MEMORANDUM

TO: **Mayor and City Council**

FROM: **Ken Gibb, Community Development Director**

DATE: **May 14, 2007**

RE: **Appeal of a Planning Commission Decision regarding a Conceptual and Detailed Development Plan, and a Tentative Subdivision Plat (Witham Oaks – PLD06-00012/SUB06-00005)**

I. ISSUE

On April 18, 2007, the Planning Commission approved a Conceptual and Detailed Development Plan, and a Tentative Subdivision Plat for a 94.6-acre site that would:

- create 221 residential lots and 16 common tracts within 57.7 acres of land zoned PD(RS-6) (Low Density Residential with an Planned Development Overlay) and 36.9 acres of land zoned PD(AG-OS) (Agricultural - Open Space with a Planned Development Overlay); and
- allow the construction of a mixture of single family detached homes and attached townhomes within the 57.7 acre PD(RS-6) portion of the site.

Approximately 49.8 acres of the site, including the 36.9 acre portion zoned PD(AG-OS), would either remain undeveloped as natural open space or be contained in common tracts. In addition to other Conditions of Approval, initiation of the Conceptual and Detailed Development Plan is contingent upon approval of a public right-of-way vacation request for Circle Boulevard (**Exhibit II-264**). (A review of the right-of-way vacation will be conducted by the Corvallis City Council at a later date.) Various Land Development Code (LDC) standards, such as those related to building setbacks, minimum lot size, street design, and wetland preservation, are proposed to be modified through the Conceptual and Detailed Development Plan.

On May 2, 2007, Mr. Mark Knapp, Ms. Rebecca Wilson, Ms. Elizabeth Schwartz, and Mr. Jason DeLorenze jointly filed an appeal of the Planning Commission's decision to approve the Conceptual and Detailed Development Plan and Tentative Subdivision Plat (**Exhibit I**). The LDC specifies that the City Council hear appeals of Planning Commission decisions regarding these land use applications.

II. BACKGROUND

The subject site was annexed into the Corvallis City Limits after the corresponding ballot measure was passed by Corvallis voters on November 2, 2004. At that time, the Comprehensive Plan and LDC designations that were approved for the subject site by the City Council and Planning Commission (ANN04-00004, CPA04-00002, and ZDC04-00004) became effective (**Exhibits II-140** through **II-156**). These designations were in place when the application for the subject Conceptual and Detailed Development Plan and Tentative Subdivision Plat proposal was submitted to the Planning Division (**Exhibits II-135** through **II-136**).

As discussed in the Staff Report to the Planning Commission, development proposed on property subject to a Planned Development Overlay is required to be reviewed and approved through the Planned Development process (**Exhibit II-6**). The applicant submitted the requisite application for a Conceptual and Detailed Development Plan and a Tentative Subdivision Plat, addressed the relevant Comprehensive Plan Policies and LDC criteria through the application, and participated in the subsequent public hearing process (**Exhibits II**, **IV**, **V**, **VI**, and **VIII**).

III. DISCUSSION

A. Planning Commission Action

Specific criteria and policies that apply to the proposed development were addressed in the March 14, 2007, Staff Report to the Planning Commission (**Exhibit II**). Generally, the criteria require that the application be consistent with LDC requirements, Comprehensive Plan Policies, and any other applicable policies and standards adopted by the City Council. In approving this application (PLD06-00012, et al.), the Planning Commission adopted findings contained in the minutes of the March 21, 2007, April 4, 2007, and April 18, 2007, Planning Commission hearings that demonstrate support for approving the request, as well as findings from the March 14, 2007, Planning Commission Staff Report (**Exhibits II**, **IV**, **V**, and **VI**).

Supplemental to these materials, were nine memoranda that Staff submitted to the Planning Commission for their consideration (**Exhibits IV** through **VIII**, and **IX**). These memoranda transmitted either additional public testimony, additional application materials, or analyses completed by Staff in response to information submitted by the applicant.

B. List of Exhibits

Exhibit I – Appeal Statement from Mr. Mark Knapp, Ms. Rebecca Wilson, Ms. Elizabeth Schwartz, and Mr. Jason DeLorenze, received May 2, 2007.

Exhibit II	–	Staff Report to Planning Commission, dated March 14, 2007.
Exhibit III	–	Planning Commission Notice of Disposition for Witham Oaks, including final Conditions of Approval.
Exhibit IV	–	Draft Minutes of the March 21, 2007, Planning Commission Hearing.
Exhibit V	–	Final Minutes of the April 4, 2007, Planning Commission Meeting.
Exhibit VI	–	Draft Minutes of the April 18, 2007, Planning Commission Meeting.
Exhibit VII	–	March 14, 2007, Memorandum to Planning Commission – Copies of Attachments 'D' through 'D-2'.
Exhibit VIII	–	March 21, 2007, Memorandum to Planning Commission – Additional Application Materials.
Exhibit IX	–	Public Testimony received after April 4, 2007, Planning Commission Meeting and before the close of Record at 5:00PM on April 11, 2007.
Exhibit X	–	Witham Oaks Comprehensive Plan Designations and Area Neighborhood Centers
Exhibit XI	–	May 8, 2007, Memorandum to Mayor and City Council – Nollan/Dolan 5th Amendment Takings Guidelines
Exhibit XII	–	Public Testimony Received Between April 20, 2007, and May 11, 2007

C. Appeal Issues

The May 2, 2007, letter submitted by the appellants (**Exhibit I**) identifies six issues that they believe are grounds for an appeal, including issues raised by the appellants in verbal and written testimony to the Planning Commission, as reflected in the March 21, 2007, public hearing minutes (**Exhibit IV**) and **Exhibit IX**. The following evaluation includes: the applicant's grounds for appeal; relevant review criteria established by the City's Comprehensive Plan, LDC, and other adopted documents; and staff's discussion and analysis of each issue raised on appeal. Although only six issues were raised on appeal, it should be noted that the City Council hearing on this matter is a "*de novo*" review, which means that the City Council may, at its discretion, raise and address other issues in relation to applicable decision criteria in its consideration of this land use application.

Additionally, the City Council is referred to the analysis completed by Staff of the applicant's development proposal (**Exhibit II**). The issues identified by the appellant have been thoroughly analyzed through the documents noted above, and findings that the development, as conditioned, would be consistent with applicable LDC review criteria and Comprehensive Plan policies were made by the Planning Commission based on these analyses (**Exhibit III**).

1. Issue Raised on Appeal: Development Proposal would "Destroy Too Many Significant Trees"

The Appellant's letter dated May 1, 2007, cites Comprehensive Plan Policy 4.6.6, and states:

> *"We assert that the second provision [of Policy 4.6.6] will not be met, because (1) the development consists of large houses whose footprint exceeds the normal limit in the Land Development Code, and (2) the growth of planted oak trees in urban areas is stunted by the predominance of pavement. So if the development goes forward, there will never be a 'tree-covered hillside appearance.' There will only be a suburban rooftop appearance."*

Staff Analysis

Applicable Comprehensive Plan Policies

4.6.6 On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe and practicable, the development may proceed, provided the following provisions are met: 1) the loss of trees is further minimized by development techniques such as clustering; and 2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance.

Applicable Land Development Code Criteria

Section 4.2.20 - GENERAL PROVISIONS (Chapter 4.2 – Landscaping, Buffering, and Screening)

c. Significant plant and tree specimens should be preserved to the greatest extent practicable and integrated into the design of a development. Trees of 8-in. or greater diameter measured at a height of 4 ft above grade and shrubs (excluding blackberries, poison oak, and similar noxious vegetation) over 3 ft in height are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved only if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5 ft outside the tree's dripline. In

addition, the tree shall be protected from damage during construction by a construction fence located 5 ft outside the dripline.

Section 4.2.30 - REQUIRED TREE PLANTINGS

Tree plantings in accordance with the following standards are required for all parking lots for 4 or more cars, public street frontages, and along private drives more than 150 ft long. Trees shall be planted outside the street right-of-way except where there is a designated planting strip or City adopted street tree plan.

Selection of species may be made from the list in Section 4.2.60. Alternate selections must be approved by the Director following written request. Frequency of trees in planting shall be determined by the type of tree used. Trees in parking areas shall be dispersed throughout the lot to provide a canopy for shade and visual relief. (See recommended tree list for examples in each category):

Street Trees
Medium canopy trees-Maximum 30 ft on center spacing.
Large canopy trees-Maximum 50 ft on center spacing.

Section 4.2.60 - RECOMMENDED STREET TREES

The following species are appropriate trees for street tree and parking lot planting situations. Other varieties may be used only with approval by the Director.

Medium canopy trees:

Acer platanoides "Almira": Almira Norway Maple
Acer platanoides var.: Norway Maple
Acer rubrum "Armstrong": Armstrong Red Maple *
Acer rubrum "Deric": Deric Red Maple
Acer rubrum "Scalon": Scalon Red Maple
Carpinus betulus purpurea: Purple European Hornbeam
Cercidiphyllum japonicum: Katsura Tree
Carpinus caroliniana: American Hornbeam
Cladrastic lutea: American Yellow Wood
Fagus sylvatica "Heterophylla": European Beech *
Fraxinus oxicarpa "Flame": Flame Ash
Fraxinus holotricha "Morain": Morain Ash
Fraxinus pennsylvanica lanceolata: Marshall's Seedless Ash
Phellodendron amurense: Amur Cork Tree
Prunus blieriana "Newport" or "Thundercloud": Flowering Plums
Prunus campanulata: Taiwan Flowering Cherry
Prunus serrulata "Kwansan": Kwansan Flowering Cherry
Prunus subhirtilla "Autumnalis": Autumn Flowering Cherry
Pyrus calleryana "Bradford": Bradford Pear *
Quercus phellos: Willow Oak *
Saphora japonica: Japanese Pagoda Tree
Styrax japonica: Fragrant Snowbell
Tilia cordata: Little Leaf Linden *

Large canopy trees:

Acer rubum spec.: Red Maple *
Acer saccharum: Sugar Maple *

Ginko biloba: Ginko *
Gleditsia triacanthos var.: Moraine Thornless Honey Locust *
Liriodendron tulipifera: Tulip Tree *
Paulownia tormentosa: Empress Tree *
Platanus acerifolia: Sycamore (should have a 12' wide planting area) *
Quercus coccinea: Scarlet Oak *
Quercus robur: White Oak *
Quercus rubra: Red Oak *

* **Because of their strong central trunk growth pattern or large mature size, these trees should not be planted beneath overhead utilities.**

An analysis of the potential impacts to significant vegetation resulting from the subject Conceptual and Detailed Development Plan is contained on Pages 17 through 19 and Pages 40 through 43 of the March 14, 2007, staff report to the Planning Commission (**Exhibits II-17** through **II-19**, and **II-40** through **II-43**). Additional analyses related to the landscaping proposed within common areas and natural open space tracts is provided on Pages 29 through 33 (**Exhibits II-29** through **II-33**). The analysis on Page 17 notes that a total of 538 street trees would be planted as a result of the development, which is 196 more trees than would be removed. This does not include trees planted within formally landscaped common areas.

Policy 4.6.6 requires two methods of mitigation to be incorporated with a development proposal to minimize the loss of existing trees. The appellants contend that the second of these has not been satisfied by the subject Conceptual and Detailed Development Plan, because "the growth of planted oak trees in urban areas is stunted by the predominance of pavement." As shown on **Exhibit II-285**, the applicant has not proposed to plant oak trees in planter strips or common areas associated with the project. All of the proposed street tree species are listed in LDC Section 4.2.60 as recommended street trees.

On Page 19 of the March 14, 2007, staff report to the Planning Commission, Staff note that, "based on the height potential of the proposed street tree species, it is reasonable to conclude that a tree-covered hillside appearance would result..." (**Exhibit II-19**). This conclusion was reached based on a review of the height range of the proposed tree species, as listed in the *Sunset Western Garden Book*[1] and the *Manual of Woody Landscape Plants*[2]. The average potential height for all of the proposed street tree species combined is 45 feet, with a maximum average height of 75 feet and a minimum average height of 30 feet. Given that the height of dwellings proposed by the applicant would be limited to no more than 30 feet, it is, therefore, reasonable to conclude that, at maturity, a majority of the proposed street trees would be taller than the surrounding dwellings, thereby re-creating a tree-covered hillside appearance.

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[1] *Sunset Western Garden Book, Eighth Edition*; Elizabeth L. Hogan, Editor; Sunset Publishing Corporation, Menlo Park, CA; 1992.

[2] *Manual of Woody Landscape Plants, Fourth Edition*; Michael A. Dirr; Stipes Publishing Company, Champaign, Illinois; 1990.

The second premise of the appellants' argument that a tree-covered hillside appearance would not result rests on the contention that the "development consists of large houses whose footprint exceeds the normal limit in the Land Development Code...." As noted on Page 21 of the staff report, the applicant has requested to increase the maximum allowed lot coverage from 40 percent to 70 percent for attached dwellings, and from 40 percent to 60 percent for detached dwellings (**Exhibit II-21**). This aspect of the proposal was analyzed on Pages 24 and 25 of the staff report (**Exhibit II-24** through **II-25**). In order to generate an amount of open space within the PD(RS-6) portion of the project that is comparable to what would have resulted from development through the base RS-6 standards, Staff recommended, and the Planning Commission approved, a Condition of Approval that limits the maximum lot coverage to 40 percent on lots with an area of 6,500 square feet or more (**Condition 5**). Given this condition, Staff found that an additional 1.75 acres of open space would be created, which is 0.25 acres more than would result through application of the RS-6 coverage standard. This area, on a lot-by-lot basis, would presumably be conducive for planting trees, and be in addition to area provided within planter strips and common areas. Therefore, more area would be available for achieving a tree-covered hillside appearance through development of this site than would have been generated by the RS-6 lot coverage standards.

Conclusion on Appeal Issue No. 1

A total of at least 196 more trees would be planted through the proposal than would be removed. In combination with the amount of open space created by the project and the opportunities it provides for even more trees, Staff believe the subject Conceptual and Detailed Development Plan would result in a tree-covered hillside appearance. This conclusion is consistent with the Planning Commission's decision, as outlined in **Exhibits III** and **VI**.

2. Issue Raised on Appeal: Development Proposal would "Probably Damage Wetlands"

On Pages 2 and 3 of their May 2, 2007, letter, the appellants state the following:

> *"If the development were allowed to proceed, it is probable that the damage to wetland habitat would violate the public interest, as stated in CPP 4.9.1...and in CPP 4.10.3...and in CPP 4.10.9."*

The following discussion addresses this point of the appeal. Specific findings related to Comprehensive Plan Policies 4.9.1, 4.10.3, and 4.10.9, which were presented through the March 14, 2007, staff report to the Planning Commission, are also identified.

Staff Analysis

Applicable Comprehensive Plan Policies

4.9.1 Significant watercourses, lakes, and wetlands shall be preserved, or have their losses mitigated, in order to: maintain clean water, support natural vegetation, protect the aquatic habitat, retain existing significant public vistas, and provide wildlife habitat and recreation sites. Site-specific buffering and setback requirements may be required, as necessary, to achieve protection.

4.10.3 Significant drainageways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable.

4.10.9 Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainageways shall be minimized.

Findings related to the criteria cited above, as well as other applicable Comprehensive Plan Policies and LDC sections are provided in the March 14, 2007, staff report to the Planning Commission. These findings are grouped into three general categories:

- stormwater quality/quantity;
- wetland impacts; and
- riparian corridor impacts.

a. Stormwater Quality/Quantity

Findings concerning potential impacts from stormwater quality/quantity are provided on Pages 38 through 40, 60 through 65, and 92 through 97 of the March 14, 2007, staff report (**Exhibits II-30** through **II-40**, **II-60** through **II-65**, and **II-92**through **II-97**). The conclusion from those findings found that the applicant addressed the applicable criteria cited in the staff report. Findings specific to Comprehensive Plan Policies 4.9.1, 4.10.3, and 4.10.9 are presented on Page 59 (**Exhibit II-59**), as well as within the Public Facilities Section of Part I of the staff report. In addition to aspects of the subject proposal, Staff recommended, and the Planning Commission approved, Conditions of Approval 1, 23, 24, 25, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, and 58 to ensure consistency with these criteria. Besides ensuring that final engineering documents submitted to the City for review would contain information stipulated by the Corvallis Stormwater Master Plan, these conditions also establish an integrated, long term wetland monitoring framework that relies on subsequent approvals from the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of State Lands (DSL). Key aspects of these state agency reviews include a determination of the extent and type of wetland mitigation required as a result of the subject development, as well as a determination that the applicant's proposed stormwater management plan (**Exhibits II-344** through **II-380**) would achieve water quality standards established by the state for urban run-off. As approved, the respective conditions require the applicant

to provide the City with documentation of state agency approvals prior to initiating any development activity on the site.

b. Wetland Impacts

Findings concerning identified and potential impacts to wetlands resulting from the proposed development are provided on Pages 30 through 32, 38 through 40, 48 through 65, 73, 80, 81, and 93 through 98 of the March 14, 2007, staff report (**Exhibits II-30** through **II-32**, **II-38** through **II-40**, **II-48** through **II-65**, **II-73**, **II-80**, and **II-81**, and **II-93** through **II-98**). The conclusion from those findings found that the applicant addressed the applicable criteria cited in the staff report. In addition to aspects of the subject proposal, Staff recommended, and the Planning Commission approved, Conditions of Approval 1, 11, 12, 13, 21, 23, 24, 25, 32, 48, 49, 54, 55, and 58 to ensure consistency with these criteria. As with the Conditions of Approval listed above that pertain to stormwater run-off, these conditions require the applicant to provide the requisite information necessary to demonstrate consistency with applicable standards contained in the Corvallis Stormwater Master Plan and Land Development Code, prior to the initiation of any development activity on the subject site. In addition, the applicant is require to obtain the necessary permits from DSL and DEQ for development impacts that would occur within wetlands. As noted in the staff report, the type and amount of mitigation necessary to compensate for these impacts would be determined through a coordinated review of the permit applications (e.g., removal/fill activities) by these state agencies.

Given the integral nature of the applicant's proposed stormwater management plan and the long term vitality of the remaining and mitigated wetlands, Staff recommended, and the Planning Commission approved, a wetland monitoring strategy that the applicant is required to include as part of the permit application to DSL (**Condition 24**). The details of this plan are described on Pages 63 and 64 of the March 14, 2007, staff report (**Exhibits II-63** through **II-64**). This approach is consistent with applicable Comprehensive Plan Policies, including those cited by the appellants, in that it would: (1) be dependent upon subsequent wetland delineation and site hydrology studies that document resultant alterations to drainageways, native plants species, and aquatic life on the site; and (2) provide an opportunity to mitigate impacts to these resources that may materialize subsequent to completion of development activities on the site. The appellants acknowledge the difficultly in knowing for certain at this time whether such impacts would occur. As required by Policies 4.9.1, 4.10.3, and 4.10.9, the monitoring and mitigation approach approved by the Planning Commission also recognizes this uncertainty, but creates a framework for remedying unforeseen impacts if, in fact, they do occur.

c. Riparian Corridor Impacts

Findings concerning identified and potential impacts to riparian corridors resulting from the proposed development are provided on Pages 30 through 32, 38 through 40, 48 through 65, 73, 80, 81, and 93 through 98 of the March 14, 2007, staff report (**Exhibits II-30** through **II-32**, **II-38** through **II-40**, **II-48** through **II-65**, **II-73**, **II-80**, and **II-81**, and **II-**

93 through **II-98**). The conclusion from those findings found that the applicant addressed the applicable criteria cited in the staff report. In addition to aspects of subject proposal, Staff recommended, and the Planning Commission approved, Conditions of Approval 1, 11, 12, 13, 20, 21, 22, 23, 24, 25, 32, 48, 49, 50, 54, 55, and 58 to ensure consistency with these criteria. With the exception of Conditions of Approval 22 and 50, these conditions are essentially the same as those pertaining to potential wetland impacts. Conditions that address wetland and riparian resources were intentionally interrelated in order to synchronize documentation of potential impacts to these natural resources, as well as to coordinate the design of necessary mitigation.

Conclusion on Appeal Issue No. 2

The March 14, 2007, staff report to the Planning Commission presented findings related to Comprehensive Plan Policies 4.9.1, 4.10.3, and 4.10.9, as well as other criteria concerning water quality/quantity, wetland, and riparian corridor impacts. Where necessary, Staff recommended, and the Planning Commission approved, specific Conditions of Approval, as noted above, to ensure that the subject proposal would be consistent with those criteria. The decision of the Planning Commission to approve the subject request was based, in part, on the findings presented in the March 14, 2007, staff report, as well as the reasons stated in minutes from the associated public hearings (**Exhibits III** and **VI**). The issues raised by the appellants regarding impacts to wetlands and riparian areas were addressed by these findings.

3. Issue Raised on Appeal: Development Proposal would "Create an Incompatible Suburban-style Neighborhood"

On Pages 3 and 4 of their May 2, 2007, letter, the appellants contend that the subject Conceptual and Detailed Development Plan is inconsistent with Comprehensive Plan Policies 9.2.4, and 9.2.5 (Items 'A', 'B', 'E', and 'J'). The appellants also raise issue with the proposed grade of Local Streets 'D' and 'G' of the subject development (**Exhibits II-276** and **II-277**), which is regulated by the Corvallis Land Development Code.

The following discussion addresses this point of the appeal. Specific findings related to Comprehensive Plan Policies 9.2.4, and 9.2.5, which were presented through the March 14, 2007, staff report to the Planning Commission, are also identified.

Staff Analysis

Applicable Comprehensive Plan Policies

9.2.4 **Neighborhoods shall be pedestrian-oriented. Neighborhood development patterns shall give priority consideration to pedestrian-based uses, scales and experiences in determining the orientation, layout, and interaction of private and public areas.**

9.2.5 **Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment, or infill that may occur in these areas. These neighborhood characteristics are as follows:**

A. Comprehensive neighborhoods have a neighborhood center to provide services within walking distance of homes. Locations of comprehensive neighborhood centers are determined by proximity to major streets, transit corridors, and higher density housing. Comprehensive neighborhoods use topography, open space, or major streets to form their edges.

B. Comprehensive neighborhoods support effective transit and neighborhood services and have a wide range of densities. Higher densities generally are located close to the focus of essential services and transit.

E. Neighborhoods have a mix of densities, lot sizes, and housing types.

J. Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g., by setting them back from the front facade of the residential structure.) Parking lots and structures are located at the rear or side of buildings. On-street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.

Applicable Land Development Code Sections

Section 4.0.70 - STREET REQUIREMENTS

i. Location, grades, alignment, and widths for all public streets shall be considered in their relation to existing and planned streets, topographical conditions, public convenience and safety, and proposed land use. Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network is not adversely effected. The following standards shall apply:

1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall conform to planned street extensions identified in the Corvallis Transportation Plan and/or provide for continuation of the existing street network in the surrounding area.

2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.

Findings related to Comprehensive Plan Policies 9.2.4 and 9.2.5 are provided on Pages 15 through 29 of the March 14, 2007, staff report the Planning Commission (**Exhibits II-15** through **II-29**). Findings related to LDC Section 4.0.70(i) are found on Pages 76 and

77 (**Exhibits II-76** and **II-77**). The conclusion from those findings found that the applicant addressed the applicable criteria cited in the staff report. In addition to aspects of the subject proposal, Staff recommended, and the Planning Commission approved, Conditions of Approval 1, 3, 4, 5, 6, 7, 8, 14, 25, 30, 31, and 35 to ensure consistency with these criteria. The following discussion reviews these findings in four categories:

- Street Design Standards
- Neighborhood and Pedestrian Scale
- Pedestrian-oriented Design
- Neighborhood Service Centers

a. Street Design Standards

The appellants contend that the proposed development is "essentially a giant cul-de-sac that would be readily accessible only from the east." This contention appears to place emphasis on vehicular access, it is important to note that vehicular access to the development site is limited by a number of factors, including topography, patterns of existing development, shared boundaries with open space and Oregon State University agricultural lands, and the location of natural features within and bounding the site. Regardless, Staff highlight the points of access for vehicular, pedestrian, and/or bicycle traffic that would be available at each of the four sides of the subject site (**Exhibit II-272**). Clearly, the portions of the site that would abut Circle Boulevard contain the primary points of access for each of these transportation modes. However, proposed or existing connections at the north and south ends of the site would, at a minimum, allow for pedestrian travel to and through the site along pathways. While the efficacy of a street connection along the western boundary of the site was considered at length by the Planning Commission (**Exhibit VI**), the inclusion of a street stub (i.e,. Street 'J') was approved, consistent with LDC Section 4.0.70.i(1). Therefore, while the site would be accessible primarily from Circle Boulevard, connections to existing or planned transportation infrastructure would be facilitated at all four sides of the site.

The appellants also allege that "the grade of streets proposed by the developer would make routine bicycling impossible for most residents." This point of the argument is applied specifically to Streets 'G' and 'D' (**Exhibits II-276** and **II-277**), which, the appellants note, would have grades between 4 to 14.5 percent. These streets would be classified as Local Streets by the Corvallis Transportation Plan given that the function of such streets is to serve traffic within neighborhood areas and facilitate access between the Collector Street system and land uses adjoining Local Streets. As noted in LDC Section 4.0.70.i(2), the grade for Local Streets shall not exceed 15 percent. Additionally, Comprehensive Plan Policy 4.6.7(a), which was cited on Page 43 of the March 14, 2007, staff report, states that development should be planned to fit the existing topography. Findings presented in the staff report and made by the Planning Commission that are relevant to this criteria concluded that the proposed development is consistent with this Policy (**Exhibits II-43** and **VI**). Therefore, as designed and approved, Streets 'G' and 'D' are consistent with the applicable criteria.

b. Neighborhood and Pedestrian Scale

As noted by the appellants, the basis for determining the consistency of a development proposal with pedestrian-friendly goals of Policies 9.2.4 and 9.2.5 is provided, in part, through the Background of Comprehensive Plan Article 9.0. A portion of that discussion states the that "the accepted national and international standard for determining the size of a comprehensive neighborhood thus defined is the distance a person can walk easily in five to ten minutes. This equates to a distance of roughly 1/4 to 1/2 mile from the core of a comprehensive neighborhood to its edge." The discussion goes on to note the following:

> "A comprehensive neighborhood core or focus is typically the location of a mix of uses, possibly including a small public open space, shops, services, civic functions, and connections to public transportation. Within a 1/4 mile - five minute walk of the core is the highest concentration of housing. Medium density housing is generally located within a ten minute walk of the core. Up to a one mile radius from the core of the comprehensive neighborhood is a secondary area which typically is the appropriate location for low density housing. It is likely that when Corvallis is analyzed and mapped to determine appropriate locations for potential comprehensive neighborhood centers, the greater portion of existing low density, or immediate neighborhood, areas in the City will fall into this category of secondary area. Good connections for bicycles and pedestrians from secondary areas to the more intensive core area are vital."

Two neighborhood centers are identified on the Comprehensive Plan Map within immediate proximity to the subject site. As shown on **Exhibit X**, the southwest corner of the subject site is approximately 1/2 mile from the nearest of these, which is located at the intersection of Harrison Boulevard and 53rd Street. However, the portion of the site that would actually be developed for residential use is approximately 1/2 to 1 mile away from this Major Neighborhood Center, while the Minor Neighborhood Center at Grant Avenue and 29th Street is approximately 3/4 to 1 mile away. Therefore, the subject site is outside of the largest radius noted in the Comprehensive Plan as the critical distance between the core of a comprehensive neighborhood and its primary service area. From that perspective, the proposed Conceptual and Detailed Development Plan does satisfy the goal noted for "secondary areas" by providing the type of bicycle and pedestrian facilities desired for connecting "secondary areas" with the more "intensive core" of a neighborhood center.

In order to analyze the compatibility of the proposed Conceptual and Detailed Development Plan with the developed neighborhoods within an immediate proximity to the site, Staff calculated the average density for all Low Density Residential land within 1/2 mile of the site (**Exhibit II-16**). On a related point, the appellants contend that the "neighborhood" created by the proposal "would be one of nearly uniform density and lot size (in violation of CPP 9.2.5-B and E)." If the same standard that is used for determining the size of a "comprehensive neighborhood" (i.e., a 1/2 mile radius) is applied to this premise, the result is that the 313 acres of RS-3.5 and RS-5 land within 1/2 mile of the site contain a total of 775 residential lots. Based on Benton County parcel data, the average lot size within this area is approximately 11,000 square feet, with a maximum lot size of approximately 75,000 square feet and a minimum lot size of approximately 4,000 square feet. As a comparison, the proposed development would

result in 221 new lots with an average lot size of approximately 5,600 square feet, a maximum lot area of approximately 13,000 square feet, and a minimum lot area of approximately 3,000 square feet. The applicant notes that this range of lot sizes is distributed into three lot size categories: approximately 37 percent are less than 5,000 square feet, approximately 30 percent are between 5,000 and 6,000 square feet, and approximately 33 percent are larger than 6,000 square feet (**Exhibit II-217**).

While the subject development site is outside of a "comprehensive neighborhood core", it is within "secondary" areas of two identified neighborhood centers, and to that end, would comprise a portion of a larger existing secondary comprehensive neighborhood once developed. As demonstrated above, the proposal would contribute 221 additional residential lots that are generally consistent with the broad range of lot sizes currently existing within 1/2 mile of the site (i.e., the comprehensive neighborhood of which the development would be a portion). The development would also broaden the range of observed lot sizes by introducing lots that are smaller than currently exist. Therefore, the subject development proposal would diversify the overall density observed within the existing neighborhoods and contribute to the corresponding lot size heterogeneity.

c. Pedestrian-oriented Design

The appellants also contend that the proposed development does not satisfy the intent of Policy 9.2.5(J) due to an insufficient offset distance between the face of a garage and the living space of the corresponding dwelling. Findings specific to this criteria are provided on Page 28 of the March 14, 2007, staff report to the Planning Commission (**Exhibit II-28**). Additionally, a discussion on this aspect of the proposal by the Planning Commission can be found in the April 18, 2007, meeting minutes (**Exhibit VI**). Through that discussion the Planning Commission found that the proposal was consistent with the applicable criteria, as conditioned.

d. Neighborhood Service Centers

The last point of the appellants' argument that the proposed development is contrary to goals of the Comprehensive Plan rests on Goal 13 of the Oregon Statewide Planning Guide. Article 12 of the Corvallis Comprehensive Plan responds to Goal 13, which is concerned with energy conservation. In citing this Goal, the appellants appear to contend that the subject site should not be available for residential development because it is too far from "the nearest significant commercial zoning." As noted above, the development districts for this property were established when it was annexed into the City Limits in 2004. The proximity of the site to essential services, commercial or otherwise, was addressed through this land use decision and found to be consistent with the goals of the Comprehensive Plan. No change to these designations was proposed through the subject Conceptual and Detailed Development Plan, and, therefore, the issue raised by the appellants is not germane to the subject proposal.

Conclusion on Appeal Issue No. 3

The March 14, 2007, staff report to the Planning Commission presented findings related to Comprehensive Plan Policies 9.2.4 and 9.2.5, as well as other criteria concerning neighborhood compatibility, pedestrian-oriented design, and availability of alternate transportation modes. Where necessary, Staff recommended, and the Planning Commission approved, specific Conditions of Approval, as noted above, to ensure that the subject proposal would be consistent with those criteria. The decision of the Planning Commission to approve the subject request was based, in part, on the findings presented in the March 14, 2007, staff report, as well as the reasons stated in minutes from the associated public hearings (**Exhibits III** and **VI**). The issues raised by the appellants regarding neighborhood compatibility, pedestrian-oriented design, and availability of alternate transportation modes were addressed by these findings.

4. Issue Raised on Appeal: Development Proposal would "Build a Large Number of Houses with No School Nearby"

On Pages 4 and 5 of their May 2, 2007, letter, the appellants contend that the subject Conceptual and Detailed Development Plan is inconsistent with Comprehensive Plan Policy 10.5.1. The following discussion addresses this point of the appeal.

Staff Analysis

Applicable Comprehensive Plan Policies

> **10.5.1 The availability of adequate school facilities and services shall be used by the City as a factor to direct urbanization.**
>
> **14.3.4 Urbanization shall be contained within the Urban Growth Boundary, and shall occur incrementally through the annexation process. Limited interim development, consistent with Benton County clustering regulations, may be permissible.**
>
> **Article 50. Definitions**
>
> **The definition of words and terms below is intended to explain the meaning of the words and terms in the context of the Plan. The definitions are not intended to have applicability outside the Corvallis Comprehensive Plan context.**
>
> **Urban - Land that is developed at urban densities or intensities or that has urban services.**
>
> **Urbanization - Process of converting land from urbanizable to urban.**

The appellants contend that the proposed development "would create an unmet need for the public education of children" because there would not be a school nearby for children that live in the development to attend. Comprehensive Plan Policy 10.5.1 requires that the availability of adequate school facilities and services be used by the City as a factor to direct urbanization. Article 50 of the Comprehensive Plan defines "urbanization" as the process of converting land from urbanizable (i.e., rural) to urban,

while "urban" is defined as land that is developed at urban densities or intensities that has urban services. As noted in Policy 14.3.4, urbanization shall occur incrementally through the annexation process.

Prior to the 2004 passage of the annexation measure for the subject site, both the Planning Commission and the City Council reviewed an analysis completed by Staff of the ability to provide the site with urban services, among which was the availability of adequate school facilities (ANN04-00004, Order 2004-117). The following is an excerpt from that analysis.

> "The subject site is within the Corvallis School District and will be served by Jefferson Elementary School, Linus Pauling Middle School, and Corvallis High School. The District uses two methods to calculate the anticipated impact of new development on the School District. Method I assumes that 30% of the potential dwelling units will have children, and that each of these units with children, will have 1.5 children. Method 2 assumes that there will be 0.5 children for every potential dwelling unit. The district can estimate anticipated growth in the number of children based on the number of proposed residential dwelling units, but they cannot determine the age of those children until they enter the school system.
>
> For the purpose of determining the impacts to school facilities, The City requires that the maximum development potential for the site be considered. As mentioned previously, a maximum of 346 residential units could be constructed on the residential land proposed for annexation. Using the methods mentioned above, the anticipated impact on the School District is between 156 and 173 students. The School District is currently constructing new facilities to meet the future demands, including a new Middle School and a new High School. It is also important to keep in mind that the School District is responsible for providing new facilities to meet the anticipated needs of the community and will respond to the growth of the community as it occurs."[3]

In arriving at a decision to refer the annexation proposal to Corvallis voters, the Planning Commission and City Council relied on this analysis and found that the Comprehensive Plan Policies cited above were satisfied. Therefore, the appellants raise an issue that was addressed through the annexation process for the subject site, and that is not germane to reaching a decision on the proposed Conceptual and Detailed Development Plan.

Conclusion on Appeal Issue No. 4

The appellants' contention that adequate school facilities are not available to serve the proposed development is not at issue through the proposed Conceptual and Detailed Development Plan, as this aspect of urbanizing the site was previously addressed by the Planning Commission and City Council, and, as determined through the annexation process, was found to be consistent with the Comprehensive Plan.

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[3] Witham Oaks Planning Commission Staff Report (ANN04-00004, et al.), City of Corvallis, June 21, 2004; Pages 22-23.

5. Issue Raised on Appeal: Development Proposal would "Shield the Developer from Public Participation"

On Page 5 of their May 2, 2007, letter, the appellants contend that Condition of Approval No. 13 "fails to hold the developer accountable to public scrutiny." This Condition requires the applicant to complete a geotechnical analysis for the developable portion of the site, including the boundary with Tract 'A', and submit that analysis to the City for review, prior to the City issuing excavation and grading permits for the site (**Exhibit III-10**). The full language of Condition of Approval No. 13 is provided below.

> **Geotechnical Analysis** – Prior to issuance of excavation and grading permits for the site, the applicant shall submit a geotechnical analysis for the developable portion of the site (including the boundary with Tract 'A') that assesses the existing surface and subsurface hydrology and soil types, and presents conclusions on how the proposed development will impact these site characteristics. If the report finds that adverse impacts cannot be mitigated consistent with this approval, a Planned Development Modification shall be required consistent with LDC Chapter 2.5. Otherwise, development of the site shall occur consistent with the recommendations contained in the geotechnical analysis.

Staff Analysis

Applicable Comprehensive Plan Policies

> **2.2.5 The City shall strive to ensure that all public information on land use planning issues is available in an understandable form, is accurate and complete, and is made available to all citizens as soon as possible after receipt of an application. The City shall continue to take advantage of the best available technology for dissemination of this information.**

Applicable Land Development Code Sections

> **Section 4.0.90 - PUBLIC IMPROVEMENT PROCEDURES**
>
> **It is in the best interests of the community to ensure public improvements installed in conjunction with development are constructed in accordance with all applicable City policies, standards, procedures, and ordinances. Therefore, prior to commencement of installation of public water, sanitary sewer, storm drainage, streetlights, street, bicycle, or pedestrian improvements for any development site, developers shall contact the City Engineer to receive information regarding adopted procedures governing plan submittal, plan review and approval, permit requirements, inspection and testing requirements, progress of the work, and provision of easements, dedications, and as-built drawings for installation of public improvements. All work shall proceed in accordance with those adopted procedures, and all applicable City policies, standards, and ordinances.**
>
> **Whenever any work is being done contrary to the provisions of this Code, the Director may order the work stopped by notice in writing served on the persons engaged in performing the work or causing the work to be performed. The work shall stop until authorized by the Director to proceed with the work or with corrective action to remedy substandard work already completed.**

Comprehensive Plan Article 2 (Citizen Involvement) addresses Statewide Planning Goal 1, which requires the City to "develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process." Policy 2.2.5 mirrors this goal by requiring that all information received as part of a formal land use proposal "is made available to all citizens as soon as possible after receipt of an application." As noted by the appellants, a geotechnical analysis is not a required element of an application for a Conceptual and Detailed Planned Development. Therefore, neither the Comprehensive Plan, nor the LDC mandate that this type of information be made available for public review as part of the land use planning process.

As noted in LDC Section 4.0.90, other types of information that are relied on to reach a final engineered design for a Conceptual and Detailed Development Plan are similar in this regard. Through the City's Public Improvement through Private Contract (PIPC) process, an applicant finalizes the design of public streets and utilities, which involves information that, while consistent with the detailed parameters of a land use approval, is provided by state-licensed professionals based on established engineering principles and generally is not scrutinized by the general public prior to construction. However, such information would be readily accessible for public review if requested, and in the case of the subject proposal, the required geotechnical report would be included. Despite the fact that the language of Condition of Approval No. 13 notes that the report shall be submitted to the City prior to issuance of excavation and grading plans, this information is also a prerequisite for obtaining approval of PIPC permits, which are authorized before the excavation and grading permit is issued. Therefore, from a procedural prospective, the results of a geotechnical report would be available for public scrutiny, and such information would be available for review by the public prior to issuance of either type of construction permit.

Further, Condition of Approval No. 13 does allow for additional public review and comment on the subject proposal, if deemed necessary through the Planned Development Modification process. Regardless of whether the results of a geotechnical report mandated an approval of either a Minor or Major Modification to the subject Conceptual and Detailed Development Plan, the general public would be provided notice of such a request and be able to submit testimony. The initial decision reached through either type of request would be subject to an appeal to either the Land Development Hearings Board or the City Council for further review, as noted by LDC Chapter 2.5 (Planned Development). Therefore, Condition of Approval No. 13 does not subvert the general public's access to the land use planning process.

Conclusion of Appeal Issue No. 5

As discussed above, Condition of Approval No. 13 does not have the effect of limiting or preventing public review of a geotechnical report required for the subject proposal. The Planning Commission's imposition of this condition was not discordant with the goals of Comprehensive Plan Policy 2.2.5 or with Goal 1 of the Oregon Statewide Planning program.

6. Issue Raised on Appeal: Development Proposal would "Fail to Use Sufficient Solar Energy for Home Heating"

On Page 6 of their May 2, 2007, letter, the appellants raise issues with how the proposed Conceptual and Detailed Development Plan would provide mitigation for not satisfying the solar access standards contained in LDC Section 4.6.20. Findings specific to this criteria are provided on Pages 99 through 102 of the March 14, 2007, staff report to the Planning Commission (**Exhibits II-99** through **II-102**). Additionally, a discussion on this aspect of the proposal by the Planning Commission can be found in the April 18, 2007, meeting minutes (**Exhibit VI**). Staff do not offer additional findings in response to this aspect of the appeal.

D. New Information

In response to the applicant's objection before the Planning Commission to conditions of approval recommended by Staff regarding the timing of improvements to Circle Boulevard, Staff presented a memorandum to the Planning Commission on April 18, 2007, that supplemented essential nexus and rough proportionality findings (i.e., *Nollan/Dolan* findings) contained in the March 14, 2007, staff report. The following discussion refines those findings to focus solely on the merits of the subject request without providing additional background on case law precedent. A corresponding memorandum from the City Attorney presents guidelines pertaining to *Nollan/Dolan* takings, which replaces the case law discussion presented in the April 18, 2007, memorandum to the Planning Commission (**Exhibit XI**).

1. Basis for Determining Nexus and Rough Proportionality

a. Essential Nexus

As discussed in the March 14, 2007, staff report to the Planning Commission, there are essentially four types of transportation impacts related to the proposed construction of 221 single family residential dwellings, which would occur within, through, and outside of the subject site. These include the need to provide and maintain requisite levels of:

- pedestrian circulation;
- bicycle circulation;
- vehicular circulation; and
- public transit circulation.

The most obvious relationship between the proposed 221 single family homes and the subject transportation facilities is the need to provide access to these units from the existing sidewalks, bike lanes, and vehicular travel lanes that front the site. As observed with comparable residential developments, providing this access also results in additional traffic related to each of these modes of transportation, both on new and existing facilities. The applicant has noted that the proposed new local streets, and improvements to Circle Boulevard and Harrison Boulevard have been designed in order

to serve this additional traffic volume, as well as accommodate existing traffic that would use these facilities. By constructing the new sidewalks, bike lanes, and vehicle travel lanes as conditioned, the applicant would mitigate the impacts on existing transportation infrastructure that would otherwise result. Therefore, there is an essential nexus for requiring the applicant to construct these facilities.

It should be noted that the applicant does not raise issue with constructing these facilities, but rather the timing of when the facilities should be constructed. Based on the analysis submitted on April 4, 2007, the applicant contends that the degree of impact requiring mitigation through the proposed condition does not actually materialize until Phase 2 of the project, or at the time the 78th dwelling unit is constructed (i.e., 77 units in Phase 1, plus one) (**Exhibit V-79** through **V-88**). Regardless of the number of units constructed, either project-wide or through a certain phase, the nexus described above remains intact. The analysis submitted by the applicant confuses this aspect of the essential nexus test by relying on propositions that are actually related to determining the rough proportionality of the recommended mitigation to the impacts caused by the development. By stating that the subject conditions of approval are not related to the impacts caused by the development, the applicant prematurely arrives at a conclusion that is presumably based on propositions which consider a relationship between the extent of the impacts and the rough proportionality of the recommended mitigation, rather than a relationship between the nature of the impacts and the recommended mitigation. Had the conditions required the applicant to dedicate open space or some other non-transportation related form of mitigation in order to address impacts related to traffic volume, then it could be concluded that the exaction was not related in nature to the impacts.

The contested conditions of approval in the subject case are aimed at mitigating impacts incontrovertibly anticipated to result from construction of the proposed project (i.e., 221 single family dwelling units), regardless of whether it is built in multiple phases or all at once. As noted in the March 20, 2007, supplemental traffic study memorandum that was submitted on April 4, 2007, (**Exhibits V-89** through **V-92**) traffic impacts related to the contested conditions would materialize with construction of Phase 1, which is why the applicant has proposed to reconfigure the vehicle and bicycle travel lane striping at the intersection of Grant Avenue and 29th Street as an alternative to constructing Circle Boulevard.

A review of the traffic data submitted by the applicant indicates that the suggested improvement in Level of Service (LOS) experienced for the PM peak hour at the intersection of Grant Avenue and 29th Street with Phase 1 is incorrect. First, the accepted methodology for determining PM peak hour traffic volume requires the analysis to occur between the hours of 4:00 PM and 6:00 PM, and use counts from the four greatest consecutive counts at 15 minute intervals. The applicant's data does not analyze the four highest consecutive 15 minute intervals in the PM peak hour period. Secondly, the value at which LOS 'D' changes to LOS 'E' is 0.90. As shown in Table 2 of the April 4, 2007, memorandum, the PM peak hour would generate a LOS 'E' without the extension of Circle Boulevard. By reconfiguring the intersection's travel lanes, the applicant has determined that a LOS 'D' would result with Phase 1, but relies on a value

of 0.899 to reach this conclusion (see footnote 1 of Table 3). It is not standard to rely on numeric values of more than two significant digits when determining the transition between one LOS and the next. Therefore, the value reported by the applicant should be 0.90, which equates to a LOS 'E'. Given these inaccuracies in the traffic analysis, the applicant's proposed method for diminishing the degree of traffic impact is flawed and inadequate.

The applicant contends that only Phase 1 of the project should be considered when determining the extent to which the nature of impacts are related to the proposed mitigation. In completing an essential nexus and rough proportionality analysis, governments are not required to constrain the scope of their analysis to only those facts that favor the economic model for a given project. As a residential project builds-out, the number of units constructed in any given phase routinely change from what was contemplated at the time the land use approval was granted. Projects such as Willamette Landing, Grand Oaks, Park at Timberhill, and Stoneybrook, each of which is a development undertaken by the applicant in this case, have experienced fluctuations in the number of units built with each phase. Therefore, in addition to the fact that traffic impacts requiring mitigation would occur through Phase 1 of the subject project, it is not only reasonable, but prudent for the City to consider the transportation impacts of the subject project as a whole, as the subject process through which an approval could be granted for this case is the last opportunity to consider the impacts and require appropriate mitigation.

b. Rough Proportionality

As noted in **Exhibit XI**, when a government imposes an exaction as a condition of granting a discretionary land use approval, it is required to demonstrate that the exaction is related in nature and extent to the impacts anticipated from a proposed development. In general, the analysis must show that an exaction is roughly proportional to: (1) the burden placed on the government by the development; and/or (2) the benefits the development gains from the exaction. The applicant has concluded that the exactions related to constructing Circle Boulevard are not roughly proportional to either the transportation impacts caused by Phase 1 or the financial burden placed on the applicant as a result of this requirement. In reaching this conclusion, the applicant relies on a false premise that the alternate method of mitigation discussed above is feasible, adequate, and logical. Additionally, the applicant does not account for benefits derived by the development through making these improvements, even if only Phase 1 is considered. Neither does the analysis contemplate related burdens that the government must account for if the required improvements were constructed with Phase 2, even if Phase 2 is actually initiated within one year after completion of Phase 1. There is the possibility that real estate market fluctuations could delay construction of Phase 2 to beyond one year after construction of Phase 1. The following discussion responds to these aspects of the applicant's rough proportionality analysis.

A rough proportionality analysis must rely on variables that are capable of accurately quantifying such a relationship between impacts and exactions. The applicant has

chosen to rely on a monetary variable to demonstrate the proportionality of traffic impacts related to construction of Phase 1 of the project. As used by the applicant, Staff note that monetary cost is an imprecise variable for quantifying such impacts, as it fails to demonstrate how this relationship compares to the transportation system within the area that would be impacted by the development. A valid rough proportionality analysis relates the impacts, benefits, and burdens specific to a given development project to a larger area upon which the impacts from the development would occur. The applicant has neglected to demonstrate how, exactly, the required street improvements are not roughly proportional because a comparison to the surrounding area of impact is not included with the analysis. Regardless, it should also be noted that doing so would be difficult if such an analysis relied solely on a monetary variable, as the value of money has fluctuated drastically over the period of time during which surrounding residential development has occurred.

Some types of exactions, such as those related to extra capacity transportation improvements, can have the overlapping effect of serving the needs of a development itself in addition to offsetting impacts that the development will cause elsewhere. While the recommended improvements to Circle Boulevard would benefit both the subject site and the overall public transportation system, it is important to note that the majority portion of this Neighborhood Collector recommended to be improved is internal to the site (i.e., not characterized as frontage or off-site improvements). The applicant does not account for other benefits the subject development derives from constructing the Circle Boulevard improvements with Phase 1. First, not only would emergency response vehicles be able to use the fully improved street to reach the development, but so would residents of the development in the event that the access at Circle Boulevard and Witham Hill Drive was blocked during an emergency. Second, while alternate modes of transportation, such as pedestrian and bicycle traffic, could rely on the existing multiuse path to travel between Harrision Boulevard and Witham Hill Drive, transit services could not be directly provided to the site until Circle Boulevard is constructed. Transit shelter locations are included with the subject proposal and would be provided on the east and west sides of Circle Boulevard, as well as the north side of Harrison Boulevard. Third, residents of the development would benefit from a decrease in the amount of out-of-direction travel. Absent construction of Circle Boulevard, residents of the development would have to travel north along the existing portion of Circle Boulevard and then either east or west before being able to drive south to the next major transportation corridor.

Lastly, the burdens placed on the City and community by delaying construction of Circle Boulevard can also be considered through a rough proportionality analysis. Such burdens include detrimental impacts to traffic volume on existing streets, which would contribute to degradation of current LOS at intersections studied by the applicant (e.g., Grant Avenue and 29th Street). The potential magnitude of impact would increase with each year that construction of these improvements is delayed, and no guarantee exists that Phase 2 would occur within one year after completion of Phase 1. Not only would these additional trips accelerate the need for required street maintenance, but residences that are adjacent to existing Collector and Arterial streets, which would otherwise be relied on to serve the site, would be impacted by an increase in traffic

volume related to both the development site and background traffic (e.g., Witham Hill Drive, Grant Avenue, 29th Street, and 36th Street). It is conceivable that this burden of additional traffic volume would impact surrounding Local Streets once the capacity of existing Collector and Arterial Streets becomes saturated. Also, similar to the residents of the development, a comparable degree of out-of-direction travel would continue to exist for current residents of surrounding residential development by delaying construction of the subject facilities.

2. Supplemental Nexus and Rough Proportionality Analysis

The following discussion provides a nexus and rough proportionality analysis for the improvements to Circle Boulevard and the Harrison Boulevard intersection that are contested by the applicant in their April 4, 2007, analysis.

Findings related to the nexus established between traffic impacts caused by the proposed development, including Phase 1, and the recommended mitigation are presented above in Section I. The remainder of this discussion presents a rough proportionality analysis that is specific to the traffic impacts related to the subject proposal and the recommended mitigation of constructing Circle Boulevard concurrent with Phase 1.

a. Quantification of Traffic Impacts

As noted in the applicant's traffic study (**Exhibit 206**), while a total of 221 dwelling units would be constructed through full build-out of the project, only 77 dwelling units would be constructed with Phase 1. Based on the trip generation rate used by the Institute for Transportation Engineering for a single family dwelling, a total of 1.02 PM peak hour trips would be generated by each of these dwellings. Therefore, a total of 225 trips would be generated at the PM peak hour at full build-out of the site, and a total of 78 trips would result from construction of Phase 1. The applicant's vehicular trip distribution analysis assumes that with the construction of Circle Boulevard, 50 percent of these trips would travel north along Circle Boulevard to the intersection at Witham Hill Drive, and 50 percent would travel south to the intersection at Harrison Boulevard.

The applicant's traffic analysis also assumes the percentages of trips that would distribute to existing streets such as Harrison Boulevard, Witham Hill Drive, Grant Avenue, and 29th Street (**Exhibit II-325**). However, these percentages account for the connection of Circle Boulevard with Harrison Boulevard. Therefore, if Circle Boulevard was not constructed with Phase 1 of the project, no traffic could proceed south on Circle Boulevard, and these distribution percentages would increase accordingly. Consequently, it is reasonable to assume that the noted percentages for Witham Hill Drive, Circle Boulevard, and Grant Avenue would double as a result. As applied to Grant Avenue, a total of 30 percent, or 23 of the 78 trips generated by Phase 1 during the PM peak hour would arrive at the intersection of Grant Avenue and 29th Street. As a result of these trips, the current LOS 'D' degrades to a LOS 'E' with the 2007 construction of Phase 1. By constructing Circle Boulevard and making the intersection improvements at Harrison Boulevard with Phase 1, the number of trips arriving at the

intersection of Grant Avenue and 29th Street will decrease to the extent that a LOS 'D' is preserved. Therefore, the recommended mitigation is related in nature to the anticipated traffic impacts associated with Phase 1, and would function to alleviate those impacts in an acceptable manner.

The burden placed on the applicant by requiring these improvements with Phase 1 amounts to the difference between extending Circle Boulevard through the site and only constructing it to the intersection with Street 'A' (**Exhibits II-266** and **II-272**). Put another way, the difference amounts to a total distance of approximately 1,450 feet of street improvements beyond what would be necessary to provide at least one looped Collector Street access to Phase 1. Additionally, it should be noted that this portion of Circle Boulevard is designated as a Neighborhood Collector by the Corvallis Transportation Master Plan. The level of improvements for this type of street are similar to a Local Street, with the exception of the extra capacity attributed to on-street bicycle lanes and wider planter strips. The width of the street dedicated to facilitating vehicular traffic is the same as a Local Street, as described in Corvallis Transportation Master Plan. Even if the applicant's contention that only Phase 1 should be considered through the rough proportionality analysis was correct, and assuming that the project, in total, was only 77 lots, the Land Development Code and the Transportation Master Plan would still require a fully-improved second point of access to the site, which would mandate an improved Local Street at a minimum.

To relate the 1,450-foot length of Neighborhood Collector Street improvement to other typical residential developments in the RS-6 District, it is appropriate to consider the number of lots proposed with Phase 1, the corresponding PM peak hour trips generated by that phase, and the minimum frontage of each lot that would depend on access to Circle Boulevard. The minimum lot width allowed in the RS-6 District is 50 feet. Typically, a Local Street is double-loaded with lots along either side of the street. Assuming that each lot along a Local Street was only 50 feet wide, then that 50 feet of street frontage would be shared by two opposing lots. Assuming that each dwelling generates 1.02 PM peak hour trips, each trip would be associated with 25 feet of the corresponding street length. This results in a Street Length Demand Density (SLDD) of 0.0408 trips per foot of street length (1.02 trips per dwelling unit/25 feet of street length per dwelling unit = 0.0408 trips per foot of street length).

With the construction of Circle Boulevard, half of the 78 trips associated with Phase 1 would rely on the portion of Circle Boulevard south of Street 'A' to travel south to Harrison Boulevard. Therefore, 38.5 PM peak hour trips would rely on this section of street. By dividing this number of trips by the SFDD for 77 50-foot wide lots (38.5 trips/0.0408 trips per foot of street length), the result is a Local Street length demand of 943.6 feet of street. This equates to 65 percent of the 1,450 feet of Circle Boulevard improvements necessary to mitigate traffic impacts resulting from Phase 1. Despite that this percentage is less than 100 percent, it can be reasonably concluded that the recommended form of mitigation to address traffic impacts associated with Phase 1 remains roughly proportional to those impacts. This strict numerical quantification does not account for the total impact related to full build-out of 221 lots, nor does it consider the fact that the applicant would receive the associated benefits described above.

Lastly, the applicant would be eligible to apply for reimbursement of the monetary cost difference to construct the extra capacity portion of the Neighborhood Collector (i.e., on-street bike lanes and a wider planter strip) through the City's System Development Charge program. Each of these factors further substantiates the conclusion that the recommended form of mitigation is roughly proportional to the impacts caused, not only by Phase 1, but by the project as a whole.

Conclusion on Essential Nexus and Rough Proportionality

Construction of Circle Boulevard with Phase 1 of the subject project would not only ameliorate traffic impacts caused by the overall project, but through Phase 1 alone. When compared to other comparable forms of residential development, the burden placed on the subject application by the recommended form of mitigation has been demonstrated to be roughly proportional. Given the discussion and findings presented above, the recommended from of mitigation for addressing traffic impacts related to the proposed development is related in nature and extent to those impacts.

V. REQUESTED ACTION

With respect to the appeal of the Planning Commission's decision to approve the application for the Witham Oaks Conceptual and Detailed Development Plan, and Tentative Subdivision Plat (PLD06-00012/SUB06-00005), the City Council has the following options:

OPTION #1: **Uphold** the Planning Commission's decision to approve the request; or

OPTION #2: **Uphold** the Planning Commission's decision to approve the request, subject to new or revised conditions of approval deemed necessary by the City Council; or

OPTION #3: **Reverse** the Planning Commission's decision to approve the request, thereby denying the request.

From the facts presented, and based on the findings above, the Planning Commission and Staff recommend that the City Council approve **Option #1** above. If the City Council agrees with this recommendation, a motion to approve and uphold the Planning Commission's decision to approve the subject application would be based upon the criteria, discussions, and conclusions contained within the March 14, 2007, Planning Commission Staff Report; the findings in support of approving the application expressed in the minutes of the April 18, 2007, Planning Commission Meeting; the findings in the May 14, 2007, Memorandum from Community Development Director Ken Gibb to the Mayor and City Council regarding this appeal; and the findings in the minutes of the May 21, 2007, City Council meeting which support approval of the application.

MOTION: **I move to approve the applicant's request for a Conceptual and Detailed Development Plan, and a Tentative Subdivision Plat, and uphold the Planning Commission's decision to approve the application (PLD06-00012/SUB06-00005), subject to the review and approval of formal findings and a final order.**

Review and Concur:

Jon S. Nelson, City Manager

RECEIVED

MAY - 2 2007

Community Development
Planning Division

Witham Oaks Appeal

RECEIVED
MAY 02 2007
TIME 1:13pm
CITY RECORDER'S OFFICE

May 1, 2007

We request that the Corvallis City Council deny the recent development request for Witham Oaks. We submit this appeal to overturn the decision made by the Corvallis Planning Commission (on a 4-2 vote) in approving the Witham Oaks Conceptual and Detailed Development Plan and Tentative Subdivision Plat (PLD06-00012/SUB06-00005).

The grounds for our appeal are numerous. In summary, we find six particular areas where the development proposal violates the public interest of the citizens of Corvallis and the governing documents that are supposed to protect that interest.

The Witham Oaks Development Proposal would

1. destroy too many significant trees,
2. probably damage wetlands,
3. create an incompatible suburban-style neighborhood,
4. build a large number of houses with no school nearby,
5. shield the developer from public participation, and
6. fail to use sufficient solar energy for home heating.

