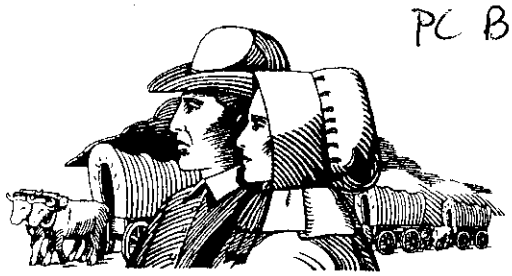
PC Binder

CITY OF OREGON CITY

PLANNING COMMISSION

320 WARNER MILNE ROAD OREGON CITY, OREGON 97045
TEL (503) 657-0891 FAX (503) 657-7892



AGENDA

City Commission Chambers - City Hall
September 13, 2004 at 7:00 P.M.

The 2004 Planning Commission Agendas, including Staff Reports and Minutes, are available on the Oregon City Web Page (www.orcity.org) under PLANNING.

PLANNING COMMISSION MEETING

1. **CALL TO ORDER**

2. **PUBLIC COMMENT ON ITEMS NOT LISTED ON AGENDA**

3. **APPROVAL OF MINUTES:** *None*

4. **HEARINGS:**

ZC 04-02 ***(Quasi-Judicial Hearing)***, Applicant: Tom Gentry – Gentry Homes, LLC. Requesting approval of a Zone Change from R-10 single-family dwelling district to R-8 single-family dwelling district. The sites are identified as Clackamas County Map 3S-2E-7DB, Tax Lots 6300, 6400 and 6500 and 3S-2E-7A, Tax Lot 2200. The sites are located at 19431, 19411 and 19391 Leland Road and 19260 Pease Road.

TP 04-13 ***(Quasi-Judicial Hearing)***, Applicant: Tom Gentry – Gentry Homes, LLC. Requesting approval of a 31-lot R-8 single-family dwelling district subdivision. The sites are identified as Clackamas County Map 3S-2E-7DB, Tax Lots 6300, 6400 and 6500 and 3S-2E-7A, Tax Lot 2200. The sites are located at 19431, 19411 and 19391 Leland Road and 19260 Pease Road.

WR 04-11 ***(Quasi-Judicial Hearing)***, Applicant: Tom Gentry – Gentry Homes, LLC. Requesting approval of a Water Resource determination in association with Planning File TP 04-13, a 31-lot subdivision request. The sites are identified as Clackamas County Map 3S-2E-7DB, Tax Lots 6300, 6400 and 6500 and 3S-2E-7A, Tax Lot 2200. The sites are located at 19431, 19411 and 19391 Leland Road and 19260 Pease Road.

5. **ADJOURN**

NOTE: HEARING TIMES AS NOTED ABOVE ARE TENTATIVE. FOR SPECIAL ASSISTANCE DUE TO DISABILITY, PLEASE CALL CITY HALL, 657-0891, 48 HOURS PRIOR TO MEETING DATE.

CITY OF OREGON CITY

Planning Commission

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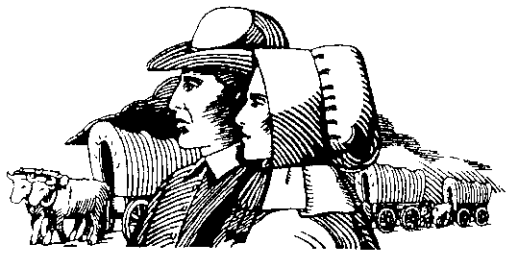

FILE NO.: ZC 04-02

APPLICATION TYPE: Quasi-Judicial/Type IV

Complete: June 30, 2004
120-Day: November 26, 2004

HEARING DATE: September 13, 2004
7:00 p.m., City Hall
320 Warner Milne Road
Oregon City, OR 97045

APPLICANT: Gentry Homes, LLC
Thomas Gentry
P.O. Box 1009
Clackamas, Oregon 97015

OWNERS:

Pat Henderson
19431 Leland Road
Oregon City, Oregon 97045

Harry & Ethel Montgomery
19411 Leland Road
Oregon City, Oregon 97045

Stan & Kathleen Raney
19260 Pease Road
Oregon City, Oregon 97045

Leroy Manselle
19391 Leland Road
Oregon City, Oregon 97045

REQUEST: Zone Change from "R-10" Single-Family to "R-8" Single-Family.

LOCATION: The sites are identified as Clackamas County Map 3-2E-07DB, Tax Lots 6300, 6400 & 6500 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at 19391, 19411, & 19431Leland Road and 19260 Pease Road.

REVIEWER: Christina Robertson-Gardiner, Associate Planner
Jay Toll, Senior Engineer

DECISION: Recommended Approval

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final.

I. BACKGROUND:

The applicant is requesting a zone change from R-10 Single-Family Dwelling to R-8 Single-Family Dwelling for a parcel of approximately 8.27-acres identified as Map 3-2E-07DB, Tax Lots 6500, 6400 & 6300 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at 19431, 19411, & 19391 Leland Road and 19260 Pease Road. (Exhibit 1). The site is nearly flat and is occupied by single family dwellings. Trees on the site are located along S. Pease Road frontage and in the vicinity of the existing residences on the Leland Road frontage. The applicant has indicated that the current zoning designation of parcels within several hundred feet of the subject site and within the Urban Growth Boundary are zoned R-8 Single-Family Dwelling District and R 3.5 two-family dwelling district. The applicant has submitted for a Subdivision (Planning File TP 04-13) with a Water Resource Review (WR 04-11).

II. BASIC FACTS:

1. **Zoning/Permitted Use:** The property is currently zoned "R-10" Single-Family Dwelling District and is designated as "LR" Low Density Residential in the City's Comprehensive Plan. The applicant has applied for a Zone Change to "R-8" Single-Family Dwelling District for the property which is permitted under the "LR" Land Use designation.

2. **Project Description:** The applicant has applied for a Zone Change from "R-10" Single-Family, which permits 4.4 dwelling units per acre to "R-8" Single-Family, which permits 5.5 dwelling units per acre for the site.

3. **Surrounding Uses/Zoning:**
   - **North:** Directly north of the site is the Gentry Highland I subdivision, which is zoned "R-8" Single-Family Residential and Coho Court subdivision, currently being built, which is also R-8
   - **South:** South of the subject site is part outside the Oregon City City Limits and the Urban Growth Boundary. A second parcel just recently brought into the City limits is zoned R3.5.
   - **West:** West of the site are the R-8 Subdivisions of Pease Road Estates and South Hampton Estates and some under developed R-10 homes.
   - **East:** East of the site is Leland Run, a Planned Unit Development (PUD), and Wesley Lynn Park.

4. **Comments:** Notice of this proposal was sent to property owners within three hundred feet of the subject property and various City departments and other agencies regarding the proposed development. David Evans and Associates, which performed the Traffic Analysis for the site, indicated that the impacts associated with a change from R-10 to R-8 are not expected to substantially affect the planned 20-year transportation system (Exhibit 3b). Comments were also received from the Oregon City Public Works Department (Exhibit 3c). No Public comments were received.

   The comments received were incorporated into the analysis and findings sections below.

III. DECISION-MAKING CRITERIA:

Chapter 17.68, "Changes and Amendments"

(a) **17.68.010 Initiation of the amendment.**

A text amendment to this title or the comprehensive plan, or an amendment to the zoning map or the comprehensive plan map, may be initiated by:

A. A resolution request by the commission;

B. An official proposal by the planning commission;

C. An application to the planning division presented on forms and accompanied by information prescribed by the planning commission.

All requests for amendment or change in this title shall be referred to the planning commission. (Ord. 91-1007 §1(part), 1991: prior code §11-12-1)

Finding: **Initiated.** The applicant, Gentry Homes LLC, submitted a complete application to the planning division, thereby initiating the amendment in accordance with 17.68.010.C. The narrative information and application form are attached as Exhibits 2 and 5. The application was deemed complete on June 30, 2004

(b) **17.68.020 Criteria.**

The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.

Finding: **Complies.** Consistency with comprehensive plan policies and goals is addressed in Section III.B on page 6 of this staff report.

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Water

Finding: **Complies.** There are existing 12-inch Oregon City water mains in Leland Road and Pease Road. There are existing fire hydrants at the north corner of the intersection of Pease Road at Crisp Drive, at the north corner of the intersection of Pease Road at Riverhead Parkway, approximately 135 feet Northeast of the site on the southeastern side of Pease Road, and at the east corner of the intersection of Leland Road at Carmelita Drive. Based on the information and comments from the City's engineering and public works departments during the pre-application conference, there is sufficient capacity in the existing system to provide water service to the site at the densities allowed under the R-8 zone.

Sewer

Finding: **Complies.** There are existing 8-inch Oregon City gravity sanitary sewer mains in Leland Road, Pease Road, and Kafton Terrace. There is an existing sanitary sewer force main in Pease Road. The Pease Road pump station is located on the northwest side of Pease Road approximately 840 feet Southwest of the project site. Based on the information and comments from the City's engineering and public works departments during the pre-application conference, there is sufficient capacity in the existing system to provide sanitary service to the site at the densities allowed under the R-8 zone.

Storm Drainage

Finding: **Complies.** The applicant has proposed to construct a storm facility on the subject site that will detain and treat on-site storm water and release the treated water into the creek to the west of the site.

Transportation

Finding: **Complies.** The applicant submitted a Traffic Impact Study (TIS) dated July 2004 for the proposed development (Exhibit 10). John Replinger, Oregon City Consulting Engineer, found that the TIS does not fully address the city's requirements and needs to be supplemented for the city to finalize the evaluation of the impacts of the proposed development. However, based on the information provided, Mr. Replinger considers it unlikely that the supplemental information identified in his September 3, 2004 letter (Exhibit 7) would lead to the need for any mitigation measures, off-site improvements, or an alteration of the subdivision layout.

The modest increase of a zone change from R-10 to R-8 is not expected to substantially affect the planned 20-year transportation system identified within the City's TSP. Additional future analysis for the zone change is not recommended and there is no reason to deny the requested zone change base on traffic impacts. The incremental impact from additional units should be captured under SDC assessments.

Schools

Finding: **Complies.** A transmittal requesting comments was sent to the Oregon City School District concerning this application on June 30, 2004. No comments were received. The applicant had not spoken with the superintendent of schools, but indicates that the increased students projected below are expected to have minimal to no impact upon the school district.

Using a commonly accepted multiplier of 0.36 elementary students per single-family dwelling unit, the proposed development at the R-8 zoning designation would be expected to generate approximately eleven additional elementary students, two additional students than the R-10 zoning designation.

Using 0.10 middle school students and 0.08 high school students per single-family dwelling unit, the proposed development at the R-8 zoning designation would be expected to generate approximately one additional middle school and one additional high school student than the R-10 zoning designation.

Police and Fire

Finding: **Complies.** Transmittals were sent to the Fire department and the Oregon City Police department concerning this application. No comments were received.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Finding: **Complies.** This criterion was addressed above.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment. (Ord. 91-1007 §1(part), 1991: prior code §11-12-2)

Finding: **Complies.** The applicant turned in the request for zone change prior to the adoption of the new Comprehensive Plan, therefore the 1982 Oregon City Comprehensive Plan is the guiding document for the zone change application. The Comprehensive Plan implements the statewide planning goals on a local level. The acknowledged Comprehensive Plan includes specific goals and policies that apply to the proposed zone change. Therefore, it is not necessary to address the statewide planning goals in response to this criterion. The Comprehensive Plan goals and policies are addressed in Section B on page 6 of this staff report.

17.68.025 Zoning changes for land annexed into the city.

A. Notwithstanding any other section of this chapter, when property is annexed into the city from the city/county dual interest area . . .
B. Applications for these rezonings . . .

Finding: The subject site is within the city limits. This criterion is not applicable.

17.68.030 Public hearing.

A public hearing shall be held pursuant to standards set forth in Chapter 17.50.

A. Quasi-judicial reviews shall be subject to the requirements in Sections 17.50.210 through 17.50.250. (Note: the section numbers cited in the Code are incorrect and should be Sections 17.50.120 through .160.)

B. Legislative reviews shall be subject to the requirements in Section 17.50.260. (Note: the section number cited in the Code is incorrect; it should be 17.50.170.) *(Ord. 91-1007 §1(part), 1991: prior code §11-12-3)*

Finding: **Complies.** According to Section 17.50.030 of the Code, zone changes and plan amendments are reviewed through a Type IV process. According to Section 17.50.030.D, "Type IV decisions include only quasi-judicial plan amendments and zone changes." Therefore, the requirements of Sections 17.50.120 through .160 apply.

The applicant attended a pre-application conference (PA 04-06) with City staff on May 15, 2002. Transmittals regarding the proposed development plan were mailed on March 16, 2004 to the CICC Chairperson, as this area is not inside a recognized Neighborhood Association.

The applicant submitted the application for a subdivision on July 9, 2004. The applicant, submitted for a zone change on June 2, 2004. The application was deemed complete on June 30, 2004. The Planning Division scheduled the first evidentiary hearing, before the Oregon City Planning Commission, for September 13, 2004. The second hearing, should the Planning Commission recommend approval, is scheduled for October 6, 2004 before the Oregon City City Commission. Notice of the hearing was issued on June 30, 2004 to properties within 300 feet, the hearing was noticed in the Clackamas Review on July 14, 2004, and the property was posted on August 17, 2004, more than 21 days prior to the hearing, in accordance with Section 17.50.090(B).

This staff report has been prepared in accordance with 17.50.120.C.

The hearings shall be conducted in accordance with the requirements of Section 17.50.120, and the review and decision in accordance with Sections 17.50.130 through .160.

17.68.040 Approval by the commission

If the planning commission approves such request or application for an amendment, or change, it shall forward its findings and recommendation to the city commission for action thereon by that body. (Ord. 91-1007 §1(part), 1991: prior code §11-12-4)

Finding: **Complies.** If the Planning Commission approves the applicant's request, the City Commission shall review its findings and recommendations at a public hearing. That City Commission public hearing has been scheduled for October 6, 2004

17.68.050 Conditions.

In granting a change in zoning classification to any property, the commission may attach such conditions and requirements to the zone change as the commission deems necessary in the public interest, in the nature of, but not limited to those listed in Section 17.56.010:

A. Such conditions and restrictions shall thereafter apply to the zone change;

B. Where such conditions are attached, no zone change shall become effective until the written acceptance of the terms of the zone change ordinance as per Section 17.50- .330. (Ord. 91-1007 §1(part), 1991: prior code §11-12-5)

Finding: Staff has not recommend any Conditions of Approval at this time. Conditions of Approval would be attached to any proposed development of this site should it be found necessary. This section is not applicable.

17.68.060 Filing of an application

Applications for amendment or change in this title shall be filed with the planning division on forms available at City Hall. At the time of filing an application, the applicant shall pay the sum listed in the fee schedule in Chapter 17.50. (Ord. 91-1007 §1(part), 1991: prior code §11-12-6)

Finding: **Complies.** The applicant has submitted the appropriate application forms and fees.

B. Consistency with Comprehensive Plan

The applicable goals and policies of the Comprehensive Plan are addressed in this section.

The applicant turned in the request for zone change prior to the adoption of the new Comprehensive Plan, therefore the 1982 Oregon City Comprehensive Plan is the guiding document for this zone change application.

(B) Citizen Participation

Goal: Provide an active and systematic process for citizen and public agency involvement in the land-use decision-making for Oregon City.

Finding: **Complies.** The City's process includes public notice, public hearings, and notifying surrounding neighbors, the neighborhood association, and the CICC. Public notice was mailed on June 30, 2004, advertised in the Clackamas Review on July 14, 2004, and the subject property was posted on August 13, 2004.

On June 30, 2004 transmittals were sent to the Citizen Involvement Committee Council (CICC) apprising them of the application.

Policy #1

Encourage and promote a city-wide citizen participation program that helps neighborhoods to organize so that they may develop and respond to land-use planning proposals.

Finding: **Complies.** As noted above, the CICC was notified. This staff report and the file containing project information were available for public review and posted on the City's website seven days prior to the first evidentiary hearing.

(C) Housing

Goal: Provide for the planning, development and preservation of a variety of housing types at a range of price and rents.

Finding: **Complies.** The applicant estimates that, under the existing R-10 Single-Family zoning designation; the subject site could be subdivided into approximately twenty-two single-family residential lots. An R-8 designation would allow the property to be subdivided into approximately thirty-one lots. The increased density will result in a corresponding decrease in individual lot costs and final per unit costs. Such cost reductions lie at the heart of the city's policy of providing the regional home building industry with resources necessary to provide an adequate supply of flexible and affordable single-family housing opportunities to Oregon City residents. Additionally, Metro's 2040 Recommended Alternative document, which considers the technical findings documented in Metro's *Concepts for Growth* report, recommends the region wide average lot size for new single-family homes be 6,550 square feet, or 6.5 units per acre.

Policy #3

The City shall encourage the private sector in maintaining an adequate supply of single and multiple family housing units. This shall be accomplished by relying primarily on the home building industry and private sector market solutions, supported by the elimination of unnecessary government regulations.

Finding: **Complies.** The applicant submits that the requested R-8 zoning map designation should be approved because it will provide flexible and affordable housing opportunities that are consistent with Metro's *Concept for Growth* report, the Recommended Alternative for residential lot sizes, and the Oregon City Comprehensive Plan concerning a variety of housing types at a range of prices and rents.

(F) Natural Resources, Natural Hazards

Goal: Preserve and manage our scarce natural resources while building a livable urban environment.

Finding: **Complies.** The applicant indicates that there are no natural resources designated on the site. Therefore, the goals and policies in this section are not applicable to this request since the Comprehensive Plan does not identify any protected natural resources on the subject site.

The subject site is currently zoned R-10 and is developed with 4 homes. The proposal to re-zone the site from R-10 to R-8 would not significantly alter the amount of coverage of development allowed on the site. The subject sites do not appear on any of the following maps: Mineral and Aggregate Resources, Fish and Wildlife Habitat, Flood Plain, Steep Slopes, or Seismic Conditions.

The area is located in an area indicating Wet Soils – High Water Table. Future development analysis will include a Geotechnical Investigation to identify soil types and appropriate development techniques for the site.

The site is located within the Oregon City Water Quality Overlay District. The applicant has submitted a Water Resource Review for the site identifying the resource on the adjacent property. Future development of the site will be required to comply with Oregon City Municipal Code Section 17.49 concerning Water Resource Areas, which provides for the preservation and management of the city's scarce natural resources

Policy #1

Coordinate local activities with regional, state and federal agencies in controlling water and air pollution.

Finding: **Complies.** Future development applications will need to meet agency requirements that protect water and air quality. No significant increases in air or water pollution are anticipated due to the change in zoning from R-10 Single-Family to R-8 Single-Family.

Policy #7

Discourage activities that may have a detrimental effect on fish and wildlife.

Finding: **Complies.** The subject site is not located within an identified fish and wildlife habitat area, as identified in the Comprehensive Plan. The R-10 and R-8 zoning designations allow the development of single-family housing, thus the proposed change will not increase the likelihood of having a detrimental effect on fish and wildlife, and when developed in conjunction with existing Water Resource Overlay District requirements, should not have a detrimental effect on fish and wildlife.

Policy #8

Preserve historic and scenic areas within the City as viewed from points outside the City.

Finding: The site is not within a historic or scenic area and is not situated so as to affect views of such areas from outside the city. This policy is not applicable.

Policy #9

Preserve the environmental quality of major water resources by requiring site plan review, and/or other appropriate procedures on new developments.

Finding: The applicant has submitted a Subdivision and Water Resource Review application for this site to run concurrently with the proposed Zone Change. Through the Water Resource and Subdivision review, the policies of this section will be implemented.

Policies adopted through Ordinance 90-1031

Oregon City . . shall comply with all applicable DEQ air quality standards and regulations.

Finding: **Complies.** The proposed R-8 Single-Family allows the development of homes on 8,000 square foot lots, which usually does not represent a threat to air quality. However, future development of the site shall comply with all applicable DEQ air quality standards and regulations.

All development within the City of Oregon City shall comply with applicable state and federal air, water, solid waste, hazardous waste and noise environmental rules, regulations and standards. Development ordinance regulations shall be consistent with federal and state environmental regulations.

Finding: The proposal will be processed under the appropriate procedures for new development in order to comply with this policy.

(G) Growth and Urbanization

Goal: Preserve and enhance the natural and developed character of Oregon City and its urban growth area.

Finding: **Complies.** The proposal will affect approximately 8.37 acres of R-10 zoned property, which allows 10,000 square foot lots. The subject site is located adjacent to the Gentry Highlands I, Pease Road Estates, South Hampton Estates subdivisions, which are zoned R-8 Single-Family and Leland Run, a PUD. Adequate public facilities have been provided to the property and additional housing types and sizes will contribute to the developed character of Oregon City by providing a neighborhood with multiple housing opportunities at multiple price ranges.

(H) Energy Conservation

Goal: Plan urban land development that encourages public and private efforts toward conservation of energy.

Finding: **Complies.** The applicant indicates that energy conservation will be addressed in the construction of individual single-family dwellings. Individual single-family dwelling should include proper insulation, heating, and window materials required to ensure adequate energy-conservation.

(I) Community Facilities

Goal: Serve the health, safety, education, welfare and recreational needs of all Oregon City residents through the planning and provision of adequate community facilities.

Finding: **Complies.** Community facilities include sewer, water, storm water drainage, solid waste disposal, electricity, gas, telephone, health services, education, and governmental services. The applicant states that urban services are available or can be extended and made available to the site. The recreational availability is addressed in Section J below.

Policy #5

The city will encourage development on vacant buildable land within the City where urban facilities and services are available or can be provided.

Finding: **Complies.** The subject site, which contains 4 houses, has the necessary urban services for low-density residential development stubbed to the site or can be extended to the site and it appears these services are adequate for the subject site.

Policy #7

Maximum efficiency for existing urban facilities and services will be reinforced by encouraging development at maximum levels permitted in the Comprehensive Plan and through infill of vacant City land.

Finding: **Complies.** The existing urban facilities and services can be provided to the site and the proposed change from R-10 to R-8 will not impact the ability to provide the necessary services to the site. The applicant is requesting to develop 8,000 square-foot minimum lots and would allow development that will maximize the existing urban facilities while remaining compatible with the surrounding land uses and development.

(J) Parks and Recreation

Goal: Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Finding: **Complies.** The applicant states that the Comprehensive Plan does not identity the subject site for future acquisition or development as a public park or other recreational facility.

The Oregon City Parks Master Plan indicates that there currently is a desire to discourage the development and maintenance of mini-parks, thus no further parks of this type are needed except where high-density residential development occurs or where private developers are willing to develop and maintain them. The plan also indicates that open space should be acquired and integrated into the overall park system. This can be done by preserving hillsides, creek corridors, and floodplain areas that could also serve as conduits for trails.

The subject site is located within the Oregon City Water Quality Resource Area and will be protected per the standards of OCMC Section 17.49.

The subject site is located less than 400 feet from the new Wesley Lynn Park.

(L) Transportation

Goal: Improve the systems for movement of people and products in accordance with land use planning, energy conservation, neighborhood groups and appropriate public and private agencies.

Finding: Transportation impact has been discussed in 17.68.020 **Complies.**

Policy #6

Sidewalks will be of sufficient width to accommodate pedestrian traffic.

Finding: Sidewalks will be included in future site redevelopment and will be constructed to City standards.

RECOMMENDED CONCLUSION AND DECISION

Staff would recommend that the Planning Commission forward the proposed Zone Change, Planning File ZC 04-02, with a recommendation of approval to the City Commission for a public hearing on October 6, 2004

EXHIBITS

The following exhibits are attached to this staff report.

1. Vicinity Map
2. Oregon City Zoning Map
3. TP 04-13 Narrative
4. ZC 04-02 Narrative
5. Gentry Highland II Subdivision Plans *(PC to additionally receive large sized plans)*
6. WR 04-13 Submittal by Environmental Consultants, July 27, 2004
   a. The City's Water Quality and Water Management Map
   b. The Oregon City Local Wetland Inventory
7. John Replinger, David Evans and Associates, Comments, dated September 3, 2004
8. Oregon City Public Works Department, dated April 29, 2004
9. Oregon City Building Official
10. Traffic Analysis, Lancaster, dated July 13, 2004
11. Geotechnical Engineering Report dated June 1, 2004 by GeoPacific Engineering
12. Preliminary Storm Runnoff & Detention Calculations
13. City of Oregon City Engineering Policy 00-01

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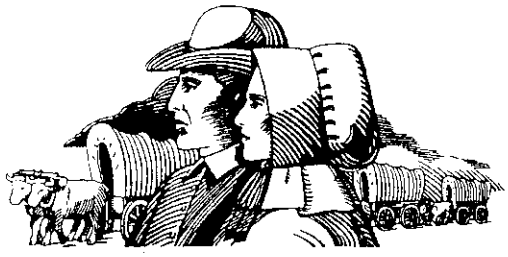


FILE NO.: TP 04-13

APPLICATION TYPE: Quasi-Judicial/Type IV

Complete: August 11, 2004
120-Day: December 9, 2004

HEARING DATE: September 13, 2004
7:00 p.m., City Hall
320 Warner Milne Road
Oregon City, OR 97045

APPLICANT: Gentry Homes, LLC
Thomas Gentry
P.O. Box 1009
Clackamas, Oregon 97015

OWNERS:

Pat Henderson
19431 Leland Road
Oregon City, Oregon 97045

Harry & Ethel Montgomery
19411 Leland Road
Oregon City, Oregon 97045

Stan & Kathleen Raney
19260 Pease Road
Oregon City, Oregon 97045

Leroy Manselle
19391 Leland Road
Oregon City, Oregon 97045

REQUEST: The applicant is requesting the approval of a 31-lot subdivision.

LOCATION: The sites are identified as Clackamas County Map 3-2E-07DB, Tax Lots 6300, 6400 & 6500 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at 19391, 19411, & 19431 Leland Road and 19260 Pease Road.

REVIEWER: Christina Robertson-Gardiner, Associate Planner
Jay Toll, Senior Engineer

DECISION: Approval with conditions

CRITERIA: The standard for **Subdivisions – Process and Standards** is found in **Chapter 16.08, Minimum Improvements and Design Standards for Land Divisions** is found in **Chapter 16.12, "R-8" Single-Family Dwelling District** is found in **Chapter 17.10, Water Resource Overlay District** is found in **Chapter 17.49,** and **Administration and Procedures** in **Chapter 17.50** of the Oregon City Municipal Code.

The decision of the Planning Manager is final unless appealed to the City Commission within ten (10) days following the mailing of this notice. Type II decisions involve the exercise of limited interpretation and discretion in evaluating approval criteria, similar to the limited land use decision-making process under state law. Applications evaluated through this process are assumed to be allowable in the underlying zone, and the inquiry typically focuses on what form the use will take or how it will look and include partitions, preliminary subdivision plats, site plan and design review. Notice of application and an invitation to comment is mailed to the applicant, recognized neighborhood association and property owners within three hundred feet. Planning manager accepts comments for fourteen days and renders a decision. The planning manager's decision is appealable to the city commission with notice to the planning commission, by any party with standing (i.e., applicant and any party who submitted comments during the fourteen-day period). The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final.

IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 657-0891

I. BACKGROUND:

The applicant requested approval of a 31-lot subdivision (Exhibit 1). This application is concurrent with a request for a R-10 to R-8 Zone Change (ZC 04-02) and a Water Resource Review (WR 004-11) for a parcel of approximately 8.27-acres identified as Map 3-2E-07DB, Tax Lots 6500, 6400 & 6300 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at 19431, 19411, & 19391 Leland Road and 19260 Pease Road. (Exhibit 1). The site is nearly flat and is occupied by single-family dwellings. Trees on the site are located along Pease Road frontage and in the vicinity of the existing residences on the Leland Road frontage.

II. BASIC FACTS:

1. **Zoning/Permitted Use:** The properties are zoned "R-8" Single-Family Dwelling District and are designated as "LR" Low Density Residential on the City's Comprehensive Plan Map.

2. **Project Description**: The applicant is proposing a 31-lot subdivision on an approximately 8.27-acre site. The proposed street system consists of the continuation of Kafton Terrace, continuation and termination of Crisp Drive into a cul-de-sac and the creation of a connection street running parallel to Leland Road, between the continuation of Crisp Drive (this new street will be referred to as A Street in this report) to another new stub street running perpendicular to A Street, (which will be referred to as B Street in this report) that connect to adjacent development and provide access for future development. The applicant has proposed right-of-way dedications and a pedestrian connection from the cul-de-sac to Leland Road. The applicant has indicated that the proposal will provide adequate water, sanitary, stormwater, and transportation systems, including the half street improvement of B Street and full street improvements to the cul-de-sac and A street. The applicant will provide right-of-way dedication required for the project. (Exhibits 3 and 5).

3. **Dimensional Standards:** The "R-8" Single-Family Dwelling District requires the following:

Minimum Lot Area Single-Family	8,000 Square feet
Minimum Average Lot Width:	60 feet
Minimum Average Lot Depth:	75 feet
Maximum Building Height:	2.5 stories (not to exceed 35 feet)
Front Yard Setback:	15 feet
Interior Side Yard:	9/7 feet
Corner Side Yard:	15 feet
Rear Yard Setback:	20 feet

4. **Surrounding Uses/Zoning:**
   - **North:** Directly north of the site is the Gentry Highland I subdivision, which is zoned "R-8" Single-Family Residential and Coho Court subdivision, currently being built which is also R-8.
   - **South:** South of the subject site is partly outside the Oregon City City Limits. A second parcel just recently annexed into the City limits is zoned R3.5.
   - **West:** West of the site are the R-8 Subdivisions of Pease Road Estates and South Hampton Estates and some under developed R-10 homes.
   - **East:** East of the site is Leland Run, a Planned Unit Development, and Wesley Lynn Park.

5. **Comments:** Notice of this proposal was sent to property owners within three hundred feet of the subject property and various City departments and other agencies regarding the proposed development. David Evans and Associates, which performed the Traffic Analysis for the site, indicated that the impacts associated with a change from R-10 to R-8 are not expected to substantially affect the planned 20-year transportation system (Exhibit 3b). Comments were also

received from the Oregon City Public Works Department (Exhibit 3c). No Public comments were received.

The comments received were incorporated into the analysis and findings sections below.

III. DECISION-MAKING CRITERIA:

Municipal Code Standards and Requirements

Title 16, Subdivisions: Chapter 16.08, Subdivisions-Process and Standards
Chapter 16.12, Minimum Improvements and Design Standards for Land Division

Title 17, Zoning: Chapter 17.10, "R-8" Dwelling District
Chapter 17.44, Unstable Soils and Hillside Constraint Overlay District
Chapter 17.50, Administration and Procedures

OREGON CITY MUNICIPAL CODE

Chapter 16.08.010 - Purpose and General Provisions

All subdivisions shall be in compliance with the policies and design standards established by this chapter and with applicable standards in the City's Public Facilities Master Plan and the City Design Standards and Specifications. The evidence contained in this record indicates that the proposed partition is in compliance with standards and design specifications listed in this document.

Finding: The proposed project was reviewed by the appropriate agencies and the findings necessary to be in compliance with Chapter 16.08.010 have been included. **This standard is not met. The applicant can satisfy this standard by complying with the attached Conditions of Approval.**

Chapter 16.08.020 – Pre-application Conference

Finding: The pre-application conference was held on March 16, 2004 (PA 04-06). Staff finds that the applicant has met this standard.

Chapter 16.08.040 Preliminary subdivision plat--Required plans.

The preliminary subdivision plat shall specifically and clearly show the following features and information on the maps, drawings, application form or attachments. All maps and site drawings shall be at a minimum scale of one inch to fifty feet.

A. Site Plan.
B. Traffic/Transportation Plan.
C. Natural Features Plan and Topography, Preliminary Grading and Drainage Plan.
D. Erosion and Sediment Control Permit.

Finding: The applicant provided a detailed plan of the proposed development (Exhibits 2 and 3). Staff finds that the applicant has met this standard

Chapter 16.08.050 – Preliminary Subdivision Plat – Narrative Statement

The applicant shall explain in detail how and when each of the following public services or facilities is, or will be, adequate to serve the proposed development by the time construction begins:

A. Subdivision Description.

Finding: The applicant provided a detailed description of the proposed development (Exhibits 2 and 3). Staff finds that the applicant has met this standard.

B. Timely Provision of Public Services and Facilities.

Water

Finding: There are existing 12-inch Oregon City water mains in Leland Road and Pease Road. There are

existing fire hydrants at the north corner of the intersection of Pease Road at Crisp Drive, at the north corner of the intersection of Pease Road at Riverhead Parkway, approximately 135 feet northeast of the site on the southeastern side of Pease Road, and at the east corner of the intersection of Leland Road at Carmelita Drive.

Applicant has proposed constructing a new 8-inch water main in Crisp Drive connecting to the water main in Pease Road and dead-ending in the cul-de-sac, a new 8-inch water main in Kafton Terrace connecting the existing water main in Kafton Terrace to the new water main in Crisp Drive, and a new 8-inch water main in the A Street to the southwest and running to the northwest and southeast down B Street along the southwestern boundary of the site far enough to provide water service to lots 5 and 13. Applicant has not proposed looping the water main to Leland Road and has not proposed extending any water mains to provide for future extension. Applicant has proposed three fire hydrants along Crisp Drive.

The new water system will have to be designed with a loop to Leland Road, and all water mains in dead end streets will have to be extended to the ends of the roadways, and ended with 8-inch gate valves and blow-offs for future extension with development of adjacent properties. New fire hydrants will have to be located and installed per Clackamas County Fire District No. 1's requirements.

