity]*
- (2) *No building permits shall be issued for development described in TDC 40.140(1) until plans for the proposed development have been approved pursuant to one of the following two review options, and all other applicable TDC standards are met:*
[detailed provisions omitted for brevity]
- (3) *A Level II (Discretionary) Single-family Architectural Review application shall be processed as a limited land use decision pursuant to the provisions set forth in TDC 31.071(7)(b).*
- (4) *Where a site, structure, or object is designated a historic landmark, and pro-posed development is subject to TDC Chapter 68 Historic Certificate of Appropriateness review, conditions of Certificate of Appropriateness approval may, at the discretion of the decision-making authority, include modification of one or more of the standards set forth in TDC 73.190(1)(a), or modification of one or more of the discretionary approval criteria set forth in TDC 73.190(1)(b), in order to meet the Certificate of Appropriateness approval criteria. [Ord. 1260-08 §4, 5/12/08]*

Response: This Section is not applicable because this proposal does not include any request for approval of new single-family residential construction plans. Following final plat recording, review pursuant to this Section will be required prior to construction of homes on the proposed subdivision lots.

Section 40.145 Placement Standards for Manufactured Homes.

[detailed provisions omitted for brevity]

Response: This Section is not applicable because this application does not request approval to place a Manufactured Home.

Section 40.150 Landscape Standards.

Refer to TDC Chapter 73. [Ord. 725-87 §13, 6/22/87]

Response: This Section is not applicable because Chapter 73 does not contain landscape standards applicable to single-family residential use in the RL Planning District.

ARCHITECTURAL REVIEW APPROVAL

Section 73.040 Architectural Review Plan Approval Required.

- (1) *Except for [a less-than 35% expansion of a single-family residence] as permitted by these standards, no new building, condominium, townhouse, **single family dwelling** [emphasis added; additional list items omitted for brevity], or exterior major remodeling shall*

occur until the architectural review plan required under TDC 31.071 has been reviewed and approved by the Community Development Director and City Engineer or their designees, or by the Architectural Review Board or City Council for conformity with applicable standards or criteria.

- (2) *No new single-family dwelling or [35% or more expansion of a single-family residence] as permitted by these standards, shall occur until the architectural review application under TDC 31.071(7) has been reviewed and approved by the Community Development Director or their designee for conformity with the applicable standards or criteria.*

Response: This Section is not directly applicable to this application because it does not include plans for construction of a dwelling. This Section will apply to requests to construct homes on the lots to be created by this proposed subdivision.

IMPROVEMENTS

Section 74.110 Phasing of Improvements.

Section 74.120 Public Improvements.

- (1) *Except as specially provided, all public improvements shall be installed at the expense of the applicant. All public improvements installed by the applicant shall be constructed and guaranteed as to workmanship and material as required by the Public Works Construction Code prior to acceptance by the City. No work shall be undertaken on any public improvement until after the construction plans have been approved by the City Engineer and a Public Works Permit issued and the required fees paid.*
- (2) *In accordance with the Tualatin Basin Program for fish and wildlife habitat the City intends to minimize or eliminate the negative affects of public streets by modifying right-of-way widths and street improvements when appropriate. The City Engineer is authorized to modify right-of-way widths and street improvements to address the negative affects on fish and wildlife habitat. [Ord. 1224-06 §35, 11/13/06]*

Response: Conceptual project drawings in Exhibit B (and full-size drawings submitted with this request) show proposed public water, sanitary sewer and storm drainage facilities meeting City requirements to serve the proposed development. Conditions of approval can be used to ensure that detailed construction plans are submitted and approved prior to commencement of public works construction.

Section 74.130 Private Improvements.

All private improvements shall be installed at the expense of the applicant. The property owner shall retain maintenance responsibilities over all private improvements.

Response: The Applicant proposes a shared vehicular access drive in Tract A with a curb-to-curb paved width of 32 feet, designed to allow on-street parking between driveways. Maintenance responsibilities of the subdivision lot owners will be spelled out in a maintenance agreement to be recorded along with the final plat (which may be part of a broader Covenants, Conditions and Restrictions agreement for the subdivision).

Section 74.140 Construction Timing.

- (1) *All the public improvements required under this chapter shall be completed and accepted by the City prior to the issuance of a Certificate of Occupancy; or, for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.*
- (2) *All private improvements required under this chapter shall be approved by the City prior to the issuance of a Certificate of Occupancy; or for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.*

Response: This Section provides procedural guidance and requires no statement from the Applicant.

RIGHT-OF-WAY

Section 74.210 Minimum Street Right-of-Way Widths.

The width of streets in feet shall not be less than the width required to accommodate a street improvement needed to mitigate the impact of a proposed development. In cases where a street is required to be improved according to the standards of the TDC, the width of the right-of-way shall not be less than the minimums indicated in TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G.

- (1) *For subdivision and partition applications, wherever existing or future streets adjacent to property proposed for development are of inadequate right-of-way width the additional right-of-way necessary to comply with TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G shall be shown on the final subdivision or partition plat prior to approval of the plat by the City. This right-of-way dedication shall be for the full width of the property abutting the roadway and, if required by the City Engineer, additional dedications shall be provided for slope and utility easements if deemed necessary.*
- (2) *For development applications other than subdivisions and partitions, [not applicable; detailed provisions omitted for brevity].*
- (3) *For development applications that will impact existing streets not adjacent to the applicant's property, and to construct necessary street improvements to mitigate those impacts would require additional right-of-way, the applicant shall be responsible for obtaining the necessary right-of-way from the property owner. A right-of-way dedication deed form shall be obtained from the City Engineer and upon completion returned to the City Engineer for acceptance by the City. On subdivision and partition plats the right-of-way dedication shall be accepted by the City prior to acceptance of the final plat by the City. On other development applications the right-of-way dedication shall be accepted by the City prior to issuance of building permits. The City may elect to exercise eminent domain and condemn necessary off-site right-of-way at the applicant's request and expense. The City Council shall determine when condemnation proceedings are to be used.*
- (4) *If the City Engineer deems that it is impractical to acquire the additional right-of-way as required in subsections (1)-(3) of this section from both sides of the center-line in equal amounts, the City Engineer may require that the right-of-way be dedicated in a manner that would result in unequal dedication from each side of the road. This requirement will also apply to slope and utility easements as discussed in TDC 74.320 and 74.330. The*

City Engineer's recommendation shall be presented to the City Council in the preliminary plat approval for subdivisions and partitions, and in the recommended decision on all other development applications, prior to finalization of the right-of-way dedication requirements.

- (5) *Whenever a proposed development is bisected by an existing or future road or street that is of inadequate right-of-way width according to TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G, additional right-of-way shall be dedicated from both sides or from one side only as determined by the City Engineer to bring the road right-of-way in compliance with this section.*
- (6) *When a proposed development is adjacent to or bisected by a street proposed in TDC Chapter 11, Transportation Plan (Figure 11-3) and no street right-of-way exists at the time the development is proposed, the entire right-of-way as shown in TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G shall be dedicated by the applicant. The dedication of right-of-way required in this subsection shall be along the route of the road as determined by the City. [Ord. 933-94 §50, 11/28/94; Ord. 979-97 §52, 7/14/97; Ord. 1026-99 §98, 8/9/99; Ord. 1354-13 §17, 02/25/13]*

Response: The 2013 Tualatin Transportation System Plan designates SW 93rd Avenue as a “Local Street.” (See excerpts from TSP in Exhibit H.) According to TSP Figure 2 and Table 3, the preferred width for a Local Street is a 50-foot wide right-of-way with curb-to-curb pavement width of 32 feet for two 16-foot travel lanes, with a 4-foot planter strip and 5-foot sidewalk on each side. No median or bike lanes are required, and on-street parking is allowed. The Applicant requests a modification of the Local Street Design Section to allow a curbside sidewalk in lieu of having a four-foot planter strip along SW 93rd Avenue, because a curbside sidewalk will match and extend the existing curbside sidewalk configuration that exists north of the Subject Property. Another adaptation of the design section will be necessary to match existing curb widths, with 16 feet from centerline at the north boundary and 17.5 feet from centerline at the south. Drawings submitted by the Applicant illustrate a curb alignment extending the southern curb, with the necessary taper located near the north end of the property, because the wider curb alignment minimizes conflicts with existing sewer manhole locations.

Section 74.220 Parcels Excluded from Development.

On subdivision development applications which include land partitioned off or having adjusted property lines from the original parcel, but do not include the original parcel, the applicant shall be responsible for obtaining any necessary right-of-way from the owner of the original parcel if the right-of-way is needed to accommodate street improvements required of the applicant. The applicant shall submit a completed right-of-way dedication deed to the City Engineer for acceptance. The right-of-way dedication shall be accepted by the City prior to the City approving the final subdivision plat. [Ord. 933-94, § 49, 11/28/94]

Response: This Section is not applicable because the Subject Property does not involve its threshold situation.

EASEMENTS AND TRACTS

Section 74.310 Greenway, Natural Area, Bike, and Pedestrian Path Dedications and Easements.

- (1) *Areas dedicated to the City for Greenway or Natural Area purposes or easements or dedications for bike and pedestrian facilities during the development application process shall be surveyed, staked and marked with a City approved boundary marker prior to acceptance by the City.*
- (2) *For subdivision and partition applications, the Greenway, Natural Area, bike, and pedestrian path dedication and easement areas shall be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; or*
- (3) *For all other development applications, Greenway, Natural Area, bike, and pedestrian path dedications and easements shall be submitted to the City Engineer; building permits shall not be issued for the development prior to acceptance of the dedication or easement by the City. [Ord. 933-94 §50, 11/28/94; Ord. 979-97 §52, 7/14/97; Ord. 1026-99 §98, 8/9/99].*

Response: This Section is not applicable because the Subject Property is not situated in or adjacent to an identified Greenway or Natural Area, or bike or pedestrian path corridor. Because of the way surrounding development has occurred, there is no existing corridor (i.e., public access tract or easement) to which a connection could be made on the Subject Property's north, east, or south boundary.

Section 74.320 Slope Easements.

- (1) *The applicant shall obtain and convey to the City any slope easements determined by the City Engineer to be necessary adjacent to the proposed development site to support the street improvements in the public right-of-way or accessway or utility improvements required to be constructed by the applicant.*
- (2) *For subdivision and partition applications, the slope easement dedication area shall be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; or*
- (3) *For all other development applications, a slope easement dedication shall be submitted to the City Engineer; building permits shall not be issued for the development prior to acceptance of the easement by the City. [Ord. 933-94, § 51, 11/28/94]*

Response: This Section is not applicable because the site's topography and relationship to the abutting street, SW 93rd Avenue, does not involve grades for which a slope easement would be warranted.

Section 74.330 Utility Easements.

- (1) *Utility easements for water, sanitary sewer and storm drainage facilities, telephone, television cable, gas, electric lines and other public utilities shall be granted to the City.*
- (2) *For subdivision and partition applications, the on-site public utility easement dedication area shall be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; and*
- (3) *For subdivision and partition applications which require off-site public utility easements to serve the proposed development, a utility easement shall be granted to the City prior to approval of the final plat by the City. The City may elect to exercise eminent domain and condemn necessary off-site public utility easements at the applicant's request and*

expense. The City Council shall determine when condemnation proceedings are to be used.

- (4) For development applications other than subdivisions and partitions, and for both on-site and off-site easement areas, a utility easement shall be granted to the City; building permits shall not be issued for the development prior to acceptance of the easement by the City. The City may elect to exercise eminent domain and condemn necessary off-site public utility easements at the applicant's request and expense. The City Council shall determine when condemnation proceedings are to be used.*
- (5) The width of the public utility easement shall meet the requirements of the Public Works Construction Code. All subdivisions and partitions shall have a 6-foot public utility easement adjacent to the street and a 5-foot public utility easement adjacent to all side and rear lot lines. [Ord. 933-94, § 52, 11/28/94]*

Response: The Applicant has submitted plans showing public utilities installed within proposed Tract A, the shared private access drive, as well as a public storm drain easement along the Lot1-Lot 2 boundary to accommodate a pipe flowing to the storm water management facility in Tract B. Easements as required by the City for those public utility facilities will be prepared and recorded with the final plat. The plans also illustrate a six-foot Public Utility Easement (PUE) for natural gas, telephone, electric, cable television and other public utilities, located adjacent to the SW 93rd Avenue right-of-way and surrounding Tract A, and a five-foot PUE along side- and rear lot lines, to provide services to all of the proposed Lots. Because all utility systems are present in the SW 93rd Avenue corridor, no off-site extension of easements for public utilities is necessary.

Section 74.340 Watercourse Easements.

- (1) Where a proposed development site is traversed by or adjacent to a watercourse, drainage way, channel or stream, the applicant shall provide a storm water easement, drainage right-of-way, or other means of preservation approved by the City Engineer, conforming substantially with the lines of the watercourse. The City Engineer shall determine the width of the easement, or other means of preservation, required to accommodate all the requirements of the Surface Water Management Ordinance, existing and future storm drainage needs and access for operation and maintenance.*
- (2) For subdivision and partition applications, any watercourse easement dedication area shall be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; or*
- (3) For all other development applications, any watercourse easement shall be executed on a dedication form submitted to the City Engineer; building permits shall not be issued for the development prior to acceptance of the easement by the City.*
- (4) The storm water easement shall be sized to accommodate the existing water course and all future improvements in the drainage basin. There may be additional requirements as set forth in TDC Chapter 72, Greenway and Riverbank Protection District, and the Surface Water Management Ordinance. Water quality facilities may require additional easements as described in the Surface Water Management Ordinance. [Ord. 933-94, § 53, 11/28/94]*

Response: As shown in the Grading Plan and Utility Plan drawings (See Sheets P400 and P500 of Exhibit B and full-size drawings), the proposed development will involve intercepting an

existing storm inflow from a concrete pipe near the southeast corner of the property and redirecting it in a pipe adjacent to the south property line to the existing public storm drainage system in SW 93rd Avenue. That pipe will be located in a public storm drainage easement and will be constructed to meet City of Tualatin Public Works standards.

Section 74.350 Tracts.

A dedicated tract or easement will be required when access to public improvements for operation and maintenance is required, as determined by the City Engineer. Access for maintenance vehicles shall be constructed of an all-weather driving surface capable of carrying a 50,000-pound vehicle. The width of the tract or easement shall be 15-feet in order to accommodate City maintenance vehicles. In subdivisions and partitions, the tract shall be dedicated to the City on the final plat. In any other development, an access easement shall be granted to the City and recorded prior to issuance of a building permit. [Ord. 933-94, § 54, 11/28/94]

Response: Tract B, the storm water management facility, is located adjacent to SW 93rd Avenue in the northwest corner of the Subject Property. Because it can be accessed directly from the public right-of-way, no special tract or easement is required to allow access for operation and maintenance.

TRANSPORTATION

Section 74.410 Future Street Extensions.

[detailed provisions omitted for brevity]

Response: This Section is not applicable because prior development surrounding the Subject Property provides no right-of-way corridor by which a through street connection could be made.

Section 74.420 Street Improvements.

When an applicant proposes to develop land adjacent to an existing or proposed street, including land which has been excluded under [TDC 74.220](#), the applicant should be responsible for the improvements to the adjacent existing or proposed street that will bring the improvement of the street into conformance with the Transportation Plan (TDC Chapter 11), TDC 74.425 (Street Design Standards), and the City's Public Works Construction Code, subject to the following provisions:

- (1) For any development proposed within the City, roadway facilities within the right-of-way described in TDC 74.210 shall be improved to standards as set out in the Public Works Construction Code.*
- (2) The required improvements may include the rebuilding or the reconstruction of any existing facilities located within the right-of-way adjacent to the proposed development to bring the facilities into compliance with the Public Works Construction Code.*
- (3) The required improvements may include the construction or rebuilding of off-site improvements which are identified to mitigate the impact of the development.*
- (4) Where development abuts an existing street, the improvement required shall apply only to that portion of the street right-of-way located between the property line of the parcel*

proposed for development and the centerline of the right-of-way, plus any additional pavement beyond the centerline deemed necessary by the City Engineer to ensure a smooth transition between a new improvement and the existing roadway (half-street improvement). Additional right-of-way and street improvements and off-site right-of-way and street improvements may be required by the City to mitigate the impact of the development. The new pavement shall connect to the existing pavement at the ends of the section being improved by tapering in accordance with the Public Works Construction Code.