In several instances, we note where the development proposal violates a particular Comprehensive Plan Policy (CPP).

EXHIBIT I-1

.....

1. The proposed development would violate the civic trust, because it differs substantially from the annexation proposal that was approved by less than 50 percent of those who voted in the 2004 election (with 11,997 in favor, 11,353 opposed, and 3,603 not voting).

Campaign literature mailed to every voter by Legend Homes, the applicant declared that a vote for the annexation would save the oak trees on the property. A similar argument was put forth on pages 17-20 of the 2004 Benton County voter's pamphlet.[1]

Three years later, we now see that the development would cut down 189 of the 236 oak trees on the 58 acres being cleared for houses, and it would clearly violate CPP 4.6.6:

> "On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe an practicable, the development may proceed, provided the following provisions are met: (1) the loss of trees is further minimized by

[1] http://www.co.benton.or.us/admin/elections/documents/archives/e04g/e04g_cvp.pdf

development techniques such as clustering; and (2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance."

We assert that the second provision will not be met, because (1) the development consists of large houses whose footprint exceeds the normal limit in the Land Development Code, and (2) the growth of planted oak trees in urban areas is stunted by the predominance of pavement. So if the development goes forward, there will never be a "tree-covered hillside appearance." There will only be a suburban rooftop appearance.

The 1973 aerial photograph of the site in question shows far fewer large trees than presently exist. Human control of the land appears to have ended shortly thereafter.

We feel that trees should get the same treatment as motor vehicles. The traffic analysis in the development proposal predicted the number of motor vehicles up to 20 years into the future, and it compared the number in a "no-build" scenario against the number with 221 more houses. It is reasonable to do the same for trees, which utilize photosynthesis to increase their number without a "build scenario." Therefore, the number of trees that would be sacrificed for housing is actually far greater than the number indicated by merely counting those to be cut down today. This observation is particularly true because the area to be developed has the greatest potential for ecological succession on the site.

EXHIBIT I-2

.....

2. The proposed development would create an unacceptable risk to wetland habitat. Such habitat is a critical component of the ecological support for the City of Corvallis.

The mitigation plan offered by the developer is inequitable compensation for the intact integrity of the ecosystem as it currently exists. The building, paving and grading activities by the developer would be extensive. Although the planning details may claim that there would be mitigation for the sudden introduction of more than 40 acres of impervious surfaces, history demonstrates that such attempts to replace ecology with engineering often fail. When land is developed into streets and houses, the increased volume of runoff and a reduction in groundwater recharge can destabilize nearby stream channels, destabilize in-stream habitat, and lower the available groundwater supply.

Furthermore, the extension of Circle Boulevard would necessarily create a 700-foot source of motor vehicle runoff that would follow the grade from east to west, into the wetland. The impact on the wetland from Circle Boulevard would be much greater than the existing impact from Harrison Boulevard, because the ground along Harrison slopes down to the south, away from the wetland.

If the development were allowed to proceed, it is probable that the damage to wetland habitat would violate the public interest, as stated in CPP 4.9.1:

"Significant watercourse, lakes, and wetlands shall be preserved, or have their losses mitigated, in order to: maintain clean water, support natural vegetation, protect the

aquatic habitat, retain existing significant public vistas, and provide wildlife habitat and recreation sites."

and in CPP 4.10.3:

> "Significant drainage ways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable."

and in CPP 4.10.9:

> "Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainage ways shall be minimized."

Condition 24 would extend the period for monitoring the performance of mitigation. However, the increased observation would provide insufficient protection, because mitigating damage to a delicately balanced biological system is more akin to putting toothpaste back into a tube than to fixing a flat tire.

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3. The proposed development is essentially a giant cul-de-sac that would be readily accessible only from the east. That violates the city objective to build pedestrian-friendly neighborhoods that flow together into comprehensive neighborhoods, as stated in Article 9 of the Comprehensive Plan:

> "A pedestrian-friendly environment is critical to the success of a comprehensive neighborhood, and thus the neighborhood-oriented development concept. If the scale and distance between housing and a focus of daily activities is too great, transportation options based on walking, such as walking, cycling, and public transportation, become less desirable and less viable choices. The accepted national and international standard for determining the size of a comprehensive neighborhood thus defined is the distance a person can walk easily in five to ten minutes. This equates to a distance of roughly 1/4 to 1/2 mile from the core of a comprehensive neighborhood to its edge."

and in CPP 9.2.4:

> "Neighborhoods shall be pedestrian-oriented. Neighborhood development patterns shall give priority consideration to pedestrian-based uses, scale and experiences in determining the orientation, layout and interaction of private and public areas."

Grade is another factor that prevents the site from welcoming pedestrians. In a letter to the Planning Commission on April 4, Terri Valiant of Pahlisch Homes admitted that the steep terrain of Witham Oaks precludes pedestrian-friendly alleys without the widespread construction of "expensive stepped foundation walls."

EXHIBIT I-3

The grade of the streets proposed by the developer would make routine bicycling impossible for most residents. Street G is typical – running north to south, through the middle of the development. It would feature a grade ranging from 4.0 to 6.8 percent. The longest street in the developed area, Street D would feature insane grades of 12.3 and 14.5 percent – to be traversed by only the most athletic fraction of the population. We find it highly improbable that the residents of such a neighborhood (with steep, isolated streets) would walk or bicycle to any significant degree.

Instead, the developer would promote motor vehicle use by building houses with prominent two-car garages. As noted by Commissioner Gervais, the number and spacing of garage driveways on the streets would further discourage pedestrians. The developer claims compliance with CPP 9.2.5-J by setting the garages back a few feet. We argue that a development with zero alleys and 221 curb cuts for two-car garages is such a gross violation of the spirit of the Comprehensive Plan that no mitigation can be sufficient to excuse it.

With the exception of attached houses at the fringe, the neighborhood would be one of nearly uniform density and lot size (in violation of CPP 9.2.5-B and E).

EXHIBIT I-4

We also note with great concern that the development proposal would implement more of the discredited zoning philosophy of separating residential and commercial space. Contrary to the planning goal of "neighborhood centers" (in CPP 9.2.5-A and as shown above), the new houses would be built about a mile from the nearest significant commercial zoning. The separation of homes from workplaces obstructs the critical goal of using energy and material resources more efficiently, as directed by the Oregon Statewide Planning Guide:

> Goal 13 - Energy – Declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

The proposed houses on lots 191, 206 and 207 seem to betray an intent to squeeze profit from the land to the detriment of the common interest. If the goal were to create an actual neighborhood community, there would be a more substantial space for community gatherings at the end of Street E.

.....

4. The closest school to the proposed development would be Harding Elementary. However, that school was closed in 2001, due to budget problems. In particular, the Corvallis School District found that the school needed an expensive structural upgrade. According to the recommendations of the Consolidation and Closure Committee in 2001, "In a recent facilities study, the south wing of the Harding building was identified as high risk for life safety in the event of a moderate earthquake." The report concluded that Harding was "one of three elementary schools in the district where upgrades may not be cost effective due to the overall condition of the building."

It is reasonable to expect that the age distribution of the people living in the proposed development would be similar to the rest of Corvallis, which has 15 percent of its population

under 15 years old.[2] So there would be at least 100 children living in the 221 new houses. However, there would be no nearby school for the children to attend.

The proposed development would create an unmet need for the public education of children. It would cause urbanization to direct where schools should be built, which would be the reverse of CPP 10.5.1:

> "The availability of adequate school facilities and services shall be used by the City as a factor to direct urbanization."

.....

5. A geotechnical analysis is essential for measuring the risk of building houses on steep slopes like those in the development proposal.[3] Such a study is not required by the Land Development Code, but the Planning Commission accepted the recommendation of staff members to require one as a condition for excavation and grading permits.

Our objection to Condition 13 is that it fails to hold the developer accountable to public scrutiny of the results. If the analysis is important enough to potentially block development, then the public should be afforded the opportunity to comment on the analysis – regardless of whether it finds saturated soil unsuitable for development or stable soil with little risk.

However, the condition would only require an opportunity for public comment if the geotechnical analysis were unfavorable to development. If the developer secured a positive report, the public would be shut out, and "development of the site shall occur."

The issue is one of compliance with the spirit of Oregon's Public Meetings Law:

> "Open government laws benefit both government and the public. Citizens gain by having **access to the process of deliberation** – enabling them to view their government at work and to influence its deliberations. Government officials gain credibility by permitting citizens to observe their information-gathering and decision-making processes. Such understanding leads to greater trust in government by its citizens." [4]

We contend that a geotechnical analysis is part of the deliberation about whether replacing a wild hillside with a housing development is a wise idea. We also note that citizen involvement is the first goal of the Corvallis Comprehensive Plan:

> "Goal 1 ... calls for the opportunity for citizens to be involved in **all phases** of the planning process."

.....

[2] http://corvallis.areaconnect.com/statistics.htm
[3] http://www.ocs.orst.edu/page_links/whats_new/2005-06%20flood/jan06_floods.html
http://www.kgw.com/news-local/stories/kgw_010606_news_flooding_weather.4f71ce89.html
[4] http://www.open-oregon.com/New_Pages/A_Quick_Reference_Guide.shtml

EXHIBIT I-5

6. The report by the Corvallis Planning Department notes that the development proposal fails to meet the performance standard for solar energy in Section 4.6.20 of the Land Development Code:

> "Residential subdivisions and planned developments on parcels of more than 1 acre shall be designed so that solar access protection, as defined in Chapter 1.6, is available at ground level to ... a minimum of 80 percent of the buildings with sufficient east/west dimension to allow the long axis of the building to utilize solar energy."

The developer argues that a waiver from the solar access standard is partly justified by the agreement to set aside 54 percent of the site as open space – primarily the wetland to the south and undisturbed forest in the northwest corner. However, we find that argument specious, because development in those areas would violate the public interest to an even greater extent. Serving the public interest in one area is no justification for a code waiver elsewhere. The true source of the problem seems to be a desire to maximize profit and the number of houses, resulting in tight spacing between them.

The developer's application offers a solar access study that is accompanied by three depictions of shadows on the property in the morning, at noon, and in the afternoon. Incredibly, there are no trees shown. So on one hand, we are told that the developer will plant enough trees to recreate a "tree-covered hillside appearance" – consistent with their earlier campaign promises to "save the trees" – but then on the other hand, we are offered a solar access study that appears to be based on no trees at all.

A further argument is that a waiver of the solar access standard would be justified by the developer's participation in the "Earth Advantage program" – which claims to produce houses that are 15 percent more energy efficient than the building requirements of Oregon state code. The primary issue is how to reduce carbon dioxide emissions that are responsible for anthropogenic climate change. Houses not heated by solar energy are primarily heated by natural gas or electricity. The standard requires 80 percent of the houses to have an entire wall exposed to the sun at ground level between 9:00 A.M. and 3:00 P.M. The developer claims that 73 percent of the houses would satisfy the requirement. Given our observation about trees, we suspect that number would be much less, once the planted trees begin to partially shade adjacent houses. Our contention is that the extra carbon emitted by houses with insufficient solar energy would be greater than the reductions provided by greater energy efficiency.

We note that the preservation of the trees in the northwest corner would not offset a significant amount of carbon emissions from the failure to meet the solar standard, because the forest has already reached its climax stage.

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EXHIBIT I-6

Adverse Impacts for Appellants

May 1, 2007

The decision by the planning commission to approve the Witham Oaks Conceptual and Detailed Development Plan and Tentative Subdivision Plat (PLD06-00012/SUB06-00005) affects the appellants adversely in one or more of the following ways:

1. Decreased quality of life due to increased traffic, pollution, and noise in our residential neighborhoods.

2. Decreased property value due to increased traffic, incompatible housing developments, and increased housing density in an area that is currently sought after for the lack thereof.

3. Decreased quality of life due to loss of a unique wildlife habitat and open space that is bicycle, pedestrian, and wheelchair accessible; one that provides quietness and refuge in an area close to roads, houses and apartments.

4. Emotional distress at the apparent inability of our elected or appointed officials and taxpayer supported staff to rigorously uphold several of the Corvallis Land Use Development codes, the Corvallis Comprehensive Plan, as well as the values put forth by Corvallis citizens in the Corvallis 2020 Vision Statement.

EXHIBIT I-7

Mark Knapp
958 NW Sycamore Ave #19
Corvallis, OR 97330

Rebecca Wilson
1540 NW Woodland Dr
Corvallis, OR 97330

Elizabeth Schwartz
3930 NW Witham Hill Dr #64
Corvallis, OR 97330

Jason DeLorenze
3930 NW Witham Hill Dr #64
Corvallis, OR 97330

Finally, this development proposal contains too many conditions of approval that are essentially exemptions from the Land Development Code. We think it makes a mockery of the land development process.

Mark Knapp
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EXHIBIT I-8

Corvallis Planning Division
Report to Planning Commission
PC Hearing: March 21, 2007
Report: March 14, 2007
Staff: Eric Adams, 766-6908

TOPIC:	**Conceptual/Detailed Development Plan and Tentative Subdivision Plat**
CASE:	**Witham Oaks (PLD06-00012/SUB06-00005)**
REQUEST:	Review and Approval of an Application for a Conceptual/Detailed Development Plan and a Tentative Subdivision Plat
APPLICANT/ OWNER:	Matrix Development 12755 SW 69th Street, Suite 100 Portland, OR 97223
LOCATION:	An undeveloped property on the north side of Harrison Boulevard, west of the Church of Jesus Christ of Latter Day Saints, and south of Witham Hill Drive. The site is composed of the following tax lots: Benton County Assessor's Map 11-5-28, Tax Lot 2300; and Map 11-5-33, Tax Lots 1000, 1100, and 1101.
ACRES:	94.62 acres
COMPREHENSIVE PLAN DESIGNATIONS:	• Residential – Low Density (57.7 acres) • Open Space – Conservation (36.9 acres)
EXISTING DEVELOPMENT DISTRICTS:	• Low Density Residential with a Planned Development Overlay (PD(RS-6)) – 57.7 acres • Agricultural - Open Space with a Planned Development Overlay (PD(AG-OS)) – 36.9 acres

Exhibit II - 1

PUBLIC COMMENT: A total of 76 public hearing notices for this land use case were mailed on February 27, 2007. As of March 9, 2007, three pieces of public testimony were received by the Planning Division. A pre-notification of this hearing was sent to all neighborhood associations, concerned citizens and groups on record on February 14, 2007.

ATTACHMENTS

A. Proposed Site Plan
B. Comprehensive Plan Map
C. Zoning District Map
D. Existing Conditions
   D-1 – Existing Site Topography
   D-2 – Reference Contour Lines
E. Notice of Disposition Order 2004-117; Witham Oaks Annexation, Comprehensive Plan Amendment, and Zoning District Change
F. Excerpt, Corvallis Open Space and Hillsides Report
G. Staff-Identified Applicable Criteria
H. Public Testimony
I. Applicant's Narrative, Graphics, and Application
   - Narrative: I-2 – I-60
   - Design Exhibits: I-62 – I-91
   - Traffic Studies: I-91 – I-148
   - Stormwater Report: I-149 – I-185
   - OSU Memorandum: I-186 – I-189
   - Wetland Delineation: I-190 – I-191
   - Historic Aerial Photos: I-192 – I-197
   - ODFW Letter: I-198
   - Tree Evaluation: I-199 – I-201
   - Building Typicals: I-202 – I-227
   - Earth Advantage Information: I-228 – I-266
   - Monument Sign Plan: I-267
   - Native Seed Mixtures: I-268
   - Habitat Enhancement Plan: I-269 – I-278
   - Wetland/Riparian Inventory: I-279 – I-292

Exhibit II - 2

SITE AND VICINITY

The subject site is located north of and adjacent to Harrison Boulevard, west of 36th Street. It has approximately 1,300 feet of frontage along Harrison Boulevard. The intersection of Circle Blvd and Witham Hill Drive is located approximately 1,000 feet to the northwest of the northern edge of the property. The Harrison Boulevard/53rd Street intersection is approximately 1,200 feet to the west of the property's westerly boundary.

The subject parcel, and lands to the north, west, and south are located outside the City limits but within the Urban Growth Boundary. Directly to the north is the 35-acre City open space area, which is not within the City Limits. Abutting this future open space area to the north/northeast are the Witham Hill apartments. To the east, abutting the site, are lands that are within the City limits and developed with single family residences, a church (Church of Jesus Christ of Latter-Day Saints), and the 3.26-acre Arnold Park. Also, a 5-acre synagogue site, which is outside of the City Limits, is located directly north of the existing Church of Jesus Christ of Latter-Day Saints. That property is not currently developed, but does contain a gravel road that provides access to the southern portion of the property. The land to the south, on the opposite side of Harrison Boulevard, contains the Oregon State University Dairy Research facility. The land to the west contains the Oregon State University (OSU) Poultry facility, which consists of several buildings, most of which are used for bird rearing and research (**Attachment D**).

The site is currently undeveloped, although it is the original Witham homestead. The site has been used for pasture and orchards. The northwestern portion of the site contains a portion of Witham Hill, as designated in the City's Open Space and Hillsides Report (**Attachment F**). Topography for the site is defined by a ridge line that extends along the majority of the northwest boundary and then continues north of the site to the top of Witham Hill. The southeast facing slopes of this hill compose most of the upper (northern) area of the site. However, a portion of the west facing slopes of an adjacent ridge that extends along the eastern boundary of the property are also included in the development area. Portions of both slopes contain gradients in excess of 20 percent. The remainder of the site consists of lowland areas at the toe of these slopes, most of which contain wetlands. The lower (southern) portion of the site is partially cleared and contains an extensive wetland area. The upper portion of the site is wooded with a mix of deciduous and evergreen trees.

The northern portion of the site is dominated by Oregon White Oak trees, with some large Douglas Fir and other trees mixed in, such as Cherry and Maple (**Attachments D** and **I-66**). The middle area of the site is more gradually sloped than the northern portion of the site, and includes grasslands, shrubs, and a remnant orchard area. Much of this area has been overgrown with invasive exotic plants, such as Himalayan blackberry, Scotch broom, and English hawthorn. In the lower portion of the site, the small stream that flows to the south from the northeast corner of the site and fans out into the larger wetland area in the southerly third of the property. This portion of the site includes areas of wetland prairie, wetland shrub, an ash grove, and the small riparian corridor (**Attachments D** and **I-191**).

As part of their proposal, the applicant has performed a delineation for the wetlands contained

within the subject site (**Attachments I-190** and **I-191**). Based on information submitted by the applicant, the delineated boundary of the Locally Significant wetland is slightly different from that shown on the Local Wetland Inventory Map adopted by the City of Corvallis and approved by the Department of State Lands (compare **Attachments D** and **I-191**). Regardless, portions of the wetland area would be impacted as a result of the development proposal. Other significant natural features contained within the site include large stands of White Oak in the northern portion of the site, and in general, the hillsides that predominate this area as well (**Attachments D** and **D-1**).

The City of Corvallis recently installed a sewer line and a multi-modal path within the public right-of-way (ROW) for Circle Boulevard, which traverses the center of the parcel and generally parallels the small stream as it extends through the site.

Comprehensive Plan designations for the site include Open Space - Conservation and Residential – Low Density (**Attachment B**). Properties immediately to the north are designated as Open Space - Agriculture or Residential – High Density. West and south of the site, properties are predominately designated as Open Space – Agriculture, and are outside of the City Limits. The established residential neighborhood located west of the site is designated as Residential – Low Density.

The subject site is zoned as a combination of Agriculture – Open Space with a Planned Development Overlay (PD(AG-OS)) and Low Density Residential with a Planned Development Overlay (PD(RS-6)). Consistent with their Comprehensive Plan designation, properties to the east are zoned Low Density Residential (RS-3.5). All other properties immediately abutting the site are outside of the City Limits, and are assigned zoning districts by Benton County. Those to the east and south are designated as Public by the County, while the City's Witham Hill Open Space park is designated as Urban Residential (UR-5). Other properties immediately north of the site that are within the City Limits are zoned High Density Residential (RS-20).

Exhibit II - 4

RECENT AND PERTINENT REVIEWS AND APPROVALS

The following land use approvals have been granted for the Witham Oaks site:

2004 – An application for Annexation of the site into the City Limits, as well as accompanying Comprehensive Plan Amendment and Zoning District Change was reviewed by the Planning Commission and the City Council (**Attachment E**). The Comprehensive Plan Amendment and District Change were approved, contingent upon a favorable election result for the Annexation measure, which was passed Corvallis voters on November 2, 2004.

APPLICANT'S PROPOSAL

The applicant is seeking approval of a Conceptual and Detailed Development Plan and a

Tentative Subdivision Plat that would allow the phased creation of 221 residential lots and 16 common tracts within 57.7 acres of PD(RS-6) and 36.9 acres of PD(AG-OS). Approximately 49.8 acres of the site would either remain undeveloped as natural open space or be contained in common tracts. The Conceptual and Detailed Development Plan proposes to construct a mixture of single family detached homes and attached townhomes within the 57.7 acre PD(RS-6) portion of the site, which involves the relocation of a portion of the existing Circle Boulevard public ROW. (Pending approval of the subject request, a review of the public ROW vacation request would be conducted by the Corvallis City Council at a later date.) The resultant gross density for the residentially zoned portion of the site is 3.8 units per acre. Various Land Development Code standards, such as those related to building setbacks, minimum lot size, street design, and wetland preservation, are proposed to be modified through the Conceptual and Detailed Development Plan. Several Comprehensive Plan Policies related to land use, natural features, hillside protection, transportation, public facilities, and energy are applicable to this application (**Attachment G**).

As part of the proposal, Circle Boulevard would be extended from its current terminus, which is just south of Witham Hill Drive, to connect with Harrison Boulevard. As shown on **Attachment I-69**, the southerly half of the existing public ROW dedicated for Circle Boulevard would be realigned to the east, while a short segment immediately to the north of this section would be shifted slightly west. A new Local Street network would be extended into portions of the site that lie on the west and east sides of the Circle Boulevard extension (**Attachment A**). Two of these Local Streets would intersect Circle Boulevard (Street 'A' and Street 'B'). Street 'A' would provide access to portions of the site on either side of Circle Boulevard. Where Street 'A' intersects Circle Boulevard, the multiuse path that currently extends through the site would join these transportation facilities and continue north along the west side of Circle Boulevard. At Street 'B', the multiuse path would cross to the east side of Circle Boulevard and continue north along its current alignment. Two sets of traffic calming measures would be installed within the paved portion of Circle Boulevard to facilitate safer pedestrian and bicycle crossing movements at Street 'A' and Street 'B', and potentially regulate traffic speeds along Circle Boulevard (**Attachment I-77**).

In addition to the new sidewalks constructed as part of the Local Street network, several new paved and soft surface pedestrian paths would be installed at key locations throughout the site (**Attachment I-77**). Public access easements would be placed over each of these facilities in an effort to decrease travel distances to locations including the open space area north of the site and Arnold Park, which is located east of the site. Proposed structural and facility improvements to Harrison Boulevard would also include the extension of the existing multiuse path to the west along the north side of the street from its current terminus. A new sidewalk would also be provided to the east along the north side of Harrison Boulevard where it would connect with the existing sidewalk in front of the Church of the Latter-Day Saints.

As noted above, a substantial portion of the site contains significant natural features. The integrity and long term protection of these areas was partially addressed at the time the site was annexed. Boundaries for the Comprehensive Plan Map and corresponding Zoning Map designations were intended to preclude the majority of these areas from future development. While no impacts to Locally Significant wetlands or significant vegetation within the boundaries of the PD(AG-OS)

portion of the site are proposed, impacts to both of these natural features would occur within the PD(RS-6) portion of the site. As noted on **Attachment I-68**, of the 19.87 delineated acres of wetland, approximately 2 acres would be removed as a result of the proposal; the majority of this impact is related to the extension of Circle Boulevard. In general, the majority of impacts to significant trees would be contained within two areas of the PD(RS-6) portion of the site (**Attachment I-66**). In the west-central area, the remnants of an old apple tree orchard would be removed. This area does contain a few significant oaks as well. The other area is generally described as the north portion of the site. While the impacted significant trees in this location include maple, oak, and cherry trees, the majority of those proposed for removal are oak trees that range in trunk diameter between 8- and 50-inches. A large open stand of oaks in this area is proposed for protection through the creation of a tract (Tract 'C').

Through the proposal, a Home Owners Association would be formed to handle such items as maintenance of the common areas and certain pedestrian paths. New formal landscaping is proposed throughout the site, including along all new Local Streets and Circle Boulevard, and within most of the common tracts (**Attachments I-86** through **I-90**). However, the naturally established native plants within Tracts 'A', 'H', and 'M', and a portion of Tract 'K' would remain unaltered.

The existing topography for the site would be modified through the proposal. As shown on **Attachments I-79, I-84** and **I-85**, three tiers of lots would be created along an east/west axis and a north/south axis through the site. The applicant has attempted to limit cuts and fills throughout the site. However, approximately 3.5 percent of the site would contain cuts and/or fills in excess of 8 feet (**Attachment I-80**).

CRITERIA, DISCUSSION, AND CONCLUSIONS

Applicable Comprehensive Plan Policies

1.2.9 The applicable criteria in all land use decisions shall be derived from the Comprehensive Plan and other regulatory tools that implement the Plan.

To approve a Conceptual and Detailed Development Plan, the proposal must comply with the applicable Comprehensive Plan policies and relevant sections of the Land Development Code (LDC). The applicable criteria, discussion of the proposal as relevant to these criteria, and conclusions based on criteria applicable to the land use request are presented below.

The findings on the applicable decision criteria identified by the Corvallis Comprehensive Plan and the LDC culminate with a conclusion for each section of the report. The overall recommendation to the Corvallis Planning Commission is consistent with the direction provided by these documents.

REPORT FORMAT & ACTIONS REQUIRED

This report is broken into two primary sections based on applicable review criteria: Part I – Conceptual and Detailed Development Plan; and Part II – Tentative Subdivision Plat. Based on the conclusions reached for each of these sections, the Planning Commission is asked to either approve the request with recommended conditions, approve the request with modified conditions, or deny the request.

Exhibit II - 7

PART I
Conceptual and Detailed Development Plan

CONCEPTUAL AND DETAILED DEVELOPMENT PLAN REVIEW

Applicable Land Development Code Section(s)

Section 2.5.20 - PURPOSES

Planned Development review procedures are established in this chapter for the following purposes:

a. Promote flexibility in design and permit diversification in location of structures;

b. Promote efficient use of land and energy and facilitate a more economical arrangement of buildings, circulation systems, land uses, and utilities;

c. Preserve to the greatest extent possible existing landscape features and amenities, and utilize such features in a harmonious fashion;

d. Provide for more usable and suitably located recreation facilities and other public and common facilities than would otherwise be provided under conventional land development procedures;

e. Combine and coordinate architectural styles, building forms and building relationships within the Planned Development;

f. Provide the applicant with reasonable assurance of ultimate approval before expenditure of complete design monies, while providing the City with assurances that the project will retain the character envisioned at the time of approval;

g. Promote and encourage energy conservation; and

h. Provide greater compatibility with surrounding land uses than what may occur with a conventional project.

2.5.40.04 - Review Criteria
Requests for approval of a Conceptual Development Plan shall be reviewed to assure consistency with the purposes of this chapter, policies and density requirements of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council. In addition, the following compatibility factors shall be considered:

- **Basic site design (the organization of uses on a site);**
- **Visual elements (scale, structural design and form, materials, and so forth);**
- **Noise attenuation;**
- **Noxious odors;**
- **Lighting;**
- **Signage;**
- **Landscaping for buffering and screening;**
- **Traffic;**
- **Effects on off-site parking;**
- **Effects on air and water quality.**

As noted in LDC Sections 2.5.20 and 2.5.40.04, to approve a Conceptual and Detailed Development Plan, it must be found that the request is consistent with the Comprehensive Plan, applicable sections of the LDC, and other policies and standards adopted by the City Council. The following analyzes the ability of the subject proposal to satisfy the overall development

Exhibit II - 8

standards of these documents, and specifically LDC Section 2.5.40.04. Additionally, LDC Sections 2.5.20 notes that the intent of the Planned Development review process is to allow for a more flexible approach to site planning and development. Approval of a Detailed Development Plan is the final step in site planning, and the LDC requires the Plan to also be reviewed according to specific criteria outlined in Section 2.5.40.04. To facilitate the following discussion, the request is reviewed within a context formed by relevant Comprehensive Plan Policies and LDC criteria. These criteria are grouped into the following six categories:

A. Land Use
B. Compatibility
C. Natural Features
D. Circulation
E. Public Facilities and Franchise Utilities
F. Solar Access

A. LAND USE

Comprehensive Plan Policies

3.2.1 The desired land use pattern within the Corvallis Urban Growth Boundary will emphasize:

A. Preservation of significant open space and natural features;

B. Efficient use of land;

C. Efficient use of energy and other resources;

D. Compact urban form;

E. Efficient provision of transportation and other public services; and

F. Neighborhoods with a mix of uses, diversity of housing types, pedestrian scale, a defined center, and shared public areas.

9.3.2 Where a variety of dwelling types are permitted by the development district, innovative site development techniques and a mix of dwelling types should be encouraged to meet the range of demand for housing.

9.3.5 Residential developments shall conform to the density ranges specified by the Comprehensive Plan and be of housing types permitted by the applicable zoning district.

9.3.6 The development review process shall not result in the exclusion of needed housing at densities permitted by underlying district designations or result in unreasonable cost or delay.

9.4.9 Residential development should consider and accommodate to the maximum extent possible, the future needs of senior citizens.

9.5.13 New subdivisions and planned developments of more than 5 acres in low density districts shall incorporate two or more of the following elements in at least 10% of the total acreage:

A. Zero lot line or attached dwellings (where allowed);

B. Minimum allowed lot area; or

C. Dwelling size less than 1,200 square feet.

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The proposed Conceptual and Detailed Development Plan, as conditioned, is consistent with Policies 3.2.1, 9.3.2, 9.3.5, and 9.5.13 for the following reasons. By proposing a mixture of 221 single family detached and attached units the applicant would provide a diversity of housing types over the entire 57.75-acre PD(RS-6) portion of the site. The resultant gross density for the site is 3.8 units per acre, which is slightly less than the median density allowed in the RS-6 District, which is 4 units per acre. Approximately 38 percent of the lots would be 5,000 square feet or less. Lots of this size allow for a compact urban form and are more efficiently constructed with dwellings that are less than 1,200 square feet in area. Smaller lots also allow for the creation of common open space areas within an overall development area. The proposed site plan includes 16 tracts that contain a total of 51.4 acres of open space. As discussed above, the majority of the significant natural features located within the property would be contained in these tracts. Excluding the area contained in Tracts 'A', 'M', and 'K', the majority of which is within the PD(AG-OS) portion of the site, approximately 4.5 acres of the remaining PD(RS-6) portion of the site would be retained as open space.

Due to the south facing slopes of the site, the ability to take advantage of year round passive solar exposure is considerable. However, developing a site like this in a compact manner with reduced minimum lot sizes and setbacks has the result of limiting the number of structures that meet the City's current solar access standards. As discussed further in the Solar Access Section of Part I, the applicant has proposed an alternate standard for assessing the effectiveness of solar exposure. Based on this standard, 84 percent of the homes have the opportunity to gain benefits from passive solar exposure. Assuming this alternate standard is deemed appropriate, the site plan would make efficient use of energy and other resources by decreasing the potential reliance on power generated for heating and cooling through conventional means.

Lastly, due to the proposed extension of Circle Boulevard, the transportation network within this area of Corvallis would decrease the out-of-direction travel for motorists, bicyclists, and pedestrians as they commute between the northern and western portions of the City. Correspondingly, an expansion of the Corvallis Transit System is likely to occur as a result of this proposal, and the applicant has included a new transit stop near the intersection of Harrison Boulevard and Circle Boulevard. Additionally, the new network of pedestrian amenities would increase opportunities for reaching both the Witham Hill Open Space and Arnold Park, as well as the multiuse path that currently extends through the site. These pathways would be available for use by the general public and allow for both pedestrian and bicycle traffic.

Despite these general consistencies, the applicant's project narrative has not specifically addressed how the proposal satisfies Policy 9.5.13, which, in part, draws on Policies 9.3.6 and 9.4.9 as a response to providing affordable housing. Based on the square footage of each lot, 85 of the 221 lots are less than 5,000 square feet in area, which is the minimum lot size for the RS-6 District. The total area of these lots is 8.46 acres, which equates to approximately 29 percent of the net developable area of the site (i.e., total area contained by lots, not including tracts or streets). Lots 157 through 171 and 212 through 219 are intended to be built with attached units. The total area of these lots is approximately 1.9 acres, which equates to 7 percent of the net developable PD(RS-6) area of the site. No discussion has been provided to indicate if

additional units would be constructed as zero lot line, or if any of the proposed structures would have a gross floor area of 1,200 square feet or less. Therefore, only one of the three potential methods for addressing specific housing options has been verifiably incorporated with the site plan.

As applied to other Low Density residential Planned Developments that are greater than 5 acres, the intent of Policy 9.5.13 is that two of the three elements listed each comprise 10 percent of the net developable area of the site. For the subject proposal, Item 'B' would be provided in approximately 29 percent of the net developable area of the site, while Item 'A' would only be provided over an area equal to approximately 7 percent of the site. Therefore, based on the language of Policy 9.5.13, either an additional area equal to 3 percent of the site would have to contain attached units, or 10 percent of the net developable area would have to contain dwellings of less than 1,200 square feet. The introduction of additional attached or zero lot line units would require reconfiguration of the proposed lotting pattern, which may result in associated changes to the proposed grading and utilities plans. Therefore, to arrive at favorable findings for the proposal, the feasibility of either of these two options ensuring the subject proposal is consistent with Policy 9.5.13 should be analyzed.
If additional lots were dedicated to the purpose of being constructed with attached units through a condition of approval, the proposed grading and utility plans would have to facilitate this alteration. A review of the proposed grading plan limits the remaining lots available for this residential dwelling type to Lots 90 through 93 and Lots 96 through 99. The grades proposed in the area of these lots are gradual enough to allow for minor adjustments across these lots that would not result in a significant redesign of the utility plan, tentative plat, or open space tracts. In total, Lots 90 through 93 and Lots 96 through 99 contain approximately 0.87 acres, which equates to 3 percent of the net developable area of the site. When combined with the lots already proposed to contain attached units, approximately 10 percent of the net developable area would contain attached units, and Item 'A' of Policy 9.5.13 would be satisfied.

Given that the applicant has substantially surpassed the minimum percent area required to satisfy Item 'B', it is reasonable to allow flexibility in achieving the intent of Policy 9.5.13 through alternate means. For example, rather than dedicate an equivalent of 10 percent of the site, the applicant could be required to construct dwellings with a gross floor area of 1,200 square feet or less on lots that total 3 percent of the net developable portion of the site. When combined with the existing 7 percent of the site that would contain attached units, doing so would accomplish the desired intent of the Policy, which is to provide a mixture of affordable housing options, while retaining the current benefits offered through the proposed plan (e.g., natural features protection, open space, compact urban form, etc.). A dwelling of this size is more likely to be considered affordable and have the potential to satisfy the housing needs for a broader cross-section of the community. Given that dedicating smaller lots for this purpose would constitute a more efficient utilization of the range of lot sizes proposed, only lots that are less than 5,000 square feet should be considered. If the lots currently intended to contain attached units are excepted from those available, the smallest lot capable of being developed with a 1,200 square foot house would be approximately 4,072 square feet (**Attachment I-72**). Assuming the dwelling was a single story, a 1,200 square foot house would result in a lot coverage of less than 40 percent for the smallest lot available, which is consistent with the current RS-6 standards. (However, note that the applicant has requested to vary from this standard and allow a maximum lot coverage of 60 percent for detached units.) A total of 62 lots that are 5,000 square feet or less would be available through this scenario. The applicant should indicate which of these lots would contain dwellings

that are less than 1,200 square feet prior to approval of the final subdivision plat

Based on the analysis provided above, either of the two options discussed would be viable methods for satisfying the intent of Policy 9.5.13. Therefore, the applicant should be allowed to choose which option is most feasible based on other various factors related the proposed project (**Condition 2**).

Applicable Land Development Code Section(s)

Section 2.5.30 - GENERAL PROVISIONS

Planned Development is an alternative development process that is permitted as Conditional Development. The following procedure allows for Planning Commission review of a Conceptual Development Plan and/or Detailed Development Plan. The applicant may either select to process the development proposal under a Detailed Development Plan where sufficient information has been submitted, in accordance with Section 2.5.50, or may request only approval of a Conceptual Development Plan in accordance with Section 2.5.40 and later apply for a Detailed Development Plan. However, prior to issuing any building permits a Detailed Development Plan must be approved by the Planning Commission.

Section 3.3.20 - PERMITTED USES (RS-6 District)

3.3.20.01 - General Development

a. Primary Uses Permitted Outright

1. a. Residential Use Types:
- **Family**

b. Residential Building Types:
- **Single Detached**
- **Single Detached (Zero Lot Line)**
- **Duplex**
- **Single Attached (Zero Lot Line, 2 units)**

Section 3.3.20.02 - Special Development - Uses Allowed Through Discretionary Review

a. Type I: Conditional Development - Subject to review in accordance with Chapter 2.3, and all other applicable provisions of this Code.

6. Planned Developments in accordance with Chapter 2.5

Section 3.37.20 - PERMITTED USES (AG-OS District)

3.37.20.02 - Special Development - Uses Allowed Through Discretionary Review

a. Type I: Conditional Development: Subject to review in accordance with Chapter 2.3 and Section 3.37.50 below.

3. Planned Development to be reviewed in accordance with Chapter 2.5

Both the RS-6 District and AG-OS District allow planned developments through a discretionary review. Regardless, the proposed Conceptual and Detailed Development Plan includes uses that are permitted outright in each zone. Within the PD(RS-6) portion of the site, uses would be limited

to a mixture of single family detached and attached homes. No development is proposed within the PD(AG-OS) portion of the site, with the exception of the extension of certain public transportation facilities and public utilities, which are, in and of themselves, not defined as uses.

Conclusions on Land Use

Given the above, it is concluded that the proposal is consistent with the applicable Comprehensive Plan Policies and LDC criteria, or has been conditioned to that effect.

B. COMPATIBILITY

Applicable Comprehensive Plan Policies

3.2.7 All special developments, lot development options, intensifications, changes or modifications of nonconforming uses, Comprehensive Plan changes, and district changes shall be reviewed to assure compatibility with less intensive uses and potential uses on surrounding lands. Impacts of the following factors shall be considered:

A. Basic site design (i.e., the organization of uses on a site and its relationship to neighboring properties);
B. Visual elements (i.e., scale, structural design and form, materials, etc.);
C. Noise attenuation;
D. Odors and emissions;
E. Lighting;
F. Signage;
G. Landscaping for buffering and screening;
H. Transportation facilities; and
I. Traffic and off-site parking impacts.

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Comprehensive Plan Policy 3.2.7 presents compatibility criteria nearly identical to LDC Section 2.5.40.04. Please refer to the following discussion for an analysis of these compatibility criteria as relevant to the subject request. Findings from that discussion are incorporated here by reference as findings under this criterion.

Applicable Land Development Code Sections

2.5.40.04 - Review Criteria
Requests for approval of a Conceptual Development Plan shall be reviewed to assure consistency with the purposes of this chapter, policies and density requirements of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council. In addition, the following compatibility factors shall be considered:

- **Basic site design (the organization of uses on a site);**
- **Visual elements (scale, structural design and form, materials, and so forth);**
- **Noise attenuation;**
- **Noxious odors;**
- **Lighting;**
- **Signage;**
- **Landscaping for buffering and screening;**
- **Traffic;**
- **Effects on off-site parking;**
- **Effects on air and water quality.**

Section 2.5.50.04 of the LDC requires that a proposal for a Conceptual and Detailed Development

Plan be reviewed against compatibility criteria listed in Section 2.5.40.04. The following discussion reviews the subject proposal against these respective criteria through the following categories:

- Basic Site Design
- Visual Elements
- Landscaping for Buffering and Screening
- Noise, Noxious Odors, Lighting, and Signage
- Traffic and Off-Site Parking
- Effects on Air and Water Quality

1. Basic Site Design

Applicable Comprehensive Plan Policies

3.2.4 In the case of compatibility conflicts, requirements will be imposed on both sides of a given property line, in the following manner:

A. Where both lots are undeveloped, each will be required to provide transitional elements when it develops.

B. The development in the more intensive development district shall provide the bulk of the transitional elements but shall not be required to provide the full amount unless the property in the less intensive district is already developed.

9.2.1 City land use decisions shall protect and maintain neighborhood characteristics (as defined in 9.2.5) in existing residential areas.

9.2.2 In new development, City land use actions shall promote neighborhood characteristics (as defined in 9.2.5) that are appropriate to the site and area.

9.2.4 Neighborhoods shall be pedestrian-oriented. Neighborhood development patterns shall give priority consideration to pedestrian-based uses, scales and experiences in determining the orientation, layout, and interaction of private and public areas.

9.2.5 Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment, or infill that may occur in these areas. These neighborhood characteristics are as follows:

A. Comprehensive neighborhoods have a neighborhood center to provide services within walking distance of homes. Locations of comprehensive neighborhood centers are determined by proximity to major streets, transit corridors, and higher density housing. Comprehensive neighborhoods use topography, open space, or major streets to form their edges.

B. Comprehensive neighborhoods support effective transit and neighborhood services and have a wide range of densities. Higher densities generally are located close to the focus of essential services and transit.

C. Comprehensive neighborhoods have a variety of types and sizes of public parks and open spaces to give structure and form to the neighborhood and compensate for smaller lot sizes and increased densities.

D. **Neighborhood development provides for compatible building transitions in terms of scale, mass, and orientation.**

E. **Neighborhoods have a mix of densities, lot sizes, and housing types.**

F. **Neighborhoods have an interconnecting street network with small blocks to help disperse traffic and provide convenient and direct routes for pedestrians and cyclists. In neighborhoods where full street connections cannot be made, access and connectivity are provided with pedestrian and bicycle ways. These pedestrian and bicycle ways have the same considerations as public streets, including building orientation, security-enhancing design, enclosure, and street trees.**

G. **Neighborhoods have a layout that makes it easy for people to understand where they are and how to get to where they want to go. Public, civic, and cultural buildings are prominently sited. The street pattern is roughly rectilinear. The use and enhancement of views and natural features reinforces the neighborhood connection to the immediate and larger landscape.**

H. **Neighborhoods have buildings (residential, commercial, and institutional) that are close to the street, with their main entrances oriented to the public areas.**

I. **Neighborhoods have public areas that are designed to encourage the attention and presence of people at all hours of the day and night. Security is enhanced with a mix of uses and building openings and windows that overlook public areas.**

J. **Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g., by setting them back from the front facade of the residential structure.) Parking lots and structures are located at the rear or side of buildings. On-street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.**

K. **Neighborhoods incorporate a narrow street standard for internal streets which slows and diffuses traffic.**

L. **Neighborhood building and street proportions relate to one another in a way that provides a sense of enclosure.**

M. **Neighborhoods have street trees in planting strips in the public right-of-way.**

11.6.3 Pedestrian access shall be addressed in the review of proposed cul-de-sac developments. The City shall require pedestrian rights-of-way interconnecting the ends of such streets where feasible.

11.6.13 New commercial and residential development shall generally provide for a maximum block perimeter of 1,500 feet, except where it would negatively impact significant natural features.

The existing neighborhoods within one half-mile of the site are predominately low density residential neighborhoods. While some of the residential development within this distance is

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situated in areas designated as High Density (RS-20), those areas are not the norm. Within one quarter-mile of the site, only the Witham Hill Apartments are at a density that is greater than the density proposed through the subject application.

Of the residential lands that are within one half-mile of the site, 269 acres are zoned either RS-3.5 or PD(RS-3.5), and they are developed with a total of 547 units, for a gross density of approximately 2 units per acre. Another 44 acres are designated as RS-5, and are developed with a total of 228 units, for a gross density of approximately 5.2 units per acre. The average density for the entire 313 acres within one half-mile of the site is 3.6 units per acre. Therefore, in terms of density and dwelling types, the proposed Conceptual and Detailed Development Plan is comparable to the existing residential neighborhoods that are within the immediate proximity of the site.

Similar to these neighborhoods, a mixture of single family detached and attached homes would be constructed as a result of the subject proposal. The new Local Street network providing access to these dwellings would include pedestrian amenities such as sidewalks, and be supplemented with additional pedestrian pathways to reduce out-of-direction travel, consistent with Policies 11.6.3 and 11.6.13. Lastly, consistent with Policy 9.2.5(I), many of the common areas that contain these pathways would be fronted by proposed dwellings, thereby improving the security and public observation of these spaces.

While the applicant has proposed reduced minimum lot sizes and setbacks for both detached and attached dwellings, the scale of the development is anticipated to be similar to that of surrounding neighborhoods. Building heights would be limited to the existing standard of 30 feet. When combined with a typical Local Street ROW width of 50 feet, the overall pedestrian environment would be comparable to existing neighborhoods as well (see Policy 9.2.5(L)). Consistent with Policy 9.2.5, Parts (A) and (C), common open space areas are strategically placed throughout the site to provide breaks in building massing in those areas of the site where a majority of the lots would have an area less 5,000 square feet. For example, along Circle Boulevard, those lots intended for attached units (Lots 157 through 171 and 212 through 219) would be buffered from this Collector Street by both landscaped common areas and differences in elevation (**Attachments I-79, I-86,** and **I-88**). Although the relationship was established through zoning boundaries approved at the time of annexation, the developable portion of the site is positioned not only to protect significant natural features and open space, but also to retain a sufficient quantity of these open spaces so that individuals using them gain a sense of separation from the development. In this regard, the proposal is consistent with Policy 9.2.5(G) by securing a neighborhood connection to the surrounding landscape without compromising its inherent natural qualities.

Chapter 3.37 of the LDC contains development standards for the AG-OS District, which requires a 25-foot wide setback when a property that is zoned AG-OS abuts a residential district. Portions of the subject site are zoned PD(AG-OS). As discussed further below, the applicant has requested to decrease the required setback in certain locations of the site (**Attachment I-22**). However, this request applies to land that, although zoned PD(AG-OS), would be included in

tracts created as part of the proposal and made unavailable for future development. Therefore, the reduced setback is not anticipated to cause compatibility conflicts in these areas of the site.

In addition to the PD(AG-OS) portion of the site, the subject property also abuts parcels to the west that are located outside of the City Limits and designated as AG-OS on the Comprehensive Plan map (**Attachment B**). Although provisions of Chapter 3.37 do not currently apply to these parcels, Policy 3.2.4 would suggest that a buffer between these two uses should be created. Consistent with this intent, the applicant has proposed a 25-foot wide tract (Tract 'E') that would be landscaped to provide a buffer between the abutting land and Lots 33 through 44.

Consistent with Policy 9.2.5(M), street trees would be installed in planter strips along all of the new Local Streets, the extended portion of Circle Boulevard, and the north side of Harrison Boulevard that fronts the site (**Attachment I-79**). These landscaping amenities are intended to enhance the pedestrian environment, buffer the public right-of-away from adjacent development areas, and reintroduce ecosystem services (e.g., air quality, water quality, erosion control, and energy conservation) that would have been previously delivered by natural vegetation proposed to be removed as a result of development. A total of 538 trees would be planted along streets associated with the subject proposal. Given that a total of 342 trees within the PD(RS-6) portion of the site are proposed to be removed, an overall increase of at least 196 trees would result across the site. This increase does not include those trees that would be planted in common areas or as part of the proposed habitat enhancement plan (see the Natural Features Section of Part I of this staff report for further discussion).

4.6.5 On tree-covered hillsides, development shall be designed to preserve as many trees as possible and tree removal shall be consistent with the approved development plan.

4.6.6 On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe and practicable, the development may proceed, provided the following provisions are met: 1) the loss of trees is further minimized by development techniques such as clustering; and 2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance.

5.3.1 To increase the aesthetic qualities of the community and enjoy the engineering and ecological benefits of trees, the City shall require developers to plant appropriate numbers and varieties of trees with all new development. Such standards shall be maintained in the Land Development Code.

The Corvallis Open Space Hillside Report indicates that the significant portion of south facing slopes on Witham Hill generally begin at an elevation of 340 feet and converge at the hilltop, which is at an elevation of approximately 476 feet (**Attachment F**). Between the 340-foot contour and the 370-foot contour, the distribution of existing trees can be characterized as a non-continuous canopy, with clusters of trees separated by open area (**Attachments D-2** and **I-66**). Most of the existing trees within the PD(RS-6) portion of the site that are located between these

two contour lines are proposed for removal, with the exception of those located in Tract 'C'. As shown on the applicant's tree survey (**Attachment I-66**), the developable portion of the property, as delineated by the PD(RS-6) boundary line, does not extend beyond a defined tree line that begins northwest of Lot 32 and then continues northeast through the property. This tree line loosely corresponds with the 370-foot contour line until reaching Lot 23, where it begins to move up-slope towards the 410-foot contour line. From this location, the tree line generally follows the PD(RS-6) boundary and the 410-foot contour line toward the northeast, where it then shifts toward the southeast and runs behind Lots 3 through 10. With the exception of an area immediately north of Lots 10 and 11, none of the trees beyond the PD(RS-6) boundary line or the 410-foot contour line are proposed for removal.

The north-south grading plan cross-section submitted by the applicant (**Attachment I-85**) shows that the rear of Lot 14 would be at an elevation of approximately 400 feet, while the rear lot line of Lot 11 would fall at an elevation of approximately 410 feet. Both of these locations are at an elevation that is below the tree line described above. The majority of the trees in this portion of the site are Oregon White Oaks, which regularly attain a height of at least 40 feet (**Attachment I-199**). Based on this height and the vertical relationship of the tree line to the proposed building pads for the northern tier of lots (Lots 3 through 18), the crown of these trees would remain visible above the roof line of dwellings constructed on these lots, as viewed from locations in the southern portion of the site. The same conclusion could be reached for the portion of the tree line that extends behind Lots 19 through 32, as the building pads for these lots would generally be at an elevation that is at least 10 feet lower than the foot of the adjacent tree line (**Attachment I-84**).

Although it is not noted in the Open Space Hillside report or the Comprehensive Plan as a specific hillside requiring protection, the west facing slope of the ridge that extends along the east boundary of the site does contain gradients and vegetation similar to Witham Hill. As shown on the submitted tree survey, 12 of the existing significant trees on this hillside would be removed as a result of development impacts. However, none of these trees are located outside of the PD(RS-6) boundary. The remaining significant trees in this area are essentially clustered in two groups located above either the 330-foot or 340-foot contour lines, which are adjacent to Lots 221 and 208, respectively (**Attachments I-66** and **I-79**). Given that the building pad for Lot 208 would be at an elevation of approximately 324 feet, the canopy formed by oak trees that are east of this lot at the 340-foot contour line would remain visible from locations in the southern portion of the site. The same amount of visibility would be retained for those trees east of Lot 221 based on the differences in elevation between this lot and the adjacent cluster of trees.

Given the above analysis, it is anticipated that the development proposal would preserve a tree covered appearance for the areas located outside of the PD(RS-6) boundary. However, Policy 4.6.6 is also intended to be applied to area that is available for development, and the PD(AG-OS) portion of the site is not able to be used for residential purposes. Therefore, an assessment of whether or not Policy 4.6.6 has been satisfied by the proposed development plan should also focus on the PD(RS-6) portion of the site. There are essentially two categories of significant trees impacted by the proposed site plan: the remnant fruit tree orchard, and the unconsolidated oak tree mosaic generally located north of Street 'C'. In terms of maintaining a tree covered hillside

appearance, the fruit tree orchard is a lesser quality natural amenity than the oak tree grove. The orchard does not provide the prominent canopy that the oak grove does, and the majority of it is located below the 340-foot contour line (**Attachment D-2**). Comparatively, the oak grove has a greater effect on creating a tree covered hillside appearance.

The applicant's project narrative cites Policy 4.6.6 and appears to rely on the open space set aside in Tract 'A' to balance impacts to trees that currently provide a tree covered hillside appearance. While, the focus of assessing consistency with Policy 4.6.6 should be within the developable portion of the site, it should be acknowledged that a substantial portion of the 94.6-acre site area has been set aside to preserve natural features. From this perspective, the proposed site plan has clustered lots in order to minimize tree impacts. A similar approach has been taken within the PD(RS-6) portion of the site to limit the removal of significant to the greatest extent practicable given the proposed Local Street network. In an effort to balance impacts to significant trees within the oak grove, the site plan does include strategically located tracts (Tracts 'C' and 'N') that would contain several large diameter oaks and other deciduous trees that would contribute to, albeit to a lesser extent, a tree covered hillside appearance. The 47 existing significant trees located in these two tracts would be supplemented by an additional 173 new street trees planted along Streets 'B', 'C', and 'E, and the portion of Street 'D' located north of Street 'C'. Based on the submitted tree survey, a total of 189 significant trees are proposed for removal above Street 'C'(**Attachment I-66**). The total number of trees located above Street 'C' after development would be a minimum of 216 (47 existing + 173 new). Therefore, more trees would be located in this portion of the site than currently exist, and based on the height potential of the proposed street tree species (**Attachment I-90**), it is reasonable to conclude that a tree covered hillside appearance would result, consistent with Policy 4.6.6..

4.10.9 Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainageways shall be minimized.

4.13.2 Development on land identified with significant plant communities, or significant fish and wildlife habitats, shall be planned to minimize the impact on the significant resources.

Please refer to the Natural Feature Section of this staff report for a discussion related to Policies 4.10.9 and 4.13.2. Findings from that section are incorporated here by reference as findings under these criteria.

Applicable Land Development Code Sections

Section 3.3.30 - RS-6 DEVELOPMENT STANDARDS

	Standard
a. Lot Area All single family building types Duplex	 5,000 sq. ft minimum 10,000 sq. ft minimum
b. Lot Width Single Attached (Zero Lot Line) Single Detached Single Detached (Zero Lot Line) Duplex	 50 ft minimum average 50 ft minimum average 50 ft minimum average 100 ft minimum average
c. Setbacks Front yard Rear yard Combined front and rear yard Side yard Single Detached Single Detached and Attached (Zero Lot Line) Duplex Corner Lot	 10 ft minimum 15 ft minimum [1] 35 ft minimum [2] 5 ft for each side yard 8 ft minimum on one side of dwelling unit with zero setback (0 ft) on opposite side [3] 10 ft for each side yard On side abutting the street, vision clearance areas in accordance with Section 4.1.40
d. Garage/Carport Vehicle Entrance	19 ft minimum to back of designated sidewalk
e. Structure Height	30 ft maximum - nor shall it exceed a solar envelope approved under Chapter 2.18 or 4.6
f. Lot Coverage	40% of lot area maximum
g. Off-Street Parking	See Chapter 4.1

4.4.20.03 - Lots, General Requirements (Chapter 4.4 – Land Division Standards)

a. **Size and Shape: Lot size, width, shape, and orientation shall be appropriate for location of the subdivision and for the type of use contemplated. No lot shall be dimensioned to contain part of an existing or proposed street. All lots shall be buildable, and depth shall not**

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[1] Minimum average rear yard may be reduced to 5 ft in cases where the provision and protection of solar access to the proposed building and to buildings and buildable areas on adjacent lots can be assured consistent with Chapter 2.18.

[2] Where the average rear yard setback is reduced below 15 ft, then combined front and side yard setbacks must be at least 35 ft.

[3] Prior to building permit approval the applicant shall submit a recorded easement between the subject property and abutting lot next to the yard having the zero setback. This easement shall be sufficient to guarantee rights for maintenance purposes of structures and yard, but in no case shall it be less than 5 ft in width.

generally exceed 2½ times the average width. Lot sizes shall not be less than required by the Code for the applicable district. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for off-street parking and service facilities required by the type of use proposed.

b. Access: Each lot shall abut upon a street other than an alley for a width of at least 30 ft unless the lot is created through a land partition or minor replat in which case 4.4.30.01 below shall apply.

The applicant has proposed an alternate set of development standards for the PD(RS-6) portion of the site that vary from the existing RS-6 District standards (**Attachments I-5, I-6,** and **I-7**). The requested variations are grouped into the following categories:

- *Minimum Lot Size*
  - a 928 square foot reduction (18 percent) to the minimum lot size for detached single family dwellings (4,072 square feet, minimum); and
  - a 1,672 square foot reduction (33 percent) to the minimum lot size for attached single family dwellings (3,328 square feet, minimum).

- *Side Yard Setbacks*
  - an optional one foot reduction to the required side yard setback on lots that are greater than 6,200 square feet for building projections (i.e., four foot minimum setback);
  - a one foot reduction to the required side yard setback for lots less than 6,200 square feet that would be built with detached single family dwellings, with an optional one foot reduction for building projections (i.e., three foot minimum setback); and
  - a four foot reduction to the required side yard setback on the unattached side of an attached unit, with an optional one foot reduction for building projections (i.e., three foot minimum setback).

- *Maximum Lot Coverage*
  - a 30 percent increase in maximum allowed coverage for lots containing attached dwellings (i.e., 70 percent coverage); and
  - a 20 percent increase in maximum allowed coverage for lots containing detached dwellings (i.e., 60 percent coverage).

- *Minimum Lot Width*
  - a 22 foot reduction to the minimum width for lots on the curve of a street (i.e., 28 feet, minimum), otherwise the minimum lot width is reduced from 50 feet to 33 feet.

In addition to these development standards, the applicant is also requesting to vary from the definition of a "Single Attached" dwelling unit, as noted in LDC Chapter 1.6. The current definition states the following:

Building Types

b. Residential - Group of building types consisting of the following:

4. Single Attached (Zero Lot Line) - Two dwelling units on separate lots but placed side by side so that some building walls are in common for a minimum length of 5 ft. at a

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common property line. Fences, trellises, etc. attached between buildings do not create "attached" structures.

As noted in the applicant's project narrative, the attached dwellings proposed for this project "may be attached along a portion of the wall at the garage and may be detached or attached on [the] opposite side" (**Attachment I-7**). Building elevation "typicals" contained in the application illustrate how these units might be configured (**Attachments I-205, I-211, I-214, I-215, I-218, I-219, I-226,** and **I-227**). These structures are not consistent with the LDC definition of an attached unit because two units do not have a wall in common that separates the living space of these units. Under the current definition, the "dwelling unit" is interpreted to be the portion of the structure containing living space, and not the garage.