Applicant has proposed a water system that does not appear to meet City code. **This standard has not been met. The applicant can satisfy this standard by complying with conditions of approval 1, 3, and 4.**

Sanitary Sewer

Finding: There are existing 8-inch Oregon City gravity sanitary sewer mains in Leland Road, Pease Road, and Kafton Terrace. There is an existing sanitary sewer force main in Pease Road. The Pease Road pump station is located on the northwest side of Pease Road approximately 840 feet southwest of the project site.

Applicant has proposed constructing a new 8-inch sanitary sewer main in Crisp Drive, which drains to the sanitary sewer main in Leland Road, and dead-ending at lot 1 just southeast of Pease Road. New sanitary sewer mains have also been proposed draining to the proposed sanitary main in Crisp Drive from Kafton Terrace, and A Street to the southwest, which extends to the northwest and southeast along B Street far enough to provide sanitary service to lots 5 and 13. Applicant has not proposed sanitary sewer improvements along the entire site frontage of Pease Road, and has not proposed extending all sanitary mains to provide for future extension.

The new sanitary sewer system will have to be designed to provide for future extension of gravity sanitary sewer mains where needed for development of adjacent properties. Sanitary sewer improvements will have to be constructed along the site's street frontages with Leland Road and Pease Road.

Applicant has proposed a sanitary sewer system that does not appear to meet City code. **This standard has not been met. The applicant can satisfy this standard by complying with conditions of approval 1, 5, and 6.**

Storm Sewer and Storm Water Drainage

Finding: The site is located in the Mud Drainage Basin as designated in the City's Drainage Master Plan. Drainage impacts from this site are significant. The site drains to a tributary of Mud Creek. Erosion and water quality controls are critical for the development of this site.

Approximately the southern half of the site is located within the Water Quality Resource Area Overlay District. Under the requirements of Chapter 17.49, the applicant must identify and delineate the water feature boundaries and determine the required vegetated corridor width between the water features boundaries and the proposed development. The vegetated corridor area is to remain undisturbed or be mitigated.

The applicant provided a copy of a Water Resources Investigation prepared by David Waterman of Environmental Technology Consultants, and dated July 27, 2004. According to the report, there are no intermittent streams or wetlands on the site. The report does not recommend any buffer area. The City feels significant flow exists through the swale to classify it as an intermittent stream. An intermittent stream would require a 15-foot wide vegetated corridor tract on each side. The drainage appears to be located on the adjacent property approximately 8 feet from the property line. This would require a 7-foot wide vegetated corridor tract along the southwestern property line of lot 22. The vegetated corridor areas are to be improved by removing non-native species, and replanting with non-nuisance plants from the Oregon City native plant list. There is currently a large mapped wetland on tax lot 6900 to the south of the site. The property is currently undergoing planning review for a 47-lot subdivision (TP04-11). The applicant of that subdivision is contending that the wetland has been filled in over time, and will be submitting a request for exemption to the Water Resource Overlay District. If the wetland exemption is given, the required vegetative tract for TP04-13 may be dropped.

The site has a high point just west of the center of the site, approximately where the existing home off of Pease Road is located. The site currently drains to two swales crossing the western and eastern parts of the site. The swale to the west curves to the southwest across the properties southwest of the site and then eastward to intersect the other swale just northwest of Leland Road at the southern corner of the site. The swale then drains through a culvert under Leland Road and into the wetland area of Leland Run Planned Unit Development (PUD). The applicant has proposed draining the streets and houses of the entire site southeasterly down Crisp Drive to the cul-de-sac, and into a combination detention pond/underground detention tank system, which runs from the cul-de-sac to Leland Road, and discharging into the existing storm system in Leland Road. Applicant has not proposed storm sewer improvements along the site frontages of Leland Road or Pease Road. Preliminary hydrology/detention and water quality calculations have been provided to the City for review.

The new storm sewer system will have to be designed per the City of Oregon City Public Works Stormwater and Grading Design Standards. The underground part of the detention system must be constructed in the right-of-way (ROW). A larger pond would be preferred in place of the proposed underground detention. The City is aware of adjacent future development and desires to minimize the number of tanks/ponds in the city. Therefore, the City desires the detention tank and pond be located and designed so that it can be expanded in the future with development of the properties to the southwest of the site. Storm sewer improvements will have to be constructed along the site's street frontages with Leland Road and Pease Road. The applicant is reminded that the tank/pond must be completed and operational to meet City Erosion Control turbidity regulations prior to recording of the plat.

Applicant has proposed a storm sewer system that does not appear to meet City code. **This standard has not been met. The applicant can satisfy this standard by complying with conditions of approval 1, 7, 8, and 22.**

Parks and Recreation

Finding: The applicant states that there is a City park located east of Leland Road. This park, Wesley Lynn, will provide adequate recreational opportunities for the area. Park System Development Charges will be paid at the time building permits are issued. This standard is met.

Traffic and Transportation

Finding: A Traffic Study for this site, prepared by Thomas R. Lancaster, P.E. of Lancaster Engineering and dated July 13, 2004 was submitted to the City for review (Exhibit 10). John Replinger, Oregon City Consultant Engineer found that the TIS does not fully address the city's requirements and needs to be supplemented for the city to finalize the evaluation of the impacts of the proposed development. However, based on the information provided, Mr. Repliner considers it unlikely that the supplemental information identified in his September 3, 2004 letter (Exhibit 7) would lead to the need for any mitigation measures, off-site improvements, or an alteration of the subdivision layout. **This standard has not been met. The applicant can satisfy this standard by complying with condition of approval 23.**

Schools

Finding: The Oregon City School District was notified of the development and has not indicated that there is inadequate capacity to serve the proposed development. This standard is met.

Fire and Police Services

Finding: No comments were received from Clackamas County Fire District 1 concerning the design of the subdivision.

C. Approval Criteria and Justification for Variances.

Finding: The applicant has addressed Chapter 16.12 below and the application has not requested a variance. Staff finds that the applicant complies with this section.

D. Geologic Hazards.

Finding: The northwestern part of the site is located in a "Wet Soils-High Water Table" hazard area according to the DOGAMI map in Bulletin 99-Geology and Geologic Hazards of North Western Clackamas County.

The applicant provided a Geotechnical Engineering Report dated June 1, 2004 (Exhibit 11) by Kirk L. Warner, R.G., and James D. Imbrie, PE, both of GeoPacific Engineering, Inc. The report concludes the proposed residential development is geotechnically feasible provided the recommendations are incorporated in the design and construction phases of the project. **The applicant can satisfy this standard by complying with Condition of Approval 20.**

E. Water Resources.

Finding: The site is located in the Water Quality Resource Area Overlay District and is subject to the standards of Chapter 17.49. Staff finds that the applicant complies with this section by applying for a Water Resource Review (WR 04-11).

F. Drafts of the proposed CC&R's.

Finding: The applicant has not submitted a draft of the CC&R's, maintenance agreements, dedications, easements, and related documents for the subdivision (Exhibit 7). Prior to receiving Engineering approvals, the applicant shall submit all CC&R's, maintenance agreements, dedications, easements, and related documents for the subdivision. **The applicant can satisfy this standard by complying with Condition of Approval 25.**

G. Phasing.

Finding: The proposed development will be completed in one phase.

H. Density.

Analysis: The proposed subdivision will include 31 detached single-family residential units. The net developable area is 6.04 acres (263,315 square feet). The maximum density for this subdivision is 32.9 lots. The 80% density threshold is 26 lots.

Finding: Staff finds that the applicant complies with this section.

Chapter 16.12.020 - Street Design-Generally

The location, width and grade of the street shall be considered in relation to existing and planned streets, topographical conditions, public convenience and safety for all modes of travel, existing and identified future transit routes, pedestrian/bicycle access-ways, and the proposed use of the land to be served by the streets.

Finding: The location, widths, and grades of the proposed street network, as proposed in exhibit 3, appears to provide connectivity for future development of adjacent properties, a convenient street system, and for the safety of all modes of travel, including pedestrian and bicycle to, from, and through the subject site. The proposed street system appears to meet the general street designs of the City with a few modifications. Applicant has not incorporated traffic calming measures into the proposed site layout. Traffic calming measures will be required as part of site development. Applicant has proposed a street system that appears to meet City code requirements with a few modifications. **The applicant can satisfy this standard by complying with condition of approval 9.**

Chapter 16.12.030 Street Design--Minimum right-of-way

This standard addresses minimum right-of-way width for public streets and discusses a variety of minimum street design standards brought forward from the Oregon City Transportation Master Plan. OCMC 16.12.030 allows specific right-of-way and pavement widths to be determined by the decision-maker based upon the City Engineer's recommendation.

Analysis: Leland Road is classified as a Minor Arterial in the Oregon City Transportation System Plan, which requires a right-of-way (ROW) width of 52 to 114 feet. Currently, Leland Road has a ROW width of approximately 65 feet with 30 feet on the applicant's side of the centerline of ROW. The applicant has not proposed ROW dedication along the project site's frontage with Leland Road. The City requires a ROW dedication to provide 38 feet of ROW on the applicant's side of the centerline of the ROW.

Pease Road is classified as a Neighborhood Collector in the Oregon City Transportation System Plan, which requires a ROW width of 44 to 81 feet. Currently, Pease Road has a ROW width of approximately 45 feet with 20 feet on the applicant's side of the centerline of ROW. The applicant has not proposed ROW dedication along the project site's frontage with Pease Road. The City requires a ROW dedication to provide 22 feet of ROW on the applicant's side of the centerline of the ROW as established by Record of Survey PS 29137 for Pease Road.

Local Streets require a ROW width of 42 to 54 feet per the Oregon City Transportation System Plan. Currently, Kafton Terrace has a ROW width of 50 feet. The applicant has proposed a 50-foot ROW width for the extension of Kafton Terrace and a 53-foot ROW width for all other interior local streets with the exception of B Street along the southwestern boundary of the site, which has a proposed varying ROW width ranging from 36.5 feet at the east end to 31.1 feet at the west end before the curve. The ROW width proposals are acceptable except for B Street, which will require a ROW width of 37 feet for a half-street improvement. Several alternatives can be used to accomplish this requirement.

Leland Road is classified as a Minor Arterial in the Oregon City Transportation System Plan, which requires a pavement width of 36 to 88 feet. Currently, Leland Road has a pavement width

of approximately 26 feet. The applicant has not proposed improvements along the project site's frontage with Leland Road. The City requires a half-street improvement to provide a 25-foot width of pavement on the applicant's side of the centerline of Leland Road along the project site's frontage with Leland Road. A half-street improvement is defined as to the centerline plus 10 feet. This provides the required improvement on the applicant's portion of the roadway, and allows the opposing travel way to have safe passage on the new gradient. The improved street portion the applicant is required to provide includes, but is not to be limited to, base rock, paved half street width of 35 feet (10-foot opposing travel way, 7 feet of turn-lane, 11-foot travel lane, and 8-foot parking lane), curb and gutter, 5-foot planter strip including curb width, 7-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights. Leland Road is under Clackamas County jurisdiction. Improvement to Leland Road must be approved by Oregon City and Clackamas County.

Pease Road is classified as a Neighborhood Collector in the Oregon City Transportation System Plan, which requires a pavement width of 30 to 59 feet. Currently, Pease Road has a pavement width of approximately 27 feet. The applicant has proposed improvements along the project site's frontage with Pease Road, but has not provided sufficient information to decipher what improvements have been proposed. The City requires a half-street improvement to provide an 11-foot width of pavement on the applicant's side of the centerline of Pease Road along the project site's frontage with Pease Road. A half-street improvement is defined as to the centerline plus 10-feet. This provides the required improvement on the applicant's portion of the roadway, and allows the opposing travel way to have safe passage on the new gradient. The improved street portion the applicant is required to provide includes, but is not to be limited to, base rock, paved half street width of 21 feet (10-foot opposing travel way, and 11-foot travel lane), curb and gutter, 5-foot planter strip including curb width, 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights. These improvements must meet the requirements of the Oregon City Transportation System Plan.

Local Streets require a pavement width of 20 to 32 feet per the Oregon City Transportation System Plan. Currently, Kafton Terrace has a pavement width of 32 feet. The applicant has proposed a 32-foot wide street section for the extension of Kafton Terrace and all other interior local streets with the exception of B Street along the southwestern boundary of the site, which is proposed to be a 20-foot wide half-street. The applicant has proposed curbs and gutters, 5-foot planter strips including curb, and 5-foot sidewalks on each side of all interior local streets with the exception of Kafton Terrace, which is proposed to have 4-foot planter strips including curb to match the existing part of Kafton Terrace.

Full local street improvements will be required for all interior local streets except for Kafton Terrace, which will be allowed to have a narrower planter strip to match the existing, and B Street which requires a half-street improvement. The improved street portion the applicant is required to provide for a full-street includes, but is not to be limited to, base rock, paved full-street width of 32 feet, curbs and gutters, 5-foot planter strip including curb width (4-foot planter strip including curb width for Kafton Terrace), 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights.

The improved street portion the applicant is required to provide for half-streets includes, but is not to be limited to, base rock, paved half-street width of 26 feet, curb and gutter, 5-foot planter strip including curb width, 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights.

The applicant is required to ensure the east end alignment of proposed B Street provides a minimum of 70 feet lot depth for the adjacent property, Tax Map 3-2E-7DB, 006900 or provide Staff with a written statement from the owners stating that they can accept a lesser distance. This would be as measured perpendicular to the future right-of-way of B Street. Right-of-way dedication from the adjacent property to the south, Tax Map 3-2E-7B-003900, would also be an acceptable alternative to allow the applicant to construct the required half street improvement. Some other alternative may also be approved by the City Engineer and the City Director of Community Development.

Applicant has proposed a street system that appears to meet City code requirements with a few modifications. **The applicant can satisfy this standard by complying with conditions of approval 9, 10, 11, 12, 13, 14, 15, and 16.**

Chapter 16.12.040 Street Design–Reserve Strips

Finding: The Applicant has not proposed a reserve strip for this development and the city has determined that three reserve strips are necessary for the two stub street ends of B Street and along the northerly edge of Crisp Drive adjacent to Tax Map 3-2E-7A-002100. The applicant can satisfy this standard by complying with condition of approval 26.

Chapter 16.12.050 Street Design–Alignment

Finding: The applicant has met this standard as proposed.

Chapter 16.12.055 Minimum Street Intersection Spacing Standards

All new development and redevelopment shall meet the following Minimum Street Intersection Spacing Standards.

Finding: The applicant has met this standard as proposed.

Chapter 16.12.060 Street Design–Constrained Local Streets and/or Right-of-Way

Finding: The applicant has not proposed a constrained local street and/or right-of-way. This standard is not applicable.

Chapter 16.12.065 Intersection Level of Service Standards.

When approving land use actions, the City of Oregon City requires all relevant intersections to be maintained at the minimum acceptable Level Of Service (LOS) upon full build-out of the proposed land use action.

Finding: The applicant has met this standard as proposed.

Chapter 16.12.070 Street Design-Intersection Angles

Finding: All proposed streets in the subdivision have an intersection angle of 90-degrees. The applicant satisfies this standard as proposed.

Chapter 16.12.080 Street Design-Additional right-of-way

The decision-maker shall require dedication of additional right-of-way sufficient to achieve conformance with minimum applicable design standards.

Finding: This standard was addressed above in Section 16.12.030.

Chapter 16.12.090 Street Design–Half Street

Finding: The applicant has proposed the development of half-streets along the site frontage with Pease Road, and for B Street along the southwestern boundary of the site. Applicant will also be required to construct a half-street improvement along the site frontage with Leland Road.

The proposed half street on B Street will not pose a safety hazard provided it is constructed to the full 26 feet of pavement to provide two lanes of travel and provides parking for the frontage lots. The half street will be in compliance with all applicable requirements and is essential for the reasonable development of the site. The applicant is required to ensure the east end alignment of proposed B Street provides a minimum of 70 feet lot depth for the adjacent property, Tax Map 3-2E-7DB, 006900 or provide Staff with a written statement from the owners stating that they can accept a lesser distance. This would be as measured perpendicular to the future right-of-way of B Street. Right-of-way dedication from the adjacent property to the south, Tax Map 3-2E-7B-003900, would also be an acceptable alternative to allow the applicant to construct the required half street improvement. Some other alternative may also be approved by the City Engineer and the City Director of Community Development. The applicant can satisfy this standard provided they comply with Condition of Approval 15.

Chapter 16.12.100 Street Design–Cul-de-sac

Finding: The applicant has proposed a cul-de-sac due to the existing residential development pattern to around the site The properties to the south of the site are also limited by existing homes on them that lends the properties more appropriate for partitions than a subdivision on the site that would include the demolition of the existing housing stock. This standard is met as proposed.

Chapter 16.12.110 Street Design–Private Street

Finding: The applicant is not proposing the development of private streets. This standard does not apply.

Chapter 16.12.120 Street Design–Street Names

Finding: The applicant has not proposed a new street name for the two stub streets. Prior to platting, the street names will be checked to verify that they are not duplicates and are not confused with the name of an existing street.

Chapter 16.12.130 Street Design–Grades and Curves

Finding: The proposed street will be designed to conform to City standards. The applicant has satisfied this standard as proposed.

Chapter 16.12.140 Street Design–Access Control

Where a land division abuts or contains an existing or proposed arterial or collector street, the decision-maker may require: access control; screen planting or wall contained in a reserve strip along the rear or side property line; or such other treatment it deems necessary to adequately protect residential properties or afford separation of through and local traffic.

Finding: Lots 22-24 of the proposed subdivision have existing c.1970s ranch houses on them. These homes's driveways cannot be rerouted or combined. As such no access control will be required on Lots 22-24.

Chapter 16.12.150 Street Design–Pedestrian and Bicycle Safety

Finding: The city has determined that additional traffic calming measures to prevent speeding and cut-through traffic is necessary at this site. Traffic calming measures will be required as part of this application at the intersection of A and B streets and A Street and Crisp Drive. **This standard has not been met. The applicant can satisfy this standard by complying with condition of**

approval 9

Chapter 16.12.160 Street Design–Alleys

Finding: No alleys are proposed. This standard does not apply.

Chapter 16.12.170 Street Design–Transit

Streets shall be designed and laid out in a manner that promotes pedestrian and bicycle circulation.

Finding: The applicant has provided sidewalks along the site's frontages. The applicant has proposed a pedestrian accessway from the cul-de-sac to Leland Road. This connection will allow direct pedestrian access from the subdivision to Wesley Lynn Park. The applicant's proposal has satisfied this standard.

Chapter 16.12.180 Street Design–Planter Strips

Finding: The applicant has indicated that the design of all streets will incorporate planter strips per City design standards. The applicant shall submit a street tree plan that meets the requirements of Chapter 12.08 for all new street improvements. **This standard has not been met. The applicant can satisfy this standard by complying with conditions of approval 13-17.**

Chapter 16.12.190 Blocks-Generally

Finding: Due to the existing development patterns and topography of the area, the applicant has proposed the development of a cul-de-sac. The applicant has proposed to extend Crisp Drive, which will allow the development of the properties to the north of the site to be developed in a block system. The applicant has satisfied this standard as proposed.

Chapter 16.12.200 Blocks-Length

Finding: The applicant has not proposed the development of a block length in excess of 600 feet. The applicant has satisfied this standard as proposed.

Chapter 16.12.210 Blocks-Width

Finding: The applicant has provided two-tiers of lots on the western portion of the site. To the extent possible, considering the surrounding development patterns, the proposed subdivision has provided for the development of two tiers of lots. The applicant has satisfied this standard as proposed.

Chapter 16.12.220 Blocks-Pedestrian and Bicycle Access

To facilitate the most practicable and direct pedestrian and bicycle connections to adjoining or nearby neighborhood activity centers, public rights-of-way, and pedestrian/bicycle access ways.

Finding: The applicant has proposed a 15-foot wide pedestrian accessway easement and the construction of a pedestrian pathway connecting Crisp Drive to Leland Road and Wesley Lynn Park. The applicant has satisfied this standard as proposed.

Chapter 16.12.230 Building Sites

Finding: The applicant proposed buildings sites that are appropriate in size, width, shape, and orientation for low-density residential development. The applicant has not requested a variance to any dimensional standard. The applicant has satisfied this standard as proposed.

Chapter 16.12.232 Building Sites – Minimum Density

All subdivision layouts shall achieve at least 80% of the maximum density of the base zone for the net developable area as defined in Section 17.04.

Finding: This standard is met as proposed.

Chapter 16.12.235 Calculations of Lot Area.
A subdivision in a Single Family Dwelling District may include lots that are up to 10% less than the required minimum lot area of the applicable zoning designation provided the entire subdivision on average meets the minimum site area requirement of the underlying zone. The average lot area is determined by calculating the total site area devoted to dwelling units and dividing that figure by the proposed number of dwelling lots.

Finding: This standard is met as proposed.

Chapter 16.12.238 Flag Lots
Flag lots shall not be created through the Subdivision process except where an existing dwelling unit on the site is located so that it precludes a land division that meets the minimum lot width and depth standards of the underlying zone

Finding: No flag lots are proposed. This standard is not applicable

Chapter 16.12.240 Building Sites—Frontage Width Requirement
Finding: All lots have 20 feet or more of frontage on a public street. This standard is met as proposed.

Chapter 16.12.250 Building Sites -Through Lots
Finding: The applicant has not proposed any through lots. This standard is not applicable.

Chapter 16.12.260 Building Sites—Lots and Parcel Side Lines
Finding: The applicant has proposed lot lines that are either oriented at right angles to the street or radial to the curve of the street upon which they face. This standard is met as proposed.

Chapter 16.12.270 Building Sites—Solar Access
Finding: The applicant has orientated lots to meet this standard to the extent practicable due to the site constraints. This standard is met.

Chapter 16.12.280 Building Sites—Grading
Grading of building sites shall conform to the state of Oregon Structural Specialty Code, Chapter 29, Appendix Chapter 70 of the Uniform Building Code, any approved grading plan and any approved residential lot grading plan in accordance with the requirements of Chapter 15.48 and the Public Works Stormwater and Grading Design Standards, and the erosion control requirements of Chapter 17.47.
Finding: The applicant has provided preliminary rough grading and erosion control plans. The Building Official has indicated that an additional soils report on all lots will be necessary at the completion of all grading and site preparation and prior to the issuance of any building permits for the site. The submitted plan appears to meet City requirements with a few modifications. **The applicant can satisfy this standard by complying with conditions of approval 1, and 20.**

Chapter 16.12.290 Building Sites—Setback and Building Location
This standard ensures that lots are configured in a way that development can be oriented toward streets to provide a safe and better environment for pedestrians and bicyclists. Lots located on a neighborhood collector, collector or minor arterial street shall locate the front yard setback on and orient the front of the primary structure to face the neighborhood collector, collector or minor arterial street. An alternative to the lot orientation, which incorporates landscaping and fencing into the lot and street design, may be approved if it is found to accomplish the objective of this standard by the Community Development Director.
Finding: Proposed lot 1 is located on Pease Road, a Neighborhood Collector. The applicant has not indicated if the front of the primary structure on Lot 1 will face Pease Road. The applicant shall orientate the front of the home on Lot 1 to face Pease Road. An alternative to the lot orientation, which incorporates landscaping and fencing into the lot and street design, may be approved if it

is found to accomplish the objective of this standard by the community development director. **This standard has not been met. The applicant can satisfy this standard by complying with condition of approval 24.**

Chapter 16.12.300 Building Sites—Division of Lots

Finding: No lots are capable of redivision in accordance with this chapter. This standard as met.

Chapter 16.12.310 Building Sites—Protection of Trees

Site planning, including the siting of structures, roadways and utility easements, shall provide for the protection of tree resources.

Finding: The applicant has indicated that there are no trees in excess of 6-inches in diameter located out of the building area that are proposed to be removed. However, the applicant has not submitted a plan demonstrating which trees will be removed and which trees will need to be replaced. If trees are later proposed to be removed outside of the building area, the applicant will follow the prescriptive replanting schedule outlined in OCMC 16.12.310-1. **This standard has not been met. The applicant can satisfy this standard by complying with condition of approval 21.**

Chapter 16.12.320 Easements

This standard governs the location improvement and layout of easements. These include utilities, unusual facilities, watercourses, access, and resource protection.

Finding: The applicant has proposed an easement for extension of sanitary and storm sewers from the cul-de-sac to Leland Road, and also for underground detention pipes. Ten-foot wide public utility easements (PUE's) will be required along all street frontages. **The applicant can satisfy this standard by complying with condition of approval 19.**

Chapter 16.12.330 Water Resources

Any land division which contains water quality resource area shall comply with the requirements of the water quality resource area overlay district, Chapter 17.49, including the requirement, pursuant to Section 17.49.060, that new subdivisions and partitions delineate and show the water quality resource area as either a separate tract or part of a larger tract that will not be developed.

Finding: The subject site is located with the Water Quality Resource Area Overlay District. This standard is applicable. The findings of the findings and Conditions of Approval for the water resource Overlay District can be found in WR 04-11.

Chapter 16.12.340 Minimum Improvements—Procedures

In addition to other requirements, improvements installed by the applicant either as a requirement of these or other regulations, or at the applicant's option, shall conform to the requirements of this title and be designed to City specifications and standards as set out in the City's Facility Master Plan and Public Works Stormwater and Grading Design Standards.

Finding: The applicant has indicated that construction plans for all required improvements will be presented to the city for review and approval prior to the commencement of any construction activities on the site. Inspection will be provided for as required by this standard and city policy. Erosion control measures will be provided and are depicted in conceptual form on the attached preliminary grading plans. As-built plans will be provided as required. **This standard has not been met. The applicant can satisfy this standard by complying with condition of approval 1.**

Chapter 16.12.350 Minimum Improvements—Public Facilities and Services

The following minimum improvements shall be required of all applicants for a land division under Title 16, unless the decision-maker determines that any such improvement is not proportional to the impact imposed on the City's public systems and facilities.

Finding: This standard addresses minimum improvements, which are required for public transportation systems, storm water drainage and sanitary sewer systems. Minimum improvements are

required for all land divisions (partitions and subdivisions) under Title 16. The Oregon City Engineering Division reviewed the need for the minimum improvements required for this project under Title 16 above. **This standard has not been met. The applicant can satisfy this standard by complying with condition of approval 1.**

16.12.360 Minimum Improvements—Road Standards and Requirements

Finding: This section addresses requirements for private streets and public streets that do not meet adopted standards. Neither of these situations is proposed.

16.12.370 Minimum Improvements—Timing Requirements

Finding: The applicant has indicated that prior to applying for final plat approval construction of all public improvements required as part of the preliminary plat approval will be completed per the approved plans or a guarantee for the construction of those improvements will be provided.

Chapter 17.10 "R-8" Single-Family Dwelling District

Chapter 17.10.020 – Permitted Uses

Finding: The proposed subdivision lots are intended for single-family dwellings, a permitted use.

Chapter 17.10.040 – Dimensional Standards

Finding: The applicant has proposed a 31-lot subdivision and has indicated that all of the lots created through this application satisfy the minimum square footage area and the average lot width and depth requirements of the "R-8" Single-Family Dwelling District.

IV. CONCLUSION AND DECISION:

In conclusion, the proposed 31-lot subdivision, TP 04-13 can meet the requirements as outlined above by complying with the attached Conditions of Approval. Therefore, the Planning Manager approves file TP 04-13 on the properties identified as Clackamas County Map 3-2E-07DB, Tax Lots 6300, 6400 & 6500 and Clackamas County Map 3-2E-07A, Tax Lot 2200, subject to the Conditions of Approval contained in this report.

EXHIBITS

The following exhibits are attached to this staff report.

1. Vicinity Map
2. Oregon City Zoning Map
3. TP 04-13 Narrative
4. ZC 04-02 Narrative
5. Gentry Highland II Subdivision Plans (*PC to additionally receive large sized plans)*
6. WR 04-13 Submittal by Environmental Consultants, July 27, 2004
   a. The City's Water Quality and Water Management Map
   b. The Oregon City Local Wetland Inventory
7. John Replinger, David Evans and Associates, Comments, dated September 3, 2004
8. Oregon City Public Works Department, dated April 29, 2004
9. Oregon City Building Official
10. Traffic Analysis, Lancaster, dated July 13, 2004
11. Geotechnical Engineering Report dated June 1, 2004 by GeoPacific Engineering
12. Preliminary Storm Runnoff & Detention Calculations
13. City of Oregon City Engineering Policy 00-01

RECOMMENDED CONDITIONS OF APPROVAL
SUBDIVISION File TP 04-13
Date: September 7, 2004

1. The applicant is responsible for this project's compliance to Engineering Policy 00-01. The policies pertain to any land use decision requiring the applicant to provide any public improvements.

2. The applicant shall sign a Non-remonstrance Agreement for the purpose of making sanitary sewer, storm sewer, water or street improvements in the future that benefit the Property and assessing the cost to benefited properties pursuant to the City's Capital Improvement regulations in effect at the time of such improvement.

3. The water system shall be designed with loops to Leland Road, Pease Road, and Kafton Terrace. All water mains in dead end streets will have to be extended to the ends of the roadways, and ended with 8-inch gate valves and blow-offs for future extension with development of adjacent properties.

4. Fire hydrants shall be located and installed per Clackamas County Fire District No. 1's requirements.

5. The sanitary sewer system shall be designed to provide for future extension of gravity sanitary sewer mains where needed for development of adjacent properties.

6. Sanitary sewer improvements shall be constructed along the site's street frontages with Leland Road and Pease Road.

7. The underground part of the detention system shall be located in public right-of-way (ROW). A larger pond would be preferred in place of the proposed underground detention. The applicant shall present Staff with alternatives for locating and designing the detention tank/pond so that it can be expanded in the future with development of the properties to the southwest of the site.

8. Storm sewer improvements shall be constructed along the site's street frontages with Leland Road and Pease Road.

9. Traffic calming measures shall be incorporated into the design and construction of the site development.

10. The City requires a ROW dedication along the site frontage with Leland Road to provide 38 feet of ROW on the applicant's side of the centerline of the ROW.

11. The City requires a ROW dedication along the site frontage with Pease Road to provide 22 feet of ROW on the applicant's side of the centerline of the ROW.

12. The City requires ROW dedications of 50 feet for the extension of Kafton Terrace, 37 feet for B Street, and 53 feet for all other local streets.

13. The City requires a half-street improvement for a minor arterial to provide a 25-foot width of pavement on the applicant's side of the centerline of Leland Road along the project site's frontage with Leland Road. A half-street improvement is defined as to the centerline plus 10 feet. This provides the required improvement on the applicant's portion of the roadway, and allows the opposing travel way to have safe passage on the new gradient. The improved street portion the applicant is required to provide includes, but is not to be limited to, base rock, paved half street width of 35 feet (10-foot opposing travel way, 7 feet of turn-lane, 11-foot travel lane, and 8-foot parking lane), curb and gutter, 5-foot planter strip including curb width, 7-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and

storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights. Leland Road is under Clackamas County jurisdiction. Improvement to Leland Road must be approved by Oregon City and Clackamas County.

14. The City requires a half-street improvement for a neighborhood collector to provide an 11-foot width of pavement on the applicant's side of the centerline of Pease Road along the project site's frontage with Pease Road. A half-street improvement is defined as to the centerline plus 10-feet. This provides the required improvement on the applicant's portion of the roadway, and allows the opposing travel way to have safe passage on the new gradient. The improved street portion the applicant is required to provide includes, but is not to be limited to, base rock, paved half street width of 21 feet (10-foot opposing travel way, and 11-foot travel lane), curb and gutter, 5-foot planter strip including curb width, 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights.

15. The City requires a half-street improvement for B Street. The improved street portion the applicant is required to provide for half-streets includes, but is not to be limited to, base rock, paved half-street width of 26 feet, curb and gutter, 5-foot planter strip including curb width, 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights. The applicant is required to ensure the east end alignment of proposed B Street provides a minimum of 70 feet lot depth for the adjacent property, Tax Map 3-2E-7DB, 006900 or provide Staff with a written statement from the owners stating that they can accept a lesser distance. This would be as measured perpendicular to the future right-of-way of B Street. Right-of-way dedication from the adjacent property to the south, Tax Map 3-2E-7B-003900, would also be an acceptable alternative to allow the applicant to construct the required half street improvement. Some other alternative may also be approved by the City Engineer and the City Director of Community Development.

16. The City requires full-street improvements for local streets other than B Street. The improved street portion the applicant is required to provide for a full-street includes, but is not to be limited to, base rock, paved full-street width of 32 feet, curbs and gutters, 5-foot planter strip including curb width (4-foot planter strip including curb width for Kafton Terrace), 5-foot concrete sidewalk behind the planter strip, city utilities (water, sanitary and storm drainage facilities), curb return radii, curb (handicap) ramps, centerline monumentation in monument boxes, traffic control devices, street trees, and street lights.

17. The applicant shall receive approval of the street tree plan prior to the issuance of a grading permit for the site. The street tree plan shall also include the planting of street trees on all new streets and along Leland Road and Pease Road.

18. A tree removal and replanting plan is required prior to receiving engineering approval. If trees are later proposed to be removed outside of the building area, the applicant will follow the prescriptive replanting schedule outlined in OCMC 16.12.310-1

19. Ten-foot public utility easements along all street frontages and all easements required for the final engineering plans shall be dedicated to the public on the final plat. All existing and proposed utilities and easements shall be indicated on the construction plans. All off-site utility easements required for this project shall be obtained and submitted to the City prior to approval of the construction plans.

20. The applicant shall follow the conclusions and recommendations of the Geotechnical Engineering Report dated June 1, 2004 (Exhibit 13) by Kirk L. Warner, R.G., and James D. Imbrie, PE, both of GeoPacific Engineering, Inc.

21. The applicant shall provide a revised Landscaping Plan identifying which trees will be removed from the site in relation to the setbacks, utility easements and ROW for the project. The landscaping plan shall be approved by the Planning Department prior to the issuance of a grading permit for the site. Trees that are to be removed that are not located within the ROW, utility easements or setbacks shall be replaced on site.