- (5) If additional improvements are required as part of the Access Management Plan of the City, TDC Chapter 75, the improvements shall be required in the same manner as the half-street improvement requirements.*
- (6) All required street improvements shall include curbs, sidewalks with appropriate buffering, storm drainage, street lights, street signs, street trees, and, where designated, bikeways and transit facilities.*
- (7) For subdivision and partition applications, the street improvements required by TDC Chapter 74 shall be completed and accepted by the City prior to signing the final subdivision or partition plat, or prior to releasing the security pro-vided by the applicant to assure completion of such improvements or as otherwise specified in the development application approval.*
- (8) For development applications other than subdivisions and partitions, all street improvements required by this section shall be completed and accepted by the City prior to the issuance of a Certificate of Occupancy.*
- (9) In addition to land adjacent to an existing or proposed street, the requirements of this section shall apply to land separated from such a street only by a railroad right-of-way.*
- (10) Streets within, or partially within, a proposed development site shall be graded for the entire right-of-way width and constructed and surfaced in accordance with the Public Works Construction Code.*
- (11) Existing streets which abut the pro-posed development site shall be graded, constructed, reconstructed, surfaced or repaired as necessary in accordance with the Public Works Construction Code and TDC Chapter 11, Transportation Plan, and TDC 74.425 (Street Design Standards).*
- (12) Sidewalks with appropriate buffering shall be constructed along both sides of each internal street and at a minimum along the development side of each external street in accordance with the Public Works Construction Code.*
- (13) The applicant shall comply with the requirements of the Oregon Department of Transportation (ODOT), Tri-Met, Washington County and Clackamas County when a proposed development site is adjacent to a roadway under any of their jurisdictions, in addition to the requirements of this chapter.*
- (14) The applicant shall construct any required street improvements adjacent to parcels excluded from development, as set forth in TDC 74.220 of this chapter.*
- (15) Except as provided in TDC 74.430, whenever an applicant proposes to develop land with frontage on certain arterial streets and, due to the access management provisions of TDC Chapter 75, is not allowed direct access onto the arterial, but instead must take access from another existing or future public street thereby providing an alternate to direct arterial access, the applicant shall be required to construct and place at a minimum street signage, a sidewalk, street trees and street lights along that portion of the arterial street adjacent to the applicant's property. The three certain arterial streets are S.W.*

Tualatin-Sherwood Road, S.W. Pacific Highway (99W) and S.W. 124th Avenue. In addition, the applicant may be required to construct and place on the arterial at the intersection of the arterial and an existing or future public non-arterial street warranted traffic control devices (in accordance with the Manual on Uniform Traffic Control Devices, latest edition), pavement markings, street tapers and turning lanes, in accordance with the Public Works Construction Code.

- (16) The City Engineer may determine that, although concurrent construction and placement of the improvements in (14) and (15) of this section, either individually or collectively, are impractical at the time of development, the improvements will be necessary at some future date. In such a case, the applicant shall sign a written agreement guaranteeing future performance by the applicant and any successors in interest of the property being developed. The agreement shall be subject to the City's approval.*
- (17) Intersections should be improved to operate at a level of service of at least D and E for signalized and unsignalized intersections, respectively.*
- (18) Pursuant to requirements for off-site improvements as conditions of development approval in TDC 73.055(2)(e) and TDC 36.160(8), proposed multi-family residential, commercial, or institutional uses that are adjacent to a major transit stop will be required to comply with the City's Mid-Block Crossing Policy.*

Response: The Applicant's submitted plans show public street, storm drainage and sidewalk improvements in the SW 93rd Avenue right-of-way, in compliance with these requirements. The Applicant requests a modification to allow a curb-side sidewalk that will match and extend the existing configuration immediately north of the Subject Property (discussed in more detail below). The shared private access drive in Tract A is designed with a 32-foot curb-to-curb width, to allow parking on both sides, and a curbside sidewalk all the way around it.

Section 74.430 Streets, Modifications of Requirements in Cases of Unusual Conditions.

- (1) When, in the opinion of the City Engineer, the construction of street improvements in accordance with TDC 74.420 would result in the creation of a hazard, or would be impractical, or would be detrimental to the City, the City Engineer may modify the scope of the required improvement to eliminate such hazardous, impractical, or detrimental results. Examples of conditions requiring modifications to improvement requirements include but are not limited to horizontal alignment, vertical alignment, significant stands of trees, fish and wildlife habitat areas, the amount of traffic generated by the proposed development, timing of the development or other conditions creating hazards for pedestrian, bicycle or motor vehicle traffic. The City Engineer may determine that, although an improvement may be impractical at the time of development, it will be necessary at some future date. In such cases, a written agreement guaranteeing future performance by the applicant in installing the required improvements must be signed by the applicant and approved by the City.*
- (2) When the City Engineer determines that modification of the street improvement requirements in TDC 74.420 is warranted pursuant to subsection (1) of this section, the City Engineer shall prepare written findings of modification. The City Engineer shall forward a copy of said findings and description of modification to the applicant, or his authorized agent, as part of the Utility Facilities Review for the proposed development, as provided by TDC 31.072. The decision of the City Engineer may be appealed to the City Council in accordance with TDC 31.076 and 31.077.*

- (3) *To accommodate bicyclists on streets prior to those streets being upgraded to the full standards, an interim standard may be implemented by the City. These interim standards include reduction in motor vehicle lane width to 10 feet [the minimum specified in AASHTO's A Policy on Geo-metric Design of Highways and Streets (1990)], a reduction of bike lane width to 4-feet (as measured from the longitudinal gutter joint to the centerline of the bike lane stripe), and a paint-stripped separation 2 to 4 feet wide in lieu of a center turn lane. Where available roadway width does not provide for these minimums, the roadway can be signed for shared use by bicycle and motor vehicle travel. When width constraints occur at an intersection, bike lanes should terminate 50 feet from the intersection with appropriate signing.*
- (4) *The Local Commercial-Industrial Street Section, B-CI, may have an interim reduced cross-section as determined by the City Engineer. The interim reduced standard would include 24-28 feet of pavement, 3-foot gravel shoulders, 2:1 side slopes to a drainage ditch and a 5-foot asphalt sidewalk on one side. Development to the full B-CI Standard will be determined subject to required traffic study analysis. See Figure 75-2F for the Interim B-CI Street Standard. [Ord. 1124-02, 12/9/02; Ord. 1224-06 §37, 11/13/06]*

Response: Street improvements are proposed for construction as part of a single phase of subdivision project construction. Minor modification of the applicable Local Street Design Section is appropriate because existing curb/sidewalk configurations differ at the north and south boundaries of the Subject Property: at the north, the curb is located 16 feet from the centerline and there is a 5-foot curbside sidewalk; at the south, the curb is 17.5 feet from the centerline and a 4-foot concrete sidewalk is located behind a 4-foot planter strip. The Applicant has illustrated extending the southerly curb alignment (17.5 feet from centerline) along the frontage of the Subject Property, then tapering the curb line to intercept the existing northerly curb. This alignment is preferred because it minimizes conflict with the positions of two existing sanitary sewer manholes, in contrast to a 16-foot alignment that would require significant reconstruction of some sewer system components. The Applicant requests modification of the Local Street Design Section to allow a five-foot curbside sidewalk in order to match and extend the existing configuration immediately north of the Subject Property.

Section 74.440 Streets, Traffic Study Required.

- (1) *The City Engineer may require a traffic study to be provided by the applicant and furnished to the City as part of the development approval process as provided by this Code, when the City Engineer determines that such a study is necessary in connection with a proposed development project in order to:*
 - (a) *Assure that the existing or proposed transportation facilities in the vicinity of the proposed development are capable of accommodating the amount of traffic that is expected to be generated by the proposed development, and/or*
 - (b) *Assure that the internal traffic circulation of the proposed development will not result in conflicts between on-site parking movements and/or on-site loading movements and/or on-site traffic movements, or impact traffic on the adjacent streets.*
- (2) *The required traffic study shall be completed prior to the approval of the development application.*
- (3) *The traffic study shall include, at a minimum:*

- (a) *an analysis of the existing situation, including the level of service on adjacent and impacted facilities.*
- (b) *an analysis of any existing safety deficiencies.*
- (c) *proposed trip generation and distribution for the proposed development.*
- (d) *projected levels of service on adjacent and impacted facilities.*
- (e) *recommendation of necessary improvements to ensure an acceptable level of service for roadways and a level of service of at least D and E for signalized and unsignalized intersections respectively, after the future traffic impacts are considered.*
- (f) *The City Engineer will determine which facilities are impacted and need to be included in the study.*
- (g) *The study shall be conducted by a registered engineer.*
- (4) *The applicant shall implement all or a portion of the improvements called for in the traffic study as determined by the City Engineer. [Ord. 1103-02, 3/25/02]*

Response: The limited size of the proposed subdivision (eight lots) represents a net addition of seven residences along the segment of SW 93rd Avenue between SW Avery Street and SW Sagert Street. The additional volume of vehicle trips attributable to this development is small and is not expected to significantly affect intersections in the vicinity. No traffic impact study should be required.

Section 74.450 Bikeways and Pedestrian Paths.

- (1) *Where proposed development abuts or contains an existing or proposed bikeway, pedestrian path, or multi-use path, as set forth in [TDC Chapter 11](#), Transportation Figure 11-4, the City may require that a bikeway, pedestrian path, or multi-use path be constructed, and an easement or dedication provided to the City.*
- (2) *Where required, bikeways and pedestrian paths shall be provided as follows:*
 - (a) *Bike and pedestrian paths shall be constructed and surfaced in accordance with the Public Works Construction Code.*
 - (b) *The applicant shall install the striping and signing of the bike lanes and shared roadway facilities, where designated. [Ord. 933-94, § 57, 11/28/94; Ord. 1354-13 §21, 02/25/13]*

Response: No bikeway or pedestrian path is required because the Subject Property is not adjacent to any proposed bikeway, pedestrian path, or multi-use path, as identified in Figure 7, Bicycle and Pedestrian Element of the 2013 Tualatin TSP (see excerpts in Exhibit H).

Section 74.460 Accessways in Residential, Commercial and Industrial Subdivisions and Partitions.

- (1) *Accessways shall be constructed by the applicant, dedicated to the City on the final residential, commercial or industrial subdivision or partition plat, and accepted by the City.*
- (2) *Accessways shall be located between the proposed subdivision or partition and all of the following locations that apply:*
 - (a) *adjoining publicly-owned land intended for public use, including schools and parks. Where a bridge or culvert would be necessary to span a designated*

- greenway or wetland to provide a connection, the City may limit the number and location of accessways to reduce the impact on the greenway or wetland;*
- (b) adjoining arterial or collector streets upon which transit stops or bike lanes are provided or designated;*
 - (c) adjoining undeveloped residential, commercial or industrial properties;*
 - (d) adjoining developed sites where an accessway is planned or provided.*
- [additional subsections (3) through (13) omitted for brevity]*

Response: No accessway is required because prior development surrounding the Subject Property has occurred without putting in place any of the applicable location situations listed in subsection (2)(a).

Section 74.470 Street Lights.

- (1) Street light poles and luminaries shall be installed in accordance with the Public Works Construction Code.*
- (2) The applicant shall submit a street lighting plan for all interior and exterior streets on the proposed development site prior to issuance of a Public Works Permit.*

Response: The Applicant recognizes that street lighting is an essential component of the streetscape and will comply with the applicable Public Works standards.

Section 74.475 Street Names.

- (1) No street name shall be used which will duplicate or be confused with the names of existing streets in the Counties of Washington or Clackamas, except for extensions of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area.*
- (2) The City Engineer shall maintain the approved list of street names from which the applicant may choose. Prior to the creation of any street, the street name shall be approved by the City Engineer.*

Response: No name is proposed for the shared private access drive in Tract A at this time. The Applicant will submit naming suggestions for approval prior to recording the final plat.

Section 74.480 Street Signs.

- (1) Street name signs shall be installed at all street intersections in accordance with standards adopted by the City.*
- (2) Stop signs and other traffic control signs (speed limit, dead-end, etc.) may be required by the City.*
- (3) Prior to approval of the final subdivision or partition plat, the applicant shall pay the City a non-refundable fee equal to the cost of the purchase and installation of street signs, traffic control signs and street name signs. The location, placement, and cost of the signs shall be determined by the City. [Ord.. 1192-05, 7/24/05]*

Response: The Applicant will provide funding for street signs in accordance with this Section.

Section 74.485 Street Trees.

- (1) *Prior to approval of a residential sub-division or partition final plat, the applicant shall pay the City a non-refundable fee equal to the cost of the purchase and installation of street trees. The location, placement, and cost of the trees shall be determined by the City. This sum shall be calculated on the interior and exterior streets as indicated on the final subdivision or partition plat.*
- (2) *In nonresidential subdivisions and partitions street trees shall be planted by the owners of the individual lots as development occurs.*
- (3) *The Street Tree Ordinance specifies the species of tree which is to be planted and the spacing between trees. [Ord. 1192-05, 7/25/05]*

Response: The Applicant will provide funding for street trees in accordance with this Section.

UTILITIES

Section 74.610 Water Service.

- (1) *Water lines shall be installed to serve each property in accordance with the Public Works Construction Code. Water line construction plans shall be submitted to the City Engineer for review and approval prior to construction.*
- (2) *If there are undeveloped properties adjacent to the subject site, public water lines shall be extended by the applicant to the common boundary line of these properties. The lines shall be sized to provide service to future development, in accordance with the City's Water System Master Plan, TDC Chapter 12.*
- (3) *As set forth is TDC Chapter 12, Water Service, the City has three water service levels. All development applicants shall be required to connect the proposed development site to the service level in which the development site is located. If the development site is located on a boundary line between two service levels the applicant shall be required to connect to the service level with the higher reservoir elevation. The applicant may also be required to install or provide pressure reducing valves to supply appropriate water pressure to the properties in the proposed development site. [Ord. 933-94, § 59, 11/28/94]*

Response: The Applicant has submitted a Utility Plan drawing (See Sheet P500 in Exhibit B) showing how water lines will be installed to serve the proposed lots. Detailed plans will be submitted for review and approval prior to construction, in accordance with subsection (1). Subsection (2) is not applicable because there are no undeveloped properties adjacent to the Subject Property. Water service connection(s) will be made as directed by the City Engineer, in accordance with subsection (3).

Section 74.620 Sanitary Sewer Service.

- (1) *Sanitary sewer lines shall be installed to serve each property in accordance with the Public Works Construction Code. Sanitary sewer construction plans and calculations shall be submitted to the City Engineer for review and approval prior to construction.*
- (2) *If there are undeveloped properties adjacent to the proposed development site which can be served by the gravity sewer system on the proposed development site, the applicant shall extend public sanitary sewer lines to the common boundary line with these properties. The lines shall be sized to convey flows to include all future development from all up stream areas that can be expected to drain through the lines on the site, in*

accordance with the City's Sanitary Sewer System Master Plan, TDC Chapter 13. [Ord. 933-94, § 60, 11/28/94]

Response: The Applicant has submitted a Utility Plan drawing (See Sheet P500 in Exhibit B) showing how sanitary sewer lines will be installed to serve the proposed lots. Detailed plans will be submitted for review and approval prior to construction, in accordance with subsection (1). Subsection (2) is not applicable because there are no undeveloped properties adjacent to the Subject Property.

Section 74.630 Storm Drainage System.

- (1) Storm drainage lines shall be installed to serve each property in accordance with City standards. Storm drainage construction plans and calculations shall be submitted to the City Engineer for review and approval prior to construction.*
- (2) The storm drainage calculations shall confirm that adequate capacity exists to serve the site. The discharge from the development shall be analyzed in accordance with the City's Storm and Surface Water Regulations.*
- (3) If there are undeveloped properties adjacent to the proposed development site which can be served by the storm drainage system on the proposed development site, the applicant shall extend storm drainage lines to the common boundary line with these properties. The lines shall be sized to convey expected flows to include all future development from all up stream areas that will drain through the lines on the site, in accordance with the Tualatin Drainage Plan in TDC Chapter 14. [Ord. 933-94, § 61, 11/28/94; Ord. 952-95, § 2, 10/23/95]*

Response: The Applicant has submitted a Utility Plan drawing (See Sheet P500 in Exhibit B) showing how storm drainage lines and a storm water management facility will be installed to serve the proposed lots. Detailed plans will be submitted for review and approval prior to construction, in accordance with subsection (1). In accordance with Subsection (2), the Applicant has provided a Storm Drainage Report (See Exhibit I). With respect to Subsection (3), although there are no undeveloped properties adjacent to the Subject Property, there is an existing 12” concrete storm drain pipe outfall located along the eastern part of the southern property line. The flow from this pipe continues in a northwesterly direction through the southern part of the Subject Property, until it reaches the SW 93rd Avenue right-of-way, where it is intercepted by an existing field inlet and enters the public storm drain system in SW 93rd Avenue.