Although it is not noted by the applicant, the proposal also varies from certain standards contained in Chapter 4.4 of the LDC related to subdivision plats. Section 4.4.20.03(a) of the LDC, notes that lots shall be buildable, with a depth that does not generally exceed 2½ times the average width. Several of the proposed lots would exceed this width to depth ratio. Related to this standard is the requirement noted in Section 4.4.20.03(b), that all lots must abut a street for a width of at least 30 feet. As noted above, a minimum lot width of 28 feet is proposed for lots that are located on the curve of a street.

The following discussion analyzes each of the proposed development standards in terms of the overall compatibility achieved by the project.

a. Proposed Minimum Lot Sizes

The applicant notes that the proposed minimum lot sizes would allow greater flexibility for providing a broader range of housing types. Although not applicable to the subject application, the applicant makes a comparison between the proposed development standards and those recently adopted through the 2006, Revised LDC, which reveals that the minimum lot size requested for both attached and detached units is greater than the revised standards. The applicant points out that approximately 37 percent of the proposed lots are less than 5,000 square feet in area, which amounts to 85 of the 221 lots (**Attachment I-22**). A total of 23 of these lots are intended for attached dwelling units.

It is debatable to what extent reducing the minimum allowed lot size has the effect of generating greater flexibility for providing a broader mix of housing types. Presumably, a 5,000 square foot lot is no less capable of facilitating a detached single family dwelling than a smaller lot. In fact, without corresponding adjustments to minimum setbacks and maximum lot coverage, the opposite would seem to be more accurate. The same could be said for two abutting 5,000 square foot lots constructed with attached dwellings. In actuality, the flexibility gained is an ability to construct more of both types of units, at the expense of the amount of open space afforded on a lot-by-lot basis.

By reducing the minimum required lot size, the applicant is able to make more efficient use of the PD(RS-6) portion of the development site. The total area contained by all of the proposed lots is 28.5 acres, on which 221 lots are proposed. If each of the proposed lots that are less than 5,000 square feet met the current minimum lot size, the site would support a total of 210 lots. Thus, the proposed minimum lot size reduction has a net effect of allowing 11 additional lots,

which is not anticipated to result in adverse compatibility impacts. A review of the proposed tentative subdivision plat shows that lots with a minimum area of less than 5,000 square feet are randomly distributed throughout the site. With the exception of those intended for attached units (Lots 157 through 171 and 212 through 219), most of these lots are internal to the site (**Attachment I-72**). Therefore, the greater density and building massing that results from smaller lot sizes would be buffered from the adjacent open space areas contained in Tracts 'A' and 'M'. As a result of the increased efficiency of land use, the proposed reductions to minimum lot sizes should be supported.

b. Minimum Side Yard Setbacks

The proposed reduction to the minimum side yard setback for detached dwellings is not anticipated to result in significant compatibility impacts, and in fact, zero-lot-line dwellings are allowed in the PD(RS-6) District. Along an interior side yard, the majority of two opposing building elevations would not be occupied by projections, meaning that a setback of four feet would be maintained along most of the shared property line. This one-foot reduction is insignificant in terms sustaining an acceptable amount of privacy for occupants of either dwelling. However, it is less than the five-foot width deemed necessary for maintenance of structures and yard area by the RS-6 development standards (see footnote No. 3 of the table in Section 3.3.30). Therefore, to allow for these activities to occur in an efficient manner, the proposal should be subject to the current requirement of providing easements in side yards that are less than five feet wide (**Condition 3**).

For attached dwellings, the applicant's proposed reduction to side yard setbacks has the effect of comparatively increasing the ratio of uninterrupted building facade to side yard area beyond what would be allowed through the current standards. For example, when the requested setback is applied to Lots 166 and 167, which, at 33 feet wide, is the narrowest width of any lot intended for an attached unit, the maximum potential uninterrupted front building elevation length for two attached units constructed on these lots would be 58 feet (2x33'-8' = 58'). The unit on Lot 167 and the unit on Lot 168 would then be separate by a distance of eight feet (four feet within either side yard). As a comparison, on a two abutting 50-foot wide lots, the current RS-6 development standards would allow for an uninterrupted front building elevation length of 84 feet for two attached units. Under the proposed standard, each foot of side yard setback distance between a pair of attached buildings would correspond to 7.25 feet of building elevation (58'/8' = 7.25'), while the current standard would result in 5.25 feet of building elevation per foot of setback (84'/16' = 5.25'). The result of this relationship is that the overall building massing is greater through the proposed standard due to a decrease in separation between a pair of attached dwellings. However, as a compensating factor, the areas of the site that are proposed to contain attached units would also have large landscaped common areas around three sides of each grouping of lots (**Attachment I-88**). These areas are anticipated to reduce the visual impact of the building massing that would result from the decreased side yard setback proposed for attached units. Therefore, the requested minimum side yard setbacks proposed for attached units should be supported. For additional findings related to this matter please refer to the discussion on Visual Elements provided below.

As with the detached dwellings, the proposed side yard setback is less than the five-foot width deemed necessary for maintenance of structures and yard area by the RS-6 District development

standards (see footnote No. 3 of the table in Section 3.3.30). Therefore, to allow for these activities to occur in an efficient manner, the proposal should be subject to the current requirement of providing easements in side yards that are less than five feet wide (**Condition 3**).

It should be noted that the applicant has not requested to vary side yard setbacks as they apply to exterior side yards on corner lots. Per the current RS-6 standard, the setback in this area is determined based on dimensions necessary to achieve an appropriate vision clearance area. This standard shall continue to apply to the subject proposal, and in the event that a vision clearance area required less than a five-foot setback, a minimum of five feet should be provided (**Condition 4**).

c. Maximum Lot Coverage

The applicant has proposed to increase the maximum allowed lot coverage for lots containing detached dwellings from 40 percent to 60 percent, and for lots containing attached units from 40 percent to 70 percent. Although the applicant's project narrative does not discuss the reason this increase is necessary, it is presumably the result of a desire to retain the degree of flexibility needed to place specific house plans on lots with a reduced minimum area. The net effect of this request, similar to that of reduced minimum setbacks, is the loss of open space that would otherwise be provided on a lot-by-lot basis. The corollary to this effect is an increase in the amount of impervious cover that would result otherwise. However, as the applicant points out, the 2006, Revised LDC permits up to 60 percent of a lot to be covered by a building and driveway in the RS-6 District, and does not limit coverage at all if the lot is constructed with an interior attached unit. Regardless, the subject application is not being reviewed against provisions of the 2006, Revised LDC, so the following discussion analyzes how the proposed maximum lot coverages would compare to the LDC standards that were in place at the time the subject application was submitted.

As noted above, the total area of all proposed lots is 28.5 acres. The RS-6 District standard of 40 percent maximum lot coverage would generate a total of approximately 17 acres of open area when applied to all lots combined. As a comparison, the proposed maximum lot coverage standards would result in the creation of approximately 11 acres of open area for all lots combined. Not including Tracts 'A', 'K', and 'M', which contain approximately 47 acres and are mostly designated as PD(AG-os), the proposed site plan also contains approximately 4.5 acres of open space in common areas located within the PD(RS-6) portion of the site. However, as noted above, the resultant development aspects of the proposal should be reviewed based on the area in which development could occur. Therefore, the PD(AG-OS) area should not be relied on to off-set impacts generated by requests to vary specific development standards.

At approximately 15.5 acres of open space (11+4.5), the proposal would provide 1.5 acres less open space than would otherwise be created by the current RS-6 maximum lot coverage standard. One way to bring the proposal into compliance in terms generating a comparable amount of open space would be to limit maximum lot coverage to 40 percent on lots that are greater than a certain area. Using this approach, if all lots greater than 6,500 square feet were limited to a maximum coverage of 40 percent, approximately 1.75 acres of additional open space would be created across these lots. A total of 49 proposed lots have an area greater than 6,500 square feet, the smallest of which is 6,511 square feet. On this lot, a maximum coverage of 40

percent would allow for 2,604 square feet to be covered by either a building footprint or driveway, which is greater than the coverage allowed by the current RS-6 standards using a minimum lot size of 5,000 square feet (i.e., 2,000 square feet). Therefore, even the smallest lots within those lots greater than 6,500 square feet would be considered developable through the current RS-6 development standards.

It should be noted that using this approach to managing maximum lot coverage for the development if fully realized, would result in 0.25 acres more open space than would otherwise be created by current LDC standards. However, this excess could be considered as an off-setting benefit that would balance the flexibility gained as a result of reduced minimum lot sizes and setbacks, and increases in maximum coverage for proposed lots smaller than 6,500 square feet in area. Based on this balanced approach, the proposed lot coverage standard, as modified, would create a sufficient amount of open space to compensate for decreases occurring on a lot-by-lot basis, and off-set the potential impacts resulting from an increase in impervious area on each lot (**Condition 5**).

d. Minimum Lot Width

The final RS-6 District development standard proposed for reduction is minimum lot width. While the applicant has requested a reduction to as little as 28 feet, the proposed tentative plat (**Attachment I-72**) shows that a majority of the proposed lots would have widths of 45 feet or more. In general, those lots representing the greatest reduction in width are either intended for attached units or are situated on a cul-de-sac or curve of a street, resulting in an average lot width of greater than 45 feet for most lots.

Part of the reason for requiring a specific minimum lot width is to afford adequate area to construct a driveway and install private utility connections for each dwelling, while leaving sufficient area along the street frontage of each house to install trees within the planter strip. The applicant has provided a conceptual landscape plan that shows the spacing of street trees along all new Local Streets proposed with this project (**Attachment I-86**). A review of the spacing between these trees appears to be consistent with the species and potential size of each tree, as noted in Section 4.2.30 of the LDC. Therefore, the requested minimum lots widths do not appear to result in a conflict for providing a driveway, making the required utility connections, and installing the required street trees for any given lot (**Condition 6**). As a result, the requested minimum lot widths are not anticipated to result in compatibility impacts and should be supported.

e. Attached Unit Definition

As discussed above, the applicant has proposed to construct attached units that are not consistent with the current definition of "Single Attached". These dwellings would be attached at a common building wall shared by the garage of each structure. This configuration would be contrary to the current LDC definition, which has been interpreted to require that Single Attached dwellings share a common wall between living spaces (i.e., main building) of each unit.

Part of the rationale for requiring that dwellings are attached in this manner stems from a desire to use lot area efficiently. The portion of each building that does not share a common wall must subscribe to the side yard setback required by the specific development standards of a given district. So when an alternate method for attaching two units is used, or a different portion of the

structures share a common wall, the result can be the creation of an inadequate side yard width on what are, generally, two narrow lots. Other benefits gained through this method of construction include increased energy efficiency and a comparative reduction in building materials used for each dwelling.

The second aspect of dwellings attached in the manner described by the current LDC definition is how that method effects perception of dwelling density. When two dwellings are attached between living areas, a portion of which generally occupies space along the front building elevation, the two units are commonly perceived as one dwelling when viewed from the abutting street. An alternate method that relies on the use an adorning architectural element (e.g., trellis) would result in the scenario described above, where narrow side yards separate the two dwellings. Visually, this development pattern evokes a sense of increased density due to minimal building separation. Based on the building "typicals" submitted by the applicant, the former visual effect is more likely to occur as a result of attaching two dwellings at a wall shared by the garage of each unit. In most of the examples provided by the applicant, the garage is positioned toward the front of the building and abutting the accompanying living space. When attached, building "typicals" that show a garage situated toward the rear of the unit would result in sufficient separation at the front lot line to avoid the latter visual perception described above, due to the width needed for driveways.

Exhibit II - 26

Based on this analysis, the applicant's request to attach dwellings using a common wall shared by garages is not anticipated to result in compatibility impacts. However, to ensure that a sufficient amount of the common wall is shared between the two units, a minimum of five feet of the wall should be shared by each garage. Further, one side of the garage for each unit should be attached to the living space of that unit so that a horizontal gap does not exist between the roof line of the enclosed living space and that of the enclosed garage (**Condition 7**).

f. Land Division Standards

The purpose of generally restricting the ratio of lot width to lot depth, as regulated by LDC Section 4.4.20.03(a), is to avoid lots being dimensioned in a manner to meet minimum lot area that results in an inefficient use of land. For example, in the Medium-High Density Residential District (RS-12), the minimum lot area is 2,200 square feet, and the minimum width is 25 feet. If a lot were dimensioned based on these minimum standards, the corresponding lot depth would have to be 88 feet, which is more than 2½ times the lot width. In higher density residential districts, this lotting pattern would result in an inefficient use of land by allotting an excessive area to the rear yard that could be used for other purposes (e.g., common area, pedestrian paths, etc.)

While the applicable RS-6 standards would not allow for this scenario based on minimum lot size and width, the applicant's proposed subdivision plat does include lots that exceed this ratio. However, in most instances, the need for this variance appears to be directly related to completion of a lotting pattern influenced by changes in grade between the front and rear of certain lots. For example, the rear lot line of Lots 67 and 68 must continue the pattern established by lots abutting them to the west (i.e., Lots 63 and 64). However, the grade at the front of Lots 67 and 68 is approximately 10 feet below the grade at the rear of Lots 63 and 64, and thus, to make Lots 67 and 68 buildable and allow for the necessary grade transition area, their depth exceeds 2½ times the width of each lot. Regardless of this fact, the goal of avoiding the inefficient use of land

through the subdivision process would be achieved by the proposed plat based on the gross density it attains. And, assuming that the final grading plan is determined to be viable based on results of a geotechnical analysis, the proposed lots would be buildable (see the Natural Features Section of Part I of this staff report for further discussion on this matter) (**Condition 13**).

As noted above in the discussion of proposed minimum lot widths, a reduction to the minimum distance along which a lot abuts a street is not anticipated to inappropriately limit access to any of the proposed lots (**Condition 6**).

Section 3.37.40 - SETBACKS (AG-OS District)

The following minimum setbacks shall apply to all structures other than fences or walls in the OS-AG District.

a. Boundary Area - A setback of not less than 25 ft shall be provided along each OS-AG District boundary line where the line abuts any residential district.

As discussed above, the applicant has requested to reduce the setback required when a property zoned AG-OS abuts a residentially zoned site. The locations of the subject property that would be effected by this request would remain common open space tracts, and unavailable for future development. Therefore, no compatibility conflicts are anticipated as a result of this reduction.

Also discussed above is the inclusion of a 25-foot side buffer between land designated as AG-OS on the Comprehensive Plan map, which is west of the subject site, and Lots 33 through 44. The provision of this buffer is appropriate based on guidance contained in Policy 3.2.4, regardless of the fact that the area in question is not within the City Limits (**Condition 14**).

Exhibit II - 27

Conclusion on Basic Site Design

Given the findings presented above, and as conditioned, the proposed Conceptual and Detailed Development Plan is consistent with applicable Comprehensive Plan Policies and LDC criteria.

2. Visual Elements

Applicable Comprehensive Plan Policies

9.2.1 **City land use decisions shall protect and maintain neighborhood characteristics (as defined in 9.2.5) in existing residential areas.**

9.2.2 **In new development, City land use actions shall promote neighborhood characteristics (as defined in 9.2.5) that are appropriate to the site and area.**

9.2.5 **Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment, or infill that may occur in these areas. These neighborhood characteristics are as follows:**

D. **Neighborhood development provides for compatible building transitions in terms of scale, mass, and orientation.**

E. **Neighborhoods have a mix of densities, lot sizes, and housing types.**

H. **Neighborhoods have buildings (residential, commercial, and institutional) that are close to the street, with their main entrances oriented to the public areas.**

I. **Neighborhoods have public areas that are designed to encourage the attention and presence of people at all hours of the day and night. Security is enhanced with a mix of uses and building openings and windows that overlook public areas.**

J. **Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g., by setting them back from the front facade of the residential structure.) Parking lots and structures are located at the rear or side of buildings. On-street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.**

In an effort to address visual compatibility, the applicant has proposed a menu of architectural and pedestrian design features (**Attachments I-37**and **I-38**). The intent of these features is to create a more varied built environment that is pedestrian oriented. **Attachments I-202** through **I-227** provide examples of how these features would combine to achieve these goals.

The proposed design menu is consistent with Policies 9.2.1, 9.2.2, and cited portions of Policy 9.2.5 for the following reasons. The features proposed by the applicant result in neighborhoods composed of varied dwellings sizes and types, which maintain orientation to the street, but do not allow the garage of each unit to be the prominent feature of the front facade. Covered front porches add architectural interest to the front of a building and de-emphasize garages. A mixture of exterior building materials and ornamentation would also act to differentiate one dwelling from another so as to enhance architectural diversity along a street. By including a certain percentage of windows on street-facing facades, the pedestrian environment has a greater potential of being observed, and therefore safer. Similar design features have been successfully incorporated in other residential planned developments, such as Willamette Landing, Stoneybrook Village, and Grand Oaks.

As a point of clarification, the applicant's project narrative notes that building facades oriented toward streets, sidewalks, and multi-use paths would contain a minimum window area. However, two percentages are noted; 15 percent and 20 percent (**Attachments I-37** and **I-38**). The intent of providing a minimum amount of windows, or glazing, on a given building elevation is to increase visibility of public areas and enhance their security, as noted on Policy 9.2.5(I). Previously approved residential planned developments have incorporated this same approach (e.g., Timberhill Apartments), and relied on an area equal to 15 percent of the building facade. The same standard should be applied to the subject proposal (**Condition 8**).

<u>Conclusion on Visual Elements</u>

Given the findings presented above, the proposed Conceptual and Detailed Development Plan is consistent with applicable Comprehensive Plan Policies and LDC criteria, as conditioned.

3. Landscaping for Buffering and Screening

Applicable Comprehensive Plan Policies

3.2.3 The City shall address compatibility conflicts through design and other transitional elements, as well as landscaping, building separation, and buffering.

4.3.5 A buffer between urban density development and resource land shall be provided, consistent with Section 3.2 of this Plan, to protect Open Space - Agriculture and Open Space - Conservation lands from intrusion by urbanization and to protect urban lands from potential impacts from forest or agricultural practices. For forest and agricultural uses that currently exist on non-open space designated lands, transitional buffering shall be provided to address compatibility concerns.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

G. Demonstrate a concern for the view of the hills as well as the view from the hills.

H. Provide landscaping that enhances the identified open space resources.

4.6.9 Where development of hillsides occurs, removal of vegetation will be minimized to control erosion. Vegetation disturbed during development shall be replaced or enhanced through landscaping.

4.11.17 The City shall continue to maximize preservation and restoration of existing upland natural resource areas and wetlands by use of development standards in the Land Development Code (UP-12).

5.3.1 To increase the aesthetic qualities of the community and enjoy the engineering and ecological benefits of trees, the City shall require developers to plant appropriate numbers and varieties of trees with all new development. Such standards shall be maintained in the Land Development Code.

The applicant has submitted a conceptual landscaping plan that addresses all portions of the project (**Attachments I-86** through **I-90**). Landscaping located within each of the tracts and installed along the public streets constructed or improved through this proposal would be maintained by a Home Owners Association (HOA) formed for this development (**Condition 9**). Included with this plan are designs for a four to six-foot tall masonry wall that would extend along the rear of Lots 1 through 3 and 157 through 171. (The applicant has verbally communicated that the exact location of this wall would be determined concurrent with finalized grading plans, but would be generally located behind these lots. The final wall location should also take required drainageway easements into consideration (**Development Related Concern 'L'**)). Specific planting details are also provided for each of the proposed tracts. A discussion of these areas and analysis of the overall consistency of the landscaping plan with Policies 3.2.3, 4.3.5, 4.6.7(H), 4.6.9, 4.11.17, and 5.3.1 is provided below.

While each of the tracts provides open space, from a site design perspective, their primary purposes are varied. Tracts 'B','E', 'F', 'L', 'O', and the western-most portion of Tract 'K' are intended to function as buffer areas between the developed portion of the site and either adjacent streets or AG-OS areas. Tracts 'I', 'J', 'N' and 'P' serve as pedestrian connections between the developed portion of the site and the open space located to the north and west, while Tracts 'A', 'C', 'H', 'M', and most of Tract 'K' are designed to preserve areas of significant natural resources. The remaining tracts, 'D' and 'G', account for miscellaneous area or provide a location for stormwater facilities, respectively.

a. Landscaping Standards for Tracts with Pedestrian Amenities

In addition to Tracts 'I', 'J', 'N' and 'P', Tracts 'C', 'E', 'F', 'K', and 'M' would contain either a hard surface path (e.g., asphalt-conrete), a soft surface path (e.g., bark mulch), or an informal, unimproved pedestrian connection (**Attachments I-34** and **I-77**). The landscaping proposed in these areas varies from an ornamental treatment complete with groundcover, shrubs, and trees, to retention of the existing natural vegetation. In locations of these tracts where grading would impact the existing vegetation, the proposed landscaping would be adequate to minimize potential erosion impacts. However, given that Tracts 'P' and a portion of Tract 'E' are intended to provide informal pedestrian access to the open space in Tract 'A', there is the potential, over time, for pedestrian traffic and uncontrolled erosion to create a deeply incised trail, similar to the one that currently extends north from the property into the Witham Oaks Open Space Park. During times of heavy precipitation, trails that take this form become intermittent drainageways with a potential for causing extensive erosion. Therefore, landscaping in these tracts should be managed to specifically prevent channel-forming trails from being established. Similarly, corrective action should be taken to repair the erosive downcutting currently occurring along the existing trail through Tract 'A' (**Condition 10**).

Comprehensive Plan Policy 9.2.5(l) encourages public areas to be visible and secure. To facilitate achieving this goal, tracts with pedestrian amenities should not be visually separated from abutting lots in a way that precludes their observation. Previously approved residential planned developments have maintained visibility in these areas by limiting the height of fences along lot lines that abut a tract with pedestrian amenities (e.g., four-foot tall fences in Willamette Landing). A similar approach should be taken with the subject proposal. However, due to grading issues, limiting fence height may have the unintended consequence of not affording residents of the abutting lots a sense of privacy. Therefore, two options should be available; either a four-foot tall solid fence, or a six-foot tall fence that is constructed using an open design that does not screen more than 60 percent of the view along the lot line shared by a tract and the subject lot. The following lots should be subject to this design standard: 13, 14, 58, 59, 74, 75, 93, 95, 96, 106, 107, 164, 165, 191, 211, and 212 (**Condition 10**).

b. Landscaping Standards for Tracts with Natural Resources

A majority of the land contained by Tracts 'A', 'C', 'K' and 'M' is intended to be managed consistent with its current natural conditions. The applicant has discussed various concepts that would be used to retain and enhance the native vegetation in these portions of the site (**Attachments I-38** and **I-39**). Among these concepts is a proposal to dedicate two of these tracts, 'A' and 'M', to the City of Corvallis pending execution and completion of mutually agreed upon management plans. As of the date of this report, the exact details of these plans have not been

discussed with the Corvallis City Council. The acceptance of any dedication of land within these areas would require City Council approval. Absent dedication, these tracts would continue to be managed by the HOA.

Tract 'C' is proposed to be managed in a manner that would promote the vitality of the existing Oregon White Oaks found in this area of the site. No irrigation would be installed in this tract in order to maintain the existing seasonal fluctuations in soil moisture that are endemic to oak woodlands. The applicant has noted that after non-native invasive species have been removed from this area, a native plant seed mix would be applied to re-establish appropriate groundcover. Two seed mixtures are listed in the application, one of which (ProTime 710 PDX-Plus Green Clover Plus Flowers) does not required annual application of fertilizer or periodic mowing to ensure continued seasonal growth. In order to reduce impacts to the natural aspects remaining in this tract after development, this specific seed mixture should be used to avoid unnecessary soil compaction related to mowning, and to limit releases of fertilizer related pollution into the areas downstream of the site, consistent with Policies 4.6.7(H) and 4.11.17 (**Condition 11**).

In addition to retention of a majority of the existing Locally Significant Wetlands, Tract 'M' would also contain stormwater management facilities that would be located within areas of upland that are generally surrounded by wetlands (compare **Attachments I-68** and **I-79**). Landscaping installed within these facilities would be consistent with standards contained in the City of Corvallis Stormwater Master Plan that address water quality. However, these standards do not specifically address landscaping on the exterior slopes of these facilities. To the extent that the design and function of these facilities would allow, the exterior slopes should be planted with a mixture of plants listed in the proposed habitat enhancement plan discussed below (**Condition 11**).

A portion of Tract 'M' would be used for a habitat enhancement plan that is proposed as mitigation for impacts to the wetland and riparian areas located on the site (**Attachments I-269** through **I-278**). This area would generally be located east and south of Lots 108 through 118, and Lots 139, 140, 155, and 156. The plan would include strategic removal of non-native invasive plant species and reintroduction of native plants that are typical of upland meadows within the greater Willamette Valley. It should be noted that this area of habitat enhancement is not intended to satisfy wetland impact mitigation requirements that may be imposed by the Department of State Lands (DSL) (**Attachment I-26**). However, given the immediate proximity of these areas to one another, the habitat enhancement plan should be consistent with state regulations regarding impacts to natural habitat and water quality within wetlands. Therefore, consistent with Policies 4.6.7(H) and 4.11.17, the applicant should include information on the habitat enhancement plan with any application submitted to DSL for mitigation of wetland impacts (**Condition 12**).

Significant portions of the development would be visible from Tracts 'A', 'K', and 'M'. In order to retain the inherent scenic value of these portions of the site, certain landscaping treatments should be used along the development boundaries. For example, given that dwellings constructed on lots that abut Tract 'M' would be at an elevation above the natural grade of the tract, two measures should be used to blend the development with the natural area. First, fences constructed along lot lines shared with Tract 'M' should be of an open design that does not screen more than 40 percent of the view along the lot line shared with the tract. Second, where grading is required to establish the elevation of a lot, the resultant slope should be landscaped with a mixture of native plants proposed in the applicant's habitat enhancement plan (**Condition 11**). Doing so would soften the abrupt edge otherwise created between the developed and natural

portions of the site, consistent with Policy 4.6.7(H). The same landscaping approach should be used within Tract 'M' on slopes graded as a result of the construction of Circle Boulevard or realignment of the multiuse path, and within portions of Tract 'K' that are graded to construct Street 'A'. In support of Policy 4.6.7(G) and (H), this buffering approach should also apply to fences constructed along all lot lines shared by a portion of Tract 'A' or Tract 'K' containing property zoned PD(AG-OS). Lots effected by this requirement would include all lots abutting Tract 'A' and Lots 208, 220, and 221 (**Condition 11**).

Lastly, the proposed monument sign (**Attachments I-86, I-89,** and **I-91**) would be located in the southeast corner of Tract 'M', immediately adjacent to the intersection at Circle Boulevard and Harrison Boulevard. The front of the proposed sign would include a terraced planter, and two new deciduous trees are shown just behind the sign. Given that the remainder of the area immediately northwest of the structure would be maintained in its natural state, additional landscaping should be installed behind the sign to buffer its visual impact on this area, consistent with Policy 4.6.7(H). Thus, the remainder of the upland area in which the structure would be built should be planted with a mixture of plants listed in the proposed habitat enhancement plan (**Condition 11**).

Applicable Land Development Code Sections

Section 4.2.20 - GENERAL PROVISIONS

a. **Where landscaping is required by this Code, detailed planting plans and irrigation plans shall be submitted for review with development permit application. Development permits shall not be issued until the Director has determined the plans comply with the purposes clause and specific standards in this chapter. Required landscaping for Planned Developments shall be reviewed and approved by the Planning Commission, and in no case shall landscaping be less than that required by this chapter. All required landscaping and related improvements shall be completed or financially guaranteed prior to the issuance of a Certificate of Occupancy, and shall provide a minimum 90 percent ground coverage within 3 years.**

b. **Appropriate care and maintenance of landscaping on-site and landscaping in the adjacent right-of-way is the right and responsibility of the property owner, unless City ordinances specify otherwise for general public and safety reasons. A City permit is required to plant, remove, or significantly prune any trees in a public right-of-way. Landscaping, buffering, and screening required by the Code shall be maintained. If street trees or other plant materials do not survive or are removed, materials shall be replaced in kind.**

c. **Significant plant and tree specimens should be preserved to the greatest extent practicable and integrated into the design of a development. Trees of 8-in. or greater diameter measured at a height of 4 ft above grade and shrubs (excluding blackberries, poison oak, and similar noxious vegetation) over 3 ft in height are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved only if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5 ft outside the tree's dripline. In addition, the tree shall be protected from damage during construction by a construction fence located 5 ft outside the dripline.**

Section 4.2.30 - REQUIRED TREE PLANTINGS

Tree plantings in accordance with the following standards are required for all parking lots for 4 or more cars, public street frontages, and along private drives more than 150 ft long. Trees shall be planted outside the street right-of-way except where there is a designated planting strip or City adopted street tree plan.

Selection of species may be made from the list in Section 4.2.60. Alternate selections must be approved by the Director following written request. Frequency of trees in planting shall be determined by the type of tree used. Trees in parking areas shall be dispersed throughout the lot to provide a canopy for shade and visual relief. (See recommended tree list for examples in each category):

Street Trees
Medium canopy trees-Maximum 30 ft on center spacing.
Large canopy trees-Maximum 50 ft on center spacing.

Section 4.2.40 - BUFFER PLANTINGS

Buffer plantings are used to reduce building scale, provide transition between contrasting architectural styles, and generally mitigate incompatible or undesirable views. They are used to soften rather than block viewing. Where required, a mix of plant materials shall be used to achieve the desired buffering effect.

The submitted landscaping plans note the species and spacing of all street trees proposed to be installed within planter strips along streets constructed with this project. As noted above, and conditioned, the spacing between trees is consistent with Section 4.2.30. The applicant should confirm that the species selected for the final landscaping plans are either consistent with the list provided in Section 4.2.60 of the LDC, or approved by the City Arborist (**Condition 14**).

Consistent with Section 4.2.20, the applicant should submit a final landscaping and irrigation plan for the proposed project to the City for review and approval, prior to approval of the final plat for the subdivision, or phases thereof. Automated irrigation systems should be installed in all planter strips shown along public streets, and within common tracts that are proposed to contain formal landscaping. The landscaping plans should show relevant locations of trees proposed to be preserved on **Attachment I-66**, and include the protection area for each tree, as determined to be appropriate by a certified arborist (see the Natural Features Section of Part I of this staff report for addition discussion of this topic). All landscaping should be installed or financially secured prior to approval of the final plat(s). Once installation of the landscaping is approved for the project by the City, the applicant should provide the City with a bond to ensure that all landscaping is maintained in a manner that achieves the minimum 90 percent coverage standard within a period of three years (**Condition 14**).

As discussed above, landscaping has been proposed within areas of the site that are intended to function as buffers. The submitted landscaping plan, as conditioned, is consistent with Section 4.2.40. No additional buffering measures are necessary.

4. Noise Attenuation, Noxious Odors, Lighting, and Signage

Applicable Comprehensive Plan Policies

7.2.6 **The City will encourage new development to be sensitive to the environment by having the development avoid significant negative impacts on:**

B. Noise or light pollution; and

9.3.7 **To the maximum extent possible in residential areas, glare from outdoor lighting shall be shielded and noise shall be limited.**

Applicable Land Development Code Sections

Section 4.7.90 - ALLOCATION PROVISIONS AND SIGN STANDARDS BY DISTRICT

The following provisions and design standards, organized by district designation, specify how a property's total sign allocation may be utilized. Unless specified elsewhere in these regulations, total sign allocation shall be determined by multiplying length of the property's primary frontage by the primary frontage multiple, which varies from district to district.

4.7.90.01 - Sign Standards for All Residential Districts

Sign Type	Primary Frontage Multiple	Maximum Sign Area	Maximum Sign Height	Maximum Sign Projection	Setback
Attached	1/10 sq. ft	5 sq. ft	16 ft	6 in.	
Temporary	1/10 sq. ft	5 sq. ft	4 ft		

Special Instructions:

a. **Attached signs shall not extend above eaves.**

b. **Unless specified below, signs shall be limited to one frontage.**

c. **Where a primary frontage exceeds 100 ft:**

1. **Permanent free-standing signs are allowed (minimum setback is 5 ft);**
2. **Maximum height for temporary and free-standing signs is 6 ft;**
3. **Maximum sign area is 16 sq. ft;**
4. **Illuminated signs are permitted.**

4.7.90.09 - Signs in Planned Developments

A sign plan shall be required for all Planned Developments (See Chapter 2.5). The plan shall establish the location and allocation guidelines for signs in a way that ensures all parties in the development have an equitable opportunity to communicate through signs without creating undue

negative effects on surrounding properties. The sign plan shall be reviewed by the following procedures:

a. The plan shall be reviewed by the Planning Commission concurrently with Detailed Development Plan review.

b. Before approving the sign plan, the Commission shall find that the signs in the proposed sign plan comply with these regulations and are compatible with the type of development (existing and future) surrounding the Planned Development. Whereas other development standards in Planned Developments may be varied, standards for signs in Planned Developments shall not benefit the development to a greater degree than is otherwise permitted by the provisions of these regulations.

c. An approved sign permit for each sign in a Planned Development shall be obtained prior to construction or installation. A proposed sign shall comply with these regulations and any additional guidelines or conditions specified in the approved sign plan before a permit may be issued for the sign.

d. Modifications of a Planned Development Sign Plan shall follow the provisions for a Major Planned Development Modification (Chapter 2.5).

Section 4.7.110 - VARIANCE TO STANDARDS

There may be rare instances where a combination of strict application of the standards in this chapter and/or public safety concerns may preclude use of signs as a communication medium for a primary frontage. In these cases it may be appropriate to vary a particular standard to enable a property owner to utilize signage in a manner similar to others in the district.

c. A variance request shall not be granted for any of the following:
- Size of a proposed sign;
- Limitations on visibility resulting from required landscaping;
- Location of buildings or other structures;
- Lack of exposure on a primary sign frontage;
- Convenience or economic hardship to the applicant;
- Inclusion of signs otherwise prohibited by these regulations.

d. To approve a sign variance request, the Land Development Hearings Board must find that the application meets all of the following criteria:

1. The type of the proposed sign is not of a type prohibited by these regulations.

2. The variance is the minimum remedy necessary to eliminate the hardship.

3. The variance does not substantially subvert the basic regulating formula relating the amount of sign area to the amount of sign frontage.

4. No other alternative solution that complies with these regulations is available to the applicant.

No impacts related to noise, noxious odors, or lighting are anticipated through the proposed development plan. The applicant notes that noise generated by the new residential

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neighborhood would be typical of that in surrounding areas. However, temporary noise impacts related to construction of the development would occur as each phase of the project is built. Similarly, long term emissions of noxious odors would not be generated by the project, other than those customarily associated with residential activities. Nighttime lighting sources anticipated within the new neighborhood are also noted as common for this type of development. New lights would be installed along all improved streets, per City standards. There is also the potential for each homeowner to have exterior lighting fixtures installed on and around their respective house. In general, none of these sources is anticipated to generate lighting impacts different from those generally associated with residential development. It is also anticipated that the proposed monument sign (discussed below) would be illuminated at night. Consistent with Policy 9.3.7, the applicant should only install full cut-off, shielded fixtures, except as allowed by City engineering standards for public streets (**Condition 15**).

Consistent with LDC Section 4.7.90.09, the applicant has submitted a signage plan for the proposed development (**Attachment I-91**). The proposed monument sign would be constructed at the northwest corner of the intersection at Circle Boulevard and Harrison Boulevard (**Attachment I-86**). This feature would be composed of masonry walls and ornamental landscaping.

While the footprint of this structure would be approximately 41 feet long and 16 feet deep, the actual signage area would depend upon the portion of this structure that contains lettering. Based on the definition of "Sign Area" in Chapter 1.6 of the LDC, the area of a sign is determined by the "rectilinear perimeter that encloses the extreme limits of a sign." A "sign" is defined as a "device or medium...[that] visually communicates, identifies, advertises, informs, announces, or attracts attention to the subject thereof." Based on the current LDC standards for residential districts, the maximum area for freestanding signs is 16 square feet, when the primary street frontage exceeds 100 feet. The proposed location for the monument sign satisfies this requirement. However, the applicant has requested to increase the allowed area to 20 square feet to allow flexibility in finalizing a name for the subdivision (see example on **Attachment I-91**).

Sections 4.7.90.09 and 4.7.110 provide guidance when considering signage for planned developments and reviewing a request to vary from specific standards. Section 4.7.90.09(b) notes that signage plans proposed for planned developments "shall not benefit the development to a greater degree than is otherwise permitted by the provisions of [Chapter 4.7] regulations." Further, Section 4.7.110(c) notes that a variance to sign standards shall not be granted based on desired convenience or perceived economic hardship, while Section 4.7.110(d) requires that a requested variance must be the minimum necessary to remedy a hardship. Based on the information provided by the applicant, the perceived hardship amounts to not knowing what the final name for the subdivision will be, and upon final determination, that 16 square feet would be an insufficient area to display the name. While facts of this situation are not unusual to the subdivision process, it cannot be concluded that this complication amounts to a hardship, but is rather an inconvenience. Therefore, the

applicant's request to vary from the sign standards for the RS-6 District should not be supported (**Condition 16**).

Conclusion on Noise Attenuation, Noxious Odors, Lighting, and Signage

Given the findings presented above, and as conditioned, the proposed Conceptual and Detailed Development Plan is consistent with applicable Comprehensive Plan Policies and LDC criteria.

5. Traffic and Effects on Off-Site Parking

Applicable Comprehensive Plan Policies

11.2.1 The transportation system shall be planned and developed in a manner which contributes to community livability, recognizes and respects the characteristics of natural features, and minimizes the negative effects on abutting land uses.

11.2.2 The transportation system shall be managed to reduce existing traffic congestion and facilitate the safe, efficient movement of people and commodities within the community.

11.4.3 All traffic generators shall provide adequate parking.

Applicable Land Development Code Sections

Section 4.1.30 - OFF-STREET PARKING REQUIREMENTS

Minimum parking requirements for use types in all areas of the City, with the exception of the CB (Central Business) District, are described in Sections 4.1.30.a through 4.1.30.f. Minimum parking requirements for the CB District are described in Section 4.1.30.g.

a. Residential Uses Per Building Type:

1. Single Detached and Single Attached (Zero Lot Line), and Manufactured Homes:
Vehicles: 2 spaces per dwelling unit
Bicycles: None required

2. Duplex, Attached, and Multi-Dwelling:
Vehicles:

Studio or Efficiency Unit	-	1 space per unit
1 Bedroom Unit	-	1 space per unit
2 Bedroom Unit	-	1.5 spaces per unit
3 Bedroom Unit	-	2.5 spaces per unit

Bicycles:

Studio or Efficiency Unit	-	1 space per unit
1 Bedroom Unit	-	1 space per unit
2 Bedroom Unit	-	1.5 spaces per unit
3 Bedroom Unit	-	2 spaces per unit

The required bicycle parking may be located within a structure, in accordance with the provisions of Section 4.1.70.

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As part of the proposed Conceptual and Detailed Development Plan, the existing public street network would be expanded in this area of Corvallis. The applicant has included several new Local Streets, as well as the extension of Circle Boulevard to the south, and improvements to the existing portion of Harrison Boulevard that fronts the site. All new vehicular, pedestrian, and bicycle traffic related to the proposed development would be managed by this infrastructure. Please refer to the Circulation Section of Part I of this staff report for additional discussion of the potential traffic issues associated with the subject proposal. Findings from that section are incorporated here by reference as findings under the above criterion.

The applicant has addressed the parking requirements for the subject proposal (**Attachment I-41**). While it is assumed that most of the 221 proposed lots would be constructed with detached dwellings, Lots 157 through 171 and 212 through 219 are intended for single attached units. Section 4.1.30(a) of the LDC notes that each detached dwelling shall provide two off-street vehicle parking spaces. However, the vehicle parking required for attached units depends on the number of bedrooms each units contains. The applicant has not indicated how many bedrooms the proposed attached dwellings would have, but has noted that all proposed dwellings would be constructed with two off-street vehicle parking spaces. Therefore, even in the event that some attached units had three bedrooms, a sufficient number of vehicle parking spaces would be available. As is customary for detached and single attached dwellings, it is assumed that demand for bicycle parking would be satisfied by area inside the garage of each unit. Given these features, no additional off-street parking is required for the proposal.

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Conclusion on Traffic and Effects on Off-Site Parking

Given the findings presented above, and as conditioned, the proposed Conceptual and Detailed Development Plan is consistent with applicable Comprehensive Plan Policies and LDC criteria.

6. Effects on Air and Water Quality

Applicable Comprehensive Plan Policies

4.6.2 Development on hillsides shall not endanger life and property nor land and aquatic resources determined to be environmentally significant.

4.10.7 To minimize the negative impacts of development, stormwater runoff after development should be managed to produce no significant reduction of water quality than prior to development unless more appropriate provisions are identified in adopted comprehensive storm water management plans.

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

7.2.6 The City will encourage new development to be sensitive to the environment by having the development avoid significant negative impacts on:

A. **Air and water quality;**

Approval of the requested Conceptual and Detailed Development Plan is not anticipated to create significant impacts to regional air quality. No new point sources of air pollution are included with the proposal. However, non-point source air pollution, such as auto emissions, would likely result from additional vehicle trips generated by individuals traveling to and from the site. It is difficult to manage non-point sources on a site-by-site basis. Instead, the Department of Environmental Quality (DEQ) monitors airsheds. When significant air quality impacts are documented within an airshed, area-wide air quality programs are established. The DEQ has indicated that Corvallis's airshed is currently in attainment (i.e., in compliance) with all Federal and State air quality regulations. It is concluded that the subject proposal will not create significant cumulative impacts to airshed air quality.

In general, two broad categories of water quality issues are associated with any urban development: impacts related to sanitary systems and impacts related to stormwater run-off. While not necessarily an impact, there is also the need to provide potable water to the new dwellings. The proposed development would include the expansion of the existing sanitary and stormwater drainage systems, as well as the extension of drinking water services into the site (**Attachment I-78**). Given that both the drinking water and sanitary systems are designed as closed systems (i.e., not intended for untreated external release), potential impacts to water quality resulting from the proposed Conceptual and Detailed Development Plan are primarily related to stormwater run-off. Such impacts include, but may not be limited to: increases in surface water run-off; introduction of water-borne pollutants related to landscaping maintenance, operation of motor vehicles, and soil erosion; alterations to surface water drainage patterns and/or volume resulting in changes to seasonal average water body temperatures; and, specific to the subject site, alterations to surface water drainage patterns and/or volume resulting in changes to existing soil moisture patterns necessary to sustain wetlands. To address these potential impacts, the applicant has submitted a detailed stormwater management report (**Attachment I-150** through **I-185**).

Consistent with Comprehensive Plan Policies 4.6.2, 4.10.7, 4.11.12, and 7.2.6(A), the report discusses how surface water run-off would be managed consistent with the City of Corvallis Stormwater Management Plan to: (1) treat polluted surface water run-off before it is released into the public drainage system and downstream waters; (2) control the volume of surface water that is discharged from the site, and do so in a manner that matches the pre-development discharge rates for specific precipitation events; and (3) ensure that the drainage pattern and volume of water flowing from the uplands on the site are not altered as a result of development to the extent that the remaining wetlands are in danger of declining. Further discussion of the applicant's stormwater management plan is provided in the Natural Features Section and the Public Facilities Section of Part I of this staff report. The conclusion reached from these discussions is that, as conditioned, the proposed method for addressing water quality impacts is consistent with the applicable Comprehensive Plan Policies and LDC criteria. Relevant findings from these Sections are incorporated here by reference as findings under the above criteria.

Conclusions on Effects on Air and Water Quality

Given the findings presented above, and as conditioned, the proposed Conceptual and Detailed Development Plan is consistent with applicable Comprehensive Plan Policies and LDC criteria.

Overall Conclusions on Compatibility

In terms of compatibility, the proposed Conceptual and Detailed Development plan presents potential impacts related to hillside development, development density, open space, buffering, visual compatibility, and water quality. The above analysis has reviewed the applicant's proposed methods for addressing these compatibility issues, and where appropriate, recommended conditions of approval that are intended to resolve deficiencies in the application. Pending implementation of these conditions, the subject proposal is determined to be consistent with the applicable Comprehensive Plan Policies and relevant LDC criteria cited above.

C. NATURAL FEATURES

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The following discussion provides an overview of the natural features located on the subject site, and analyzes how the proposed Conceptual and Detailed Development Plan could impact these attributes. To facilitate the discussion, the applicable criteria from the Comprehensive Plan and LDC are reviewed in the three following categories:

1. Significant Vegetation
2. Hillsides and Grading
3. Wetland and Riparian Areas

1. Significant Vegetation

Applicable Comprehensive Plan Policies

3.2.1 The desired land use pattern within the Corvallis Urban Growth Boundary will emphasize:

A. Preservation of significant open space and natural features;

4.2.2 Natural features and areas determined to be significant shall be preserved, or have their losses mitigated, and/or reclaimed. The City may use conditions placed upon development of such lands, private nonprofit efforts, and City, State, and Federal government programs to achieve this objective.

4.6.5 On tree-covered hillsides, development shall be designed to preserve as many trees as possible and tree removal shall be consistent with the approved development plan.

4.6.6 On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If

a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe and practicable, the development may proceed, provided the following provisions are met: 1) the loss of trees is further minimized by development techniques such as clustering; and 2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

C. Preserve significant natural features such as tree groves, woodlands, the tree-meadow interface, and specimen trees.

H. Provide landscaping that enhances the identified open space resources.

I. Design developments that consider landscaping management that will minimize the threat of fire on improved property spreading to wildland habitat.

4.6.9 Where development of hillsides occurs, removal of vegetation will be minimized to control erosion. Vegetation disturbed during development shall be replaced or enhanced through landscaping.

4.6.16 Witham Hill:

Development proposals on Witham Hill that include areas of visual contrast between forest and grassland habitat shall consider protection of the grassland open space that abuts the forested area. Where feasible, building mass and other land development will be sited and designed within areas of trees to retain visual contrast between grassland and the vegetated/developed areas.

5.3.1 To increase the aesthetic qualities of the community and enjoy the engineering and ecological benefits of trees, the City shall require developers to plant appropriate numbers and varieties of trees with all new development. Such standards shall be maintained in the Land Development Code.

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Applicable Land Development Code Sections

Section 4.2.20 - GENERAL PROVISIONS

c. Significant plant and tree specimens should be preserved to the greatest extent practicable and integrated into the design of a development. Trees of 8-in. or greater diameter measured at a height of 4 ft above grade and shrubs (excluding blackberries, poison oak, and similar noxious vegetation) over 3 ft in height are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved only if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5 ft outside the tree's dripline. In addition, the tree shall be protected from damage during construction by a construction fence located 5 ft outside the dripline.

A detailed discussion of the significant trees currently found on the site is provided above in the Compatibility Section. Based on Comprehensive Plan Policies 4.6.5, 4.6.6, and 5.3.1, the conclusion reached from that review is that the proposed project would eventually re-establish a tree-covered hillside appearance. However, in terms of significant vegetation, there are also large areas on the middle and lower slopes of the site that are dominated by a mixture of grasses, shrubs and small trees, as noted in the applicant's habitat enhancement plan (**Attachment I-269** through **I-278**). While, most of this vegetation has been classified as non-native or invasive species, its presence deters soil erosion, improves water quality, and provides habitat for various animals commonly found in urban and rural settings of the Willamette Valley. With the exception of Tract 'C', a majority of the area containing these plant communities would be removed as a result of development.

As designed, the gross density for the project is approximately 3.8 units per acre, which is roughly the median allowed in the RS-6 District. It is possible that if the project were proposed at the minimum density required in the RS-6 District, which is two units per acre, the resultant area of disturbance could be less than what is mandated by the subject proposal. However, in response to Comprehensive Policies 4.2.2 and 4.6.16, it is reasonable to conclude that the determination of which of the existing significant natural features merit preservation was finalized at the time boundaries were created for the PD(RS-6) and PD(AG-OS) portions of the site. From that perspective, the Conceptual and Detailed Development Plan is consistent with Policies 3.2.1, 4.6.5, 4.6.6, 4.6.7, 4.6.9, 4.6.16, and 5.3.1 for the following reasons.

As discussed above in the Compatibility Section, the applicant has designed the site to preserve significant vegetation and retain open space to the greatest extent practicable. Where losses are unavoidable, new trees and other landscaping planted within common tracts and along new public streets would perform similar ecosystem services previously fulfilled by the existing vegetation. Tracts 'B', 'C', 'E', 'F', and 'K' would include landscaping that enhances the existing native vegetation contained in Tracts 'A' and 'M', and the undisturbed portion of Tract 'K', as well as the open spaces north and west of the site. In total, this new vegetation is anticipated to achieve the goals of minimizing erosion on graded slopes, providing shade to the new dwellings and drainage areas, and comparatively reducing the fire risk associated with unmanaged grasslands.

Attachment I-66 provides a survey of the existing significant trees located on the site. Section 4.2.20(c) defines a tree as significant if its trunk is at least 8 inches in diameter, four feet above the adjacent grade. While the majority of trees determined to be significant on the site are Oregon White Oak, varieties of maple, cherry, fir, and ash are also identified. A total of 342 of these trees are proposed to be removed due to grading impacts. An additional 25 trees have the potential to be preserved, but, due to potential grading impacts within their respective critical root zones, may also be removed. A final determination of the potential to preserve these trees should be presented by a certified arborist through a report that analyzes the entire development site. Special consideration should be made for a phased grading approach, and the flexibility requested by the applicant to conduct limited grading activities beyond each phase of the project. The report should be submitted to the City for review and approval prior to issuance of any grading permits. While certain trees may necessitate protection of a larger

critical root zone due to their species or established canopy, in no case should the required protection area be less than stipulated in Section 4.2.20(c). All plans submitted for issuance of permits related to site grading, construction of public improvements, installation of landscaping, or construction of individual dwelling units should depict the location and requisite protection zone of each effected tree. Construction techniques should be consistent with the arborist's recommendations (**Condition 17**).

Conclusions on Significant Vegetation

The applicant has addressed the protection and preservation of existing significant vegetation consistent with the Comprehensive Plan Policies and LDC criteria cited above. Open space areas created through the proposed Conceptual and Detailed Development Plan, such as Tracts 'A', 'C', and 'K', would preserve existing significant Oregon While Oaks. Impacts to existing significant vegetation are proposed to be mitigated by the installation of new landscaping within common tracts and along new local streets. It is anticipated that area outside of the eventual building footprint for each lot would also be landscaped to further supplement the overall vegetative cover for the site. While the total area would be less than the currently undisturbed PD(RS-6) portion of the site, in sum, these spaces represent a balanced approach to limiting impacts to significant vegetation to the greatest extent practicable, while achieving development at the average density for the RS-6 District.

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2. Hillsides and Grading

Applicable Comprehensive Plan Policies

4.2.2 Natural features and areas determined to be significant shall be preserved, or have their losses mitigated, and/or reclaimed. The City may use conditions placed upon development of such lands, private nonprofit efforts, and City, State, and Federal government programs to achieve this objective.

4.6.5 On tree-covered hillsides, development shall be designed to preserve as many trees as possible and tree removal shall be consistent with the approved development plan.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

A. Plan development to fit the topography, soil, geology, and hydrology of hillsides and to ensure hillside stability both during and after development.

D. Align the built surface infrastructure, such as roads and waterways, with the natural contours of terrain and minimize cutting and filling in developments.

F. Design developments and utilize construction techniques that minimize erosion and surface water runoff.

G. Demonstrate a concern for the view of the hills as well as the view from the hills.

4.7.3 Prior to development, the City of Corvallis may require site-specific soil surveys and geologic studies where potential hazards are identified based upon available geologic and soils evidence. When natural hazards are identified, the City shall require that special design considerations and construction measures be taken to offset the soil and geologic constraints present in order to protect life and property, and to protect environmentally hazardous areas.

4.10.8 Grading and filling in drainageways shall be regulated to prevent negative impact on the channel, floodway and flood plain, riparian habitat, wetlands, and other properties. Where drainageways are disturbed through development, the developer shall return the drainageway to its natural state, to the extent practicable.

4.10.16 Where stream shading is not adequate, development shall include planting of trees and/or other vegetation to provide adequate shading. (SS-7)

4.10.20 The City shall promote the protection and enhancement of stream channel structure for deeper pool habitat that provides cooler water refuge areas at times of low stream flows. (QL-14)

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

Topography for the site is generally defined by the south-facing slope of Witham Hill and the west-facing slope of an adjacent ridgeline that extends along the eastern boundary of the property. The toe of these two slopes meet at a creek that drains south/southwest across the site. While surface run-off and subsurface water from these slopes feed the creek, the large wetland area in the southern portion of the site is also sustained by this hydrologic relationship. Water from these wetlands flows through culverts under Harrison Boulevard, and after draining lands owned by Oregon State University on the south side of Harrison Boulevard, the creek eventually connects with Oak Creek.

The applicant has submitted a detailed grading and utility plan for the site (**Attachments I-78** and **I-79**). Supplemental to these plans are: a slope analysis (**Attachment I-67**); a cut and fill analysis (**Attachment I-80**); two grading cross-sections (**Attachments I-84** and **I-85**); and vertical profiles for each of the new local streets, Circle Boulevard, and the improved portion of Harrison Boulevard (**Attachment I-81, I-82,** and **I-76**).

As shown on the slope analysis, a majority of the PD(RS-6) portion of the site contains gradients of 15 percent or less. However, the grades for isolated facets of these slopes are in excess of 16 percent, particularly in the northern and eastern portions of the site along the PD(RS-6) boundary. A comparison of the submitted slope analysis with the cut and fill analysis indicates that portions of the site with grades between 16 and 20 percent coincide with most instances where either cuts or fills in excess of eight feet are proposed. This aspect of the development proposal is relevant in terms of addressing consistency with previously established precedent that Comprehensive Plan Policy 4.6.7(A) is satisfied when individual cuts or fills are limited to eight feet in any one location. However, in limited situations, the presence of mitigating circumstances, such as steep slopes, has been the basis for allowing

cuts and fills to be greater than eight feet. As proposed, 2.2 percent of the site would contain cuts and/or fills in excess of eight feet (**Attachment I-80**).

It should be noted that the description of the proposed grading plan that is provided in the submitted project narrative is not consistent with the various grading exhibits. This is due to revisions that were made to the grading plans after the project narrative was submitted. In this instance, the submitted plan reflect the current proposal. The revised plans show: (1) the depth of fill needed to construct Circle Boulevard generally being less than six feet deep instead of more than eight feet deep; (2) the largest cut proposed on the site is 12.5 feet and would occur toward the rear of Lots 11 and 12, while the greatest amount of fill would be 10.7 feet and be placed toward the rear of Lots 61 and 62; (3) grading necessary for creation of a building pad on Lots 14 through 19 being positioned in the middle of the lot instead of at the rear; and (4) slight increases to the approach grades for Street 'A' and Street 'B' at their intersection with Circle Boulevard, but remain within the maximum grades allowed by the Corvallis Transportation Master Plan.

The grading plan for the site is influenced by the proposed vertical alignment for the extension of Circle Boulevard. The grade at which this Collector Street is constructed partially establishes the corresponding elevation and grades of the intersecting Local Streets, which determines the elevation of lots that are accessed from these streets. Thus, when the grade for Circle Boulevard is closer to the existing topography, the intersecting local streets must be steeper at some point along their length in order to gain the elevation necessary to avoid deep cuts into the hillsides when grading the building pad for each lot. However, the potential flexibility to transition the difference in elevation between Circle Boulevard and the various proposed lots increases as the distance between these points increases. The applicant has attempted to balance these variables with the additional factors of achieving a certain development density, providing a mixture of housing types, considering the visual impact of development on the hillsides, maintaining a certain amount of common open space, and protecting identified significant natural features (**Attachment I-35**). Each of these factors is discussed further below for the portions of the site that would contain either cuts or fills greater than eight feet.

a. *Grading Impacts Related to Cuts and Fills Greater Than Eight Feet*

As noted above, most of the areas of the site that contain cuts or fills in excess of eight feet also contain slopes between 16 and 20 percent. Additionally, there is also a relationship between uphill lots requiring a cut in excess of eight feet and a corresponding fill on the immediate downhill lots that would be greater than eight feet. For example, a portion of the cut necessary to establish the building pad for Lots 11, 12, 16, 17, and 18 results in a corresponding fill of greater than eight feet on Lots 203 and 204. The same relationship exists between the cut necessary for Lots 27, 28, and 29 and the fill that would occur at the rear of Lots 59 through 63. In both locations, the elevation at front of the uphill lots would be carried across Street 'D' into at least a portion of the opposing downhill lots. Although a downhill fill is not necessary due to the natural contours, Lots 23, 24, 32, 33, and 208 would also experience cuts of greater than eight feet to account for the existing slope at the back of these lots.

Two different approaches have been proposed by the applicant to make the uphill cuts in these locations. For Lots 11, 12, 23, 24, 27, 28, and 29, the cut has been pushed to the back of the lot, which places the entire building pad at a lower elevation than the approach used for Lots 16, 17, 18, 32, and 33. For those lots, the grade break would be positioned near the middle of each lot, resulting in the construction of split-level dwellings. (It should be noted that Lots 14, 15, 19, 31, and 34 would also have a grade break midway through each lot.) Thus, there would be a potential for the roof line of dwellings constructed on lots using the latter grading approach to be comparatively higher than the houses constructed on Lots 11, 12, 23, 24, 27, 28, and 29 when measuring from the adjacent grade at the rear of each lot. In terms of visual compatibility, the dwellings constructed on Lots 11, 12, 23, 24, 27, 28, 29, and 208 would be "tucked" into the overall contour of the hillside and therefore have a greater potential of preserving the views to and from the respective hills, consistent with Comprehensive Plan Policy 4.6.7, Parts (A) and (G). Additionally, the entire ground floor of these dwellings would be at the same elevation, thereby potentially satisfying the housing needs of a broader cross-section of the community.

The drawback of grading Lots 11, 12, 23, 24, 27, 28, 29, and 208 in this manner is that alterations to the natural grade are brought closer to the abutting open space tracts and significant vegetation. As shown on the applicant's tree survey (**Attachment I-66**), the cluster of trees shown at the rear of Lots 10 and 11 is noted as "potentially preserved" due to possible grading impacts within the protection zone for these trees. As viewed from upslope of the developed portion of the site, a more abrupt edge is created between adjacent open space areas and the developed portion of the site when topography is reshaped this way. In comparison, the grading proposed for Lots 14 through 19 and Lots 31 through 34 retains more of the existing natural grade between the building pad for each lot and the open space to the north and west. Despite notations to the contrary on the submitted tree survey, all of the significant trees shown behind Lots 14 through 19 and Lots 31 through 34 would be preserved as a result of grading in this manner.