22. The applicant must plan to construct and complete the entire stormwater system, including the pond and its landscaping prior to recording of the plat. The City will not accept a surety for the pond landscaping unless Staff determines that an adequate planting season is not available prior to submission of the final plat. Even if this is the case, Staff will still require a minimum of an adequate application of hydroseeding/erosion blanket or other means to ensure the pond performs adequately to meet turbidity regulations within the City's Erosion Control regulations.

23. The TIS does not meet City requirements and must be supplemented before the city can finalize its assessment of the impact of the proposal. The applicant shall submit the required supplemental information as spelled out in the September 3, 2004 letter from John Replinger.

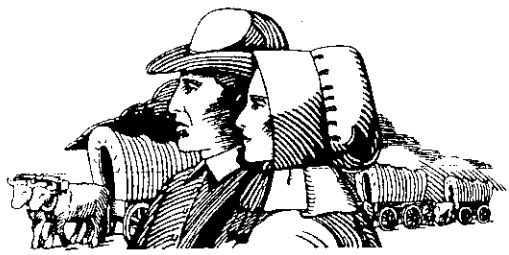
24. The applicant shall orientate the front of the home on Lot 1 to face Pease Road or an alternative to the lot orientation, which incorporates landscaping and fencing into the lot and street design, may be approved if it is found to accomplish the objective of this standard by the community development director.

25. Prior to receiving Plat approvals, the applicant shall submit all CC&R's, maintenance agreements, dedications, easements, and related documents for the subdivision.

26. The applicant shall provide three reserve strips – at each end of the two stub ends of B Street and along the northerly edge of Crisp Drive adjacent to Tax Map 3-2E-7A-002100. They shall be provided on the final plat as plat restrictions.

CITY OF OREGON CITY

Planning Commission
320 WARNER MILNE ROAD OREGON CITY, OREGON 97045
TEL (503) 657-0891 FAX (503) 722-3880



FILE NO.: WR 04-11

APPLICATION TYPE: Quasi-Judicial/Type IV

Complete: August 11, 2004
120-Day: December 9, 2004

HEARING DATE: September 13, 2004
7:00 p.m., City Hall
320 Warner Milne Road
Oregon City, OR 97045

APPLICANT: Gentry Homes, LLC
Thomas Gentry
P.O. Box 1009
Clackamas, Oregon 97015

OWNERS:

Pat Henderson
19431 Leland Road
Oregon City, Oregon 97045

Harry & Ethel Montgomery
19411 Leland Road
Oregon City, Oregon 97045

Stan & Kathleen Raney
19260 Pease Road
Oregon City, Oregon 97045

Leroy Manselle
19391 Leland Road
Oregon City, Oregon 97045

REQUEST: The applicant is requesting a Water Resource determination in association with a Subdivision and Zone Change Application (TP 04-13 and ZC 04-03)

LOCATION: The sites are identified as Clackamas County Map 3-2E-07DB, Tax Lots 6300, 6400 & 6500 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at19391, 19411, & 19431 Leland Road and 19260 Pease Road.

REVIEWER: Christina Robertson-Gardiner, Associate Planner
Jay Toll, Senior Engineer

RECOMMENDATION: Approval with conditions

DECISION CRITERIA: *Chapter 17.49 WR WATER RESOURCES OVERLAY DISTRICT*
Chapter 17.50 ADMINISTRATION AND PROCEDURES

PROCESS: Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. Applications evaluated through this process include conditional use permits, preliminary planned unit development plans, variances, code interpretations, similar use determinations and those rezonings upon annexation under Section 17.06.050 for which discretion is provided. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

IF YOU HAVE ANY QUESTIONS ABOUT THIS DECISION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 657-0891

BASIC FACTS:

1. **Location.** The subject site consist of four parcels in Oregon City totally approximately 8.37 acres with the following legal descriptions Clackamas County Map 3-2E-07DB, Tax Lots 6300, 6400 & 6500 and Clackamas County Map 3-2E-07A, Tax Lot 2200. The sites are located at19391, 19411, & 19431 Leland Road and 19260 Pease Road.

2. **Project Description.** The applicant, Tom Gentry, is proposing a 31-lot Subdivision on the subject site (Exhibit 5). There is an intermittent stream located just south of the site on Tax Lot 6600 and 6700.

3. **Existing Conditions.** The 8.37 acres is comprised of 4 properties with 4 existing homes. There is an existing drainage crossing from west to east in a northerly route across tax lot 6600 and 6700 just south of Lot 22 of the proposed subdivision. There is currently a large mapped wetland on tax lot 6900 to the south of the site. The tax lot 6900 property is currently undergoing planning review for a 47-lot subdivision (TP04-11). The applicant of that subdivision is contending that the wetland has been filled in over time, and will be submitting a request for exemption to the Water Resource Overlay District.

   The site is identified within the Oregon City Water Resource Overlay District and the Wet Soils-High Water Table area on the Geologic Hazards map of the Canby and Oregon City Quadrangles, Oregon. The site is located to the south of Gentry Highland I,

4. **Surrounding Uses/Zoning:**
   a. **North:** Directly north of the site is the Gentry Highland I subdivision, which is zoned "R-8" Single-Family Residential and Coho Court subdivision, currently being built which is also R-8
   b. **South:** South of the subject site is part outside the Oregon City City Limits and the Urban Growth Boundary. A second parcel just recently brought into the City limits is zoned R3.5.
   c. **West:** West of the site are the R-8 Subdivisions of Pease Road Estates and South Hampton Estates and some under developed R-10 homes.
   d. **East:** East of the site is Leland Run, a Planned Unit Development (PUD), and Wesley Lynn Park.

5. **Comments:** Notice of this proposal was sent to property owners within three hundred feet of the subject property and various City departments and other agencies regarding the proposed development. David Evans and Associates, which performed the Traffic Analysis for the site, indicated that the impacts associated with a change from R-10 to R-8 are not expected to substantially affect the planned 20-year transportation system (Exhibit 3b). Comments were also received from the Oregon City Public Works Department (Exhibit 3c). No Public comments were received

III. DECISION-MAKING CRITERIA

CONSISTENCY CRITERIA

Municipal Code

Chapter 17.49 WR WATER RESOURCES OVERLAY DISTRICT
Chapter 17.50 ADMINISTRATION AND PROCEDURES

Chapter 17.49 WR WATER RESOURCES OVERLAY DISTRICT

17.49.030 Applicability.

Finding: This site has been identified as being within the Water Quality Resource Area Overlay District and having a water quality feature (intermittent stream) south the subject site. The standards of this section are applicable.

17.49.040 Administration.

Finding: The City's Water Quality and Water Management Map identify the southeastern section of the subject site within the Water Quality Resource Area Overlay District (Exhibit 6a). This area drains into Mud Creek and then Beaver Creek.

1. The Oregon City local wetland inventory, as amended, shall be a reference for identifying areas subject to the water quality resource area overlay district.

Finding: The Oregon City Local Wetland Inventory was used as a source to the City Water Quality Resource District Map, which identified the stream on the southwestern section of the site (Exhibit 6b)

2. Applicants are required to provide the city with a field-verified delineation of the water quality resource areas on the subject property as part of their application.

Finding: The applicant provided a field-verified delineation for the water quality resource area. The Wetland Delineation was prepared David Waterman of Environmental Technology Consultants and is dated July 2004 (Exhibit 6). This standard is met.

3. The standards for development contained in this chapter are applicable to areas located within a water quality resource area. Applications for development on a site located in the water quality resource area overlay district may request a determination that the subject site is not in a water quality resource area and this is not subject to the standards of Section 17.49.050.

Finding: The applicant is requesting a determination that the site is not located within the Water Resource Overlay District. This standard is applicable.

4. Compliance with Federal and State Requirements.

a. If the proposed development requires the approval of any other governmental agency, such as the Division of State Lands or the U.S. Army Corps of Engineers, the applicant shall make application for such approval prior to or simultaneously with the submittal of its development application to the city engineer. The planning division shall coordinate city approvals with those of other agencies to the extent necessary and feasible. Any permit issued by the city pursuant to this chapter shall not become valid until other agency approvals have been obtained or those agencies indicate that such approvals are not required.

b. The requirements of this chapter apply only to water quality resource areas within the water quality resource area overlay district. If, in the course of a development review, evidence suggests that a property outside the District may contain a Title 3 wetland or other protected water resource, the provisions of this chapter shall not be applied to that development review. However, the omission shall not excuse the applicant from satisfying any state and federal wetland requirements which are otherwise applicable. Those requirements apply in addition to, and apart from the requirements of the city's comprehensive plan and this code. Additionally, the standards of Section 17.49.090 shall be applied to the resource and, if the standards of Section 17.49.090 are met, the district boundaries shall be amended

Findings: The applicant has not proposed direct impacts within the waterway.

17.49.050 Water quality resource area standards.

This section applies to water quality resource areas within the water quality resource area overlay district.

A. The purpose of this section is to protect and improve the beneficial water uses and functions and values of water quality resource areas.

B. The water quality resource area is the vegetated corridor and the protected water feature. The width of the vegetated corridor is specified in Table 17.49-1. At least three slope measurements along the water feature, at no more than fifty-foot increments, shall be made for each property for which development is proposed. Depending on the slope measurements, the width of the vegetated corridor may vary.

Table 17.49-1
WIDTH OF VEGETATED CORRIDOR

Protected Water Feature Type (see definitions)	*Slope Adjacent to Protected Water Feature*	*Starting Point for Measurements from Water Feature*	*Width of Vegetated Corridor (see Note 1)*
Anadromous fish-bearing streams	*Any slope*	*• Edge of bankfull flow*	*200 feet*
Intermittent streams with slopes less than 25 percent and which drain less than 100 acres	*< 25 percent*	*• Edge of bankfull flow*	*15 feet*
All other protected water features	*< 25 percent*	*• Edge of bankfull flow • Delineated edge of Title 3 wetland*	*50 feet*
	≥ 25 percent for 150 feet or more (see Note 2)		*200 feet*
	≥ 25 percent for less than 150 feet (see Note 2)		*Distance from starting point of measurement to top of ravine (break in ≥25 percent slope) (See Note 3) plus 50 feet.*

Notes:

1. Required width (measured horizontally) of vegetated corridor unless reduced pursuant to the provisions of Section 17.49.050(I)

2. Vegetated corridors in excess of fifty feet apply on steep slopes only in the uphill direction from the protected water feature.

3. Where the protected water feature is confined by a ravine or gully, the top of the ravine is the break in the ≥ 25 percent slope.

Findings: This standard is conditionally met. According to the report, there are no intermittent streams or wetlands on the site. The report does not recommend any buffer area. The City feels significant flow exists through the swale to classify it as an intermittent stream. An intermittent stream would require a 15-foot wide vegetated corridor tract on each side. The drainage appears to be located on the adjacent property approximately 8 feet from the property line. This would require a 7-foot wide vegetated corridor tract along the southwestern property line of lot 22. The vegetated corridor areas are to be improved by removing non-native species, and replanting with non-nuisance plants from the Oregon City native plant list. There is currently a large mapped wetland on tax lot 6900 to the south of the site. The property is currently undergoing planning review for a 47-lot subdivision (TP04-11). The applicant of that subdivision is contending that the wetland has been filled in over time, and will be submitting a request for exemption to the Water Resource Overlay District. If the wetland exemption is given, the required vegetative tract for TP04-13 may be dropped. **The applicant can satisfy this criterion by complying with Condition of Approval 3.**

C. Uses Permitted Outright.

1. Stream, wetland, riparian and upland enhancement or restoration projects; and farming practices as defined in ORS 30.930 and farm uses, excluding buildings and structures, as defined in ORS 215.203;

2. Placement of structures that do not require a grading or building permit;

3. Routine repair and maintenance of existing structures, roadways, driveways, utility facilities, accessory uses and other development.

Findings: The applicant has not proposed any permitted uses. However if the applicant is required to create a separate tract for the vegetative corridor, stream, riparian and upland enhancement projects will be required, which is a permitted use.

D. Uses Under Prescribed Conditions.

1. Repair, replacement or improvement of utility facilities where the disturbed portion of the water quality resource area is restored and vegetation is replaced with vegetation from the Oregon City native plant list.

2. Additions, alterations, rehabilitation, or replacement of existing structures that do not increase existing structural footprint in and will have no greater material adverse impact on the water quality resource area where the disturbed portion of the water quality resource area is restored using native vegetative cover.

3. Public capital improvement projects that comply with the development standards of this chapter. The city engineer will determine compliance with water quality resource area standards.

Findings: The applicant has not proposed any prescribed uses.

E. Provisional Uses. The following uses are allowed in the water quality resource area subject to compliance with the application requirements and development standards of subsections G and H of this section:

1. Any use allowed in the base zone, other than those listed in subsection C and D of this section;

2. Measures to remove or abate nuisances, or any other violation of state statute, administrative agency rule or city ordinance;

3. Roads to provide access to protected water features or necessary ingress and egress across water quality resource areas;

4. New public or private utility facility construction;

5. Walkways and bike paths (see subsection (H)(5) of this section);

6. New stormwater pre-treatment facilities (see subsection (H)(6);

7. Widening an existing road adjacent to or running parallel to a water quality resource area;

8. Additions, alterations, rehabilitation or replacement of existing structures, roadways, accessory uses and development that increase the structural footprint within the water quality resource area consistent with subsection (H)(7) of this section.

Findings: No Provisional Uses are proposed.

F. Prohibited Uses.

1. Any new development, other than that listed in subsections C, D and E;

2. Uncontained areas of hazardous materials as defined by the Department of Environmental Quality.

Findings: No prohibited uses are proposed.

G. Application Requirements. Applications for provisional uses in the water quality resource area must provide the following information in a water resources report in addition to the information required for the base zone.

1. A topographic map of the site at contour intervals of five feet or less showing a delineation of the water quality resource area, which includes areas shown on the city water quality and flood management areas map.

Findings: This criterion has been met (Exhibit 6)

2. The location of all existing

Findings: This criterion has been met

3. Location of Title 3 wetlandsWhere Title 3 wetlands are identified, the applicant shall follow the Division of State Lands recommended wetlands delineation process. The delineation shall be prepared by a professional wetlands specialist;

Findings: This criterion has been met

4. An inventory and location of existing debris and nuisance plants;

Findings: This criterion has been met

5. *An assessment of the existing condition of the water quality resource area in accordance with Table 17.49-2;*

Findings: This criterion has been met in the application

6. *An inventory of vegetation, including percentage ground and canopy coverage;*

Findings: This criterion has been met in the application

7. An analysis of the impacts the proposed development may have on the water quality resource area. This discussion shall take into account relevant natural features and characteristics of the water quality resource area, including hydrology, soils, bank stability, slopes of lands abutting the water resources, hazards of flooding, large trees and wooded features. The discussion shall identify fish and wildlife resources that utilize or inhabit the impact area in the course of a year and the impact of the proposed development on water resource values;

Findings: No development is proposed in the Vegetative Corridor

7. *An analysis of the impacts the proposed development will have on the water quality of affected water resources, taking into account relevant natural features and characteristics of the water quality resource area;*

Findings: No development is proposed in the Vegetative Corridor

8. *An analysis of measures which feasibly can be taken to reduce or mitigate the impact of the proposed development on the water quality resource area and their vegetated corridors, including proposed drainage and erosion control measures, and an analysis of the effectiveness of these measures;*

Findings: No development is proposed in the Vegetative Corridor

10. The water resources report shall be prepared by one or more qualified professionals including a wetlands biologist or hydrologist whose credentials are presented in the report;

Findings: The report was prepared by David Waterman from Environmental Technology Consultants and stamped by Richard Bublitz, a wetlands biologist. This criterion is met.

11. Alternatives analysis demonstrating that:

a. *No practicable alternatives to the requested development exist that will not disturb the water quality resource area,*
b. *Development in the water quality resource area has been limited to the area necessary to allow for the proposed use,*
c. *The water quality resource area can be restored to an equal or better condition in accordance with Table 17.49-2,*
d. *It will be consistent with a water quality resource area mitigation plan,*
e. *An explanation of the rationale behind choosing the alternative selected, including how adverse impacts to resource areas will be avoided or minimized and mitigated,*

Findings: No development is proposed in the Vegetative Corridor

12. A water quality resource area mitigation plan shall be prepared by a registered professional engineer, landscape architect, biologist, or other person trained or certified to determine that the vegetated corridor meets the requirements of Table 17.49-2 and shall contain the following information:

a. *A description of adverse impacts that will be caused as a result of development,*
b. *An explanation of how adverse impacts to resource areas will be avoided, minimized, and/or mitigated in accordance with, but not limited to, Table 17.49-2,*
c. *A list of all responsible parties including, but not limited to, the owner, applicant, contractor or other persons responsible for work on the development site,*
d. *A map showing where the specific mitigation activities will occur,*
e. *A maintenance program assuring plant survival for a minimum of three years,*

f. An implementation schedule, including timeline for construction, mitigation, mitigation maintenance, monitoring, reporting and a contingency plan. All in-stream work in anadromous fish-bearing streams shall be done in accordance with the Oregon Department of Fish and Wildlife in-stream timing schedule.

Findings: The applicant has not provided a mitigation plan for the enhancement of the area. If a tract for the vegetative corridor is required, the vegetated corridor areas are to be improved by removing non-native species, and replanting with non-nuisance plants from the Oregon City native plant list. This criterion is met as conditioned.

H. Development Standards. Applications for provisional uses in the water quality resource area shall satisfy the following standards:

1. The water quality resource area shall be restored and maintained in accordance with the mitigation plan and the specifications in Table 17.49-2.

Findings: The project will include restoration and maintenance in accordance with the replanting plan (item 12, above) and the specifications of Table 17.49-2 (see item 11 above).

2. Existing vegetation shall be protected and left in place. Work areas shall be carefully located and marked to reduce potential damage to the water quality resource area. Trees in the water quality resource area shall not be used as anchors for stabilizing construction equipment.

Findings: If the vegetative corridor is retained as a tract in TP 04-13, the applicant will remove the existing non-native vegetation, and replace with native species. The applicant shall ensure that all trees will be protected and not used to anchor or stabilize the work equipment.

This standard is not met. The applicant can satisfy this criterion by complying with Condition of Approval 3.

Where existing vegetation has been removed, or the original land contours disturbed, the site shall be revegetated during the next planting season. Nuisance plants, as identified in the Oregon City nuisance plant list, may be removed at any time. Interim erosion control measures such as mulching shall be used to avoid erosion on bare areas. Removed nuisance plants shall be replaced with plants from Oregon City's native plant list by the next planting season.

Findings: The project will include restoration and maintenance in accordance with the replanting plan (item 12, above) and the specifications of Table 17.49-2 (see item 11.c and 11.d above). This standard is met as conditioned.

3. Prior to construction, the water quality resource area shall be flagged, fenced or otherwise marked and shall remain undisturbed except as allowed in subsection E of this section. Such markings shall be maintained until construction is complete.

Findings: This applicant shall clearly mark the work boundaries and clearing limits.

This standard is not met. The applicant can satisfy this criterion by complying with Condition of Approval 2

5. Walkways and bike paths:

Findings: The applicant has not proposed the construction of a walkway or bike path. This standard is not applicable.

6 Stormwater quantity control and quality control facilities.

Findings: The applicant has not proposed a stormwater facility within the vegetated corridor. This standard is not applicable.

7. Additions, Alterations, Rehabilitation and Replacement of lawful structures.

Findings: The applicant has not proposed additions, alterations, rehabilitation, or replacement of lawful structures. This standard is not applicable.

8. Off-Site Mitigation

Findings: The applicant has not proposed off site mitigation. This standard is not applicable.

I. Vegetated Corridor Width Reduction. A reduction in the width of the vegetated corridor required by Table 17.49-1 may be allowed as part of a Type III proceeding

Findings: The applicant has not requested a vegetated corridor width reduction

17.49.090 Map Administration.

Findings: City staff handles modifications to water resource boundaries relying on the applicant's Water Resource Report findings and maps to establish minor modifications to the boundary. A significant error would be processed under this Map Amendment process.

(E) Chapter 17.50 ADMINISTRATION AND PROCEDURES

17.50.050 Preapplication conference and neighborhood meeting.

A. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. The applicant may also schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed.

B. Preapplication Conference. To schedule a preapplication conference, the applicant shall contact the planning manager, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way. The purpose of the preapplication conference is to provide staff from all affected city departments with a summary of the applicant's development proposal and an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning manager shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations. Following the conference, the planning manager shall provide the applicant with a written summary of the preapplication conference.

C. Affected Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents.

D. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this code, and any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

E. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. The planning manager may waive the preapplication requirement if, in the manager's opinion, the development does not warrant this step. (Ord. 98-1008 §1(part), 1998)

Finding: The applicant held a pre-application meeting with staff, identified as PA 04-06 March 16, 2004 prior to submitting the application. This criterion is met.

(b) 17.50.060 Application requirements.

Finding: The property owner has initiated the permit application process.

(C) 17.50.070 Completeness review and one-hundred-twenty-day rule.

Finding: The applicant submitted the application on May 26, 2004. The City deemed the application incomplete on June 7, 2004 and complete on August 11, 2004.

(d) 17.50.090 Public notices.

Finding: Notice of this proposal was sent to property owners within three hundred feet of the subject property on August 11, 2004 and various City departments and other agencies on August 11, 2004 The subject site was posted and the Planning Commission Hearing was advertised in the Clackamas Review on August 25, 2004 requesting comments.

(e) 17.50.100 Notice posting requirements.

Finding: The City has provided the required notice. See (d) above.

(f) *17.50.130 Conditions of approval and notice of decision.*
Finding: The City will provide notice of this decision and has imposed reasonable conditions of approval.

(g) *17.50.140 Performance guarantees.*
Finding: The applicant has not proposed to post any performance guarantees at this time.

Conclusion and Decision
Based on the analysis and finding as described above, staff recommends that the proposed application for the Water Quality Resource Area delineation and replanting plan can be approved by the Planning Commission with the recommended Conditions of Approval.

EXHIBITS
The following exhibits are attached to this staff report.

1. Vicinity Map
2. Oregon City Zoning Map
3. TP 04-13 Narrative
4. ZC 04-02 Narrative
5. Gentry Highland II Subdivision Plans *(PC to additionally receive large sized plans)*
6. WR 04-13 Submittal by Environmental Consultants, July 27, 2004
   a. The City's Water Quality and Water Management Map
   b. The Oregon City Local Wetland Inventory
7. John Replinger, David Evans and Associates, Comments, dated September 3, 2004
8. Oregon City Public Works Department, dated April 29, 2004
9. Oregon City Building Official
10. Traffic Analysis, Lancaster, dated July 13, 2004
11. Geotechnical Engineering Report dated June 1, 2004 by GeoPacific Engineering
12. Preliminary Storm Runnoff & Detention Calculations
13. City of Oregon City Engineering Policy 00-01

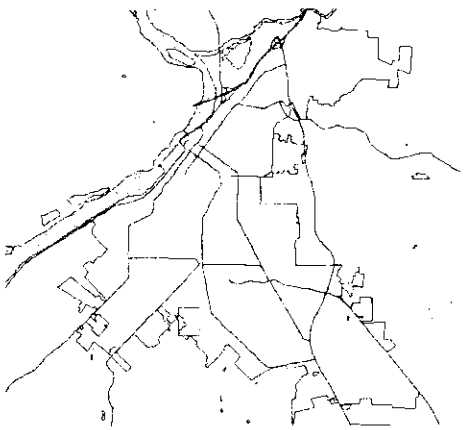
RECOMMENDED CONDITIONS OF APPROVAL
September 3, 2004
WR 04-11

1. No work shall be done in the wetland areas and along the existing drainage swales without a permit from the Oregon Division of State Lands and the Army Corps of Engineers, if applicable. The applicant shall provide the City copies of the above permits prior to the approval of a grading permit.

2. Prior to the issuance of a grading permit, the applicant shall clearly mark the water quality resource area and the work areas shall be carefully located and marked to reduce potential damage to the resource. Trees shall not be used as anchors for stabilizing construction equipment.

3. The applicant shall create a separate tract which represents the portions of the 15-foot vegetative corridor of the identified intermittent stream that are located on lot 22 of the Subdivision (TP 04-13). This Tract shall be separately deeded or conveyed to the City in the final plat for TP 04-13. The vegetated corridor area is to be improved by removing non-native species, and replanting with non-nuisance plants from the Oregon City native plant list. The property to the south is currently undergoing planning review for a 47-lot subdivision (TP04-11). The applicant of that subdivision is contending that the wetland on their property has been filled in over time, and will be submitting a request for exemption to the Water Resource Overlay District. If the wetland exemption is given, the required vegetative tract for TP04-13 will not be required.

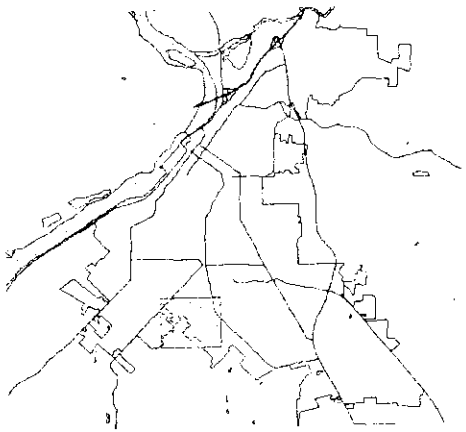
ZC 04-02 and TP 04-13



City of Oregon City
P.O. Box 3040
320 Warner Milne Road
Oregon City, OR 97045

Exhibit 1

Oregon City Zoning Map



City of Oregon City
P.O. Box 3040
320 Warner Milne Road
Oregon City, OR 97045

The data on this map is the best information available from the records of the City of Oregon City. Errors and omissions may exist.

Exhibit 2

Application for Land Division

Applicant	Gentry Homes P.O. Box 1009 Clackamas, OR 97015 (503) 655-7383 Contact: Tom Gentry
Representative	Sisul Engineering. 375 Portland Avenue Gladstone, OR 97027 (503) 657-0188 Contact: Tom Sisul
Location	19260 S. Pease Road, 19391, 19411, and 19431 S. Leland Road
Legal Description	Tax Lots 2200 3 2E 7A; 6300, 6400, and 6500 3 2E 7DB
Zoning	Current R-10 Proposed R-8
Comprehensive Plan	Low Density Residential
Site Size	8.27 Acres
Proposal	Subdivision to create 31 lots in the R-8 Zone

Exhibit 3

Site Description

The site is located in the southeastern part of Oregon City, southeast of S. Pease Road across from Crisp Drive. The three lots on Leland Road were annexed in 2004 and the tax lot fronting Pease Road was in the City prior to that.

The site presently has frontage and access by way of a driveway to S. Pease Road and three driveways to S. Leland Road, all serving existing residences. Pease Road is classified as a local residential street and Leland is classified as a minor arterial street.

The site is nearly flat, and is occupied by single-family dwellings. Trees on the site are located along the S. Pease Road frontage and in the vicinity of the existing residences on the Leland Road frontage.

Single-family residences on large lots occupy adjacent properties. Across S. Pease Road, and between Pease and Leland, are single family residences in subdivisions zoned R-8 and R-10, with developed properties generally designated R-8. Across Leland is property zoned R-8 that is approved for development. Nearly all properties in the area that have been approved for development have received approval for R-8 densities.

Proposal

The applicant requests a subdivision to create 31 lots, according to standards in the R-8 Zone. A separate and concurrent application has been submitted for a change in zoning designation from R-10 to R-8 to facilitate the development of the subdivision in a manner similar to other developments in the vicinity.

A new street is proposed to extend southeast from Pease Road, terminating in a cul de sac short of Leland Road. Exit to Leland Road is blocked by three existing residences. Two street stubs will extend to the north and south of the new interior street. All new streets will have a 54-foot right of way with 32 feet of pavement between curbs, a five foot wide planter and five foot sidewalk. The cul de sac will be approximately 200 feet long, terminating in a 54-foot radius cul de sac.

Public water and sanitary sewer are available from lines in adjacent streets and developments. Public water will be extended to provide connections for each new lot. Public sewer will be installed on the site to provide connections for each new lot and will be connected to the existing sanitary sewer. Storm water will be collected in a system of pipes and directed to the public sanitary sewer across Leland Road to the south and east. Please refer to the preliminary "Utility Plan" (Sheet 3) for details and locations of proposed facilities.

The subdivision is designed to satisfy all requirements of the City's Codes, as described in the following narrative.

Applicable Criteria and Standards

Applicable criteria and standards of the Oregon City Development Code include the following:

Title 16 Land Divisions

Title 17 Zoning:
Chapter 17.10 R-8 Zone
Chapter 17.50 – Administration and Procedures

The following are not applicable to this proposal:
Chapter 17.44 US Unstable Soils and Hillside Constraint Overlay District
Chapter 17.49 – Water Resource Overlay District
Chapter 17.62 – Site Plan and Design Review

Requirements of Title 16 and 17 will be reviewed in this narrative. Generally, Code provisions are indicated by italics, with the applicant's response in plain text. Applicable criteria and standards have been taken from the "new" code, which was effective on June 18, 2004.

Title 16 Land Divisions
Chapter 16 Subdivisions

The applicant proposes a subdivision to create 31 new lots suitable for single family detached dwellings, with a new street terminating in a cul de sac and stub streets that connect to an adjacent development or provide access for future development. Although no longer required, a pre-application meeting with staff was held on February 26, 2004, and the applicant has maintained contact with staff to assure that all requirements would be satisfied as the project.

Chapter 16.08 Subdivisions – Process and Standards

16.08.040 Preliminary subdivision plat—Required plans. The Applicant has submitted plans that show information required in this section. A traffic analysis report prepared by Lancaster Engineering, Inc., was submitted for the zone change, and provides sufficient information for review of the subdivision. Please refer to the set of plans for details.

Sheet 1 – Site Plan
Sheet 2 – Existing Conditions and Topography Plan
Sheet 3 – Preliminary Utility Plan
Sheet 4 – Preliminary Street Design

Chapter 16.12 – Minimum Improvements and Design Standards for Subdivisions
16.12.010 Purpose and general provisions.
All land divisions shall be in conformance with the policies and design standards established by this chapter and with applicable standards in the city 's public facility master plan and city design standards and specifications....

The subdivision was designed to conform to requirements of this Chapter and of the R-8 Zoning District.

16.12.030 Street design--Minimum right-of-way.
All land divisions shall provide adequate right-of-way and pavement width. Adequate right-of-way and pavement width shall be provided by:

1. Complying with the Street Design Standards contained in table 16.12.030 below.

Proposed streets have a 53 foot wide right of way with 32 feet of pavement, except for the extension of Krafton Terrace, which will continue the 50 foot right of way to its intersection with the new street. Streets as proposed are designed to the specified city standards. Please refer to Sheet 1 Proposed Site Plan.

16.12.050 Street design--Alignment.
The centerline of Streets shall be:

1. Aligned with existing streets by continuation of the centerlines; or

2. Offset from the centerline by no more than 10 feet, provided appropriate mitigation, in the judgment of the City Engineer, is provided to ensure that the offset intersection will not pose a safety hazard.

The new interior street will align with Crisp Drive where the new street is proposed to intersect Pease Road. A new stub street proceeding generally to the east will connect to Krafton Terrace, where that street is temporarily terminated in Gentry Highlands. Other connections are enabled by the proposed street arrangement, which was coordinated with the staff. The street arrangement, as proposed, ensures that suitable and sufficient access is provided so that adjacent properties may develop as provided in the City's Code.

16.12.055 Minimum Street Intersection Spacing Standards
All new development and redevelopment shall meet the following Minimum Street Intersection Spacing Standards....

Intersection spacing standards are satisfied with the intersection aligned with Crisp Drive on Pease Road, and with the separation of interior streets within the development.

16.12.065 Intersection Level of Service Standards.
When approving land use actions, the City of Oregon City requires all relevant intersections to be maintained at the minimum acceptable Level Of Service (LOS) upon full build-out of the proposed land use action....

A traffic analysis report was prepared for the zone change, which reviewed the potential impact of development of the site with 45 lots, the maximum number of dwellings possible for the site. This would represent an increase of nine lots from the maximum potential of 36 lots under R-10 zoning (zone change application pending). The traffic report found no level of service problems that would be created by an addition of nine lots over current zoning. In fact, as the subdivision fits on the site with 31 lots, less than the maximum potential currently allowed (note that the "maximum potential" is often a theoretical figure, without consideration of feasibility or practical reality on the ground).

16.12.170 Street design--Transit.
Streets shall be designed and laid out in a manner that promotes pedestrian and bicycle circulation. The applicant shall coordinate with Tri-Met where the application impacts transit streets....

No transit street improvements have been identified as necessary for this subdivision.

16.12.180 Street design--Planter strips.
All development shall include vegetative planter strips that are five feet in width or larger and located adjacent to the curb....

The proposed street section includes planter strips as required. Please refer to Sheet 1 of the proposed plans.

16.12.232 Building Sites – Minimum Density
All subdivision layouts shall achieve at least 80% of the maximum density of the base zone for the net developable area as defined in Section 17.04.

The base density is not defined in Section 17.04, however there is a definition for "net developable area" (17.04.390) that provides a calculation for density excluding undevelopable areas, rights of way, etc. The net developable area is 6.04 Acres (263,315 square feet). The maximum density is 32.9 lots (263,315 divided by 8,000 square feet, the R-8 minimum lot area). The minimum density is 80% of the maximum, or 26 lots. Thirty-one lots are proposed, with an average lot area for this subdivision is 8,356 square feet.

Section 17.06.070 Requirements Table provides that the maximum density in an R-8 zone is 5.5 dwellings per acre, with a minimum lot area of 8,000 square feet. Using the calculated net developable area of 6.04 acres, the maximum density is 33.22 lots. Thirty-one lots are proposed.