A wetland feature associated with the drainage within the Subject Property was identified by the City of Tualatin and included in Map 72-3, Significant Natural Resources as a “Non-Significant Resource.” The Applicant retained a professional wetland scientist to perform a wetland delineation and assessment, and to prepare and submit plans to the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (the Corps) for a permit to fill the identified wetland area and provide a fee-in-lieu payment for off-site mitigation. (See Exhibit J.)

A notable benefit of the proposed wetland filling is the ability to concentrate development in the southern portion of the property in order to provide a large area in the northern part where many of the existing mature Douglas fir trees can be conserved. Such tree conservation would not be feasible if site redevelopment had to be configured to avoid or minimize wetland impacts.

As illustrated on Sheet P500 (See Exhibit B and full-size plan set), the proposed storm drain system will include a new ditch inlet and 12” storm drain line within a public easement along the south boundaries of Lots 6 and 7. That pipe will intercept and redirect the existing inflow to a new manhole connection to the storm drain line in SW 93rd Avenue. This will segregate the existing upstream flows from surface water runoff generated within the proposed development, which will be directed to the proposed storm water quality and detention facility in Tract B before entering the public storm drain system in SW 93rd Avenue near the northwest corner of the Subject Property.

Section 74.640 Grading.

- (1) *Development sites shall be graded to minimize the impact of storm water runoff onto adjacent properties and to allow adjacent properties to drain as they did before the new development.*
- (2) *A development applicant shall submit a grading plan showing that all lots in all portions of the development will be served by gravity drainage from the building crawl spaces; and that this development will not affect the drainage on adjacent properties. The City Engineer may require the applicant to remove all excess material from the development site.*

Response: As noted above, the proposed plan for the site is based on intercepting and redirecting an existing storm drainage flow in order to fill the existing ditch and the adjacent non-significant wetland within the Subject Property. Grading will primarily consist of filling these low-lying features and bringing the grade level up to match the surrounding upland areas. Site grading at the perimeter is minimal, designed to provide a level homebuilding site for Lot 7 and to form the storm water quality/detention pond in Tract B. These grade changes will not cause off-site storm flows that will impact neighboring properties.

Section 74.650 Water Quality, Storm Water Detention and Erosion Control.

The applicant shall comply with the water quality, storm water detention and erosion control requirements in the Surface Water Management Ordinance. If required:

- (1) *On subdivision and partition development applications, prior to approval of the final plat, the applicant shall arrange to construct a permanent on-site water quality facility and storm water detention facility and submit a design and calculations indicating that the requirements of the Surface Water Management Ordinance will be satisfied and obtain a Stormwater Connection Permit from Clean Water Services; or*
- (2) *On all other development applications, prior to issuance of any building permit, the applicant shall arrange to construct a permanent on-site water quality facility and storm water detention facility and submit a design and calculations indicating that the requirements of the Surface Water Management Ordinance will be met and obtain a Stormwater Connection Permit from Clean Water Services.*
- (3) *For on-site private and regional non-residential public facilities, the applicant shall submit a stormwater facility agreement, which will include an operation and maintenance plan provided by the City, for the water quality facility for the City's review and approval. The applicant shall submit an erosion control plan prior to issuance of a Public Works Permit. No construction or disturbing of the site shall occur until the erosion control plan is approved by the City and the required measures are in place and*

approved by the City. [Ord. 952-95, § 3, 10/23/95; Ord. 1070-01, 4/9/01; Ord. 1327-11 §1; 6/27/11]

Response: The Applicant's engineer has provided a Storm Drainage Report in Exhibit I to demonstrate the feasibility of constructing a storm water quality treatment and detention pond within Tract B, as indicated in the submitted plans (See Exhibit B and full-size drawings).

Section 74.660 Underground.

- (1) All utility lines including, but not limited to, those required for gas, electric, communication, lighting and cable television services and related facilities shall be placed underground. Surface-mounted transformers, surface-mounted connection boxes and meter cabinets may be placed above ground. Temporary utility service facilities, high capacity electric and communication feeder lines, and utility transmission lines operating at 50,000 volts or above may be placed above ground. The applicant shall make all necessary arrangements with all utility companies to provide the underground services. The City reserves the right to approve the location of all surface-mounted transformers.*
- (2) Any existing overhead utilities may not be upgraded to serve any proposed development. If existing overhead utilities are not adequate to serve the proposed development, the applicant shall, at their own expense, provide an underground system. The applicant shall be responsible for obtaining any off-site deeds and/or easements necessary to provide utility service to this site; the deeds and/or easements shall be submitted to the City Engineer for acceptance by the City prior to issuance of the Public Works Permit.*

Response: There are existing overhead power lines on the east side of the SW 93rd Avenue right-of-way, i.e., along the property frontage. The Arborist's report notes that existing trees beneath the power lines have been topped and should be removed and replaced. The Applicant understands and will comply with the undergrounding requirements of the Development Code and the Public Works Code in constructing improvements for the proposed subdivision.

Section 74.670 Existing Structures.

- (1) Any existing structures requested to be retained by the applicant on a proposed development site shall be connected to all available City utilities at the expense of the applicant.*
- (2) The applicant shall convert any existing overhead utilities serving existing structures to underground utilities, at the expense of the applicant.*
- (3) The applicant shall be responsible for continuing all required street improvements adjacent to the existing structure, within the boundaries of the proposed development site.*

Response: None of the structures on the site is proposed for retention.

Section 74.700 Removal, Destruction or Injury of Trees.

It is unlawful for a person, without a written permit from the Operations Director, to remove, destroy, break or injure a tree, plant or shrub, that is planted or growing in or upon a public right-of-way within the City, or cause, authorize, or procure a person to do so, authorize or procure a person to injure, misuse or remove a device set for the

protection of any tree, in or upon a public right-of-way. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 1, 7/23/01; Ord. 1079-01, 7/23/01]

Response: The Applicant has retained a professional consulting arborist to assess the condition of existing trees on the Subject Property and provide recommendations for their conservation. (See Exhibit K.) The proposed Grading Plan (See Sheet P400 of Exhibit B and full-size drawing set) incorporates the arborist's recommendations for tree protection measures during construction.

Section 74.705 Street Tree Removal Permit.

Section 74.706 Street Tree Fees.

Section 74.707 Street Tree Voluntary Planting.

Section 74.708 Street Tree Emergencies.

Section 74.710 Open Ground.

Section 74.715 Attachments to Trees.

Section 74.720 Protection of Trees During Construction.

Response: These Sections are not applicable because there are no existing street trees along the Subject Property's frontage on SW 93rd Avenue, and the Applicant will provide fees to the City for planting of street trees pursuant to Section 74.485.

Section 74.725 Maintenance Responsibilities.

Trees, shrubs or plants standing in or upon a public right-of-way, on public or private grounds that have branches projecting into the public street or sidewalk shall be kept trimmed by the owner of the property adjacent to or in front of where such trees, shrubs or plants are growing so that:

- (1) The lowest branches are not less than 12 feet above the surface of the street, and are not be less than 14 feet above the surface of streets designated as state highways.*
- (2) The lowest branches are not less than eight feet above the surface of a sidewalk or footpath.*
- (3) No plant, tree, bush or shrub shall be more than 24 inches in height in the triangular area at the street or highway corner of a corner lot, or the alley-street intersection of a lot, such an area defined by a line across the corner between the points on the street right-of-way line measured 10 feet back from the corner, and extending the line to the street curbs or, if there are no curbs, then to that portion of the street or alley used for vehicular traffic.*
- (4) Newly planted trees may remain untrimmed if they do not interfere with street traffic or persons using the sidewalk or obstruct the light of a street electric lamp.*
- (5) Maintenance responsibilities of the property owner include repair and upkeep of the sidewalk in accordance with the City Sidewalk Maintenance Ordinance. [Ord. 963-96, § 9, 6/24/96]*

Section 74.730 Notice of Violation. [detailed provisions omitted for brevity]

Section 74.735 Trimming by City. [detailed provisions omitted for brevity]

Section 74.740 Prohibited Trees.

Section 74.745 Cutting and Planting Specifications.

Section 74.750 Removal or Treatment by City.

Section 74.755 Appeal of Permit Denial.

Section 74.760 Penalties.

Response: The above provisions will apply to ongoing care and maintenance of street trees following final plat recording and planting of street trees by the City of Tualatin.

Section 74.765 Street Tree Species and Planting Locations.

All trees, plants or shrubs planted in the right-of-way of the City shall conform in species and location and in accordance with the street tree plan in Schedule A. If the Operations Director determines that none of the species in Schedule A is appropriate or finds appropriate a species not listed, the Director may substitute an unlisted species.

[Schedule A: Street Tree Species omitted for brevity]

Response: This Section provides guidance to City staff for selecting and planting street trees, and requires no statement by the Applicant.

Summary and Request

The Applicant has provided substantial evidence to demonstrate that the proposed eight-lot Mission Woods Subdivision meets all applicable development standards, and respectfully requests approval of the preliminary subdivision plan.

April 29, 2013
Revised: May 3, 2013

MISSION WOODS – TUALATIN, OR
TREE ASSESSMENT REPORT

1307

Purpose

This Tree Assessment Report for the Mission Woods project site in Tualatin, Oregon, is provided pursuant to City of Tualatin Development Code Chapters 34 and 73. This report describes the existing trees located on the project site, as well as recommendations for tree removal, retention, and protection during construction.

General Description

The Mission Woods project site is heavily treed, primarily with a mix of Douglas-fir (*Pseudotsuga menziesii*) and Oregon white oak (*Quercus garryana*) to the north and Oregon ash (*Fraxinus latifolia*) to the south. There is one existing house near the center of the site. The site is planned for construction of eight detached single-family residences. We visited the site on February 14, 2013 to assess individual trees, collect tree inventory data, and to evaluate trees in terms of potential construction impacts.

The Douglas-firs are semi-mature and in generally good condition. The small grove is undergoing natural forest stand dynamics and dominant trees are outcompeting and suppressing less vigorous trees. Trees located in the interior of the grove are more suppressed because they do not receive as much sunlight. These trees tend to have small live crowns, poor height to diameter ratios, and poor stem taper. However, these trees are sustainable and suitable for retention as a group; removal of adjacent trees would expose them, making them susceptible to windthrow and potentially hazardous.

The ash grove is located in the wetter part of the site and these trees were generally small and biologically sustainable, but not of remarkable quality. Non-native and invasive sweet cherry (*Prunus avium*) was also common on-site, especially in and around the wetland area to the south.

The inventory also includes a mix of trees planted for landscaping purposes. A complete description of individual trees is provided in the enclosed tree inventory. Table 1 provides a summary of the number of trees inventoried by species.

Table 1. Number of Inventoried Trees by Species – Mission Woods.

Common Name	Species Name	Count	Percent
ash	<i>Fraxinus</i> spp.	1	1%
Douglas-fir	<i>Pseudotsuga menziesii</i>	53	27%
English hawthorn	<i>Crataegus monogyna</i>	10	5%
lodgepole pine	<i>Pinus contorta</i>	1	1%
Off-site	n/a	3	2%
Oregon ash	<i>Fraxinus latifolia</i>	67	34%
Oregon white oak	<i>Quercus garryana</i>	13	7%
Pacific dogwood	<i>Cornus nuttallii</i>	1	1%
red alder	<i>Alnus rubru</i>	4	2%
Scouler's willow	<i>Salix scouleriana</i>	11	6%
spruce	<i>Picea</i> spp.	1	1%
sweet cherry	<i>Prunus avium</i>	30	15%
western redcedar	<i>Thuja plicata</i>	4	2%
Total		199	100%

Tree Plan Recommendations

In all, 199 trees were inventoried for the Mission Woods project, including three street trees (#1443 – #1445) located off-site along SW 93rd Avenue that will be protected during construction. Two additional trees are also located on or directly adjacent to the eastern property boundary on neighboring property, and are recommended for removal because of poor and hazardous condition; this includes trees 1518 and 1703, one invasive English hawthorn (*Crataegus monogyna*) and one invasive sweet cherry.

The remaining 194 inventoried trees are located on-site and 39 trees are recommended for retention, while 155 trees are recommended for removal either for the purposes of construction or because of species (invasiveness) or poor or hazardous condition.

The grove of Douglas-firs and Oregon white oaks to the north can largely remain intact in its relative natural condition; only select trees are recommended for removal from the grove, in order to construct the proposed water quality treatment facility and to remove high risk trees. Of the 53 Douglas-firs and 13 Oregon white oaks inventoried, 47 percent and 62 percent are recommended for preservation respectively.

Table 2 provides a summary of the number of inventoried trees by treatment recommendation.

Table 2. Number of Inventoried Trees by Treatment Recommendation.

Treatment Recommendation	On-Site	Off-Site	Total
Retain	39 (20%)	2 (1%)	43 (22%)
Remove	155 (78%)	3 (1%)	156 (78%)
Total	194 (98%)	5 (2%)	199

During construction and following site clearing, the protected trees will need to be re-evaluated in terms of risk potential and safety, to document hazardous trees recommended for removal, if any, and provide supplemental recommendations for tree protection as needed.

The trees to be retained will be protected with tree protection fencing. Pruning for clearance and to remove dead and defective branches will likely be necessary. Pruning should be performed by a Qualified Tree Service. Prune the minimum amount needed and prune prior to construction activity in order to provide clearance and avoid crown damage.

Large and attractive camellias (*Camellia* spp.) and other existing shrubs could be salvaged from the site prior to demolition and transplanted elsewhere. Native species would be suitable for transplanting into the tree grove, while non-native species would be more appropriate for landscaping the yards of new residences.

In addition, the open space could be enhanced by removing invasive trees and plants, including English ivy growing up tree trunks. Native trees, shrubs, and ground covers could be replanted to increase species, age class, and structural diversity within the grove. Standing dead trees should remain standing for wildlife habitat where safe to do so. Large woody debris may be left on site following tree removal activities to provide wildlife habitat and soil nutrients; place large wood in direct contact with the ground surface and remove small woody debris from the site to avoid fire hazard.

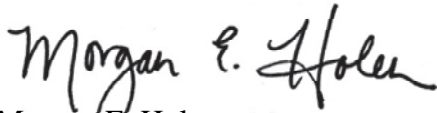
Tree Protection Standards

Trees designated for retention will need special consideration to assure their protection during construction. We recommend a preconstruction meeting with the owner, contractors and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

1. **Tree Protection Zone.** The project arborist should designate the Tree Protection Zone (TPZ). Where feasible, the TPZ should be established at the dripline of the tree or grove as a minimum. If infrastructure (roads, sidewalks, and utilities) must be installed closer to the tree(s), the TPZ may be established within the dripline area if the project arborist determines that the tree(s) will not be unduly damaged. The location of the TPZ should be shown on construction drawings.

2. **Protection Fencing.** All trees to be retained should be protected by tree protection fencing installed at or beyond the TPZ. Fencing shall be either 6-foot high orange plastic, secured to 8-foot metal posts in the ground, or chain link fencing secured to steel posts on concrete blocks placed no further than 15-feet apart. The project arborist should determine the exact location and type of fencing. Trees located more than 30-feet from construction activity do not require protection fencing.
3. **Tree Protection Zone Maintenance.** The protection fencing should not be moved, removed, or entered by equipment except under direction of the project arborist. Without authorization from the Project Arborist, none of the following should occur within TPZs:
 - a. New buildings;
 - b. Grade change or cut and fill, during or after construction;
 - c. New impervious surfaces;
 - d. Utility or drainage field placement;
 - e. Staging or storage of materials and equipment during construction;
 - f. Vehicle maneuvering during construction.Root protection zones may be entered for tasks like surveying, measuring, and, sampling. Fences must be closed upon completion of these tasks.
4. **Excavation within the TPZ.** Excavation within the TPZ should be avoided if alternatives are available. If excavation within the TPZ is unavoidable, the project arborist should evaluate the proposed excavation to determine methods to minimize impacts to trees. This can include tunneling, hand digging, or other approaches. All construction within the TPZ should be under the on-site technical supervision of the project arborist.
5. **Tree Protection Monitoring.** The project arborist should monitor construction activities and progress, and provide written reports to the developer and the City at regular intervals.
6. **Final Report.** After the project has been completed, the project arborist should provide a final report that describes the measures needed to maintain and protect the remaining trees.