Given the concessions associated with each of the two grading approaches discussed above, two foreseeable impacts should be addressed by the subject proposal. First, in order to diminish the visual impacts of dwellings constructed on Lots 14 through 19 and Lots 31 through 34, the maximum building height should be determined from the lowest finished grade that is within five feet of the building footprint (**Condition 18**). This approach is consistent with the definition of "Building Height" contained in Chapter 1.6 of the LDC, as provided below.

> **Height of Buildings - Vertical distance above a reference datum measured to the highest point of <u>any non-gabled roof,</u> or to the average height of the highest gable of a pitched or hipped roof. The height of a stepped or terraced building is the maximum height of any segment of the building. The reference datum shall be selected by either of the following, whichever yields a greater height of building:**
>
> **a. Elevation of the highest adjoining sidewalk or ground surface within a 5-ft. horizontal distance of the exterior wall of the building when such sidewalk or ground surface is not more than 10 ft. above lowest grade.**

b. **Elevation 10 ft. higher than the lowest grade when the sidewalk or ground surface described in "a" is more than 10 ft. above lowest grade.**

As noted in the definition, the two methods used for determining building height are applied in different situations. If method "b" was applied to Lots 14 through 19 and Lots 31 through 34, the front of each dwelling could be 10 feet taller than the height at the rear of the dwelling, and be 10 feet taller overall. This additional height allowance would result in the front building elevation being up to 40 feet tall, which is anticipated to cause unnecessary visual impacts on the viewshed around the south slope of Witham Hill. Although limiting building height in the manner recommended may appear to make it impossible to construct a two-story split-level dwelling on the effected lots, a review of the resultant grades contained on Lots 17 and 31, which would have the greatest amount of cross-lot grade change of any of the similarly graded lots, confirms that the height of a dwelling on either of these lots could be at least 13 feet at the rear yard setback line. Given that this measurement would be taken at the average height of the highest gable of a pitched or hipped roof, sufficient flexibility would be retained for constructing a dwelling on these lots with the architectural standards proposed by the applicant (i.e., 18-inch eave overhang, with roof pitches of between 8:12 and 10:12). However, because the architectural design of these dwellings has not been completed at this time, it is reasonable to allow the applicant flexibility from the minimum roof pitch proposed in order to account for the recommended building height standard (**Condition 18**).

The second necessary modification that should be made to the grading plan is a prohibition on grading impacts that extend into either the PD(AG-OS) portion of the site or that encroach into the critical root zone of significant trees located within Tract 'A' (**Condition 19**). This limitation would likely influence the grading on Lots 10 through 13 and Lots 23 through 30 more than the remaining proposed lots. However, when the depth of each of these lots is considered along with the recommended maximum coverage amount, the area of each of these lots provides an adequate degree of flexibility to make adjustments to the grading plan in accordance with this recommended modification.

Placing these two Conditions of Approval on the proposed Conceptual and Detailed Development Plan is consistent with Policies 4.2.2, 4.6.5, and 4.6.7. Limiting building heights and grading impacts through these recommended methods would: (1) preserve the views from, and of, the significant natural area on Witham Hill; (2) protect a greater amount of significant vegetation, which in turn would enhance the tree-covered hillside appearance and reduce potential for soil erosion; and (3) result in a grading plan that deviates less from the existing topography.

In addition to the locations discussed above, the other large portion of the site that would experience grading cuts of more than eight feet is the area proposed for Lots 172 through 175. The existing topography in this location is characterized as the top of an isolated minor ridge that falls south toward the wetland area. This ridge tapers to the east to form the southeast facing slopes of Tract 'C', and to the west where it meets a loosely defined gully that currently delivers surface flow to the wetlands in the southern portion of the site. As with the rest of the site, the cuts in excess of eight feet in this location are the result of the proposed grade of the

abutting street. Street 'C' would act as an east-west connection between Street 'B' and Street 'D', as well as being the north edge of blocks bounded by Streets 'G', 'H', and 'I'. Overall, the proposed vertical and horizontal alignment of Street 'C' would follow the existing topography, except where it abuts Lots 172 through 175. If it followed the existing grades more closely, the vertical alignment for Street 'C' would contain two additional grade transitions with slopes of approximately six to seven percent (**Attachment I-82**), and the building pad for Lots 172 through 175 would be at a correspondingly higher elevation. In terms of pedestrian, bicycle, and vehicle transportation, the increase in slope percent would still be within the range allowed for Local Streets by the Transportation Master Plan. However, the building pad elevation for Lots 172 through 175 would be approximately 10 feet higher than currently proposed, which, given the potential roof line height of dwellings located on lots to the south, would increase the visibility of dwellings constructed on Lots 172 through 175 from perspectives along the southern portion of the site. Thus, similar to the grading approach discussed for Lots 11, 12, 23, 24, 27, 28, and 29, the proposed grading plan would result in dwellings that are less visible from lower elevations adjacent to and within the site. Therefore, it is reasonable to allow the proposed variation in this location.

b. *Grading Impacts on Riparian and Wetland Areas*

The applicant has submitted an exhibit that shows locations on the site where existing riparian and wetland areas would be impacted by the proposed development (**Attachment I-68**). The majority of the impacted area is related to the of construction Circle Boulevard. However, proposed improvements to Harrison Boulevard would require the removal of some wetlands in the southern portion of the site as well. The remainder of the impacts are the result of grading activities related to proposed lots, Local Streets, or stormwater system facilities within the site. A complete analysis of the impacts to these areas and proposed mitigation is provided below in the Wetland and Riparian Areas Section of Part I of this staff report. The following discussion is limited to how the proposed grading plan would alter either the existing area and alignment of riparian corridors and wetland areas, or the surface drainage patterns that supply water to these natural features.

While the majority of the Locally Significant Wetlands associated with this property are located in the southern third of the site, they do extend north along the existing creek (**Attachment D-1**). Based on the natural topography of the site, surface water run-off from the approximate westerly two-thirds of the site that is west of the existing multiuse path, drains south and southeast across the site until it infiltrates the wetland area or the riparian corridor. Conversely, surface water from the eastern third of the site that is east of the multiuse path, drains west and southwest until it reaches the wetland and riparian areas in this portion of the property. The applicant has submitted an existing drainage basin map for the property and surrounding area (**Attachment I-161**). However, the boundaries that form some of these basins do not appear to correspond with the existing topography. For example, *Basin East 1* (B. East 1 – 1.3 acres) does not account for the fact that the slopes in this portion of the site continue to the east, and as shown, the basin is disconnected from the existing creek, which is not consistent with existing topography in this location. Similarly, it is unclear why the southern boundaries of *Basin Central* (B. Central – 31.2 acres) and *Basin West* (B. West – 28.4 acres)

are perpendicular to the direction of surface water flow pattern that is suggested by existing topography. Despite these discrepancies, if the basins were drawn to account for connections with the wetland and riparian areas, the general location of the north-south drainage boundaries for *Basin West* and *Basin Central* appear to be consistent with the existing topography. Therefore, the overall distribution of surface water flow seems to be accurate for these basins. The same could be said for the three eastern basins that are located east of Circle Boulevard if they were combined to form one basin.

To determine how the proposed grading plan would alter existing surface water flow distribution throughout the site, the applicant has submitted a water quality basin map (**Attachment I-163**). The site is divided into five different basins, each with a corresponding connection to one of several water quality facilities that would treat surface water run-off before it is released to either the riparian area or wetland (compare **Attachments I-78** and **I-163**). It should be noted that the total acreage for each of the post-development basins only accounts for the area within the PD(RS-6) portion of the site, while the map of the existing basins includes area that is within the PD(AG-OS) portion of the site and area that is off-site as well. Given these refinements, it appears that, post-development, the *Central Basin* and *West Basin* would drain a comparable amount of acreage, and in combination with the proposed storm water system, deliver surface water to the same general area of remaining riparian area or wetland. Two exceptions to this conclusion include the cross-slope inclusion of Lots 181 through 190, and the redistribution of surface flow in the area of Lots 1 through 10, Lots 165 through 171, and Lots 206 and 207 that would have drained east into the creek rather than flowing south. However, redistributing the surface flow in this manner is not anticipated to adversely impact the wetland area in the northern portion of the site because the wetland would be removed as a result of constructing Circle Boulevard. Please see below for discussion about impacts to the existing creek.

The grading and storm water utility system proposed for Lots 148 through 164 and Lots 208 through 221 would result in the creation of an isolated basin (*North Basin 1* and *North Basin 2*) that would drain to a water quality facility located in Tract 'G'. From there, the treated run-off would flow under Street 'A' through a culvert before continuing to sheet flow across the wetland area located south of Lots 155 and 156. Currently, surface water in the area of Lots 148 through 164 would flow east-southeast, while the area proposed for Lots 208 through 221 would drain west into the creek. Similar to the other existing wetlands within the northern portion of the site, the construction of Circle Boulevard would eliminate the need for continuation of the existing drainage patterns. It should be noted that, other than subsurface flow and seasonal water table rise along the creek, *North Basin 1* and *North Basin 2* would be the only source of surface water proposed to sustain the wetlands immediately south of Lots 155 and 156. However, based on conclusions reached by the applicant's submitted storm water management plan, the post-development surface water elevation within this portion of the wetland would be sufficient to sustain it (see below for further discussion).

The fifth basin (*East Basin*) would essentially include area occupied by Circle Boulevard. This 3.6-acre basin would direct run-off collected within the street south to a proposed water quality swale that would be located on the west side of the street and approximately 400 feet north of

the intersection at Harrison Boulevard. As shown on **Attachment I-69**, the existing ROW for Circle Boulevard would be re-aligned to the east, beginning just south of the proposed intersection with Street 'A'. Although the applicant has not discussed how surface water from the ridge east of the site would effect Street 'A' and Lots 208 and 221, it is presumed that flows would not be redirected from their current westerly drainage pattern. Without being redirected, surface water would flow downslope across these lots and into Street 'A'. The western edge of Street 'A' would not include a sidewalk in order to decrease the amount of grading required for construction of this street. Therefore, no concern would exist regarding sheet flow undercutting the sidewalk or carrying debris onto it. Given the landscaping treatment recommended above through **Condition 11**, sufficient groundcover would be established to address slope erosion issues. As with the remainder of the site, in order to address potential slope stability issues on Lots 208 and 221 resulting from the proposed grading plan, the applicant should submit a geotechnical analysis for the entire site (**Condition 13**).

South of Lot 221, surface water would continue to flow west until it intersected Circle Boulevard. The existing ROW alignment for Circle Boulevard would allow surface water to continue to flow west from the ridge into the riparian and wetland area that is east of the existing multiuse path. While shifting the ROW to the east would disrupt this flow pattern, the amount of wetland area impacted by constructing Circle Boulevard within the existing alignment would be considerably greater than the proposed alignment (**Attachment I-26**). To allow continuation of the existing sheet flow pattern from the west facing slopes of the ridge to the wetlands, the applicant has proposed to install three culverts underneath Circle Boulevard (**Attachment I-78**). The culverts would collect water flowing along the eastern edge of the roadbed, and direct it into various portions of the wetland area. The applicant's storm water management plan indicates that these features would work in concert with other water quality and storage facilities to supply a sufficient amount of water to the wetland and riparian area.

Other alterations to existing surface drainage patterns resulting from the proposed grading plan include: (1) the realignment of the existing creek, beginning at the north property line to just south of the intersection at Street 'A' and Circle Boulevard; and (2) the introduction of surface water storage facilities in two isolated areas of upland at the southern end of the site. While the realignment of the creek would be necessary to construct Circle Boulevard within the proposed ROW, a comparable portion of the creek would have to be realigned if the street was built in the current ROW (**Attachment D-1**). Surface and subsurface water infiltrates the creek, and it also carries run-off that originates from slopes to the north. Realigning the creek should not adversely impact its ability to continue receiving water from these areas and convey it downslope. At present, this portion of the creek is moderately incised into silty loam soils, and is fairly linear, with few meanders or natural pool structures. Vegetation along the creek is typical of the mixture of native and non-native plants that predominate most of the middle and lower slopes of the site. Dense thickets of large shrubs shade portions of the creek until it reaches the lower portion of the site. To realign this section of the creek, the applicant would also have to demonstrate consistency with standards currently contained in Chapter 4.5 of the LDC, as well as applicable state law, before receiving approval of necessary permits from DSL and the Oregon Department of Environmental Quality. Comprehensive Plan Policies 4.10.8,

4.10.16, and 4.10.20 note the importance of returning disturbed drainageways to their natural state through the development process, and that streams should incorporate structures and vegetation that allow cooler water temperatures during periods of seasonal low flow. To satisfy these goals, the applicant should: (1) incorporate a mixture of native plants into the landscaping scheme along the realigned portion of the creek that would provide shade; and (2) to the extent practicable, use natural materials to periodically place structures within the realigned creek that will create deep pool habitat. These structures should be designed to endure the flows expected to be caused by storm water run-off from 2-, 5-, and 10-year, 24-hour storm events (**Condition 20**). Further discussion of these and other relevant Policies is provided below in the Wetland and Riparian Area Section of Part I of this staff report.

The two water storage facilities proposed in the southern portion of the site would be connected by a relocated drainageway that currently extends along the northern edge of Harrison Boulevard. While the storage ponds would not impact wetlands, excavation of the new ditch would. As discussed in the applicant's project narrative, the purpose of these facilities is to regulate the release of excess flows to the downstream system (**Attachment I-46**). To achieve the volume needed to achieve release flows that match historic rates, the excavation in these areas would range from less than a foot to up to approximately 11 feet deep (northern extent of the western pond) (**Attachment I-80**). Although the southern portion of the site is relatively flat, the two locations proposed to contain the storage ponds are approximately two to three feet higher than the surrounding wetlands. This difference in elevation is sufficient enough to provide better growing conditions for woody vegetation that has established dense cover at both locations. While the removal of this vegetation is not anticipated to impact existing drainage patterns, it would decrease the potential habitat currently existing on the site. A foreseeable impact to existing drainage patterns that could result from excavating these ponds includes alteration to the subsurface hydrology within the wetlands, to an extent that these areas of comparatively lesser hydrostatic pressure would allow subsurface water to seep out of the wetlands and into the ponds at a faster rate than anticipated. However, based on results of the applicant's storm water management plan, the surface water elevations in the surrounding portions of the wetland are sufficient to sustain them.

Conclusions on Hillsides and Grading

The proposed grading plan has accounted for the existing natural features contained by the site. While portions of the site would contain cuts and fills in excess of eight feet, the overall grading plan reflects the existing topography. Those locations where cuts and fills would be greater than eight feet typically correspond with portions of the site that contain existing slopes between 16 and 20 percent, which limit the extent to which development can occur without drastic grade transitions. However, the applicant has incorporated a stepped grading approach at strategic locations in order to limit deep cuts and fills to the extent practicable. Conditions of approval have been recommended for locations of the site where cuts or fills in

excess of eight feet would potentially result in compatibility issues or impacts to natural features.

The discussion provided above analyzes how the proposed grading plan could effect existing drainage patterns. Where impacts might occur, conditions of approval are recommended as either mitigation or to provide benefits that compensate for requested design flexibility. While significant changes would be made to localized physical attributes of how surface and subsurface water would drain to the wetlands and riparian area, the applicant's submitted storm water management plan indicates that post-development surface water elevations would be sufficient to sustain the wetlands and riparian area. The Wetland and Riparian Areas Section below also addresses this issue.

As a result, the proposed grading plan is consistent with Comprehensive Plan Policies cited above.

3. Wetland and Riparian Areas

Applicable Comprehensive Plan Policies

4.10.2 Significant riparian lands within the Urban Growth Boundary shall be identified and inventoried by the City or through the development process, and the City shall work to preserve and enhance native stream corridor vegetation on both public and private lands. (QL-6)}

4.11.14 To resolve wetland issues as early as possible in the development application process on land with hydric soils, land with wetland vegetation, and/or land identified on a State or national wetland inventory, the City shall require a developer to submit, at the time of application, a wetland determination or delineation from a qualified consultant. This professional analysis shall be submitted concurrently to the City and to the Division of State Lands. The City shall request comment from the Division of State Lands on land development applications requiring a public hearing.

Consistent with Comprehensive Plan Policies 4.10.2 and 4.11.14, the applicant has submitted a recently-approved wetland delineation for the site (**Attachment I-190**). A complete copy of the subject application was provided to DSL for their review. As of the date of this staff report, City Staff have not received any written comments from DSL.

A comparison of the submitted wetland delineation with the City's current boundary for this Locally Significant Wetland indicates that the delineated boundary is slightly different (compare **Attachments I-191** and **D**). Regardless, the portion of the wetland area located in the southern half of the site generally remains inside of the PD(AG-OS) boundary (**Attachment I-70**). Outside of this area, the wetlands extend north along approximately two-thirds of the existing creek. Due to the topography and existing drainage patterns, the portion of the wetlands located above the PD(AG-OS) boundary is comparatively narrow.

The following discussion analyzes the proposed physical impacts to wetland and riparian areas on the site, as well the potential water quality impacts that could effect how the remaining wetland and riparian areas function. Relevant Comprehensive Plan Policies and Sections from the LDC are used as a framework for this discussion.

a. *Physical Impacts to Wetlands and Riparian Areas*

Applicable Comprehensive Plan Policies

4.9.1 Significant watercourses, lakes, and wetlands shall be preserved, or have their losses mitigated, in order to: maintain clean water, support natural vegetation, protect the aquatic habitat, retain existing significant public vistas, and provide wildlife habitat and recreation sites. Site-specific buffering and setback requirements may be required, as necessary, to achieve protection.

4.10.3 Significant drainageways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable.

4.10.9 Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainageways shall be minimized.

4.11.11 Regarding significant wetlands downstream of development sites, the cumulative unavoidable losses of significant wetland acreage and function attributable to upstream development should be mitigated by the City. Such mitigation can be achieved, in part, through dedication of open space, drainageways, and related natural infrastructure.

4.11.15 The City shall encourage wetland mitigation to occur in the same basin. (UP-7)

4.11.17 The City shall continue to maximize preservation and restoration of existing upland natural resource areas and wetlands by use of development standards in the Land Development Code (UP-12).

4.13.2 Development on land identified with significant plant communities, or significant fish and wildlife habitats, shall be planned to minimize the impact on the significant resources.

4.13.5 Development occurring in significant wildlife areas will set forth a plan of action to reduce impact to significant identified areas.

Applicable Land Development Code Sections

Section 4.5.80 - DRAINAGEWAY EASEMENTS AND DEDICATIONS

Development can have a number of impacts on the drainage system and its associated water quality. These potential impacts include, but are not limited to, increases in the amount of surface water runoff, decreases in the time for stormwater destined for drainageways to reach peak flow, increases in water temperature, and increases in the quantity and types of pollutants that may enter drainageways. To the greatest extent practicable, the drainageways within the City are intended to function as a wholistic natural system that includes both fish-bearing streams and other streams whose flow is recognized to have direct impacts on these fish-bearing streams. To ensure that unnecessary negative impacts to this system are minimized and to provide and

maintain adequate stormwater facilities, new development, expansion of existing development, or redevelopment proposed on land abutting or containing an open, natural drainageway, shall require granting of an easement, under the conditions described in "a" of this section, over lands suitable for conveying storm waters and for maintaining and operating an effective open drainageway system. The easement is intended to satisfy the purposes cited in Section 4.5.10 above and shall be reviewed and approved by the City Engineer.

d. Easement Width: When an easement is required (see Figure 4.5-1), the appropriate width shall be determined as follows:

1. For fish-bearing streams or rivers with average annual stream flow greater than 1,000 cubic feet per second, the easement area shall include the watercourse channel and additional width of 75 feet from the top of bank on each side of the watercourse;

2. For fish-bearing streams or rivers with average annual stream flow less than 1,000 cubic feet per second, the easement area shall include the watercourse channel and additional width of 50 feet from the top of bank on each side of the watercourse;

3. For streams not indicated on Figure 4.5-1 as fish-bearing, the easement area shall include the drainage channel plus additional width as determined by the following formula:

WFTOB	=	1.5x + 5 ft
WFTOB	=	Width From Top Of Bank (*i.e.,* width of the easement area needed on each side of a drainageway channel).
x	=	Width of channel from top of bank to top of bank as determined by the City Engineer, or 30 ft, whichever is less.

e. Revegetation of streambanks: New development on sites that contain or abut a stream or drainageway shall ensure that the stream or drainageway is adequately shaded by trees. The following standards shall be used to determine what level of additional tree planting is required.

1. Shading of streambanks shall be provided within the easement area required to be provided under sections 4.5.80.d.1 through 4.5.80.d.6 of this code.

2. Revegetation Standards:

a) Streams that have a vegetated tree canopy in the area to be shaded are compliant with these stream shading standards.

b) With the exception of the Willamette River, which shall be addressed as indicated in "3" below, streams that do not have a vegetated tree canopy in the area to be shaded are subject to revegetation. In areas without a tree canopy, native riparian trees with a minimum caliper size of 1-inch shall be planted at 10 feet on center along the length of the stream bank. All new trees are required to be mulched with 4 cubic feet of bark chips and drip irrigated for a period of three years to ensure establishment.

Note: The area of revegetation identified in subsection "2," above, shall be applied based on a specific determination of the impacts from a site's development to the affected drainageway and a determination that the easement width is required to provide a benefit to the drainageway that is "roughly proportional" to the development's impact.

Section 4.5.100 - STANDARDS FOR PROPERTIES WITH WETLANDS

Development on land with hydric soils, wetland vegetation, or that contains a wetland identified on a local, state, or national wetland inventory shall comply with State and Federal wetland regulations as interpreted by the State and Federal agencies charged with enforcing such laws. Development is also subject to the following provisions:

b. The following "safe harbor" provisions, taken from Oregon Administrative Rule 660, Division 23, also apply:

1. For properties with wetlands that have a Wetland Delineation approved by the Division of State Lands (DSL), the protected wetland area shall be defined as the upland-wetland edge, as identified in the Wetland Delineation and graphically represented on a site plan map.

3. Division of State Lands Notification Required. In addition to the restrictions and requirements of this section, all proposed development activities within any wetland are also subject to Oregon Division of State Lands (DSL) standards and approval. Where there is a difference, the more restrictive regulation shall apply. In accordance with ORS 227.350, the applicant shall be responsible for notifying DSL whenever any portion of any wetland is proposed for development. No application for development will be accepted as complete until documentation of such notification is provided, and no development shall be permitted until the City has received verification of DSL approval for development on the subject site.

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Section 4.5.110 - USE LIMITATIONS AND EXCEPTIONS WITHIN DRAINAGEWAYS AND WETLANDSSUBJECT TO EASEMENTS AND SAFE HARBOR REGULATIONS

In addition to the requirements of the underlying zone, the following limitations and exceptions shall apply to activities within drainageways and wetlands, and shall require prior review and approval by the appropriate local, state, and federal agencies.

a. Removal of vegetation from drainageways is prohibited, except for the following purposes as approved by the City Manager or the City Manager's designee:

1. Stream restoration and enhancement programs;

2. Removal of non-native vegetation;

3. Planting of native plant species;

4. For the development of water-related or water-dependent uses, provided they are designed and constructed to minimize impact on the existing riparian vegetation;

5. Removal of emergent in-channel vegetation that has the potential to cause flooding

6. Perimeter mowing/cutting of vegetation for fire hazard prevention.;

b. Building, Paving, and Grading Activities: Within drainageway and wetland areas, the placement of structures or impervious surfaces, including grading, excavation, and the placement of fill, is prohibited except as stated below. Exceptions to the drainageway and wetland restrictions may be made for the purposes identified in items 1-4 of this section, provided they are designed and constructed to minimize adverse impacts to the riparian or wetland area, In the case of wetlands, no development shall be permitted until the City has received verification of DSL approval for development on the subject site, or written indication from DSL that the department is not concerned with the development.

2. Construction of streets, roads, and pedestrian connections that are included in the City of Corvallis Transportation Plan;

Section 4.5.120 MITIGATION FOR DISTURBANCES TO DRAINAGEWAYS AND WETLANDS

Developers are encouraged to avoid impacts to drainageways and wetland areas. Where impacts cannot be avoided, mitigation of impacts shall be required. Mitigation shall be done in accordance with local, state, and federal wetland laws and the following provisions:

a. Where a drainageway must be crossed or otherwise encroached upon to allow appropriate development of property, crossings shall be constructed in accordance with engineering standards adopted by the City.

b. Proximity to Impacted Area: Wetland mitigation should occur as close to the impacted area as possible. The mitigation site should have hydrological and soil characteristics that are suitable for wetland restoration. Also, the mitigation site should retain sufficient natural buffer so as to sustain a class of wetland or habitat type that is typical of the natural surrounding watershed. There are four levels of incentives for restoration. Incentives shall be applied to property in a manner that is proportional to the amount of wetland mitigated. The incentives are as follows:

Section 4.5.130: VARIANCES

Variations from the standards in this chapter may be achieved through the Planned Development process described in Chapter 2.5. Lot Development Option processes. For any existing lot or parcel demonstrated to have been rendered unbuildable by application of this ordinance, the property owner may apply for such variation from development restrictions and prohibitions found in this chapter through the Lot Development Option prodcedures contained in Chapter 2.12 of this Code. For situations in which a property owner can demonstrate that a mapping error has incorrectly shown a drainageway or wetland on said property, the map correction may be processed through the Directors Interpretation prcedures identified in chapter 2.16 of this code.

Applicable Oregon Administrative Rules

660-023-0090 – Riparian Corridors

(4) When following the standard inventory process in OAR 660-023-0030, local governments shall collect information regarding all water areas, fish habitat, riparian areas, and wetlands within riparian corridors. Local governments may postpone determination of the precise location of the riparian area on lands designated for farm or forest use until receipt of applications for local permits for uses that would conflict with these resources. Local governments are encouraged, but

not required, to conduct field investigations to verify the location, quality, and quantity of resources within the riparian corridor. At a minimum, local governments shall consult the following sources, where available, in order to inventory riparian corridors along rivers, lakes, and streams within the jurisdiction:

(a) Oregon Department of Forestry stream classification maps;

(b) United States Geological Service (USGS) 7.5-minute quadrangle maps;

(c) National Wetlands Inventory maps;

(d) Oregon Department of Fish and Wildlife (ODFW) maps indicating fish habitat;

(e) Federal Emergency Management Agency (FEMA) flood maps; and

(f) Aerial photographs.

(5) As a safe harbor in order to address the requirements under OAR 660-023-0030, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance from all fish-bearing lakes and streams shown on the documents listed in subsections (a) through (f) of section (4) of this rule, as follows:

(a) Along all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) the riparian corridor boundary shall be 75 feet upland from the top of each bank.

(b) Along all lakes, and fish-bearing streams with average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet from the top of bank.
(c) Where the riparian corridor includes all or portions of a significant wetland as set out in OAR 660-023-0100, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland.

(8) As a safe harbor in lieu of following the ESEE process requirements of OAR 660-023-0040 and 660-023-0050, a local government may adopt an ordinance to protect a significant riparian corridor as follows:

(a) The ordinance shall prevent permanent alteration of the riparian area by grading or by the placement of structures or impervious surfaces, except for the following uses, provided they are designed and constructed to minimize intrusion into the riparian area:

(A) Streets, roads, and paths;

660-023-0100 – Wetlands

(3) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-0110 through 141-086-0240 and adopt the LWI as part of the comprehensive plan or as a land use regulation; and

(b) Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b) and adopt the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

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(4) For significant wetlands inside UGBs and UUCs, a local government shall:

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

As shown on **Attachment I-68**, 19.87 acres of the site contain wetlands. Impacts caused by the proposed Conceptual and Detailed Development Plan would result in the removal of 1.99 acres of these wetlands. The majority of these impacts are related to the construction of Circle Boulevard and improvements required along the north side of Harrison Boulevard. Other impacts related to development of the individual lots and Local Streets would effect wetland and riparian areas to a lesser extent. Consistent with LDC Section 4.5.100.b(3), the applicant should include documentation of a DSL-approved development plan (i.e., removal/fill permit) with materials submitted to the City for issuance of required excavation and grading permits (**Condition 21**).

The DSL-approved Local Wetland Inventory for the City of Corvallis notes that the wetlands located on the subject site are classified as Locally Significant. At the time the subject application was submitted, LDC standards regarding protection of riparian and wetland areas referenced "Safe Harbor" provisions from relevant Oregon Administrative Rules (OAR). Section 4.5.110 of the LDC, and OAR 660-023-0090 and 660-023-0100 note that Locally Significant Wetlands and riparian corridors are to be protected through the development process, unless impacts are necessary to construct streets that are planned through the Corvallis Transportation Master Plan. The extension of Circle Boulevard south to its intersection with Harrison Boulevard, as well as the full improvement of Harrison Boulevard to Arterial Street standards have both been adopted through the Corvallis Transportation Plan. Therefore, impacts to riparian and wetland areas on the site related to these improvements are allowed to occur without a request to vary from applicable protection standards. In order for the remaining impacts to wetland and riparian areas to occur, the applicant has requested to vary from the protection standards, as permitted through the Planned Development process by Section 4.5.130.

Consistent with Comprehensive Plan Policies 4.11.11 and 4.11.15, and LDC Section 4.5.120, the applicant has noted that all proposed impacts, including those related to construction of Circle Boulevard and Harrison Boulevard, would be off-set through a DSL-approved mitigation plan. The review and approval of this plan has yet to occur. Therefore, prior to any development activities occurring on the site, the applicant should supply the City with a complete copy of the approved plan that demonstrates DSL concurrence (**Condition 21**). It is the applicant's intent to complete required mitigation activities on the subject site, rather than in another portion of the same basin or in an alternate basin (**Attachment I-26**). This approach is consistent with LDC Section 4.5.120(b), which encourages mitigation to occur as close to the impacted area as possible. Such mitigation would be required by DSL regardless

of whether or not the LDC contained protection standards for Locally Significant Wetlands. As a result, the applicant has proposed a habitat enhancement plan as an off-setting benefit to compensate for the flexibility requested through the Planned Development process.

The habitat enhancement plan is described in detail in the applicant's project narrative and an associated exhibit (**Attachments I-27** through **I-29**, and **I-269** through **I-278**). As noted in the narrative, a portion of uplands that is immediately adjacent to the wetland area, and generally east of Lots 114 through 117, would be re-vegetated with native plants after non-native invasive plants were removed. Benefits derived from these activities would include: improved treatment of storm water run-off; possible creation of additional wetland area; revitalized wildlife habitat; and an increased amount of shade within the riparian and wetland area. These benefits are consistent with Comprehensive Plan Policies 4.9.1, 4.10.3, 4.10.9, 4.11.11, 4.11.15, 4,11.17, 4.13.2, and 4.13.5.

In addition to impacts in the wetland and riparian area, the proposed plan is also intended to provide mitigation for impacts to a 50-foot wide buffer that, based on criteria contained in LDC Section 4.5.80.d(2) and OAR 660-023-0090(5)(b), is required for Locally Significant Wetlands that intersect riparian corridors classified as small fish-bearing. Despite this aspect of the proposal, the applicant has questioned the applicability of this standard to the subject wetland and riparian area (**Attachments I-24** and **I-25**). Two pieces of evidence are presented by the applicant to substantiate the argument that the 50-foot buffer should not apply. The first document is a copy of the site-wide riparian and wetland inventory that was completed as part of the Corvallis Natural Features Project (**Attachments I-279** through **I-292**). The second is a letter from the Oregon Department of Fish and Wildlife (ODFW) (**Attachment I-198**). As noted by the applicant, information gathered through the inventory suggests the presence of warmwater fish in the subject wetland and riparian area. While input from ODFW staff was apparently relied on to reach this determination, the submitted letter from ODFW notes that the creek is "unlikely to be used to a significant degree by native migratory fish, cutthroat trout included." The letter does not specifically note whether warmwater fish are considered as native migratory fish, and neither Section 4.5.80.d(2) nor OAR 660-023-0090(5)(b) clarify if a stream is only considered fish-bearing if native migratory fish are present. Therefore, it is unclear based on the evidence submitted by the applicant whether or not this creek is subject to the 50-foot buffer standard, as the presence of a specific classification of fish that would compel application of the standard has not been confirmed. This is further confused by the fact that the inventory information presented by the applicant was subject to a legal appeal at the time the subject application was submitted.

Figure 4.5-1 from Chapter 4.5 of the LDC is a map of streams, creeks, and rivers within the Corvallis Urban Growth Boundary that are identified as fish-bearing, consistent with the requirements noted in OAR 660-023-0090(4) (**Attachment G-31**). While the Oak Creek Drainage is noted on this map as a Small Fish-bearing Stream, the subject creek is not. Therefore, for the purposes of consistency with the applicable LDC criteria, the 50-foot buffer would not apply to the wetland and riparian area located on the subject site.

Absent consideration of the 50-foot buffer and impacts that would take place within it, the habitat enhancement plan would continue to function as an off-setting benefit to wetland impacts not otherwise allowed by the LDC. Based on the area impacted by development activities within the 50-foot buffer (25,347 square feet), a two to one ratio of enhanced habitat area is proposed (51,633 square feet). Exclusive of impacts resulting from the construction of Circle Boulevard and Harrison Boulevard, a total of 0.45 acres of wetland and riparian area would be disturbed on the site. Assuming that a minimum ratio of two to one is an appropriate measure for mitigating these impacts, the proposed area of habitat enhancement is more than adequate to off-set impacts to the wetland. However, upland habitats do not function in the same manner as wetlands to: (1) provide appropriate growing conditions for hyrdophilic plants; (2) function as natural water treatment and storage areas; or (3) qualify as a substitute for habitat types that are unique to wetlands. These functions would presumably be restored through the mitigation plan required by DSL. Therefore, when combined, it is reasonable to conclude that these two mitigation approaches are sufficient to compensate for wetland and riparian impacts related to the non-exempt development activities listed in LDC Section 4.5.110(b).

The other standard that must be addressed in the absence of the 50-foot riparian buffer is a determination of what the appropriate riparian buffer width would be per LDC Section 4.5.80.d(3). The applicant has not considered this standard due to the presumption that the 50-foot buffer would apply to the subject site. In order to assure that a buffer is provided commensurate with the formula for non-fish-bearing streams, the applicant should provide the City with documentation of the appropriate buffer width and secure the necessary drainageway easements, consistent with Section 4.5.80(a), concurrent with recordation of the final plat for this project, or phases thereof (**Condition 22**). Revegetation within the impacted drainageway, as required by Section 4.5.80(e), has been discussed above and recommended through a Condition of Approval where appropriate.

One remaining issue should be addressed regarding the applicant's contention that the wetland and riparian inventory completed for this site as part of the Natural Features Project is incorrect. In addition to requesting that the 50-foot buffer not apply to the site, the applicant has also requested that the inventory be corrected to reflect testimony from ODFW on the presence of fish in the subject creek. The discussion provided above has noted the inconclusive nature of this evidence. Regardless, because the actual information compiled through the Natural Features Project was subject to a legal appeal at the time this application was submitted, the City is not able to apply that information through its review of this project. As a result, the applicant's request to correct the inventory to reflect testimony from ODFW cannot be considered at this time.

b. *Water Quality Impacts to Wetlands and Riparian Areas*

Applicable Comprehensive Plan Policies

4.10.7 To minimize the negative impacts of development, stormwater runoff after development should be managed to produce no significant reduction of water quality than prior to

development unless more appropriate provisions are identified in adopted comprehensive storm water management plans.

4.10.16 Where stream shading is not adequate, development shall include planting of trees and/or other vegetation to provide adequate shading. (SS-7)

4.11.3 Lakes, wetlands, floodway, drainageways and other urban streams are part of the hydrological system and should be managed comprehensively.

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

7.5.3 To improve water quality and quantity in the Corvallis area, the City will continue to develop regulations or programs to manage both point and non-point pollutants by:

A. Increasing public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problems;

C. Regulating site planning for new development and construction to better control drainage and erosion and to manage storm runoff;

D. Increasing storage and retention of storm runoff to lower and delay peak storm flows as appropriate;

E. Reducing street-related water quality and quantity problems; and

F. Increasing public awareness, minimizing the use and encouraging the appropriate disposal of polluting substances that affect surface and ground water resources.

7.5.6 Sediment removal using Best Management Practices shall be utilized prior to discharge of all runoff from both public and private impervious areas. (QL-1)

7.5.8 The City shall work to ensure that harmful urban runoff is not discharged directly into streams.(QL-5)

The Policies cited above note the importance of managing hydrologic systems in a comprehensive manner that minimizes development impacts related to polluted storm water run-off, loss of habitat, and adverse changes to the quantity of water moving through these systems. Each of these Policies is directly applicable to the applicant's proposed method for managing wetland and riparian resources contained within the subject site.

The applicant's submitted storm water management plan is intended to address the various aspects of pre- and post-development hydrology of the site. The design parameters used for this analysis were obtained from the Corvallis Storm Water Master Plan (SWMP) and its accompanying reference documents, as noted on **Attachment I-152**. In addition to treating polluted urban run-off from the developed portion of the site, the proposed design would also regulate the volume of water and the rate at which it is released into the remaining wetland and riparian area, before eventually discharging downstream of the site. While the degree of treatment achieved by the proposed water quality facilities is crucial to maintaining the vitality

of these natural resources, the volume and rate at which water reaches and leaves the wetland and riparian area are equally important. As noted above in the discussion of site grading, if modifications to the existing drainage patterns resulted in an appreciable alteration to the amount of water infiltrating these areas, additional loss of wetland area could result.

In order to predict the potential changes in site-wide drainage patterns resulting from the proposed development, the applicant modeled its existing hydrology (i.e., topography, soils, vegetation, seasonal precipitation, existing impervious surfaces, and flow control structures) and then adjusted the model to account for proposed site grading, increases in impervious surfaces, and new storm water management facilities. Using model design storm events stipulated by the SWMP (i.e., 2-, 5-, and 10-year, 24-hour precipitation events), the applicant then determined the appropriate locations and volumes for water quality and storage facilities that would result in a post-development surface water discharge volume and rate that matched the historic pre-development conditions for each of the model storm events. Additionally, the post-development model was adjusted to account for the extra on-site water storage capacity necessary to sustain the wetland and riparian area, as well as satisfy a release rate stipulated by Oregon State University that surpasses parameters stipulated by the SWMP (**Attachment I-186**).

Given that the proposed water quality facilities would be designed according to standards contained in the SWMP, the stipulated water quality parameters would be satisfied. These parameters are intended to achieve the degree of water quality prerequisite for discharging surface run-off to the public system, which includes natural drainageways. Therefore, the proposed storm water management system would be consistent with applicable criteria regarding water quality, including Comprehensive Plan Policies 4.10.7, 4.11.12, 7.5.3, 7.5.6, and 7.5.8. Further, as part of the process for receiving approval from DSL for proposed wetland and riparian area impacts, the Oregon Department of Environmental Quality will review the proposed storm water management plan to ensure that water quality standards mandated by state law would be achieved. The applicant should provide documentation of the DEQ-approved plan with materials submitted for issuance of Public Improvement by Private Contract (PIPC) permits (**Condition 23**). For additional discussion and findings related to public facilities and water quality features, please refer to the Public Facilities and Services Section of Part I of this staff report. Findings from that discussion are incorporated here by reference as findings under the above criteria.

While the Corvallis SWMP does not explicitly mandate consideration of the storage capacity of existing wetlands when determining post-development storm water discharge rates, the applicant has done so consistent with Comprehensive Plan Policies regarding preservation of wetland and riparian resources. As discussed in the submitted storm water management plan, the post-development hydrologic model determined the surface water elevations at specific locations (i.e., nodes) throughout the wetland area in the southern portion of the site (**Attachment I-162**). Pre- and post-development maximum surface water elevations were calculated at each of these locations for the design storms specified in SWMP. Tables 6, 7, and 8 of the applicant's storm water management plan provide a comparison of the calculated pre- and post-development elevations, which show that for each storm the greatest change in

maximum surface water elevation at each node is an increase of no more than 0.17 of a foot, or approximately 1½ inches (**Attachments I-157**, **I-158**, and **I-159**). Therefore, based on the variables and assumptions used in the model, the post-development volume of surface water reaching the wetlands and the rate at which it discharges from the site would match the pre-development conditions, and at the nodes, maintain an amount of water adequate to sustain the wetlands.

Due to the fact that the calculated post-development storm water discharge rates are dependent upon the existing natural storage capacity of the wetlands, it is critical that the total area of wetlands accounted for in the model does not decrease significantly. For example, if changes occur to seasonal fluctuations in soil moisture patterns within the upper reaches of the wetland, the type and density of vegetation could be altered in a way that causes surface water to flow downslope faster. This would result in more water reaching the lower portions of the wetland within a shorter period of time, meaning that the upper portion of wetlands would dry out sooner during periods of reduced precipitation. Additionally, the proposed storage facilities might not have enough surplus volume (i.e., freeboard) to contain the excess run-off. A substantial loss of upper slope wetland vegetation could also result in the surface water elevations increasing to a degree where alterations to the native wetland vegetation would be observed in the lower portion of the wetland as well. Long term innundation around the proposed storage ponds could also degrade the function and structural integrity of these facilities, which are proposed to be dedicated to the City as part of the public storm water system.

While the applicant's hydrologic model has accounted for a set of variables that can be reasonably ascertained at this time, there are also unknown factors that cannot accurately be quantified through the modeling process. For example, despite placement of three culverts underneath Circle Boulevard, its construction could disrupt existing hydrology due to the introduction of a gravel roadbed with comparatively greater interstitial space than the native silty loam soils in this area of the site. Subsurface water would move downslope through the gravel roadbed faster than the existing soils due to a increase in hydrologic subsurface conveyance potential. Other factors unaccounted for through this analysis include undocumented subsurface water sources, such as potential springs in the middle and lower slopes of the site, that may currently be feeding the wetland and be disturbed through development. Documentation of such features would occur through a forthcoming geotechnical study for the site, as recommended. Given these facts, it is reasonable to conclude that a long term monitoring plan should be required for the remaining wetland and riparian area to document additional impacts to these resources that may result due to development. Several of the Comprehensive Plan Policies cited above support this finding, specifically 4.13.5.

As mentioned above, the applicant would be required to obtain the necessary permits from DSL and DEQ prior to initiation of any development activities. Given that impacts to the wetland and riparian area are anticipated, a plan for mitigating those impacts would be included as part of the applicant's permit request to DSL. The applicant has noted that mitigation activities would preferably occur within the development site. If the mitigation plan is

approved by DSL, the applicant would be required to monitor the success and vitality of the mitigated (i.e., "created") wetlands for a period of five years after their creation, which is a standard requirement for DSL mitigation plans. However, given that mitigation activities would likely be initiated concurrent with construction of the first project phase, this monitoring period could be completed prior to the last phase of this project being built-out. The actual effectiveness of the proposed storm water management plan would not be known until some point after completion of the last phase. Therefore, it is not likely that DSL's typical monitoring period would encompass build-out of the site, nor would it consider impacts to remaining native wetland and riparian areas. In an effort to coordinate the regulatory oversight of these resources, the applicant should be required to extend the monitoring period required by DSL to five years after completion of the last phase of the project, and the monitoring efforts should include the entire remaining wetland and riparian area on the site. Similarly, the City should lengthen its typical two-year public facilities warranty period to expire five years after build-out of the site. By making these two events coincident, the opportunity is created for a subsequent hydrology study and wetland delineation to occur, which would: (1) confirm the extent of wetland and riparian area on the site at that time; (2) document alterations to the remaining wetland and riparian area that may have been a result of development; and (3) determine if such alterations have adversely impacted the function or structure of the proposed public storm water facilities. If it is found that additional impacts have occurred, the applicant could be required to conduct additional mitigation prior to release of financial securities held by the City through the PIPC process (**Condition 24**).

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Conclusion on Wetland and Riparian Areas

With the recommended Conditions of Approval, the subject request could be approved with a greater degree of certainty that actual impacts to the wetland and riparian resources existing on the site would be documented and mitigated. Historically, the consideration of impacts to wetlands resulting from the development process has generally been limited to their removal due to grading activities. In this case, the specific characteristics of the subject site warrant additional monitoring and protection measures given the hydrologic relationship between the upland and wetland portions of this site. As noted above, Comprehensive Plan Policies 4.11.3 and 4.11.12 provide guidance that hydrologic systems should be managed comprehensively and in a manner that minimizes impacts to the quantity and quality of water within these systems. The discussion above has provided a detailed review of the potential impacts and the applicant's proposed mitigation approach. Where appropriate, Conditions of Approval have been recommended to ensure consistency with the relevant Comprehensive Plan Policies and Sections of the LDC. Pending implementation of these conditions, the proposed Conceptual and Detailed Development Plan would support these criteria.

Although the applicant contends that the 50-ft buffer should not apply to this wetland and stream, the proposal includes mitigation for impacts to areas within the 50-ft buffer area. This mitigation includes habitat enhancements at a ratio of land area of two (mitigation) to one (impact). Since the buffer area is outside the actual wetland indicated by the delineation, it is by definition, upland. Whether the 50-ft buffer applies or not, staff believe upland mitigation at the indicated ratio is adequate to address the impacts. Mitigation for impacts to actual

wetlands will be determined by the applicant's approved fill/removal permit when it is issued by the DSL/ACOE.

Overall Conclusions on Natural Features

The above discussion has reviewed the existing natural features contained by the subject site. Specific impacts to significant vegetation, hillsides and topography, and wetland and riparian areas have been analyzed. The applicant has addressed the applicable criteria from the Comprehensive Plan and LDC, and noted how the proposed Conceptual and Detailed Development Plan is consistent with these standards. Where necessary Conditions of Approval have been recommended to ensure that an approval of the subject request does in fact achieve the purposes and intent of the Comprehensive Plan and LDC.

D. CIRCULATION

The following discusses the Major Modification request in relation to Comprehensive Plan Policies and LDC criteria regarding circulation of vehicles, bicycles, pedestrians, and transit.

Vehicular Circulation

Applicable Comprehensive Plan Policies

11.2.1 The transportation system shall be planned and developed in a manner which contributes to community livability, recognizes and respects the characteristics of natural features, and minimizes the negative effects on abutting land uses.

11.2.2 The transportation system shall be managed to reduce existing traffic congestion and facilitate the safe, efficient movement of people and commodities within the community.

11.2.3 The City shall develop and promote alternative systems of transportation which will safely, economically, and conveniently serve the needs of the residents.

11.3.4 The City shall maintain the carrying capacity and viability of major arterials and other major streets by developing, adopting, and implementing access control standards that restrict or reduce curb cuts and other direct access points, require adequate rights-of-way, setback lines, and road improvements as part of the development process.

11.3.5 Local streets shall be designed and built to discourage high speed through traffic.

11.3.9 Adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection level-of-service (LOS) standards and to avoid traffic diversion to local streets. The level-of-service standards shall be: LOS "D" or better during morning and evening peak hours of operation for all streets intersecting with arterial or collector streets, and LOS "C" for all other times of day. Where level-of-service standards are not being met, the City shall develop a plan for meeting the LOS standards that evaluates transportation demand management and system management opportunities for delaying or reducing the need for street widening. The

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plan should attempt to avoid the degradation of travel modes other than the single-occupant vehicle.

11.3.11 Private driveway access shall be limited on all existing and future arterial streets to reduce interference, improve safety, and preserve traffic capacity. New residential driveways shall not directly access arterial streets where alternate access can be developed. At the time of development or redevelopment, opportunities to restrict or combine access points along arterials should be pursued.

11.3.12 New local streets, neighborhood collectors, collector streets, and arterial streets shall be located and designed to manage traffic volume and speed to minimize negative impacts on abutting land uses.

13.12.1 The City shall work to ensure that development within the west Corvallis Urban Fringe is consistent with the West Corvallis - North Philomath Plan.

13.12.18 The City shall maintain the scenic character of West Hills Road, Harrison Boulevard / Oak Creek Road, Reservoir Road, and Philomath Boulevard through mechanisms such as gateway standards, or securing easements to preserve existing vegetation or views.

West Corvallis - North Philomath Plan Policies (Chapter 6.6)

C-I-2 Require landowners and developers to incorporate designated streets, trails, bikeways, and transit facilities into their plans and to provide adequate connections to adjoining properties.

C-I-3 Require frequent intersections within subdivisions and other developments (at least one full intersection per 350 feet of street length within residential developments and neighborhood villages, excluding any Research and Technology areas) to provide more direct routes for pedestrians and bicyclists.

C-I-4 Prohibit the use of cul-de-sacs within residential areas inside the UGBs of Corvallis and Philomath unless terrain or existing road patterns require them. Short-term cul-de-sacs and street stub ends may be allowed to provide later connections to adjoining properties.

C-I-6 Require sidewalks on both sides of a street as part of new development wherever feasible. Allow sidewalks on only the developed side of a street when the street forms the edge of designated open space.

C-I-26 Align new roadways to maintain vistas of hillsides.

Applicable Land Development Code Criteria

LDC 4.0.70 - Street Requirements

a. Traffic evaluations shall be required of all development proposals in accordance with the following:
   2. If the traffic evaluation identifies level-of-service conditions less than the minimum standard established in the Corvallis Transportation Plan, improvements and funding strategies mitigating the problem shall be considered concurrent with a development proposal.

c. Local streets shall be designed to discourage through traffic. NOTE: For the purposes of this section, "through traffic" means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic the following street designs shall be considered, as well as other designs intended to discourage traffic:
   1. Straight segments of local streets should be kept to less than a quarter mile in length, and include design features such as curves and "T" intersections.
   2. Local streets should typically intersect in "T" configurations rather than 4-way intersections to minimize conflicts and discourage through traffic. Adjacent "T" intersections shall maintain a minimum of 125-ft between the nearest edges of the 2 rights-of-way.
   3. Cul-de-sacs should not exceed 600-ft nor serve more than 18 dwelling units.

d. Development sites shall be provided with access from a public street improved to City standards in accordance with the following:
   1. Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.
   2. Half-street improvements, as opposed to full-width street improvements, are generally not acceptable. However, these may be approved by the Planning Commission or Director where essential to the reasonable development of the property. Approval for half-street improvements may be allowed when other standards required for street improvements are met and when the Planning Commission or the Director finds that it will be possible to obtain the dedication and/or improvement of the remainder of the street when property on the other side of the half-street is developed.
   3. To ensure improved access to a development site consistent with policies on orderly urbanization and extension of public facilities, the Planning Commission or Director may require off-site street improvements concurrent with development.

e. To provide for orderly development of adjacent properties, public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property(ies) in accordance with the following:
   1. Temporary dead-ends created by this requirement to extend street improvements to the edge of adjacent properties may be installed without turn-arounds, subject to the approval of the Fire Marshal.
   2. In order to assure the eventual continuation or completion of the street, reserve strips may be required in accordance with 2.4.40.04.
   3. Drainage facilities shall be provided to properly manage storm water run-off from temporary dead-ends.

i. Location, grades, alignment, and widths for all public streets shall be considered in their relation to existing and planned streets, topographical conditions, public convenience and safety, and proposed land use. Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network is not adversely effected. The following standards shall apply:
   1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall conform to planned street extensions identified in the Corvallis Transportation Plan and/or provide for continuation of the existing street network in the surrounding area.
   2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.

3. As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in "T" intersections are unavoidable, they shall leave a minimum of 200 ft between the nearest edges of the two rights-of-way.
4. Centerline radii of curves shall not be less than 500-ft on arterial streets, 300-ft on collector streets, and 100-ft on local streets.

l. Development shall include underground electric services, light standards, wiring and lamps for streetlights according to the specifications and standards of the City Engineer. The developer shall be responsible for installation of underground conduit for street lighting along all public streets improved in conjunction with such development in accordance with the following:
1. The developer shall coordinate with the City Engineer to determine the location of future street light poles.
2. The streetlight plan shall be designed to provided illumination meeting standards set by the City Engineer.
3. The standard street light installation is a wood pole.

The developer shall install such facilities and make the necessary arrangements with the serving electric utility for the City-owned and operated street lighting system to be served at the lowest applicable rate available to the City. Upon the City's acceptance of such development improvements, the street lighting system, exclusive of utility-owned service lines, shall become the property of the City.

LDC 4.0.110 - Land For Public Purposes

a. Easements for public sanitary sewer, water, storm drain, streetlight, pedestrian, and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
1. When located between adjacent lots, easements shall be provided on one side of a lot line.
2. The minimum easement width for a single utility is 15 ft. The minimum easement width for two adjacent utilities is 20 ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.

b. Public utility easements with a minimum width of 7 ft shall be provided adjacent to all street rights-of-way for franchise utility installations.

c. Where a development site is traversed by a drainageway or water course, drainageway improvements in accordance with the Corvallis Drainage Master Plan and a drainageway dedication in accordance with the requirements of Chapter 4.5 shall be provided to the City.

e. Where existing rights-of-way and/or easements within or adjacent to development sites are non existent or of insufficient width, dedications may be required. The need for and widths of those dedications shall be determined by the City Engineer.

h. Environmental assessments shall be provided by the developer for all lands to be dedicated to the public or City. An environmental assessment shall include information necessary for the City to evaluate potential liability for environmental hazards, contamination, or required waste cleanups related to the dedicated land. An

environmental assessment shall be completed prior to the acceptance of dedicated lands in accordance with LDC4.0.110.h.1, 2, and 3.

The subject site will be accessed from the extension of NW Circle Boulevard between Witham Hill Drive and NW Harrison Boulevard. A proposed local street connection to Dale Drive, located to the east of the site will provide connectivity between neighborhoods. A dead-end street connection to the adjacent OSU property to the west has also been proposed to provide for future connectivity.

The applicant submitted a traffic impact analysis (TIA) dated November 2006 (TIA-1) to evaluate potential development-related traffic impacts at nine surrounding intersections (**Attachments I-98** through **I-148**). The November 2006 TIA was supplemented by a January 2007 update memo (TIA-2) (**Attachments I-92** through **I-97**). The January 2007 TIA added the intersections of NW Circle Boulevard and NW Grant Avenue with NW 29th Street. The January 2007 TIA also modified the analysis method for selected intersections to present results based on intersection Volume to Capacity (V/C) ratios, which City Staff prefer for development related analysis purposes. A total of six intersections were evaluated in the January 2007 TIA.

These TIAs find that most existing area intersections will operate within acceptable performance criteria through build-out of the proposed project without modification. Two existing intersections will require mitigation with build-out of the proposed development.

The intersection of NW Witham Hill Drive and NW Circle Boulevard is expected to merit signalization around 2009 with commencement of Phase 3. Each development phase after Phase I should provide near-term updated TIAs to confirm specific timing of this signalization based on (Level of Service) LOS and warrants. In order to ensure that the submitted traffic impact analysis remains consistent with actual build-out phasing of the project, updated TIAs should be required to address the timing of signalizing the intersection at NW Witham Hill Drive and NW Circle Boulevard, and document effects on other area intersections if build-out is delayed beyond 2011 (**Condition 26**).

The January 2007 TIA shows intersection of NW 29th Street and NW Grant Avenue operating at substandard AM peak hour LOS in 2009. The 2009 result is based on an error in interpreting traffic count dates. The substandard LOS operation may already be present. This finding is a crucial point supporting Staff's recommendation that NW Circle Boulevard be extended with Phase I of the proposed development. As shown in Figure 11 of the November 2006 TIA, the extension of NW Circle results in an overall reduction of trips in the area east of the site, providing partial mitigation (**Attachment I-131**). Without the extension of NW Circle Boulevard, traffic from the development may be pushed onto local streets in existing neighborhoods not currently receiving "through traffic".

Physical improvements to existing intersections distant from a development site, such as 29th Street and Grant Avenue, are most efficiently administered by the City through its Capital Improvement Program. Developers contribute funding towards these improvements through

System Development Charge fees. Staff recommend that the intersection of NW 29th Street and NW Grant Avenue be included in an updated TIA for the last Witham Oaks development phase. If intersection improvements have not been programmed into the City's Capital Improvement Program by the time of the last phase or 2011, whichever is sooner, the applicant will be required to install intersection improvements to achieve minimum LOS 'D' at this intersection through the PIPC process (**Condition 26**).

It should be noted that existing vehicle counts for several of the intersections were taken during OSU's "dead week" and "finals week" (June 2 - 9, 2005). Institute of Traffic Engineering (ITE) guidelines caution against collecting traffic counts during special events, holidays, construction periods, bad weather, or other times when conditions at the study site or in its vicinity may affect site trip generation.

The January 2007 TIA addresses this point by stating that although schedules for OSU students might be different during "dead week" and "finals week", they still constitute OSU being in full operation. In addition, the applicant cited that all other Corvallis schools were in full operation. Therefore, they did not expect that the traffic volumes would be any lower than during the middle of the term.

Staff would prefer to avoid traffic counts during these periods, especially in the vicinity of OSU. Because these TIAs analyze intersection performance beyond proposed 2011 project build-out to 2027, no significant final conclusion will be affected by the traffic count dates if the proposed build-out schedule is maintained. However, the January 2007 TIA shows that, aside from NW 29th Street & NW Grant Avenue as discussed above, the intersections of NW 29th Street & NW Circle Boulevard and NW Harrison Boulevard & NW 29th Street may degrade to substandard LOS after 2011. To address timing of future effects, traffic study updates for any phase occurring after 2011 should include these intersections and incorporate new counts conducted during time periods consistent with ITE guidelines (**Condition 26**).

The above discussion identifies a near term and a longer term TIA update recommendation. The near term updates commence after Phase I and address the timing of signalizing the intersection of NW Circle Boulevard and NW Witham Hill Drive. The longer term updates commence with the last phase of development or 2011, whichever is sooner, to address effects on the intersections of NW 29th Street & NW Grant Avenue; NW 29th Street & NW Circle Boulevard; and NW Harrison Boulevard & NW 29th Street.