16.12.235 Calculations of Lot Area.
A subdivision in a Single Family Dwelling District may include lots that are up to 10% less than the required minimum lot area of the applicable zoning designation provided the entire subdivision on average meets the minimum site area requirement of the underlying zone....

The average lot area, calculated as specified in this section, is 8,356 square feet. Lots range in area from 7,201 square feet (Lot 8) to over 12,000 square feet for each of the lots for the existing residences fronting Leland Road.

16.12.238 Flag Lots

No flag lots are proposed.

16.12.290 Building site--Setbacks and building location.
This standard ensures that lots are configured in a way that development can be oriented

toward streets to provide a safe and better environment for pedestrians and bicyclists.

All lots have frontage on an existing public street (Leland Road) or the new public streets proposed within the development. Lots comply with dimensional requirements of the R-8 zone, which provides a rectangular area suitable for placement of a dwelling that is oriented to the fronting street. No buildings are proposed at this time and the four existing dwellings that will be retained within the development (Lots 10, 22, 23, and 24) are oriented to the fronting street.

16.12.310 Building site--Protection of trees.
Site planning, including the siting of structures, roadways and utility easements, shall provide for the protection of tree resources. All trees with a diameter six inches or greater measured four feet from the ground shall be preserved outside the building area, which is defined as right-of-way, public utility easements, and within the building setbacks of each lot. Where the Community Development Director determines it is impracticable or unsafe to preserve these trees, the applicant may be allowed to remove the trees so long as they are replaced in accordance with an approved landscape plan that includes new plantings of at least two inches in caliper measured six inches above the root crown and the plan must meet, at a minimum, the requirements of Table 16.12.310-1....

Tree locations are shown on Sheet 2 Existing Conditions. Thirty-two (32) trees are located in the proposed right-of-way and utility easement. This is defined as "building area" and is exempt from preservation requirements. At the development phase, no additional tree removal is proposed. While it is obvious that some additional trees will be removed (e.g. most of the trees on Lot 25 and the 24 inch apple tree on Lot 20, to be determined when a house plan is chosen for each lot), the applicant will work to preserve remaining trees that are outside of construction areas.

Title 17 Zoning
Chapter 17.10 R-8 Single Family Dwelling District

The proposed subdivision has been designed to standards in the R-8 zone specified in Chapter 17.10. Lots range in area from 7,201 square feet to 12,573 square feet, with an average lot area of 8,356 square feet. Please refer to the Proposed Site Plan (Sheet 1) for details.

Dimensional standards are listed in Section 17.10.040:

17.10.040 Dimensional standards.
Dimensional standards in the R-8 district are:

A. Minimum lot area, eight thousand square feet;
B. Minimum lot width, sixty feet;
C. Minimum lot depth, seventy-five feet;
D. Maximum building height, two and one-half stories, not to exceed thirty-five feet;
E. Minimum required setbacks:

D. Maximum building height, two and one-half stories, not to exceed thirty-five feet;

E. Minimum required setbacks:

1. Front yard fifteen feet minimum depth,

2. Attached and detached garage, twenty feet minimum depth from the public right-of-way where access is taken, except for alleys. Garages on an alley shall be setback a minimum of five feet in residential areas.

3. Interior side yard, nine feet minimum for at least one side yard, seven feet minimum for the other side yard,

4. Corner side yard, fifteen feet minimum width,

5. Rear yard, twenty feet minimum depth,

6. Solar balance point, setback and height standards may be modified subject to the provisions of Section 17.54.070.

F. Garage Standards:

1. The length of the garage wall facing the street may be up to 40% of the length of the street facing building façade, or

2. The garage may be up to 50% of the length of the façade if the garage is recessed a minimum of 5 feet from the longest street facing façade, and,

3. On corner lots, only one street-facing wall must meet the standards in (1) or (2) above, and

4. A garage wall that faces the street may be no closer to the street than the longest street-facing wall of the house except as provided in subsections (5) and (6) below.

5. A garage may extend up to 5 feet in front of the longest front façade if:

a. There is a covered front porch and the garage does not extend beyond the front line of the porch, or

b. The garage is part of a two level façade that has a window (minimum 12 square feet, with 4" trim or shutters) on the second level that faces the street.

6. Garages may be side-oriented to the front lot line if windows occupy a minimum of 15% of the street-facing wall of the garage.

7. Exception. Where the street facing façade of the building is less than 24 feet long, the garage wall facing the street may be up to 12 feet long if there is one of the following:

a. Interior living area above the garage. The living area must be set back no more than 4 feet from the street facing garage wall; or

b. A covered balcony above the garage that is at least the same length as the street facing garage wall, at least 6 feet deep, and accessible from the interior living area of the dwelling unit.

G. Maximum Building Coverage: 33% of the lot area. Accessory buildings 200 square feet or less are exempt from the maximum building coverage calculation.

The rear lot line locations for the existing residences fronting Leland Road and all lot boundaries for Lot 10 have been placed in a manner that complies with setback requirements of this section. For the residences fronting Leland, front and side setbacks will not be changed by this development proposal. Please refer to Sheet 1 Proposed Site Plan for dimensions for each lot and building setback.

17.50.050 Preapplication conference and neighborhood meeting.

A pre-application conference was held on February 26, 2004.

A neighborhood meeting is required for the subdivision, as the application is submitted following the effective date of the new code. However, there is no organized neighborhood association in the area so no meeting was possible.

Chapter 17.52 – Off-Street Parking and Loading
17.52.010 Number of spaces required.
At any time of erection of a new structure or at the time of enlargement or change in use of an existing structure within any district in the city, off-street parking spaces shall be provided in accordance with this section....

Each existing residence (Lots 10, 22, 23, and 24) has double (two) car garages that provide the required parking spaces for a single family dwelling (minimum of one space, maximum of two spaces). New buildings will be reviewed for compliance when building permits are requested.

Conclusion

The foregoing narrative describes the proposed land division, which is intended to create 31 lots suitable for single family dwelling structures. The four existing residences will be accommodated on new lots within the proposed subdivision. The narrative and plans demonstrate that the proposal is generally in conformance with the City's applicable criteria and standards. Therefore, the application should be approved as submitted.

Application for Zone Change

Applicant	Gentry Homes P.O. Box 1009 Clackamas, OR 97015 (503) 655-7383 Contact: Tom Gentry
Representative	Sisul Engineering. 375 Portland Avenue Gladstone, OR 97027 (503) 657-0188 Contact: Tom Sisul
Location	19260 S. Pease Road, 19391, 19411, and 19431 S. Leland Road
Legal Description	Tax Lots 2200 3 2E 7A; 6300, 6400, and 6500 3 2E 7DB
Zoning	Current R-10 Proposed R-8
Comprehensive Plan	Low Density Residential
Site Size	8.27 Acres
Proposal	Zone change to R-8.

Exhibit 4/

Site Description

The site is located in the southeastern part of Oregon City, southeast of S. Pease Road across from Crisp Drive. The three lots on Leland Road were annexed in 2004 and the tax lot fronting Pease Road was in the City prior to that.

The site presently has frontage and access by way of a driveway to S. Pease Road and three driveways to S. Leland Road, all serving existing residences. Pease Road is classified as a local residential street and Leland is classified as a collector street.

The site is nearly flat, and is occupied by single-family dwellings. Trees on the site are located along the S. Pease Road frontage and in the vicinity of the existing residences on the Leland Road frontage.

Single-family residences on large lots occupy adjacent properties. Across S. Pease Road, and between Pease and Leland, are single family residences in subdivisions zoned R-8 and R-10, with developed properties generally designated R-8. Across Leland is property zoned R-8 that is approved for development. Nearly all properties in the area that have been approved for development have received approval for R-8 densities.

Proposal

The applicant requests a change in zoning designation from R-10 to R-8 to facilitate the development of a subdivision on the site, in a manner similar to other developments in the vicinity.

The applicable provisions and requirements of the City's Codes are described in the following narrative.

Applicable Criteria and Standards

Applicable criteria and standards of the Oregon City Development Code include the following:

Title 17 Zoning:

Chapter 17.68 Zoning changes and Amendments

Requirements of Chapter 17 will be reviewed in this narrative. Generally, Code provisions are indicated by italics, with the applicant's response in plain text.

Title 17 Zoning
Chapter 17.68 Zoning Changes and Amendments
17.68.010 Initiation of the Amendment

A change in zoning designation may be initiated by a property owner, upon presentation of an application to the City, as provided in this section.

17.68.020 Criteria

This section provides the criteria for review of a proposed zone change:

The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment

Criterion A: Goals and policies of the Comprehensive Plan are satisfied by this application.

The portions of the City of Oregon City's Comprehensive Plan Criteria that are applicable to the proposed zone change include the following:

Section "C" Housing
Section "G" Growth and Urbanization
Section "I" Community Facilities
Section "J" Parks and Recreation
Section "L" Transportation

The proposed zone change is consistent to the goals of the Comprehensive Plan, as demonstrated by the following discussion:

Housing: Provide for the planning, development, and preservation of a variety of housing types at a range of prices and rents.

The site will accommodate single family detached dwellings on lots sizes of 8,000 square feet in area, and larger. This type of housing is similar to adjacent developments, and will maintain the lower density neighborhood. This goal is satisfied, because the type of housing allowed is anticipated as part of the community's overall needed types and varieties.

Growth and Urbanization: To preserve and enhance the natural and developed character of Oregon City and its urban growth area.

The proposed zone change will permit development consistent with adjacent subdivisions and therefore, this goal is satisfied.

Community Facilities: Serve the health, safety, education, welfare and recreational needs of all Oregon City residents through the planning and provision of adequate community facilities.

Policy 5 of this Plan section states that "The City will encourage development on vacant land within the City where urban facilities and services are available or can be provided." With development of the site, the applicant will be required to extend City of Oregon City public facilities, including City of Oregon City water and sewer mains, and construct appropriate improvements to fronting streets as well as internal streets.

The proposed zone change permits a slight increase in density, to a maximum of 45 lots, an increase of nine lots over the R-10 density, in an area where the terrain is generally flat, there are no natural or physical constraints, and where public facilities and services are available and generally have capacity.

Therefore, this goal is satisfied.

Parks and Recreation: Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Appropriate provisions for open space will be required as part of development review. The site is almost directly across Leland from the proposed Wesley Lynn Park, which will be improved by the City this summer.

This goal can be satisfied through development review.

Transportation: Improve the systems for movement of people and products in accordance with land use planning, energy conservation, neighborhood groups and appropriate public and private agencies.

Appropriate policies of this section include "provision for adequate off-street parking will be mandatory", "new developments will include sidewalks in their design", "sidewalks will be of sufficient width to accommodate pedestrian traffic", "use of additional easement or underground utilities for utility poles will be encouraged". All of these policies will be satisfied as a part of this PUD development.

This goal will be satisfied through development review.

Criterion B: Public facilities and services, including water, sewer, storm drainage, transportation, schools police and fire protection, are available or can be made available with adequate capacity for development of the site.

Public sewer is available, with capacity to serve development of a subdivision. New sewer lines will be extended with development of the site, to provide connections for each new lot.

Public water is also available. Design of the subdivision would incorporate a looping of the water lines in new public roads to support area wide water facilities.

Storm water would be collected and piped to appropriate detention and treatment facilities, for release into the public storm drain system across South Leland.

Open space is available as noted, in the proposed Wesley Lynn Park, across Leland Road from the site. Other appropriate measures to ensure adequate recreational area will be applied through the development review process.

Traffic and transportation : Maximum density for the site is 45 dwellings, which would generate an estimated daily traffic volume of 430 weekday trips (note that these are not all "new" trips, as there are several residences already on the site), according to the Traffic Impact Analysis prepared by Lancaster Engineering, Inc. The project density may be lower, depending on how streets and lots actually fit on the site. In fact, the project engineer has prepared a preliminary plan with 31 lots.

While this project will have an impact on the system as a whole, congestion is increasingly a problem throughout the southeastern part of Oregon City. The Traffic Impact Study prepared by Lancaster Engineering, Inc., submitted as part of the application, does not identify the need for any system level improvements as a result of the change in zoning and development of this property at R-8 density. However, the TIS notes that eventually there will be a need for improvements nearby intersections that been identified as system improvements in the City's Transportation System Plan. For the present, all intersections in the vicinity function at an acceptable level of service and the proposed development will satisfy its obligation for future improvements through the payment of a system development charge. The system development charge is in addition to frontage improvements and dedications required for the project.

A representative of the school district provided information on schools. The following schools will serve students from the site and no service deficiencies have been identified. Although, school officials noted that elementary attendance boundaries may be adjusted.

Elementary – McLoughlin Elementary School
Middle - Gardiner Middle School
High – Oregon City High School.

The City provides fire and police services. No comments from emergency providers have suggested that this development will cause problems.

A review of public facilities and services demonstrates that all necessary facilities are available, or will be made available through the development review process. Therefore, this criterion is satisfied.

Criterion C: Proposed land uses in the R-8 Zone are similar to those permitted in the R-10 Zone, with the slightly higher density. The proposal is consistent with the planned function, capacity, and level of service of adjacent streets.

The Traffic Impact Report, discussed above with relation to the availability of public services, considers relevant issues in detail. No problems have been identified that would be affected by the proposed zone change.

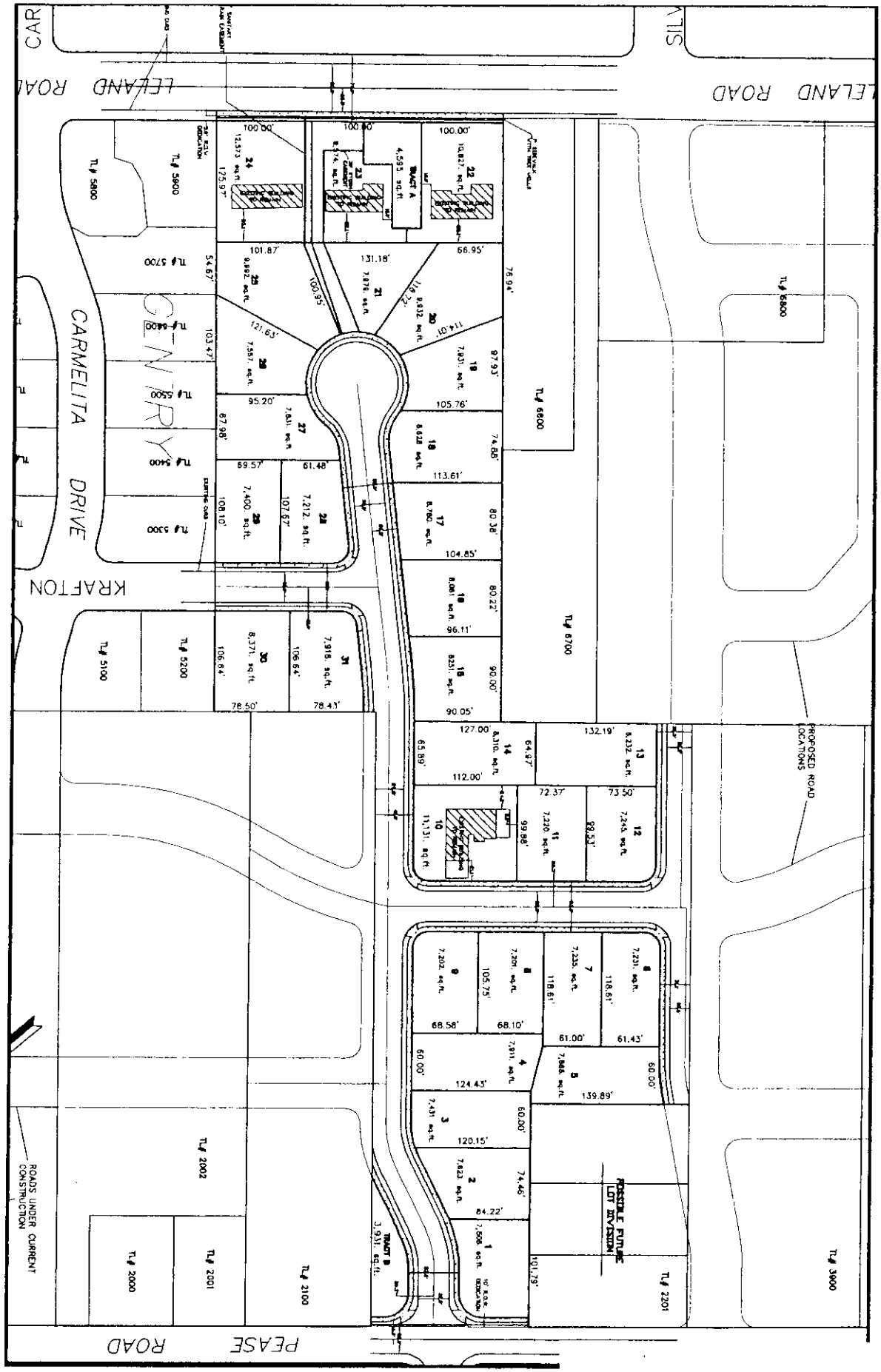
The City's Comprehensive Plan map identifies the site and vicinity as suitable for Low Density Residential development. The R-8 designation is appropriate, because there are no physical constraints to limit carrying capacity and because public facilities and services are available with adequate capacity. Much of the southeast part of Oregon City is developing at R-8 densities, owing to the relatively flat topography, without geologic hazards.

Criterion D: No statewide planning goals apply to this proposal that have not been addressed in the City's Comprehensive Plan.

The City's Comprehensive Plan has been acknowledged by the State of Oregon. No additional policies or goals beyond those identified and considered by the City apply to this proposal.

Conclusion

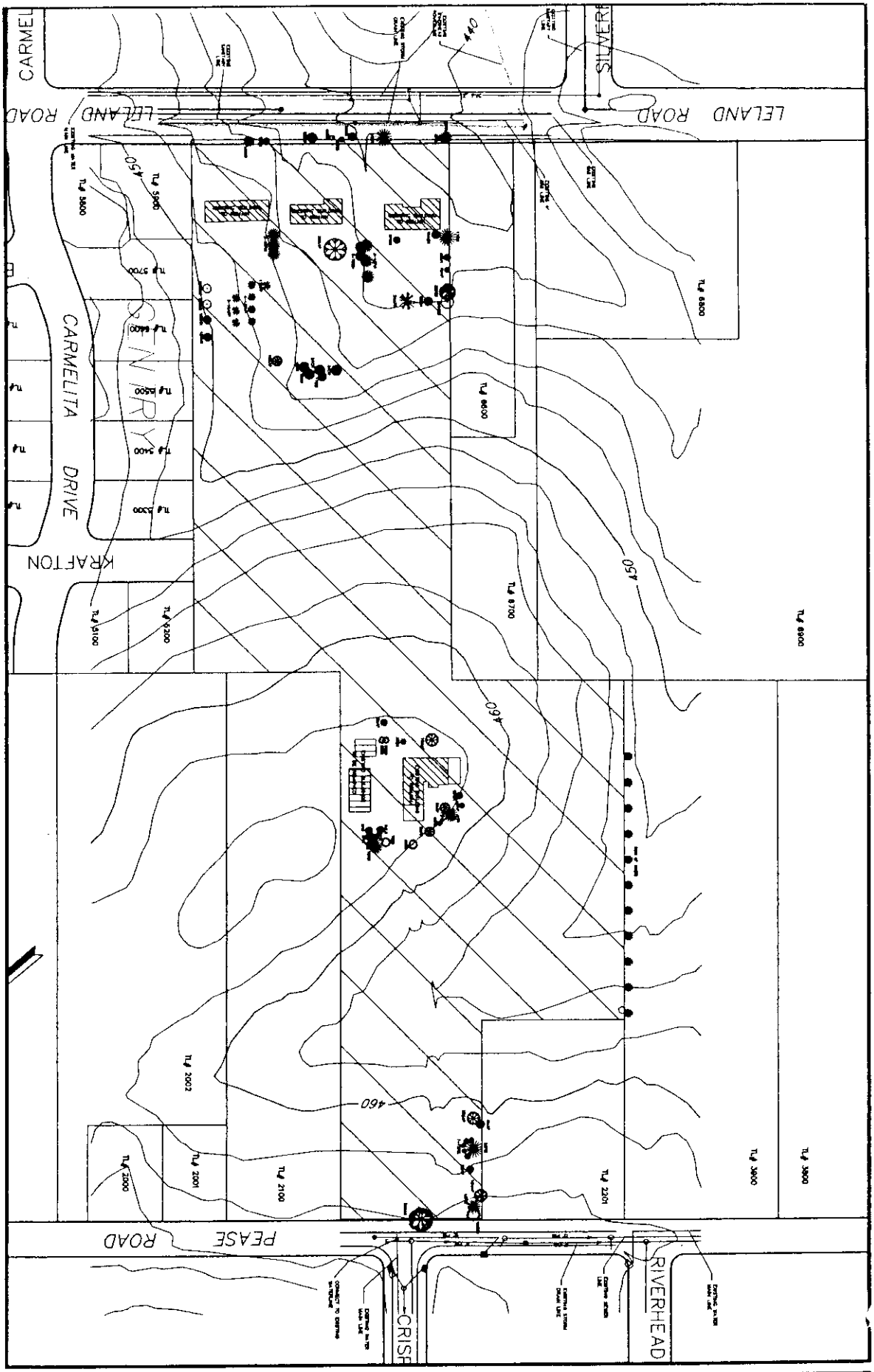
The foregoing narrative describes the proposed zone change from R-10 to R-8 and demonstrates that the proposal satisfies the City's applicable criteria. Further, the proposal applies a zoning designation to the site already selected by the City. Therefore, the request for zoning change should be approved.



SIBUL ENGINEERING

PRELIMINARY LAYOUT

Exhibit 5

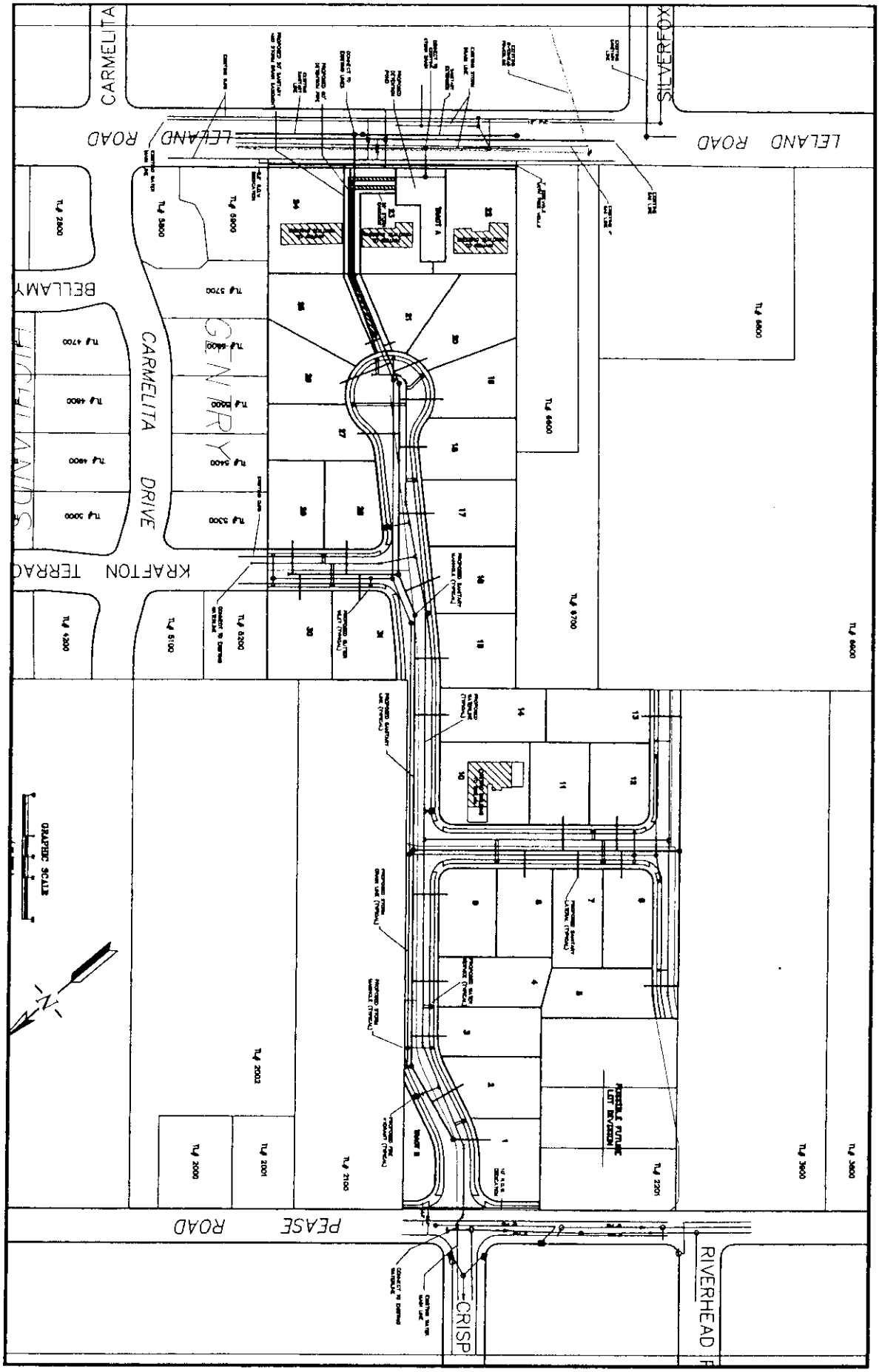


SOUL ENGINEERING

EXISTING CONDITIONS

GENTRY HIGHLANDS 2

GENTRY HOMES, LLC

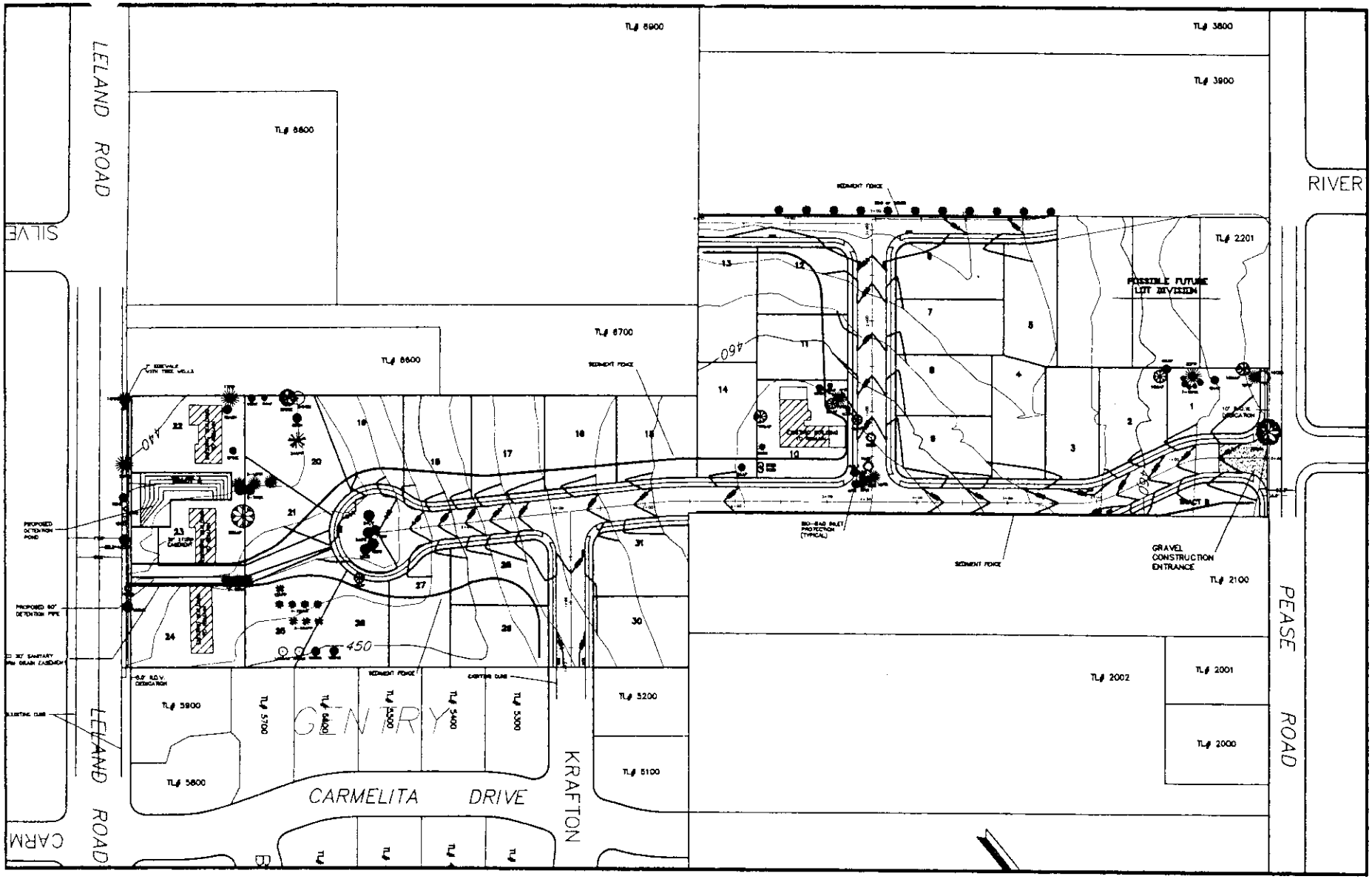


SIBUL ENGINEERING

UTILITY PLAN

GENTRY HIGHLANDS 2

GENTRY HOMES, LLC



GRADING & EROSION CONTROL PLAN

GENTRY HIGHLANDS 2

GENTRY HOMES, LLC

SIBUL ENGINEERING

7/9/04

4

Water Resources Investigation for Gentry Highlands 2

Introduction:

The subject property consists of four parcels in Oregon City, Oregon totaling approximately 8.3 acres with the following legal description: Tax Lots 6300, 6400, and 6500; Section 7DB, T3S, R2E, W.M. (these parcels are located on S Leland Road); and Tax Lot 2200, Section 7A, T3S, R2E, W.M. (on Pease Road).

We were informed that application for development was made to the City of Oregon City, and city staff identified an offsite drainage feature that was potentially a water quality resource area regulated under OCMC 17.49 whose vegetated corridor had the potential to encroach onto the subject properties. We were informed by the applicant that city staff was only interested in an investigation of this drainage feature to make a determination of whether it is jurisdictional, and if so, then determine the jurisdictional limits and the vegetated corridor width.

Environmental Technology Consultants (ETC) was contracted to perform this investigation. Our investigation was limited to the offsite parcels containing the drainage feature of concern. Field investigations were performed on June 23, 2004.

Drainage Feature Assessment:

Background:

The Oregon City Flood Management and Water Quality Resource Areas Map identifies a stream whose headwaters is a mapped wetland located on the offsite Tax Lot 6900. The mapped stream traverses properties to the southeast toward Leland Road. As it approaches Leland Road it traverses Tax Lot 6600, where it is closest to the subject property. The mapped stream is then shown crossing Leland Road and flowing to the southeast before ultimately entering Mud Creek. A copy of the city map is included in the Appendix of this report.

OCMC 17.49 defines the term stream as follows: "areas where surface water produces a defined channel or bed, including bedrock channels, gravel beds, sand silt beds, and defined-channel swales. The channel or bed does not have to contain water year-round. This definition is not meant to include irrigation ditches, canals, storm or surface water runoff structures, or other artificial watercourses unless they are used to convey streams naturally occurring prior to construction of such watercourses."

Historical Research:

During a preliminary reconnaissance performed in June 2004, we recognized clear human-induced disturbance to the drainage feature of concern. As such we decided that a key feature in making a determination on this feature was whether it was historically a stream or wetland prior to the disturbance in accordance with the definition of "stream" in OCMC 17.49. We obtained historical aerial photographs for the area dating from 1936 through 1998. Copies of the aerial photographs are included in the Appendix, with an arrow that points to that portion of the drainage feature of concern, which approaches Leland Road.

The earliest aerial photographs (1936-1956) show a drainage feature evidenced by the darker vegetation. There is clearly not a defined channel north of Leland Road. The channel begins south of Leland Road, as is most clearly shown in the 1956 aerial photograph. In the photographs from 1964 through 1980, the darker vegetation along the drainage feature is still evident, however it appears to be weaker than in the

previous photographs. By 1990 the condition is weaker still, and even the downstream area that was historically channelized appears to have degraded to an ill-defined channel.

Based on the data analyzed from the aerial photographs, we have concluded that the drainage feature north of Leland Road did not historically contain a channel. The darker vegetation along the drainage feature made it possible that the feature was historically a wetland prior to the disturbance. We designed our field investigation to confirm or deny whether this was the case.

Field Investigations:

We performed a reconnaissance of the drainage feature of concern, and site photographs were taken which are included in Appendix A. At the upper end of the feature, above the 8" HPDE pipe that crosses the flagpole drive of Tax Lot 6700, the feature is a broad swale that had no evidence of wetland conditions. Photo 1 was taken across the pasture along the alignment of the mapped "stream". It is very clear that this area does not meet the definition of a stream. The head of the feature that extended up into Tax Lot 6900 was identified as a wetland on the Flood Management and Water Quality Resource Area map. The supposed wetland as mapped is 240 feet from the southwest corner of the Pease Road parcel. With slopes obviously less than 25% in the vicinity, the maximum vegetated corridor for the wetland would be 50' in accordance with Table 1 of 17.49. As such, we determined that additional investigation of the upper end of the offsite system was not warranted, as the 50' vegetated corridor around any wetland would have no potential to encroach onto the subject property.