Please contact us if you have questions or need any additional information.



Morgan E. Holen
Morgan Holen & Associates, LLC
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosure: 1307 Mission Woods - Tree Inventory 2-14-13

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
1204	Douglas-fir	<i>Pseudotsuga menziesii</i>	42		1	old broken top, multiple new tops, decay	remove
1233	Douglas-fir	<i>Pseudotsuga menziesii</i>	40		3	thin crown, forked top, trunk scar	retain
1234	Douglas-fir	<i>Pseudotsuga menziesii</i>	62	25	5	no major defects, good branch distribution	retain
1244	Douglas-fir	<i>Pseudotsuga menziesii</i>	46		4	one-sided crown	retain
1245	Douglas-fir	<i>Pseudotsuga menziesii</i>	20		3	high asymmetrical crowns, retain in group only	retain
1273	Oregon ash	<i>Fraxinus latifolia</i>	18				remove
1274	Oregon ash	<i>Fraxinus latifolia</i>	14				remove
1280	sweet cherry	<i>Prunus avium</i>	8				remove
1297	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	4		remove
1298	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	20	4	old broken tops, multiple new tops	remove
1299	Douglas-fir	<i>Pseudotsuga menziesii</i>	66	20	4	old broken tops, multiple new tops	remove
1443	off-site	off-site	8			cherry, street tree	protect adjacent tree
1444	off-site	off-site	10			cherry, street tree	protect adjacent tree
1445	off-site	off-site	8			flowering pear, street tree	protect adjacent tree
1500	sweet cherry	<i>Prunus avium</i>	8				remove
1501	Scouler's willow	<i>Salix scouleriana</i>	8		1	mostly dead	remove
1502	Oregon ash	<i>Fraxinus latifolia</i>	5*9				remove
1503	English hawthorn	<i>Crataegus monogyna</i>	8				remove
1504	sweet cherry	<i>Prunus avium</i>	8				remove
1505	sweet cherry	<i>Prunus avium</i>	6				remove
1506	Oregon ash	<i>Fraxinus latifolia</i>	8				remove
1507	Oregon ash	<i>Fraxinus latifolia</i>	8				remove
1508	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1509	Oregon ash	<i>Fraxinus latifolia</i>	16				remove
1510	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1511	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1512	Oregon ash	<i>Fraxinus latifolia</i>	2*12				remove
1513	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1514	Oregon ash	<i>Fraxinus latifolia</i>	16				remove
1515	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1516	Oregon ash	<i>Fraxinus latifolia</i>	16				remove
1517	Oregon ash	<i>Fraxinus latifolia</i>	14				remove
1518	English hawthorn	<i>Crataegus monogyna</i>	10		1	decrepit, on property line	remove adjacent tree
1519	English hawthorn	<i>Crataegus monogyna</i>	6		1	decrepit	remove
1520	sweet cherry	<i>Prunus avium</i>	20				remove
1521	sweet cherry	<i>Prunus avium</i>	6				remove
1522	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1523	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1524	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1525	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1526	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1527	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1528	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1529	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1530	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1531	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1532	Oregon ash	<i>Fraxinus latifolia</i>	9				remove
1533	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1534	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1535	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1536	Oregon ash	<i>Fraxinus latifolia</i>	14				remove
1537	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1538	Oregon ash	<i>Fraxinus latifolia</i>	3*8				remove
1539	Scouler's willow	<i>Salix scouleriana</i>	6				remove
1540	Scouler's willow	<i>Salix scouleriana</i>	12		1	hollow, snag	remove
1541	Oregon ash	<i>Fraxinus latifolia</i>	9				remove
1542	Oregon ash	<i>Fraxinus latifolia</i>	8				remove
1543	Oregon ash	<i>Fraxinus latifolia</i>	9				remove
1544	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1546	Scouler's willow	<i>Salix scouleriana</i>	9				remove
1547	Scouler's willow	<i>Salix scouleriana</i>	12				remove
1548	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1549	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1550	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1551	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1552	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1553	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1554	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1555	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1556	Oregon ash	<i>Fraxinus latifolia</i>	6				remove

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
1557	Oregon ash	<i>Fraxinus latifolia</i>	7				remove
1558	Oregon ash	<i>Fraxinus latifolia</i>	13				remove
1559	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1560	sweet cherry	<i>Prunus avium</i>	12				remove
1561	sweet cherry	<i>Prunus avium</i>	3*6				remove
1562	sweet cherry	<i>Prunus avium</i>	6				remove
1563	sweet cherry	<i>Prunus avium</i>	6				remove
1564	sweet cherry	<i>Prunus avium</i>	10				remove
1565	sweet cherry	<i>Prunus avium</i>	10				remove
1566	sweet cherry	<i>Prunus avium</i>	10				remove
1567	sweet cherry	<i>Prunus avium</i>	6				remove
1568	sweet cherry	<i>Prunus avium</i>	7				remove
1569	Oregon white oak	<i>Quercus garryana</i>	20	25	3	ivy up stem, thin crown	remove
1570	sweet cherry	<i>Prunus avium</i>	7				remove
1571	sweet cherry	<i>Prunus avium</i>	10				remove
1572	sweet cherry	<i>Prunus avium</i>	10				remove
1573	sweet cherry	<i>Prunus avium</i>	10				remove
1574	Oregon ash	<i>Fraxinus latifolia</i>	16				remove
1575	Douglas-fir	<i>Pseudotsuga menziesii</i>	13		1	mostly dead	remove
1576	Douglas-fir	<i>Pseudotsuga menziesii</i>	19		2	ivy, small live crown, major asymmetry	remove
1577	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1578	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1579	Oregon ash	<i>Fraxinus latifolia</i>	2*10				remove
1580	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1581	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1582	Oregon ash	<i>Fraxinus latifolia</i>	6				remove
1583	Oregon ash	<i>Fraxinus latifolia</i>	10				remove
1584	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1585	Oregon ash	<i>Fraxinus latifolia</i>	9				remove
1586	English hawthorn	<i>Crataegus monogyna</i>	6				remove
1587	English hawthorn	<i>Crataegus monogyna</i>	6				remove
1588	English hawthorn	<i>Crataegus monogyna</i>	6				remove
1589	Scouler's willow	<i>Salix scouleriana</i>	6		1	decrepit	remove
1590	Scouler's willow	<i>Salix scouleriana</i>	8		1		remove
1591	Scouler's willow	<i>Salix scouleriana</i>	7		1		remove
1592	Scouler's willow	<i>Salix scouleriana</i>	6		1		remove
1593	Scouler's willow	<i>Salix scouleriana</i>	7		1		remove
1594	sweet cherry	<i>Prunus avium</i>	2*10		1	diseased	remove
1595	Oregon ash	<i>Fraxinus latifolia</i>	11	14	3		remove
1596	Oregon ash	<i>Fraxinus latifolia</i>	11	14	3		remove
1597	Oregon ash	<i>Fraxinus latifolia</i>	12	14	3		remove
1598	Oregon ash	<i>Fraxinus latifolia</i>	10	14	3		remove
1599	Scouler's willow	<i>Salix scouleriana</i>	2*8		1	basal decay	remove
1600	lodgepole pine	<i>Pinus contorta</i>	9		2	suppressed	remove
1601	ash	<i>Fraxinus spp.</i>	7		2	topped, suppressed	remove
1602	English hawthorn	<i>Crataegus monogyna</i>	10		2		remove
1623	red alder	<i>Alnus rubra</i>	2*6		2	topped beneath utility lines	remove
1624	red alder	<i>Alnus rubra</i>	7		2	decay, topped beneath utility lines	remove
1625	red alder	<i>Alnus rubra</i>	8		1	extensive decay	remove
1627	Douglas-fir	<i>Pseudotsuga menziesii</i>	20				remove
1628	Douglas-fir	<i>Pseudotsuga menziesii</i>	10				remove
1629	Douglas-fir	<i>Pseudotsuga menziesii</i>	12				remove
1630	Douglas-fir	<i>Pseudotsuga menziesii</i>	8		1	severe <i>Phellinus pini</i> infection	remove
1631	Douglas-fir	<i>Pseudotsuga menziesii</i>	14				remove
1632	Douglas-fir	<i>Pseudotsuga menziesii</i>	8				remove
1633	Douglas-fir	<i>Pseudotsuga menziesii</i>	8				remove
1634	Douglas-fir	<i>Pseudotsuga menziesii</i>	11				remove
1635	Douglas-fir	<i>Pseudotsuga menziesii</i>	9				remove
1636	Douglas-fir	<i>Pseudotsuga menziesii</i>	14				remove
1637	Douglas-fir	<i>Pseudotsuga menziesii</i>	8				remove
1638	Douglas-fir	<i>Pseudotsuga menziesii</i>	12				remove
1639	Oregon white oak	<i>Quercus garryana</i>	32,24		2	codom stems, history of branch failure, decay	remove
1640	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	25	5	removal is necessary for construction	remove
1641	Douglas-fir	<i>Pseudotsuga menziesii</i>	10		3		retain
1642	Oregon white oak	<i>Quercus garryana</i>	16,12		1	decay, hollow, lean, remove 12" stem	retain
1644	Oregon white oak	<i>Quercus garryana</i>	26,16		3	small live crown, branch decay, retain in group	retain
1645	red alder	<i>Alnus rubra</i>	11,6		3	inherent species limitations, monitor if retained	retain
1647	Douglas-fir	<i>Pseudotsuga menziesii</i>	6		2	ivy up stem, suppressed crowns, retain in group	retain
1648	Douglas-fir	<i>Pseudotsuga menziesii</i>	6		2	ivy up stem, suppressed crowns, retain in group	retain
1649	Douglas-fir	<i>Pseudotsuga menziesii</i>	9		2	ivy up stem, suppressed crowns, retain in group	retain

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
1650	Douglas-fir	<i>Pseudotsuga menziesii</i>	8		2	broken top, suppressed	remove
1651	Douglas-fir	<i>Pseudotsuga menziesii</i>	14				retain
1652	Oregon white oak	<i>Quercus garryana</i>	22,18		3	codom, small live crown	retain
1653	Douglas-fir	<i>Pseudotsuga menziesii</i>	6				retain
1654	Oregon white oak	<i>Quercus garryana</i>	10		3	overtopped, retain in group	retain
1655	Douglas-fir	<i>Pseudotsuga menziesii</i>	8		3	suppressed, retain in group only	retain
1656	Douglas-fir	<i>Pseudotsuga menziesii</i>	10		3	suppressed, retain in group only	retain
1657	Douglas-fir	<i>Pseudotsuga menziesii</i>	16		3	suppressed, retain in group only	retain
1658	western redcedar	<i>Thuja plicata</i>	8		4	no major defects	retain
1659	Douglas-fir	<i>Pseudotsuga menziesii</i>	6				retain
1660	Douglas-fir	<i>Pseudotsuga menziesii</i>	8				retain
1661	Douglas-fir	<i>Pseudotsuga menziesii</i>	7				retain
1662	Oregon white oak	<i>Quercus garryana</i>	34	20	3		retain
1663	Douglas-fir	<i>Pseudotsuga menziesii</i>	30		3	high asymmetrical crowns, retain in group only	retain
1664	Douglas-fir	<i>Pseudotsuga menziesii</i>	30		3	high asymmetrical crowns, retain in group only	retain
1665	Douglas-fir	<i>Pseudotsuga menziesii</i>	24		3	high asymmetrical crowns, retain in group only	retain
1666	Oregon white oak	<i>Quercus garryana</i>	12		2	suppressed, could retain in group	retain
1667	Douglas-fir	<i>Pseudotsuga menziesii</i>	6				retain
1668	Oregon white oak	<i>Quercus garryana</i>	24	18	3	no major defects, but relatively small live crown	retain
1680	Pacific dogwood	<i>Cornus nuttallii</i>	9			native, retain and monitor in-leaf	retain
1681	Oregon white oak	<i>Quercus garryana</i>	11			suppressed, could retain in group	retain
1682	Douglas-fir	<i>Pseudotsuga menziesii</i>	9				retain
1683	Douglas-fir	<i>Pseudotsuga menziesii</i>	9				retain
1684	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	14	4		retain
1685	Douglas-fir	<i>Pseudotsuga menziesii</i>	11				retain
1686	English hawthorn	<i>Crataegus monogyna</i>	14		1	decrepit, topped, decay	remove
1687	English hawthorn	<i>Crataegus monogyna</i>	6		1	decrepit, topped, decay	remove
1688	English hawthorn	<i>Crataegus monogyna</i>	14		2	decrepit	remove
1689	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	20	4	self-correcting lean	retain
1692	western redcedar	<i>Thuja plicata</i>	22	10	3		retain
1694	western redcedar	<i>Thuja plicata</i>	20,16	10	3		retain
1696	western redcedar	<i>Thuja plicata</i>	32	10	3		retain
1703	sweet cherry	<i>Prunus avium</i>	19	12	2	on property line, stem decay	remove adjacent tree
1705	sweet cherry	<i>Prunus avium</i>	7				remove
1706	sweet cherry	<i>Prunus avium</i>	14				remove
1707	sweet cherry	<i>Prunus avium</i>	12				remove
1708	sweet cherry	<i>Prunus avium</i>	15				remove
1709	sweet cherry	<i>Prunus avium</i>	7				remove
1710	sweet cherry	<i>Prunus avium</i>	12				remove
1711	sweet cherry	<i>Prunus avium</i>	13				remove
1712	sweet cherry	<i>Prunus avium</i>	7				remove
1713	sweet cherry	<i>Prunus avium</i>	2*6				remove
1721	Oregon white oak	<i>Quercus garryana</i>	32	25	4	some crown asymmetry, good condition	remove
1722	Douglas-fir	<i>Pseudotsuga menziesii</i>	46			old broken top, multiple new tops	remove
1750	Oregon ash	<i>Fraxinus latifolia</i>	12				remove
1751	Oregon ash	<i>Fraxinus latifolia</i>	2*12				remove
1752	Oregon ash	<i>Fraxinus latifolia</i>	18,6				remove
1754	Douglas-fir	<i>Pseudotsuga menziesii</i>	7			suppressed	remove
1755	Douglas-fir	<i>Pseudotsuga menziesii</i>	19		1	codom stems with included bark	remove
1756	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	18	4	retain in group only	remove
1757	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	18	4	retain in group only	remove
1758	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	18	4	retain in group only	remove
1759	Oregon white oak	<i>Quercus garryana</i>	2*19				remove
1760	spruce	<i>Picea spp.</i>	7		2	overtopped	remove
1761	Douglas-fir	<i>Pseudotsuga menziesii</i>	8				remove
1762	Oregon white oak	<i>Quercus garryana</i>	19	22	3	ivy inhibits complete eval	remove
1763	Douglas-fir	<i>Pseudotsuga menziesii</i>	20			natural lean	remove
1764	Oregon ash	<i>Fraxinus latifolia</i>	13				remove
1765	Oregon ash	<i>Fraxinus latifolia</i>	15				remove

¹DBH is tree diameter measured at 4.5-feet above the ground level, in inches

²C-Rad is the average crown radius measured in feet

³Cond is an arborist assigned rating to generally describe the condition of individual trees as follows-

- 0: Off-site, condition not evaluated
- 1: Dead / Hazardous
- 2: Poor Condition
- 3: Fair Condition
- 4: Good Condition
- 5: Excellent Condition

Service Provider Letter

This form and the attached conditions will serve as your Service Provider Letter in accordance with Clean Water Services Design and Construction Standards (R&O 07-20).