Municipal Code Section 6.10.060.020, restricts vehicles over 12,000 pounds loaded weight on the following streets: NW Harrison Boulevard between 9th Street and the westerly City limit line of Corvallis; NW Circle Boulevard between NW Witham Hill Drive and NW Lantana Drive; and NW Walnut Boulevard between NW 9th Street and the westerly City limit line of Corvallis. A defense is provided to access premises fronting the affected streets. In order to best conform with the Municipal Code, minimize the effects of construction on surrounding neighborhoods and expedite construction traffic to the major street system, all construction traffic over 12,000 pounds should be directed to NW Harrison Boulevard, then west to 53rd Street, then south to Highway 20/34 (**Condition 27**).

In order to facilitate further discussion of the transportation network, the Vehicular Circulation section is divided into three parts: Part I is a discussion of the NW Circle Boulevard extension between Witham Hill Drive and NW Harrison Boulevard; Part II is a discussion of NW Harrison Boulevard improvements; and Part III is a discussion of the proposed local street network internal to the site.

Part I: NW Circle Boulevard Extension

The Corvallis Transportation Plan identifies NW Circle Boulevard as a Neighborhood Collector street that traverses the site in a north/south alignment from Witham Hill Drive down to NW Harrison Boulevard. A portion of NW Circle Boulevard was constructed from Witham Hill Drive south approximately 1,125 feet as part of the 2002-2003 Capital Improvements Projects. The remaining extension of NW Circle Boulevard has been proposed to be constructed with this development.

City standards for Neighborhood Collector streets include: two 10-foot wide travel lanes, two 6-foot-wide bike lanes, standard curb and gutter, and two 5-foot wide sidewalks separated from travel lanes by 12-foot wide planter strips, all located within a 66-foot wide right-of-way (ROW). The application has proposed a street design that meets these criteria, with the following variances:

- the sidewalk on the west side of NW Circle Boulevard south of Street 'A' (Station 1+00 to 15+70) was eliminated in order to preserve the existing wetlands (**Attachment I-77**);
- the sidewalk on the west side of NW Circle Boulevard from Street 'A' (Station 15+70) north to Street 'B' (Station 22+40) was eliminated and replaced with the 12-foot wide multi-use path;
- the sidewalk on the east side of NW Circle Boulevard from Street 'B' (Station 22+40) to the north edge of the property site boundary (Station 27+40) was eliminated and replaced with the 12-foot wide multi-use path;
- the planter strip width along the west side of NW Circle Boulevard between Stations 1+00 to 4+00 narrows down to a minimum of 7'-6" to accommodate the proposed left turn lane onto NW Harrison Boulevard, and to preserve the existing wetlands;
- the planter strip width along the west side of NW Circle Boulevard through the intersections of Street 'A' (Stations 14+90 to 17+20) and Dale Street (Stations 24+50 to 27+30) narrows down to a minimum 8'-6" to accommodate the proposed centerline traffic calming dividers; and
- the planter strip width along the west side of NW Circle Boulevard between Stations 17+20 to 21+75 has been reduced to 8'-6" to accommodate the relocated stream channel width, as well as to preserve open space in Tract 'F'.

The variations to the sidewalk, multi-use paths, and planter strips are discussed below in the Bicycle/Pedestrian Circulation Section of Part I of this report.

The application identifies the timing of the extension of NW Circle Boulevard (from its current terminus at the site's northern property boundary south to Street 'A' in Phase 1 of the development. The applicant has proposed to construct the south half of NW Circle Boulevard, from the south side of Street 'A' to NW Harrison Boulevard in Phase 2 (TIA-2) or Phase 3 (application narrative). In the interim between Phases 1 and 2, the applicant has proposed to construct a temporary gravel road within the lower half of NW Circle Boulevard for fire access. As discussed above, this road would also facilitate construction traffic access to NW Harrison Boulevard.

Land Development Code Section 4.0.70.e. requires that public streets installed concurrent with the development of the site should be extended through the site to the edge of the adjacent property(ies). In addition to the City's "to and through" requirement, constructing NW Circle Boulevard in the first phase of development has several advantages:

1. Commencing with Phase 1, this development will add traffic to the surrounding area including the intersection of NW 29th Street and NW Grant Avenue. As discussed above, 29th & Grant may already be operating at substandard LOS. The extension of NW Circle to NW Harrison improves these surrounding intersections by diverting traffic away from them onto NW Circle Boulevard. Maintaining the carrying capacity of major streets will minimize the penetration of trips into the local street system and surrounding neighborhoods.

2. In order to provide secondary emergency access and efficient construction traffic routing, the proposed alignment of NW Circle will already be rocked in with an all-weather surface. Completing the full street provides better emergency access and is an incremental additional improvement.

3. Certain features of NW Circle Boulevard may be eligible for System Development Charges (SDC) and Zone of Benefit (ZOB) reimbursement.

4. The applicant has proposed the completion of NW Circle Boulevard with Phase 2 development occurring as soon as 2009. Extending NW Circle with Phase I represents a two year acceleration of the schedule as proposed. In light of a potential scenario where the remaining phases of the development are delayed, extending NW Circle Boulevard with Phase I completes this necessary component of the City's transportation system and eliminates the potential for premature exacerbation of transportation system impacts. Comparatively, construction of improvements is generally preferable to securing them.

Based on the findings above, and consistent with the City's "to and through" requirements for street improvements with development, it is recommended that the applicant fully construct NW Circle Boulevard to its terminus with NW Harrison Boulevard concurrent with the first phase of development (**Condition 28**).

The application has proposed a left turn lane for the south-bound approach of NW Circle Boulevard onto NW Harrison Boulevard, which is consistent with the findings from the traffic impact analyses. It is recommended that this turn lane be constructed concurrent with the NW Circle Boulevard improvements in the first phase of development (**Condition 28**).

The configuration of the NW Circle Boulevard extension illustrated in the Transportation Plan coincides with the alignment of an existing 50-foot wide public ROW through the site. The application has proposed re-alignment of the southern half of NW Circle Boulevard to the east in order to minimize wetland impacts. The applicant has proposed swapping out a portion of the existing ROW in exchange for the additional ROW along the east edge of the site. Because the Federal funding may only be used by the City to maintain utilities located within public right-of-way, the City will need to retain an adequate width of the existing ROW in order to access and maintain the existing multi-use path, sewer line, and associated manholes. The applicant should vacate 20' of the existing right-of-way below Street 'A', such that the remaining 30 feet of ROW includes the existing multi-use path and extends a minimum of 5 feet beyond the outside edges of the existing manholes.

An approval of the proposed Conceptual and Detailed Development Plan should be contingent upon a subsequent approval for this ROW vacation. The applicant should submit the right-of-way vacation for City Council approval consistent with an approval for the proposed Conceptual and Detailed Development Plan and Tentative Subdivision Plat. Approval for the ROW vacation should be obtained prior to authorization of plans for public improvements for the first phase of development (**Condition 29**).

The applicant will need to dedicate additional ROW as needed (minus the 20 foot swapped area) along the east edge of the property to construct NW Circle Boulevard as proposed in the plans (**Condition 30**). The final plat, or phases thereof, should include all ROW dedications. The City requires an environmental assessment for all dedicated lands in accordance with LDC 4.0.110.h (**Condition 31**).

The application shows the limits of improvements extending over adjacent property lines along portions of the southeast side of NW Circle Boulevard. The applicant cannot impinge upon adjacent properties without appropriate easement agreements from these property owners. As part of the Public Improvements process, the applicant will need to demonstrate that the proposed NW Circle Boulevard alignment and ROW widths will be feasible to construct NW Circle Boulevard as shown in the plans without impinging on adjacent properties. Any proposed re-alignments of NW Circle Boulevard should be considered a Major Modification due to potential infringement on existing wetlands (**Condition 32**).

Part II: NW Harrison Boulevard

NW Harrison Boulevard is designated as an arterial street in the Transportation Plan. City Standards for Arterial Streets include: 12-foot wide travel lanes, 6-foot wide bike lanes, standard curb and gutter, and 5-foot wide sidewalks separated from the street by 12-foot-wide planter strips each side, all located within a 70-foot wide ROW. The NW Harrison Corridor

Study (1997) recommends that this section of NW Harrison Boulevard adjacent to the site incorporate 10-foot wide travel lanes.

The section of NW Harrison Boulevard along the subject site's frontage is not improved to City standards, and currently lacks appropriate ROW width, travel lane widths, planter strips, sidewalks, curb and gutter, and enclosed drainage on both sides. The applicant has proposed the following street improvements: two 12-foot wide travel lanes; two 6-foot wide bike lanes, standard curb and gutter on the north side of NW Harrison Boulevard; a 5-foot wide sidewalk separated by a 6-foot wide planter strip on the north side of NW Harrison Boulevard east of the existing multi-use path; a 10-foot wide multi-use path on the north side of NW Harrison Boulevard west of the existing multi-use path; and relocation and regrading of the open ditches on the north and south sides of NW Harrison Boulevard adjacent to the site. In summary, the application has requested a variation to City standards for the following items:

- partial street improvements (i.e. no curb and gutter, sidewalk, or planter strips) on the south side of NW Harrison Boulevard adjacent to the site due to the fact that the southern adjacent property (OSU) has the potential to be developed in the future, at which time these improvements would be required;
- the existence of two side-by-side driveways located just east of the site's southeast property corner within less than 150 feet from the proposed NW Circle Boulevard intersection;
- the section of NW Harrison Boulevard from Arnold Park to the southeast boundary of the subject site is not improved to City standards, and is lacking curb and gutter, adequate planter strips, and enclosed drainage on both sides;
- the sidewalk west of the existing multi-use path was eliminated and replaced with the proposed 10-foot wide multi-use path, consistent with the Corvallis Parks and Recreation Master Plan; and
- the planter strip along the entire north side of NW Harrison Boulevard has been reduced to 6-foot wide in order to preserve existing wetlands.

The variations to the sidewalk and planter strips are discussed in the Bicycle/Pedestrian Circulation section of this report.

Because the OSU property to the south of the site has the potential to be developed in the future, partial improvements to the south side of NW Harrison Boulevard are consistent with City standards, as well as the conditions set forth in the annexation plan for this site (see NW Witham Oaks Annexation, ANN04-00004, CPA04-00004, ZPA04-00004). Therefore, it is recommended that NW Harrison Boulevard be improved to full City standards, with the exception of the curb and gutter, sidewalk, and planter strips on the south side, and narrower (10-foot wide) travel lanes, as dictated by the NW Harrison Boulevard Corridor Study (**Condition 33**).

The application has proposed a left turn lane for the east-bound approach of NW Harrison Boulevard onto NW Circle Boulevard, which is consistent with the findings from the traffic

impact analyses. It is recommended that this turn lane be constructed concurrent with the NW Circle Boulevard improvements in the first phase of development (**Condition 34**).

The structural condition of the NW Harrison Boulevard is unknown in some sections, and may not meet City standards. As part of the Public Improvements Process, it is recommended that core samples from the street be obtained by the applicant, and if necessary, the street structure should be improved to City standards (**Condition 33**).

The application has proposed that NW Harrison Boulevard improvements be constructed in Phase 2 (updated plans) or Phase 4 (application narrative). It is recommended that the developer improve the NW Harrison Boulevard and NW Circle Boulevard intersection, including all turn lanes and adjacent curb and gutter, to City standards concurrent with the construction of NW Circle Boulevard. The remainder of the NW Harrison Boulevard street improvements may be constructed concurrent with the last phase of development, or within five years from issuance of the public improvement (PIPC) permit for the first development phase, whichever occurs first. Construction of these improvements should be secured pursuant to LDC 2.4.40.09 prior to issuance of the PIPC permit for the first development phase (**Condition 34**).

The applicant has proposed dedicating additional right-of-way along the north side of NW Harrison Boulevard adjacent to the site for construction of the proposed street improvements. Because the exact limits of the drainage swale and detention facilities are not known at this time, it is recommended that, as part of the public improvement review, the applicant dedicate additional right-of-way along the north side of NW Harrison Boulevard as needed to construct NW Harrison Boulevard to the standards described herein. The final plat, or phases thereof, should include all right-of-way dedications (**Condition 30**). The City requires an environmental assessment for all dedicated lands in accordance with LDC 4.0.110.h (**Condition 31**).

The application does not address off-site improvements to the north side of NW Harrison Boulevard east of the project site. On the north side of NW Harrison Boulevard, curb and gutter ends at Merrie Street, which is located approximately one half-mile east of the site. Curb and gutter on the south side of NW Harrison Boulevard ends at 35th Street. The section of NW Harrison Boulevard west of the site falls under County jurisdiction, as well as the West Corvallis - North Philomath Plan.

The property along this section of NW Harrison Boulevard east of the site is generally developed, so consideration should be given to extending off-site street improvements. In this case, functional vehicular, bicycle and pedestrian improvements are present to serve the proposed Witham Oaks development site. The missing components consist of curb and gutter and park strips. Drainage in this area is functioning with roadside ditches, consistent with concepts presented in the West Corvallis - North Philomath Plan. Therefore, it is not recommended that off-site street improvements along NW Harrison Boulevard (with the exception of sidewalk) be constructed east of the Witham Oaks property line with this development.

City access standards require that driveway accesses be located a minimum of 150' from any other access or Collector and/or Arterial street intersection. The two adjacent properties to the east of the site (Beit Am and Jesus Christ Church of the Latter-Day Saints) have side-by-side driveways within 100 feet of the proposed intersection of NW Circle Boulevard and NW Harrison Boulevard. The driveway closest to the intersection (approximately 50 feet to the east) belongs to a site (Beit Am) that has not yet been developed, and is currently under County jurisdiction. The applicant has verbally stated that they are negotiating with this owner to install an alternate access off of NW Circle Boulevard in exchange for eliminating the NW Harrison Boulevard access, which would be the City's preferred solution. The second adjacent driveway to the east belongs to the LDS church, and is the second of two driveways used to access their site's parking lot. It is recommended that this driveway conflict be resolved prior to final approval of the public improvement plans (**Development Related Concern 'K'**).

Part III: Local Streets

City standards for Local Streets include: 28-foot pavement width, standard curb and gutter, and two 5-foot wide sidewalks separated from the pavement by 6-foot wide planter strips, all of which are located within a 50-foot wide ROW. The Local Streets proposed in the application meet these requirements, with the following exceptions:

- Streets 'A', 'G', and 'K' are dead-end cul-de-sacs;
- Street 'J' is a dead-end street stub with no cul-de-sac;
- the sidewalk on the east side of Street 'A' adjacent to Tract 'K' open space has been eliminated in order to preserve more open space.

The variation to the sidewalk is discussed in the Bicycle/Pedestrian Circulation section of this report.

All Local Streets should be constructed to City standards unless otherwise approved through this application. All Local Streets should be constructed in accordance with the phasing plan presented in this application (**Condition 35**).

As per the West Corvallis-North Philomath Policy C-I-4, cul-de-sacs and dead-end street stubs are discouraged unless they provide future connections to adjoining properties. The applicant has proposed cul-de-sacs on Streets 'A', 'G', and 'K' in order to preserve open space and wetland features. Preserving open space and wetland features is consistent with City wide policies. In addition, the developer has provided pedestrian access from these cul-de-sacs to the existing pedestrian facilities. Therefore, it is recommended that the cul-de-sacs on Streets 'A', 'G', and 'K' be approved.

As per LDC 4.0.70.e, the applicant has proposed to extend public street ROW (Street J) to and through to the western property boundary of the site, abutting property owned by OSU. In the event that development proposals and associated Comprehensive Plan amendments are submitted for the OSU property, the proposed ROW will accommodate a public street extension.

The applicant should to dedicate a 50-foot wide ROW for all proposed Local Streets, concurrent with the associated phase of development. The final plat for each phase should include all associated ROW dedications (**Condition 30**). The City requires an environmental assessment for all dedicated lands in accordance with LDC 4.0.110.h (**Condition 31**).

The proposed Local Street system also includes a connection to Dale Drive, which will provide connectivity between neighborhoods.

Conclusions on Vehicular Circulation

Per the preceding discussion, and as conditioned, the proposed vehicular circulation system will comply with all applicable Comprehensive Plan policies; Transportation Plan criteria; and Land Development Code criteria. The proposed variances, as conditioned, are consistent with Transportation Plan criteria, which allows for modifications through the PD process.

The proposed development establishes a nexus for these improvements by creating the need for a transportation system that provides facilities to accommodate the new development-related vehicular, bicycle and pedestrian traffic. The requirements for Arterial, Neighborhood Collectors, and Local Street improvements to City and ODOT standards ensure that these needs are met. Requirements for Arterial and Neighborhood Collector Street improvements, as well as off-site street improvements, provide community-wide transportation benefits in addition to meeting a certain level of local transportation needs. The proposed development benefits from these improvements in the form of safe, vehicular and multi-modal transportation opportunities, emergency vehicle access, controlled drainage, on-going facility maintenance, and environmental protection benefits provided by municipal street sweeping. Some "extra-capacity" features such as bicycle lanes, striping, extra pavement width and/or structure may be eligible for cost recovery through "System Development Charges (SDC)" reimbursement or SDC credit application process. Some "local share" feature costs such as sidewalk and curb and gutter may be recoverable through the "Zone of Benefit (ZOB)" application process. Given these considerations, the level of improvements required to the transportation system are considered to be roughly proportional to the anticipated impacts of the proposed development.

Bicycle/Pedestrian Circulation

Applicable Comprehensive Plan Policies

11.5.1 Bikeways shall be conveniently located, be adequately constructed, have minimal stops and obstructions, and have safe crossings on major streets.

11.5.2 Bikeways shall provide safe, efficient corridors which encourage bicycle use. Bicycle use of major streets shall be considered as improvements are made to major transportation corridors.

11.6.5 All arterial and collector streets shall have sidewalks constructed at the time of initial stret improvement to encourage pedestrian use.

11.6.11 The City shall encourage timely installation of pedestrian facilities to ensure continuity and reduce hazards to pedestrians throughout the community.

Applicable Land Development Code Criteria

LDC 4.0.40 - Pedestrian Requirements

a. Sidewalks shall be required along both sides of all arterial, collector, and local streets as follows:
   1. Sidewalks shall be a minimum of 5-ft wide on local through streets and a minimum of 4-ft wide on cul-de-sacs. The sidewalks shall be separated from curbs by a tree planting area that provides at least 6-ft of separation between sidewalk and curb.
   2. Sidewalks along arterial and collector streets shall be separated from curbs and planted area. The planted area shall be a minimum of 12-ft wide and landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of 6-ft wide [NOTE: This is a mistake and should be 5-ft wide].
   3. The timing of the installation of sidewalks shall be as follows:
      a. Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements.
      b. Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below.
      c. Where sidewalks on local streets abut common areas, drainageways, or other publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.

b. Safe and convenient pedestrian facilities that strive to minimize travel distance to the greatest extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, transit stops, and neighborhood activity centers such as schools and parks, as follows:
   1. For the purposes of this section, "safe and convenient" means pedestrian facilities that: are reasonably free from hazards which would interfere with or discourage pedestrian travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians considering destination and length of trip.
   2. To meet the intent of "b" above, pedestrian rights-of-way connecting cul-de-sacs or passing through unusually long or oddly shaped blocks shall be a minimum of 15 ft wide. When these connections are less than 220 ft long (measuring both the on-site and the off-site portions of the path) and they directly serve 10 or fewer on-site dwellings, the paved improvement shall be no less than 5 ft wide. Connections that are either longer than 220 ft or serving more than 10 on-site dwellings shall have wider paving widths as specified in Section 4.0.50.c.
   3. Internal pedestrian circulation shall be encouraged in new developments by clustering buildings, constructing convenient pedestrian ways, and/or constructing skywalks where appropriate. Pedestrian walkways shall be provided in accordance with the following standards:
      (a) The on-site pedestrian circulation system shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to minimize out-of-direction pedestrian travel.
      (b) Walkways shall be provided to connect the on-site pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.

e. To ensure improved access between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or

Director may require off-site pedestrian facility improvements concurrent with development.

LDC 4.0.50 - Bicycle Requirements

a. **On-street bike lanes shall be required on all arterial and collector streets and constructed at the time of street improvements.**

b. **Safe and convenient bicycle facilities that strive to minimize travel distance to the greatest extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, transit stops, and neighborhood activity centers such as schools and parks.**
   1. **For the purposes of this section, "safe and convenient" means bicycle facilities which: are reasonably free from hazards which would interfere with or discourage bicycle travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of bicyclists considering destination and length of trip.**

c. **Adequate widths for pedestrian/bicycle facilities shall be provided in accordance with the following standards:**
   1. **8 ft bikepaths should be used where long term bicycle and pedestrian usage is expected to be relatively low (a neighborhood facility rather than a community-wide facility) and with proper alignment to ensure adequate sight distance.**
   2. **10 ft shall be used as a standard width for two-way bikepaths.**
   3. **12 ft bikepaths shall be provided in areas with high bicycle volumes or multiple use by bicyclists, pedestrians, and joggers.**

d. **To provide for orderly development of an effective bicycle network, bicycle facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).**

Exhibit II - 79

Oregon Department of Transportation (ODOT) standards for multi-use paths require a 3-foot clearance from all obstacles, as well as 3-foot shoulders at a 2 percent slope for all significant grade breaks. A 12-foot to 1-foot (12:1) longitudinal grade is allowed on multi-use paths for distances not to exceed 500 feet. Distances greater than 500 feet must provide level landings. It is recommended that the multi-use path design for this development meet these requirements, unless otherwise approved by the City Engineer. In addition, the multi-use path entrance south of Street 'A' should have a reflectorized, locking gate installed by the developer concurrent with the first phase of development (**Condition 36**).

All pedestrian trails and walkways not in public ROW should be privately owned and maintained and subject to a public access easement. As part of this maintenance, the applicant or responsible party should address weed abatement such that vegetation within 25 feet of all structures is maintained and complies with fire and life safety standards. All private paved pedestrian walkways should be designed so that their surface elevations are at least 6 inches above the adjacent ground elevations to minimize erosion and scouring potential. Careful attention should be given to existing and post-development drainage patterns. Prior to issuance of construction and/or building permits, or prior to the recordation of the final plat for the first phase of development, whichever comes first, the applicant should provide the City

with written documentation that identifies the responsible party(ies) for long term maintenance of these areas within the site. If this entity is a homeowner's association, the applicant should also provide a mechanism to ensure private maintenance of these areas in the event the homeowner's association ceases to exist. All pedestrian trails and walkways, both private and public, should be constructed to and through the site with each associated phase of development. Public access easements for all privately owned pedestrian trails and walkways should be obtained concurrent with the final plat for their associated phase (**Condition 37**).

In order to facilitate discussion of the transportation network, the Bicycle/Pedestrian Circulation section is divided into three parts: Part I is a discussion of the NW Circle Boulevard improvements; Part II is a discussion of NW Harrison Boulevard improvements; and Part III is a discussion of the proposed local street network internal to the site.

Part I: NW Circle Boulevard

Standard bicycle and pedestrian improvements for a Neighborhood Collector include 6-foot wide bike lanes, and 5-foot wide sidewalks separated from travel lanes by 12-foot wide planter strips on both sides of the street. As mentioned previously, the applicant has proposed a pedestrian design that meets the City's standards for a Neighborhood Collector, with the following variances:

- the sidewalk on the west side of NW Circle Boulevard south of Street 'A' (Station 1+00 to 15+70) was eliminated in order to preserve the existing wetlands (**Attachment I-77**);
- the sidewalk on the west side of NW Circle Boulevard from Street 'A' (Station 15+70) north to Street 'B' (Station 22+40) was eliminated and replaced with the 12-foot wide multi-use path;
- the sidewalk on the east side of NW Circle Boulevard from Street 'B' (Station 22+40) to the north edge of the property site boundary (Station 27+40) was eliminated and replaced with the 12-foot wide multi-use path;
- the planter strip width along the west side of NW Circle Boulevard between Stations 1+00 to 4+00 narrows down to a minimum of 7'-6" to accommodate the proposed left turn lane onto NW Harrison Boulevard, and to preserve the existing wetlands;
- the planter strip width along the west side of NW Circle Boulevard through the intersections of Street 'A' (Stations 14+90 to 17+20) and Dale Street (Stations 24+50 to 27+30) narrows down to a minimum 8'-6" to accommodate the proposed centerline traffic calming dividers; and
- the planter strip width along the west side of NW Circle Boulevard between Stations 17+20 to 21+75 has been reduced to 8'-6" to accommodate the relocated stream channel width, as well as to preserve open space in Tract 'F'.

Preserving wetlands and natural features when possible is consistent with the City's Comprehensive Plan Policies 4.10.9, 4.11.12, 4.11.17. The proposed variances to the

sidewalk and planter strips are consistent with Transportation Plan criteria, which allows for modifications through the Planned Development process.

For safe and convenient pedestrian passage, it is recommended that all public pedestrian facilities along NW Circle Boulevard be constructed concurrent with the first phase of development (**Condition 38**).

Part II: NW Harrison Boulevard

Standard bicycle and pedestrian improvements for an Arterial Street include 6-foot wide bike lanes, and 5-foot wide sidewalks separated travel lanes by 12-foot wide planter strips each side of the street. The applicant has requested a variation to City standards for the following items:

- partial street improvements (i.e. no curb and gutter, sidewalk, or planter strips) on the south side of NW Harrison Boulevard adjacent to the site due to the fact that the southern adjacent property (OSU) has the potential to be developed in the future, at which time these improvements would be required;
- the existence of two side-by-side driveways located just east of the site's southeast property corner within less than 150 feet from the proposed NW Circle Boulevard alignment;
- the section of NW Harrison Boulevard from Arnold Park to the southeast boundary of the subject site is not improved to City standards, and is lacking curb and gutter, adequate planter strips, and enclosed drainage on both sides;
- the sidewalk west of the existing multi-use path was eliminated and replaced with the proposed 10-foot wide multi-use path, consistent with the Corvallis Parks and Recreation Master Plan; and
- the planter strip along the entire north side of NW Harrison Boulevard has been reduced to 6-foot wide in order to preserve existing wetlands.

Preserving wetlands and natural features when possible is consistent with the Comprehensive Plan Policies cited above. The proposed variances to the sidewalk and planter strips adjacent to the subject site are consistent with Transportation Plan criteria, which allows for modifications through the Planned Development process. Because the adjacent OSU property to the south has the potential to be developed in the future, partial improvements to the south side of NW Harrison Boulevard are consistent with City standards, as well as the conditions set forth in the annexation plan for this site (**Attachment E**).

For connectivity and pedestrian safety, the sidewalk and planter strips along the north side of NW Harrison Boulevard between NW Circle Boulevard and the existing multi-use path should be constructed concurrent with the first phase of development. The extension of the multi-use path and planter strips on the north side of NW Harrison Boulevard west of the existing multi-use path may be constructed concurrent with the NW Harrison Boulevard street improvements (**Condition 38**).

The application does not address off-site pedestrian improvements east of the site. Existing sidewalk on the north side of NW Harrison Boulevard the project site terminates in front of the LDS property approximately 100 feet east of the site. Existing sidewalk on the south side of NW Harrison Boulevard terminate at 35th Street. Planter strip is present along the north side of Harrison along the LDS site and Arnold Park but it varies in width and lacks adequate tree plantings between Arnold Park and the site. No planter strip is present on the south side of NW Harrison. In order to ensure safe and convenient pedestrian passage, and to satisfy the City's "to and through" policies, it is recommended that the sidewalk along the north side of NW Harrison Boulevard be extended east from NW Circle Boulevard to connect with the existing sidewalk, concurrent with the first phase of development (**Condition 39**).

Part III: Local Streets

The standards for bicycle and pedestrian improvements on a Local Street are 28-foot wide shared vehicle/bicycle pavement surface, 6-foot wide planter strips and 5-foot wide sidewalks. The standard width for pedestrian paths not on Local Streets varies depending on use (see LDC 4.0.40.b.2 and 4.0.50). The applicant has proposed bicycle and pedestrian improvements consistent with the City's standard, with the following variances:

- the sidewalk on the east side of Street 'A' adjacent to Tract 'K' open space has been eliminated in order to preserve more open space;
- the new pedestrian paths located throughout the site within tracts are shown as 5-foot wide asphalt-concrete, although they typically serve more than 10 dwellings, and will most likely be used for bicycles as well as pedestrians, which would require a minimum width of 8 feet (see LDC Section 4.0.50(c)).

Preserving natural features when possible is consistent with the City's Land Development Code. The proposed variances to the sidewalk and planter strips on Street 'A' are consistent with Transportation Plan criteria, which allows for modifications through the Planned Development process. Therefore, elimination of the sidewalk along the east side of Street 'A' in order to preserve the open space, as shown on **Attachment I-77**, should be allowed. Similarly, the new proposed pedestrian paths should be allowed to deviate from the standard minimum width of 8 feet. If the minimum width standard were met, the resultant grading would exacerbate impacts already occurring in a majority of the areas where these paths are proposed. These paths are supplemental to the pedestrian and bicycle circulation system provided by new Local Streets, and are not anticipated to carry of volume of traffic that would mandate a width greater than 5 feet.

Sidewalks and planter strips along Local Streets should be installed concurrent with the development of their associated phase, typically with issuance of building permits or within three years from the recording of the final plat for the associated phase, except where sidewalks on local streets abut common areas, drainageways, or other publicly owned areas. For those exceptions, the sidewalks and planter strips should be installed with the street improvements. Private pedestrian paths and open space paths may be constructed concurrent

with their adjacent development phase, provided the City's "to and through" criteria are satisfied. (**Condition 40**).

Conclusion on Bicycle/Pedestrian Circulation

Given **Conditions 36** through **40**, the proposed bicycle and pedestrian circulation system will comply with all applicable Comprehensive Plan policies, Transportation Plan criteria, and Land Development Code criteria.

The proposed development creates the need for a transportation system that provides facilities to accommodate the new development-related vehicular, bicycle and pedestrian traffic. The requirements for Arterial and Local Street improvements to City standards ensure these needs are met. Requirements for Arterial Street improvements, as well as off-site street improvements, provide community-wide transportation benefits in addition to meeting a certain level of local transportation needs. The development benefits from these improvements in the form of safe, vehicular and multi-modal transportation opportunities, emergency vehicle access, multiple circulation routes, controlled drainage, ongoing facility maintenance, and environmental protection benefits provided by municipal street sweeping. Some "local share" feature costs such as sidewalk and curb and gutter may be recoverable through a "Zone of Benefit" application process.

Setback sidewalks and planter strips are City standards and components of safe public sidewalks that are taken into consideration when determining serviceability. The applicant benefits from these sidewalk and planter strip improvements in the form of:

- An enhanced aesthetic experience for pedestrians as the separation from motor vehicle traffic decreases road noise, prevents water from the roadway being splashed on pedestrians and provides an enhanced sense of security.
- An enhanced environment for wheelchair users as the sidewalk can be kept at a constant slope with the steeper slopes for driveway approaches built into the planting strip section.
- An area for street trees, sign posts, utility and signal poles, mailboxes, fire hydrants
- Mature street trees may reduce vehicle speed.
- When wide enough, a place for a motor vehicle to wait out of the stream of traffic while yielding to a pedestrian crossing a driveway.
- A break in hard surfacing with added pervious area.

Given these considerations, the level of improvements required to the transportation system are considered to be roughly proportional to the anticipated impacts of the proposed development.

Transit

Applicable Comprehensive Plan Policies

11.7.1 An improved public transportation system within the Urban Growth Boundary should be established to improve the livability of the community, to reduce pollution and traffic, and to reduce energy consumption.

11.7.4 Arterial and collector street designs shall include evaluation for transit facilities such as bus stops, pullouts, shelters, optimum road design, and on-street parking restrictions as appropriate to facilitate transit service.

11.7.7 The City should seek appropriate opportunities for increasing residential density and providing industrial and commercial development along existing and proposed transit routes.

Applicable Land Development Code Criteria

LDC 4.0.60 - Transit Requirements

a. Development sites located along existing or planned transit routes shall, where appropriate, incorporate bus pull-outs and shelters into the site design. These improvements shall be installed in accordance with the guidelines and standards of the Corvallis Transit System (i.e., bus pull-outs are typically spaced at 1500-ft apart).

b. New developments at or near existing or planned transit stops shall design development sites to provide safe, convenient access to the transit system, as follows:

2. All developments shall provide safe, convenient pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of Section 4.0.40.b.

Exhibit II - 84

Corvallis Transit System (CTS) Route 8 currently provides westbound transit service to the site on NW Harrison Boulevard. The nearest transit shelter for NW Harrison Boulevard is located just west of Merrie Street, approximately one half-mile east of the site. The applicant has proposed construction of a transit shelter and pad on the north side of NW Harrison Boulevard approximately 100 feet west of the proposed NW Circle Boulevard Extension. This location is consistent with the Transportation Plan and the annexation plan criteria for this site (see NW Witham Oaks Annexation, ANN04-00004, CPA04-00004, ZPA04-00004). It is anticipated that transit service will be routed along the new NW Circle Boulevard Extension.

In order to accommodate the anticipated transit service route, it is recommended that the applicant provide right-of-way for two additional shelter locations along the east and west sides of NW Circle Boulevard. The exact locations and dimensions of all three transit shelters and pads should be determined as part of the public improvement plan review. The concrete pads along both NW Circle Boulevard and NW Harrison Boulevard should be constructed concurrent with the first phase of development (**Condition 41**).

The proposed development establishes a nexus for these transit facility improvements due to its additional ridership burden on the Corvallis Transit Service. The development benefits from these improvements in the form of safe and convenient multi-modal transportation opportunities, and the reduction in vehicular movements within their development. Therefore, staff find that the burden of providing these improvements is roughly proportional to the benefits received by the development.

Conclusion on Transit

Per the preceding discussion, the proposed Transit system will comply with all applicable Comprehensive Plan policies, Transportation Plan criteria, and Land Development Code criteria.

Overall Conclusion on Circulation

Per the preceding discussion, the existing public vehicular circulation network can accommodate the proposed development consistent with applicable City criteria, as conditioned.

E. PUBLIC FACILITIES AND SERVICES

The following discussion addresses Comprehensive Plan Policies and LDC criteria related to public facilities and services, and franchise utilities.

Applicable Comprehensive Plan Policies

4.10.1 Development within the Urban Growth Boundary shall conform to the Corvallis Drainage Master Plan which includes the site-specific provisions included in the 1996 South Corvallis Drainage Master Plan and subsequent updates of these Plans.

4.10.3 Significant drainageways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable.

4.10.4 Within the Urban Growth Boundary, appropriate drainageway dedications and easements adequate for flood protection, conveyance of stormwater, channel access and maintenance, protection of riparian environment, and channel migration shall be secured along all open drainageways needed for public conveyance of stormwater, prior to or at the time of development.

4.10.7 To minimize the negative impacts of development, stormwater runoff after development should be managed to produce no significant reduction of water quality than prior to development, unless more appropriate provisions are identified in adopted comprehensive storm water management plans.

4.10.8 Grading and filling in drainageways shall be regulated to prevent negative impact on the channel, floodway and flood plain, riparian habitat, wetlands, and other properties. Whre drainageways are disturbed through development, the developer shall return the drainageway to its natural state, to the extent practicable.

4.10.16 Where stream shading is not adequate, development shall include planting of trees and/or other vegetation to provide adequate shading. (SS-7)

4.10.18 The City shall inventory and identify natural intermittent streams within the Corvallis Urban Growth Boundary that provide important hydrological, water quality, and aquatic habitat

functions. Those that are used for stormwater functions shall be protected using mechanisms such as drainageway dedications and easements. (SS-1)

4.10.19 The Corvallis stormwater utility shall incorporate existing natural features such as streams and wetlands as a means of managing urban fun-of. When using these natural features for urban stormwater needs, stormwater management shall follow the guiding principle of minimizing harm to these natural systems, maintaining the natural functions, and over time, repair any damage associated with past practices. (GP-1)

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

4.12.9 The City shall encourage practices that enhance groundwater recharge to maintain or increase stream flow during dry periods. (QN-10)

4.12.10 The City shall encourage parking lots to be constructed of stable pervious surfaces that do not degrade groundwater quality.

10.2.8 The expansion of public facilities or services within City Limits or the extension of public facilities or services to newly-annexed areas shall be accomplished through the Capital Improvement Plan, as funding allows, or as a condition of development, or a combination of both.

10.2.9 All developments shall comply with adopted utility and facility master plans and the Capital Improvement Plan.

10.2.10 The City and County shall develop regulations and procedures which will encourage the appropriate development of public facilities and services within the Urban Growth Boundary. The cost of such facilities and utilities shall be borne by the benefitted properties.

10.2.11 Developers shall be required to participate financially in providing the facilities to serve their projects as a condition of approval.

10.2.12 Developers will be responsible for the construction of all facilities internal to and fronting their properties and for needed extensions of facilities to and through their site.

10.3.6 The City shall take steps to minimize the effects of development on downstream drainage systems through the use of appropriate strategies as identified in the Stormwater Master Plan.

Applicable Land Development Code Criteria

4.0.80 - Public Utility Extensions

a. All development sites shall be provided with public water, sanitary sewer, storm drainage, and street lights.

b. Where necessary to serve property as specified in "a" above, required public utility installations shall be constructed concurrent with development.

c. Off-site public utility extensions necessary to fully serve a development site and adjacent properties shall be constructed concurrent with development.

d. To provide for orderly development of adjacent properties, public utilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).

e. All public utility installations required with development shall conform to the City's adopted facilities master plans.

f. Private on-site sanitary sewer and storm drainage facilities may be considered provided all the following conditions exist:
   1. Extension of a public facility through the site is not necessary for the future orderly development of adjacent properties.
   2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 4.0.70.f above);
   3. The facilities are designed and constructed in accordance with the Uniform Plumbing Code and other applicable codes, and permits are obtained from the Development Assistance Center prior to commencement of work.

4.0.70.l Development shall include underground electric services, light standards, wiring and lamps for streetlights according to the specifications of the City Engineer. The developer shall be responsible for installation fo underground conduit for street lighting along all public streets improved in conjunction with such development in accordance with the following:
   1. The developer shall coordinate with the City Engineer to determine the location of future street light poles.
   2. The streetlight plan shall be designed to provide illumination meeting standards set by the City Engineer.
   3. The standard street light installation is a wood pole.

Exhibit II - 87

4.0.110 - Land For Public Purposes

a. Easements for public sanitary sewer, water, storm drain, streetlight, pedestrian and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
   1. When located between adjacent lots, easements shall be provided on one side of a lot line.
   2. The minimum easement width for a single utility is 15-ft. The minimum easement width for two adjacent utilities is 20-ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.

4.5.80 - Drainageway Easements and Dedications

Development can have a number of impacts on the drainage system and its associated water quality. These potential impacts include, but are not limited to, increases in the amount of surface water runoff, decreases in the time for stormwater destined for drainageways to reach peak flow, increases in water temperature, and increases in the quantity and types of pollutants that may enter drainageways. To the greatest extent practicable, the drainageways within the City are intended to function as a holistic natural

system that includes both fish-bearing streams and other streams whose flow is recognized to have direct impacts on these fish-bearing streams. To ensure that unnecessary negative impacts to this system are minimized, and to provide and maintain adequate stormwater facilities, new development, expansion of existing development, or redevelopment proposed on land abutting or containing an open, natural drainageway, shall require granting of an easement, under the conditions described in "a" of this section, over lands suitable for conveying storm waters and for maintaining and operating an effective open drainageway system. The easement is intended to satisfy the purposes cited in Section 4.5.10 above, and shall be reviewed and approved by the City Engineer.

a. Easement: While dedications are preferred, at a minimum, a drainageway easement shall be required when:

1. A parcel of land is divided into two or more parcels, whether by land partitions or subdivision;
2. A permitted development of any kind (building, parking lot, etc.) is proposed on a vacant parcel of any size;
3. A detailed Development Plan is proposed in accordance with Chapter 2.5 for a parcel, regardless of whether structures exist;

b. Easement Restrictions: The easement shall contain sufficient restriction on the use of the area to satisfy the purposes cited in Section 4.5.10 above. Restrictions shall apply to structural improvements, regrading, filling, or alteration of existing vegetative cover.

d. Easement Width: When an easement is required (see Figure 4.5-1), the appropriate width shall be determined as follows:

3. For streams not indicated on Figure 4.5-1 as fish-bearing, the easement area shall include the drainage channel plus additional width as determined by the following formula:

WFTOB = 1.5x + 5 ft
WFTOB = Width From Top Of Bank (i.e. width of the easement area needed on each side of the drainageway channel).
x = Width of channel from top of bank to top of bank as determined by the City Engineer, or 30 ft, whichever is less.

Note: for non-fish-bearing streams, the easement identified in subsection "3" above shall be applied based on a specific determination of the impacts from a site's development to the affected drainageway and a determination that the easement width is required to provide a benefit to the drainageway that is "roughly proportional" to the development's impact. In the formula (1.5x + 5 ft), the +5 ft can be waived when the City Engineer finds that there is minimal risk that impervious cover, compaction, or trenching activities will occur in this 5 ft area.

6. If the federally designated 100-year flood plain (as determined by maps on file with the City Engineer) extends beyond the required width as specified above, additional easement widths shall be provided for flood management or to preserve riparian areas. Such dedications or easements shall no exceed 50 ft as measured from the top of the bank.

4.5.90 - Stormwater Detention & Retention Measures

a. To reduce the risk of causing downstream properties to become flooded and to help maintain or restore the properly functioning conditions of receiving waters, new development, expansions to existing development, or redevelopment shall be required to provide stormwater detention and retention in accordance with "b" of this section.

b. When detention and/or retention are required
   1. Development Projects that create impervious surfaces (roads, driveways, parking lots, walks, patios, and roofs) in excess of 25,000 square feet are required to implement stormwater detention and/or retention measures as specified in the Corvallis Design Criteria Manual. Detention facilities shall be designed to maximize stormwater infiltration.

4.5.100 - Standards For Properties With Wetlands

4.5.110 - Use Limitations and Exceptions Within Drainageways and Wetlands Subject to Easements and Safe Harbor Regulations

In addition to the requirements of the underlying zone, the following limitations and exceptions shall apply to activities within drainageways and wetlands, and shall require prior review and approval by the appropriate local, state, and federal agencies.

a. Removal of vegetation from drainageways is prohibited except for the following purposes as approved by the City Manager's designee:
   4. For the development of water-related or water-dependent uses, provided they are designed and constructed to minimize impact on the existing riparian vegetation;
   6. Perimeter mowing/cutting of vegetation for fire hazard prevention.

b. Building, Paving, and Grading Activities: Within drainageway and wetland areas, the placement of structures or impervious surfaces, including grading, excavation, and the placement of fill, is prohibited except as stated below. Exceptions to the drainageway and wetland restrictions may be made for the purposes identified in items 1-6 of this section, provided they are designed and constructed to minimize adverse impacts to the riparian or wetland area. In the case of wetlands, no development shall be permitted until the City has received verification of DSL approval for development on the subject site, or written indication from DSL that the department is not concerned with the development.
   2. Construction of streets, roads, and pedestrian connections that are included in the City of Corvallis Transportation Plan;

d. Site Maintenance: the limitations imposed by this section do not preclude the routine maintenance of structures. Maintenance of lawns, planted vegetation and landscaping shall be kept to a minimum and shall not include the spraying of herbicides or other pesticides. Where replanting is done, vegetation shall be replanted with native species. Maintenance trimming of existing trees shall be kept to a minimum, and under no circumstances shall the maintenance trimming be so severe it compromises the tree's health, longevity, and resource functions. Vegetation within utility easements shall be kept in a natural state and replanted when necessary with native plant species.

Exhibit II - 89

The applicant has presented a phasing plan that, while not addressing specific phasing of utilities, should form the basis for phased utility installation. As per City standards, all utilities should be extended "to and through" each phase that the subject utilities abut and/or serve. If during review of public improvement plans for individual phases it is determined by the City

Engineer that utility extensions (or looping) are required to meet development demands, then the developer should extend (or loop) the utility concurrent with whichever phase of development creates the need (**Condition 42**).

Public accessways and appropriate access easements will need to be provided to all public sewer and stormwater manholes, detention, and water quality facilities not located in public right-of-way. Accessways should be constructed as all-weather, be at least 15feet wide, and capable of supporting 60,000 pound maintenance vehicles. The accessways should extend to within 10 feet of all associated manholes, with no more than a 15-foot back-up length, unless otherwise approved by the City Engineer (**Condition 43**).

Infrastructure cost recovery charges may apply to the NW Harrison Boulevard sewer and Dale Drive sewer lines adjacent to the site. The determination of applicable charges will be determined during the public improvement review process. Where it is determined that there will be Infrastructure Cost Recovery charges, the developer should pay their required share of the costs prior to making any connection to any infrastructure system in accordance with Corvallis Municipal Code Section 2.18.040 (**Development Related Concern 'F'**).

Water

The proposed development lies within first, second, and third level water service areas. First level water service is available from a 20-inch diameter ductile iron waterline in NW Harrison Boulevard. However, since most of the proposed development occurs in the second level area, use of this line is not recommended. Second level water service is available from dead-end lines within the NW Circle Boulevard extension ROW (16-inch diameter ductile iron), the Dale Drive ROW (6-inch diameter cast iron), and off of NW Elizabeth Place (6-inch diameter cast iron). All three of these lines were stubbed-out with the intention that they would be looped as part of development occurring on the subject site. Third level waterlines are available from areas north of the site, west of Woodland Drive and NW Witham Hill Drive (8-inch diameter cast iron). However, these lines do not abut the site.

The applicant has proposed connecting to both of the existing second level waterlines in NW Circle Boulevard and Dale Drive at the north end of the site. The applicant has also proposed extending the NW Circle Boulevard waterline south and east across an existing easement for future connection to the existing NW Elizabeth Place stub. However, access completing this connection to the NW Elizabeth Place waterline stub would require an easement across the Beit Am property. Tying into the NW Elizabeth Place stub would allow for looping of the proposed system, which is the City's preference. Looping waterline connections at multiple locations increases the performance of the public water system by providing: (1) increased pressures; (2) increased available flows; (3) increased water quality by means of frequent replenishment of potable water within the system; and (4) redundancy in the public system to facilitate maintenance events. Without connecting to the waterline stub in NW Elizabeth Plan, the proposed system would result in approximately 1500 feet of dead-end second level waterline. Long dead-end extensions of public waterline should be avoided in order to maintain the performance standards listed above.

No dead-end water lines should be constructed from the NW Circle Boulevard water line extension. If an easement cannot be obtained to loop the NW Circle Boulevard waterline to the NW Elizabeth Place waterline, it is recommended that the applicant extend the NW Circle Boulevard waterline south to the intersection with the existing City easement that crosses over the Beit Am property between this site and the City-owned property this immediately north of the LDS church. A flushing station, complete with an accompanying meter service and a backflow prevention system, should be installed at the terminus of this waterline and connect to the public sewer system on NW Harrison Boulevard. The looping of the waterline and/or installation of the flushing station should be constructed concurrent with NW Circle Boulevard improvements in the first phase of development (**Condition 44**).

The applicant has proposed tying into the NW Harrison Boulevard first level water service, and extending this line approximately 500 feet north along NW Circle Boulevard. Because there are no other connections for First Level water service to the site, this would create a dead-end line. The applicant has stated that this line would only be used for fire hydrants, and would not be used for any domestic service within the Witham Oaks site. Because the existing structures located within this section of NW Circle Boulevard could be reached from the existing fire hydrants on NW Harrison Boulevard, it is recommended that no first level dead end water lines be constructed off the NW Harrison Boulevard water supply (**Condition 44**).

The application also shows a general alignment for a Third Level waterline heading extending from the site (**Attachment I-78**). Some lots located at the north end of the site may be better served by a Third Level system to improve water pressures in dwellings and hydrants at the north end of the site. Connection to this Third Level service would require an easement through the open space property to the north of the site. The open space purchase agreement for this property states that the owner/buyer (currently the City) will allow an easement across the property at a mutually agreed upon location and with an alignment to be determined at a later date, for purposes of providing public water service access. There are, however, several significant trees in this open space tract that would complicate installation of this line.

The exact locations and alignments of waterlines and services will be determined as part of the public improvement process. Extension of a Third Level water service to the upper portions of the development site may not be the optimal service configuration. This would involve significant extension of waterline through a treed open space area to serve a limited number of lots. The applicant should be aware of potential water pressure issues for Second Level services (i.e., insufficient pressure [< 40 psi] on second stories at the north end of the site and excessive pressures [> 85 psi] at the south end of the site) that may require private booster pumps or pressure reducing valves. As part of the public improvement plan review process, the applicant should provide calculations that show City standards for fire and domestic water pressure have been met with the proposed system.

If it is determined that private water booster pumps and/or pressure reducing valves are required to maintain proper domestic service pressure, deed restrictions should be recorded for the affected lots to ensure that all future owners are aware of the need to maintain the private booster pump or pressure reducing valves (**Condition 45**).

Infrastructure cost recovery charges may apply to the NW Harrison Boulevard waterline adjacent to the site. The determination of applicable charges will be determined during the public improvement review process. Where it is determined that there will be Infrastructure Cost Recovery charges, the developer should pay their required share of the costs prior to making any connection to any infrastructure system, in accordance with Corvallis Municipal Code Section 2.18.040 (**Development Related Concern 'F'**).

Based on evaluation of the City's Water Master Plan, and given the conditions above, the site can be adequately served by the City's water system.

Sanitary Sewer

The site is located within the Fillmore sewer basin. Sanitary sewer service is available to the site via the existing and the 12-inch diameter sewer line in the NW Circle Boulevard Extension, which extends south and connects to the 15-inch diameter sewer line flowing to the east in NW Harrison Boulevard.

The applicant has proposed a network of gravity sewer lines constructed within the new Local Streets, (with the exception of a 250-foot long section in Tract 'C' and a 170-foot long section in Tract 'M') that flow to the existing 12-inch diameter sewer line traversing the site. It appears from the detailed design that all lots can be served with public sewer lines, and that there will not be a need for private sewer lines.

Based on evaluation of the City's Wastewater Utility Master Plan, it has been determined that the City's sewer system has adequate capacity to serve the proposed development.

Storm Drainage

The site is located within the Oak Creek drainage basin. There are currently no enclosed public storm drain lines adjacent to the site. The closest storm drain line in NW Harrison Boulevard to the east is near the intersection with NW Merrie Street. Storm drains east of the site have limited capacity to accept additional flows.

Stormwater runoff from the site currently drains from north to south through the existing wetlands. There is an existing drainageway (approximately 5 feet wide) that runs roughly north to south through the site, paralleling and crossing the existing NW Circle Boulevard ROW for much of its length, and terminating into an existing channel (approximately 5 feet wide and 2 to 3 feet deep) that runs along the north side of NW Harrison Boulevard adjacent to the site's southern boundary.

The applicant has proposed realignment of the northern portion of this NW Circle Boulevard drainageway that runs north-south through the site in order to construct the NW Circle Boulevard improvements. The existing NW Circle Boulevard drainageway appears to be approximately 5 feet wide along this northern reach.

There is an existing 18-inch diameter culvert (i.e., Outfall 1) located at the southeast corner of the site that currently conveys some runoff from the site south onto the abutting OSU property. The majority of the collected runoff from the site is conveyed west via the NW Harrison Boulevard channel to an existing 18-inch diameter culvert (i.e., Outfall 2) that crosses under NW Harrison Boulevard and into a drainageway that flows across the abutting OSU property south to Oak Creek. A portion of the runoff from the site continues further west along the NW Harrison Boulevard channel, eventually crossing NW Harrison Boulevard (i.e., Outfall 3) and also flowing south across OSU property to Oak Creek.

The applicant has proposed construction of public and private drainage systems for the new development that would deliver stormwater flows to four proposed water quality structures (WQ North, WQ East, WQ Central, and WQ West) located roughly across the middle and lower half of the site, just outside the designated wetland areas (**Attachment I-163**). The treated stormwater from the water quality facilities would then be distributed via sheet flow across the existing wetlands at rates designed to match the pre-development flows.

The applicant has proposed two detention facilities that would be located at the south end of the site, just outside the wetland boundaries. These facilities would be used to store runoff from the development until it can be released onto the adjacent OSU property at or below the pre-development flow rates. The applicant has also proposed re-aligning the NW Harrison Boulevard conveyance channel further north in order to accommodate the NW Harrison Boulevard street improvements. This channel would act as both a conveyance structure and as an additional detention facility. The existing NW Harrison Boulevard conveyance channel appears to be approximately 5 feet wide and 1 to 2 feet deep adjacent to the site. Portions of the realigned channel may fall within the wetland area.

Due to the complexity of the proposed storm water drainage system, and to facilitate discussion, the Storm Drainage section is divided into three parts: Part 1 is a discussion of the proposed enclosed public and private storm drainage system; Part 2 is a discussion of the proposed natural drainageway system; and Part 3 is a discussion of the proposed storm water quality and detention facilities.

Part 1: Enclosed Public and Private Storm Drainage System

The applicant has proposed two private storm drain lines at the far north end of the site, serving lots 181 to 190, and lots 200 to 205, respectively. The applicant has stated that, due to the steep terrain in this area of the site, it is not possible to convey the stormwater flows from these lots to the public storm drain lines located in the adjacent streets. The alternative to creating these private stormdrain lines would have been to create public stormdrain lines between every other lot, which would have been difficult given the proposed minimum 3-foot sideyard setback.

The LDC cites that all development sites should be provided with public utilities including storm drainage. Private facilities may be considered if three criteria are met (LDC Section

4.0.70(k)). One criteria, the development site remains in one ownership, is not met in this case. However, as discussed above, topography and lot development standards present limited opportunity to access standard public storm drains. Therefore, staff concur with the applicant's proposal to utilize private storm drains. These private storm drain lines should have a private "joint and several" maintenance easement that will allow lot owners access for maintenance purposes over the entire line. The limits of these private easements should extend across only the adjacent northern lots and not impinge upon the adjacent southern lots (**Condition 46**).

The number and location of storm drain catch basins, pipe location and sizing should be determined during review of the public improvement plans. All storm drain catch basins should have trapping devices installed (**Condition 47**).

Part 2: Natural Drainageway System

As part of the plans for public improvements in the first phase of development, the applicant should include a detailed plan for realignment of the NW Circle Boulevard drainageway consistent with the Corvallis Stormwater Master Plan and the King County criteria. At a minimum, this plan should address re-establishment of vegetation, shading, facilitation of drainageway migration, and water quality protection for the wetlands consistent with DSL requirements and approval. The applicant allotted 17 feet of width for the realigned NW Circle Boulevard drainageway. The plan will need to included adequate design details to demonstrate that the realigned drainageway will fit within the allotted width, and that it will facilitate the safe passage of the 100-yr, 24-hr storm water event so that it does not present a safety hazard to adjacent dwellings, structures, and pedestrians. As per King County criteria, the slopes of all realigned drainageways should be no steeper than one foot of rise in three feet of run (3H:1V). Realignment of the NW Circle Boulevard drainageway should tie into, and not damage, the existing channel that was installed as part of the NW Circle Boulevard Extension Capital Improvement Project (**Condition 48**).

As part of the plans for public improvements in the first phase of development, the applicant should provide a drainageway easement along the entire length of the NW Circle Boulevard drainageway. The drainageway easement should be consistent with Land Development Code criteria and the City's Drainage Master Plan. The applicant should provide a stormwater maintenance plan (in accordance with King County criteria), and a stormwater facilities agreement (in accordance with City criteria) for the realigned portion of the NW Circle Boulevard drainageway. Because preservation of this drainageway is an integral component of the wetland preservation plan, the warranty period should be coincident with the recommended wetland mitigation monitoring plan time frame, or two years from acceptance, whichever is longer. The drainageway easement should be recorded with the final plat for the first phase of development (**Conditions 24** and **49**).

Public improvement plans should delineate the drainageway easement and should denote locations for installation of the City's standard "Riparian Area" protection/informational signs. The signs should be installed at the corners and midpoint of each parcel abutting the

drainageway easement, at a distance of 3 feet behind the property line that delineates the drainageway easement. The signs should be purchased and installed by the developer concurrent with the first phase of development (**Condition 50**).

In the submitted narrative, the applicant discussed a flow control structure for Outfall 2, however the design and location of this structure was not addressed or shown on the plans. Previous applications for this site have noted that the drainage along Outfall 3 to the west of the site may be impeded somewhat by topography and existing debris and/or blocked structures. As part of the public improvement plan review process, it is recommended that the developer submit an engineered capacity analysis for all on-site storm drainage to examine system capacity, and to identify any mitigation requirements necessary to ensure sufficient capacity. In addition, the applicant will need to provide detailed calculations demonstrating that the new and existing culverts extending onto OSU's property will adequately accommodate and control anticipated flows as per the Memorandum of Understanding dated August 15th, 2006 (**Attachment I-186**) (**Condition 51**).

Part 3: Storm Water Quality and Detention Facilities

All storm water quality and detention facilities (including the NW Harrison Boulevard conveyance and detention channel) should be designed consistent with criteria outlined in Appendix F of the City's Storm Water Master Plan, and criteria outlined in the King County Surface Water Design Manual. As per King County criteria, if side slopes steeper than the standard 3H:1V are proposed, or if embankment heights exceed 6 feet, they should be designed by a licensed geotechnical engineer. Fencing will not be allowed around any of the storm water quality detention facilities, unless otherwise approved by the City Engineer. As part of the plans for public improvements, the applicant should provide engineered calculations for pre-development and post-development peak storm water run-off flows, and demonstrate that all storm drainage facilities are designed to match pre and post development flows up to the 2, 5, and 10-year storm events or as consistent with the OSU Memorandum of Understanding, whichever is more stringent. Public-to-private transfers of all outfalls should also be adequately addressed as part of these plans. Design of all detention and water quality facilities should be performed by a qualified licensed professional engineer and should be subject to the review and approval of the City Engineer (**Condition 52**).

The design for the storm water quality and detention facilities (including the NW Harrison Boulevard conveyance and detention channel) should include a landscape plan that details all landscaping essential to ensure the proper function of the detention and water quality facilities. This functional landscape plan should be submitted as part of the plans for public improvements. The applicant should see that all associated functional landscaping associated with the storm water quality and detention facilities be installed, or that appropriate erosion and sediment control measures are in place, prior to any paving activity on the development site. All detention and water quality facilities landscaping should be consistent with City and King County criteria, and should be designed prior to acceptance of the public improvement plans. All water quality and detention landscaping should be designed and approved by a qualified landscape architect (**Condition 53**).

Because they are part of the public stormwater utility system, all storm water quality and detention facilities (including the NW Harrison Boulevard conveyance and detention channel) should be located within public ROW, dedicated tracts or subject to public drainage easements, consistent with Land Development Code criteria.