Moving downstream within the drainage feature, an 8" HPDE pipe is present that crosses the gravel drive of the Tax Lot 6700 flagpole. At the outlet of the 8" pipe the drainage begins its highly altered characteristic. Photos 2 and 3 show how the drainage feature has been modified as a landscape amenity where it crosses Tax Lot 6600. It appears that the feature is maintained by tilling and/or herbicide treatment to keep its unvegetated characteristic. Further downstream as the drainage feature approaches the Leland Road right of way, it has been ditched as shown in Photos 4 and 5. After flowing through a short reach of narrow ditch, the flow enters a concrete pipe, where it then traverses a series of pipes. This pipe system connects with the primary Leland Road stormwater system at Manhole 1 identified on Figure 2, where the flow from the drainage course is augmented with stormwater from the road. The combined water is discharged southeast of Leland Road. The character of the drainage course southeast of Leland Road is clearly different, containing patches of hydrophytic vegetation and evidence of shallow pools that contain sustained shallow inundation. The influence of the stormwater input is evident.

Data Plots 1 and 2 were sampled within the drainage feature and adjacent to the drainage feature. The key findings from the data plots were that hydric soil indicators were not present. If this drainage feature had been a historic wetland, relic hydric soils would still be present. The soil within the current drainage feature (Plot 1) and in the adjacent area where surface flows were clearly not present (Plot 2) had virtually the same soil characteristics. The soil matched the general characteristics of the mapped Cottrell series, which is a non-hydric soil. This is strong evidence that the drainage feature is not currently a wetland and never was a wetland.

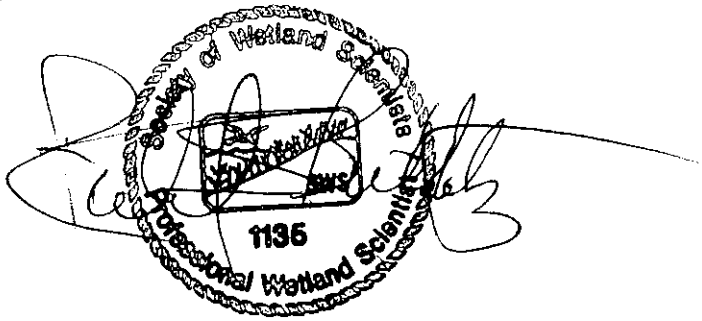
Conclusions:

We concluded from aerial photograph analysis that historically the drainage feature north of Leland Road was not a channelized stream. We concluded from onsite data collection that the location of the current altered drainage course was not a wetland prior to the alteration. (Ditches constructed in former wetlands may be regulated as jurisdictional wetlands by federal and state agencies under certain conditions; our investigation proved that this was not the case.) It appears that where the drainage feature traverses Tax Lot 6600, its current characteristic as shown on Photos 2 and 3 is due to maintenance of this feature as a

landscape amenity. Where it is incised into the native ground surface, it is clear that this was a result of human influence and not natural processes. As such, we have concluded that the feature does not meet the definition of "stream" from OCMC 17.49. The definition clearly states that "this definition is not meant to include irrigation ditches, canals, storm or surface water runoff structures, or other artificial watercourses unless they are used to convey streams naturally occurring prior to construction of such watercourses." Our historical and onsite research has shown that the current channelized feature is an artificial watercourse, and prior to the alteration, it was not a naturally occurring stream. Therefore we have concluded that the feature is not a jurisdictional feature under OCMC 17.49 or under state and federal regulations.

OCMC 17.49.040 (3) states that an applicant for development on a site located in the Water Quality Resource Area Overlay District may request a determination that the subject site is not a Water Quality Resource Area and thus is not subject to the standards of 17.49.050. The intent of this document is to show that the subject property does not contain any water quality resource areas.

Report prepared by:

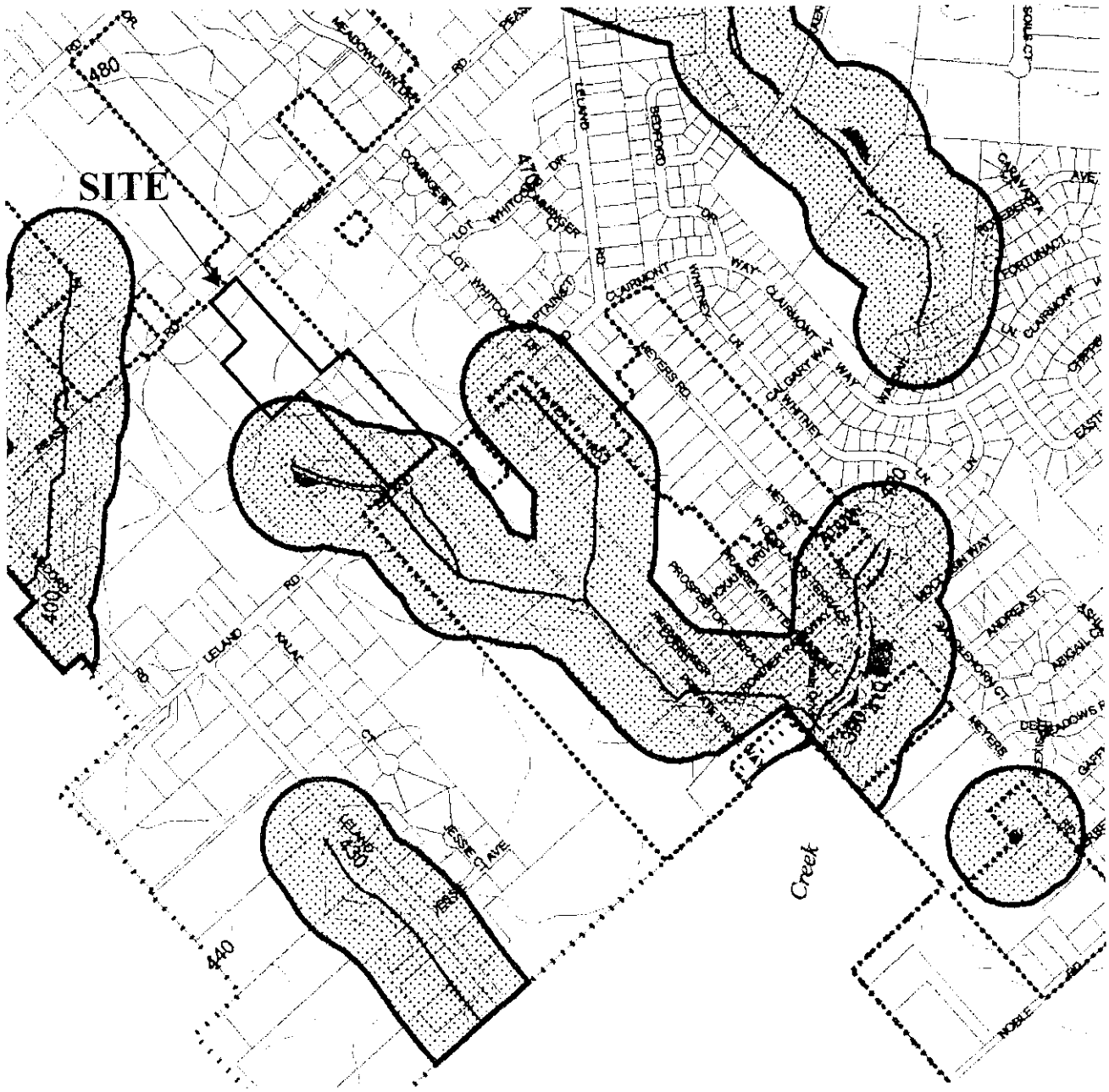


David Waterman

Richard Bublitz

Appendix A

Flood Management and Water Quality Resource Areas Map
Site Overview Map
Investigation Detail Map
Site Photographs
Historical Aerial Photographs
Data Sheets



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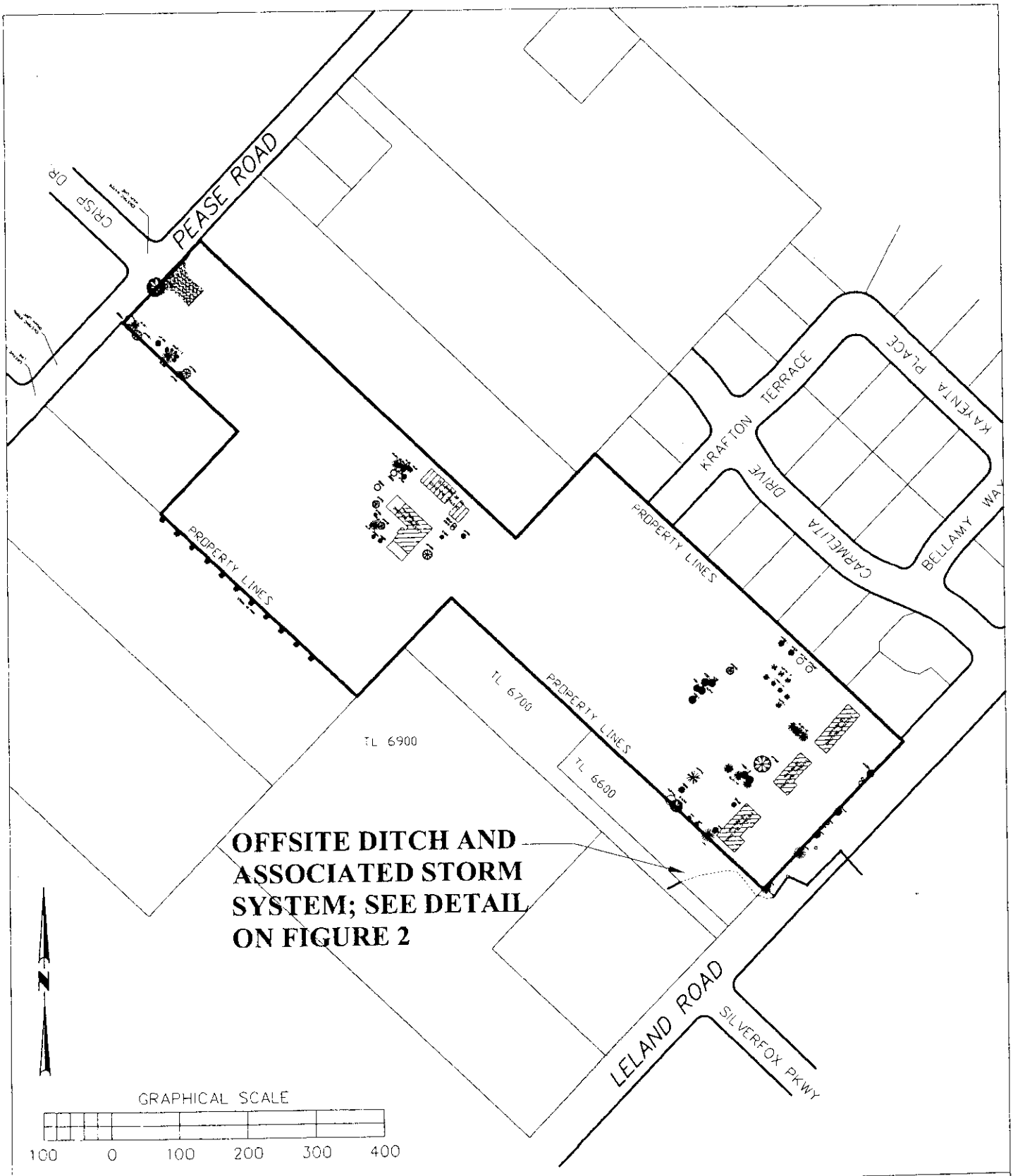
Flood Management & Water Quality Resource Area Map
Source: City of Oregon City

Subject Property:
Gentry Heights 2
Oregon City, Oregon



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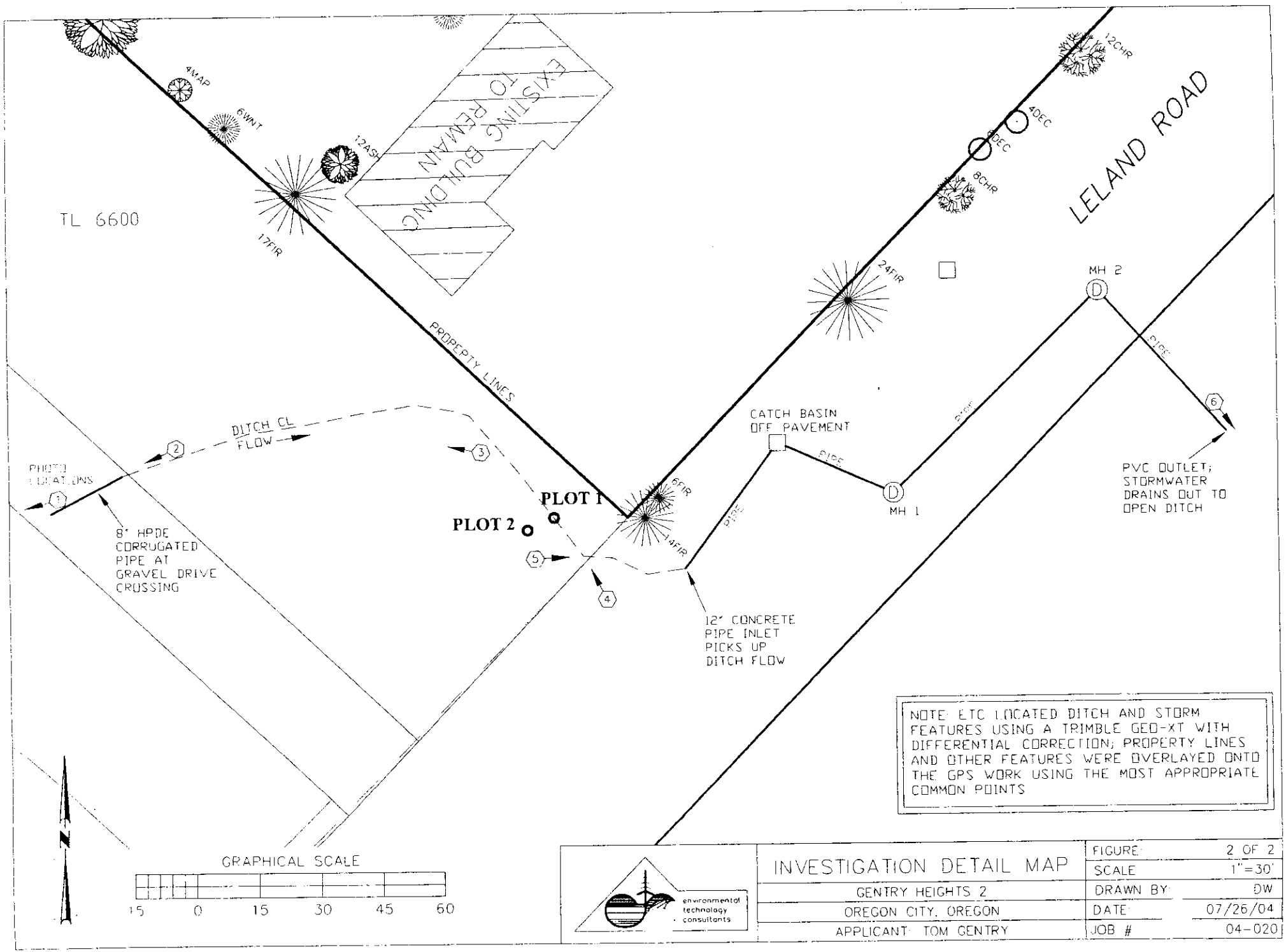
SITE OVERVIEW MAP	FIGURE:	1 OF 2
	SCALE:	1"=200'
GENTRY HEIGHTS 2	DRAWN BY:	DW
OREGON CITY, OREGON	DATE:	07/26/04
APPLICANT TOM GENTRY	JOB #:	04-020



NOTE: ETC LOCATED DITCH AND STORM FEATURES USING A TRIMBLE GEO-XT WITH DIFFERENTIAL CORRECTION; PROPERTY LINES AND OTHER FEATURES WERE OVERLAYED ONTO THE GPS WORK USING THE MOST APPROPRIATE COMMON POINTS

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INVESTIGATION DETAIL MAP

GENTRY HEIGHTS 2
OREGON CITY, OREGON
APPLICANT: TOM GENTRY

FIGURE:	2 OF 2
SCALE	1"=30'
DRAWN BY:	DW
DATE:	07/26/04
JOB #	04-020

Photo 1
A view upgradient into the "drainageway" from the inlet of the 8" HPDE pipe. No wetlands were evident, and there definitely was not a stream.

Photo 2
A view of the outlet of the HPDE pipe where the drainage course exhibits concentrated flow conditions. It is clear that the character of the drainage course below the culvert is dominated by human alteration.

Photo 3
A view of the drainage feature further down-stream from the 8" pipe. It is evident that the feature is maintained (tilled and/or herbicide treated) by the property owners as an aesthetic feature for their landscape.

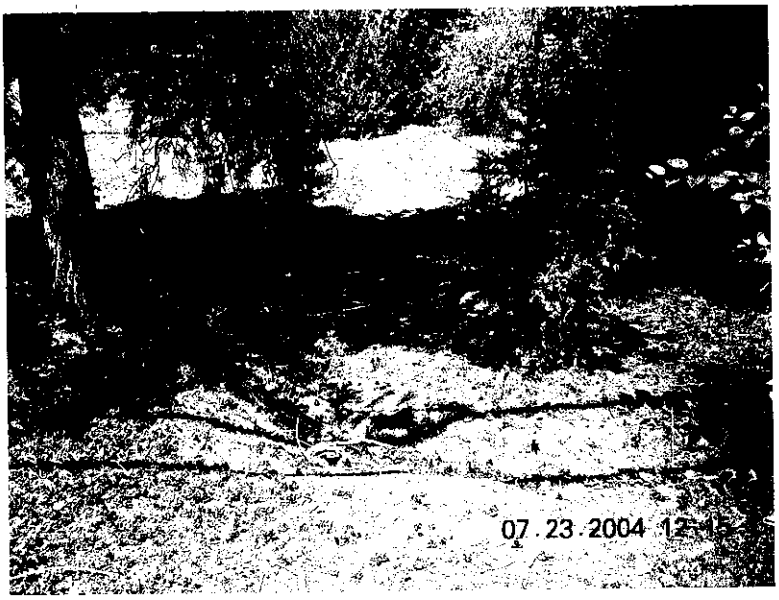

Photo 4
A view of the lower end of the drainage feature where it starts its character as a narrow ditch. Plot 1 was sampled just north of the bend seen in this photo.

Photo 5
A view of the narrow ditched characteristic where the drainage feature begins to approach the 12" concrete pipe associated with the Leland Road stormwater system.

Photo 6
Upon entering the 12" concrete culvert the ditch water is augmented by stormwater flows from the Leland Road stormwater system. Where the combined water discharges southeast of Leland Road, the drainage character is a poorly defined ditch with some hydrophytic vegetation.

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1936 Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon

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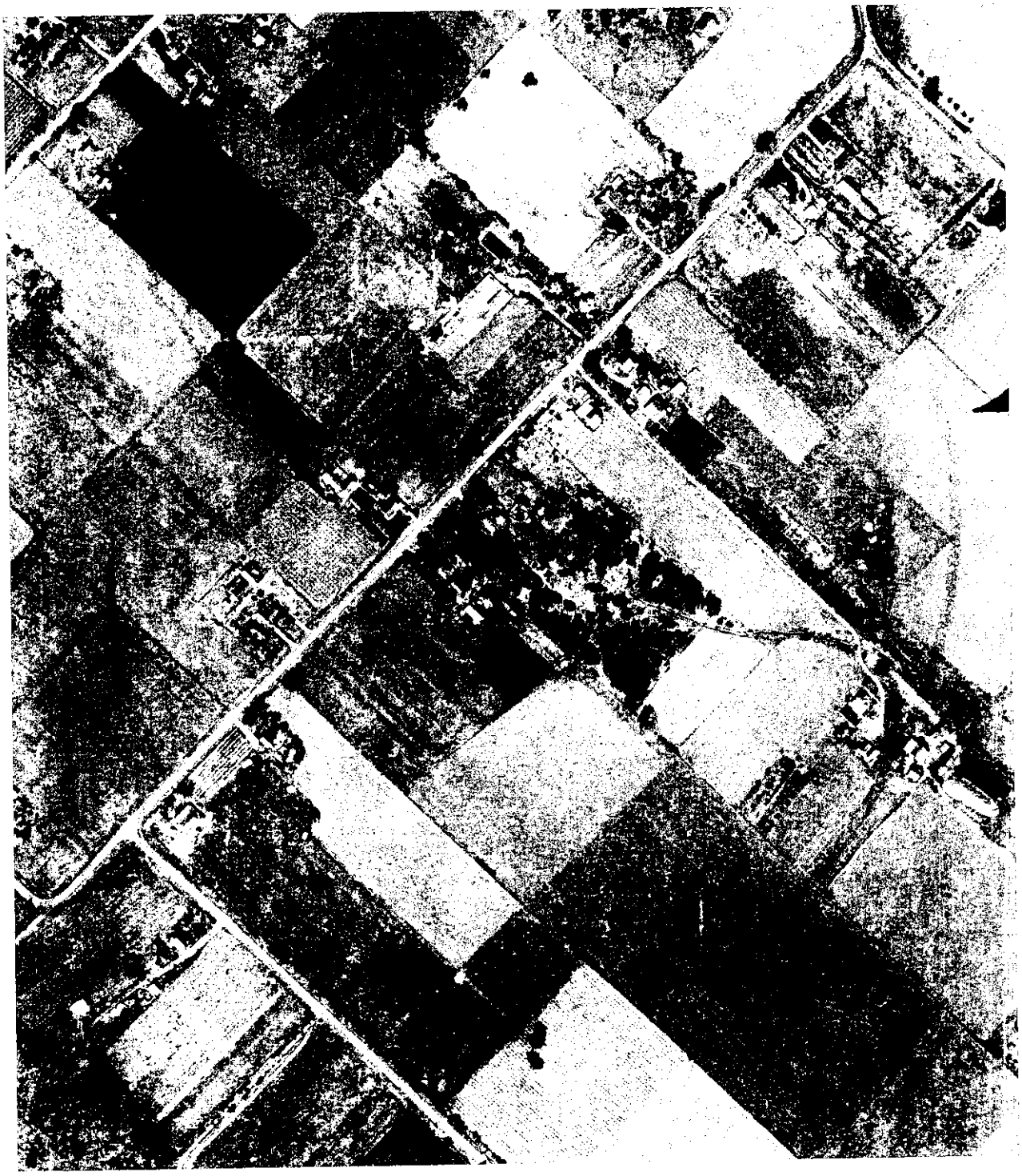
1948 Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon



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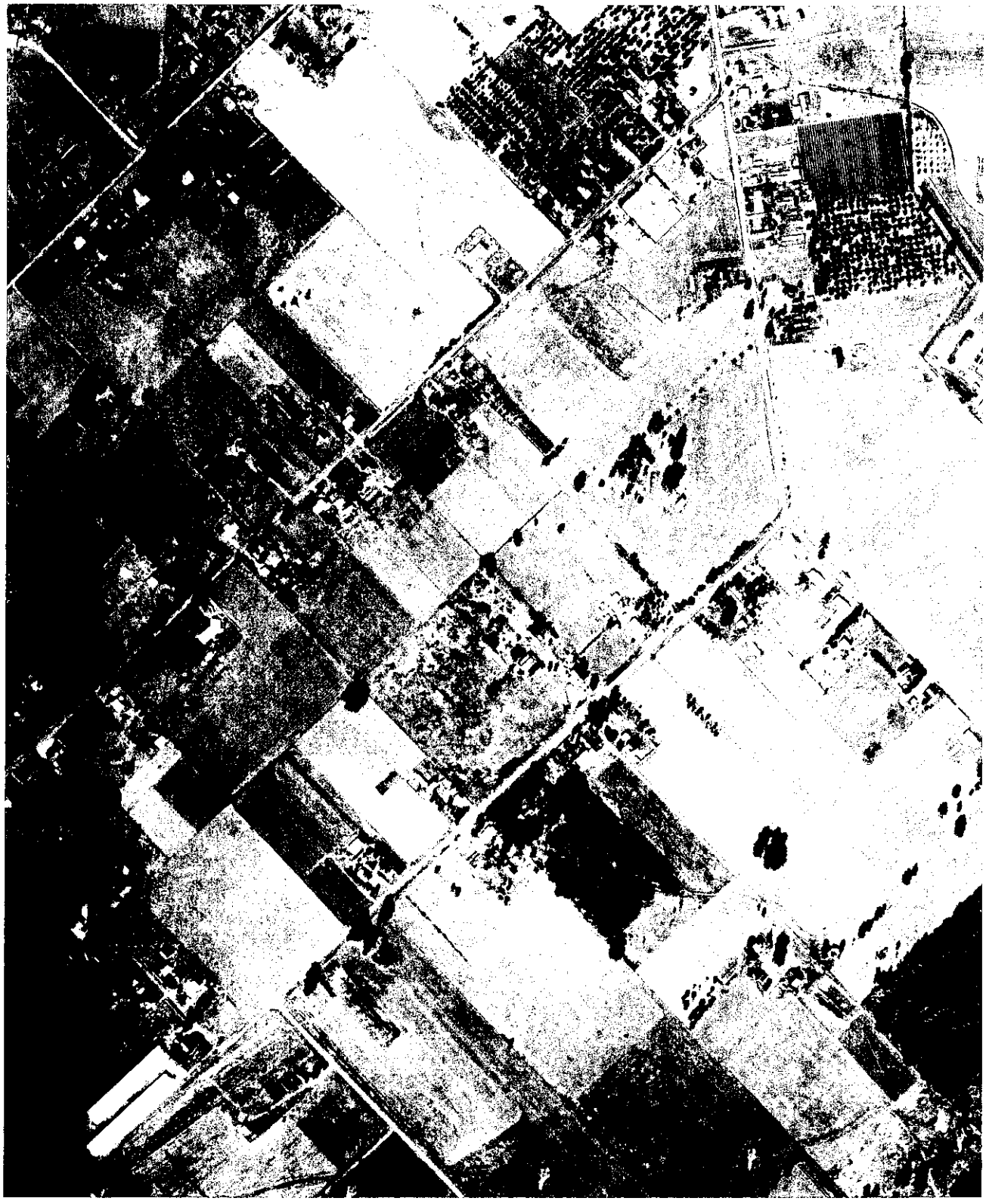
1956B Aerial Photograph

Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon



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1964B Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon

environmental technology consultants 1973B Aerial Photograph **Source: University of Oregon Library**	**Subject Property:** **19431 Leland Road** **Oreogon City, Oregon**

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1980B Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon

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1990 Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oreogon City, Oregon

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1998 Aerial Photograph
Source: University of Oregon Library

Subject Property:
19431 Leland Road
Oregon City, Oregon

WETLAND DETERMINATION DATA FORM

PROJECT/SITE: 19431 S Leland Road	DATE: July 23, 2004	PLANT COMMUNITY: Unvegetated Ditch	
OWNER/APPLICANT: Tom Gentry	CITY OR LEGAL: Oregon City	TRANSECT NUMBER:	
FIELD STAFF: David Waterman	COUNTY/STATE: Clackamas Co., Oregon	PLOT NUMBER: 1	
SURVEY METHOD: ROUTINE X COMPREHENSIVE:	PROCEDURE: PLANT COMMUNITY X	TRANSECT	

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Poa annua	Herb	FAC	6.		
2.			7.		
3.			8.		
4.			9.		
5.			10.		

PERCENT OF DOMINANTS THAT ARE OBL, FACW,FAC (NOT FAC-): 100 * 50/20 CRITERIA

OBSERVATIONS/NOTES:

HYDROPHYTIC VEGETATION? YES: X NO: | RATIONALE: Marginal FAC dominated community

SOILS

SCS SERIES/PHASE AND TEXTURE CLASS: Cottrell silty clay loam *in comparison to SCS soil survey data

CLASSIFICATION: Aquic Haplohumults | DRAINAGE CLASS: moderately well | HYDRIC SOILS LIST: No

DEPTH	MATRIX COLOR	REDOXIMORPHIC FEATURES: Concentration OR Depletion	TYPE	LOCATION	%	SIZE(mm)	COLOR	1 Abundance 2 Size 3 Contrast	STRUCTURE
0-3	7.5YR2.5/2								hard silt loam with some roots
3-8	7.5YR2.5/2	Concentration	Concretion	Matrix	0.1	1	7.5YR4/6	FFD	same as above, but no roots
8-15	7.5YR3/2	Concentration	Concretion	Matrix	2	3	Mn	CF*	slightly sticky silt loam, transitional
		Concentration	Concretion	Matrix	1	1	7.5YR4/4	FFD	zone
15-17	7.5YR3+/3	Concentration	Concretion	Matrix	2	4	7.5YR4/4	CFF	sticky, plastic silty clay loam; color between 3/3 and 4/3

NOTES:
Upper 8" very hard and dry; lower layer easier to dig through, 8-15 transitional zone contains broad seams of the brighter 7.5YR3/3 of underlying layer

HYDRIC SOIL INDICATORS PRESENT:

1. HISTOSOL:	6. REDOXIMORPHIC FEATURES (w/in 10"):
2. HISTIC EPIPEDON:	7. GLEYED/LOW CHROMA (≤1):
3. SULFIDIC ODOR:	8. HYDRIC SOILS LIST:
4. AQUIC MOISTURE REGIME:	9. CONCRETIONS (w/in 3"):
5. FERROUS IRON TEST:	10. OTHER

HYDRIC SOILS? YES: NO: X | RATIONALE: No hydric soil indicators present

1. ABUNDANCE: F - FEW (<2%); C - COMMON (2-20%); M - MANY (>20%)
2. SIZE: F - FINE (<5mm); M - MEDIUM (5-15mm); C - COARSE (>15mm)
3. CONTRAST: F - FAINT (Evident only on close examination); D - DISTINCT (Readily seen); P - PROMINENT (Contrast strongly)

HYDROLOGY

NOTES: Seasonal surface flow is evident, but no evidence that inundation or saturation is maintained for a duration that constitutes wetland hydrology

RECORDED DATA: None | 1. STREAM/LAKE/TIDE GAUGE: | 2. AERIAL PHOTO: | 3. OTHER:

HYDROLOGY INDICATORS PRESENT: (PRIMARY, ONE REQUIRED)

DEPTH OF SURFACE WATER:	IN.	1. INUNDATION:	4. DRIFT LINES:
DEPTH TO FREE WATER IN PIT:	IN	2. SATURATION:	5. SEDIMENT DEPOSITS:
DEPTH TO SATURATED SOIL:	IN	3. WATER MARKS:	6. DRAINAGE PATTERNS:

SECONDARY INDICATORS (TWO REQUIRED): 1. OXIDIZED RHIZOSPHERES: | 2. WATER STAINED LEAVES: | 3. SOIL SURVEY DATA: | 4. FAC NEUTRAL TEST: | 5. OTHER:

WETLAND HYDROLOGY? YES: NO: X | RATIONALE: No hydrology indicators present

SUMMARY

ARE SITE ENVIRONMENTAL CONDITIONS NORMAL: YES: X NO:	BASIS: Ditch appears to have been present for some time.
IS THE AREA A POTENTIAL PROBLEM AREA: YES: NO: X	BASIS:
IS SIGNIFICANT SITE DISTURBANCE IN EVIDENCE: YES: NO: X	DISTURBED CHARACTERISTIC: VEGETATION: X SOILS: HYDROLOGY:

EXPLANATION: The majority of the flow path appears to be maintained by tilling and/or herbicide

IS THE HYDROPHYTIC VEGETATION CRITERION MET?	YES: X	NO:
IS THE HYDRIC SOIL CRITERION MET?	YES:	NO: X
IS THE WETLAND HYDROLOGY CRITERION MET?	YES	NO: X

WETLAND DETERMINATION: WETLAND: NON WETLAND: X

DETERMINATION JUSTIFICATION: The soil and hydrology criteria were not met

Signature

VEGETATION DATA SURVEY FORM

PROJECT/SITE: 19431 S Leland Road	DATE: July 23, 2004	PLANT COMMUNITY: Unvegetated Ditch	
OWNER/APPLICANT: Tom Gentry	CITY OR LEGAL: Oregon City		TRANSECT NUMBER:
FIELD STAFF: David Waterman	COUNTY/STATE: Clackamas Co., Oregon		PLOT NUMBER: 1
SURVEY METHOD ROUTINE: X	COMPREHENSIVE:	PROCEDURE: PLANT COMMUNITY: X	TRANSECT:

TREE SPECIES	% AREAL COVER	COVER CLASS	MIDPOINT OF COVER CLASS	RANK	NOTES
TOTAL DOMINANCE MEASURE:			DOMINANTS (50%):		
			CO-DOMINANTS (20%):		

SAPLING / SHRUB SPECIES	% AREAL COVER	COVER CLASS	MIDPOINT OF COVER CLASS	RANK
TOTAL DOMINANCE MEASURE:			DOMINANTS (50%):	
			CO-DOMINANTS (20%):	

HERBACEOUS SPECIES	% AREAL COVER	COVER CLASS	MIDPOINT OF COVER CLASS	RANK
Poa annua	2	1	3.0	1
Juncus tenuis	T	T		
Epilobium watsonii	T	T		
TOTAL DOMINANCE MEASURE	3.000		DOMINANTS (50%):	1.500
			CO-DOMINANTS (20%):	0.600

Species identified as Poa annua is a dead annual grass, with minimal remaining veg parts; total vegetated cover in ditch only ~2%, only sampled in apparent flow path, not adjacent vegetated area even if within radius

WOODY VINES	NUMBER OF STEMS	RANK
TOTAL DOMINANCE MEASURE:		DOMINANTS (50%):
		CO-DOMINANTS (20%):

SIGNATURE:

COVER CLASS (MIDPOINTS): T<1%, 1 = 1-5% (3.0), 2 = 6-15% (10.5), 3 = 16-25% (20.5), 4=26-50%(38.0), 5 = 51-75%(63.0), 6 = 76-95%(85.5), 7 = 96-100%(98.0)

WETLAND DETERMINATION DATA FORM

PROJECT/SITE: 19431 S Leland Road	DATE: July 23, 2004	PLANT COMMUNITY: Maintained Lawn	
OWNER/APPLICANT: Tom Gentry	CITY OR LEGAL: Oregon City	TRANSECT NUMBER:	
FIELD STAFF: David Waterman	COUNTY/STATE: Clackamas Co., Oregon	PLOT NUMBER: 2	
SURVEY METHOD: ROUTINE: X	COMPREHENSIVE:	PROCEDURE: PLANT COMMUNITY: X	TRANSECT:

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Pinus sp	Tree	?	6.		
2. Poa sp	Herb	FAC	7.		
3. Lolium perenne	Herb	FACU	8.		
4.			9.		
5.			10.		