Jurisdiction: City of Tualatin Review Type: Tier 2 Analysis
 Site Address: 20270 SW 93rd AVE SPL Issue Date: March 28, 2013
 / Location: Tualatin, OR 97062 SPL Expiration Date: March 28, 2015

Applicant Information:

Name: _____
 Company: MISSION HOMES NORTHWEST, LLC
PO BOX 1689
 Address: LAKE OSWEGO, OR 97035
 Phone/Fax: (503) 781-1814
 E-mail: joshkelso3@gmail.com

Owner Information:

Name: _____
 Company: MISSION HOMES NORTHWEST, LLC
PO BOX 1689
 Address: LAKE OSWEGO, OR 97035
 Phone/Fax: (503) 781-1814
 E-mail: joshkelso3@gmail.com

Tax lot ID

Development Activity

2S126AB03500,
2S126AB03600

8- Lot Subdivision

Pre-Development Site Conditions:

Post Development Site Conditions:

Sensitive Area Present: On-Site Off-Site
 Vegetated Corridor Width: 25
 Vegetated Corridor Condition: Good/Marginal

Sensitive Area Present: On-Site Off-Site
 Vegetated Corridor Width: 0

Enhancement of Remaining
 Vegetated Corridor Required:

Square Footage to be enhanced:

0

Encroachments into Pre-Development Vegetated Corridor:

Type and location of Encroachment: 8- Lot Subdivision (Permanent Encroachment; Mitigation Required) Square Footage: 14,259

Mitigation Requirements:

Type/Location	Sq. Ft./Ratio/Cost
Off-site/ Payment to Provide Fee	14,259/ 1:1/ \$31,934.98

Conditions Attached Development Figures Attached (2) Planting Plan Attached Geotech Report Required

This Service Provider Letter does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered on your property.

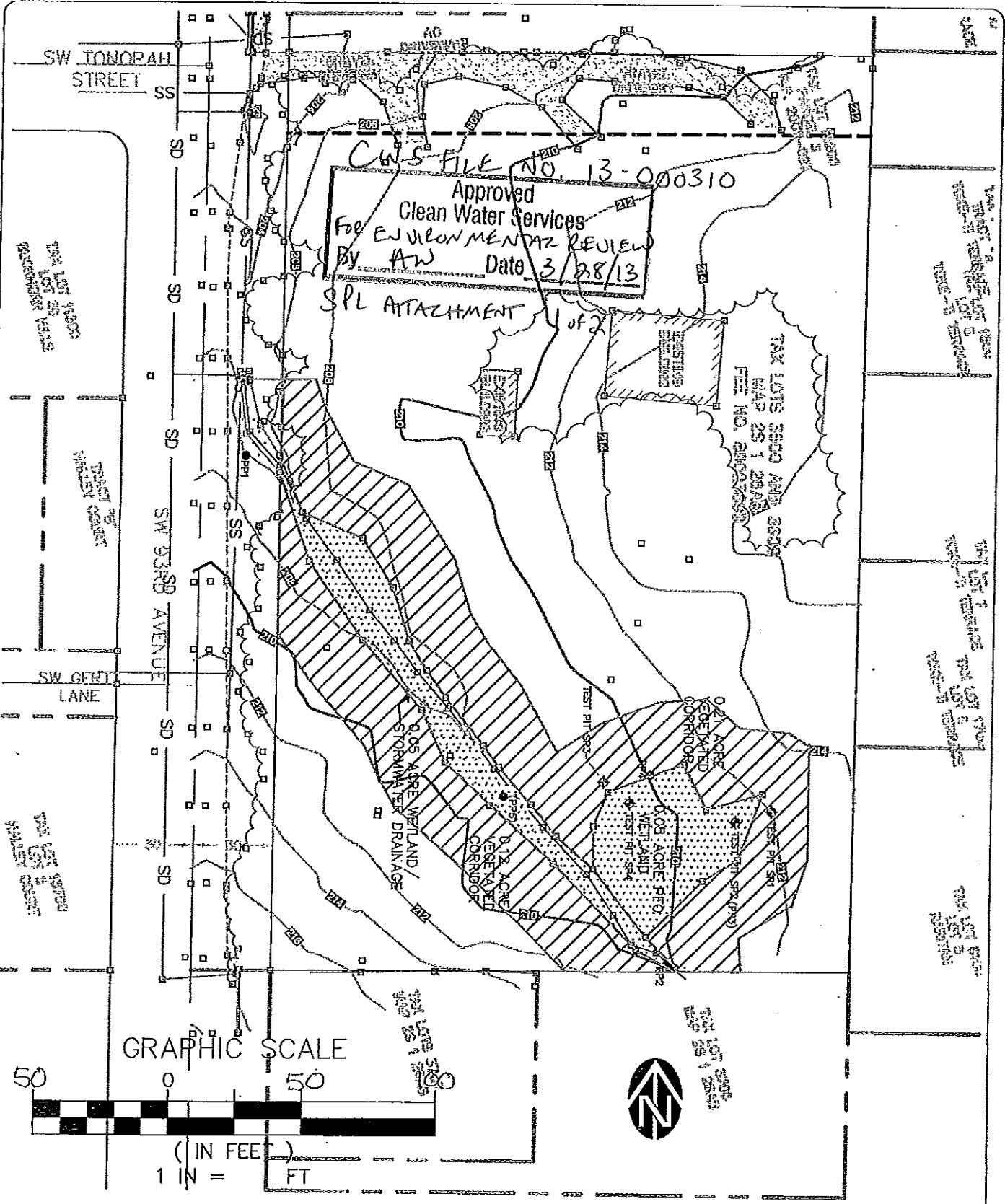
The proposed alternative develops the subject property with the greatest density of lots while protecting the locally important resource of a stand of old growth trees on the site. This alternative meets the City transportation plan requirements for connectivity between the proposed street and SW Gertz Lane. The loss of the onsite wetland and Vegetated Corridor could not be avoided while still developing the site and retaining the trees. The onsite wetland is essentially isolated and surrounded by development.

7. The proposed encroachment provides public benefits.

The wetland was determined not to be a significant wetland by the City. The stand of trees is highly valuable to the local community and preservation of this resource was prioritized by the community, the City, and the applicant. Permits for filling of the onsite wetland have been submitted to DSL and the COE with mitigation to be provided at a wetland mitigation bank. This will contribute to a larger resource of much higher value providing water quality and habitat functions not possible in this small isolated area. The Vegetated Corridor will be mitigated through the payment to provide program and shall provide enhancement for other resources within the Tualatin watershed.

In order to comply with Clean Water Services water quality protection requirements the project must comply with the following conditions:

1. No structures, development, construction activities, gardens, lawns, application of chemicals, uncontained areas of hazardous materials as defined by Oregon Department of Environmental Quality, pet wastes, dumping of materials of any kind, or other activities shall be permitted within the sensitive area or Vegetated Corridor which may negatively impact water quality, except those allowed in R&O 07-20, Chapter 3.
2. Prior to any site clearing, grading or construction the Vegetated Corridor and water quality sensitive areas shall be surveyed, staked, and temporarily fenced per approved plan. During construction the Vegetated Corridor shall remain fenced and undisturbed except as allowed by R&O 07-20, Section 3.06.1 and per approved plans.
3. Prior to any activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits.
4. An approved Oregon Department of Forestry Notification is required for one or more trees harvested for sale, trade, or barter, on any non-federal lands within the State of Oregon.
5. Prior to ground disturbance an Erosion Control Permit is required through the City. Appropriate Best Management Practices (BMP's) for Erosion Control, in accordance with Clean Water Services' Erosion Prevention and Sediment Control Planning and Design Manual, shall be used prior to, during, and following earth disturbing activities.
6. Prior to construction, a Stormwater Connection Permit from Clean Water Services or its designee is required pursuant to Ordinance 27, Section 4.B.
7. Activities located within the 100-year floodplain shall comply with R&O 07-20, Section 5.10.
8. Removal of native, woody vegetation shall be limited to the greatest extent practicable.
9. The water quality facility shall be planted with Clean Water Services approved native species, and designed to blend into the natural surroundings.
10. Should final development plans differ significantly from those submitted for review by Clean Water Services, the applicant shall provide updated drawings, and if necessary, obtain a revised Service Provider Letter.



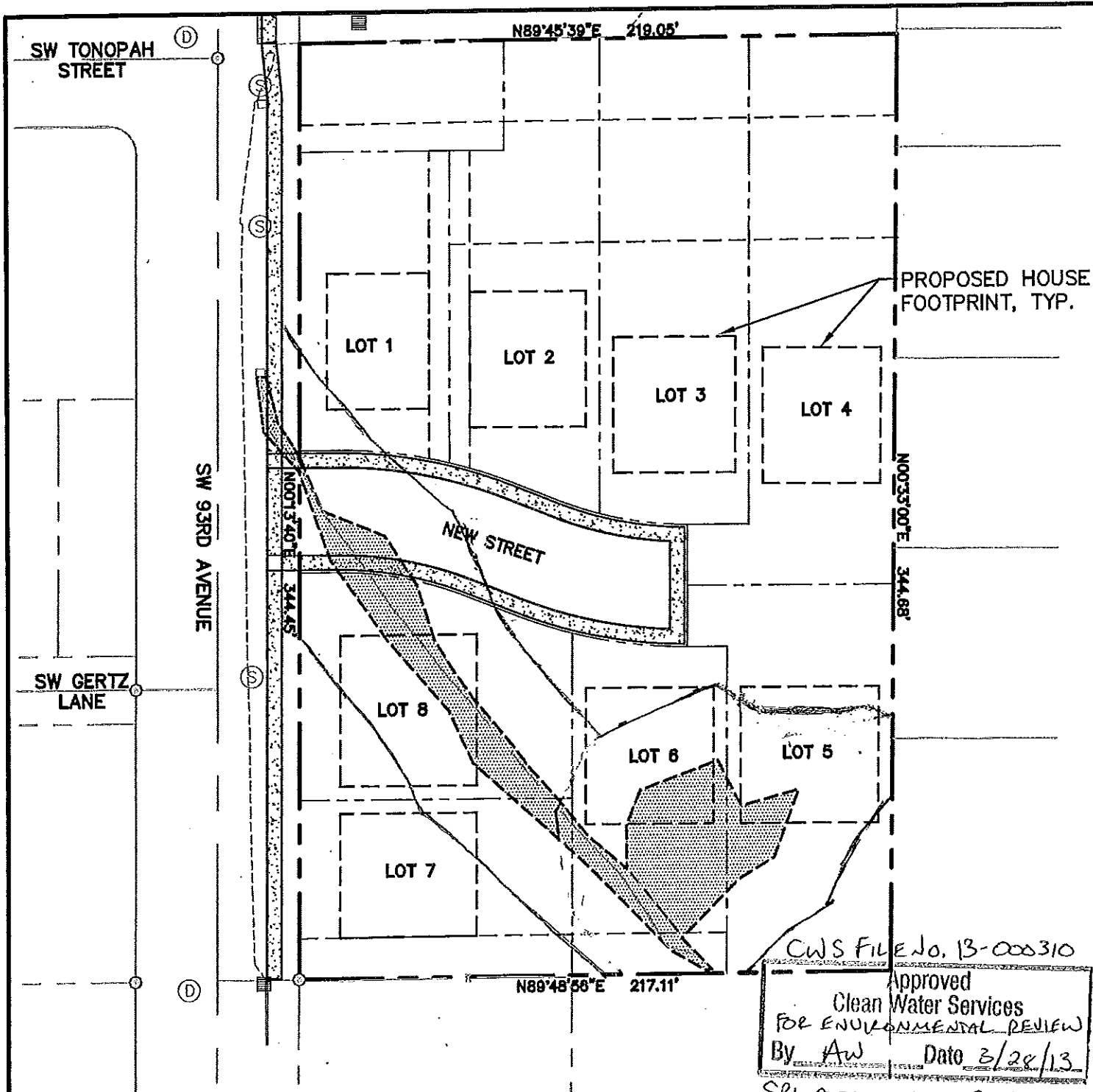
1-23-13
 JUT
 Job #: 2241
 Sheet 1 of 1

EXISTING CONDITIONS
 SW 93rd Avenue

SCHOTT & ASSOCIATES
 21018 NE HWY 99E
 PO BOX 589
 AURORA, OREGON 97002


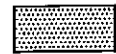

p: 503.678.6007
 f: 503.678.6011

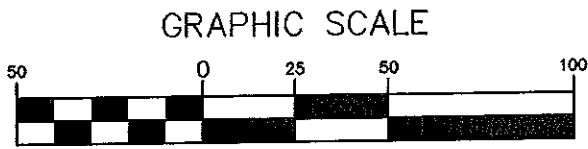




CWS FILE No. 13-000310
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By AW Date 3/28/13
 SPL ATTACHMENT 2 of 2

LEGEND

-  WETLAND BOUNDARY
-  WETLAND
-  VC BOUNDARY
- 14,259 sf impact area



GRAPHIC SCALE

(IN FEET)
 1 IN = 50 FT

**SW 93RD STREET
 DEVELOPMENT PLAN**

DATE	12/14/2012
DRAWN BY	APN
CHECKED BY	APN
REVISIONS	
JOB NO.	2312-03

WESTLAKE
 CONSULTANTS inc.

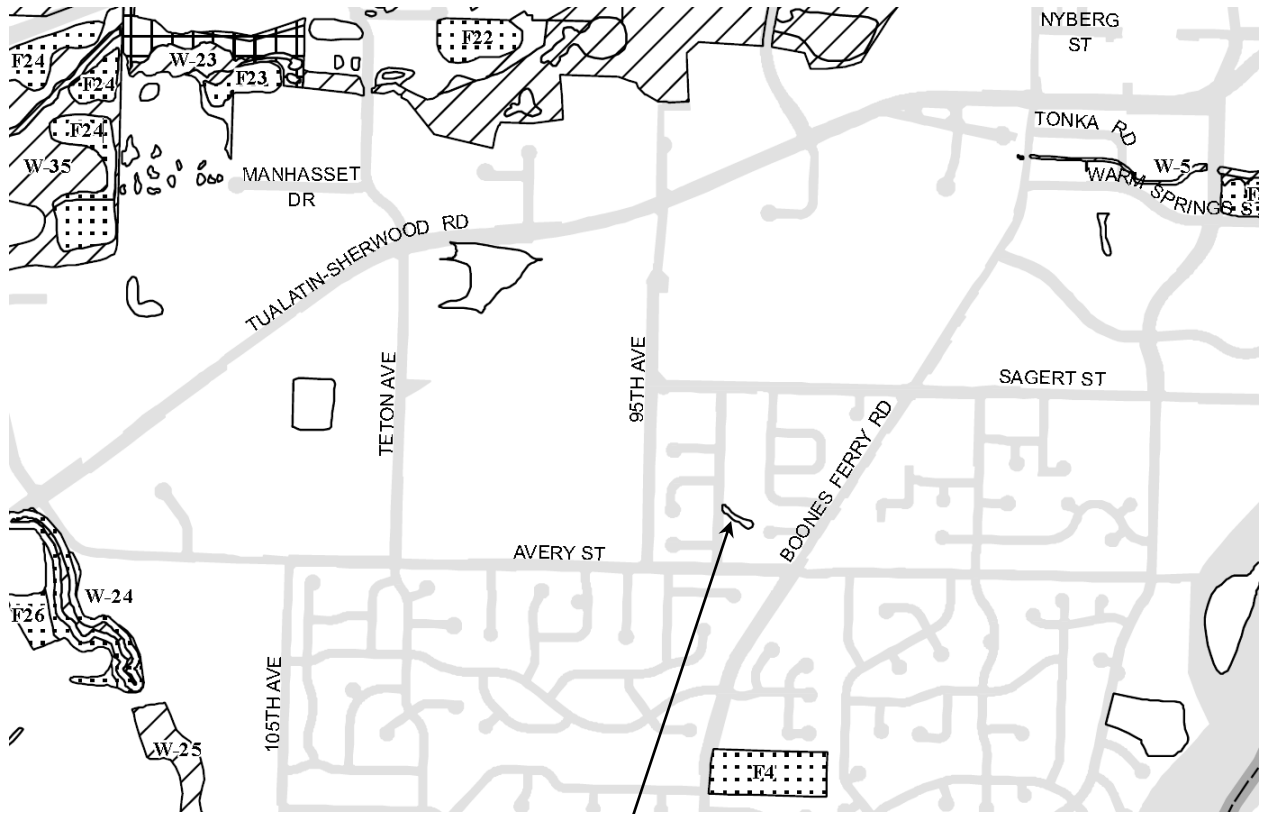
ENGINEERING ♦ SURVEYING ♦ PLANNING

PACIFIC CORPORATE CENTER
 15115 S.W. SEQUOIA PARKWAY, SUITE 150
 TIGARD, OREGON 97224

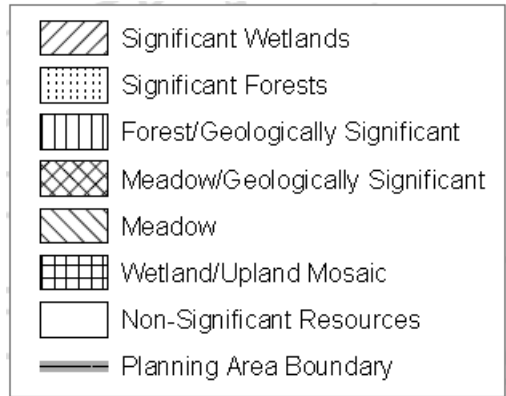
(503) 684-0652
 FAX (503) 624-0167

Map 72-3: Significant Natural Resources

(excerpt with added notation)



Non-Significant
Wetland on
Subject Property





Oregon

John A. Kitzhaber, MD, Governor

April 12, 2013

CPR600/52472

MISSION HOMES NORTHWEST LLC
ATTN JOSH KELSO
PO BOX 1689
LAKE OSWEGO OR 97035

Re: DSL Removal/Fill Permit Application No. 52472-GP
T. 02S, R. 01W, Section 26AB, Tax Lot 3500, 3600,
Tualatin, Washington County

Dear Mr. Kelso:

We have received your application to conduct removal or fill activities in a water of the state. Based on the information provided, the activity is subject to our jurisdiction and a state removal/fill permit is required. The purpose of this letter is to inform you of the results of our initial completeness/eligibility review and explain the permit process. Enclosed is a completeness checklist for your information.