The applicant should provide a stormwater maintenance plan (in accordance with City and King County criteria), and a stormwater facilities agreement (in accordance with City criteria) for the proposed water quality and water storage facilities. Because the water quality facilities are an integral component of the wetland preservation plan and the detention facilities are in close proximity and/or located within wetland mitigation areas, the warranty period should be coincident with the wetland mitigation monitoring plan time frame, or two years from acceptance, whichever is longer (**Conditions 24** and **54**).

Groundwater quality and groundwater recharge (infiltration) should be considered when designing the stormwater quality and detention facilities. As per King County design criteria, the design for the water quality and detention system should identify the dry season water table and minimize disturbance to groundwater patterns. Infiltration facilities such as pervious pavements are a recommended means of meeting detention requirements where soil and slope conditions (not steeper than 10 percent) permit the use of infiltration facilities, and where the facilities will not have an adverse impact on the subject site or adjacent or downhill properties. The detention analyses should include a discussion on the feasibility of implementing infiltration during both wet and dry seasons, and a discussion on the feasibility of using pervious pavement systems in the streets and on-site paved areas to minimize runoff and maximize infiltration (**Condition 55**).

The applicant has proposed an above-ground water quality structure located between Streets 'I' and 'H', just south of proposed Lots 141 and 154. Because of the close proximity of this structure to the surrounding properties, this structure should meet the following criteria (in addition to City of Corvallis and King County criteria) (**Condition 56**):

a) Side slopes should not exceed a maximum 4:1 side slope.
b) Should facilitate the safe passage of the 100-yr, 24-hr storm water event so that it does not present a safety hazard to adjacent dwellings, structures, and pedestrians.
c) Should be designed so that it does not require fencing per the King County fencing requirements.

Off-Site Stormwater Drainage and Easements

Development-generated stormwater runoff from the site should not be allowed to cross private property without appropriate easements from impacted property owners. OSU owns property downstream of the proposed development site. The applicant has submitted a Memorandum of Understanding with OSU to provide an agreement to address providing the City an easement for the use and maintenance of the east drainage ditch (i.e., downstream of Outfall

2) for water quality and flood control purposes. The west drainage ditch (i.e., downstream of Outfall 3) should also be addressed in this agreement/easement since the proposed detention facilities may alter flows to it as well. A drainage easement acceptable to the City Engineer should be submitted with the plans for public improvements (**Condition 57**).

If proposed Conceptual and Detailed Development Plan is approved and an appropriate easement cannot be obtained subsequent to the approval, the applicant should be required to initiate a **Major Modification** to the in accordance with the applicable sections of the LDC. The modification should include alternate design solutions to accommodate the surface conveyance and water quality requirements of the proposed development. The reconfiguration of the on-site drainage facilities should not result in a decrease in buffering or open space requirements conditioned with the proposed Conceptual and Detailed Development Plan. Comprehensive Plan Policies 4.12.9 and 4.12.10 listed above should be considered when deviating from above-ground, open detention and water quality facilities (**Condition 57**).

The proposed land use represents a significant increase in impervious area and merits particularly careful attention to stormwater management. Given the complexity of the stormwater drainage system, it is not clear whether or not the proposed stormwater drainage facilities as shown in the application, can be constructed to City of Corvallis and King County criteria. Permitting for the wetland mitigation plan is also required by DSL and DEQ. If the proposed Conceptual and Detailed Development Plan is approved and the proposed stormwater drainage facilities cannot be constructed to City of Corvallis and King County criteria as configured, then the applicant should initiate a **Major Modification** to the to address a storm drainage facility design that can be constructed to City of Corvallis and King County criteria (**Condition 58**).

In order to mitigate a development site's water quantity and quality burdens on the public stormwater system, acceptable detention facilities and stormwater treatment facilities must be provided. Public maintenance of these facilities is most efficiently provided with open systems because they facilitate visible evaluation of system conditions and accommodate routine, low-technology maintenance practices. Practices that enhance groundwater recharge to maintain or increase stream flow during dry periods are encouraged, as per Policy 4.12.9 and Appendix F of the City's Stormwater Master Plan. Open systems allow stormwater contact with vegetation and soil to enhance water quality and infiltration. The development receives the following benefits from open, public storm water quality and detention facilities: on-going public maintenance; avoiding the cost of installing underground detention pipe and associated all-weather access paths for the City's maintenance vehicles; and maintaining the properly functioning hydrological and biological condition of open drainageways. Therefore, staff find that the burden of providing these improvements is roughly proportional to the benefits received by the development.

Street Lights

Land Development Code Section 4.0.70 has been amended to establish street lights as public utilities. The applicant should provide an engineered design for street light installation, obtain appropriate electrical permits from Development Services Division, and install the street light system concurrent with public improvements. Street lights should be installed concurrent with their respective phase of development (**Condition 59**).

Overall Conclusion on Public Facilities and Services

Per the preceding discussion and given **Conditions 42 - 59**, the existing public facilities and services network can accommodate the proposed Conceptual and Detailed Development Plan, consistent with applicable City criteria.

FRANCHISE UTILITIES

Applicable Land Development Code Criteria

LDC 4.0.100 - Franchise Utility Installations

a. Where a land division is proposed, the developer shall provide franchise utilities to the development site. Each lot created with a subdivision shall have an individual service available or secured in accordance with provisions of Section 2.4.40 prior to approval of the final plat.

b. Where necessary, in the judgement of the Director, to provide for orderly development of adjacent properties, franchise utilities shall be extend through the site to the edge of adjacent property(ies), whether or not the development involves a land division.

LDC 4.0.110 - Land For Public Purposes

b. Public utility easements with a minimum width of 7-ft shall be provided adjacent to all street rights-of-way for franchise utility installations.

Existing franchise utilities are located in the vicinity of the subject site. Standard 7-ft public utility easements (PUE) are required adjacent to all public right-of-way in accordance with LDC 4.0.110 to allow for the future extension of franchise service.

Prior to issuance of public improvement permits, the applicant should submit, as part of the public improvement plan set, an overall site utility plan that shows existing and proposed franchise utility locations, including vaults, poles, and pedestals. The proposed franchise utilities should conform to requirements outlined in Land Development Code Section 4.0.100, including provision of appropriate public utility easements. The applicant will need to provide confirmation that the franchise utilities have reviewed these plans prior to review by the City (**Condition 60**).

F. SOLAR ACCESS

The following discussion reviews the proposed Conceptual and Detailed Development Plan against relevant criteria from the Comprehensive Plan and LDC regarding energy efficiency and solar access.

Applicable Comprehensive Plan Policies

12.2.3 The City shall require all future subdivisions, planned developments, and other major developments, plus commercial and industrial development, be designed to reduce demands for artificial heating, cooling, and lighting by considering topography, microclimates, vegetation, and site and structure orientation which maximizes southern exposure. The City shall develop incentive programs for those developments that demonstrate sound energy conservation design and/or construction, such as density incentives or similar programs.

Applicable Land Development Code Sections

Section 4.6.20 - PERFORMANCE STANDARD

Residential subdivisions and planned developments on parcels of more than 1 acre shall be designed so that solar access protection, as defined in Chapter 1.6, is available at ground level to the following:

a. South face of existing residential buildings adjacent to the development;

b. In residential subdivisions, a minimum of 80 percent of lots with sufficient east/west dimension to allow orientation of the long axis of a building to utilize solar energy; and

c. In planned developments, a minimum of 80 percent of the buildings with sufficient east/west dimension to allow the long axis of the building to utilize solar energy.

Section 4.6.30 - WAIVER OF STANDARD IN SUBDIVISIONS

A waiver from the requirements of Section 4.6.20 above may be granted by the Planning Commission to the minimum extent necessary to:

a. Preserve existing vegetation;

b. Reflect physical land development constraints related to the shape or topography of the site;

c. Accommodate north-facing slopes of 10 percent or more; or

d. Meet City design requirements for provision of streets, drainageways, utilities, landscaping, and location of buildings consistent with minimum setbacks.

Section 4.6.50 - WAIVER OF STANDARD IN PLANNED DEVELOPMENTS

For residential planned developments, a waiver from the requirements of Section 4.6.20 above may be granted by the Planning Commission based on the provisions of Section 4.6.30 above or to the minimum extent necessary to:

a. **Meet a broad range of residential needs by encouraging use of innovative site development techniques and a mix of dwelling types; or**

b. **Address future housing needs in the community by encouraging affordable housing, as defined in Chapter 1.6, to increase housing choices.**

A waiver may not be granted under this section unless the applicant demonstrates that the loss of solar access for current and future generations has been mitigated by a substantial increase in energy efficiency of the proposed dwellings over Uniform Building Code requirements.

The applicant has submitted a solar study for the proposed development (**Attachments I-73** through **I-75**). A description of the study is presented in the project narrative, which concludes that the LDC criteria contained in Section 4.6.20 are not satisfied by the site design. Based on the percent distribution of lots with an entire wall exposed to the sun between the hours of 9:00 AM and 3:00 PM on November 21, the ground floor of approximately 80 percent of the proposed dwellings would have solar access to this extent for only two hours during that six hour period of time. As a result the applicant has requested a waiver from the solar access standards.

In support of this request, the applicant points out that a substantial amount of the site has been set aside as open space to protect natural features. The resultant reduction in area of the developable portion of the site has limited the flexibility generally available for orienting streets in a manner that facilitates achieving the solar access standards. Similarly, the reduced area available for development has forced the applicant to account for the existing topography by aligning some of the proposed Local Streets and lots in a less than optimal manner. However, despite these limitations, an effort has been made to provide a mixture of housing options and lot sizes that arguably demonstrate an innovative use of the site.

As discussed in other sections of this staff report, the applicant has determined the gross density for the site based on the total acreage of both the PD(RS-6) and the PD(AG-OS) portions of the site. To a certain extent, the applicant's request to vary from solar access standards relies on the contention that the proposed design barely achieves the minimum density required in the RS-6 District. In fact, the gross density for the project is approximately 3.8 units per acre as opposed to 2.3 units per acre. This miscalculation is central to the applicant's argument that the site is constrained to such an extent that achieving solar access becomes difficult. However, if the proposed site design did actually amount to a gross density of 2.3 units per acre, or roughly 132 units, each dwelling would presumably be constructed on a comparatively larger average lot size, with greater flexibility to obtain solar access. Thus the applicant's argument actually amounts to a question of which is more valuable to the community, an efficient use of residential land that achieves the median density for the RS-6 District, or meeting the minimum solar access standards for residential planned developments.

To answer this question, additional aspects of the applicant's argument should be considered. Approximately 73 percent of the proposed dwellings would have an entire wall exposed to the sun between the hours of 9:00 AM and 3:00 PM on November 21 based on the submitted solar study. The applicant points out that under the 2006, Revised LDC, the solar access

standard is achieved if a minimum of 30 lineal feet of a building wall for each dwelling gains exposure at the ground level. However, as with the applicable LDC standard, the revised provisions stipulate that at least 80 percent of the dwellings satisfy this minimum requirement. Thus the proposed design would still be 15 dwellings shy of achieving the revised solar access standard, if it were applicable to this proposal.

One of the reasons listed in Section 4.6.50(b) for granting a waiver to the solar access standards in residential planned developments is the provision of affordable housing. A discussion provided above in the Compatibility Section recommends a Condition of Approval with an option that would require that the gross floor area of at least 3 percent of proposed dwellings be 1,200 square feet or less. Based on the limitations of this condition, at least 8 dwellings would have to be constructed consistent with this square footage. When compared to the percent distribution of dwellings that satisfy the current LDC solar access standard between 9:00 AM and 3:00 PM, the compliance of 12 additional dwelling units would be the minimum necessary to achieve consistency with this standard. While the market value of these homes cannot be determined at this time because construction may not occur for several years, it is reasonable to conclude that houses of this size would be comparatively less expensive than units constructed at the modified development standards proposed by the applicant. In 2006, the 80th percentile median income for a family of four in Corvallis was $54,500. The definition of "affordable housing" provided in Chapter 1.6 of the LDC, notes that no more than 30 percent of the monthly income for a family in this demographic could be used for monthly rent or mortgage payments. This equates to approximately $1,300 a month for a family of four, which is within the current potential range of monthly rent and mortgage payments for a 1,200 square foot dwelling. Therefore, to the extent that can be logically inferred, the proposed project would provide "affordable housing" through the recommended conditions and requested development standards.

As an additional mitigating factor, the applicant has proposed to construct each of the new dwellings consistent with the Earth Advantage program (**Attachment I-228** through **I-266**). Among other features, this method of construction results in a 15 percent increase in energy efficiency over the minimum required by the Uniform Building Code. Therefore, the potential reduction in energy efficiency resulting from the proposed development could be recovered through the Earth Advantage program, consistent with LDC Section 4.6.50 and Comprehensive Plan Policy 12.2.3.

The other energy efficiency factor to be considered is associated with constructing a residential development above the minimum density required. Doing so facilitates a compact urban form that results in shorter travel distances between the commercial and residential portions of a city. Specific to this site, greater than minimum densities result in more people being located near a planned extension of transit services, which are better supported by densities resulting from clustered development. By default, a reduction in energy consumption results due to more people living closer to the services they require, and thus expending less fuel to reach these services. Similarly, more people are served per mile of street or public utility line, which is an increased efficiency when considering the amount of materials used to construct these facilities. Therefore, it is reasonable to conclude that he flexibility gained

through the requested development standards balances a slight reduction to solar access with increased efficiencies gained through specific construction methods and a compact urban form.

Conclusions on Solar Access

The applicant has proposed a construction method that would provide alternate efficiencies to compensate for a requested variance to the LDC solar access standards. In addition to other off-setting benefits, such as open space and protection of natural features, the proposed site plan, as conditioned, includes the potential for providing affordable housing, and contributes to a compact urban form. When combined, it is concluded that these features provide sufficient gains in energy efficiency to grant a waiver to the applicable solar access standards.

SUMMARY OF CONCLUSIONS AND RECOMMENDATION

Based on the criteria, findings, and conclusions discussed above, it is recommended that the Planning Commission approve the proposed Conceptual and Detailed Development Plan, subject to the recommended Conditions of Approval and as shown in **Attachments A** and **I**. A motion to approve would be based upon the criteria, discussions, and conclusions contained within the March 14, 2007, Staff Report to the Planning Commission, and upon the reasons given by the Planning Commission members during their deliberations as reflected in the minutes of the March 21, 2007, and/or April 4, 2007 Planning Commission hearing(s).

PART II
Tentative Subdivision Plat

TENTATIVE SUBDIVISION PLAT REVIEW

Applicable Land Development Code Sections

2.4.30.04 - Review Criteria

Requests for approval of a tentative subdivision plat shall be reviewed to assure consistency with the purposes of this Code, pertinent development standards of the Code including Chapters 4.0 - Improvements Required with Development; 4.1 - Parking, Loading, and Access Requirements; 4.2 - Landscaping, Buffering, and Screening; 4.4 - Land Division Standards; and 4.5 - Flood Control and Drainage Provisions; and density requirements of the Comprehensive Plan.

In order for a proposed tentative subdivision plat to be approved, it must be found to be consistent with the applicable standards of the LDC and purposes of Chapter 4.2. An extensive review of the subject proposal that analyzes the various aspects of the development standards contained in Chapters 2.5, 3.3, 4.0, 4.1, 4.2, 4.5, 4.6, and 4.7 has been provided in Part I of this staff report . While some of the criteria contained in Chapter 4.4 were also discussed in Part I, a complete review is provided below along with a response to purposes of Chapter 4.2.

For findings relevant to all other LDC Chapters noted in Section 2.4.30.04, please refer to Part I of this staff report. Findings from the specific discussions provided above are incorporated here by reference as findings under the applicable criteria contained in Chapters 3.3, 4.0, 4.1, 4.2, 4.4, and 4.5.

Exhibit II - 103

1. Consistency with Purposes of Chapter 2.4

Applicable Land Development Code Sections

Section 2.4.20 - PURPOSES

Land division review procedures are established in this chapter for the following purposes:

a. Ensure building sites are of sufficient size and appropriate design for their intended uses and lots to be created are within density ranges permitted by the Comprehensive Plan;

b. Minimize negative effects of development upon the natural environment and to incorporate natural features into the proposed development where possible;

c. Ensure economical, safe, and efficient routes for pedestrians, bicycles, and motor vehicles;

d. Create residential living environments that foster a sense of neighborhood identity and are protected from the adverse effects of heavy traffic and more intensive land uses; and

e. **Promote energy efficiency.**

The subject Conceptual and Detailed Planned Development would be constructed as a 221-lot residential subdivision. As proposed, development standards from the RS-6 District would be varied through this process to allow for a more efficient use of the developable portion of the site, as well as to create additional common open space areas to protect significant natural features. The resultant gross density for the site would be 3.8 units per acre, which is within the range allowed for the RS-6 District and correponding Residential – Low Density Comprehensive Plan designation.

As discussed above in Part I, the requested development standards are anticipated to result in buildable lots that would contain single family detached or single attached (zero lot line) dwellings. Where appropriate, Conditions of Approval have been recommended to address consistency with compatibility criteria listed in Chapter 2.5 of the LDC. The overall project is anticipated to provide a livable environment that is efficiently connected to existing public utilities and transportation infrastructure. The proposed Local Street network and strategically placed common tracts would form the boundaries of the new residential neighborhood. These amenities would also function as buffers between the developed portion of the site and surrounding natural open spaces, while also providing connections between these aspects of the overall site.

Given the above discussion and relevant findings presented in Part I of this staff report, the proposed tentative subdivision plat is consistent with the purposes of Chapter 2.4.

2. Consistency with Chapter 4.4 – Land Division Standards

Applicable Land Development Code Sections

Section 4.4.20 - GENERAL PROVISIONS

4.4.20.01 - Applicability

All land divisions shall be in conformance with the requirements of the applicable district and this chapter, as well as with all other applicable provisions of this Code. Modifications to these requirements may be accomplished through a Planned Development (Chapter 2.5).

4.4.20.02 - Blocks

a. **General: Length, width, and shape of blocks shall take into account need for adequate lot size and street width and circulation, recognizing limitations of the topography.**

b. **Size: No block shall be more than 1,200 ft in length between corner lines except along arterial street unless the topography or location of adjoining streets justifies an exception. The recommended minimum length of blocks along an arterial street is 1,800 ft.**

As proposed, each of the blocks created through the tentative plat would be consistent with the above criteria. Each block would be composed of lots of adequate size to be considered

buildable and be bounded by a Local Street that meets the dimensional and improvement standards contained in the LDC. While less than 1,200 feet between corner lines, those blocks with the greatest perimeter, would include pedestrian pathways between pairs of bounding streets in order to shorten the distance traveled by pedestrians. For example, the block formed by Streets 'C', 'D', 'F', 'G', and 'J' would include a pathway between Streets 'D' and 'F' (**Attachment I-77**).

4.4.20.03 - Lots, General Requirements

a. **Size and Shape: Lot size, width, shape, and orientation shall be appropriate for location of the subdivision and for the type of use contemplated. No lot shall be dimensioned to contain part of an existing or proposed street. All lots shall be buildable, and depth shall not generally exceed 2½ times the average width. Lot sizes shall not be less than required by the Code for the applicable district. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for off-street parking and service facilities required by the type of use proposed.**

b. **Access: Each lot shall abut upon a street other than an alley for a width of at least 30 ft unless the lot is created through a land partition or minor replat in which case 4.4.30.01 below shall apply.**

As discussed in Part I of this staff report, the proposed tentative subdivision plat would vary from these two standards. The depth of some of the proposed lots is more than 2½ times the width. Due to either placement of a lot on a cul-de-sac or curve of a street, or due to desired flexibility in lot size, the applicant has also proposed lots that do not from on a street for at least 30 feet. The proposed modifications to these standards are not anticipated to adversely effect the overall compatibility or function of these lots.

c. **Through Lots: Through lots shall be avoided except where essential to provide separation of residential development from collector or arterial streets or to overcome specific disadvantages of topography and orientation. A planting screen easement at least 20 ft wide shall be required adjacent to through lots in accordance with Chapter 4.2. No rights of access shall be permitted across this planting screen easement. All through lots having frontage on parallel or approximately parallel streets shall provide the required front yard on each street, except as specified in Chapter 4.2.**

d. **Lot Side Lines: Side lines of lots, as far as practicable, shall be at right angles to the street the lots face.**

None of the proposed lots would be considered through lots. The rear of each lot either abuts another lot or shares its rear lot line with a common tract. To the extent practicable, the side lot lines for most lots are at right angles to the adjacent streets. However, the existing topography and resultant grading plan have not allowed this consistently throughout the site.

e. **Lot Grading: Lot grading shall conform to the City's excavation and fill provisions.**

As discussed in Part I of this staff report, the proposed grading plan is generally consistent with the established excavation and fill precedent for residential planned developments. Approximately 2.2 percent of the site would contain either cuts or fills in excess of eight feet. However, most of these locations coincide with locations on the site where existing slopes are in excess of 16 percent. As conditioned, the proposed grading plan would be consistent with applicable Comprehensive Plan Policies.

f. **Building Lines: Building setback lines may be established in a final plat or included in covenants recorded as a part of a plat.**

g. **Large Lots: In dividing land into large lots that have potential for future further subdivision, a conversion plan shall be required. The conversion plan shall show street extensions, utility extensions, and lot patterns to indicate how the property may be developed to Comprehensive Plan densities and to demonstrate that the proposal will not inhibit development of adjacent lands.**

The applicant has shown the building setback lines on the proposed tentative plat. As discussed in Part I of this staff report, the front and side yard setbacks would be modified from current RS-6 development standards. The option of showing these setback lines would be available to the applicant at the time the final plat, or phases thereof, is recorded.

While some of the proposed lots would be large enough to divide further based on RS-6 development standards, doing so would require subsequent approval of a Planned Development Modification. If a future lot owner was interested in dividing their lot, the Planned Development process would afford ample opportunity for addressing the compatibility and access issues related to such a proposal.

Conclusions on Land Division Standards

Based on the findings made above and in Part I of this staff report, the proposed tentative subdivision plat is consistent with most of the above criteria. Requested deviations from minimum lot frontage and the maximum lot depth to width ratio are not anticipated to result in compatibility conflicts. Overall, the applicant's grading plan accounts for existing topography while protecting natural features and minimizing impacts related to the developed portion of the site.

Summary of Conclusions for Tentative Subdivision Plat Request and Recommendation

Given the discussions and related findings provided in Parts I and II of this staff report, the proposed tentative subdivision plat is consistent with the applicable Comprehensive Plan Policies and LDC criteria. As conditioned, the requested deviations from certain development standards are anticipated to result in a new residential neighborhood that is compatible with the existing developed areas immediately proximate to the site. Reduced minimum lot sizes and setbacks would allow the applicant to construct a mixture of housing types, provide a greater amount of common open space, and protect significant natural features on the site.

Based on the criteria, findings, and conclusions discussed above, it is recommended that the Planning Commission approve the proposed Tentative Subdivision Plat, subject to the recommended Conditions of Approval and as shown in **Attachments A** and **I**. A motion to approve would be based upon the criteria, discussions, and conclusions contained within the March 14, 2007, Staff Report to the Planning Commission, and upon the reasons given by the Planning Commission members during their deliberations as reflected in the minutes of the March 21, 2007, and/or April 4, 2007 Planning Commission hearing(s).

Recommended Motion for Conceptual and Detailed Development Plan (PLD06-00015):

MOTION: I move to approve the subject Conceptual and Detailed Development Plan (PLD06-00015), to allow construction of the construction of the proposed residential planned development, as conditioned and shown on Attachments A and I.

Recommended Motion for Tentative Subdivision Plat (SUB06-00005):

MOTION: I move to approve the subject Tentative Subdivion Plat (SUB06-00005), as conditioned and shown on Attachments A and I.

CONDITIONS OF APPROVAL FOR PLD06-00015 and SUB06-00005:
The following conditions of approval have page references on the left side which indicate where in the staff report discussion and analysis is made relative to that specific condition.

Page No.	Condition No.	Condition Language
All	1	**Consistency with Plans** – Development shall comply with the narrative and plans identified in Attachments A and I of the Staff Report, except as modified by the conditions below, or unless a requested modification otherwise meets the criteria for a Minor Modification and/or a Tentative Plat Modification. Such changes may be processed in accordance with Chapters 2.4 and 2.5 of the Land Development Code. Specific aspects of the Conceptual and Detailed Development Plan approved through PLD06-00012/SUB06-00005 include, but are not limited to, the following: **a. Development Standards** shown on Attachments I-19 and I-20, except as modified by Condition of Approval No. 5; **b. Architectural and Pedestrian Design Menu** shown on Attachments I-36 and I-37; except as modified by Condition of Approval No. 18; **c.** Commitment to use the **Earth Advantage** program in constructing all dwellings approved as part of the Conceptual and Detailed Development Plan (Attachments I-31, and I-228 through I-266; and **d. Pedestrian amenities** listed on Attachment I-50.

Exhibit II - 107

Page No.	Condition No.	Condition Language
12	2	**Consistency With Policy 9.5.13** - Prior to approval of the final plat for the first project phase, the applicant shall choose one of the following options to demonstrate consistency with Comprehensive Plan Policy 9.5.13, and convey this choice through a letter submitted to the Community Development Director: **Option 'A'** – Lots 90 through 93 and Lots 96 through 99 shall be dedicated for the purpose of constructing zero-lot-line attached units, which in combination with Lots 157 through 171 and Lots 212 through 219, the total lot area shall equate to at least 10 percent of the net developable area of the PD(RS-6) portion of the site. **Option 'B'** – Indicate which of the proposed 62 lots with an area of between 5,000 and 4,072 square feet shall be constructed with a dwelling that has a gross floor area no more than 1,200 square feet, prior to recording the final plat, or relevant phases thereof. A deed restriction shall be recorded for each effected lot concurrent with recordation of the final plat, or relevant phases thereof. Cumulatively, the selected lots shall constitute an area equal to at least 3 percent of the net developable area of the PD(RS-6) portion of the site. If the lots are distributed over more than one recorded phase, the applicant shall be responsible for tracking which lots have been recorded consistent with this condition, and provide the City with a summary of the lot area balance remaining as each phase is recorded.
23 and 24	3	**Side Yard Easements** – Consistent with LDC Section 3.3.30, The applicant shall record mutually beneficial easements between lots that are developed with a side yard setback of four feet or less. The easement language should note that the owner of each respective lot is allowed to temporarily occupy the side yard of the abutting lot for the purposes of maintaining their side yard and house. The easements shall be shown on the final subdivision plat, or phases thereof.
24	4	**Exterior Side Yard Setbacks** – Per the current RS-6 standards, the exterior side yard setback shall be determined for relevant lots based on dimensions necessary to achieve an appropriate vision clearance area, as required in the Corvallis Off-Street Parking and Access Standards. In the event that a vision clearance area requires less than a five-foot setback, a minimum of five feet shall be provided.

Page No.	Condition No.	Condition Language
25	5	**Lot Coverage Standards** – The following lot coverage standards shall apply to this development: **a.** Lots constructed with Single Family Attached Dwellings – Maximum of 70 Percent; **b.** Lots less than 6,500 square feet constructed with Detached Dwellings – Maximum of 60 Percent; and **c.** Lots greater than 6,500 square feet constructed with Detached Dwellings – Maximum of 40 Percent.
25 and 27	6	**Street Trees and Public Utility Connections** – Street trees shall be installed consistent with the spacing shown on **Attachment I-X** of the staff report. In the event that a conflict arises between a street tree location and connections for a dwelling to public utility lines, the tree may be moved within the abutting planter strip, as allowed by the City Forester, but in no case shall a required tree be omitted. If no other compromise can be reached, the public utility connections shall be installed under the driveway for that dwelling.
26	7	**Acceptible Method for Attaching Units** – The applicant's proposal to attach dwellings at a common wall shared by two garages shall be allowed. To ensure that a sufficient amount of the common wall is shared between two dwelling units, a minimum of five feet of the wall should be shared by each garage. Further, one side of the garage for each unit should be attached to the living space of that unit so that a horizontal gap does not exist between the roof line of the enclosed living space and that of the enclosed garage.
28	8	**Required Percentage of Windows** – Consistent with the applicant's proposal, any building facade oriented toward a street, sidewalk, or multi-use path shall contain a minimum window area of 15 percent. The area of the facade shall be considered as the exterior wall situated between the adjacent ground and the tallest eave of the corresponding roof.

Page No.	Condition No.	Condition Language
29	9	**<u>Home Owners Association Landscaping Maintenance</u>** – Landscaping located within each of the tracts and installed along the public streets constructed or improved through Conceptual and Detailed Development Plan shall be maintained by a Home Owners Association (HOA) formed for this development. Landscaping shall be maintained consistent with the maintenance plan required through Condition of Approval No. 15. The Covenants, Conditions, and Restrictions (CC&Rs) drafted for the HOA shall reference the required landscaping maintenance plan approved for this development, and include language from the following Conditions of Approval: a. <u>Condition 11</u> – Landscaping Standards for Tracts with Pathways b. <u>Condition 12</u> – Landscaping Standards for Tracts with Natural Resources
30	10	**<u>Landscaping Standards for Tracts with Pathways</u>** a. Landscaping within Tract 'P', Tract 'E', and Tract 'A' shall be managed to prevent erosive downcutting in conjunction with informal pedestrian pathways that may be established through these areas. Similar preventative measures shall apply to areas of Tract 'A' that contain unimproved pathways. Concurrent with construction of the asphalt concrete pathway in Tract 'N', corrective action shall be taken to fill the existing incised, informal trail through Tract 'A' and prevent further erosive downcutting. The landscaping maintenance plan created for this development shall include specific strategies for addressing this requirement. b. Fencing installed along lot lines shared with a tract that contains a pedestrian path shall be limited to either a four-foot tall solid fence, or a six-foot tall fence that is constructed using an open design that does not screen more than 60 percent of the view along the lot line shared by a tract and the subject lot. The following lots are subject to this design standard: 13, 14, 58, 59, 74, 75, 93, 95, 96, 106, 107, 164, 165, 191, 211, and 212.

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31, 32, and 50	11	**<u>Landscaping Standards for Tracts with Natural Resources</u>** a. <u>Tract 'C'</u> – In order to maintain the existing seasonal fluctuations in soil moisture that are endemic to oak woodlands, no irrigation systems shall be installed in this tract. After non-native invasive species have been removed from this area, a native plant seed mix (ProTime 710 PDX-Plus Green Clover Plus Flowers) shall be applied to re-establish appropriate groundcover. No fertilizers shall be used in this tract, unless necessary to guarantee germination of the initial application of native plant seed. The landscaping maintenance plan devised for this project shall include low-impact maintenance activities to manage seasonal accumulation of understory detritus, and include regular removal of non-native invasive plants. This plan shall minimize activities that cause unnecessary soil compaction or that rely on herbicides to control invasive plants within this tract. These requirements shall be satisfied by landscaping plans submitted consistent with Condition of Approval No. 15. b. <u>Tract 'M'</u> – To the extent that the design and function of the water quality facilities proposed to be located in this tract will allow, the exterior slopes shall be planted with either a mixture of native plants listed in the proposed habitat enhancement plan, or a comparable mixture deemed appropriate for this location by a professional ecologist. The same landscaping approach shall be used within Tract 'M' on slopes graded as a result of the construction of Circle Boulevard or realignment of the existing multiuse path. These requirements shall be satisfied by landscaping plans submitted consistent with Condition of Approval No. 15. Fences constructed along lot lines shared with Tract 'M' shall be of an open design that does not screen more than 40 percent of the view along the lot line shared with the tract. Where grading is required to establish the elevation of a lot that abuts Tract 'M', the resultant slope shall be landscaped with a mixture of native plants proposed in the applicant's habitat enhancement plan, or a comparable mixture deemed appropriate for this location by a professional ecologist. The CC&Rs created for this project shall require that native plant landscaping be maintained along these slopes in perpetuity, and prohibit the placement of yard debris or other personal property within any portion of Tract 'M'.

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	11 (cont.)	The remainder of the upland area located northwest of the proposed monument sign shall be planted with a mixture of plants listed in the proposed habitat enhancement plan, or a comparable mixture deemed appropriate for this location by a professional ecologist. These requirements shall be satisfied by landscaping plans submitted consistent with Condition of Approval No. 15. c. Tract 'K' – Portions of Tract 'K' that are graded to construct Street 'A' shall be landscaped with a either mixture of native plants proposed in the applicant's habitat enhancement plan, or comparable a mixture deemed appropriate for this location by a professional ecologist. These requirements shall be satisfied by landscaping plans submitted consistent with Condition of Approval No. 15. Fences constructed along all lot lines shared by a portion of Tract 'K' containing property zoned PD(AG-OS) (Lots 208, 220, and 221) shall be of an open design that does not screen more than 40 percent of the view along the lot line that is shared with the tract. d. Tract 'A' – Fences constructed along all lot lines shared by a portion of Tract 'A' containing property zoned PD(AG-OS) (Lots 3 through 30) shall be of an open design that does not screen more than 40 percent of the view along the lot line that is shared with the tract.
31	12	**Habitat Enhancement Plan** – The applicant shall include information on the proposed habitat enhancement plan with any application submitted to DSL for mitigation of wetland impacts. When the applicant submits a permit application(s) to DSL related to this project, a copy of the application(s) shall be provided to the City for review and comment. See Conditions of Approval 22 and 25 for related requirements. The proposed habitat enhancement plan shall also be incorporated with the overall landscaping maintenance plan created for this project. Appropriate low-impact maintenance methods that ensure long term success of the habitat restoration area within Tract 'M' shall be devised (**Attachment I-X**). Similarly, the landscaping maintenance plan shall include activities necessary to manage the natural resources within the habitat enhancement area in a manner that discourages re-introduction of non-native invasive plants.

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27 and 50	13	**Geotechnical Analysis** – Prior to issuance of excavation and grading permits for the site, the applicant shall submit a geotechnical analysis for the entire site (i.e., the developable and undevelopable portion of the site) that assesses the existing surface and subsurface hydrology and soil types, and presents conclusions on how the proposed development will impact these site characteristics. If the report finds that adverse impacts cannot be mitigated consistent with this approval, a Planned Development Modification shall be required consistent with LDC Chapter 2.5. Otherwise, development of the site shall occur consistent with the recommendations contained in the geotechnical analysis.
27 and 33	14	**Landscaping Plans** – The following landscaping provisions shall apply to overall development of the site: a. Landscape Construction Documents – Prior to recordation of the final plat, or phases thereof, the applicant shall submit for approval by the Community Development Director, landscape construction documents for this site, which contain a specific planting plan (including correct Latin and common plant names), construction plans, irrigation plans, details, and specifications for all required landscaped areas on the site. Plantings shall comply with LDC Section 4.2 and other conditions of this approval. All trees shall have at least a 1½-inch trunk caliper, four feet above the ground, at the time of installation, except for areas landscaped with a mixture of plants listed in the habitat enhancement plan. Trunk caliper for trees listed in the habitat plan shall conform to the standards established by the applicant's consultant. The detailed irrigation system plan shall indicate source of water, pipe location and size, and specifications of backflow device, as well as head type and placement. The irrigation system shall utilize 100 percent head to head coverage or sufficient coverage to assure plants cover 90 percent of the landscaped areas within 3 years. The landscape plans shall address the following additional requirements. *(Continued on next page)*

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	14 (cont.)	b. Landscape Installation and Maintenance – Landscaping shall be installed along Circle Boulevard and Harrison Boulevard concurrent with improvement of these streets. Landscaping required along all new local streets shall be installed concurrent with the construction of each abutting lot. In the event that a tract abuts a local street, the landscaping within that tract shall be installed concurrent with street improvements related to that phase of the project. Required landscaping shall be illustrated on the landscape plan submitted to comply with Item (a) above, except where, due to plant availability or performance, minor changes that meet the Code criteria and maintain at least the minimum plant density and plant size are authorized. A maintenance plan for all plantings required through this approval shall be created by a licensed landscape architect and be provided to the City concurrent with submittal of the required landscaping plan. This maintenance plan shall provide measures to assure all new plantings attain the mimimum 90 percent ground cover required by LDC Section 4.2.20 within 3 years from the date of installation. The maintenance plan shall include measures necessary to enhance natural growth of all installed landscaping, and incorporate requirements from relevant conditions of this approval. A permanent irrigation system containing the elements described above in Item (a) shall be installed within all landscaped areas, as needed, except within Tract 'C' where no irrigation is allowed. c. Security for Landscape Installation and Maintenance – For each phase of the project, all required landscaping shall either be installed or financially secured prior to the approval of the final plat. If landscaping is financially secured, a Performance Bond (or other LDC-approved financial security) shall be provided to the City to secure installation of all landscaping within the approved Conceptual and Detailed Development Plan prior to approval of required landscaping plans. Depending on which approach is used to attain final plat approval, the applicant shall provide the City with a Maintenance Bond (or other LDC-approved financial security) that covers 50 percent of the costs for landscape materials and labor (plus costs for administration) associated with all landscaping installed within the subject site either prior to recordation of the final plat, or prior to release of the Performance Bond.

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36	15	**Monument Sign Lighting Fixtures** – Lighting fixtures installed to provide nighttime illumination of the approved monument sign shall be full cut-off, shielded lighting fixtures that minimize glare and light pollution.
37	16	**Sign Standards** – The applicant's request to vary from the sign standards for the RS-6 District is not approved. All signage installed for the project shall conform to the applicable standards of the RS-6 District, as contained in Chapter 4.7.
43	17	**Tree Preservation Report** – A final determination of the protection measures required for all trees shown as "preserved" or "potentially preserved" on **Attachment I-66** shall be presented by a certified arborist through a report that analyzes the entire development site. Special consideration should be made for a phased grading approach, and the flexibility requested by the applicant to conduct limited grading activities beyond each phase of the project. The report shall be submitted to the City for review and approval prior to issuance of any grading permits. While certain trees may necessitate protection of a larger critical root zone due to their species or established canopy, in no case shall the required protection area be less than stipulated in LDC Section 4.2.20(c). All plans submitted for issuance of permits related to site grading, construction of public improvements, installation of landscaping, or construction of individual dwelling units shall depict the location and requisite protection zone of each preserved tree.
46 and 47	18	**Special Building Height Determination** – On Lots 14 through 19 and Lots 31 through 34, the maximum building height shall be determined from the lowest finished grade that is within five feet of the building footprint. The applicant is allowed to reduce the approved minimum roof pitch (8:12) for dwellings constructed on these lots to account for the corresponding building height determination.
47	19	**Tract 'A' Tree Preservation and Grading Impacts** – The proposed grading plan shall be modified to the minimum extent necessary to eliminate grading impacts that extend into either the PD(AG-OS) portion of the site, or that encroach into the critical root zone of significant trees located within Tract 'A'. Prior to issuance of grading permits in these areas, fencing shall be installed to clearly indicate these boundaries.

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51	20	**Riparian Corridor Design Standards** – For the portion of the existing creek proposed to be realigned due to construction of Circle Boulevard, the applicant shall: a. incorporate a mixture of native plants into the landscaping scheme along the realigned portion of the creek that shade the drainageway. These details shall be provided on landscaping plans submitted for review and approval consistent with Condition of Approval No. 15. b. to the extent practicable, use natural materials to construct structures within the creek that will create deep pool habitat. At a minimum, these structures should be designed to endure flows expected to be caused by storm water run-off from at least 2-, 5-, and 10-year, 24-hour storm events. These features shall be documented with information submitted to DSL and/or DEQ for necessary permits pertaining to realignment of the creek (see Condition of Approval Nos. 22, 23 and 24).
58 and 59	21	**Removal/Fill Permits** – Consistent with LDC Section 4.5.100.b(3), the applicant shall include documentation of an ACOE/DSL-approved removal/fill permit with materials submitted to the City for issuance of required excavation and grading permits. See Conditions of Approval 13, 23, and 24 for related requirements.
60	22	**Riparian Corridor Easements** – In order to assure that a riparian buffer is provided commensurate with the formula for non-fish-bearing streams, the applicant shall provide the City with documentation of the appropriate buffer width and provide the necessary drainageway easements, consistent with Section 4.5.80(a), concurrent with recordation of the final plat for this project, or phases thereof.
63	23	**Storm Water Management Plan** – The applicant shall provide the City with documentation of the DEQ-approved storm water management plan with materials submitted for issuance of Public Improvement by Private Contract (PIPC) permits. See related Conditions of Approval 20 and 21.

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64, 95, and 97	24	**<u>Wetland Mitigation and Monitoring Plan</u>** – Through its submittal to DSL for necessary removal/fill permits, the applicant shall propose to extend the monitoring period required by DSL for mitigated wetlands to five years after completion of the last phase of the Conceptual and Detailed Development Plan, and propose to monitor the entire remaining wetland and riparian area on the site for that period of time. For all water quality and water storage facilities approved for this project, the City shall lengthen its typical two-year public facilities warranty period to expire five years after build-out of this project. In order for the City to release financial securities held through the PIPC process, the applicant shall complete a follow-up wetland delineation and hydrologic study, which addresses all wetland and riparian areas on the site, and submit this report to DSL for their review. This report shall: a. confirm the extent of wetland and riparian area on the site at five years after build-out of the project; b. document alterations to the wetland and riparian area that may have been a result of development; and c. determine if such alterations have adversely impacted the function or structure of the proposed public storm water facilities. If additional wetland and riparian area impacts are found to have been caused by development of the approved project, the applicant will be required to conduct additional wetland mitigation, as determined necessary by DSL, and alter the design of the approved storm water management plan to avoid further impacts. These activities shall be completed prior release of financial securities held by the City through the PIPC process.

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85 - 99	25	**<u>Public Improvements</u>** – Not withstanding **Condition 1**, prior to issuance of any structural or site utility construction permits, the applicant shall obtain approval of, and permits for, engineered plans for public improvements from the City's Engineering Division. The applicant shall submit necessary engineered plans and studies for public utility and transportation systems to ensure that adequate street, water, sewer, storm drainage, and street lighting improvements are provided. Final utility alignments (including locations for detention facilities) that maximize separation from adjacent utilities and street trees shall be engineered with the plans for public improvements in accordance with all applicable LDC criteria and City of Corvallis, DEQ, and Oregon Health Division requirements for utility separations. The plans shall conform to the City of Corvallis Standard Construction Specifications, and shall be accompanied by engineered calculations supporting proposed line sizing. Engineered studies for all utility systems shall be provided to ensure that development of adjacent properties and drainage basins is accommodated by line sizes, grades, and locations. Public improvement plan submittals will be reviewed and approved by the City Engineer under the procedures outlined in Land Development Code Section 4.0.90.

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69 and 70	26	**Traffic Impact Analyses** – Each development phase after Phase I shall provide near-term updated TIAs to confirm specific timing of the NW Witham Hill Drive & NW Circle Boulevard signalization based on LOS and warrants. In order to ensure that traffic impact analyses remain consistent with actual build-out phasing of the project, updated TIAs shall be required to address the timing of signalizing NW Witham Hill Drive & NW Circle Boulevard and effects on other area intersections if build-out is delayed beyond 2011. The intersection of NW 29th Street and NW Grant Avenue shall be included in an updated TIA for the last Witham Oaks development phase. If intersection improvements have not been programmed into the City's Capital Improvement Program by the last phase of development, or 2011, whichever is sooner, the applicant shall be required to install intersection improvements to achieve minimum LOS D at 29th & Grant through the Public Improvement by Private Contract process. To address timing of future effects, any traffic updates for any phase occurring after 2011 shall include NW 29th Street & NW Grant Avenue, NW 29th Street & NW Circle Boulevard, and NW Harrison Boulevard & NW 29th Street intersections, and shall incorporate new counts conducted during time periods consistent with ITE guidelines.
71	27	**Weight Limit Restrictions** – Municipal Code Section 6.10.060.020, restricts vehicles over 12,000 pounds loaded weight on the following streets: NW Harrison Boulevard between 9th Street and the westerly City limit line of Corvallis; NW Circle Boulevard between NW Witham Hill Drive and NW Lantana Drive; and NW Walnut Boulevard between NW 9th Street and the westerly City limit line of Corvallis. A defense is provided to access premises fronting the affected streets. In order to best conform with this Municipal Code, minimize the effects of construction on surrounding neighborhoods and expedite construction traffic to the major street system, all construction traffic over 12,000 pounds shall be directed to NW Harrison Boulevard, then west to 53rd Street, then south to Highway 20/34.
73	28	**NW Circle Boulevard Phasing** - NW Circle Boulevard Improvements, including the left turn lane onto NW Harrison Boulevard, shall be constructed concurrent with the first phase of development.

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73	29	**NW Circle Boulevard Right-of-Way Vacation** - The applicant has suggested an alternative alignment for NW Circle Boulevard that will minimize wetland impacts. A portion of the right-of-way associated with the alternative NW Circle Boulevard alignment may be "swapped" with 20' of the existing right-of-way concurrent with development. Prior to the first phase of development, the developer shall initiate the vacation process as outlined in Land Development Code Chapter 2.8. The applicant shall vacate 20' of the existing right-of-way below Street 'A' such that the remaining 30 feet of right-of-way includes the existing multi-use path and extends a minimum of 5 feet beyond the outside edges of the existing manholes. Approval of the Conceptual and Detailed Development Plan is contingent upon receiving approval for this right-of-way vacation. The applicant shall submit the right-of-way vacation to City Council for approval consistent with the approved Conceptual and Detailed Development Plan and Tentative Subdivision Plat for the first phase of development. Approval of the right-of-way vacation shall be obtained prior to authorization of plans for public improvements for the first phase of development. The final plat shall include all right-of-way vacations.
73, 75, and 77	30	**Right-of-Way Dedication** - The applicant shall dedicate additional right-of-way as needed along the south and east edges of the property to construct Circle Boulevard and NW Harrison Boulevard as proposed in the plans. Approval for the right-of-way dedications for NW Circle Boulevard and NW Harrison Boulevard shall be obtained prior to authorization of plans for public improvements for the first phase of development. The applicant shall also dedicate 50 feet of right-of-way for all local street locations, concurrent with the relevant phase of development. The final plat shall include all right-of-way dedications. As part of the Public Improvements process, the applicant shall demonstrate that the proposed right-of-way widths are feasible to construct all streets, as approved in the Conceptual and Detailed Development Plan, without impinging on adjacent properties or wetlands, unless authorized through this approval.

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73, 75, and 77	31	**Environmental Assessment** - Prior to approval of the final plat for each phase of development, the applicant shall submit an environmental site assessment, in accordance with Land Development Code criteria, to the City's Engineering Division for review and approval. The environmental assessment shall include information necessary for the City to evaluate potential liability for environmental hazards, contamination, or required waste clean-ups related to land dedicated for public use along NW Circle Boulevard, NW Harrison Boulevard, or the public streets internal to the site.
74	32	**NW Circle Boulevard Street Improvements** - NW Circle Boulevard shall be constructed to full City standards, unless otherwise approved through this application, from its terminus at the site's northern property boundary, south through the site, to the intersection with NW Harrison Boulevard, as approved herein. Improvements shall also include a left turn lane for the southbound approach of NW Circle Boulevard onto NW Harrison Boulevard, and appropriate safety provisions for pedestrian crossings. Any alterations to the proposed alignment of NW Circle Boulevard shall be considered a **Major Modification** due to potential infringement on existing wetlands.
75	33	**NW Harrison Boulevard Street Improvements** - NW Harrison Boulevard shall be improved to full City standards, unless otherwise approved through this application, with the exception of curb and gutter, sidewalk, and planter strips on the south side, and narrower (10-foot wide) travel lanes, as dictated by the NW Harrison Boulevard Corridor Study. Improvements to the NW Harrison Boulevard and NW Circle Boulevard intersection shall include a left-hand turn lane for the eastbound approach onto NW Circle Boulevard. As part of the public improvements process, the applicant shall also determine the existing structural condition of NW Harrison Boulevard, and if necessary, improve the existing structure to City standards.

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75	34	**NW Harrison Boulevard Phasing** - The developer shall improve the NW Harrison Boulevard and NW Circle Boulevard intersection, including all turn lanes and adjacent curb and gutter, to City standards concurrent with the construction of NW Circle Boulevard. The remainder of the NW Harrison Boulevard improvements shall be constructed concurrent with the last phase of development, or within five years from issuance of the public improvement (PIPC) permit for the first development phase, whichever occurs first. Construction of these improvements shall be secured pursuant to LDC 2.4.40.09 prior to issuance of the public improvement (PIPC) permit for the first development phase.
77	35	**Local Street Improvements** - All local streets shall be constructed to City standards, unless otherwise approved through this Conceptual and Detailed Development Plan.
80	36	**Multi-Use Path Design** - ODOT standards for multi-use paths require a 3-foot clearance from all obstacles, as well as 3-foot shoulders at a 2% slope for all significant grade breaks. A 12:1 longitudinal grade is allowed on multi-use paths for distances not to exceed 500 feet. Distances greater than 500 feet must provide level landings. It is recommended that the multi-use path design for this development meet these requirements, unless otherwise approved by the City Engineer. All locations where the multi-use path intersects with a street shall be designed to maximize public safety. In addition, the multi-use path entrance south of Street A shall have a reflectorized lockable gate installed by the developer concurrent with the first phase of development.

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80	37	**Pedestrian Trails and Walkways** - All pedestrian trails and walkways not in public right-of-way shall be privately owned and maintained and subject to a public access easement. As part of this maintenance, the applicant or responsible party shall address weed abatement such that vegetation within 25' of all structures is maintained and complies with fire and life safety standards. All private paved pedestrian walkways shall be designed such that their surface elevations are at least 6 inches above the adjacent ground elevations to minimize erosion and scouring potential. Careful attention shall be given to drainage patterns. Prior to issuance of construction and/or building permits, or prior to the recordation of the final plat for the first phase of development, whichever comes first, the applicant shall provide the City with written documentation that identifies the responsible party(ies) for long term maintenance of these areas within the site. If this entity is a homeowner's association, the applicant shall also provide a mechanism to ensure private maintenance of these areas in the event the homeowner's association ceases to exist. All pedestrian trails and walkways, both private and public, shall be constructed to and through with each associated phase of development. Access easements for all privately owned pedestrian trails and walkways shall be obtained prior to final plat for their associated phase.
81 and 82	38	**Phasing of Pedestrian Facilities** - For connectivity and pedestrian safety, the sidewalk and planter strips along the north side of NW Harrison Boulevard between NW Circle Boulevard and the existing multi-use path shall be constructed concurrent with the first phase of development. The extension of the multi-use path and planter strips on the north side of NW Harrison Boulevard west of the existing multi-use path may be constructed concurrent with the NW Harrison Boulevard street improvements.
82	39	**Off-Site Pedestrian Improvements** - In order to ensure safe and convenient pedestrian passage, and to satisfy the City's "to and through" policies, the sidewalk along the north side of NW Harrison Boulevard shall be extended from NW Circle Boulevard east to connect with the existing sidewalk, concurrent with the first phase of development.

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83	40	**Phasing of Local Street Pedestrian Improvements** - Sidewalks and planter strips along local streets shall be installed concurrent with the development of their associated phase, typically with building permits or within three years from the recording of the final plat for the associated phase, except where sidewalks on local streets abut common areas, drainageways, or other publicly owned areas. For those exceptions the sidewalks and planter strips shall be installed with the street improvements. Private pedestrian paths and open space paths may be constructed concurrent with their adjacent development phase provided the City's "to and through" criteria are satisfied.
85	41	**Transit Facilities** - Concurrent with first phase of development, transit shelter easements and standard concrete shelter pads shall be provided along the north side of NW Harrison Boulevard, and along the east and west sides of NW Circle Boulevard. The exact locations and dimensions of the three transit shelter pads shall be determined as part of the public improvement plan review. All right-of-way dedications shall be shown on the final plat for the first phase of development.
90	42	**Project Utility Phasing** - The applicant has presented a phasing plan which, while not addressing specific phasing of utilities, shall form the basis for phased utility installation. As per City standards, all utilities shall be extended "to and through" each phase that the subject utilities abut and/or serve. If during review of public improvement plans for individual phases it is determined by the City Engineer that utility extensions (or looping) are required to meet development demands, then the developer shall extend (or loop) the utility concurrent with whichever phase of development creates the need.
90	43	**Public Access** - Public access structures and appropriate access easements shall be provided for all public sewer and stormwater manholes, detention, and water quality facilities not located in public right-of-way. Access structures shall be all-weather, minimum 15' wide, and capable of supporting 60,000 pound maintenance vehicles. The access structures shall extend to within 10' of all manholes, with no more than a 15' back-up length, unless otherwise approved by the City Engineer.

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92	44	**Water Service Pressure** - If it is determined that private water booster pumps and/or pressure reducing valves are required to maintain proper domestic service pressure, deed restrictions shall be recorded for the affected lots to ensure that all future owners are aware of the need to maintain the private booster pump or pressure reducing valves. If utilized, private booster pumps shall include Uniform Plumbing Code compliant check valves.
92	45	**Waterline Connections** - No dead end water lines shall be constructed off of the NW Harrison Boulevard 1st level waterline, or the NW Circle Boulevard 2nd level waterline extension. If an easement cannot be obtained to loop the 2nd level NW Circle Boulevard waterline to the NW Elizabeth Place waterline, the applicant shall extend the NW Circle Boulevard waterline south to the intersection with the existing City easement adjacent to the Beit Am property, and a flushing station shall be installed at this terminus that contains a meter service, a backflow prevention system, and connection to the public sewer system on NW Harrison Boulevard. The looping of the waterline and/or installation of the flushing station shall be constructed concurrent with the first phase of development.
95	46	**Private Enclosed Storm Drainage** - As part of the public improvement process in the first phase of development, the applicant shall demonstrate how the provisions of LDC 4.0.80.f for private stormwater facilities are satisfied prior to final plat. The private storm drain lines shall have a private "joint and several" maintenance easement that will allow lot owners access for maintenance purposes over the entire line. The limits of these private easements shall extend across only the adjacent northern lots, and shall not impinge upon the adjacent southern lots.
95	47	**Storm Drain Catch Basins** - The number and location of storm drain catch basins, pipe location and sizing shall be determined during review of the public improvement plans. All storm drain catch basins shall have trapping devices installed.

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95	48	**Realignment of NW Circle Boulevard Drainageway** - As part of the plans for public improvements in the first phase of development, the applicant shall include a detailed plan for realignment of the NW Circle Boulevard drainageway consistent with the Stormwater Master Plan and the King County criteria. At a minimum, this plan shall address re-establishment of vegetation, shading, facilitation of drainageway migration, and water quality protection for the wetlands, consistent with DEQ and DSL requirements. The applicant allotted 17 feet of width for the realigned NW Circle Boulevard drainageway. The detailed plan shall include adequate design details to demonstrate that the realigned drainageway will fit within the allotted width, and that it will facilitate the safe passage of the 100-yr, 24-hr storm water event so that it does not present a safety hazard to adjacent dwellings, structures, and pedestrians. As per King County criteria, the slopes of all realigned drainageways shall be no steeper than 3H:1V. Realignment of the NW Circle Boulevard drainageway shall tie into, and not damage, the existing channel that was installed as part of the NW Circle Boulevard Extension capital improvement project.
95	49	**Drainageway Easements and Maintenance** - As part of the plans for public improvements in the first phase of development, the applicant shall provide a drainageway easement along the entire length of the NW Circle Boulevard drainageway. The drainageway easement shall be consistent with Land Development Code criteria and the City's Drainage Master Plan. The applicant shall provide a stormwater maintenance plan (in accordance with King County criteria), and a stormwater facilities agreement (in accordance with City criteria) for the realigned portion of the NW Circle Boulevard drainageway. Because preservation of this drainageway is an integral component of the wetland preservation plan, the warranty period shall be coincident with the wetland mitigation monitoring plan time frame specified by this approval, or two years from acceptance, whichever is longer. The drainageway easement shall be recorded with the final plat for the first phase of development.

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96	50	**Drainageway Signing** - Public improvement plans shall delineate the drainageway easement and shall denote locations for installation of the City's standard "Riparian Area" protection/informational signs. The signs shall be installed at the corners and midpoint of each tract abutting the drainageway easement, at a distance of 3' behind the property line that delineates the drainageway easement. The signs shall be purchased and installed by the developer concurrent with the first phase of development.
96	51	**Flow Control Structure at Outfall 2** - The applicant discussed a flow control structure for Outfall 2 in the narrative, however the design and location of this structure was not addressed or shown on the plans. Previous applications for this site have noted that the drainage along Outfall 3 to the west of the site may be impeded somewhat by topography and existing debris and/or structures. As part of the public improvement plan review process, the applicant shall submit an engineered capacity analysis for all on-site storm drainage to examine system capacity, and to identify any mitigation requirements necessary to ensure sufficient capacity. In addition, the applicant shall provide detailed calculations demonstrating that the new and existing culverts extending onto OSU's property will adequately accommodate and control anticipated flows as per the Memorandum of Understanding dated August 15th, 2006.

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96	52	**Storm Water Quality and Detention Design** - All storm water quality and detention facilities (including the NW Harrison Boulevard conveyance and detention channel) shall be designed consistent with criteria outlined in Appendix F of the City's Storm Water Master Plan, and criteria outlined in the King County Surface Water Design Manual. As per King County criteria, if side slopes steeper than the standard 3H:1V are proposed, or if embankment heights exceed 6 feet, they shall be designed by a licensed geotechnical engineer. Fencing will not be allowed around any of the storm water quality detention facilities, unless otherwise approved by the City Engineer. As part of the plans for public improvements, the applicant shall provide engineered calculations for pre-development and post-development peak storm water run-off flows, and demonstrate that all storm drainage facilities are designed to match pre- and post-development flows up to the 2, 5, and 10-year storm events or as consistent with the OSU Memorandum of Understanding, whichever is more stringent. Public-to-private transfers of all outfalls shall also be adequately addressed as part of these plans. Design of all detention and water quality facilities shall be performed by a qualified licensed professional engineer and shall be subject to the review and approval of the City Engineer.
97	53	**Storm Water Quality and Detention Facility Landscaping** - The design for the storm water quality and detention facilities (including the NW Harrison Boulevard conveyance and detention channel) shall include a landscape plan that details all landscaping essential to ensure the proper function of the detention and water quality facilities. This functional landscape plan shall be submitted as part of the plans for public improvements. The applicant shall see that all associated functional landscaping associated with the storm water quality and detention facilities be installed, or that appropriate erosion and sediment control measures are in place, prior to any paving activity on the development site. All detention and water quality facilities landscaping shall be consistent with City and King County criteria, and shall be designed prior to acceptance of the public improvement plans. All water quality and detention landscaping shall be designed and approved by a qualified landscape architect.