PERCENT OF DOMINANTS THAT ARE OBL, FACW,FAC (NOT FAC-): 50 * 50/20 CRITERIA

OBSERVATIONS/NOTES:

HYDROPHYTIC VEGETATION? YES: **NO: X** | RATIONALE: No majority of dominant hydrophytic vegetation

SOILS

SCS SERIES/PHASE AND TEXTURE CLASS: Cottrell silty clay loam *in comparison to SCS soil survey data

CLASSIFICATION: Aquic Haplohumults | DRAINAGE CLASS: moderately well | HYDRIC SOILS LIST: No

DEPTH	MATRIX COLOR	REDOXIMORPHIC FEATURES: Concentration OR Depletion	TYPE	LOCATION	%	SIZE(mm)	COLOR	1 Abundance 2 Size 3 Contrast	STRUCTURE
0-8	7.5YR2.5/2								silt loam with root mass
8-13	7.5YR2.5/2	Concentration	Concretion	Matrix	3	2	Mn	CF*	slightly sticky silt loam, increased clay %
		Concentration	Concretion	Matrix	1	1	7.5YR4/4	FFD	
13-17	7.5YR3/2								loose silt loam withc seams of clayier material

NOTES:

HYDRIC SOIL INDICATORS PRESENT

1. HISTOSOL:	6. REDOXIMORPHIC FEATURES (w/in 10"):
2. HISTIC EPIPEDON:	7. GLEYED/LOW CHROMA (≤1):
3. SULFIDIC ODOR:	8. HYDRIC SOILS LIST:
4. AQUIC MOISTURE REGIME:	9. CONCRETIONS (w/in 3"):
5. FERROUS IRON TEST:	10. OTHER

HYDRIC SOILS? YES: NO: X | RATIONALE: No hydric soil indicators present

1. ABUNDANCE: F - FEW (<2%) C - COMMON (2-20%) M - MANY (>20%)
2. SIZE: F - FINE (<5mm) M - MEDIUM (5-15mm) C - COARSE (>15mm)
3. CONTRAST: F - FAINT (Evident only on close examination) D - DISTINCT (Readily seen) P - PROMINENT (Contrast strongly)

HYDROLOGY

NOTES: Adjacent to ditch, clearly beyond the flow path sampled at Plot 1; no evidence of wetland hydrology

RECORDED DATA: None 1. STREAM/LAKE/TIDE GAUGE 2. AERIAL PHOTO: 3. OTHER:

		HYDROLOGY INDICATORS PRESENT: (PRIMARY, ONE REQUIRED)	
DEPTH OF SURFACE WATER	IN.	1. INUNDATION:	4. DRIFT LINES:
DEPTH TO FREE WATER IN PIT	IN.	2. SATURATION	5. SEDIMENT DEPOSITS
DEPTH TO SATURATED SOIL	IN.	3. WATER MARKS	6. DRAINAGE PATTERNS:

SECONDARY INDICATORS (TWO REQUIRED): 1. OXIDIZED RHIZOSPHERES: 2. WATER STAINED LEAVES: 3. SOIL SURVEY DATA: 4. FAC NEUTRAL TEST: 5. OTHER:

WETLAND HYDROLOGY? YES: NO: X | RATIONALE: No hydrology indicators present

SUMMARY

ARE SITE ENVIRONMENTAL CONDITIONS NORMAL: YES: X NO:	BASIS:
IS THE AREA A POTENTIAL PROBLEM AREA: YES: NO: X	BASIS:
IS SIGNIFICANT SITE DISTURBANCE IN EVIDENCE: YES: NO: X	DISTURBED CHARACTERISTIC: VEGETATION: SOILS: HYDROLOGY:

EXPLANATION:

IS THE HYDROPHYTIC VEGETATION CRITERION MET?	YES:	NO:	X
IS THE HYDRIC SOIL CRITERION MET?	YES:	NO:	X
IS THE WETLAND HYDROLOGY CRITERION MET?	YES:	NO:	X

WETLAND DETERMINATION: **WETLAND:** **NON WETLAND: X**

DETERMINATION JUSTIFICATION: The vegetation, soil, and hydrology criteria were not met

Signature

VEGETATION DATA SURVEY FORM

PROJECT/SITE: 19431 S Leland Road	DATE: July 23, 2004	PLANT COMMUNITY: Maintained Lawn	
OWNER/APPLICANT: Tom Gentry	CITY OR LEGAL: Oregon City		TRANSECT NUMBER:
FIELD STAFF: David Waterman	COUNTY/STATE: Clackamas Co., Oregon		PLOT NUMBER: 2
SURVEY METHOD: ROUTINE: X	COMPREHENSIVE:	PROCEDURE: PLANT COMMUNITY: X	TRANSECT:

TREE SPECIES	DBH TALLY	TOTAL BASAL AREA	RANK	NOTES
Pinus sp.	12	0.785	•1	Pine has short-needles (~3") in bundles of 2; may be Pinus contorta, but is more likely a non-native ornamental Pine
TOTAL DOMINANCE MEASURE:	0.785	DOMINANTS (50%):	0.393	
		CO-DOMINANTS (20%):	0.157	

SAPLING / SHRUB SPECIES	% AREAL COVER	COVER CLASS	MIDPOINT OF COVER CLASS	RANK	
Ilex opaca	2	1	3.0	1	Ilex and Rubus only growing in proximity to the tree base, which is relatively bare of herbaceous veg - the majority of the plot is lawn; Young Pseudotsuga menziesii plantings adjacent to ditch on other side
Rubus discolor	T	T			
TOTAL DOMINANCE MEASURE:	3.000	DOMINANTS (50%)	1.500		
		CO-DOMINANTS (20%):	0.600		

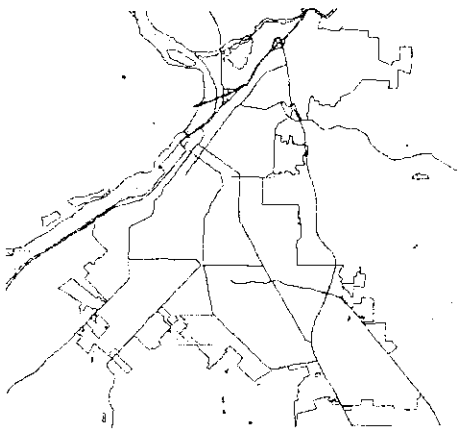
HERBACEOUS SPECIES	% AREAL COVER	COVER CLASS	MIDPOINT OF COVER CLASS	RANK	
Poa sp.	30	4	38.0	•1	Lawn mowed; grasses are very short and have no flowering parts, very difficult to ID and get accurate % coverage
Lolium perenne	50	4	38.0	•1	
Festuca rubra	20	3	20.5	2	
Holcus lanatus	10	2	10.5	3	
Hypochaeris radicata	8	2	10.5	3	
Trifolium sp.	1	1	3.0	4	
Geranium robertanium	T	T			
TOTAL DOMINANCE MEASURE:	120.500	DOMINANTS (50%):	60.250		
		CO-DOMINANTS (20%):	24.100		

WOODY VINES	NUMBER OF STEMS	RANK
TOTAL DOMINANCE MEASURE:	DOMINANTS (50%):	
	CO-DOMINANTS (20%):	

SIGNATURE

COVER CLASS (MIDPOINTS): T<1%, 1 = 1-5% (3.0), 2 = 6-15% (10.5), 3 = 16-25% (20.5), 4=26-50%(38.0), 5 = 51-75%(63.0), 6 = 76-95%(85.5), 7 = 96-100%(98.0)

Oregon City Water Quality and Water Management Map



City of Oregon City
P.O. Box 3040
320 Warner Milne Road
Oregon City, OR 97045

The data on this map is the best information available from the records of the City of Oregon City. Errors and omissions may exist.

Exhibit 6a

OREGON CITY LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 7/21/98

Investigator(s): KC/PO

Wetland Mapping Code: MU-8

Size (acres): 0.5

Location

Legal: T3S R2E S7

Other: W of Leland Rd.

Basin: MudCreek

Soils

Mapped Series: 24B

Hydrology

Hydrologic Source: Sheet flow

Wetland Classification(s): PEM

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
			mowed pasture grasses

Comments:

This seasonal wetland swale is dominated by mowed pasture grasses. All native vegetation has been removed; however, there is a noticeable vegetation break in the depression. This area is connected to a ditch approximately 25 feet to the northeast. The primary source of water is probably surface runoff from adjacent single-family homes. There were no indicators of wildlife use.

Exhibit 6b

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

ent/Applicant: City of Oregon City Site: MU-8 Plot: 54

3S R 2E S 7 City: Oregon City County: Clackamas State: OR

t Location; Topography In mowed field NE of intersection of Leland and McCord Rds.

oject #: 7971165 Determined by: KC/PO Date: 7/21/98

DETERMINATION: IS THIS PLOT IN A WETLAND? Yes

Do Normal Circumstances exist on the site? No

Are Soils [ ] **Vegetation** [✓] **Hydrology** [ ] **significantly disturbed?** Yes

xplanation: Mowed field.

EGETATION Dominant Plant Species — **Ind. %Cover:**

erb Stratum - % total cover: 100

estuca arundinacea FAC- 100

Shrub/Sapling Stratum - % total cover: 0 — **Ind. %Cover:** 0

Woody Vine Stratum - % total cover: 0

Tree Stratum - % total cover: 0

ercent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0 of 1 = 0 % (50/20 Rule)

emarks: Mowed pasture , all native veg. Removed. Noticeable veg. Break, depression connected to other drainage

Vegetation Criterion Met? Yes

OILS Mapped Unit Name: Cottrell silty clay loam

Drainage Class: Deep, moderately well drained

Taxonomy: Clayey, mixed, mesic Aquic Haplohumults

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-18"	10 YR 2/1	no mottles	Silt loam, friable

[ ] Histosol [ ] Prob. Aquic moisture regime [ ] Redox features [ ] Organic streaking

[ ] Histic epipedon [ ] Reducing conditions [ ] Concretions [ ] Organic pan

[ ] Sulfidic odor [ ] Gleyed [ ] Highly organic surface layer [ ] On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation N/A Depth to water table: >18" Depth to saturation: >18"

Primary Indicators:

[ ] Inundated

[ ] Saturated in upper 12"

[ ] Water marks

[ ] Drift lines

[ ] Sediment deposits

[✓] Drainage patterns

Secondary Indicators (2 or more required):

[ ] Oxidized rhizospheres [ ] Local soil survey data

[ ] Water-stained leaves [ ] FAC-Neutral test

[ ] Recorded data (aerials, groundwater data)

Explain:

[ ] Other

Explain:

Hydrology Criterion Met? Yes

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s)	7/21/98	Investigator(s)	KC/PO
Project Name	City of Oregon City		
Wetland Code	MU-8	Project Number	7971165

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	C	Q1:	Q1:	Q1:	B	Q1:	B	Q1:	A
Q2:	C	Q2:	Q2:	Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:	Q3:	Q3:	C	Q3:	C	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	B	Q4:	B	Q4:	A
Q5:	A	Q5:	Q5:	Q5:	A	Q5:	C	Q5:	A
Q6:	A	Q6:	Q6:	Q6:	C	Q6:	A	Q6:	C
Q7:	A					Q7:	A		
Q8:	C								
Q9a:									
Q9b:	C								

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	C	Q1:	C
Q2:	C	Q2:	A	Q2:	C	Q2:	A
Q3:		Q3:	B	Q3:	C	Q3:	C
Q4:	C	Q4:	C	Q4:	B	Q4:	B
Q5a:		Q5:	C	Q5:	B	Q5:	A
Q5b:	C	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has little enhancement potential.
Education:	The wetland has potential for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland code:	MU-8	Project Number:	7971165

Function	Evaluation Description	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with 5 or fewer plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Low (<60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	No part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Minor restrictions slow down waterflow out of the wetland. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts.	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. and ponding,or open water only are the dominant cover types.
Enhancement Potential	The wetland has little enhancement potential.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland code: MU-8	Project Number: 7971165	
Function	Evaluation Descriptor	Rationale
		habitat, water quality and hydrologic control. Wetland's primary source of water is precipitation or sheet flow. Wetland's area is less than 0.5 acre. Less than 10% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has potential for educational use.	Wetland site is open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, and observation of other features cannot be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat- no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	One Cowardin class is visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

DAVID EVANS
AND ASSOCIATES INC.

September 3, 2004

Ms. Christina Robertson-Gardiner
Planning Department
City of Oregon City
PO Box 3040
320 Warner-Milne Road
Oregon City, OR 97045

SUBJECT: REVIEW OF TRAFFIC IMPACT STUDY – GENTRY PROPERTY – GENTRY HOMES – TP04-13 & ZC04-02

Dear Ms. Robertson-Gardiner:

In response to your request, David Evans and Associates, Inc. (DEA) has reviewed the Traffic Impact Study (TIS) for the Gentry Property between Pease Road and Leland Road. The TIS was prepared under the direction of Tom Lancaster, PE of Lancaster Engineering. The TIS is dated July 13, 2004.

The TIS describes a proposal to construct 31 single-family homes on 8.27 acres between Pease Road and Leland Road. The proposal involves a proposal to rezone the property from R-10 to R-8 zoning, giving the site a theoretical maximum of 45 lots. The principal connections from the development would be to Leland Road via Krafton and Carmelita Drive and directly to Pease Road.

Overall

I find the TIS does not fully address the city's requirements and needs to be supplemented for the city to finalize the evaluation of the impacts of the proposed development.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. The two principal intersections of concern are the intersections where the subdivision's traffic will access the city's collector and arterial street system: Pease Road/Crisp Drive and Leland Road/Carmelita Drive.

2. ***Traffic Counts.*** The traffic counts were obtained in June 2004 and appear reasonable.

3. ***Trip Generation.*** The TIS uses reasonable trip rates taken from ITE *Trip Generation* for the single-family residences.

4. ***Trip Distribution.*** The trip distribution seems reasonable.

Exhibit 7

5. ***Traffic Growth.*** The TIS provides for five percent annual traffic growth for the analysis of year 2020 conditions. This figure, derived from a comparison of TSP volume forecasts, appears reasonable.

6. ***Analysis.*** Traffic volumes were calculated for the intersection of Pease Road and Crisp Drive and for the intersection of Leland Road and Carmelita Drive. No intersection level of service or other calculations were provided.

7. ***Turn Lanes.*** The need for a left turn lane from Pease Road at Crisp Drive or Leland Road at Carmelita Drive was not analyzed. For the Pease Road access, it is apparent from the volumes cited in the report that a lane is not needed. The designation of Leland Road as a minor arterial would provide for a future turn lane.

8. ***Crash Information.*** The crash information was provided for the intersection of or Leland Road at Carmelita Drive. There were no reported crashes and no identified safety issues that need further analysis or mitigation.

9. ***Pedestrian and Bicycle Facilities.*** The report provides limited information about facilities. The narrative accompanying the application states the subdivision will comply with city standards related to streets, which would include curb, gutter, and sidewalks.

10. ***Sight Distance.*** The TIS only partially addresses the sight distance needs. Measurements were conducted where a future street would intersect with Leland Road. Sight distance was found to be adequate according to AASHTO standards. The sight distance was not analyzed for the intersection of Pease Road and Crisp Drive where a new approach would be created by this subdivision.

11. ***Safe Routes to Schools.*** The TIS provides no information on access for pedestrians and bicyclists to local schools.

12. ***Access Spacing.*** The TIS addresses access spacing requirements.

13. ***Conclusions and Recommendations.*** The engineer does not provide either conclusions or recommendations for mitigation measures.

Conclusion and Recommendations

I find the TIS does not meet City requirements and must be supplemented before the city can finalize its assessment of the impact of the proposal. The issues that must be addressed are:

1) traffic operations at the key intersections including the LOS calculations,
2) safe routes to schools,
3) sight distance at Pease Road and Crisp Drive, and
4) a statement of the engineer's conclusions and recommendations.

Based on the information provided, I consider it unlikely that the supplemental information I have identified above would lead to the need for any mitigation measures, off-site improvements, or an alteration of the subdivision layout.

If you need any further information concerning this review, please call me at 503-223-6663.

Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

John Replinger, PE
Senior Transportation Engineer

JGRE:pao
o:\project\o\orct0009\correspo\technical reviews\2004\tp04-13.doc

Christina

CITY OF OREGON CITY - PL NNING DIVISION

PO Box 3040 - 320 Warner Milne Road - Oregon City, OR 97045-0304
Phone: (503) 657-0891 Fax: (503) 722-3880

REVISED

TRANSMITTAL

August 2, 2004

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- ☐ ADDRESSING
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TRAFFIC ENGINEER

- ☐ Mike Baker @ DEA

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- ☐ N.A. LAND USE CHAIR
- ☑ CLACKAMAS COUNTY - Joe Merek
- ☑ CLACKAMAS COUNTY – Ken Kent
- ☐ ODOT - Sonya Kazen
- ☐ ODOT - Gary Hunt
- ☑ SCHOOL DIST 62
- ☐ TRI-MET
- ☐ METRO - Brenda Bernards
- ☐ OREGON CITY POSTMASTER
- ☐ DLCD

RETURN COMMENTS TO:
Christina Robertson-Gardiner, Associate Planner
Planning Division

COMMENTS DUE BY: **August 30, 2004**
HEARING DATE: September 13, 2004 Planning Commission
October 6, 2004 City Commission (Type IV)
(Previously Noticed October 16, 2004)

IN REFERENCE TO

FILE & TYPE:	ZC 04-02 & TP 04-13
PLANNER:	Christina Robertson-Gardiner, Associate Planner
APPLICANT:	Gentry Homes LLC, Thomas Gentry
REQUEST:	The applicant is requesting approval of: 1) Zone Change (ZC 04-02 from R-10 to R-8 2) 31 Lot Subdivision (TP 04-02)
LOCATION:	Clackamas County Map 3-2E-07DB, Tax Lots 6500, 6400 & 6300 and 3-2E-07A, Tax Lot 2200 19431, 19411, & 19391 Leland Road and 19260 Pease Road

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and will insure prompt consideration of your recommendations. Please check the appropriate spaces below.

____ The proposal does not conflict with our interests.

____ The proposal would not conflict our interests if the changes noted below are included.

__✓__ The proposal conflicts with our interests for the reasons stated below.

____ The following items are missing and are needed for review:

Detention Facilities don't fit character of basin. Lacking record drawings for neighboring/connecting utilities.

Signed John McLeod 8/13/04
Title Operations Manager

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATE

Exhibit 8

MEMORANDUM
City of Oregon City

DATE: **August 4, 2004**

TO: John Lewis, Public Works Operations Manager
SUBJECT: Comment Form for Planning Information Requests

File Number **ZC 04-02 & TP 04-13**

Name/Address: **19431,19411 & 19391 Leland Road and 19260 Pease Road**
Proposed 31-lot subdivision aka Gentry Highlands 2

---

ater:

Existing Water Main Size = **12" on Pease and Leland Road**

Existing Location = **8" Krafton Terrace (See attached map)**

Upsizing required? Yes__ __ No__**X**__ Size Required __ **See Water Master Plan**__ inch

Extension required? Yes__**X**__ No__ __

Looping required? Yes__ **X** __ No__ __ Per Fire Marshal_____

From: **Pease Road, thru subdivision**

To: **Leland Road**

New line size = **8" DI**

Backflow Preventor required? Yes_____ No_**X**__

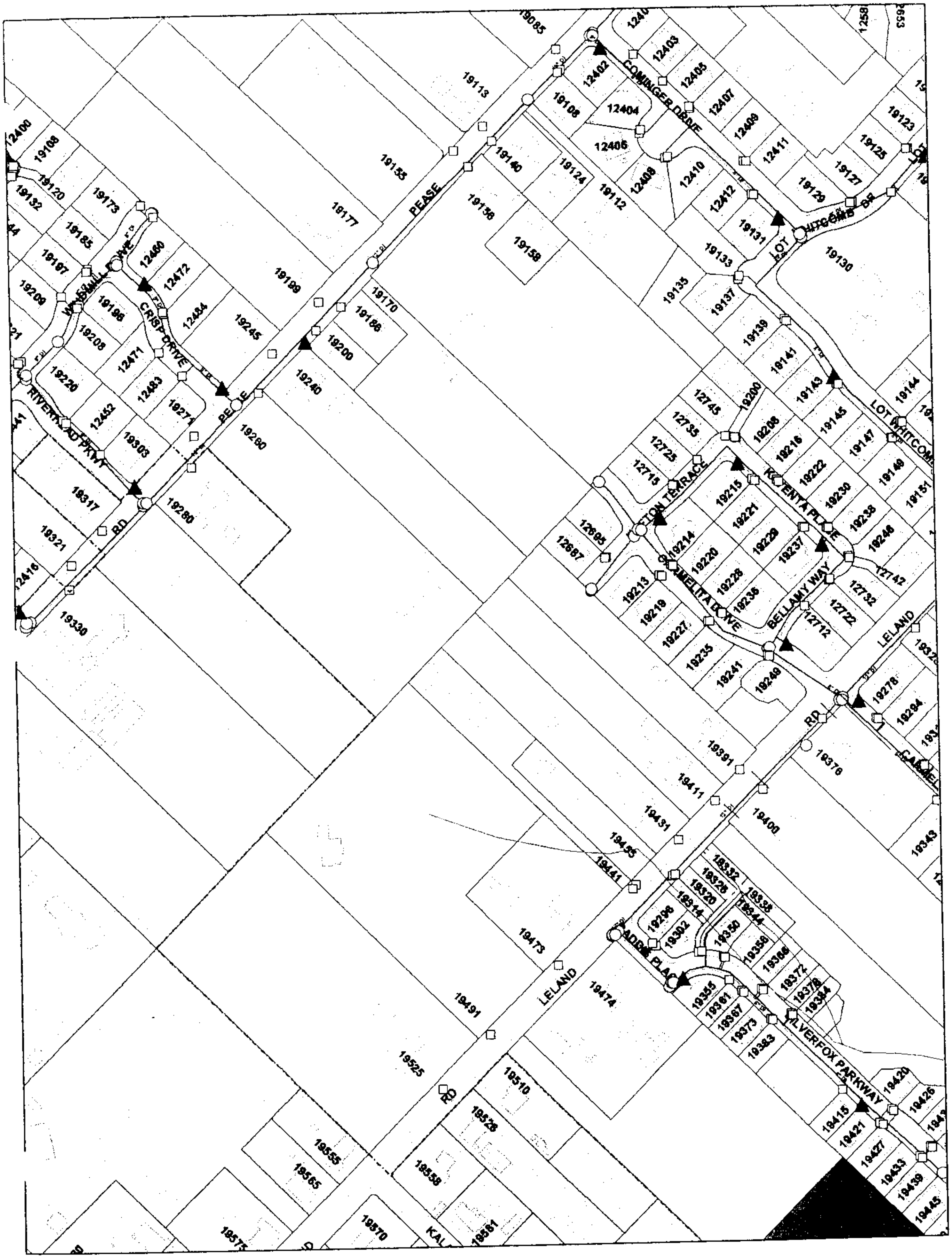
Pressure Reducing Valve required for 70 psi or higher.

Clackamas River Water lines in area? Yes__ **X**__ No__ __

Easements Required? Yes__→__ No _____
See Engineer's comments

Recommended easement width_____→_____ft.

Water Divisions additional comments No_____ Yes__X__ Initial _**eli**____ Date_**8/4/04**___
Consult Water Master Plan. Comments are made on preliminary plan sheet # 3: For improved fire flow, water quality and circulation connect proposed H2O main from Pease, thru subdivision and connect to Leland Road. Realign proposed H2O main so service lines to lots # 26 & 27 are shorter. Confirm that lots # 22, 23 & 24 are copper services & on OC H2O main, if not, switch to OC's 12" main. Cut & cap old service line at existing H2O main & switch to new main for lot # 10. Avoid the long dead-end mains for lots # 5 & 13; No service line shown for lot # 14. See sheet # 3 for red-lined details. See attached OC water map.


PEASE
PEASE
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COMINGER DRIVE
CRISP DRIVE
RIVERVIEW PKWY
LOT WHITCOMB DR
CARMELITA DRIVE
BELLAMY WAY
LELAND
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CITY OF OREGON CITY - PLANNING DIVISION
PO Box 3040 - 320 Warner Milne Road - Oregon City, OR 97045-0304
Phone: (503) 657-0891 Fax: (503) 722-3880

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REQUEST:	The applicant is requesting approval of: 1) Zone Change (ZC 04-02 from R-10 to R-8 2) 31 Lot Subdivision (TP 04-02)
LOCATION:	Clackamas County Map 3-2E-07DB, Tax Lots 6500, 6400 & 6300 and 3-2E-07A, Tax Lot 2200 19431, 19411, & 19391 Leland Road and 19260 Pease Road

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and will insure prompt consideration of your recommendations. Please check the appropriate spaces below.

X The proposal does not conflict with our interests.

___ The proposal would not conflict our interests if the changes noted below are included.

___ The proposal conflicts with our interests for the reasons stated below.

___ The following items are missing and are needed for review:

Signed _____
Title EO

Exhibit 9

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

June 1, 2004

Project No. 04-8758

Tom Gentry
P.O. Box 1009
Clackamas, OR 97015
Fax 503.655.6818

Subject: Geotechnical Engineering Report
Gentry Heights 2 Subdivision
Oregon City, Oregon

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site grading, foundation design, and construction. This geotechnical study was performed in general accordance with GeoPacific proposal No. P-2106, dated May 5, 2004.

BACKGROUND INFORMATION

Project Information

Location:	Northwest side of Leland Road in Oregon City, Oregon (see Figure 1).
Developer:	Gentry Homes
Engineer:	Sisul Engineering
Jurisdictional Agency:	Oregon City, Oregon

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject property consists of approximately 7 ½ acres, located northwest of Leland Road in Oregon City, Oregon (Figure 1). The southeast portion of the site is currently developed with four single-family homes and associated outbuildings, the remaining portions of the site are undeveloped and covered with grass and scattered trees. The topography of the site is nearly level with a gentle slope down to the southeast, with elevations ranging between about 434 and 450 feet.

The proposed development includes 32 single-family home sites and associated improvements, including new streets. No detailed plans are currently available, however, we assume that proposed grading will be relatively minor, with cuts and fills assumed to be on the order of 2 to 5 feet maximum and fill up to about 2 feet high. Utilities are assumed at depths of less than 10 feet.

REGIONAL AND LOCAL GEOLOGIC SETTING

The subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The subject site is located within an area of wide spread Boring Lava exposures south and east of Oregon City. These Pliocene-Pleistocene lavas are typically grey and coarse-grained when fresh but weather deeply to reddish-brown and mottled rust and black clayey silt. These residual soils often contain inclusions of large boulders as a result of in-situ spheroidal weathering. Locally, the basal portion of the Boring Lava may contain thick deposits of pyroclastic materials (ash). The Boring is mapped as being underlain progressively by the Troutdale Formation, the Sandy River Mudstone, and the Columbia River Basalt.

SUBSURFACE CONDITIONS

Our site-specific exploration for this report was conducted on May 20, 2004. A total of 8 exploratory test pits were excavated with a small trackhoe to depths of about 2 to 7 feet, at the approximate locations shown on Figure 2. A GeoPacific geologist evaluated and logged the test pits with regard to soil type, moisture content, relative strength, and groundwater. Logs of the test pits are presented as an attachment to this report. Soil samples were evaluated, described, and classified in general accordance with the Unified Soil Classification System. The following report sections summarize subsurface conditions anticipated at the site, based on our exploration program.

Soils

On-site native materials consist of soil units as described below.

Topsoil: The ground surface is directly underlain by topsoil consisting of dark brown SILT (ML) containing frequent fine organics and fine rootlets. The total thickness of topsoil varies from 10 to 15 inches. Generally, the upper 6 to 8 inches is considered moderately to highly organic.

Clayey Silt: Underlying the topsoil is orange brown clayey SILT (ML). In general, the SILT is hard to very hard. Pocket penetrometer measurements indicate an unconfined compressive strength of 4.5 tons/ft^2. Total thickness of this layer varies from 3 to 4 feet across the site.

Residual Soil: Underlying the clayey silt unit is residual soil (decomposed bedrock) consisting of clayey SILT (ML) with some cobbles and basalt fragments. The clayey SILT is generally very stiff to hard and may effectively be classified as a very soft rock (R1) to soft rock (R2).

Weathered Basalt: Underlying the residual soil unit is basalt bedrock consisting of hard clayey SILT (ML) and basalt fragments. Test pits TP-3, TP-7 and TP-8 were terminated due to practical refusal on weathered basalt bedrock.

Soil Moisture and Groundwater

Groundwater seepage was not observed in test pits. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Shallow, perched, runoff often results in the upper few feet in fine-grained native deposits such as those beneath the site, particularly during the wet season.

SEISMIC SETTING

At least three potential source zones capable of generating damaging earthquakes are thought to exist in the region. These include the Portland Hills Fault Zone, Gales Creek-Newberg-Mt. Angel Structural Zone, and the Cascadia Subduction Zone, as discussed below.

Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The fault zone extends along the eastern margin of the Portland Hills for a distance of 25 miles, and lies about 2 miles northeast of the subject site. Geomorphic lineaments suggestive of Pleistocene deformation have been identified within the fault zone, but none of the fault segments have been shown to cut Holocene (last 10,000 years) deposits (Balsillie and Benson, 1971; Comforth and Geomatrix Consultants, 1992). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is judged to be potentially active (Geomatrix Consultants, 1995).

Gales Creek-Newberg-Mt. Angel Structural Zone

The Gales Creek-Newberg-Mt. Angel Structural Zone is a 50-mile-long zone of discontinuous, NW-trending faults that lies about 17 miles southwest of the subject site. These faults are recognized in the subsurface by vertical separation of the Columbia River Basalt and offset seismic reflectors in the overlying basin sediment (Yeats et al., 1996; Werner et al., 1992). A recent geologic reconnaissance and photogeologic analysis study conducted for the Scoggins Dam site in the Tualatin Basin revealed no evidence of deformed geomorphic surfaces along the structural zone (Unruh et al., 1994). No seismicity has been recorded on the Gales Creek or Newberg Faults (the faults closest to the subject site); however, these faults are considered to be potentially active because they may connect with the seismically active Mount Angel Fault and the rupture plane of the 1993 M5.6 Scotts Mills earthquake (Werner, et al. 1992; Geomatrix Consultants, 1995).

Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). Very little seismicity has occurred on the plate interface in historic time, and as a result, the seismic potential of the Cascadia Subduction Zone is a subject of scientific controversy. The lack of seismicity may be interpreted as a period of quiescent stress buildup between large magnitude earthquakes or as being characteristic of the long-term behavior of the subduction zone. A growing body of geologic evidence, however, strongly suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred siesmogenic portion of the plate interface lies roughly 50 miles west of the Oregon coast and 20 to 40 miles below the ocean surface.

SLOPE STABILITY

The subject site and adjacent area has flat to gently sloping topography, and grades are sufficiently low that development of unstable natural slopes is negligible.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicate that the proposed residential development is geotechnically feasible provided that the following recommendations are incorporated in the design and construction phases of the project. Excavation at depths several feet below the ground surface is moderately-difficult and likely to encounter hard to very hard weathered rock. Appendix B contains an itemized checklist of soil testing and inspection procedures that are recommended to help guide the project to completion.

The recommendations of this report assume that the structures will have raised floors and crawlspaces. If structures are planned with basements or concrete slab-on-grade floors, GeoPacific should be contacted for additional recommendations regarding basement retaining wall design and drainage, concrete floor slabs and moisture protection, or other issues.

At the time of this report, the grading plan for the site had not been developed. GeoPacific should review the grading plan once it is available, to verify conformance with the recommendations of this report, and to provide additional recommendations if needed, based on the specifics of the planned grading.

Site Preparation

All proposed structure, parking and driveway areas to receive fill should first be cleared of vegetation and any loose debris or undocumented fill encountered in the vicinity of the previous residence. All debris from clearing should be removed from the site. Any existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath proposed structures and pavements should be removed and the excavations backfilled with engineered fill.

Following site clearing, organic-rich topsoil should then be stripped. We anticipate that the depth of highly organic soil stripping will range from about 4 to 6 inches; an additional 4 to 6 inches should be stripped and may be incorporated into the engineered fill. The final depth of stripping removal will be determined on the basis of a site inspection after the initial stripping has been performed. Stripped highly organic topsoil should preferably be hauled offsite or stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

In construction areas during dry weather operations, once stripping is approved. Exposed subgrade soils should be evaluated by the geotechnical engineer prior to replacement. For large areas, this evaluation is normally performed by proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. Actual depth of overexcavation depend upon the conditions exposed at the time, and should be reevaluated by GeoPacific at the time of construction.