Your application is complete and your fee has been received. This application also qualifies for our General Permit (GP) for Minor Removal-Fill Impacts to Certain Non-Tidal Wetlands. We will initiate circulation of your application to natural resource agencies, adjoining property owners, the city or county planning department, and other interested parties on our mailing list. You may view the comments as they come in and check the status of your application on our website at <http://www.statelandsonline.com>. After a 15-day review period, the public comment period will close.

At the end of the comment period, comments received will be forwarded to you and you will have the opportunity to address any concerns that are raised during the public review process. At that time you may wish to submit additional information, as appropriate, to support your application. A receipt for appropriate mitigation credits will need to be provided before a final decision is made. A permit decision will be rendered on your application within 10 days of the close of the public review period unless you otherwise request to extend that deadline.

Please call me at 503-986-5305 if you have any questions.

Sincerely,

Charles P. Redon
Resource Coordinator
Wetlands and Waterways Conservation Division
Oregon Department of State Lands

CPR:jar

Enclosure

cc: Mike Turaski, Portland Corps of Engineers
Martin Schott, Schott and Associates

*Based on OAR 141-093

93rd/
2241

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregonstatelands.us

State Land Board

John A. Kitzhaber, MD

Governor

Kate Brown

Secretary of State

Ted Wheeler

State Treasurer

Stormwater Management Plan

for

SW 93rd Street

Tualatin, OR

December 4, 2012

Prepared by:

Westlake Consultants, Inc.
15115 SW Sequoia Parkway, Ste. 150
Tigard, OR 97224

Phone: (503) 684-0652

Fax: (503) 624-0157

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- 1.2 Analysis Purpose
- 1.3 Water Quality Calculations
- 1.4 Detention Calculations

2.0 WATER QUALITY CALCULATIONS

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- 2.2 Water Quality Volume
- 2.3 Extended Dry Basin Orifice Sizing
- 2.4 Stormfilter Sizing
- 2.5 Water Quality Manhole Sizing Calculations

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- 3.2 Pre-developed Runoff Rates
- 3.3 Developed Conditions
- 3.4 Developed Runoff Rates
- 3.5 Pond Outlet Design

APPENDICES:

- Appendix A: Soil Map and Hydrologic Group
- Appendix B: Hydrocad Stormwater Modeling Analysis
- Appendix C: Drainage Plan

1.0 PROJECT OVERVIEW

1.1 Introduction

This project is located along SW 93rd Ave across from SW Gertz Lane in Tualatin, Oregon. The site area is 75,139 sq. ft. and contains an existing residential home. The remainder of the site consists of a gravel driveway, lawn and treed areas. There is an existing culvert that outlets to at the south property line. This runoff has created a wetland area that drains to the northwest. The site topography generally slopes from east to west and drains into a wetland area.

This development will provide 8 new residential homes with public and private street improvements. Storm laterals will be provided to each lot and will be directed to a new public storm main. The public storm main will discharge into a new water quality and detention facility located at the northwest corner of the property.

The water quality and detention facility will be designed according to the requirements set forth in Clean Water Services "Design and Construction Standards for Sanitary Sewer and Surface Water Management", R&O 07-20. The facility will be designed to handle the expected runoff from the entire development. The outfall from this facility will be into an existing public storm system in SW 93rd. Ave.

The runoff from the existing culvert that discharges at the south property line will be piped directly to the existing storm system in SW 93rd Ave and will not be directed to the on-site water quality and detention facility.

1.2 Analysis Purpose

The purpose of this preliminary analysis is to determine the following:

1. Water quality treatment design
2. Detention pond sizing

1.3 Water Quality Calculations

For water quality, the system shall treat the total precipitation of 0.36 inches falling in 4 hours with a storm return period of 96 hours. For water quality treatment, the treatment will be completed by an extended dry basin. The water quality volume was calculated to be **827 cubic feet**.

Prior to the water quality facility, a water quality manhole will be constructed. The water quality manhole is sized accordingly to the 25-year peak runoff rate.

1.4 Detention Calculations

The detention requirement states that the developed peak runoff rates for the 2-year, 10-year and 25-year shall not exceed their respective pre-developed peak runoff rates.

The Santa Barbara Urban Hydrograph modeled with a Type 1A storm was used to determine the peak basin runoff during these storm events. The existing soils within the property are classified as SCS Group C and were obtained from USDA maps which are attached. A control manhole structure with an orifice plate will be constructed to achieve allowable discharge rates. Detention volumes were determined for elevations above the water quality storm peak elevation. The total detention volume was found to be **1,504 cubic feet**.

2.0 WATER QUALITY CALCULATIONS

2.1 Total impervious area

Extended Dry Basin

8 lots x 2,640 impervious area per lot = 21,120 sq. ft.
Public street & sidewalk impervious area = 6,437 sq. ft.

Total site impervious area = **27,557 sq. ft.**

2.2 Water Quality Volume

Extended Dry Basin

$$\begin{aligned} \text{WQV (cf)} &= \frac{0.36 \text{ (in)} \times \text{Impervious area (sf)}}{12 \text{ (in/ft)}} \\ &= \frac{0.36 \text{ (in)} \times 27,557 \text{ (sf)}}{12 \text{ (in/ft)}} \\ &= \mathbf{827 \text{ cubic feet}} \end{aligned}$$

2.3 Extended Dry Basin Orifice Sizing

$$D = 24 * [(Q/(C[2gH]^{0.5}) / \pi)]^{0.5}$$

Where: D (in) = diameter of orifice
Q(cfs) = WQV (cf) / (48*60*60)
C=0.62
H(ft) = 2/3 x temporary detention height to centerline of orifice

$$D = 24 * [(0.0048/(0.62[2(32.2)(2.07)]^{0.5}) / \pi)]^{0.5}$$

$$D = 0.35''$$

2.4 Water Quality Manhole Sizing Calculations

WQMH1

Total runoff area = 75,139 sq. ft.
25-year runoff (SBUH Method) = 0.89 cfs.
Sump size = 20 cu. ft./1 cfs = 17.8 cu. ft.
60" diameter MH = 19.63 sq. ft.
Depth of sump = 17.8/19.63 = 0.90' will use 3' as minimum

3.0 DETENTION CALCULATIONS

3.1 Pre-developed Conditions

Site Drainage Basin Area = **75,139 sq. ft.**

Roof Area = 1,678 sq. ft. (CN=98)
 Gravel Roads = 2,659 sq. ft. (CN=89 Group C Soils)
 Grass Cover = 5,728 sq. ft. (CN=79, Group C soils)
 Woods/Grassed Areas = 65,074 sq. ft. (CN=76, Group C soils)

3.2 Pre-developed Runoff Rates

2-year (2.5") = **0.14 cfs**
 10-year (3.3") = **0.35 cfs**
 25-year (4.5") = **0.46 cfs**

3.3 Developed Conditions

Lot impervious area = 2,640 sq. ft./ lot x 8 lots = 21,120 sq. ft. (CN=98)
 New public road/sidewalk = 6,437 sq. ft. (CN=98)
 Landscaped area = 35,294 sq. ft. (CN=74, Group C soils)
 Woods/Grassed Areas = 12,288 sq. ft. (CN=76, Group C soils)

3.4 Developed Runoff Rates

2-year (2.5") = **0.38 cfs**
 10-year (3.3") = **0.72 cfs**
 25-year (4.5") = **0.89 cfs**

3.5 Pond Outlet Design

Storm Event	Peak Inflow (CFS)	Peak Outflow (CFS)	Allowable Outflow (CFS)	Orifice Size	Invert Elevation	Peak Stage	Storage * (cu.ft.)
2-year	0.38	0.14	0.14	3.4"	202.07'	202.42'	455
10-year	0.72	0.35	0.35	2.2"	202.42'	202.93'	1,105
25-year	0.89	0.43	0.46	—	—	203.24'	1,504





















* Storage does not include water quality volume. 2-year orifice set at top of water quality stage.

Appendix A:
Soil Map and Hydrologic Group

Soil Map—Washington County, Oregon



MAP LEGEND

-  Area of Interest (AOI)
-  Soil Map Units
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

MAP INFORMATION

Map Scale: 1:3,000 if printed on A size (8.5" x 11") sheet.
 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 accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 10N NAD83

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

Soil Survey Area: Washington County, Oregon
 Survey Area Data: Version 10, Aug 20, 2012

Date(s) aerial images were photographed: 8/4/2005

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.

-  Very Stony Spot
-  Wet Spot
-  Other
- Special Line Features**
-  Gully
-  Short Steep Slope
-  Other
- Political Features**
-  Cities
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Map Unit Legend

Washington County, Oregon (OR067)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
37B	Quatama loam, 3 to 7 percent slopes	2.2	100.0%
Totals for Area of Interest		2.2	100.0%

Water Features

Washington County, Oregon

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft		Ft				
37B: Quatama	C	---	January	2.0-3.0	>6.0	---	---	None	---	None
			February	2.0-3.0	>6.0	---	---	None	---	None
			March	2.0-3.0	>6.0	---	---	None	---	None
			April	2.0-3.0	>6.0	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None

This report shows only the major soils in each map unit. Others may exist.

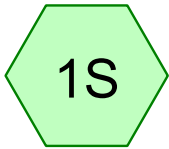
Tabular Data Version: 8

Tabular Data Version Date: 08/20/2012

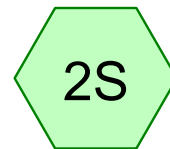
Page 1 of 1



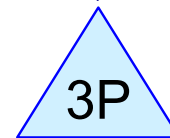
Appendix B:
HydroCAD Stormwater Modeling
Analysis



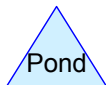
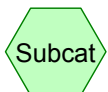
Existing Conditions



Proposed Conditions



Dry Basin



Subcatchment 1S: Existing Conditions

Runoff = 0.14 cfs @ 8.20 hrs, Volume= 0.085 af, Depth> 0.59"

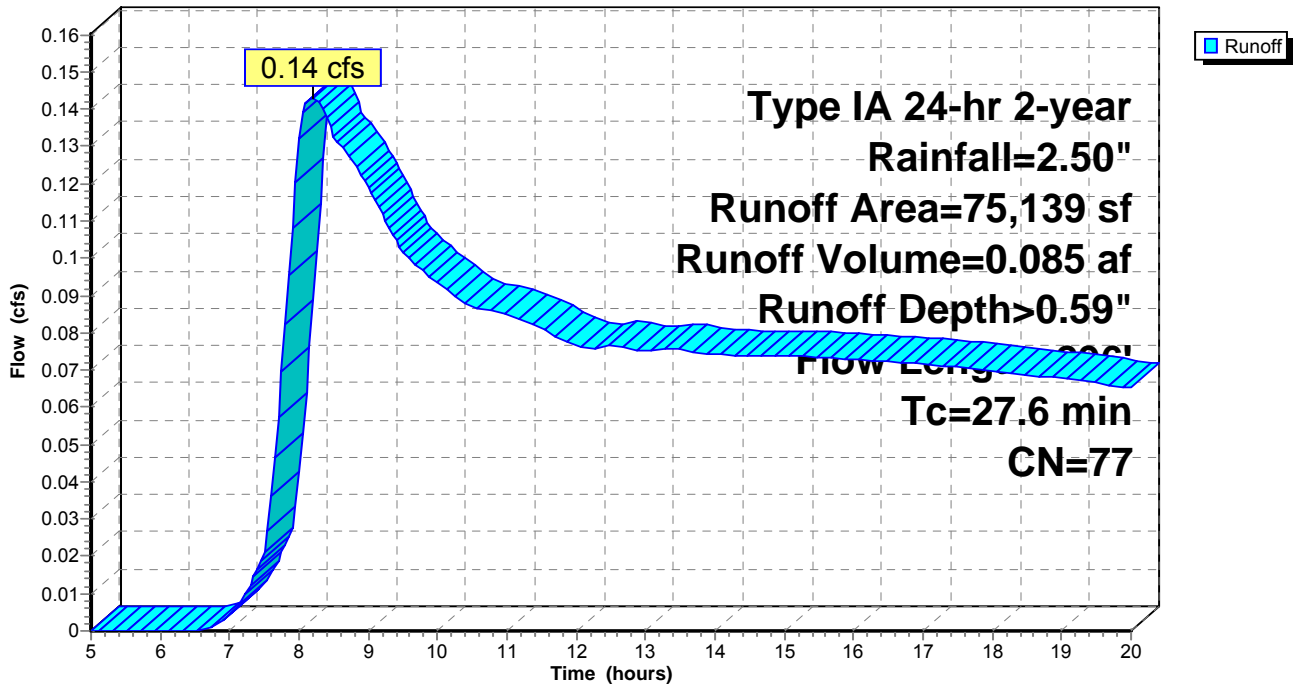
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-year Rainfall=2.50"

Area (sf)	CN	Description
1,678	98	Paved parking & roofs
2,659	89	Gravel roads, HSG C
5,728	79	50-75% Grass cover, Fair, HSG C
65,074	76	Woods/grass comb., Fair, HSG C
75,139	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	183	0.0530	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.50"
0.9	113	0.0180	2.0		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
27.6	296	Total			

Subcatchment 1S: Existing Conditions

Hydrograph



Subcatchment 2S: Proposed Conditions

Runoff = 0.38 cfs @ 8.00 hrs, Volume= 0.128 af, Depth> 0.89"