Page No.	Condition No.	Condition Language
97	54	**Storm Water Quality and Detention Facilities Maintenance** - The applicant shall provide a stormwater maintenance plan (in accordance with City and King County criteria), and a stormwater facilities agreement (in accordance with City criteria) for the approved water quality and water storage facilities. Because the water quality facilities are an integral component of the wetland preservation plan and the detention facilities are in close proximity and/or located within wetland mitigation areas, the warranty period shall be coincident with the wetland mitigation monitoring plan time frame specified by this approval, or two years from acceptance, whichever is longer.
97	55	**Groundwater Quality and Recharge** - Groundwater quality and groundwater recharge (infiltration) shall be considered when designing the stormwater detention facilities. As per King County design criteria, the design for the water quality and detention system shall identify the dry season water table and minimize disturbance to groundwater patterns. Infiltration facilities, such as pervious pavements, are a recommended means of meeting detention requirements where soil and slope conditions (not more than 10%) permit the use of infiltration facilities, and where the facilities will not have an adverse impact on the subject site or adjacent or downhill properties. The detention analyses shall include a discussion on the feasibility of implementing infiltration during both wet and dry seasons, and a discussion on the feasibility of using pervious pavement systems in the streets and on-site paved areas to minimize runoff and maximize infiltration.
97	56	**North Water Quality Facility** - The proposed above-ground water quality structure located between Streets I and H, and just south of proposed lots 141 and 154, (Water Quality North) shall meet the following criteria (in addition to City of Corvallis and King County criteria): (1) side slopes shall not exceed a maximum 4:1 side slope; (2) the design shall facilitate the safe passage of the 100-yr, 24-hr storm water event so that it does not present a safety hazard to adjacent dwellings, structures, and pedestrians; and (3) the design shall not require fencing per the King County fencing requirements.

Page No.	Condition No.	Condition Language
98	57	**<u>Off-site Stormwater Drainage and Easements</u>** - Development-generated stormwater runoff from the site shall not be allowed to cross private property without appropriate easements from impacted property owners. OSU owns property downstream of the approved development site. The applicant has submitted a Memorandum of Understanding with OSU to provide an agreement to address providing the City an easement for the use and maintenance of the east drainage ditch for water quality and flood control purposes. The west drainage ditch shall also be addressed in this agreement/easement since the proposed detention facilities may alter flows to it as well. A drainage easement acceptable to the City Engineer shall be submitted with the plans for public improvements. If an appropriate easement cannot be obtained, the applicant shall be required to initiate a **Major Modification** to the approved Conceptual and Detailed Development Plan in accordance with the applicable sections of the LDC. The modification shall include alternate design solutions to accommodate the surface conveyance and water quality requirements for the approved development. The reconfiguration of the on-site drainage facilities shall not result in a decrease in buffering or open space requirements conditioned with the approved Conceptual and Detailed Development Plan. Comprehensive Plan Policies 4.12.9 and 4.12.10 shall be considered when deviating from above-ground, open detention and water quality facilities.
98	58	**<u>Stormwater Drainage Facilities Design</u>** - Given the complexity of the stormwater drainage system, it is not clear at this time whether the proposed stormwater drainage facilities, as shown in the application, can be constructed to City of Corvallis and King County criteria. DSL permitting for the wetland mitigation plan is also required. If the proposed stormwater drainage facilities cannot be constructed to City of Corvallis and King County criteria as configured, then the applicant shall initiate a **Major Modification** to the approved Conceptual and Detailed Development Plan to address a storm drainage facility design that can be constructed to City of Corvallis and King County criteria.

Page No.	Condition No.	Condition Language
99	59	**Street Lights** - Land Development Code Section 4.0.70 has been amended to establish street lights as public utilities. The applicant shall provide an engineered design for street light installation, obtain appropriate electrical permits from Development Services Division, and install the street light system concurrent with public improvements. Street lights shall be installed concurrent with their respective phase of development.
99	60	**Franchise Utilities** - Prior to issuance of public improvement permits, the applicant shall submit, as part of the public improvement plan set, an overall site utility plan that shows existing and proposed franchise utility locations, including vaults, poles, and pedestals. The proposed franchise utilities shall conform to requirements outlined in Land Development Code Section 4.0.100, including provision of appropriate public utility easements. The applicant shall provide confirmation that the franchise utilities have reviewed these plans prior to review by the City.

Development Related Concerns:

A. Mailbox Locations - As part of the plans for public improvements, the applicant shall show proposed mailbox locations, with approval from the Post Office, as well as sidewalk transitions required by City Standards.

B. Excavation and Grading Plans - Prior to issuance of any construction permits, the applicant shall submit an excavation and grading plan, including erosion control methods, to the City's Development Services Department for review and approval.

C. Other Permits - Prior to issuance of any construction permits, the applicant shall be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit if construction activity will disturb, through clearing, grading, and/or excavation, one or more acres of the site. Additionally, any permits required by other agencies such as the Division of State Lands; Army Corps of Engineers; Oregon Department of Environmental Quality, Oregon Department of Transportation; or Benton County, shall be approved and submitted to the City prior to issuance of any City permits.

D. SDC Reimbursement - Where it is anticipated that there will be System Development Charge (SDC) reimbursements from City funds to the developer for qualifying extra-capacity facilities built by the developer, the developer shall obtain a written agreement with the City regarding the monetary amount of the requested reimbursement, as well as the anticipated construction time line for the qualifying improvements, prior to initiating construction of these facilities. A written request for

SDC reimbursement may be directed to the City Engineer, who will review and forward the request to City Council.

E. ZOB Applications - Zone of Benefit (ZOB) cost recovery may apply for the NW Harrison Boulevard and NW Circle Boulevard street improvements, including turn lanes and traffic signals. The applicant may apply for ZOB cost recovery for improvements that benefit other property owners adjacent to the improvements as outlined in chapter 2.16 of the Corvallis Municipal Code. The applicant must submit a written request within one year from the acceptance of the public improvements in order to be considered for reimbursement.

F. Infrastructure Cost Recovery - Infrastructure cost recovery charges may apply to the NW Harrison Boulevard sewer and water lines, and the Dale Drive sewer lines serving or adjacent to the site. The determination of applicable charges will be evaluated during the public improvement review process. Where it is determined that there will be Infrastructure Cost Recovery charges, the developer shall pay their required share of the costs prior to making any connection to any infrastructure system, in accordance with Corvallis Municipal Code 2.18.040.

G. Signing & Striping Plans - As part of the public improvement plans, the applicant shall include a plan for street striping and signing. All striping and signing shall conform to the MUTCD and City standards and policies. All costs associated with striping and signing shall be borne by the developer.

H. Street Names and Assigning Street Addresses - All street names need final approval from the Development Services Division prior to filing of the final plat for each phase of development. Street addresses are assigned by the Development Services Division. Requests for street addresses are to be submitted in writing to the Development Services Division accompanied by a copy of the approved tentative or final subdivision plat with the approved street names. The scale of the drawing shall be 1" to 100'. Street addresses will be assigned within 15 working days of receipt of a complete request.

I. Domestic Water and Fire Requirements - The water distribution system and associated hydrants shall be designed to provide a minimum fire flow of 1,000 GPM at 20psi for the single family development portion of the site. As part of the public improvement plan review process, the applicant will need to provide calculations that show that City standards for fire and domestic water pressure have been met with the proposed system. If these requirements cannot be met using 1st or 2nd level water services, the applicant will need to provide alternative designs as part of the public improvement review process. The exact locations and alignments of waterlines and services will be determined as part of the public improvement process. The applicant shall be aware of potential water pressure issues for 2nd level services, (i.e. too low pressure [< 40 psi] on second stories at the north end of the site or too high pressure [> 85 psi] at the south end of the site), that may require booster pumps or pressure reducing valves.

J. Third Level Water Access - The application shows a general alignment for a third level waterline heading north from the site. Some lots located at the north end of

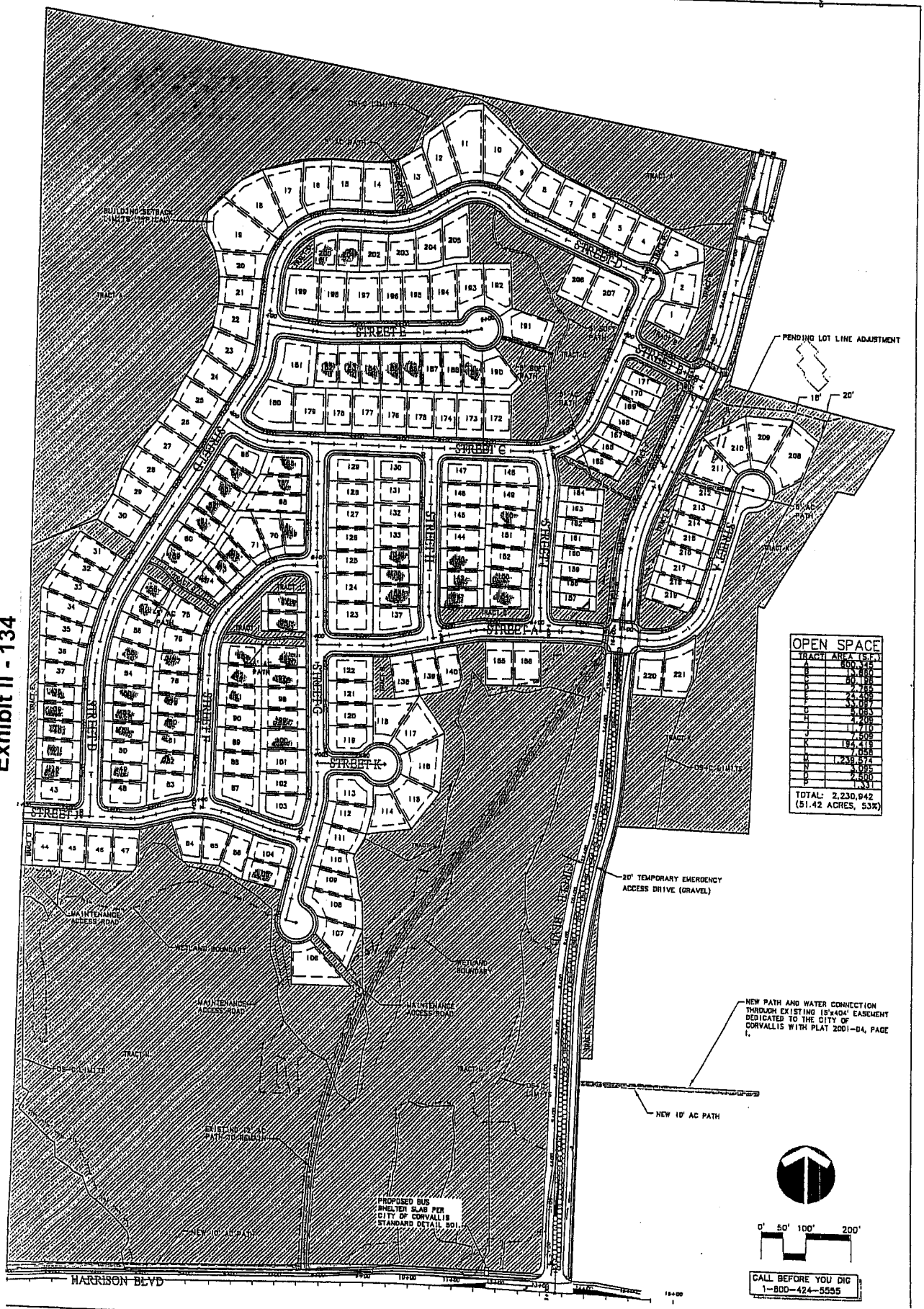
the site may be better served by a third level system to improve water pressures at the north end. Connection to this third-level service would require an easement through the open space property to the north of the site. The open space purchase agreement for this property states that the owner/buyer (currently the City) will allow an easement across the property at a mutually agreed upon location and with an alignment to be determined at a later date, for purposes of providing public water service access. There are, however, several trees in this open space tract, making this option less desirable.

K. NW Harrison Boulevard Driveway Conflict - City access standards require that driveway accesses be located a minimum of 150' from any other access or collector and/or arterial street intersection. The two adjacent properties to the east of the site have side-by-side driveways within 100 feet of the proposed intersection of NW Circle Boulevard and NW Harrison Boulevard. The driveway closest to the intersection (approximately 50 feet to the east) belongs to a site (Beit Am) that has not yet been developed, and is currently under County jurisdiction. An alternate access off of NW Circle Boulevard would be the City's preferred solution. The second adjacent driveway to the east belongs to the LDS church, and is the second of two driveways used to access their site's parking lot. It is recommended that this driveway conflict be resolved prior to final approval of the public improvement plans It is recommended that this issue be resolved prior to final approval of the public improvement plans.

L. Decorative Wall Placement Within Tract 'F' – Final placement of the approved decorative wall within Tract 'F' shall take the required riparian easement into consideration, and not complicate long term maintenance activities that might occur within the easement area.

Exhibit II - 133

Exhibit II - 134



OPEN SPACE	
TRACT	AREA (S.F.)
A	800,345
B	15,800
C	80,128
D	4,785
E	24,498
F	33,087
G	5,063
H	4,206
J	1,710
K	194,415
L	7,056
M	1,238,574
N	8,095
O	2,500
P	1,331
TOTAL: 2,230,942 (51.42 ACRES, 53%)	

0' 50' 100' 200'

ATTACHMENT A

WITHAM OAKS

CORVALLIS, OREGON

DETAILED DEVELOPMENT PLAN

Oak Incorporated

Project No. 12059

MATRIX

LEGEND HOMES

CORVALLIS OFFICE
315 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-3102
FAX: (541) 754-1141

Witham Oaks
Conceptual and Detailed Development Plan / Tentative Subdivision Plat
(PLD06-00012 / SUB06-00005)
Comp. Plan Designations

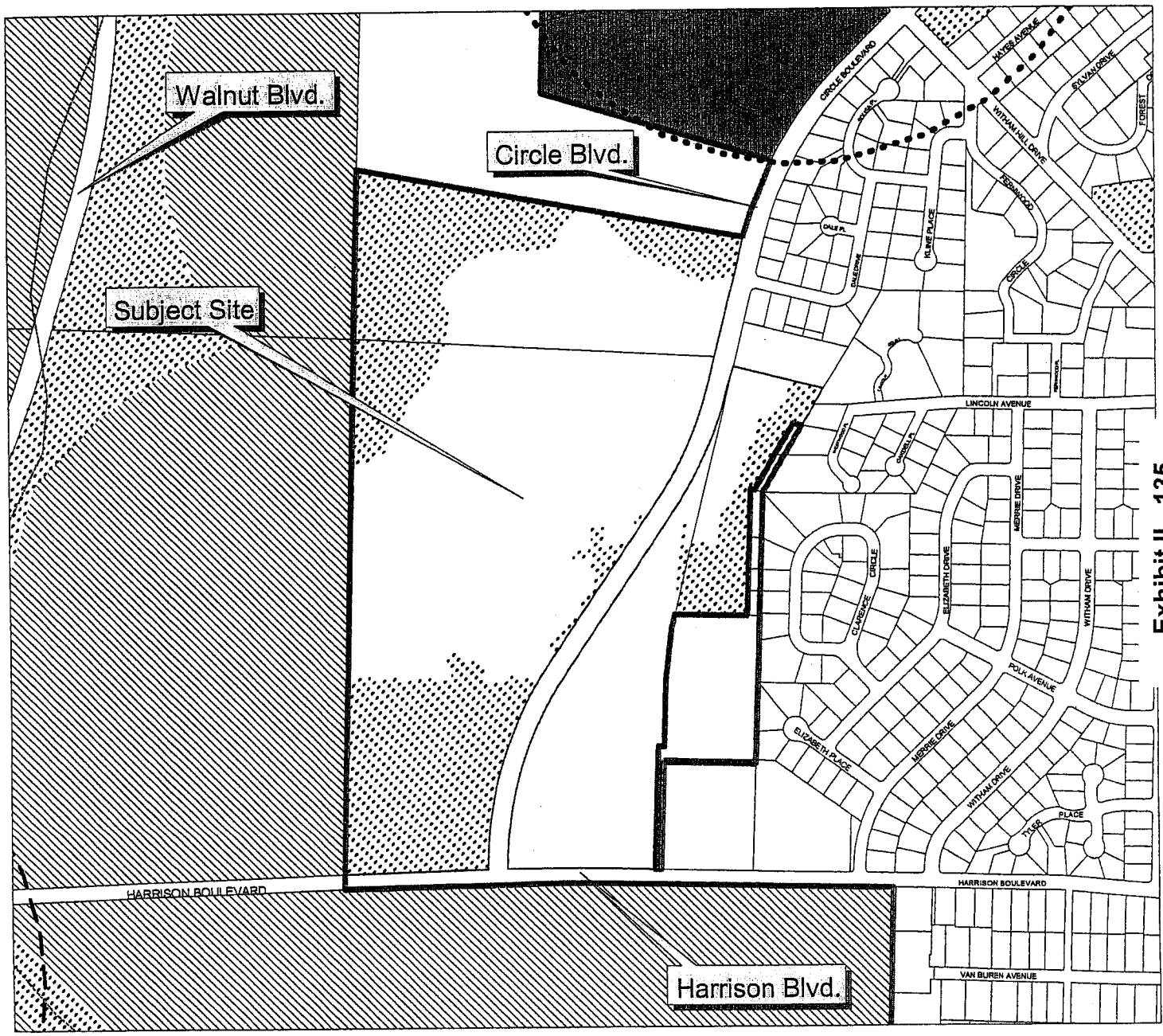


Exhibit II - 135

LEGEND

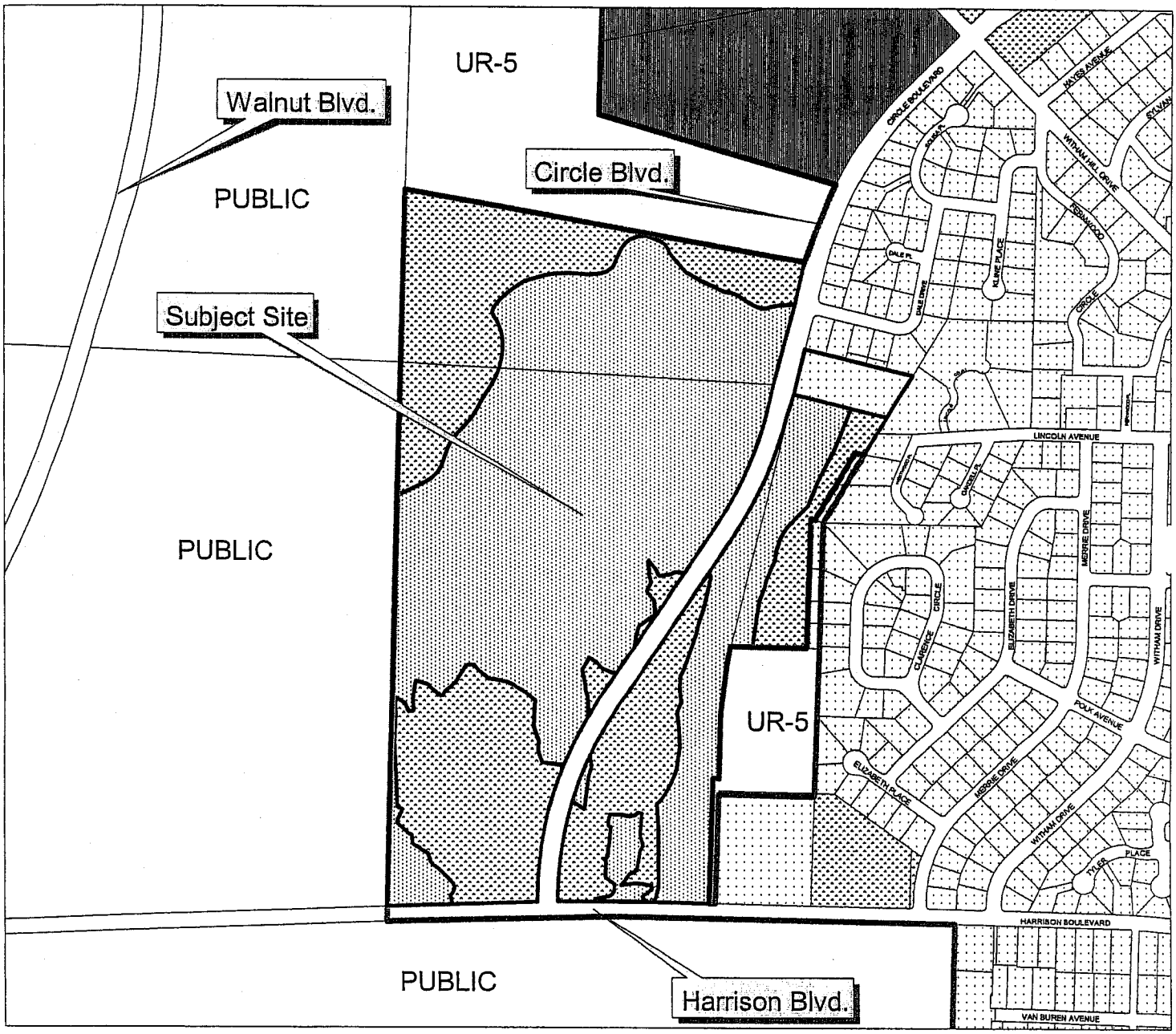
- City Limits Line
- Residential - Low Density
- Residential - High Density
- Open Space - Agriculture
- Open Space - Conservation

300 0 300 Feet

N

ATTACHMENT B

Witham Oaks
Conceptual and Detailed Development Plan / Tentative Subdivision Pla
(PLD06-00012 / SUB06-00005)
Zoning Designations



LEGEND

- City Limits Line
- RS-3.5
- PD(RS-3.5)
- PD(RS-6)
- RS-20
- AG-OS
- PD(AG-OS)

300 0 300 Feet

N

ATTACHMENT C

Exhibit II - 136

Witham Oaks Conceptual and Detailed Development Plan
PLD06-00012/SUB06-00005
Existing Conditions

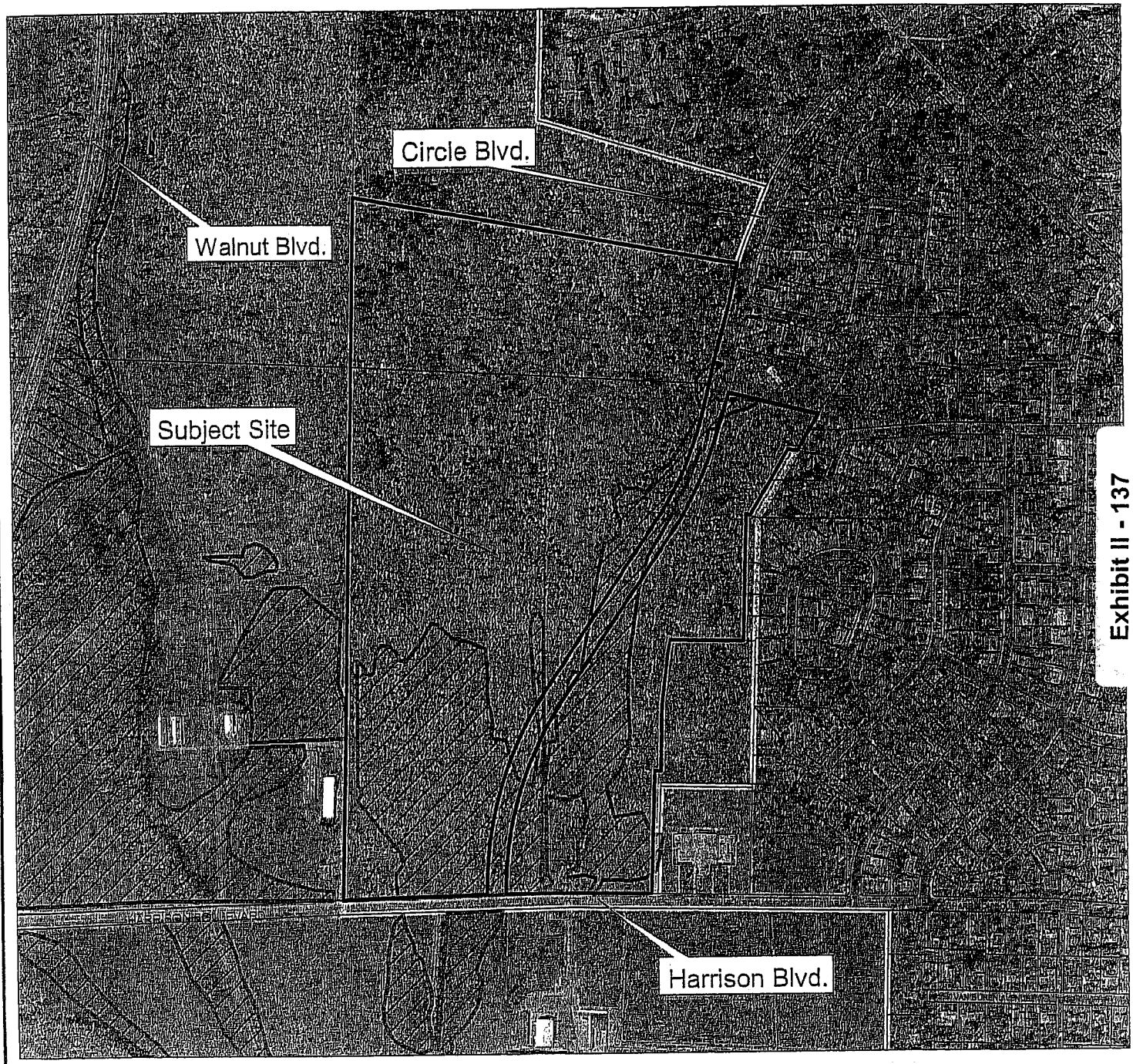


Exhibit II - 137

200 0 200 Feet

LEGEND

- City Limits
- Subject Site
- Locally Significant Wetland
- Non-Locally Significant Wetland

NOTE: The Locally Significant Wetland boundary shown here is not consistent with the 11/30/06 DSL-approved delineation (WD06-0010).

N

ATTACHMENT D

Witham Oaks Conceptual and Detailed Development Plan
PLD06-00012/SUB06-00005
Existing Site Topography

LEGEND

- Subject Site
- City Limits
- Stream City Limits Line
- Two-foot Contour
- Locally Significant Wetland
- Non-Locally Significant Wetland

300 0 300 Feet

NOTE: The Locally Significant Wetland boundary shown here is not consistent with the 11/30/06 DSL-approved delineation (WD06-0010).

N

ATTACHMENT D-1

Witham Oaks Conceptual and Detailed Development Plan
PLD06-00012/SUB06-00005
Reference Contour Lines

Exhibit II - 139

LEGEND

- Subject Site
- City Limits Line
- 410' Contour
- 370' Contour
- 340' Contour
- 330' Contour

200 0 200 Feet

N

ATTACHMENT D-2

CORVALLIS
ENHANCING COMMUNITY LIVABILITY

CORVALLIS CITY COUNCIL
NOTICE OF DISPOSITION

ORDER 2004 - 117

CASE: **Witham Oaks Annexation, Comprehensive Plan Amendment, and Appeal of a Zoning District Change (ANN04-00004, CPA04-00002, and ZDC04-00004)**

TOPIC: Annexation (ANN04-00004), Comprehensive Plan Amendment (CPA04-00002), and appeal of the Planning Commission's approval of a Zoning District Change (ZDC04-00004).

LOCATION: Undeveloped 94.62 acre property on the north side of Harrison Boulevard, west of the Church of Jesus Christ of Latter Day Saints, and south of Witham Hill Drive. Also included is the Circle Blvd. right-of-way from the current City Limits boundary to the intersection with Harrison Blvd. and the Harrison Blvd. right-of-way from the current City Limits boundary to the western edge of the property. The site is composed of the following tax lots: Assessor's Map 11-5-28, Tax Lot 2300; and Assessor's Map 11-5-33, Tax Lots 1000, 1100, and 1101.

APPLICANT: Terri Valiant
Pahlisch Homes
515 SW Western Blvd.
Corvallis, OR 97333

OWNERS : Starlite, LLC
5931 NW Burgundy Dr.
Corvallis OR 97330

REQUEST: To place an annexation measure on the November, 2004, ballot to annex the 94.62 acre property into the City of Corvallis, along with adjoining rights-of-way along Circle Blvd. and Harrison Blvd. Also, contingent upon a successful annexation vote in November, 2004, to amend the Comprehensive Plan Designation for the property from 94.62 acres of Low Density Residential to 36.87 acres of Open Space - Conservation and 57.75 acres of Low Density Residential. Also, contingent upon a successful annexation vote in November, 2004, to change the zoning of the property from County Urban Residential Zoning to 36.87 acres of PD(AG-OS) (Open Space - Agriculture with a Planned Development Overlay) and 57.75 acres of PD(RS-6) (Low Density Residential with a Planned Development Overlay).

DECISION: The Corvallis City Council conducted a review of the application as outlined above on August 9, 2004, and deliberated on August 30, 2004. The Council voted to place the Annexation measure on the November 2, 2004, ballot, and adopted Resolution 2004 - 25 (Exhibit A) to submit the question of the 96.35-acre Annexation to the voters. The Council voted to approve the requested Comprehensive Plan Map Amendment, and adopted Ordinance 2004 - 14 (Exhibit B) to enact the Comprehensive Plan Amendment, contingent upon passage of the Annexation measure at the November 2, 2004, election. The Comprehensive Plan Amendment would designate 36.87 acres of the site for Open Space - Conservation and 57.75 acres for Low Density Residential. The Council also voted to uphold the Planning Commission's decision on the District Designation and deny the appeal, thereby approving the requested Zoning District Change, contingent upon passage of the Annexation measure at the November 2, 2004, election. The Zoning District Change would change the zoning of 36.87 acres of the site to PD(AG-OS) (Open Space - Agriculture with a Planned Development Overlay) and would zone the remaining 57.75 acres of the site for PD(RS-6) (Low Density Residential with a Planned Development Overlay). The Council also adopted the Formal Findings dated August 26, 2004, to support its decisions on the Annexation, Comprehensive Plan Amendment, and Zoning District Change (Exhibit C).

The proposal, staff report, hearing minutes, and findings and conclusions may be reviewed at the Community Development Department, Planning Division, City Hall, 501 SW Madison Avenue.

If you wish to appeal these decisions, an appeal must be filed with the State Land Use Board of Appeals within 21 days from the date of the decision.

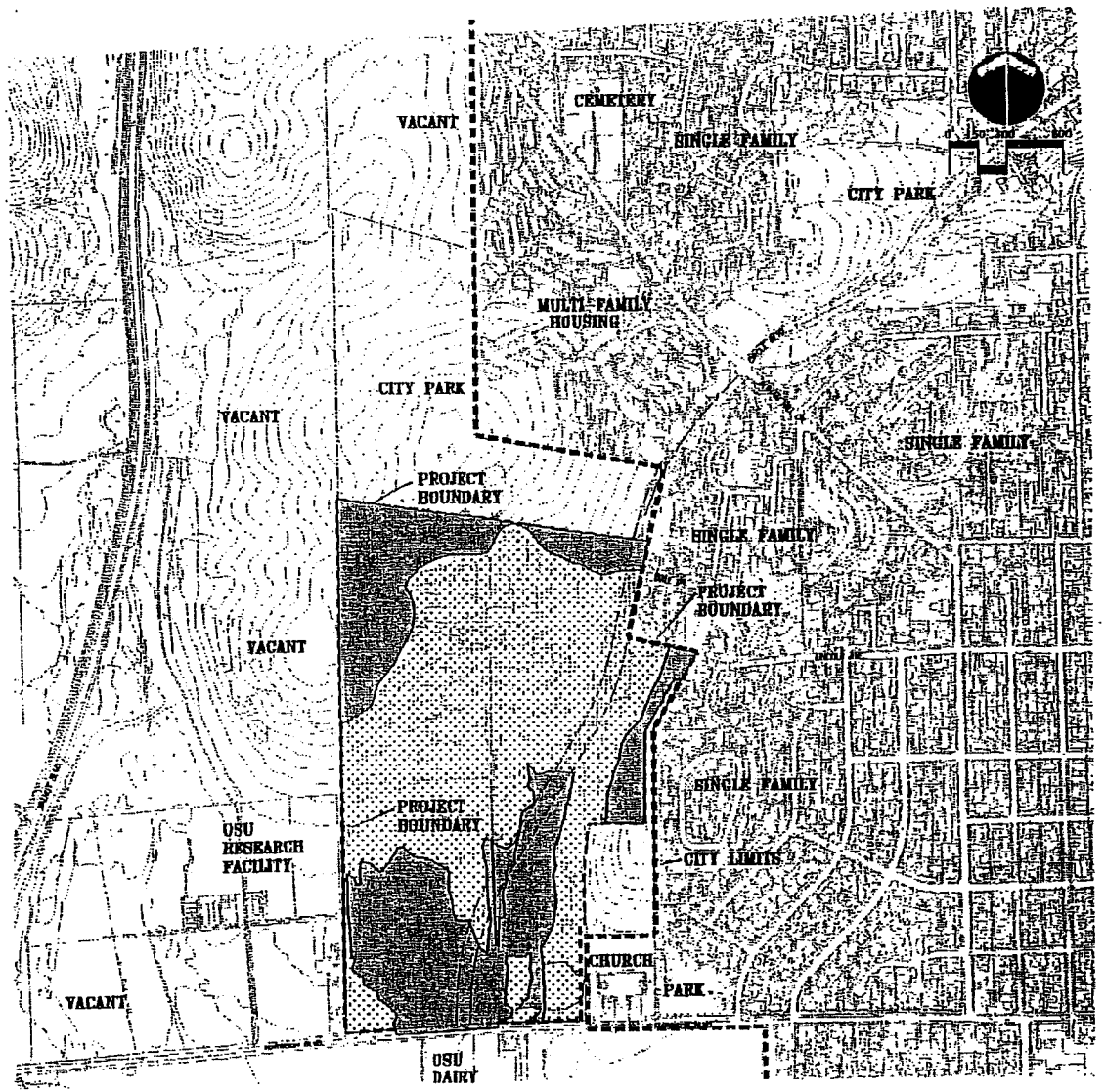
Helen Berg

Mayor Helen Berg
City of Corvallis

Signed this 31st day of August, 2004

Attachments

N-5



LEGEND

DEVELOPED AS LOW DENSITY RESIDENTIAL

OPEN SPACE CONSERVATION(PRESERVED)

ANNEXATION APPLICATION RESUBMITTAL JUNE 1, 2004

WITHAM OAKS

CORVALLIS, OREGON

PROPOSED LAND USE PLAN

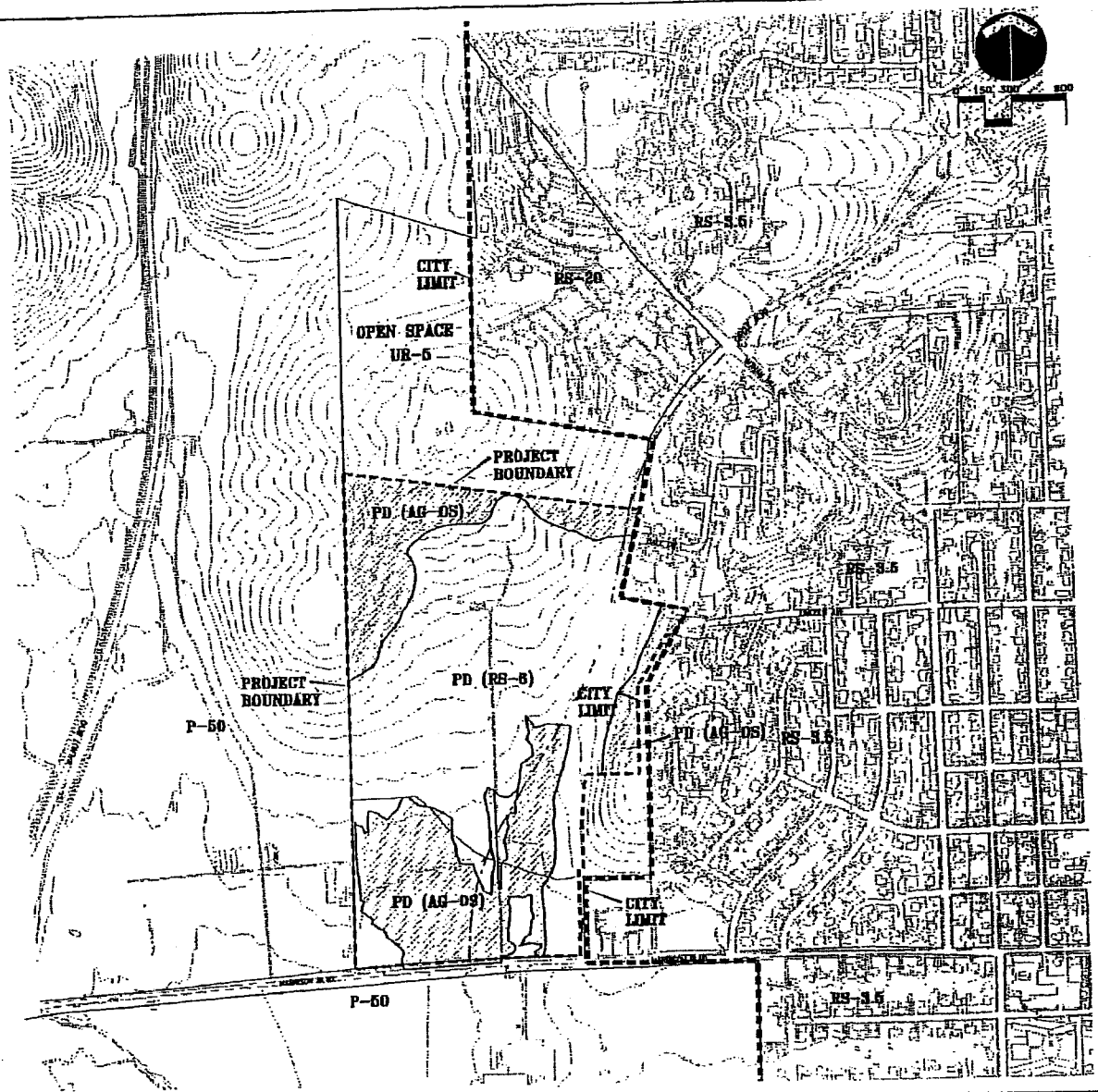
otak Incorporated

12059

EX-10

PLD06-00012, et al.

ATTACHMENT E-3



LEGEND

CITY OF CORVALLIS ZONING DISTRICTS

RS-3.5	LOW DENSITY RESIDENTIAL
RS-5	LOW DENSITY RESIDENTIAL
RS-6	LOW DENSITY RESIDENTIAL
RS-9	MEDIUM DENSITY RESIDENTIAL
RS-20	HIGH DENSITY RESIDENTIAL
AG-OS	OPEN SPACE AGICULTURAL
PD	PLANNED DEVELOPMENT OVERLAY

BENTON COUNTY ZONING DISTRICTS

UR-5	URBAN RESERVE
UR-50	URBAN RESERVE
P-50	PUBLIC

ANNEXATION APPLICATION RESUBMITTAL JUNE 1, 2004

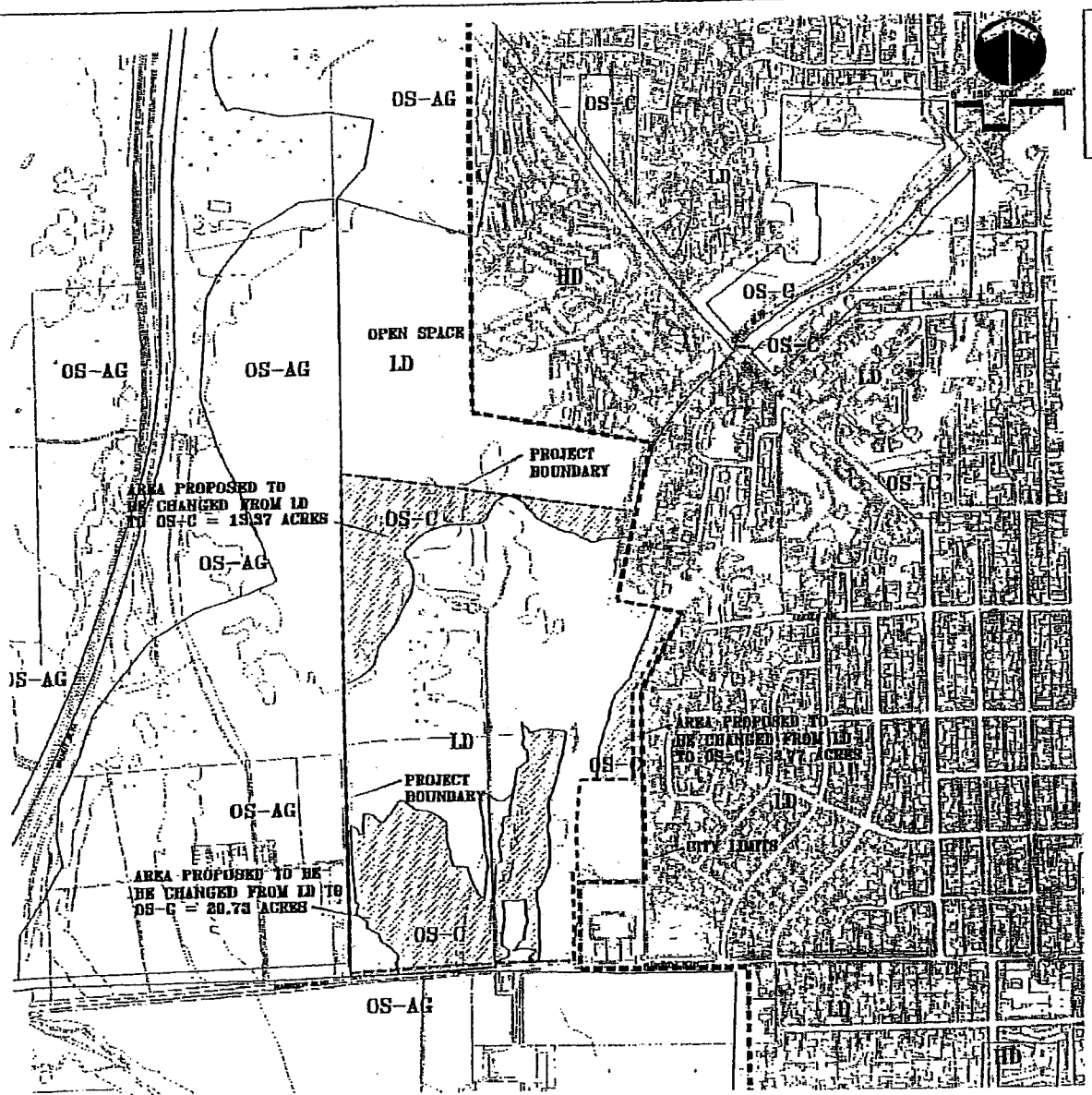
WITHAM OAKS

CORVALLIS, OREGON

PROPOSED ZONING DESIGNATION

Project No. 12059

EX-8



LEGEND

COMPREHENSIVE PLAN DESIGNATION

LD	RESIDENTIAL – LOW DENSITY
HD	RESIDENTIAL – HIGH DENSITY
OS-AG	AGRICULTURAL – OPEN SPACE
OS-C	CONSERVATION – OPEN SPACE

AREA SUMMARY	
LD	57.75
OS-C	36.87
TOTAL	94.62

ANNEXATION APPLICATION RESUBMITTAL JUNE 1, 2004

WITHAM OAKS

PROPOSED COMPREHENSIVE PLAN DESIGNATIONS

Project No. 12058

EX-7

BEFORE THE CITY COUNCIL

OF THE CITY OF CORVALLIS

FINDINGS - WITHAM OAKS ANNEXATION, COMPREHENSIVE PLAN AMENDMENT, AND APPEAL OF ZONING DISTRICT CHANGE

In the matter of a City Council decision to **place the Annexation request on the November, 2004, ballot; approve the Comprehensive Plan Amendment, subject to Annexation;** and to uphold the Planning Commission's decision, deny the appeal, and **approve the District Designation, subject to Annexation.**	)	ANN04-00004 CPA04-00002 ZDC04-00004

PREAMBLE

This matter before the Corvallis City Council is a decision regarding a proposed Annexation, Comprehensive Plan Amendment, and an appeal of the Planning Commission's approval of a District Designation. The subject area is a 96.35-acre site located north of Harrison Boulevard, west of Arnold Park and the Church of Jesus Christ of Latter-Day Saints, southwest of Witham Hill Drive, and east of Walnut Boulevard. The site includes 1.73 acres of Harrison Boulevard and Circle Boulevard right-of-way. If the annexation vote is approved, the Comprehensive Plan Map would be changed to designate 57.75 acres of the area as Low Density Residential, and 36.87 acres as Open Space - Conservation. Zoning District changes would follow these designations and would add a Planned Development Overlay zone to the property. Resultant zoning would be 57.75 acres of Low Density Residential with a Planned Development Overlay (PD(RS-6)), and 36.87 acres of Open Space - Agriculture with a Planned Development Overlay (PD(AG-OS). The applicant is Pahlisch Homes. The current owner of the property is Starlite LLC. The property to be annexed includes Assessor's Map Number 11-5-28, tax lots 2300; Assessors Map 11-5-33 tax lot 1000, 1100 and 1101; and portions of the Harrison Boulevard and Circle Boulevard rights of way.

On July 1, 2004, the Planning Commission held a public hearing on the above referenced Annexation, Comprehensive Plan Amendment, and District Designation requests. At this meeting, a request was made to hold the record open, which extended the comment period to 5:00 pm on July 8, 2004. The applicant consented to

six days to rebut testimony submitted during the time the record was held open. On July 14, 2004, the Planning Commission received and considered the additional written testimony and held deliberations on the requests. The Planning Commission voted to 1) recommend that the City Council approve the Comprehensive Plan Amendment, contingent upon an affirmative annexation vote; 2) approve the proposed District Designation, contingent upon an affirmative annexation vote and upon Council approval of the Comprehensive Plan Amendment; and 3) recommend that the City Council place the requested Annexation on the November 2, 2004, ballot. A notice of the decision was mailed on July 15, 2004 (Order # 2004-93).

On July 26, 2004, an appeal of the Planning Commission's decision on the District Designation was received from Robert Mason, John Foster, Elinor Griffiths and Louise Marquering.

The City Council held a duly-advertised de novo public hearing on the application on August 9, 2004. At this meeting, a request was made to hold the record open, which extended the comment period to 5:00 pm on August 16, 2004. The applicant was allowed an additional seven days to respond to these comments, ending at 5:00 pm on August 23, 2004. On August 26, 2004, staff provided the City Council with this additional correspondence, a memorandum outlining the order of actions and recommended motions for the project, and the subject findings. On August 30, 2004, the City Council received and considered the additional written testimony and held deliberations on the requests. After consideration of all the testimony and evidence, the City Council voted to: 1) place the Annexation measure on the November 2, 2004, ballot; 2) approve the requested Comprehensive Plan Amendment, subject to Annexation; and 3) deny the appeal, thereby upholding the Planning Commission's decision, and approve the District Designation, subject to Annexation.

Applicable Criteria

All applicable legal criteria governing review of this application are identified in the staff report to the Planning Commission dated June 21, 2004, the supplemental staff memo to the Planning Commission dated July 9, 2004, the Minutes of the Planning Commission hearings dated July 1, and July 14, 2004, the staff memo to the City Council dated August 2, 2004, the staff memo to the City Council dated August 23, 2004, and the Minutes of the City Council hearings dated August 9, and August 30, 2004.

FINDINGS RELATING TO ISSUES ON THE ANNEXATION (ANN04-00004)

1. The City Council accepts and adopts the findings included in the Staff Report to the Planning Commission, dated June 21, 2004, which support placing the Annexation measure on the November 2, 2004, ballot. The City Council adopts

as findings those portions of the Minutes of the Planning Commission meetings, dated July 1, and July 14, 2004, that demonstrate support for placing the Annexation measure on the November 2, 2004, ballot. The City Council specifically accepts and adopts the rationale given during deliberations by Planning Commissioners expressing their support for placing the measure on the ballot as reflected in the Minutes of the Planning Commission meeting of July 14, 2004. The City Council accepts and adopts the findings included in the August 2, 2004, Memorandum to the City Council, which support placing the Annexation measure on the November 2, 2004, ballot. The City Council also adopts as findings those portions of the Minutes of the City Council hearings dated August 9, and August 30, 2004, that demonstrate support for placing the Annexation measure on the November 2, 2004, ballot. The City Council specifically accepts and adopts the rationale given during deliberations in the August 30, 2004 meeting by Council Members expressing their support for placing the measure on the ballot. The findings below supplement and elaborate on the findings contained in the materials noted above, all of which are attached and incorporated within. When there is a conflict between these findings and the above-referenced findings incorporated by reference, these findings shall prevail.

2. The City Council notes that the record contains all information needed to evaluate the Annexation decision for compliance with the relevant criteria.

3. The City Council notes that the Phase III Land Development Code Update process, which is currently underway, reviewed Natural Features Inventory data for all areas within the City's Urban Growth Boundary. On March 8, 2004, the City Council accepted the Draft Preferred Land Use Scenario, which identified which of the inventoried natural features were considered significant enough to warrant local protections. As noted in the June 21, 2004, Planning Commission Staff Report, significant resource areas were identified on the subject property, including wetlands and areas with significant vegetation.

4. The City Council notes that the following Comprehensive Plan Policies provide direction for decisions to place annexation proposals on the ballot:

Applicable Comprehensive Plan Policies:

14.3.5 Annexations can only be recommended to the voters where the following findings are made:

A. There is a demonstrated public need for the annexation.

B. The advantages to the community resulting from the annexation shall outweigh the disadvantages.

C. The City and other jurisdictions are capable of providing urban services and facilities required by the annexed area, when developed.

14.3.6 Factors to be considered in evaluating the public need for annexation may include, but are not limited to the following:

A. The 5-year supply of serviceable land of this type to meet projected demand;

B. The availability of sufficient land of this type to ensure choices in the market place; and

C. Other factors, including livability benchmarks, as delineated in the Land Development Code.

The Council notes that in order to forward an annexation to the voters, they must find that there is a demonstrated public need for the annexation. The Council notes that Comprehensive Plan Finding 14.3.1 states as follows:

Annexation is the manner in which a City adds new territory to its corporate limits. When and if a City desires to add territory is based on a number of factors that change over time to address the public need.

The Council notes that Comprehensive Plan Policy 14.3.6 provides clarification as to which factors should be considered in evaluating need, but also allows for additional need factors to be considered, as demonstrated by the language, "Factors to be considered in evaluating the public need for annexation may include, but are not limited to the following...." The Council notes that, based on this language, it is possible to find that even if Factors 14.3.6.A, B, and C were not satisfied, it would be possible to find that there is a public need for an annexation, based on other factors. Based on this observation, and information in the record, the Council finds that there is a demonstrated public need for the Witham Oaks Annexation. The Council finds that the proposed annexation would add to the amount of low density residential land in the City, thereby increasing available choices in the marketplace. The Council also finds that there is a public need to protect identified significant natural resource areas within the Urban Growth Boundary, and that the proposed annexation is the best currently-available means to ensure that the significant resource areas on the site would be protected from development. The Council finds that the protection of the identified natural resource areas on the site is consistent with Comprehensive Plan Policies 4.2.2, 4.13.2, 4.13.4, and 5.5.3.

5. The Council notes that Section 2.6.30.03 of the Land Development Code, which relates to application requirements for annexation applications, contains the following requirement:

k. Narrative demonstrating need for the urban development proposed for the annexation area; need should be demonstrated based upon a factual analysis of the following factors:

1. **Availability within the City of undeveloped land designated for proposed urban development.**

2. **Analysis of immediate, short-term (1 to 5 years) demand for proposed urban development.**

3. **Probable phasing of proposed urban development consistent with projected demand for period in which the annexation area is expected to be developed.**

The Council notes that the preceding requirement is an application requirement and does not constitute a decision criteria for an annexation application. Applicable decision criteria for annexation decisions are found in LDC Section 2.6.30.07. The Council finds that direction regarding the determination of public need is appropriately contained in Comprehensive Plan Policy 14.3.6, and is not located in LDC Section 2.6.30.03.k, relating to application requirements. The Council finds that there are legitimate reasons why application requirements regarding need would require applicants to provide a detailed, factual analysis of need, but that these requirements are not wholly determinative of the question of public need, as stipulated in Comprehensive Plan Policy 14.3.6.

6. The Council notes that the applicant has submitted a memorandum discussing alternatives for how storm drainage might be routed from the subject site (Attachment III-184 of the August 2, 2004 Memorandum to the City Council). The memorandum discusses three options for routing stormwater from the site: 1) drain west to Oak Creek, 2) drain east to the City's storm system, and 3) drain south across OSU property to Oak Creek. The Council notes that the applicant has not applied for Subdivision or Planned Development approval that would allow development on the residential portion of the site at this time. The Council notes that these approvals would be necessary prior to allowing development on the property, if it were under the City's jurisdiction. The Council notes that City Engineering staff have reviewed the Annexation, Comprehensive Plan Amendment, and Zoning District Change proposals, and have concluded that storm water from potential development on the site can be accommodated in compliance with City standards. The Council notes that detailed plans for the accommodation of stormwater from the site have not been prepared because a specific plan for development of the site has not been completed. The Council notes that Development Related Concern #8, from the June 21, 2004, Staff Report to the Planning Commission puts the applicant on notice that storm drainage facilities serving the site will be required to provide both water quality functions and detention consistent with King County and City standards. The Council notes that Public Works Engineering staff have concluded that it is feasible to provide stormwater service to the subject site consistent with City standards, and that future development of the site will be required to comply with City standards. The Council finds that the proposed annexation will not result in significant negative impacts to the City's stormwater system because

development on the site will not be allowed to create such negative impacts. Based on this analysis, and the information in the record, the Council finds that the City is capable of providing stormwater service to the subject property commensurate with the needs of existing and proposed increases, as is required by LDC criterion 2.6.30.07.

7. The Council notes that the applicants submitted a Traffic Impact Analysis (TIA) which analyzed the impacts of site development on the existing transportation system in the area. The Council notes that the TIA evaluates traffic impacts resulting from full development of 57.75 acres of the site under the Low Density Residential with Planned Development Overlay (PD(RS-6)) zoning designation, but does not anticipate significant traffic impacts from the 36.87-acre portion of the site proposed to be zoned Agricultural Open Space with a Planned Development Overlay (PD(AG-OS)). The Council notes that significant traffic impacts were not anticipated from the PD(AG-OS) portion of the site for the following reasons:

   1. Nearly all outright permitted uses within the AG-OS district, including animal husbandry; horticulture, cultivation, and storage; and row field crops, are not significant generators of traffic.

   2. The applicant clearly states their desire to protect the natural resources on the AG-OS portion of the site, and are unlikely to develop a use in those areas which would be likely to create compatibility conflicts with the portion of the site they intend to develop with residential uses. The Council notes that if the Conservation - Open Space Zoning District were available, it would be applied to the area, consistent with the requested Conservation - Open Space Comprehensive Plan Designation. Until the City adopts a Conservation - Open Space Zone, Chapter 2.2 of the Land Development Code directs that properties with a Comprehensive Plan designation of Conservation - Open Space receive a Zoning Designation of Agriculture - Open Space. The Council notes that the Agriculture - Open Space zone is currently the least intensive zoning district available per the Land Development Code, and is most consistent with the desire to protect natural resource areas.

   3. Development of the one outright permitted use in the AG-OS zone which could generate significant traffic, "Research Facilities and Services," is not a realistic expectation, considering the following factors:

      a. The configuration and location of the properties proposed for the AG-OS zone would not easily lend themselves to this type of development. Much of this area contains steep slopes and is difficult to access, and all of these areas contain significant natural features.

b. Given the requested Planned Development Overlay on the AG-OS portion of the site, any development on these properties would be subject to Planned Development approval. In this approval process, impacts to natural features would be a key consideration and would make approval of any significant development proposal in these areas problematic. The Planned Development approval process would also require an analysis of traffic impacts resulting from the proposed development, and would ensure that traffic impacts from the development would be addressed at that time.

c. The applicant has stated its desire to preserve the areas with natural features and is unlikely to allow development in these areas in a manner that would create compatibility conflicts with the residential development it wishes to pursue on the remaining 57.75 acres of the site.

Given the above analysis and information in the record, the Council finds that the submitted Traffic Impact Analysis adequately anticipates traffic impacts that would result from the proposed Annexation, Comprehensive Plan Amendment, and Zoning District Change. Furthermore, the Council finds that the City is capable of providing transportation services to the subject property commensurate with the needs of existing and proposed increases, as is required by LDC criterion 2.6.30.07.

FINDINGS RELATING TO ISSUES ON THE COMPREHENSIVE PLAN AMENDMENT (CPA04-00002)

1. The City Council accepts and adopts the findings included in the Staff Report to the Planning Commission, dated June 21, 2004, which support approval of the Comprehensive Plan Amendment. The City Council adopts as findings those portions of the Minutes of the Planning Commission meetings, dated July 1, and July 14, 2004, that demonstrate support for the Comprehensive Plan Amendment. The City Council specifically accepts and adopts the rationale given during deliberations by Planning Commissioners expressing their support for the Comprehensive Plan Amendment as reflected in the Minutes of the Planning Commission meeting of July 14, 2004. The City Council accepts and adopts the findings included in the August 2, 2004, Memorandum to the City Council, which support approval of the Comprehensive Plan Amendment. The City Council also adopts as findings those portions of the Minutes of the City Council hearings dated August 9, and August 30, 2004, that demonstrate support for the Comprehensive Plan Amendment. The City Council specifically accepts and adopts the rationale given during deliberations in the August 30, 2004 meeting by Council Members expressing their support for the Comprehensive Plan Amendment. The findings below supplement and elaborate on the findings contained in the materials noted above, all of which are attached and incorporated within. When there is a conflict between these findings and the above-referenced findings incorporated by reference, these findings shall prevail.