Rough Grading

All grading for the proposed development should be performed as engineered grading in accordance with Appendix 33 of the 1997 Uniform Building Code (UBC), as modified herein. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Imported fill material must be approved by the geotechnical engineer prior to its arrival on site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95% of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent (Appendix A). On-site soils will most likely be very wet of optimum; therefore, we anticipate that aeration of native soil will be necessary for compaction operations performed during mid to late summer. This work should be performed before extensive utility work begins so that the required overexcavation and recompaction is not limited by newly placed utilities.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Earthwork is usually performed in the summer months, generally mid-June to mid-October, when warm dry weather facilitates proper moisture conditioning of soils. Earthwork performed during the wet-weather season will probably require expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction, in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan. If used, these erosion control devices should be in place and remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly covering or re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

Excavating Conditions and Trench Backfill

We anticipate that on-site soils can be excavated to depths anticipated for this project (up to 10 feet) using conventional heavy equipment such as scrapers and trackhoes. Many large residual boulders and localized zones of hard rock should be anticipated below several feet depth. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify as Type A Soil and temporary excavation side slope inclinations as steep as 3/4H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that structural trench backfill be compacted to at least 95% of the maximum dry density obtained by Standard Proctor (AASHTO T-99), or equivalent. Initial backfill lift thicknesses for ¾"-0 crushed aggregate backfill may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Pavement Sections

Based on our experience with similar soils, we used a resilient modulus of 6,000 pci for design purposes. Table 1 presents our recommended minimum pavement section for dry-weather construction. This design was formulated using the Crushed Base Equivalent method, and a traffic index of 4.0. This Traffic Index is typically used as representative of light-duty residential streets.

Table 1 - Recommended Minimum Dry-Weather Pavement Section

Material Layer	Minimum Thickness (inches)	Compaction Standard
Asphaltic Concrete (AC)	3	91% (bottom lift)/ 92% (top lift) of Rice Density AASHTO T-209
Crushed Aggregate Base (¾"-0 leveling coarse)	2	95% of Modified Proctor ASTM D1557
Crushed Aggregate Base 1 ½"-0	8	95% of Modified Proctor ASTM D1557

Sufficient density testing should be performed to verify compaction of pavement section materials. Generally, one subgrade, one base course, and one asphalt compaction test is performed for every 100 to 200 linear feet of paving.

Any localized areas of soft soil subgrade in pavement areas discovered during construction should be ripped or tilled, moisture conditioned, and recompacted in-place to at least 95% of ASTM D698 or equivalent. In order to verify subgrade strength, we recommend proof-rolling directly on subgrade with a loaded dump truck during dry weather and on top of base course in wet weather. Soft areas that pump, rut, or weave should be stabilized prior to paving. If pavement areas are to be constructed during wet weather, GeoPacific should review the subgrade at the time of construction so that condition specific recommendations can be provided. Wet-weather pavement construction is likely to require soil amendment, or geotextile fabric and an increase in base rock thickness.

Anticipated Foundations

The subject site is suitable for shallow foundations bearing on stiff, native soil or engineered fill. Single-family buildings foundation design, construction, and setback requirements should conform to Chapter 4 of the Council of American Building Officials (CABO) One and Two Family Dwelling Code. For protection against frost heave, spread footings should be embedded at a minimum depth of 18 inches below exterior grade. Minimum footing widths should be determined by the project architect/engineer in accordance with applicable codes.

The recommended allowable soil bearing pressure is 1,500 lbs/ft^2 for footings on stiff native soil and engineered fill. A maximum column load of 35 kips is recommended, subject to a geotechnical engineers review. For heavier loads or any masonry walls or chimneys, the geotechnical engineer should be consulted. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.45 (no factor of safety included). For footings founded on engineered fill, the maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively.

Footing excavations should penetrate through any loose, uncompacted soil to bear on engineered fill that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars.

The above recommendations apply to foundations constructed under dry weather conditions. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require placement of an estimated 6 to 18-inch thick layer of compacted crushed aggregate.

Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Drainage

Due to Perched shallow storm runoff, perimeter footing drains should be placed necessary around building foundations. Perimeter drains should consist of a minimum 3-inch diameter ADS Highway Grade (or equivalent), perforated, plastic pipe enveloped in a minimum of 1 ft^3 per lineal foot of 2"- ½", open, graded gravel (drain rock) wrapped with geotextile (Mirafi 140N or equivalent). A minimum 0.5% fall should be maintained throughout all subdrains and non-perforated pipe outlets. Footing drains are for mitigating the detrimental effects of water on foundations only and will not eliminate all potential sources of water entering the crawlspace.

Our recommendations regarding drainage are for house construction incorporating raised wood floors and conventional spread footing foundations. If buildings will incorporate basements or slab-on-grade floors, GeoPacific should be consulted to make additional recommendations for retaining walls, water-proofing, underslab drainage and wall subdrains. Surface water drainage should be directed away from structures, and, if possible, roof-drain water should be carried to the street or discharged to the storm drain system.

Seismic Design

The project site lies within Seismic Zone 3, as defined in Chapter 16, Division IV of the 1997 Uniform Building Code (UBC). Seismic Zone 3 includes the western portion of Oregon, and represents an area of relatively high seismic risk. For comparison, much of California and southern Alaska are defined as Seismic Zone 4, which is an area of highest seismic risk. Consequently, moderate levels of earthquake shaking should be anticipated during the design life of the proposed improvements, and the structures should be designed to resist earthquake loading in accordance with the methodology described in the 1997 UBC. Based on the subsurface conditions we observed during our exploration program, UBC Soil Type S_c may be assumed for the site. The corresponding seismic factors may be used in developing a normalized response spectra for the assumed UBC Soil Type.

In our opinion, the potential for liquefaction or liquefaction-related ground failure at the subject site is very low and no special mitigating measures are recommended.

UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the client and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, express or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
14743
OREGON
JAN. 23, 1990
JAMES D. IMBRIE
Exp 6-30-05

Kirk L. Warner, R.G.
Senior Geologist

James D. Imbrie, P.E.
Principal Engineer

Attachments: References
Checklist of Recommended Geotechnical Testing and Observations
Figure 1 – Site Location Map
Figure 2 – Site Plan
Logs of Test Pits TP-1 – TP-8

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Medium stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Hard to very hard, orange brown and black, clayey SILT (ML), with some basalt cobbles, damp (residual soil)
3						
4						
5						
6						Test Pit Terminated at 6 feet due to practical refusal of trackhoe on weathered basalt Note: Groundwater was not encountered
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
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Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Medium stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Hard to very hard, orange brown and black, clayey SILT (ML), with some basalt cobbles, damp (residual soil)
3						
4						
5						Test Pit Terminated at 5 feet due to practical refusal of trackhoe on weathered basalt
6						Note: Groundwater was not encountered
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						Test Pit Terminated at 2 feet
4						Note: Groundwater was not encountered.
5						
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16						
17						

LEGEND

Bag Sample | Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
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Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						Test Pit Terminated at 2 feet
4						Note: Groundwater was not encountered.
5						
6						
7						
8						
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10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						
5						Test Pit Terminated at 5 feet due to practical refusal on weathered basalt Note: Groundwater was not encountered.
6						
7						
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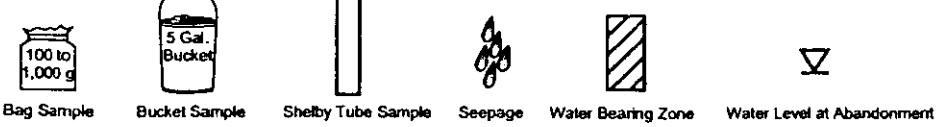
16						
17						

LEGEND



Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
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Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						
5						Hard to very hard, red brown and gray, clayey SILT (ML), damp (residual soil)
6						
7						Test Pit Terminated at 7 feet due to practical refusal on weathered basalt
8						Note: Groundwater was not encountered.
9						
10						
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12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone

Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation: 208 ft.

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						
5						Hard to very hard, red brown and gray, clayey SILT (ML), damp (residual soil)
6						
7						Test Pit Terminated at 7 feet due to practical refusal on weathered basalt Note: Groundwater was not encountered.
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

June 1, 2004

Project No. 04-8758

Tom Gentry
P.O. Box 1009
Clackamas, OR 97015
Fax 503.655.6818

Subject: Geotechnical Engineering Report
Gentry Heights 2 Subdivision
Oregon City, Oregon

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site grading, foundation design, and construction. This geotechnical study was performed in general accordance with GeoPacific proposal No. P-2106, dated May 5, 2004.

BACKGROUND INFORMATION

Project Information

Location:	Northwest side of Leland Road in Oregon City, Oregon (see Figure 1).
Developer:	Gentry Homes
Engineer:	Sisul Engineering
Jurisdictional Agency:	Oregon City, Oregon

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject property consists of approximately 7 ½ acres, located northwest of Leland Road in Oregon City, Oregon (Figure 1). The southeast portion of the site is currently developed with four single-family homes and associated outbuildings, the remaining portions of the site are undeveloped and covered with grass and scattered trees. The topography of the site is nearly level with a gentle slope down to the southeast, with elevations ranging between about 434 and 450 feet.

The proposed development includes 32 single-family home sites and associated improvements, including new streets. No detailed plans are currently available, however, we assume that proposed grading will be relatively minor, with cuts and fills assumed to be on the order of 2 to 5 feet maximum and fill up to about 2 feet high. Utilities are assumed at depths of less than 10 feet.

REGIONAL AND LOCAL GEOLOGIC SETTING

The subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The subject site is located within an area of wide spread Boring Lava exposures south and east of Oregon City. These Pliocene-Pleistocene lavas are typically grey and coarse-grained when fresh but weather deeply to reddish-brown and mottled rust and black clayey silt. These residual soils often contain inclusions of large boulders as a result of in-situ spheroidal weathering. Locally, the basal portion of the Boring Lava may contain thick deposits of pyroclastic materials (ash). The Boring is mapped as being underlain progressively by the Troutdale Formation, the Sandy River Mudstone, and the Columbia River Basalt.

SUBSURFACE CONDITIONS

Our site-specific exploration for this report was conducted on May 20, 2004. A total of 8 exploratory test pits were excavated with a small trackhoe to depths of about 2 to 7 feet, at the approximate locations shown on Figure 2. A GeoPacific geologist evaluated and logged the test pits with regard to soil type, moisture content, relative strength, and groundwater. Logs of the test pits are presented as an attachment to this report. Soil samples were evaluated, described, and classified in general accordance with the Unified Soil Classification System. The following report sections summarize subsurface conditions anticipated at the site, based on our exploration program.

Soils

On-site native materials consist of soil units as described below.

Topsoil: The ground surface is directly underlain by topsoil consisting of dark brown SILT (ML) containing frequent fine organics and fine rootlets. The total thickness of topsoil varies from 10 to 15 inches. Generally, the upper 6 to 8 inches is considered moderately to highly organic.

Clayey Silt: Underlying the topsoil is orange brown clayey SILT (ML). In general, the SILT is hard to very hard. Pocket penetrometer measurements indicate an unconfined compressive strength of 4.5 tons/ft^2. Total thickness of this layer varies from 3 to 4 feet across the site.

Residual Soil: Underlying the clayey silt unit is residual soil (decomposed bedrock) consisting of clayey SILT (ML) with some cobbles and basalt fragments. The clayey SILT is generally very stiff to hard and may effectively be classified as a very soft rock (R1) to soft rock (R2).

Weathered Basalt: Underlying the residual soil unit is basalt bedrock consisting of hard clayey SILT (ML) and basalt fragments. Test pits TP-3, TP-7 and TP-8 were terminated due to practical refusal on weathered basalt bedrock.

Soil Moisture and Groundwater

Groundwater seepage was not observed in test pits. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Shallow, perched, runoff often results in the upper few feet in fine-grained native deposits such as those beneath the site, particularly during the wet season.

SEISMIC SETTING

At least three potential source zones capable of generating damaging earthquakes are thought to exist in the region. These include the Portland Hills Fault Zone, Gales Creek-Newberg-Mt. Angel Structural Zone, and the Cascadia Subduction Zone, as discussed below.

Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The fault zone extends along the eastern margin of the Portland Hills for a distance of 25 miles, and lies about 2 miles northeast of the subject site. Geomorphic lineaments suggestive of Pleistocene deformation have been identified within the fault zone, but none of the fault segments have been shown to cut Holocene (last 10,000 years) deposits (Balsillie and Benson, 1971; Cornforth and Geomatrix Consultants, 1992). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is judged to be potentially active (Geomatrix Consultants, 1995).

Gales Creek-Newberg-Mt. Angel Structural Zone

The Gales Creek-Newberg-Mt. Angel Structural Zone is a 50-mile-long zone of discontinuous, NW-trending faults that lies about 17 miles southwest of the subject site. These faults are recognized in the subsurface by vertical separation of the Columbia River Basalt and offset seismic reflectors in the overlying basin sediment (Yeats et al., 1996; Werner et al., 1992). A recent geologic reconnaissance and photogeologic analysis study conducted for the Scoggins Dam site in the Tualatin Basin revealed no evidence of deformed geomorphic surfaces along the structural zone (Unruh et al., 1994). No seismicity has been recorded on the Gales Creek or Newberg Faults (the faults closest to the subject site); however, these faults are considered to be potentially active because they may connect with the seismically active Mount Angel Fault and the rupture plane of the 1993 M5.6 Scotts Mills earthquake (Werner, et al. 1992; Geomatrix Consultants, 1995).

Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). Very little seismicity has occurred on the plate interface in historic time, and as a result, the seismic potential of the Cascadia Subduction Zone is a subject of scientific controversy. The lack of seismicity may be interpreted as a period of quiescent stress buildup between large magnitude earthquakes or as being characteristic of the long-term behavior of the subduction zone. A growing body of geologic evidence, however, strongly suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred siesmogenic portion of the plate interface lies roughly 50 miles west of the Oregon coast and 20 to 40 miles below the ocean surface.

SLOPE STABILITY

The subject site and adjacent area has flat to gently sloping topography, and grades are sufficiently low that development of unstable natural slopes is negligible.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicate that the proposed residential development is geotechnically feasible provided that the following recommendations are incorporated in the design and construction phases of the project. Excavation at depths several feet below the ground surface is moderately-difficult and likely to encounter hard to very hard weathered rock. Appendix B contains an itemized checklist of soil testing and inspection procedures that are recommended to help guide the project to completion.

The recommendations of this report assume that the structures will have raised floors and crawlspaces. If structures are planned with basements or concrete slab-on-grade floors, GeoPacific should be contacted for additional recommendations regarding basement retaining wall design and drainage, concrete floor slabs and moisture protection, or other issues.

At the time of this report, the grading plan for the site had not been developed. GeoPacific should review the grading plan once it is available, to verify conformance with the recommendations of this report, and to provide additional recommendations if needed, based on the specifics of the planned grading.

Site Preparation

All proposed structure, parking and driveway areas to receive fill should first be cleared of vegetation and any loose debris or undocumented fill encountered in the vicinity of the previous residence. All debris from clearing should be removed from the site. Any existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath proposed structures and pavements should be removed and the excavations backfilled with engineered fill.

Following site clearing, organic-rich topsoil should then be stripped. We anticipate that the depth of highly organic soil stripping will range from about 4 to 6 inches; an additional 4 to 6 inches should be stripped and may be incorporated into the engineered fill. The final depth of stripping removal will be determined on the basis of a site inspection after the initial stripping has been performed. Stripped highly organic topsoil should preferably be hauled offsite or stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

In construction areas during dry weather operations, once stripping is approved. Exposed subgrade soils should be evaluated by the geotechnical engineer prior to replacement. For large areas, this evaluation is normally performed by proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. Actual depth of overexcavation depend upon the conditions exposed at the time, and should be reevaluated by GeoPacific at the time of construction.

Rough Grading

All grading for the proposed development should be performed as engineered grading in accordance with Appendix 33 of the 1997 Uniform Building Code (UBC), as modified herein. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Imported fill material must be approved by the geotechnical engineer prior to its arrival on site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95% of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent (Appendix A). On-site soils will most likely be very wet of optimum; therefore, we anticipate that aeration of native soil will be necessary for compaction operations performed during mid to late summer. This work should be performed before extensive utility work begins so that the required overexcavation and recompaction is not limited by newly placed utilities.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Earthwork is usually performed in the summer months, generally mid-June to mid-October, when warm dry weather facilitates proper moisture conditioning of soils. Earthwork performed during the wet-weather season will probably require expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction, in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan. If used, these erosion control devices should be in place and remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly covering or re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

Excavating Conditions and Trench Backfill

We anticipate that on-site soils can be excavated to depths anticipated for this project (up to 10 feet) using conventional heavy equipment such as scrapers and trackhoes. Many large residual boulders and localized zones of hard rock should be anticipated below several feet depth. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify as Type A Soil and temporary excavation side slope inclinations as steep as 3/4H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that structural trench backfill be compacted to at least 95% of the maximum dry density obtained by Standard Proctor (AASHTO T-99), or equivalent. Initial backfill lift thicknesses for ¾"-0 crushed aggregate backfill may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Pavement Sections

Based on our experience with similar soils, we used a resilient modulus of 6,000 pci for design purposes. Table 1 presents our recommended minimum pavement section for dry-weather construction. This design was formulated using the Crushed Base Equivalent method, and a traffic index of 4.0. This Traffic Index is typically used as representative of light-duty residential streets.

Table 1 - Recommended Minimum Dry-Weather Pavement Section

Material Layer	Minimum Thickness (inches)	Compaction Standard
Asphaltic Concrete (AC)	3	91% (bottom lift)/ 92% (top lift) of Rice Density AASHTO T-209
Crushed Aggregate Base (¾"-0 leveling coarse)	2	95% of Modified Proctor ASTM D1557
Crushed Aggregate Base 1 ½"-0	8	95% of Modified Proctor ASTM D1557

Sufficient density testing should be performed to verify compaction of pavement section materials. Generally, one subgrade, one base course, and one asphalt compaction test is performed for every 100 to 200 linear feet of paving.

Any localized areas of soft soil subgrade in pavement areas discovered during construction should be ripped or tilled, moisture conditioned, and recompacted in-place to at least 95% of ASTM D698 or equivalent. In order to verify subgrade strength, we recommend proof-rolling directly on subgrade with a loaded dump truck during dry weather and on top of base course in wet weather. Soft areas that pump, rut, or weave should be stabilized prior to paving. If pavement areas are to be constructed during wet weather, GeoPacific should review the subgrade at the time of construction so that condition specific recommendations can be provided. Wet-weather pavement construction is likely to require soil amendment, or geotextile fabric and an increase in base rock thickness.

Anticipated Foundations

The subject site is suitable for shallow foundations bearing on stiff, native soil or engineered fill. Single-family buildings foundation design, construction, and setback requirements should conform to Chapter 4 of the Council of American Building Officials (CABO) One and Two Family Dwelling Code. For protection against frost heave, spread footings should be embedded at a minimum depth of 18 inches below exterior grade. Minimum footing widths should be determined by the project architect/engineer in accordance with applicable codes.

The recommended allowable soil bearing pressure is 1,500 lbs/ft^2 for footings on stiff native soil and engineered fill. A maximum column load of 35 kips is recommended, subject to a geotechnical engineers review. For heavier loads or any masonry walls or chimneys, the geotechnical engineer should be consulted. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.45 (no factor of safety included). For footings founded on engineered fill, the maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively.

Footing excavations should penetrate through any loose, uncompacted soil to bear on engineered fill that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars.

The above recommendations apply to foundations constructed under dry weather conditions. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require placement of an estimated 6 to 18-inch thick layer of compacted crushed aggregate.

Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Drainage

Due to Perched shallow storm runoff, perimeter footing drains should be placed necessary around building foundations. Perimeter drains should consist of a minimum 3-inch diameter ADS Highway Grade (or equivalent), perforated, plastic pipe enveloped in a minimum of 1 ft^3 per lineal foot of 2"- ½", open, graded gravel (drain rock) wrapped with geotextile (Mirafi 140N or equivalent). A minimum 0.5% fall should be maintained throughout all subdrains and non-perforated pipe outlets. Footing drains are for mitigating the detrimental effects of water on foundations only and will not eliminate all potential sources of water entering the crawlspace.

Our recommendations regarding drainage are for house construction incorporating raised wood floors and conventional spread footing foundations. If buildings will incorporate basements or slab-on-grade floors, GeoPacific should be consulted to make additional recommendations for retaining walls, water-proofing, underslab drainage and wall subdrains. Surface water drainage should be directed away from structures, and, if possible, roof-drain water should be carried to the street or discharged to the storm drain system.

Seismic Design

The project site lies within Seismic Zone 3, as defined in Chapter 16, Division IV of the 1997 Uniform Building Code (UBC). Seismic Zone 3 includes the western portion of Oregon, and represents an area of relatively high seismic risk. For comparison, much of California and southern Alaska are defined as Seismic Zone 4, which is an area of highest seismic risk. Consequently, moderate levels of earthquake shaking should be anticipated during the design life of the proposed improvements, and the structures should be designed to resist earthquake loading in accordance with the methodology described in the 1997 UBC. Based on the subsurface conditions we observed during our exploration program, UBC Soil Type S_c may be assumed for the site. The corresponding seismic factors may be used in developing a normalized response spectra for the assumed UBC Soil Type.

In our opinion, the potential for liquefaction or liquefaction-related ground failure at the subject site is very low and no special mitigating measures are recommended.

UNCERTAINTIES AND LIMITATIONS

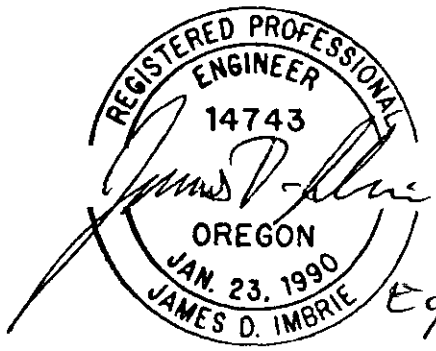
We have prepared this report for the client and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, express or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

Sincerely,

GEOPACIFIC ENGINEERING, INC.



Kirk L. Warner, R.G.
Senior Geologist

James D. Imbrie, P.E.
Principal Engineer

Attachments: References
Checklist of Recommended Geotechnical Testing and Observations
Figure 1 – Site Location Map
Figure 2 – Site Plan
Logs of Test Pits TP-1 – TP-8

REFERENCES

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CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineers	
2	Stripping, aeration, and root-picking operations.	During stripping	Engineering Geologist Geotechnical engineer	
3	Compaction testing of engineered fill (95% of Standard Proctor)	During filling, tested every 2 vertical feet or 500 c.y.	Soil Technician	
4	Verify subgrade strength in footing excavations	Prior to pouring concrete	Geotechnical Engineer	
5	Compaction testing of trench backfill (95% of Standard Proctor)	During backfilling, tested every 4 vertical feet for every 200 lineal feet	Soil Technician	
6	Subgrade Proofroll or Compaction (95% of Standard Proctor)	Prior to base coarse	Soil Technician	
7	Base course compaction (95% of Modified Proctor)	Prior to paving, tested every 200 lineal feet	Soil Technician	
8	AC Compaction (91% (bottom lift) / 92% (top lift) of Rice Density)	During paving, tested every 200 lineal feet	Soil Technician	
9	Final Geotechnical Engineer's report	Completion of project	Geotechnical Engineer	

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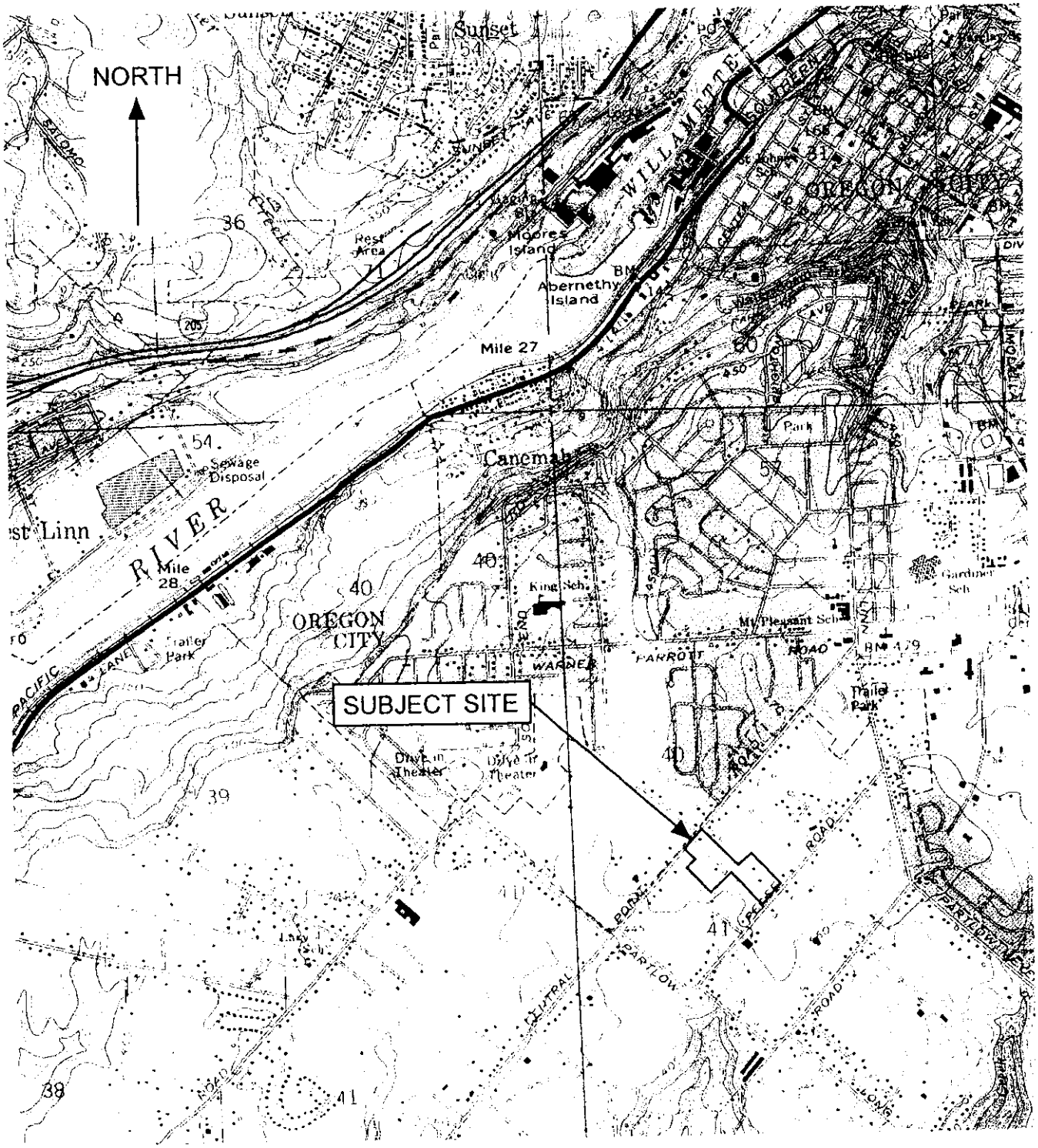
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 ft

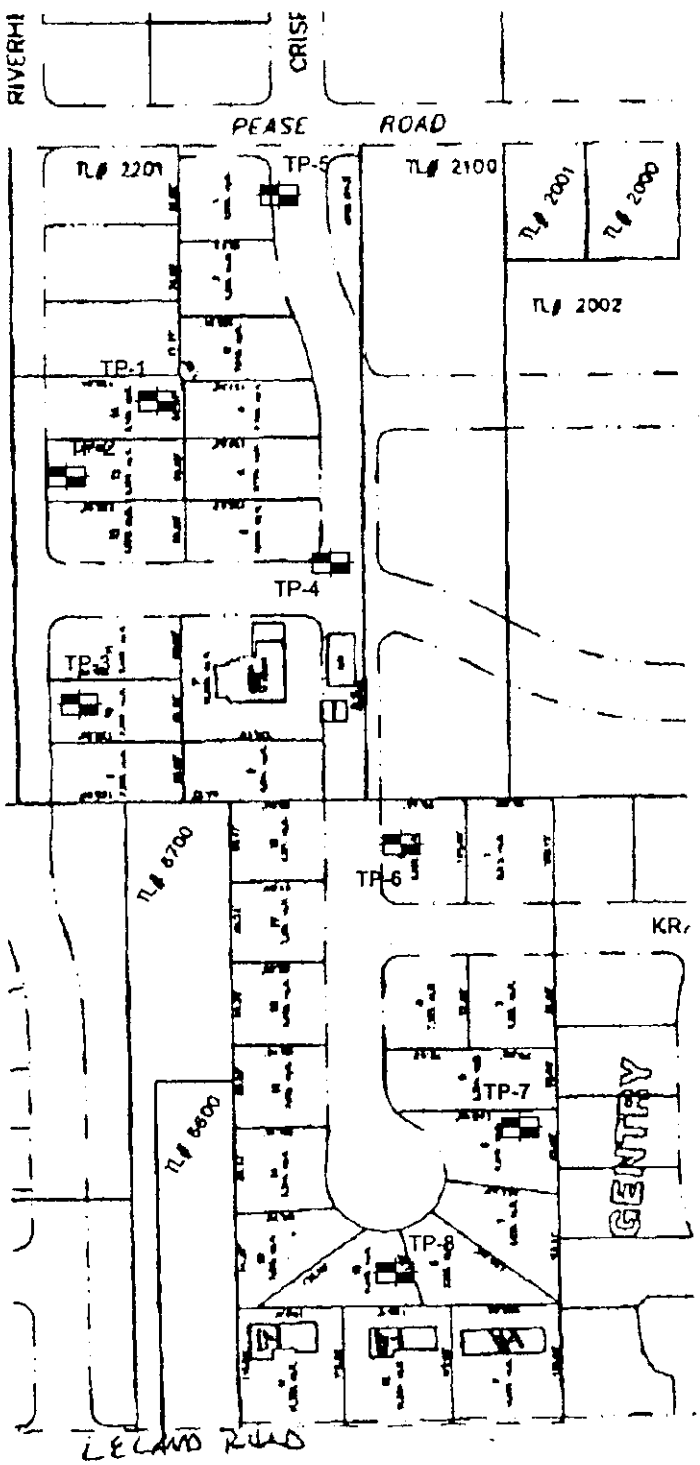
Date: 5/28/04
Drawn by: KLW

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Oregon City OR Quadrangle

Project: Gentry Heights 2 Oregon City, Oregon	Project No. 04-8758	FIGURE 1

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

SITE TOPOGRAPHY AND LAYOUT MAP



LEGEND TP-1 Test pit designation and approximate location

Note: Locations of existing structures approximate at best.

Date: 6/1/04
Drawn by: KLW

Project: Gentry Heights Oregon City, Oregon	Job No. 04-8758	FIGURE 2

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Medium stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Hard to very hard, orange brown and black, clayey SILT (ML), with some basalt cobbles, damp (residual soil)
3						
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6						Test Pit Terminated at 6 feet due to practical refusal of trackhoe on weathered basalt Note: Groundwater was not encountered
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14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Medium stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Hard to very hard, orange brown and black, clayey SILT (ML), with some basalt cobbles, damp (residual soil)
3						
4						
5						Test Pit Terminated at 5 feet due to practical refusal of trackhoe on weathered basalt Note: Groundwater was not encountered
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone

Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						Test Pit Terminated at 2 feet
4						Note: Groundwater was not encountered.
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						Test Pit Terminated at 2 feet Note: Groundwater was not encountered.
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						
5						Test Pit Terminated at 5 feet due to practical refusal on weathered basalt
6						Note: Groundwater was not encountered.
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights Oregon City, OR	Project No. 04-8758	Test Pit No. **TP-7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						
5						Hard to very hard, red brown and gray, clayey SILT (ML), damp (residual soil)
6						
7						Test Pit Terminated at 7 feet due to practical refusal on weathered basalt
8						Note: Groundwater was not encountered.
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone

Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation: 208 ft.

GeoPacific Engineering, Inc.
17700 SW Upper Boones Ferry Road, Suite 100
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: Gentry Heights
Oregon City, OR

Project No. 04-8758

Test Pit No. **TP-8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Stiff, dark brown, SILT (ML), with frequent fine rootlets, damp
2						Stiff to very stiff, orange brown, clayey SILT (ML), damp
3						
4						Hard to very hard, red brown and gray, clayey SILT (ML), damp (residual soil)
5						
6						
7						Test Pit Terminated at 7 feet due to practical refusal on weathered basalt
8						Note: Groundwater was not encountered.
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 5/20/04
Logged By: KLW
Surface Elevation:

GENTRY HIGHLANDS 2

Oregon City, OR
J.O. 03-125

September, 2004

PRELIMINARY STORM RUNOFF & DETENTION CALCULATIONS

SISUL ENGINEERING

Exhibit 12

phone: (503) 657-0188
fax: (503) 657-5779

Site Conditions & Design Values - Pre Development:

Area:

Total Area = 8.2 acres

Pervious Area = 8.01 acres
Impervious Area = .19 acres

Existing Use: This site is currently developed with 4 existing houses and the remaining area is considered meadow/pasture.