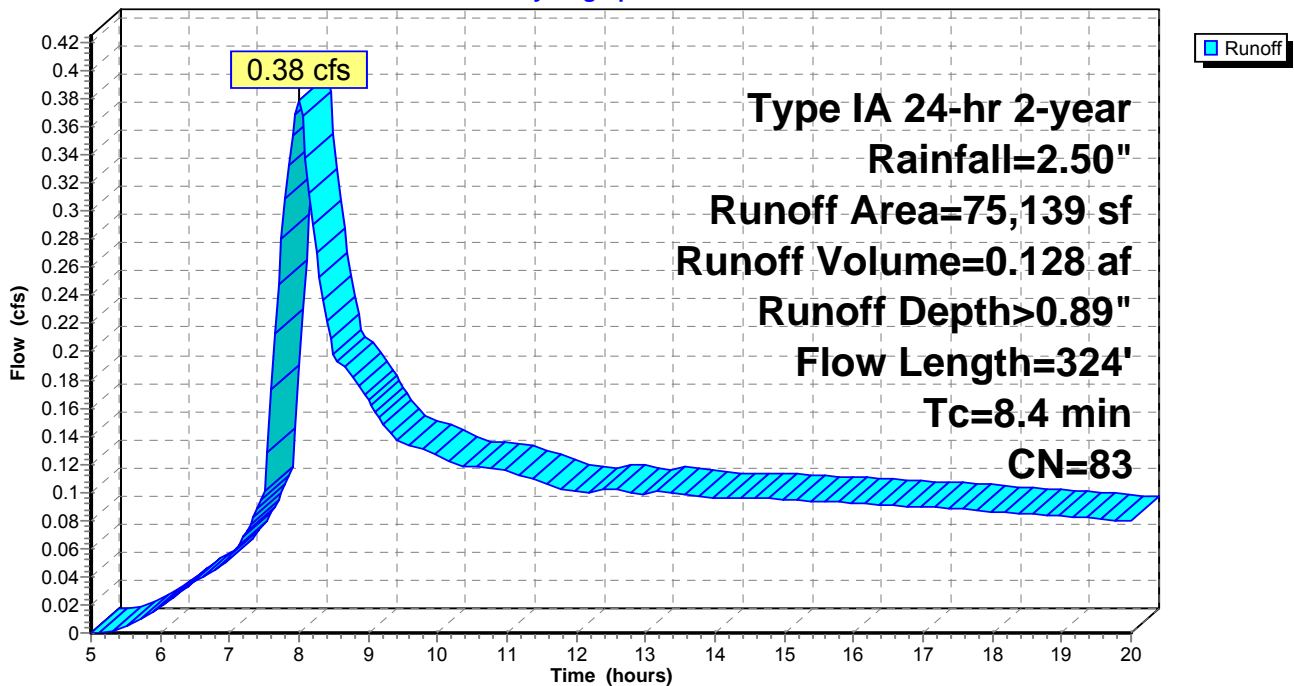
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-year Rainfall=2.50"

Area (sf)	CN	Description
21,120	98	8 lots @ 2,640 sf.lot
6,437	98	Paved parking & roofs
12,288	76	Woods/grass comb., Fair, HSG C
35,294	74	>75% Grass cover, Good, HSG C
75,139	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
1.4	160	0.0500	1.9		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
0.6	114	0.0050	3.2	2.52	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.4	324	Total			

Subcatchment 2S: Proposed Conditions

Hydrograph



93rd & Tonopah

Type IA 24-hr 2-year Rainfall=2.50"

Prepared by Westlake Consultants, Inc

Page 4

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12/5/2012

Pond 3P: Dry Basin

Inflow Area = 1.725 ac, Inflow Depth > 0.89" for 2-year event
 Inflow = 0.38 cfs @ 8.00 hrs, Volume= 0.128 af
 Outflow = 0.14 cfs @ 9.30 hrs, Volume= 0.102 af, Atten= 62%, Lag= 78.4 min
 Primary = 0.14 cfs @ 9.30 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 202.42' @ 9.30 hrs Surf.Area= 1,129 sf Storage= 1,282 cf
 Plug-Flow detention time= 165.5 min calculated for 0.102 af (80% of inflow)
 Center-of-Mass det. time= 78.4 min (816.2 - 737.9)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,668 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	553	0	0
202.00	932	743	743
203.50	1,635	1,925	2,668

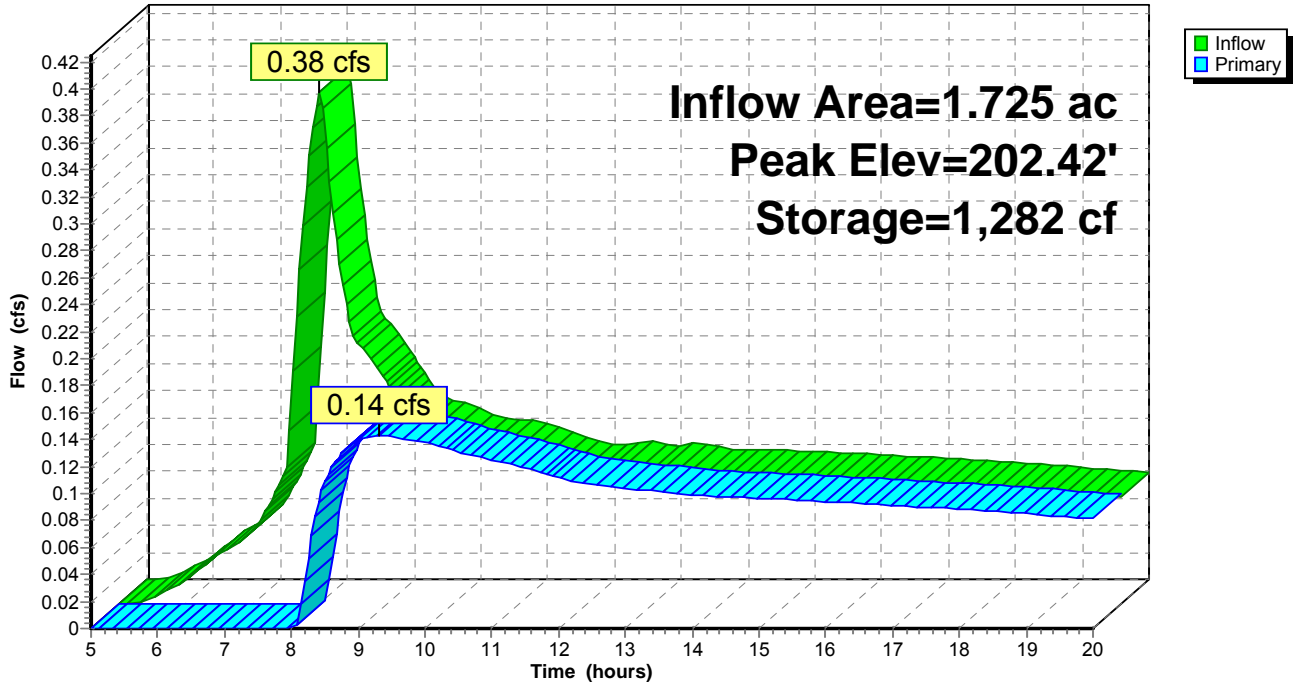
Device	Routing	Invert	Outlet Devices
#1	Primary	202.07'	3.4" Vert. Orifice/Grate C= 0.620
#2	Primary	202.42'	2.2" Vert. Orifice/Grate C= 0.620

Primary OutFlow Max=0.14 cfs @ 9.30 hrs HW=202.42' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.14 cfs @ 2.3 fps)
- 2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Dry Basin

Hydrograph



Subcatchment 1S: Existing Conditions

Runoff = 0.35 cfs @ 8.08 hrs, Volume= 0.165 af, Depth> 1.15"

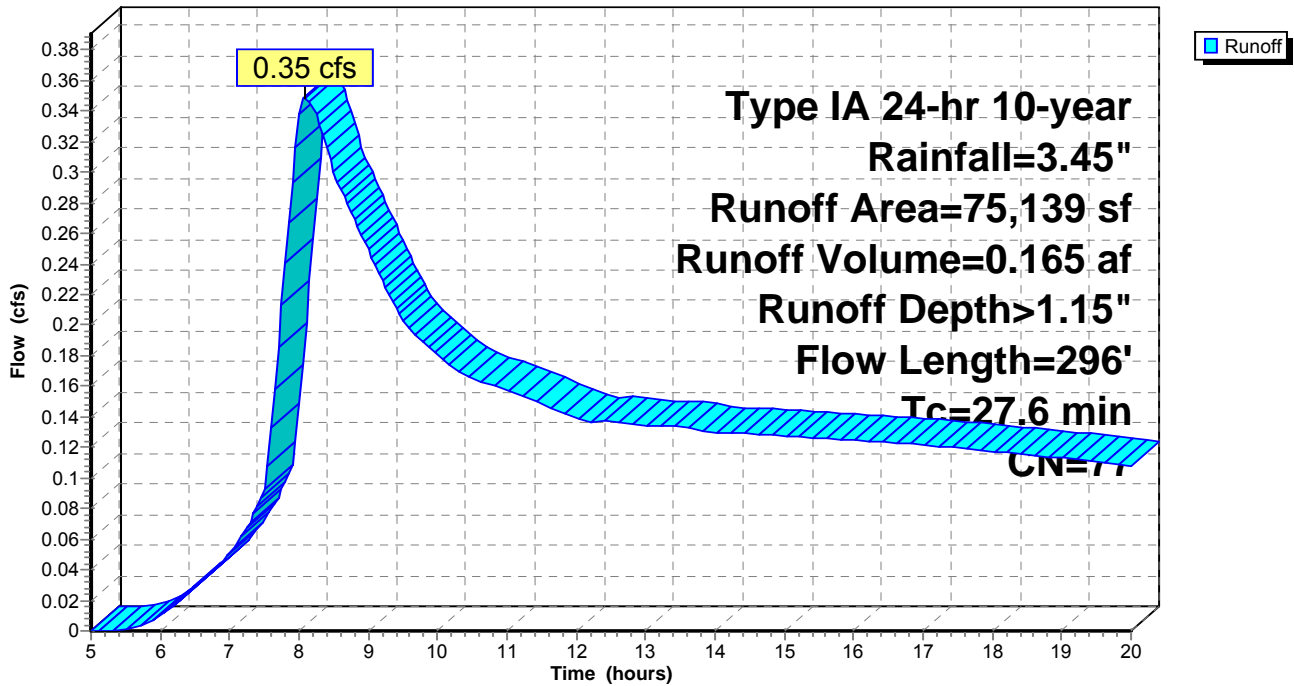
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 10-year Rainfall=3.45"

Area (sf)	CN	Description
1,678	98	Paved parking & roofs
2,659	89	Gravel roads, HSG C
5,728	79	50-75% Grass cover, Fair, HSG C
65,074	76	Woods/grass comb., Fair, HSG C
75,139	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	183	0.0530	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.50"
0.9	113	0.0180	2.0		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
27.6	296	Total			

Subcatchment 1S: Existing Conditions

Hydrograph



Subcatchment 2S: Proposed Conditions

Runoff = 0.72 cfs @ 7.99 hrs, Volume= 0.223 af, Depth> 1.55"

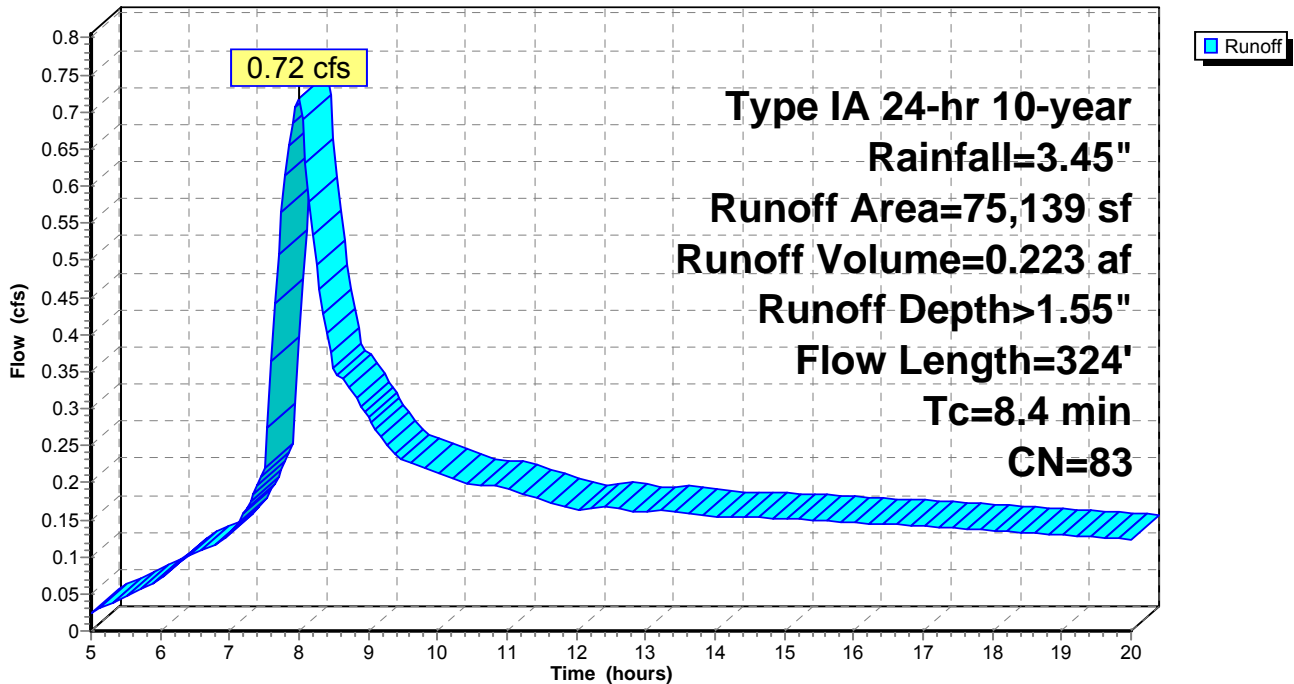
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-year Rainfall=3.45"

Area (sf)	CN	Description
21,120	98	8 lots @ 2,640 sf.lot
6,437	98	Paved parking & roofs
12,288	76	Woods/grass comb., Fair, HSG C
35,294	74	>75% Grass cover, Good, HSG C
75,139	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
1.4	160	0.0500	1.9		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
0.6	114	0.0050	3.2	2.52	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.4	324	Total			

Subcatchment 2S: Proposed Conditions

Hydrograph



Pond 3P: Dry Basin

Inflow Area = 1.725 ac, Inflow Depth > 1.55" for 10-year event
 Inflow = 0.72 cfs @ 7.99 hrs, Volume= 0.223 af
 Outflow = 0.35 cfs @ 8.52 hrs, Volume= 0.195 af, Atten= 51%, Lag= 32.1 min
 Primary = 0.35 cfs @ 8.52 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 202.93' @ 8.52 hrs Surf.Area= 1,367 sf Storage= 1,932 cf
 Plug-Flow detention time= 118.7 min calculated for 0.194 af (87% of inflow)
 Center-of-Mass det. time= 59.1 min (770.2 - 711.1)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,668 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	553	0	0
202.00	932	743	743
203.50	1,635	1,925	2,668

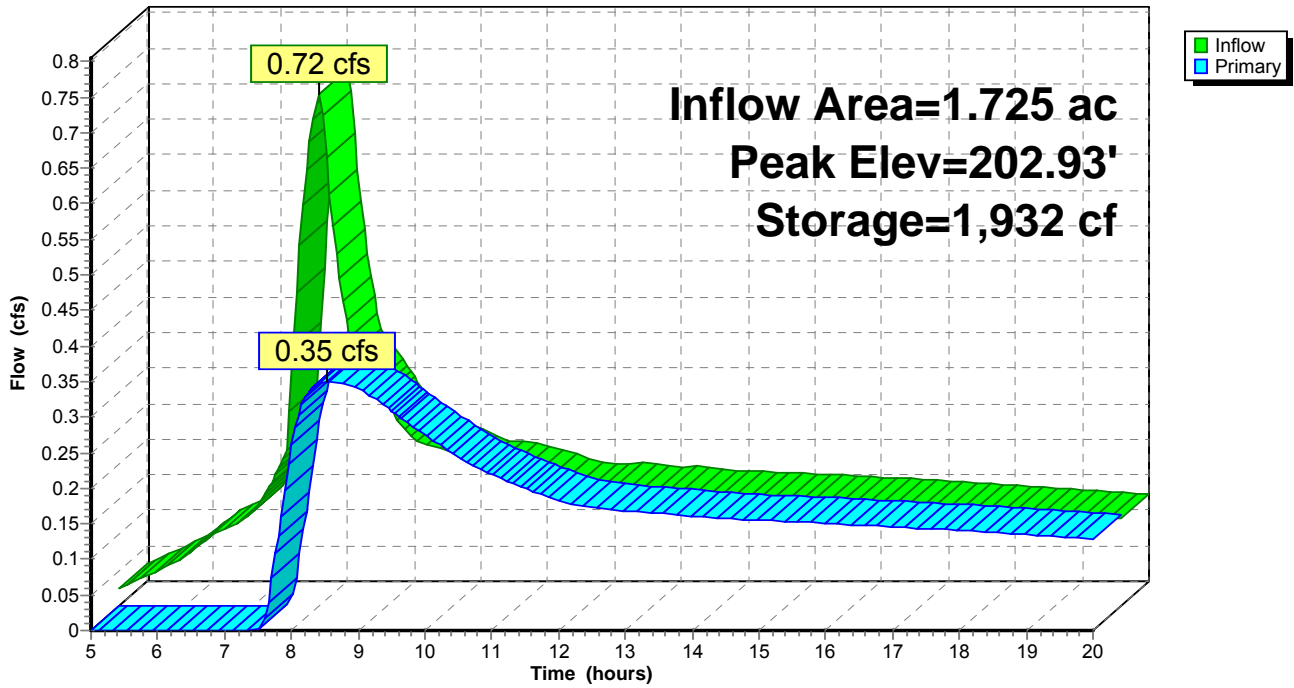
Device	Routing	Invert	Outlet Devices
#1	Primary	202.07'	3.4" Vert. Orifice/Grate C= 0.620
#2	Primary	202.42'	2.2" Vert. Orifice/Grate C= 0.620

Primary OutFlow Max=0.35 cfs @ 8.52 hrs HW=202.93' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.27 cfs @ 4.2 fps)
- 2=Orifice/Grate (Orifice Controls 0.08 cfs @ 3.2 fps)

Pond 3P: Dry Basin

Hydrograph



Subcatchment 1S: Existing Conditions

Runoff = 0.46 cfs @ 8.07 hrs, Volume= 0.207 af, Depth> 1.44"

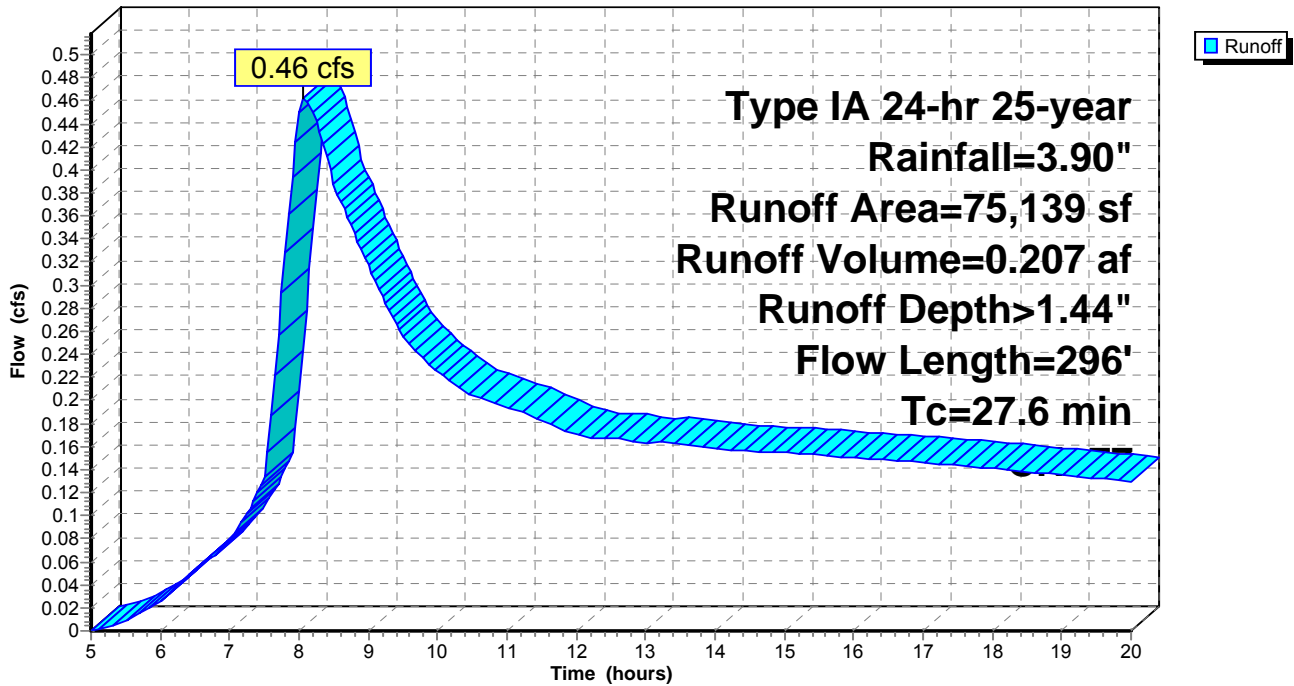
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-year Rainfall=3.90"

Area (sf)	CN	Description
1,678	98	Paved parking & roofs
2,659	89	Gravel roads, HSG C
5,728	79	50-75% Grass cover, Fair, HSG C
65,074	76	Woods/grass comb., Fair, HSG C
75,139	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	183	0.0530	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.50"
0.9	113	0.0180	2.0		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
27.6	296	Total			

Subcatchment 1S: Existing Conditions

Hydrograph



Subcatchment 2S: Proposed Conditions

Runoff = 0.89 cfs @ 7.99 hrs, Volume= 0.271 af, Depth> 1.88"

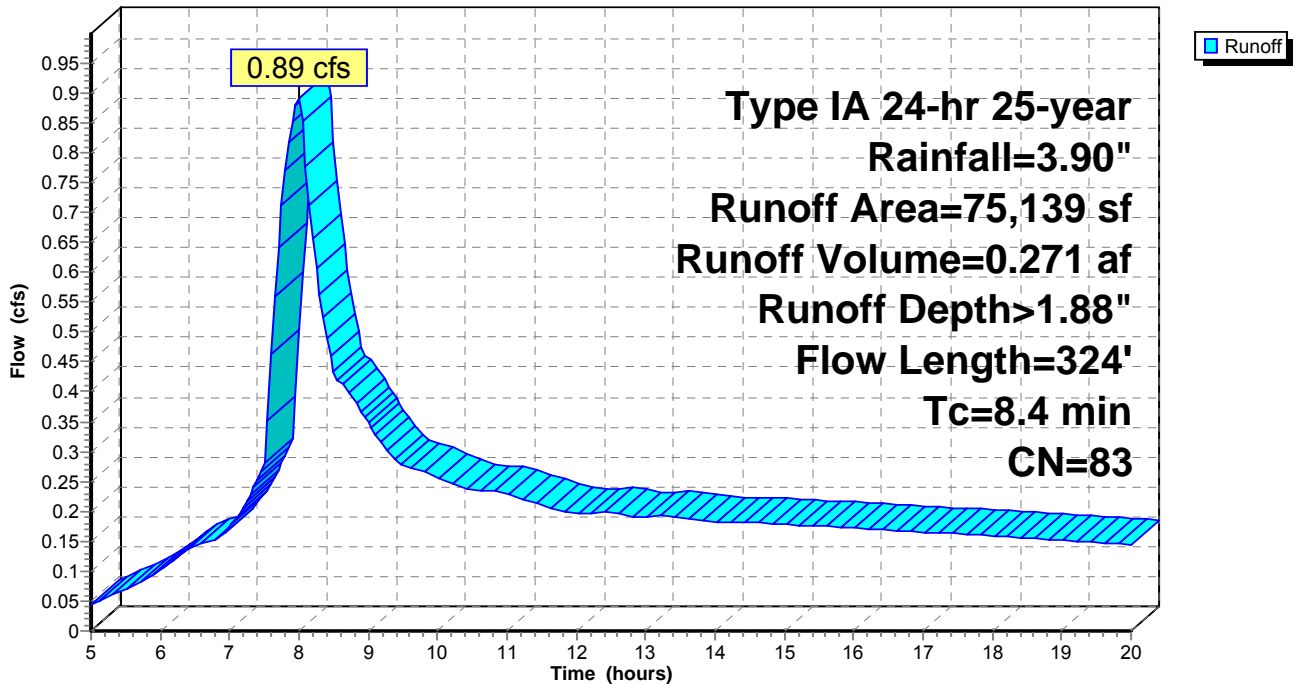
Runoff by SBUH method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-year Rainfall=3.90"

Area (sf)	CN	Description
21,120	98	8 lots @ 2,640 sf.lot
6,437	98	Paved parking & roofs
12,288	76	Woods/grass comb., Fair, HSG C
35,294	74	>75% Grass cover, Good, HSG C
75,139	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
1.4	160	0.0500	1.9		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
0.6	114	0.0050	3.2	2.52	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.4	324	Total			

Subcatchment 2S: Proposed Conditions

Hydrograph



93rd & Tonopah

Type IA 24-hr 25-year Rainfall=3.90"

Prepared by Westlake Consultants, Inc

Page 12

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12/5/2012

Pond 3P: Dry Basin

Inflow Area = 1.725 ac, Inflow Depth > 1.88" for 25-year event
 Inflow = 0.89 cfs @ 7.99 hrs, Volume= 0.271 af
 Outflow = 0.43 cfs @ 8.52 hrs, Volume= 0.241 af, Atten= 52%, Lag= 31.8 min
 Primary = 0.43 cfs @ 8.52 hrs, Volume= 0.241 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 203.24' @ 8.52 hrs Surf.Area= 1,512 sf Storage= 2,331 cf
 Plug-Flow detention time= 108.9 min calculated for 0.241 af (89% of inflow)
 Center-of-Mass det. time= 55.7 min (758.8 - 703.1)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,668 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	553	0	0
202.00	932	743	743
203.50	1,635	1,925	2,668

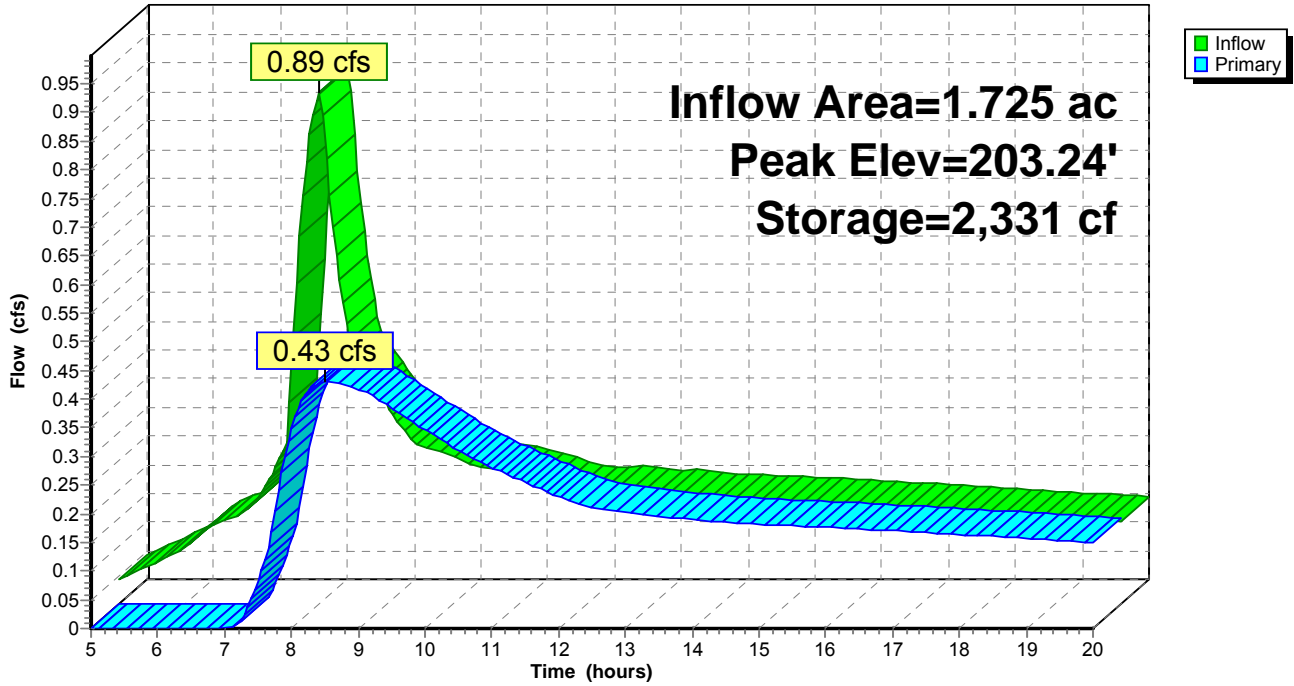
Device	Routing	Invert	Outlet Devices
#1	Primary	202.07'	3.4" Vert. Orifice/Grate C= 0.620
#2	Primary	202.42'	2.2" Vert. Orifice/Grate C= 0.620

Primary OutFlow Max=0.43 cfs @ 8.52 hrs HW=203.24' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.32 cfs @ 5.0 fps)
 2=Orifice/Grate (Orifice Controls 0.11 cfs @ 4.2 fps)

Pond 3P: Dry Basin

Hydrograph



93rd & Tonopah

Type IA 24-hr 2-year Rainfall=2.50"

Prepared by Westlake Consultants, Inc

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12/3/2012

Stage-Area-Storage for Pond 3P: Dry Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
201.00	553	0
201.05	572	37
201.10	591	74
201.15	610	111
201.20	629	148
201.25	648	186
201.30	667	223
201.35	686	260
201.40	705	297
201.45	724	334
201.50	743	371
201.55	761	408
201.60	780	445
201.65	799	483
201.70	818	520
201.75	837	557
201.80	856	594
201.85	875	631
201.90	894	668
201.95	913	705
202.00	932	743
202.05	955	807
202.10	979	871
202.15	1,002	935
202.20	1,026	999
202.25	1,049	1,063
202.30	1,073	1,128
202.35	1,096	1,192
202.40	1,119	1,256
202.45	1,143	1,320
202.50	1,166	1,384
202.55	1,190	1,448
202.60	1,213	1,513
202.65	1,237	1,577
202.70	1,260	1,641
202.75	1,284	1,705
202.80	1,307	1,769
202.85	1,330	1,833
202.90	1,354	1,898
202.95	1,377	1,962
203.00	1,401	2,026
203.05	1,424	2,090
203.10	1,448	2,154
203.15	1,471	2,219
203.20	1,494	2,283
203.25	1,518	2,347
203.30	1,541	2,411
203.35	1,565	2,475
203.40	1,588	2,539
203.45	1,612	2,604
203.50	1,635	2,668

← Water quality volume = 827 ft³ at
elevation = 202.07

Appendix C: Drainage Plan

SW TONOPAH STREET

ORIFICE CONTROL STRUCTURE

EXTENDED DRY BASIN FOR WATER QUALITY TREATMENT & DETENTION VOLUME=2,720 CU. FT.

SW GERTZ LANE

SW 93RD AVENUE

N89°45'39"E 219.05'

N00°33'00"E 344.68'

N89°48'56"E 217.11'

LOT 1

LOT 2

LOT 3

LOT 4

LOT 8

LOT 6

LOT 5

LOT 7

12" STORM PIPE

4" STORM LATERALS TO EACH LOT

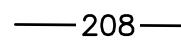



CATCH BASIN

WATER QUALITY MANHOLE

12" STORM PIPE

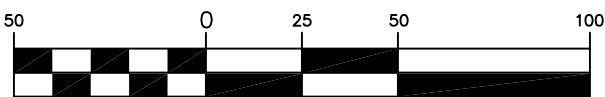
SAMH
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 IE 8°(N)=188.89
 IE 8°(S)=196.91
 IE 8°(W)=197.01
 SD
 SS
 SAMH
 RIM=204.80
 IE 8°(N)=196.91
 IE 8°(S)=197.01
 SD
 SS
 SAMH
 RIM=212.28
 IE 8°(N)=201.86
 IE 8°(S)=204.49
 IE 8°(W)=202.03
 SD
 SS
 SAMH
 RIM=217.35
 IE 3.6°(N)=208.53
 IE 3.6°(S)=208.62
 IE 12°(E)=210.21
 IE 12°(W)=213.83
 SD
 SS
 SAMH
 RIM=216.98
 IE 12°(W)=214.

LEGEND

-  208 PROPOSED CONTOUR
-  WETLAND BOUNDARY
-  WETLAND
-  STORM PIPE



GRAPHIC SCALE



(IN FEET)
1 IN = 50 FT

SW 93RD STREET
STORMWATER PLAN

DATE	11/26/2012
DRAWN BY	APN
CHECKED BY	APN
REVISIONS	
JOB NO.	2312-03

WESTLAKE
CONSULTANTS INC.

ENGINEERING ♦ SURVEYING ♦ PLANNING

PACIFIC CORPORATE CENTER
15115 S.W. SEQUOIA PARKWAY, SUITE 150 (503) 684-0652
TIGARD, OREGON 97224 FAX (503) 624-0157