Soil Type: This site has (2) soil types as identified by (Soil Survey Clackamas County Area, Oregon) (See Soil Survey Attachments)

Bornstedt 8B - Hydrologic Group "C"
Jory 46B - Hydrologic Group "C"

Runoff Curve Numbers: (per Table 4-3 MODIFIED CURVE NUMBERS, City of Oregon City Stormwater and Grading Design Standards)

Meadow/Pasture Hydrologic Group 'C' => 85
Impervious Surfaces, AC, Roofs etc.-Hydrologic Group 'C' => 98

Rainfall Distribution: (per Table 4-1 TOTAL DEPTH, City of Oregon City Stormwater and Grading Design Standards)

2yr, 24-hour duration STD SCS Type 1A Storm => 2.6 inches
5yr, 24-hour duration STD SCS Type 1A Storm => 3.1 inches
10yr, 24-hour duration STD SCS Type 1A Storm => 3.4 inches

Time of Concentration: (Design Values per Table 4-4 MANNING'S COEFFICIENTS/"K" FACTORS, City of Oregon City Stormwater and Grading Design Standards)

Sheet Flow: $T_1 = \frac{0.42\,(n_s L)^{0.8}}{(P_2)^{0.5} \cdot (s_o)^{0.4}}$

L = 250 ft.
P_2 = 2.6 in.
S_o = 0.016 ft./ft.
n_s =0.15

Shallow Concentrated Flow: $T_2 = \frac{L}{60 \cdot k \cdot (S_o)^{0.5}}$

L = 103 ft.
S_o = 0.039 ft./ft.
k = 27

$$T_c = \frac{0.42(0.15 \times 250)^{0.8}}{(2.6)^{0.5}(0.016)^{0.4}} + \frac{103}{60 \times 27 \times \sqrt{0.039}} = 29.74\,\text{min.}$$

Site Analysis - Pre Development:

The site analysis will be performed using the Santa Barbara Urban Hydrograph (SBUH) Method. (KING COUNTY DEPARTMENT OF PUBLIC WORKS Surface Water Management Division, HYDROGRAPH PROGRAMS Version 4.21B)

2 year Runoff – Pre Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 2-YEAR 24-HOUR STORM **** 2.60" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
8.01,85,.19,98,29.74

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	8.0	85.0	.2	98.0	29.7

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
1.72	7.83	38039

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-2.UND

5 year Runoff – Pre Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 5-YEAR 24-HOUR STORM **** 3.10" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
8.01,85,.19,98,29.74

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	8.0	85.0	.2	98.0	29.7

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
2.39	7.83	50274

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-5.UND

10 year Runoff – Pre Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 10-YEAR 24-HOUR STORM **** 3.40" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
8.01,85,.19,98,29.74

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	8.0	85.0	.2	98.0	29.7

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
2.82	7.83	57911

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-10.UND

Site Conditions & Design Values - Post Development:

Area: (per Table 4-3 MODIFIED CURVE NUMBERS, City of Oregon City Stormwater and Grading Design Standards)

Total Area = 8.2 acres

Pervious Area = 5.95 acres
Impervious Area = 2.25 acres

Runoff Curve Numbers: (per Table 4-3 MODIFIED CURVE NUMBERS, City of Oregon City Stormwater and Grading Design Standards)

Lawns & Landscaping-Hydrologic Group 'C' => 86
Impervious Surfaces, AC, Roofs etc.-Hydrologic Group 'C' => 98

Rainfall Distribution: (per Table 4-1 TOTAL DEPTH, City of Oregon City Stormwater and Grading Design Standards)

2yr, 24-hour duration STD SCS Type 1A Storm => 2.6 inches
5yr, 24-hour duration STD SCS Type 1A Storm => 3.1 inches
25yr, 24-hour duration STD SCS Type 1A Storm => 4.0 inches

Time of Concentration (Post Development): (Design Values per Table 4-4 MANNING'S COEFFICIENTS/"K" FACTORS, City of Oregon City Stormwater and Grading Design Standards)

Sheet Flow: $T_1 = \frac{0.42\,(n_s L)^{0.8}}{(P_2)^{0.5} * (s_o)^{0.4}}$

$L = 100$ ft.
$P_2 = 2.6$ in.
$S_o = 0.02$ ft./ft.
$n_s = 0.15$

Gutter Concentrated Flow: $T_2 = \frac{L}{60 * k * (S_o)^{0.5}}$

$L = 133$ ft.
$S_o = 0.045$ ft./ft.
$k = 27$

Pipe Flow: $T_3 = \frac{L}{60 * k * (S_o)^{0.5}}$

$L = 1140$ ft.
$S_o = 0.020$ ft./ft.
$k = 67$

Total Time of Concentration: $T = T_1 + T_2 + T_3 + \ldots\ldots$

$$T_C = \frac{0.42(0.15 \times 100)^{0.8}}{(2.6)^{0.5}(0.02)^{0.4}} + \frac{133}{60 \times 27 \times \sqrt{0.045}} + \frac{1140}{60 \times 67 \times \sqrt{0.020}} = 13.26\,\text{min.}$$

Site Analysis - Post Development:

The site analysis will be performed using the Santa Barbara Urban Hydrograph (SBUH) Method. (KING COUNTY DEPARTMENT OF PUBLIC WORKS Surface Water Management Division, HYDROGRAPH PROGRAMS Version 4.21B)

2 year Runoff – Post Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 2-YEAR 24-HOUR STORM **** 2.60" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
5.95,86,2.25,98,13.26

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	5.9	86.0	2.3	98.0	13.3

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
3.04	7.83	47916

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-2.DEV

5 year Runoff – Post Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 5-YEAR 24-HOUR STORM **** 3.10" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
5.95,86,2.25,98,13.26

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	5.9	86.0	2.3	98.0	13.3

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
3.95	7.83	61097

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-5.DEV

25 year Runoff – Post Development

********** S.C.S. TYPE-1A DISTRIBUTION **********
********* 25-YEAR 24-HOUR STORM **** 4.00" TOTAL PRECIP. *********

ENTER: A(PERV), CN(PERV), A(IMPERV), CN(IMPERV), TC FOR BASIN NO. 1
5.95,86,2.25,98,13.26

DATA PRINT-OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
8.2	5.9	86.0	2.3	98.0	13.3

PEAK-Q(CFS)	T-PEAK(HRS)	VOL(CU-FT)
5.64	7.83	85627

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:
03125-25.DEV

Detention Facility Routing:

Table 4-0 (City of Oregon City Stormwater and Grading Design Standards) presents the storm water runoff control requirements. The following is a summary of these requirements as they apply to the development of this site.

Minimum Peak Rate Stormwater Runoff Control Requirements.

2yr, 24-hour storm event must be controlled to 50% of the pre-developed runoff rate of a 2yr 24 hour storm event.

5yr, 24-hour storm event must be controlled to the pre-developed runoff rate of a 5yr 24-hour storm event.

25yr, 24-hour storm event must be controlled to the pre-developed runoff rate of a 10yr 24-hour storm event.

SPECIFY TYPE OF R/D FACILITY:

1 - POND 4 - INFILTRATION POND
2 - TANK 5 - INFILTRATION TANK
3 - VAULT 6 - GRAVEL TRENCH/BED
1
ENTER: POND SIDE SLOPE (HORIZ. COMPONENT)
4

ENTER: EFFECTIVE STORAGE DEPTH(ft) BEFORE OVERFLOW
4

ENTER [d:][path]filename[.ext] OF PRIMARY DESIGN INFLOW HYDROGRAPH:
03125-25.dev
PRIMARY DESIGN INFLOW PEAK = 5.64 CFS

ENTER PRIMARY DESIGN RELEASE RATE(cfs):
2.82

ENTER NUMBER OF INFLOW HYDROGRAPHS TO BE TESTED FOR PERFORMANCE (5 MAXIMUM):
2

ENTER [d:][path]filename[.ext] OF HYDROGRAPH 1:
03125-5.dev
ENTER TARGET RELEASE RATE(cfs):
2.39

ENTER [d:][path]filename[.ext] OF HYDROGRAPH 2:
03125-2.dev
ENTER TARGET RELEASE RATE(cfs):
.86

ENTER: NUMBER OF ORIFICES, RISER-HEAD(ft), RISER-DIAMETER(in)
2,4,12

RISER OVERFLOW DEPTH FOR PRIMARY PEAK INFLOW = 2.22 FT

INITIAL STORAGE VALUE FOR ITERATION PURPOSES: 25704 CU-FT

BOTTOM ORIFICE: ENTER Q-MAX(cfs)
.95
DIA.= 4.19 INCHES
TOP ORIFICE: ENTER HEIGHT(ft)
3
DIA.= 8.30 INCHES

PERFORMANCE:

	INFLOW	TARGET-OUTFLOW	ACTUAL-OUTFLOW	PK-STAGE	STORAGE
DESIGN HYD	5.64	2.82	2.82	4.00	14405
TEST HYD 1:	3.95	2.39	1.77	3.25	10480
TEST HYD 2:	3.04	.86	.81	2.94	9000

To satisfy the detention requirements a detention pond as well as detention pipe will be used. A detention pond with a volume of 8712 cu. ft. will be connected to 300 ft. of 60 in. detention pipe.

REQUIRED DETENTION	14405 cu. ft.
POND VOLUME	8712 cu. ft.
PIPE VOLUME	5889 cu. ft.
REMAINING STORAGE	196 cu. ft.

** Pipe: 300ft. x 19.63 sq. ft. = 5889 cu. ft.

CITY OF OREGON CITY

ENGINEERING POLICY 00-01
Guidelines for Development

EFFECTIVE: April 10, 2000

PREPARED BY

COMMUNITY DEVELOPMENT DEPARTMENT

320 Warner-Milne Road

Post Office Box 3040

Oregon City, Oregon 97045-0304

Telephone: (503) 657-0891

Engineering Division

Exhibit 13

Applicability. This policy applies to applicants for land use decisions and site plan reviews with regard to providing public improvements and submittal of documentation. The following sections outline some of the important requirements and helpful hints for those unfamiliar with providing public improvements as required by the Oregon City Municipal Code and Oregon City Public Works Standards. This is not an all-inclusive list of City requirements and does not relieve the applicant from meeting all applicable City Code and Public Works Standards.

Availability of Codes and Standards. Copies of these City Codes and Standards are available at City Hall for a nominal price. Some engineering firms in the local metropolitan area already own these Codes and Standards to enable them to properly plan, design, and construct City projects.

General

- Applicants shall design and construct all required public works improvements to City Standards. These Standards include the latest version in effect at the time of application of the following list of documents: Oregon City Municipal Code, Water Master Plan, Transportation Master (System) Plan, Sanitary Sewer Master Plan, and the Drainage Master Plan. It includes the Public Works Design Standards, which is comprised of Sanitary Sewer, Water Distribution System, Stormwater and Grading, and Erosion Control. This list also includes the Street Work Drawings, Appendix Chapter 33 of the Uniform Building Code (by reference), and the Site Traffic Impact Study Procedures. It may also include the City of Oregon City Review Checklist of Subdivision and Partition Plats when the development is a Subdivision, Partition, or Planned Unit Development.

Water (Water Distribution System Design Standards)

- The applicant shall provide water facilities for their development. This includes water mains, valves, fire hydrants, blow-offs, service laterals, and meters.
- All required public water system improvements shall be designed and constructed to City standards.
- The Fire Marshall shall determine the number of fire hydrants and their locations. Fire hydrants shall be fitted with a Storz metal face adapter style S-37MFL and cap style SC50MF to steamer port. This adapter is for a 5-inch hose. All hydrants to be completed, installed, and operational before beginning structural framing. Hydrants shall be painted with Rodda All-Purpose Equipment Enamel (1625 Safety Orange Paint) and all chains shall be removed from the fire hydrants.
- Backflow prevention assemblies are required on all domestic lines for commercial buildings, all fire service lines, and all irrigation lines. Backflow prevention assemblies are also required on residential domestic lines greater than or equal to 2-inch diameter. These assemblies are also required where internal plumbing is greater than 32 feet above the water main. The type of backflow prevention device required is dependent on the degree of hazard. City Water Department personnel, certified as cross connection inspectors, shall determine the type of device to be installed in any specific instance. All backflow prevention devices shall be located on the applicant's property and are the

property owner's responsibility to test and maintain in accordance with manufacturer's recommendations and Oregon statutes.

- The applicant shall verify that there are no wells on site, or if any wells are on the site prior to connecting to the public water system, the applicant shall:
  - Abandon the well per Oregon State requirements and provide copies of the final approval of well abandonment to the City; or
  - Disconnect the well from the home and only use the well for irrigation. In this case, the applicant shall install a back flow preventor on the public service line. The applicant shall also coordinate with the City water department to provide a cross connection inspection before connecting to the public water system.

Sanitary Sewer (Sanitary Sewer Design Standards)

- The applicant shall provide sanitary sewer facilities to their development. This includes gravity mains, manholes, stub outs, and service laterals.
- All required public sanitary sewer system improvements shall be designed and constructed to City standards.
- Applicant must process and obtain sanitary sewer system design approval from DEQ.
- Any existing septic system on site shall be abandoned and certification documentation provided from Clackamas County before recording the plat or obtaining a certificate of occupancy.

Stormwater (Stormwater and Grading Design Standards)

- The applicant shall provide stormwater and detention facilities for their development. This includes the stormwater mains, inlets, manholes, service laterals for roof and foundation drains, detention system if necessary, control structure if necessary, inflow and outflow devices if necessary, and energy dissipaters if necessary.
- The applicant shall design and construct required public stormwater system improvements to City standards. Each project is to coordinate with the City Drainage Master Plan, the Public Works Stormwater and Grading Standards, and the appropriate individual Basin Master Plan (if adopted) and incorporate recommendations from them as directed.
- The applicant shall design the stormwater system to detain any increased runoff created through the development of the site, as well as convey any existing off-site surface water entering the site from other properties.
- The applicant shall submit hydrology/detention calculations to the City Engineering Division for review and approval before approval of construction plans. The applicant shall provide documentation to verify the hydrology and detention calculations. The applicant shall show the 100-year overflow path and shall not design the flow to cross any developed properties.

Dedications and Easements

- The applicant shall obtain and record all off-site easements required for the project before City approval of construction plans.

Streets

- The applicant shall provide street facilities to their site including within the site and on the perimeter of the site where it borders on existing public streets. This includes half- and full-street width pavement as directed, curbs, gutters, planter strips or tree wells as directed, street trees, sidewalks, and bicycle lanes (when required by the type of street classification). This also includes city utilities (water, sanitary and storm drainage facilities), traffic control devices, centerline monumentation in monument boxes, and street lights in compliance with the City Code for Oregon City and its various Master Plans. Half-street improvements include an additional 10-foot wide pavement past the centerline subject to City review of existing conditions.
- After installation of the first lift of asphalt, applicant shall provide asphalt berms or another adequate solution, as approved by the City Engineering Division, at storm catch basins or curb inlets on all streets. This ensures positive drainage until the applicant installs the second lift of asphalt.
- All street names shall be reviewed and approved by the City (GIS Division 657-0891, ext.168) prior to approval of the final plat to ensure no duplicate names are proposed in Oregon City or the 9-1-1 Service Area.
- All street improvements shall be completed and temporary street name signs shall be installed before issuance of building permits.
- The applicant is responsible for all sidewalks in their development. The applicant may transfer the responsibility for the sidewalks adjacent to the right-of-way as part of the requirement for an individual building permit on local streets. However, failure to do so does not waive the applicant's requirement to construct the sidewalks. Applicant shall complete sidewalks on each residential lot within one year of City acceptance of public improvements for the project (e.g.; subdivision, partition, or Planned Unit Development) unless a building permit has been issued for the lot.
- Applicant shall install sidewalks along any tracts within their development, any pedestrian/bicycle accessways within their development, along existing homes within the development's property boundaries, and all handicap access ramps required in their development at the time of street construction.
- Street lights shall typically be owned by the City of Oregon City under PGE plan "B" and installed at the expense of the applicant. The applicant shall submit a street light plan, subject to City and PGE approval, prepared by a qualified electrical contractor. Streetlights shall be placed at street intersections and along streets at property lines. The required lights shall be installed by a qualified electrical contractor. Streetlights are to be spaced and installed per recommendations of the Illuminating Engineering Society of North America as published in their current issue of IES, RP-8 to provide adequate lighting for safety of drivers, pedestrians, and other modes of transportation. Streetlights shall be 100-watt high-pressure sodium fixtures mounted on fiberglass poles with a

25-foot mounting height unless otherwise specified. The applicant shall dedicate any necessary electrical easements on the final plat. All streetlights and poles shall be constructed of material approved by PGE for maintenance by PGE.

Grading And Erosion Control

- The applicant's engineer shall submit rough grading plan with construction plans. The engineer shall certify completed rough grading elevations to +/- 0.1 feet. For single family residential developments, a final residential lot-grading plan shall be based on these certified grading elevations and approved by the City Engineer before issuance of a building permit. If significant grading is required for the residential lots due to its location or the nature of the site, rough grading shall be required of the developer before the acceptance of the public improvements. (See Geotechnical section for cut and fill certification issues on building lots or parcels) There shall not be more than a maximum grade differential of two (2) feet at all site boundaries. Final grading shall in no way create any water traps, or create other ponding situations. Submit one copy (pertinent sheet) of any residential lot grading for each lot (e.g., 37 lots equals 37 copies).
- Applicants shall obtain a DEQ 1200c permit when their site clearing effort is over five (5) acres, as modified by DEQ. Applicant shall provide a copy of this permit to the City before any clearing efforts are started.
- An Erosion Prevention and Sedimentation Control Plan shall be submitted for City approval. Applicant shall obtain an Erosion Control permit before any work on site.
  - Dewatering excavations shall not be allowed unless the discharge water meets turbidity standards (see next bullet) or is adequately clarified before it enters on-site wetlands, drainage courses, and before it leaves the site. Discharge from man-made, natural, temporary, or permanent ponds shall meet the same standard.
  - Construction activities shall not result in greater than 10 percent turbidity increase between points located upstream and downstream of construction activities.
  - Effective erosion control shall be maintained after subdivision site work is complete and throughout building permit issuance.
  - Plans shall document erosion prevention and control measures that will remain effective and be maintained until all construction is complete and permanent vegetation has been established on the site.
  - Responsible party (site steward) for erosion control maintenance throughout construction process shall be shown on the Erosion Control Plan.
  - Staff encourages applicant to select high performance erosion control alternatives to minimize the potential for water quality and fish habitat degradation in receiving waters.

Geotechnical

- Any structural fill to accommodate public improvements shall be overseen and directed by a geotechnical engineer. The geotechnical engineer shall provide test reports and certification that all structural fill has been placed as specified and provide a final

summary report to the City certifying all structural fill on the site before City approval and acceptance of public improvements.

- Any cut or fill in building lots or parcels beyond the rough grading shall be subject to the Building Division's requirements for certification under the building permit.

Engineering Requirements

- Design engineer shall schedule a pre-design meeting with the City of Oregon City Engineering Division before submitting engineering plans for review.
- Street Name/Traffic Control Signs. Approved street name signs are required at all street intersections with any traffic control signs/signals/striping.
- Applicant shall pay City invoice for the manufacture and installation of permanent signs for street names and any traffic control signs/signals/striping.
- Bench Marks. At least one benchmark based on the City's datum shall be located within the subdivision.
- Other Public Utilities. The applicant shall make necessary arrangements with utility companies for the installation of underground lines and facilities. The City Engineer may require the applicant to pay these utility companies to use trenchless methods to install their utilities in order to save designated and marked trees when the utility crosses within a dripline of a tree marked, or identified, to be saved. Applicant to bear any additional costs that this may incur.
- Technical Plan Check and Inspection Fees. The current Technical Plan Check and Inspection Fee shall be paid before approval of the final engineering plans for the required site improvements. The fee is the established percentage of a City-approved engineer's cost estimate or actual construction bids as submitted by the applicant. Half of the fee is due upon submitting plans for final approval; the other half is due upon approval of the final plans.
- It is the City's policy that the City will only provide spot check inspection for non public-funded improvements, and the applicant's engineer shall provide inspection and surveying services necessary to stake and construct the project and prepare the record (as-built) drawings when the project is complete.
- Applicant shall submit two (2) sets of final engineering plans for initial review by the City Engineering Division to include the drainage report (wet signed by the responsible engineer), and the cost estimate with half of the Technical Plan Check fee. The engineering plans shall be blackline copies, 24" x 36". Blueline copies are not acceptable.
- For projects such as subdivisions, partitions, and Planned Unit Developments, the applicant shall submit a completed copy of the City's latest final subdivision and partition plat checklist, and a paper copy of the preliminary plat.
- Two (2) copies of any revised documents (in response to redlined comments) will be required for subsequent reviews, if necessary.
- The applicant shall submit, for the final City approval, six (6) copies of the plans with one full set wet signed over the engineer's Professional Engineer Oregon stamp.

- Minimum Improvement Requirements. Applicant shall provide a surety on land division developments for uncompleted work before a plat is recorded as required by a Land Division Compliance Agreement (available in hard copy or electronic version from City Engineer office). This occurs if the applicant wishes to record the final plat before completion of all required improvements. Surety shall be an escrow account or in a form that is acceptable to the City Attorney.
- Upon conditional acceptance of the public improvements by the City, the applicant shall provide a two-year maintenance guarantee as described in the Land Division Compliance Agreement. This Maintenance Guarantee shall be for fifteen (15) percent of the engineer's cost estimate or actual bids for the complete public improvements.
- The applicant shall submit a paper copy of the record (as-built) drawings, of field measured facilities, to the City Engineer for review before building permits are issued beyond the legal limit. Upon approval of the paper copy by the City Engineer, applicant shall submit a bond copy set and two 4-mil mylar record drawings sets.
- The applicant shall submit one full set of the record (as-built) drawings, of field measured facilities, on AutoCAD files on CD-ROM or 3.5-inch diskette, in a format acceptable to the City Engineer, and include all field changes.
- One AutoCAD file of the preliminary plat, if applicable, shall be furnished by the applicant to the City for addressing purposes. A sample of this format may be obtained from the City Geographical Information System Division. This information, and documents, shall be prepared at the applicant's cost.
- The applicant's surveyor shall also submit, at the time of recordation, a copy of the plat on a CD-ROM or 3.5-inch diskette to the City in a format that is acceptable to the City's Geographic Information System Division.
- The City reserves the right to accept, or reject, record drawings that the City Engineer deems incomplete or unreadable that are submitted to meet this requirement. The applicant shall be responsible for all costs associated with meeting this condition. The applicant shall ensure their engineer submits the record drawings before the City will release final surety funds or residential building permits beyond the legal limit.
- Final Plat Requirements, if applicable. The final plat shall comply with ORS 92.010 through 92.190, and City Code. In addition the following requirements shall be required:
  - The applicant, and their surveyor, shall conform to the City's submittal and review procedures for the review and approval of plats, easements, agreements, and other legal documents associated with the division of this parcel.
  - Show the City Planning File Number on the final plat, preferably just below the title block.
  - A blackline copy of the final plat illustrating maximum building envelopes shall be submitted to the Planning Division concurrently with submittal of the plat to ensure setbacks and easements do not conflict.
  - Use recorded City control surveys for street centerline control, if applicable.
  - Tie to City GPS Geodetic Control Network, County Survey reference PS 24286, and use as basis of bearings. Include ties to at least two monuments, show measured versus record, and the scale factor. Monuments may be either GPS stations or other

monuments from prior City control surveys shown on PS 24286. If ties are to prior City control surveys, monument ties shall be from the same original control survey. The tie to the GPS control can be part of a reference boundary control survey filed for the land division.

- Show state plane coordinates on the Point of Beginning.

- The civil construction drawings, once approved by the City Engineering Division, shall have an approval period of one year in which to commence with construction. The plans and drawings shall be valid, once the City Engineer holds the preconstruction conference and construction activity proceeds, for as long as the construction takes. If the construction drawings expire before construction commences, the applicant shall ensure the civil construction documents and plans conform to the latest Standards, Specifications, and City Codes that are in place at the time of the update. The applicant shall bear the cost associated with bringing them into conformance, including additional technical plan check and review costs.
- The applicant shall include a statement in proposed Conditions, Covenants, and Restrictions (CC & R's), plat restrictions, or some other means acceptable to the City Attorney for:
  - Maintaining surface runoff patterns established for each lot,
  - Maintaining any proposed private storm lines or detention, and
  - Conformance by individual lot owner to the City's erosion control standards when establishing or renovating landscaping.
  - The applicant shall submit the proposed method and statement to the Planning staff for review and approval, before final plat approval.
- Construction vehicles and other vehicles associated with the development shall only use the entrance as approved by the City Engineering Division to enter their site and these vehicles shall park or wait on the construction site. The applicant should provide a specified area of off street parking for the site's construction workers which meets the erosion/sedimentation control measures. Supplier vehicles and trailers (hauling vehicles) and actual construction vehicles shall not park, or wait, in such a manner that would block or hinder access for emergency vehicles. This includes private vehicles belonging to construction workers, supplier vehicles and trailers, and actual construction vehicles.
- Site construction activity is to only occur between 7:00 AM and 6:00 PM on Monday through Friday; between 9:00 AM and 6:00 PM on Saturday. No site improvement construction activity is allowed on Sunday. Construction activity includes all field maintenance of equipment, refueling, and pick up and delivery of equipment as well as actual construction activity.
- The applicant shall ensure that all applicable outside agencies are contacted and any appropriate approvals obtained for the construction of the project. The applicant shall supply copies of approvals to the City. Failure to do so shall be a justification for the City to prevent the issuance of a construction or building permit or to revoke an issued permit for this project.
- The applicant shall be responsible for paying all fees associated with the recording of documents such as non-remonstrance agreements, easements, and dedications.

- Should the applicant, or any assigns or heirs, fail to comply with any of the conditions set forth here, the City may take the appropriate legal action to ensure compliance. The applicant shall be responsible for any City legal fees and staff time associated with enforcing these conditions of approval.

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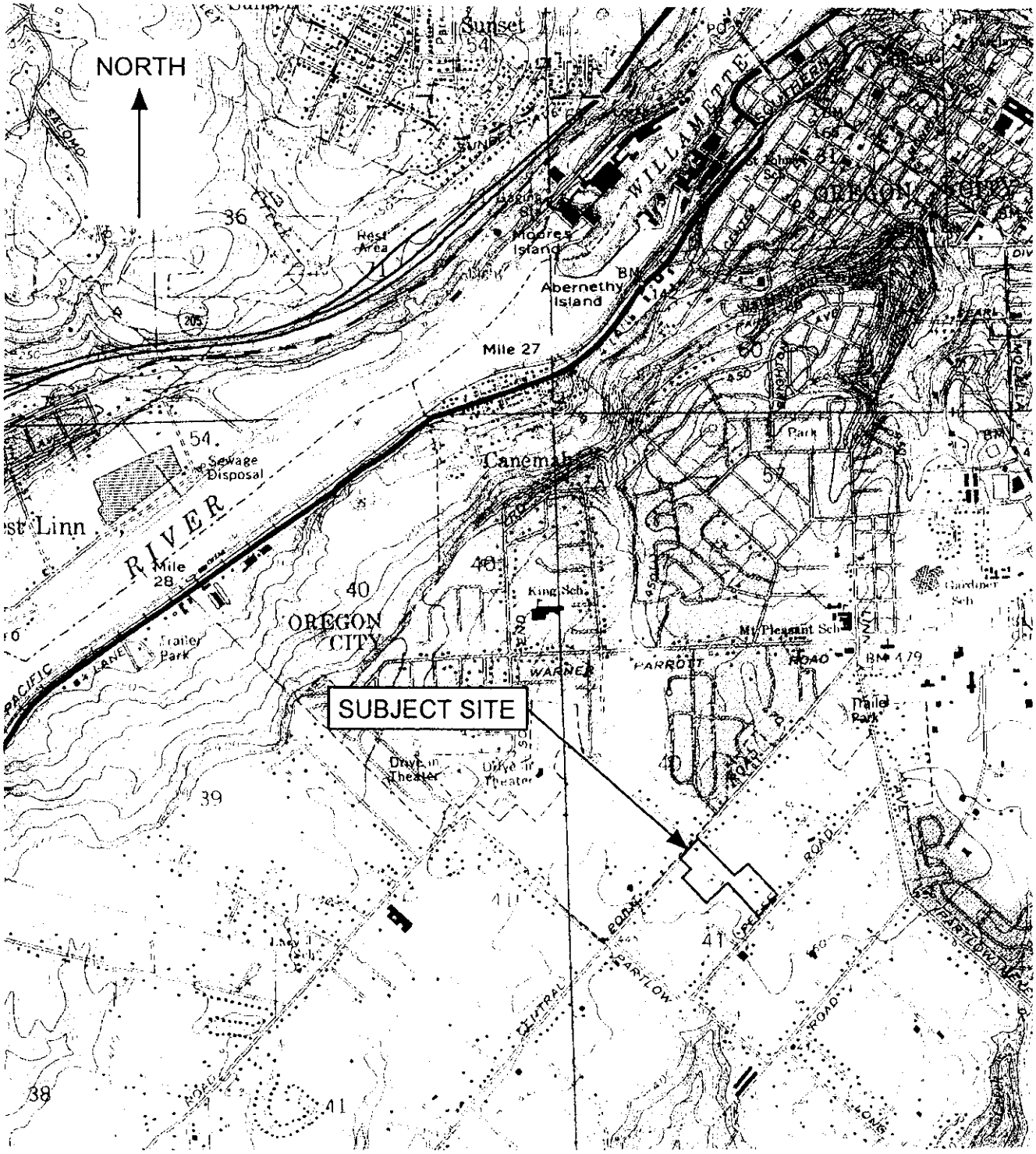
CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineers	
2	Stripping, aeration, and root-picking operations.	During stripping	Engineering Geologist Geotechnical engineer	
3	Compaction testing of engineered fill (95% of Standard Proctor)	During filling, tested every 2 vertical feet or 500 c.y.	Soil Technician	
4	Verify subgrade strength in footing excavations	Prior to pouring concrete	Geotechnical Engineer	
5	Compaction testing of trench backfill (95% of Standard Proctor)	During backfilling, tested every 4 vertical feet for every 200 lineal feet	Soil Technician	
6	Subgrade Proofroll or Compaction (95% of Standard Proctor)	Prior to base coarse	Soil Technician	
7	Base course compaction (95% of Modified Proctor)	Prior to paving, tested every 200 lineal feet	Soil Technician	
8	AC Compaction (91% (bottom lift) / 92% (top lift) of Rice Density)	During paving, tested every 200 lineal feet	Soil Technician	
9	Final Geotechnical Engineer's report	Completion of project	Geotechnical Engineer	

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 ft

Date: 5/28/04
Drawn by: KLW

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Oregon City OR Quadrangle

Project: Gentry Heights 2 Oregon City, Oregon	Project No. 04-8758	FIGURE 1

GeoPacific Engineering, Inc.
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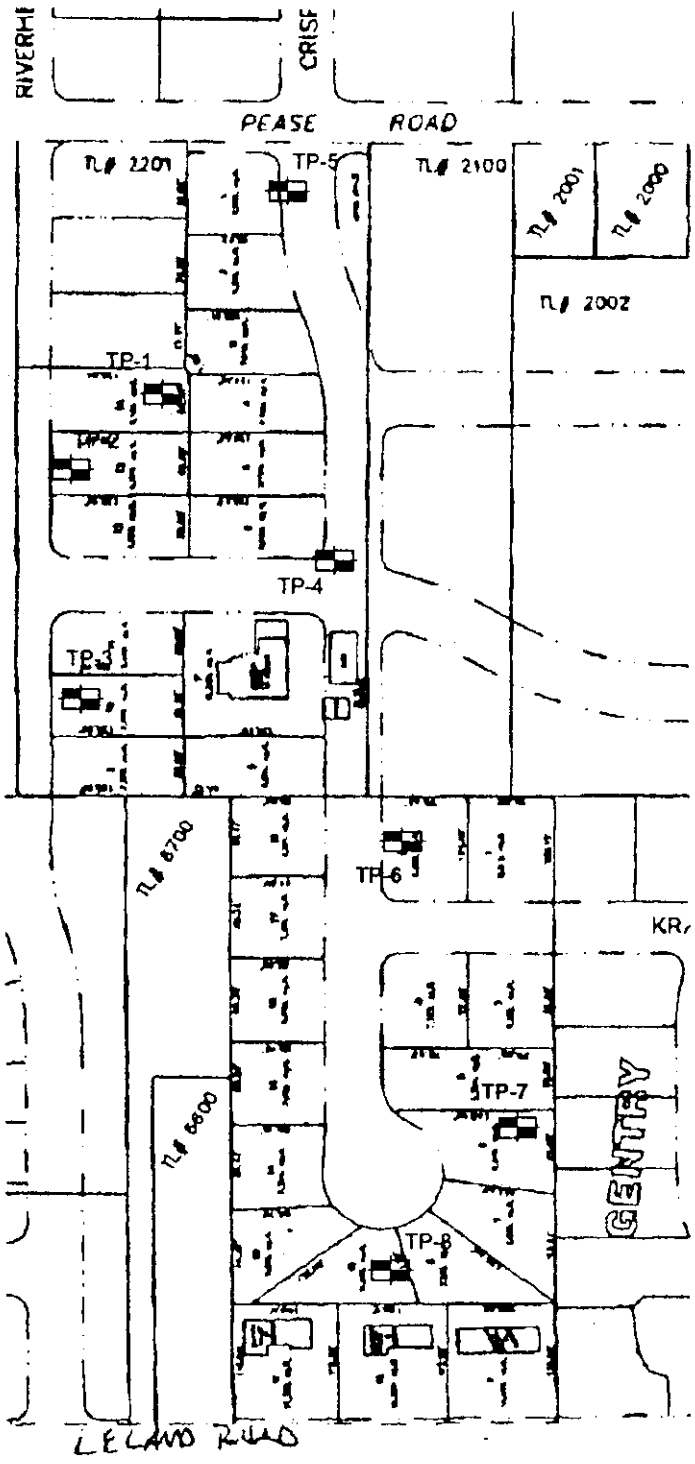
SITE TOPOGRAPHY AND LAYOUT MAP



LEGEND TP-1 Test pit designation and approximate location

Note: Locations of existing structures approximate at best.

Date: 6/1/04
Drawn by: KLW

Project: Gentry Heights Oregon City, Oregon	Job No. 04-8758	FIGURE 2