2. The City Council notes that the record contains all information needed to evaluate the Comprehensive Plan Amendment decision for compliance with the relevant criteria.

3. The City Council notes that the Phase III Land Development Code Update process, which is currently underway, reviewed Natural Features Inventory data for all areas within the City's Urban Growth Boundary. On March 8, 2004, the City Council accepted the Draft Preferred Land Use Scenario, which identified which of the inventoried natural features were considered significant enough to warrant local protections. As noted in the June 21, 2004, Planning Commission Staff Report, significant resource areas were identified on the subject property, including wetlands and areas with significant vegetation.

4. The City Council accepts and adopts the findings in the preceding section of the formal findings relating to the annexation decision which support approval of the Comprehensive Plan Amendment, specifically including, but not limited to, the discussion of demonstrated public need.

5. The Council notes that the applicants submitted a Traffic Impact Analysis (TIA) which analyzed the impacts of site development on the existing transportation system in the area. The Council notes that the TIA evaluates traffic impacts resulting from full development of 57.75 acres of the site under the Low Density Residential with Planned Development Overlay (PD(RS-6)) zoning designation, but does not anticipate significant traffic impacts from the 36.87-acre portion of the site proposed to be zoned Agricultural Open Space with a Planned Development Overlay (PD(AG-OS)). The Council notes that significant traffic impacts were not anticipated from the PD(AG-OS) portion of the site for the following reasons:

1. Nearly all outright permitted uses within the AG-OS district, including animal husbandry; horticulture, cultivation, and storage; and row field crops, are not significant generators of traffic.

2. The applicant clearly states their desire to protect the natural resources on the AG-OS portion of the site, and are unlikely to develop a use in those areas which would be likely to create compatibility impacts with the portion of the site they intend to develop with residential uses. The Council notes that if the Conservation - Open Space Zoning District were available, it would be applied to the area, consistent with the requested Conservation - Open Space Comprehensive Plan Designation. Until the City adopts a Conservation - Open Space Zone, Chapter 2.2 of the Land Development Code directs that properties with a Comprehensive Plan designation of Conservation - Open Space receive a Zoning Designation of Agriculture - Open Space. The Council notes that the Agriculture - Open Space zone is currently the least intensive zoning district available per the Land Development Code, and is most consistent with the desire to protect natural resource areas.

3. Development of the one outright permitted use in the AG-OS zone which could generate significant traffic, "Research Facilities and Services," is not considered a realistic expectation, considering the following factors:

   a. The configuration and location of the properties proposed for the AG-OS zone would not easily lend themselves to this type of development. Much of this area contains steep slopes and is difficult to access, and all of these areas contain significant natural features.

   b. Given the requested Planned Development Overlay on the AG-OS portion of the site, any development on these properties would be subject to Planned Development approval. In this approval process, impacts to natural features would be a key consideration and would make approval of any significant development proposal

in these areas problematic. The Planned Development approval process would also require an analysis of traffic impacts resulting from the proposed development, and would ensure that traffic impacts from the development would be addressed at that time.

c. The applicant has stated their desire to preserve the areas with natural features and is unlikely to allow development in these areas that would create compatibility conflicts with the residential development they wish to pursue on the remaining 57.75 acres of the site.

Given the above analysis and information in the record, the Council finds that the submitted Traffic Impact Analysis adequately anticipates traffic impacts that would result from the proposed Annexation, Comprehensive Plan Amendment, and Zoning District Change. Furthermore, the Council finds that the City is capable of providing transportation services to the subject property commensurate with the needs of existing and proposed increases, as is required by LDC criterion 2.6.30.07.

6. The Council notes that the Transportation Planning Rule (TPR) requires that actions such as Comprehensive Plan and Land Development Code Amendments be evaluated for impacts to transportation facilities. The Council notes that the TPR states that if an amendment "significantly affects" a transportation facility, one or more listed actions shall be taken. The Council notes that "significantly affects" is defined as a set of results generally associated with proposals that increase trip activity. The Council notes that the proposed Comprehensive Plan Amendment would change the Comprehensive Plan Designation for the property from 94.62 acres of Low Density Residential to 57.75 acres of Low Density Residential and 36.87 acres of Open Space - Conservation. The Council notes that the Traffic Impact Analysis submitted for this application found that there would be a reduction in traffic impacts resulting from the proposed change. The Council notes that staff concur with this analysis. Based on this analysis, and upon information in the record, the Council finds that the proposed Comprehensive Plan Amendment and Zoning District Change would not significantly affect a transportation facility, and therefore, no OAR 660-012-0060(1) action is required. The Council finds that the proposed Comprehensive Plan Amendment and Zoning District Change are consistent with the stipulations of the Transportation Planning Rule.

FINDINGS RELATING TO ISSUES ON THE APPEAL OF THE DISTRICT DESIGNATION (ZDC04-00004)

1. The Council notes that on July 26, 2004, an appeal of the Planning Commission's decision to approve the District Designation (ZDC04-00004) was received from Robert Mason, John Foster, Elinor Griffiths and Louise Marquering. The Council accepts and adopts the findings included in the August 2, 2004, Memorandum to the City Council that specifically respond to the issues raised in the appeal, and which demonstrate support for the Planning Commission's decision to approve the Zoning District Change.

2. The City Council also accepts and adopts the findings included in the Staff Report to the Planning Commission, dated June 21, 2004, which support approval of the Zoning District Change. The City Council adopts as findings those portions of the Minutes of the Planning Commission meetings, dated July 1, and July 14, 2004, that demonstrate support for the Zoning District Change. The City Council specifically accepts and adopts the rationale given during deliberations in the July 14, 2004 meeting by Planning Commissioners expressing their support for the Zoning District Change. The City Council accepts and adopts the findings included in the August 2, 2004, Memorandum to the City Council, which support denial of the appeal and approval of the Zoning District Change. The City Council also adopts as findings those portions of the Minutes of the City Council hearings dated August 9, and August 30, 2004, that demonstrate support for denial of the appeal and approval of the Zoning District Change. The City Council specifically accepts and adopts the rationale given during deliberations in the August 30, 2004 meeting by Council Members expressing their support for the Zoning District Change. The findings below supplement and elaborate on the findings contained in the materials noted above, all of which are attached and incorporated within. When there is a conflict between these findings and the above-referenced findings incorporated by reference, these findings shall prevail.

3. The City Council notes that the record contains all information needed to evaluate the appeal of the Zoning District Change decision for compliance with the relevant criteria.

4. The City Council notes that the Phase III Land Development Code Update process, which is currently underway, reviewed Natural Features Inventory data for all areas within the City's Urban Growth Boundary. On March 8, 2004, the City Council accepted the Draft Preferred Land Use Scenario, which identified which of the inventoried natural features were considered significant enough to warrant local protections. As noted in the June 21, 2004, Planning Commission Staff Report, significant resource areas were identified on the subject property, including wetlands and areas with significant vegetation.

5. The City Council accepts and adopts the findings in the preceding sections of the formal findings relating to the Annexation and Comprehensive Plan Amendment decisions which support approval of the Zoning District Change, specifically including, but not limited to, the discussion of compliance with the requirements of the Transportation Planning Rule.

CONCLUSION

The City Council finds that the requested Annexation, Comprehensive Plan Amendment, and District Designation comply with all applicable review criteria and are consistent with the City's Comprehensive Plan and Land Development Code.

The City Council finds that the request to place the Annexation measure on the November 2, 2004, ballot complies with all applicable criteria; and therefore, the Annexation request is Approved. The City Council finds that the Comprehensive Plan Amendment to re-designate 36.87 acres of the site as Open Space - Conservation complies with all applicable criteria and provides assurance that identified significant natural features will be adequately preserved. Accordingly, the Comprehensive Plan Amendment is APPROVED, subject to passage of the Annexation measure. The Council finds that the proposed District Designations are consistent with the amended Comprehensive Plan designations and comply with all applicable decision criteria. The Planning Commission's decision to approve the District Designation is upheld, and the request is APPROVED, subject to passage of the Annexation measure.

DATED: August 31, 2004.

Helen Berg
MAYOR

Exhibit II - 156

C. RECOMMENDATIONS

1. Add to the City's Open Space Hillside Inventory the area within the Corvallis Woodland Meadow Park.

2. With the exception of existing publicly-owned properties, remove Forest Acres Hill from the City's Open Space Hillside Inventory.

3. Revise the Comprehensive Plan Map from Open Space/ Conservation to Low Density Residential for privately-owned properties as shown in Map 18.

6. WITHAM HILL

A. RESOURCE INVENTORY

The 1979 Open Space Report recognizes that Witham Hill is a built-upon hill and that existing vegetation is critical to the view of the hill.

B. REFINEMENT OF THE INVENTORY

As suggested by the Open Space Report, Witham Hill includes built-up areas. In effect, the visually most prominent areas of the hill from the existing Corvallis City limits area - the north and east slopes - are the most extensively developed portions. Maps 15 and 16 depict topography, landcover, and ownership patterns. Most of the west and southwest slopes of the hill are owned by Oregon State University and are currently designated Open Space/Agriculture.

The inventory area has been expanded to include additional hillside area north of the 1979 boundary area above the 340-foot contour as shown on Maps 14, 15, 16, and 17.

C. IDENTIFICATION OF CONFLICTING USES

Low Density Residential development is a potentially conflicting use with the Witham Hill open space resources in areas not currently developed that are designated for future residential development.

D. ECONOMIC, SOCIAL, ENVIRONMENTAL, AND ENERGY CONSEQUENCES

With the exception of land owned by Oregon State University, the hillside area is designated for residential development because of the proximity of the site to developing areas of the City and suitability of the site for accommodating urban development. The south

portion of the hill as shown in Map 17 has also been designated for a potential research technology center.

In order to minimize the adverse social and environmental consequences of anticipated development, it is recommended that policies be adopted which encourage the retention of the area of visual contrast between forest and grasslands and significant vegetation.

E. RECOMMENDATIONS

1. Refine the City's Open Space Inventory to delete reference to the built-up portions of Witham Hill.

2. Refine the City's Open Space Inventory to include the area above the 340-foot contour as shown in Map 17.

3. No changes in the City's Comprehensive Plan are necessary. This recommendation provides for continued low-density residential and research-technology center development in appropriately designated areas.

4. As an important consideration in providing for open space when developing the hill, development proposals for properties that include areas of visual contrast between forest and grasslands habitat shall give consideration to opportunities for conservation of grasslands open space that abuts the forested area. Where feasible, it is recommended that building mass and other land development be sited and designed within areas of trees so that visual contrast between grasslands and the vegetated/developed areas is retained.

5. As a policy for potential future development, areas with slopes greater than 20 percent as identified in Map 15b shall be retained in Open Space/ Conservation uses.

7. BALD HILL

A. RESOURCE INVENTORY

Bald Hill is the most visually prominent hill located between Corvallis and Philomath. In conjunction with the nearby hills called Double Hill, Philomath-Corvallis Hill, and Philomath-Skyline Hill, the 1979 Open Space Report suggests that Bald Hill acts as a "backbone" for a buffer separating Philomath from Corvallis.

The Open Space Report indicates that housing and nearby industrial development has compromised the aesthetic

Landcover: Forest Acres Hill - Witham Hill

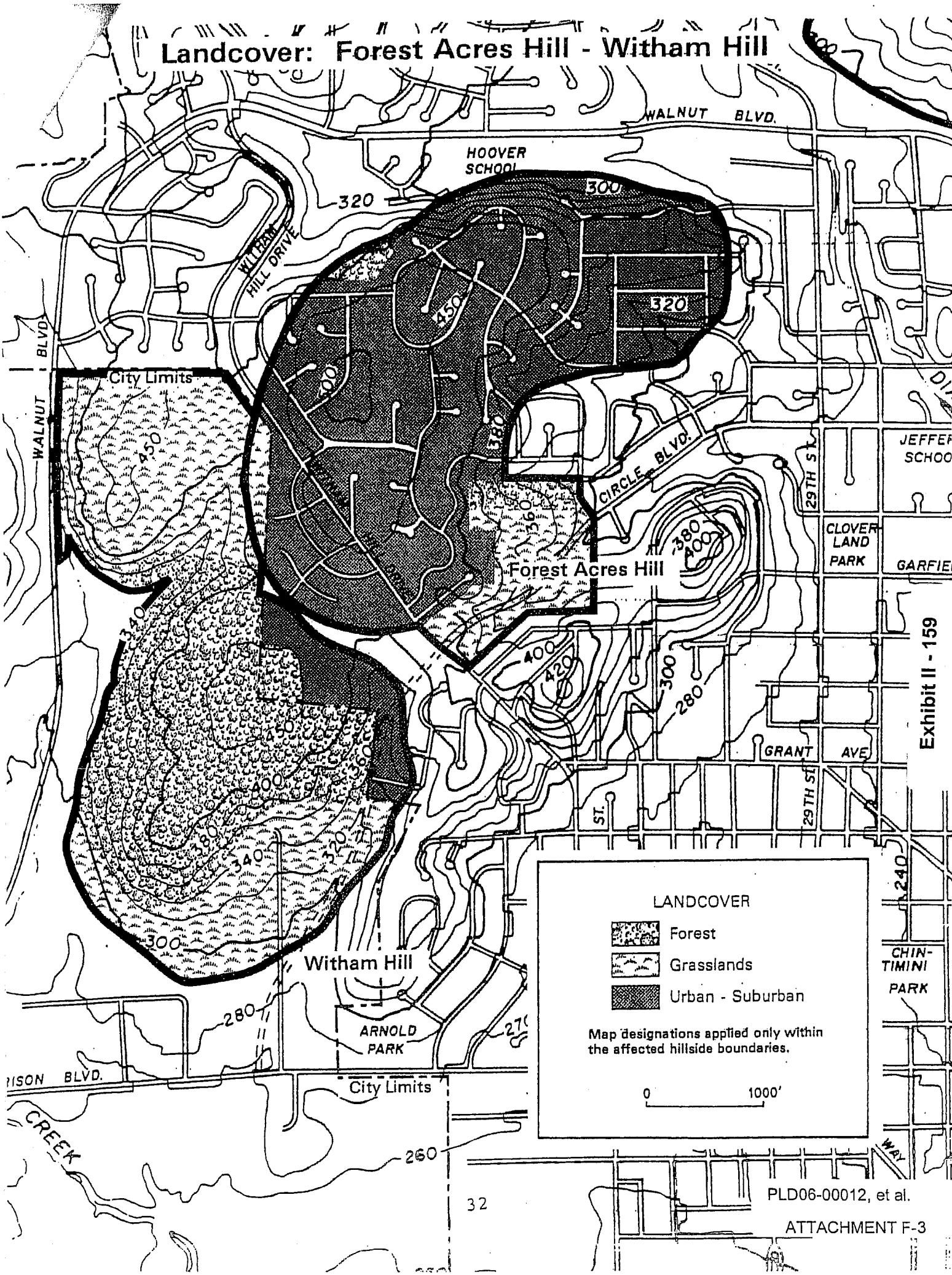


Exhibit II - 159

Witham Oaks
Conceptual and Detailed Development Plan / Tentative Subdivision Plat
(PLD06-00012 / SUB06-00005)
Staff-Identified Applicable Criteria

Applicable Comprehensive Plan Policies

1.2.9 The applicable criteria in all land use decisions shall be derived from the Comprehensive Plan and other regulatory tools that implement the Plan.

3.2.1 The desired land use pattern within the Corvallis Urban Growth Boundary will emphasize:

- **A. Preservation of significant open space and natural features;**
- **B. Efficient use of land;**
- **C. Efficient use of energy and other resources;**
- **D. Compact urban form;**
- **E. Efficient provision of transportation and other public services; and**
- **F. Neighborhoods with a mix of uses, diversity of housing types, pedestrian scale, a defined center, and shared public areas.**

3.2.3 The City shall address compatibility conflicts through design and other transitional elements, as well as landscaping, building separation, and buffering.

3.2.4 In the case of compatibility conflicts, requirements will be imposed on both sides of a given property line, in the following manner:

- **A. Where both lots are undeveloped, each will be required to provide transitional elements when it develops.**
- **B. The development in the more intensive development district shall provide the bulk of the transitional elements but shall not be required to provide the full amount unless the property in the less intensive district is already developed.**

3.2.7 All special developments, lot development options, intensifications, changes or modifications of nonconforming uses, Comprehensive Plan changes, and district changes shall be reviewed to assure compatibility with less intensive uses and potential uses on surrounding lands. Impacts of the following factors shall be considered:

- **A. Basic site design (i.e., the organization of uses on a site and its relationship to neighboring properties);**
- **B. Visual elements (i.e., scale, structural design and form, materials, etc.);**
- **C. Noise attenuation;**

D. Odors and emissions;
E. Lighting;
F. Signage;
G. Landscaping for buffering and screening;
H. Transportation facilities; and
I. Traffic and off-site parking impacts.

4.2.2 Natural features and areas determined to be significant shall be preserved, or have their losses mitigated, and/or reclaimed. The City may use conditions placed upon development of such lands, private nonprofit efforts, and City, State, and Federal government programs to achieve this objective.

4.3.5 A buffer between urban density development and resource land shall be provided, consistent with Section 3.2 of this Plan, to protect Open Space - Agriculture and Open Space - Conservation lands from intrusion by urbanization and to protect urban lands from potential impacts from forest or agricultural practices. For forest and agricultural uses that currently exist on non-open space designated lands, transitional buffering shall be provided to address compatibility concerns.

4.6.2 Development on hillsides shall not endanger life and property nor land and aquatic resources determined to be environmentally significant.

4.6.5 On tree-covered hillsides, development shall be designed to preserve as many trees as possible and tree removal shall be consistent with the approved development plan.

4.6.6 On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe and practicable, the development may proceed, provided the following provisions are met: 1) the loss of trees is further minimized by development techniques such as clustering; and 2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance.

4.6.16 Witham Hill:

Development proposals on Witham Hill that include areas of visual contrast between forest and grassland habitat shall consider protection of the grassland open space that abuts the forested area. Where feasible, building mass and other land development will be sited and designed within areas of trees to retain visual contrast between grassland and the vegetated/developed areas.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

G. Demonstrate a concern for the view of the hills as well as the view from the hills.

H. Provide landscaping that enhances the identified open space resources.

4.6.9 Where development of hillsides occurs, removal of vegetation will be minimized to control

erosion. Vegetation disturbed during development shall be replaced or enhanced through landscaping.

4.7.3 Prior to development, the City of Corvallis may require site-specific soil surveys and geologic studies where potential hazards are identified based upon available geologic and soils evidence. When natural hazards are identified, the City shall require that special design considerations and construction measures be taken to offset the soil and geologic constraints present in order to protect life and property, and to protect environmentally hazardous areas.

4.9.1 Significant watercourses, lakes, and wetlands shall be preserved, or have their losses mitigated, in order to: maintain clean water, support natural vegetation, protect the aquatic habitat, retain existing significant public vistas, and provide wildlife habitat and recreation sites. Site-specific buffering and setback requirements may be required, as necessary, to achieve protection.

4.10.1 Development within the Urban Growth Boundary shall conform to the Corvallis Drainage Master Plan which includes the site-specific provisions included in the 1996 South Corvallis Drainage Master Plan and subsequent updates of these Plans.

4.10.2 Significant riparian lands within the Urban Growth Boundary shall be identified and inventoried by the City or through the development process, and the City shall work to preserve and enhance native stream corridor vegetation on both public and private lands. (QL-6)}

4.10.3 Significant drainageways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable.

4.10.4 Within the Urban Growth Boundary, appropriate drainageway dedications and easements adequate for flood protection, conveyance of stormwater, channel access and maintenance, protection of riparian environment, and channel migration shall be secured along all open drainageways needed for public conveyance of stormwater, prior to or at the time of development.

4.10.7 To minimize the negative impacts of development, stormwater runoff after development should be managed to produce no significant reduction of water quality than prior to development unless more appropriate provisions are identified in adopted comprehensive storm water management plans.

4.10.8 Grading and filling in drainageways shall be regulated to prevent negative impact on the channel, floodway and flood plain, riparian habitat, wetlands, and other properties. Where drainageways are disturbed through development, the developer shall return the drainageway to its natural state, to the extent practicable.

4.10.9 Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainageways shall be minimized.

4.10.16 Where stream shading is not adequate, development shall include planting of trees and/or other vegetation to provide adequate shading. (SS-7)

4.10.18 The City shall inventory and identify natural intermittent streams within the Corvallis Urban Growth Boundary that provide important hydrological, water quality, and aquatic habitat functions. Those that are used for stormwater functions shall be protected using mechanisms such as drainageway dedications and easements. (SS-1)

4.10.19 The Corvallis stormwater utility shall incorporate existing natural features such as streams and wetlands as a means of managing urban fun-of. When using these natural features for urban stormwater needs, stormwater management shall follow the guiding principle of minimizing harm to these natural systems, maintaining the natural functions, and over time, repair any damage associated with past practices. (GP-1)

4.10.20 The City shall promote the protection and enhancement of stream channel structure for deeper pool habitat that provides cooler water refuge areas at times of low stream flows. (QL-14)

4.11.3 Lakes, wetlands, floodway, drainageways and other urban streams are part of the hydrological system and should be managed comprehensively.

4.11.11 Regarding significant wetlands downstream of development sites, the cumulative unavoidable losses of significant wetland acreage and function attributable to upstream development should be mitigated by the City. Such mitigation can be achieved, in part, through dedication of open space, drainageways, and related natural infrastructure.

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

4.11.14 To resolve wetland issues as early as possible in the development application process on land with hydric soils, land with wetland vegetation, and/or land identified on a State or national wetland inventory, the City shall require a developer to submit, at the time of application, a wetland determination or delineation from a qualified consultant. This professional analysis shall be submitted concurrently to the City and to the Division of State Lands. The City shall request comment from the Division of State Lands on land development applications requiring a public hearing.

4.11.15 The City shall encourage wetland mitigation to occur in the same basin. (UP-7)

4.11.17 The City shall continue to maximize preservation and restoration of existing upland natural resource areas and wetlands by use of development standards in the Land Development Code (UP-12).

4.12.9 The City shall encourage practices that enhance groundwater recharge to maintain or increase stream flow during dry periods. (QN-10)

4.12.10 The City shall encourage parking lots to be constructed of stable pervious surfaces that do not degrade groundwater quality.

4.13.2 Development on land identified with significant plant communities, or significant fish and wildlife habitats, shall be planned to minimize the impact on the significant resources.

4.13.5 Development occurring in significant wildlife areas will set forth a plan of action to reduce impact to significant identified areas.

4.11.17 The City shall continue to maximize preservation and restoration of existing upland natural resource areas and wetlands by use of development standards in the Land Development Code (UP-12).

5.3.1 To increase the aesthetic qualities of the community and enjoy the engineering and ecological benefits of trees, the City shall require developers to plant appropriate numbers and varieties of trees with all new development. Such standards shall be maintained in the Land Development Code.

7.2.6 The City will encourage new development to be sensitive to the environment by having the development avoid significant negative impacts on:

A. Air and water quality;
B. Noise or light pollution; and

7.5.3 To improve water quality and quantity in the Corvallis area, the City will continue to develop regulations or programs to manage both point and non-point pollutants by:

A. Increasing public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problems;

C. Regulating site planning for new development and construction to better control drainage and erosion and to manage storm runoff;

D. Increasing storage and retention of storm runoff to lower and delay peak storm flows as appropriate;

E. Reducing street-related water quality and quantity problems; and

F. Increasing public awareness, minimizing the use and encouraging the appropriate disposal of polluting substances that affect surface and ground water resources.

7.5.6 Sediment removal using Best Management Practices shall be utilized prior to discharge of all runoff from both public and private impervious areas. (QL-1)

7.5.8 The City shall work to ensure that harmful urban runoff is not discharged directly into streams.(QL-5)

9.2.1 City land use decisions shall protect and maintain neighborhood characteristics (as defined in 9.2.5) in existing residential areas.

9.2.2 In new development, City land use actions shall promote neighborhood characteristics (as defined in 9.2.5) that are appropriate to the site and area.

9.2.4 Neighborhoods shall be pedestrian-oriented. Neighborhood development patterns shall give priority consideration to pedestrian-based uses, scales and experiences

in determining the orientation, layout, and interaction of private and public areas.

9.2.5 Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment, or infill that may occur in these areas. These neighborhood characteristics are as follows:

A. Comprehensive neighborhoods have a neighborhood center to provide services within walking distance of homes. Locations of comprehensive neighborhood centers are determined by proximity to major streets, transit corridors, and higher density housing. Comprehensive neighborhoods use topography, open space, or major streets to form their edges.

B. Comprehensive neighborhoods support effective transit and neighborhood services and have a wide range of densities. Higher densities generally are located close to the focus of essential services and transit.

C. Comprehensive neighborhoods have a variety of types and sizes of public parks and open spaces to give structure and form to the neighborhood and compensate for smaller lot sizes and increased densities.

D. Neighborhood development provides for compatible building transitions in terms of scale, mass, and orientation.

E. Neighborhoods have a mix of densities, lot sizes, and housing types.

F. Neighborhoods have an interconnecting street network with small blocks to help disperse traffic and provide convenient and direct routes for pedestrians and cyclists. In neighborhoods where full street connections cannot be made, access and connectivity are provided with pedestrian and bicycle ways. These pedestrian and bicycle ways have the same considerations as public streets, including building orientation, security-enhancing design, enclosure, and street trees.

G. Neighborhoods have a layout that makes it easy for people to understand where they are and how to get to where they want to go. Public, civic, and cultural buildings are prominently sited. The street pattern is roughly rectilinear. The use and enhancement of views and natural features reinforces the neighborhood connection to the immediate and larger landscape.

H. Neighborhoods have buildings (residential, commercial, and institutional) that are close to the street, with their main entrances oriented to the public areas.

I. Neighborhoods have public areas that are designed to encourage the attention and presence of people at all hours of the day and night. Security is enhanced with a mix of uses and building openings and windows that overlook public areas.

J. Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g., by setting them back from the front facade of the residential structure.) Parking lots and structures are located at the rear or side of buildings. On-street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.

K. Neighborhoods incorporate a narrow street standard for internal streets which slows and diffuses traffic.

L. Neighborhood building and street proportions relate to one another in a way that provides a sense of enclosure.

M. Neighborhoods have street trees in planting strips in the public right-of-way.

9.3.2 Where a variety of dwelling types are permitted by the development district, innovative site development techniques and a mix of dwelling types should be encouraged to meet the range of demand for housing.

9.3.5 Residential developments shall conform to the density ranges specified by the Comprehensive Plan and be of housing types permitted by the applicable zoning district.

9.3.6 The development review process shall not result in the exclusion of needed housing at densities permitted by underlying district designations or result in unreasonable cost or delay.

9.3.7 To the maximum extent possible in residential areas, glare from outdoor lighting shall be shielded and noise shall be limited.

9.4.9 Residential development should consider and accommodate to the maximum extent possible, the future needs of senior citizens.

9.5.13 New subdivisions and planned developments of more than 5 acres in low density districts shall incorporate two or more of the following elements in at least 10% of the total acreage:

A. Zero lot line or attached dwellings (where allowed);

B. Minimum allowed lot area; or

C. Dwelling size less than 1,200 square feet.

10.2.8 The expansion of public facilities or services within City Limits or the extension of public facilities or services to newly-annexed areas shall be accomplished through the Capital Improvement Plan, as funding allows, or as a condition of development, or a combination of both.

10.2.9 All developments shall comply with adopted utility and facility master plans and the Capital Improvement Plan.

10.2.10 The City and County shall develop regulations and procedures which will encourage the appropriate development of public facilities and services within the Urban Growth Boundary. The cost of such facilities and utilities shall be borne by the benefitted properties.

10.2.11 Developers shall be required to participate financially in providing the facilities to serve their projects as a condition of approval.

10.2.12 Developers will be responsible for the construction of all facilities internal to and fronting their properties and for needed extensions of facilities to and through their site.

10.3.6 The City shall take steps to minimize the effects of development on downstream drainage systems through the use of appropriate strategies as identified in the Stormwater Master Plan.

11.2.1 The transportation system shall be planned and developed in a manner which contributes to community livability, recognizes and respects the characteristics of natural features, and minimizes the negative effects on abutting land uses.

11.2.2 The transportation system shall be managed to reduce existing traffic congestion and facilitate the safe, efficient movement of people and commodities within the community.

11.2.3 The City shall develop and promote alternative systems of transportation which will safely, economically, and conveniently serve the needs of the residents.

11.3.4 The City shall maintain the carrying capacity and viability of major arterials and other major streets by developing, adopting, and implementing access control standards that restrict or reduce curb cuts and other direct access points, require adequate rights-of-way, setback lines, and road improvements as part of the development process.

11.3.5 Local streets shall be designed and built to discourage high speed through traffic.

11.3.9 Adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection level-of-service (LOS) standards and to avoid traffic diversion to local streets. The level-of-service standards shall be: LOS "D" or better during morning and evening peak hours of operation for all streets intersecting with arterial or collector streets, and LOS "C" for all other times of day. Where level-of-service standards are not being met, the City shall develop a plan for meeting the LOS standards that evaluates transportation demand management and system management opportunities for delaying or reducing the need for street widening. The plan should attempt to avoid the degradation of travel modes other than the single-occupant vehicle.

11.3.11 Private driveway access shall be limited on all existing and future arterial streets to reduce interference, improve safety, and preserve traffic capacity. New residential driveways shall not directly access arterial streets where alternate access can be developed. At the time of development or redevelopment, opportunities to restrict or combine access points along arterials should be pursued.

11.3.12 New local streets, neighborhood collectors, collector streets, and arterial streets shall be located and designed to manage traffic volume and speed to minimize negative impacts on abutting land uses.

11.4.3 All traffic generators shall provide adequate parking.

11.5.1 Bikeways shall be conveniently located, be adequately constructed, have minimal stops and obstructions, and have safe crossings on major streets.

11.5.2 Bikeways shall provide safe, efficient corridors which encourage bicycle use. Bicycle use of major streets shall be considered as improvements are made to major transportation corridors.

11.6.3 Pedestrian access shall be addressed in the review of proposed cul-de-sac developments. The City shall require pedestrian rights-of-way interconnecting the ends of such streets where feasible.

11.6.5 All arterial and collector streets shall have sidewalks constructed at the time of initial stret improvement to encourage pedestrian use.

11.6.11 The City shall encourage timely installation of pedestrian facilities to ensure continuity and reduce hazards to pedestrians throughout the community.

11.6.13 New commercial and residential development shall generally provide for a maximum block perimeter of 1,500 feet, except where it would negatively impact significant natural features.

11.7.1 An improved public transportation system within the Urban Growth Boundary should be established to improve the livability of the community, to reduce pollution and traffic, and to reduce energy consumption.

11.7.4 Arterial and collector street designs shall include evaluation for transit facilities such as bus stops, pullouts, shelters, optimum road design, and on-street parking restrictions as appropriate to facilitate transit service.

11.7.7 The City should seek appropriate opportunities for increasing residential density and providing industrial and commercial development along existing and proposed transit routes.

12.2.3 The City shall require all future subdivisions, planned developments, and other major developments, plus commercial and industrial development, be designed to reduce demands for artificial heating, cooling, and lighting by considering topography, microclimates, vegetation, and site and structure orientation which maximizes southern exposure. The City shall develop incentive programs for those developments that demonstrate sound energy conservation design and/or construction, such as density incentives or similar programs.

13.12.1 The City shall work to ensure that development within the west Corvallis Urban Fringe is consistent with the West Corvallis - North Philomath Plan.

13.12.18 The City shall maintain the scenic character of West Hills Road, Harrison Boulevard / Oak Creek

Road, Reservoir Road, and Philomath Boulevard through mechanisms such as gateway standards, or securing easements to preserve existing vegetation or views.

Applicable Land Development Code Sections

Chapter 1.6 – Definitions
Building Types

b. Residential - Group of building types consisting of the following:

4. Single Attached (Zero Lot Line) - Two dwelling units on separate lots but placed side by side so that some building walls are in common for a minimum length of 5 ft. at a common property line. Fences, trellises, etc. attached between buildings do not create "attached" structures.

Height of Buildings - Vertical distance above a reference datum measured to the highest point of any non-gabled roof, or to the average height of the highest gable of a pitched or hipped roof. The height of a stepped or terraced building is the maximum height of any segment of the building. The reference datum shall be selected by either of the following, whichever yields a greater height of building:

a. Elevation of the highest adjoining sidewalk or ground surface within a 5-ft. horizontal distance of the exterior wall of the building when such sidewalk or ground surface is not more than 10 ft. above lowest grade.

b. Elevation 10 ft. higher than the lowest grade when the sidewalk or ground surface described in "a" is more than 10 ft. above lowest grade.

Section 2.4.20 - PURPOSES

Land division review procedures are established in this chapter for the following purposes:

a. Ensure building sites are of sufficient size and appropriate design for their intended uses and lots to be created are within density ranges permitted by the Comprehensive Plan;

b. Minimize negative effects of development upon the natural environment and to incorporate natural features into the proposed development where possible;

c. Ensure economical, safe, and efficient routes for pedestrians, bicycles, and motor vehicles;

d. Create residential living environments that foster a sense of neighborhood identity and are protected from the adverse effects of heavy traffic and more intensive land uses; and

e. Promote energy efficiency.

2.4.30.04 - Review Criteria

Requests for approval of a tentative subdivision plat shall be reviewed to assure consistency with the purposes of this Code, pertinent development standards of the Code including Chapters 4.0 - Improvements Required with Development; 4.1 - Parking, Loading, and Access Requirements; 4.2 - Landscaping, Buffering, and Screening; 4.4 - Land

Division Standards; and 4.5 - Flood Control and Drainage Provisions; and density requirements of the Comprehensive Plan.

Section 2.5.20 - PURPOSES

Planned Development review procedures are established in this chapter for the following purposes:

a. Promote flexibility in design and permit diversification in location of structures;

b. Promote efficient use of land and energy and facilitate a more economical arrangement of buildings, circulation systems, land uses, and utilities;

c. Preserve to the greatest extent possible existing landscape features and amenities, and utilize such features in a harmonious fashion;

d. Provide for more usable and suitably located recreation facilities and other public and common facilities than would otherwise be provided under conventional land development procedures;

e. Combine and coordinate architectural styles, building forms and building relationships within the Planned Development;

f. Provide the applicant with reasonable assurance of ultimate approval before expenditure of complete design monies, while providing the City with assurances that the project will retain the character envisioned at the time of approval;

g. Promote and encourage energy conservation; and

h. Provide greater compatibility with surrounding land uses than what may occur with a conventional project.

Section 2.5.30 - GENERAL PROVISIONS

Planned Development is an alternative development process that is permitted as Conditional Development. The following procedure allows for Planning Commission review of a Conceptual Development Plan and/or Detailed Development Plan. The applicant may either select to process the development proposal under a Detailed Development Plan where sufficient information has been submitted, in accordance with Section 2.5.50, or may request only approval of a Conceptual Development Plan in accordance with Section 2.5.40 and later apply for a Detailed Development Plan. However, prior to issuing any building permits a Detailed Development Plan must be approved by the Planning Commission.

2.5.40.04 - Review Criteria
Requests for approval of a Conceptual Development Plan shall be reviewed to assure consistency with the purposes of this chapter, policies and density requirements of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council. In addition, the following compatibility factors shall be considered:

- Basic site design (the organization of uses on a site);
- Visual elements (scale, structural design and form, materials, and so forth);
- Noise attenuation;
- Noxious odors;
- Lighting;
- Signage;
- Landscaping for buffering and screening;
- Traffic;
- Effects on off-site parking;
- Effects on air and water quality.

Section 3.3.20 - PERMITTED USES (RS-6 District)

3.3.20.01 - General Development

a. Primary Uses Permitted Outright

1. a. Residential Use Types:
   - Family

   b. Residential Building Types:
   - Single Detached
   - Single Detached (Zero Lot Line)
   - Duplex
   - Single Attached (Zero Lot Line, 2 units)

Section 3.3.20.02 - Special Development - Uses Allowed Through Discretionary Review

a. Type I: Conditional Development - Subject to review in accordance with Chapter 2.3, and all other applicable provisions of this Code.

6. Planned Developments in accordance with Chapter 2.5

Section 3.3.30 - RS-6 DEVELOPMENT STANDARDS

	Standard
a. Lot Area	
All single family building types	5,000 sq. ft minimum
Duplex	10,000 sq. ft minimum
b. Lot Width	
Single Attached (Zero Lot Line)	50 ft minimum average
Single Detached	50 ft minimum average
Single Detached (Zero Lot Line)	50 ft minimum average
Duplex	100 ft minimum average

	Standard
c. Setbacks	
Front yard	10 ft minimum
Rear yard	15 ft minimum [1]
Combined front and rear yard	35 ft minimum [2]
Side yard	
Single Detached	5 ft for each side yard
Single Detached and Attached (Zero Lot Line)	8 ft minimum on one side of dwelling unit with zero setback (0 ft) on opposite side [3]
Duplex	10 ft for each side yard
Corner Lot	On side abutting the street, vision clearance areas in accordance with Section 4.1.40
d. Garage/Carport Vehicle Entrance	19 ft minimum to back of designated sidewalk
e. Structure Height	30 ft maximum - nor shall it exceed a solar envelope approved under Chapter 2.18 or 4.6
f. Lot Coverage	40% of lot area maximum
g. Off-Street Parking	See Chapter 4.1

Exhibit II - 172

Section 3.37.20 - PERMITTED USES (AG-OS District)

3.37.20.02 - Special Development - Uses Allowed Through Discretionary Review

a. Type I: Conditional Development: Subject to review in accordance with Chapter 2.3 and Section 3.37.50 below.

3. Planned Development to be reviewed in accordance with Chapter 2.5

Section 3.37.40 - SETBACKS (AG-OS District)

The following minimum setbacks shall apply to all structures other than fences or walls in the OS-AG District.

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1 Minimum average rear yard may be reduced to 5 ft in cases where the provision and protection of solar access to the proposed building and to buildings and buildable areas on adjacent lots can be assured consistent with Chapter 2.18.

2 Where the average rear yard setback is reduced below 15 ft, then combined front and side yard setbacks must be at least 35 ft.

3 Prior to building permit approval the applicant shall submit a recorded easement between the subject property and abutting lot next to the yard having the zero setback. This easement shall be sufficient to guarantee rights for maintenance purposes of structures and yard, but in no case shall it be less than 5 ft in width.

a. Boundary Area - A setback of not less than 25 ft shall be provided along each OS-AG District boundary line where the line abuts any residential district.

4.0.40 - Pedestrian Requirements

a. Sidewalks shall be required along both sides of all arterial, collector, and local streets as follows:
   1. Sidewalks shall be a minimum of 5-ft wide on local through streets and a minimum of 4-ft wide on cul-de-sacs. The sidewalks shall be separated from curbs by a tree planting area that provides at least 6-ft of separation between sidewalk and curb.
   2. Sidewalks along arterial and collector streets shall be separated from curbs and planted area. The planted area shall be a minimum of 12-ft wide and landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of 6-ft wide [NOTE: This is a mistake and should be 5-ft wide].
   3. The timing of the installation of sidewalks shall be as follows:
      a. Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements.
      b. Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below.
      c. Where sidewalks on local streets abut common areas, drainageways, or other publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.

b. Safe and convenient pedestrian facilities that strive to minimize travel distance to the greatest extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, transit stops, and neighborhood activity centers such as schools and parks, as follows:
   1. For the purposes of this section, "safe and convenient" means pedestrian facilities that: are reasonably free from hazards which would interfere with or discourage pedestrian travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians considering destination and length of trip.
   2. To meet the intent of "b" above, pedestrian rights-of-way connecting cul-de-sacs or passing through unusually long or oddly shaped blocks shall be a minimum of 15 ft wide. When these connections are less than 220 ft long (measuring both the on-site and the off-site portions of the path) and they directly serve 10 or fewer on-site dwellings, the paved improvement shall be no less than 5 ft wide. Connections that are either longer than 220 ft or serving more than 10 on-site dwellings shall have wider paving widths as specified in Section 4.0.50.c.
   3. Internal pedestrian circulation shall be encouraged in new developments by clustering buildings, constructing convenient pedestrian ways, and/or constructing skywalks where appropriate. Pedestrian walkways shall be provided in accordance with the following standards:
      (a) The on-site pedestrian circulation system shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to minimize out-of-direction pedestrian travel.

(b) Walkways shall be provided to connect the on-site pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.

e. To ensure improved access between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or Director may require off-site pedestrian facility improvements concurrent with development.

4.0.50 - Bicycle Requirements

a. On-street bike lanes shall be required on all arterial and collector streets and constructed at the time of street improvements.

b. Safe and convenient bicycle facilities that strive to minimize travel distance to the greatest extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, transit stops, and neighborhood activity centers such as schools and parks.
   1. For the purposes of this section, "safe and convenient" means bicycle facilities which: are reasonably free from hazards which would interfere with or discourage bicycle travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of bicyclists considering destination and length of trip.

c. Adequate widths for pedestrian/bicycle facilities shall be provided in accordance with the following standards:
   1. 8 ft bikepaths should be used where long term bicycle and pedestrian usage is expected to be relatively low (a neighborhood facility rather than a community-wide facility) and with proper alignment to ensure adequate sight distance.
   2. 10 ft shall be used as a standard width for two-way bikepaths.
   3. 12 ft bikepaths shall be provided in areas with high bicycle volumes or multiple use by bicyclists, pedestrians, and joggers.

d. To provide for orderly development of an effective bicycle network, bicycle facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).

4.0.60 - Transit Requirements

a. Development sites located along existing or planned transit routes shall, where appropriate, incorporate bus pull-outs and shelters into the site design. These improvements shall be installed in accordance with the guidelines and standards of the Corvallis Transit System (i.e., bus pull-outs are typically spaced at 1500-ft apart).

b. New developments at or near existing or planned transit stops shall design development sites to provide safe, convenient access to the transit system, as follows:

2. All developments shall provide safe, convenient pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of Section 4.0.40.b.

4.0.70 - Street Requirements

a. Traffic evaluations shall be required of all development proposals in accordance with the following:
   2. If the traffic evaluation identifies level-of-service conditions less than the minimum standard established in the Corvallis Transportation Plan, improvements and funding strategies mitigating the problem shall be considered concurrent with a development proposal.

c. Local streets shall be designed to discourage through traffic. NOTE: For the purposes of this section, "through traffic" means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic the following street designs shall be considered, as well as other designs intended to discourage traffic:
   1. Straight segments of local streets should be kept to less than a quarter mile in length, and include design features such as curves and "T" intersections.
   2. Local streets should typically intersect in "T" configurations rather than 4-way intersections to minimize conflicts and discourage through traffic. Adjacent "T" intersections shall maintain a minimum of 125-ft between the nearest edges of the 2 rights-of-way.
   3. Cul-de-sacs should not exceed 600-ft nor serve more than 18 dwelling units.

d. Development sites shall be provided with access from a public street improved to City standards in accordance with the following:
   1. Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.
   2. Half-street improvements, as opposed to full-width street improvements, are generally not acceptable. However, these may be approved by the Planning Commission or Director where essential to the reasonable development of the property. Approval for half-street improvements may be allowed when other standards required for street improvements are met and when the Planning Commission or the Director finds that it will be possible to obtain the dedication and/or improvement of the remainder of the street when property on the other side of the half-street is developed.
   3. To ensure improved access to a development site consistent with policies on orderly urbanization and extension of public facilities, the Planning Commission or Director may require off-site street improvements concurrent with development.

e. To provide for orderly development of adjacent properties, public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property(ies) in accordance with the following:
   1. Temporary dead-ends created by this requirement to extend street improvements to the edge of adjacent properties may be installed without

turn-arounds, subject to the approval of the Fire Marshal.

2. In order to assure the eventual continuation or completion of the street, reserve strips may be required in accordance with 2.4.40.04.
3. Drainage facilities shall be provided to properly manage storm water run-off from temporary dead-ends.

i. Location, grades, alignment, and widths for all public streets shall be considered in their relation to existing and planned streets, topographical conditions, public convenience and safety, and proposed land use. Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network is not adversely effected. The following standards shall apply:
   1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall conform to planned street extensions identified in the Corvallis Transportation Plan and/or provide for continuation of the existing street network in the surrounding area.
   2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.
   3. As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in "T" intersections are unavoidable, they shall leave a minimum of 200 ft between the nearest edges of the two rights-of-way.
   4. Centerline radii of curves shall not be less than 500-ft on arterial streets, 300-ft on collector streets, and 100-ft on local streets.

l. Development shall include underground electric services, light standards, wiring and lamps for streetlights according to the specifications and standards of the City Engineer. The developer shall be responsible for installation of underground conduit for street lighting along all public streets improved in conjunction with such development in accordance with the following:
   1. The developer shall coordinate with the City Engineer to determine the location of future street light poles.
   2. The streetlight plan shall be designed to provided illumination meeting standards set by the City Engineer.
   3. The standard street light installation is a wood pole.

   The developer shall install such facilities and make the necessary arrangements with the serving electric utility for the City-owned and operated street lighting system to be served at the lowest applicable rate available to the City. Upon the City's acceptance of such development improvements, the street lighting system, exclusive of utility-owned service lines, shall become the property of the City.

4.0.80 - Public Utility Extensions

a. All development sites shall be provided with public water, sanitary sewer, storm drainage, and street lights.

b. Where necessary to serve property as specified in "a" above, required public utility installations shall be constructed concurrent with development.

c. Off-site public utility extensions necessary to fully serve a development site and

adjacent properties shall be constructed concurrent with development.

d. To provide for orderly development of adjacent properties, public utilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).

e. All public utility installations required with development shall conform to the City's adopted facilities master plans.

f. Private on-site sanitary sewer and storm drainage facilities may be considered provided all the following conditions exist:
   1. Extension of a public facility through the site is not necessary for the future orderly development of adjacent properties.
   2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 4.0.70.f above);
   3. The facilities are designed and constructed in accordance with the Uniform Plumbing Code and other applicable codes, and permits are obtained from the Development Assistance Center prior to commencement of work.

4.0.100 - Franchise Utility Installations

a. Where a land division is proposed, the developer shall provide franchise utilities to the development site. Each lot created with a subdivision shall have an individual service available or secured in accordance with provisions of Section 2.4.40 prior to approval of the final plat.

b. Where necessary, in the judgement of the Director, to provide for orderly development of adjacent properties, franchise utilities shall be extend through the site to the edge of adjacent property(ies), whether or not the development involves a land division.

4.0.110 - Land For Public Purposes

a. Easements for public sanitary sewer, water, storm drain, streetlight, pedestrian, and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
   1. When located between adjacent lots, easements shall be provided on one side of a lot line.
   2. The minimum easement width for a single utility is 15 ft. The minimum easement width for two adjacent utilities is 20 ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.

b. Public utility easements with a minimum width of 7 ft shall be provided adjacent to all street rights-of-way for franchise utility installations.

c. Where a development site is traversed by a drainageway or water course, drainageway improvements in accordance with the Corvallis Drainage Master Plan and a drainageway dedication in accordance with the requirements of Chapter 4.5 shall be provided to the City.

e. Where existing rights-of-way and/or easements within or adjacent to development

sites are non existent or of insufficient width, dedications may be required. The need for and widths of those dedications shall be determined by the City Engineer.

h. Environmental assessments shall be provided by the developer for all lands to be dedicated to the public or City. An environmental assessment shall include information necessary for the City to evaluate potential liability for environmental hazards, contamination, or required waste cleanups related to the dedicated land. An environmental assessment shall be completed prior to the acceptance of dedicated lands in accordance with LDC4.0.110.h.1, 2, and 3.

Section 4.1.30 - OFF-STREET PARKING REQUIREMENTS

Minimum parking requirements for use types in all areas of the City, with the exception of the CB (Central Business) District, are described in Sections 4.1.30.a through 4.1.30.f. Minimum parking requirements for the CB District are described in Section 4.1.30.g.

a. Residential Uses Per Building Type:

1. Single Detached and Single Attached (Zero Lot Line), and Manufactured Homes:
   Vehicles: 2 spaces per dwelling unit
   Bicycles: None required

2. Duplex, Attached, and Multi-Dwelling:
   Vehicles:

Studio or Efficiency Unit	-	1 space per unit
1 Bedroom Unit	-	1 space per unit
2 Bedroom Unit	-	1.5 spaces per unit
3 Bedroom Unit	-	2.5 spaces per unit

   Bicycles:

Studio or Efficiency Unit	-	1 space per unit
1 Bedroom Unit	-	1 space per unit
2 Bedroom Unit	-	1.5 spaces per unit
3 Bedroom Unit	-	2 spaces per unit

   The required bicycle parking may be located within a structure, in accordance with the provisions of Section 4.1.70.

Section 4.2.20 - GENERAL PROVISIONS

a. Where landscaping is required by this Code, detailed planting plans and irrigation plans shall be submitted for review with development permit application. Development permits shall not be issued until the Director has determined the plans comply with the purposes clause and specific standards in this chapter. Required landscaping for Planned Developments shall be reviewed and approved by the Planning Commission, and in no case shall landscaping be less than that required by this chapter. All required landscaping and related improvements shall be completed or financially guaranteed prior to the issuance of a Certificate of Occupancy, and shall provide a minimum 90 percent ground coverage within 3 years.

b. Appropriate care and maintenance of landscaping on-site and landscaping in the

adjacent right-of-way is the right and responsibility of the property owner, unless City ordinances specify otherwise for general public and safety reasons. A City permit is required to plant, remove, or significantly prune any trees in a public right-of-way. Landscaping, buffering, and screening required by the Code shall be maintained. If street trees or other plant materials do not survive or are removed, materials shall be replaced in kind.

c. Significant plant and tree specimens should be preserved to the greatest extent practicable and integrated into the design of a development. Trees of 8-in. or greater diameter measured at a height of 4 ft above grade and shrubs (excluding blackberries, poison oak, and similar noxious vegetation) over 3 ft in height are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved only if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5 ft outside the tree's dripline. In addition, the tree shall be protected from damage during construction by a construction fence located 5 ft outside the dripline.

Section 4.2.30 - REQUIRED TREE PLANTINGS

Tree plantings in accordance with the following standards are required for all parking lots for 4 or more cars, public street frontages, and along private drives more than 150 ft long. Trees shall be planted outside the street right-of-way except where there is a designated planting strip or City adopted street tree plan.

Selection of species may be made from the list in Section 4.2.60. Alternate selections must be approved by the Director following written request. Frequency of trees in planting shall be determined by the type of tree used. Trees in parking areas shall be dispersed throughout the lot to provide a canopy for shade and visual relief. (See recommended tree list for examples in each category):

<u>Street Trees</u>
Medium canopy trees-Maximum 30 ft on center spacing.
Large canopy trees-Maximum 50 ft on center spacing.

Section 4.2.40 - BUFFER PLANTINGS

Buffer plantings are used to reduce building scale, provide transition between contrasting architectural styles, and generally mitigate incompatible or undesirable views. They are used to soften rather than block viewing. Where required, a mix of plant materials shall be used to achieve the desired buffering effect.

Section 4.4.20 - GENERAL PROVISIONS

4.4.20.01 - Applicability

All land divisions shall be in conformance with the requirements of the applicable district and this chapter, as well as with all other applicable provisions of this Code. Modifications to these requirements may be accomplished through a Planned Development (Chapter 2.5).

4.4.20.02 - Blocks

a. General: Length, width, and shape of blocks shall take into account need for adequate lot size and street width and circulation, recognizing limitations of the topography.

b. Size: No block shall be more than 1,200 ft in length between corner lines except along arterial street unless the topography or location of adjoining streets justifies an exception. The recommended minimum length of blocks along an arterial street is 1,800 ft.

4.4.20.03 - Lots, General Requirements (Chapter 4.4 – Land Division Standards)

a. Size and Shape: Lot size, width, shape, and orientation shall be appropriate for location of the subdivision and for the type of use contemplated. No lot shall be dimensioned to contain part of an existing or proposed street. All lots shall be buildable, and depth shall not generally exceed 2½ times the average width. Lot sizes shall not be less than required by the Code for the applicable district. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for off-street parking and service facilities required by the type of use proposed.

b. Access: Each lot shall abut upon a street other than an alley for a width of at least 30 ft unless the lot is created through a land partition or minor replat in which case 4.4.30.01 below shall apply.

c. Through Lots: Through lots shall be avoided except where essential to provide separation of residential development from collector or arterial streets or to overcome specific disadvantages of topography and orientation. A planting screen easement at least 20 ft wide shall be required adjacent to through lots in accordance with Chapter 4.2. No rights of access shall be permitted across this planting screen easement. All through lots having frontage on parallel or approximately parallel streets shall provide the required front yard on each street, except as specified in Chapter 4.2.

d. Lot Side Lines: Side lines of lots, as far as practicable, shall be at right angles to the street the lots face.

e. Lot Grading: Lot grading shall conform to the City's excavation and fill provisions.

f. Building Lines: Building setback lines may be established in a final plat or included in covenants recorded as a part of a plat.

g. Large Lots: In dividing land into large lots that have potential for future further subdivision, a conversion plan shall be required. The conversion plan shall show street extensions, utility extensions, and lot patterns to indicate how the property may be developed to Comprehensive Plan densities and to demonstrate that the proposal will not inhibit development of adjacent lands.

Section 4.5.80 - DRAINAGEWAY EASEMENTS AND DEDICATIONS

Development can have a number of impacts on the drainage system and its associated water quality. These potential impacts include, but are not limited to, increases in the amount of surface water runoff, decreases in the time for stormwater destined for drainageways to reach peak flow, increases in water temperature, and increases in the quantity and types of pollutants that may enter drainageways. To the greatest extent practicable, the drainageways within the City are intended to function as a wholistic natural system that includes both fish-bearing streams and other streams whose flow is recognized to have direct impacts on these fish-bearing streams. To ensure that unnecessary negative impacts to this system are minimized and to provide and maintain adequate stormwater facilities, new development, expansion of existing development, or redevelopment proposed on land abutting or containing an open, natural drainageway, shall require granting of an easement, under the conditions described in "a" of this section, over lands suitable for conveying storm waters and for maintaining and operating an effective open drainageway system. The easement is intended to satisfy the purposes cited in Section 4.5.10 above and shall be reviewed and approved by the City Engineer.

a. Easement: While dedications are preferred, at a minimum, a drainageway easement shall be required when:

1. A parcel of land is divided into two or more parcels, whether by land partitions or subdivision;
2. A permitted development of any kind (building, parking lot, etc.) is proposed on a vacant parcel of any size;
3. A detailed Development Plan is proposed in accordance with Chapter 2.5 for a parcel, regardless of whether structures exist;

b. Easement Restrictions: The easement shall contain sufficient restriction on the use of the area to satisfy the purposes cited in Section 4.5.10 above. Restrictions shall apply to structural improvements, regrading, filling, or alteration of existing vegetative cover.

d. Easement Width: When an easement is required (see Figure 4.5-1), the appropriate width shall be determined as follows:

1. For fish-bearing streams or rivers with average annual stream flow greater than 1,000 cubic feet per second, the easement area shall include the watercourse channel and additional width of 75 feet from the top of bank on each side of the watercourse;

2. For fish-bearing streams or rivers with average annual stream flow less than 1,000 cubic feet per second, the easement area shall include the watercourse channel and additional width of 50 feet from the top of bank on each side of the watercourse;

3. For streams not indicated on Figure 4.5-1 as fish-bearing, the easement area shall include the drainage channel plus additional width as determined by the following formula:

WFTOB = 1.5x + 5 ft

WFTOB = Width From Top Of Bank (*i.e.,* width of the easement area needed on each side of a drainageway channel).

x = Width of channel from top of bank to top of bank as determined by the City Engineer, or 30 ft, whichever is less.

e. Revegetation of streambanks: New development on sites that contain or abut a stream or drainageway shall ensure that the stream or drainageway is adequately shaded by trees. The following standards shall be used to determine what level of additional tree planting is required.

1. Shading of streambanks shall be provided within the easement area required to be provided under sections 4.5.80.d.1 through 4.5.80.d.6 of this code.

2. Revegetation Standards:

a) Streams that have a vegetated tree canopy in the area to be shaded are compliant with these stream shading standards.

b) With the exception of the Willamette River, which shall be addressed as indicated in "3" below, streams that do not have a vegetated tree canopy in the area to be shaded are subject to revegetation. In areas without a tree canopy, native riparian trees with a minimum caliper size of 1-inch shall be planted at 10 feet on center along the length of the stream bank. All new trees are required to be mulched with 4 cubic feet of bark chips and drip irrigated for a period of three years to ensure establishment.

Note: The area of revegetation identified in subsection "2," above, shall be applied based on a specific determination of the impacts from a site's development to the affected drainageway and a determination that the easement width is required to provide a benefit to the drainageway that is "roughly proportional" to the development's impact.

4.5.90 - Stormwater Detention & Retention Measures

a. To reduce the risk of causing downstream properties to become flooded and to help maintain or restore the properly functioning conditions of receiving waters, new development, expansions to existing development, or redevelopment shall be required to provide stormwater detention and retention in accordance with "b" of this section.

b. When detention and/or retention are required

1. Development Projects that create impervious surfaces (roads, driveways, parking lots, walks, patios, and roofs) in excess of 25,000 square feet are required to implement stormwater detention and/or retention measures as specified in the Corvallis Design Criteria Manual. Detention facilities shall be designed to maximize stormwater infiltration.

Section 4.5.100 - STANDARDS FOR PROPERTIES WITH WETLANDS

Development on land with hydric soils, wetland vegetation, or that contains a wetland identified on a local, state, or national wetland inventory shall comply with State and Federal wetland regulations as interpreted by the State and Federal agencies charged with enforcing such laws. Development is also subject to the following provisions:

b. The following "safe harbor" provisions, taken from Oregon Administrative Rule 660, Division 23, also apply:

1. For properties with wetlands that have a Wetland Delineation approved by the Division of State Lands (DSL), the protected wetland area shall be defined as the upland-wetland edge, as identified in the Wetland Delineation and graphically represented on a site plan map.

3. Division of State Lands Notification Required. In addition to the restrictions and requirements of this section, all proposed development activities within any wetland are also subject to Oregon Division of State Lands (DSL) standards and approval. Where there is a difference, the more restrictive regulation shall apply. In accordance with ORS 227.350, the applicant shall be responsible for notifying DSL whenever any portion of any wetland is proposed for development. No application for development will be accepted as complete until documentation of such notification is provided, and no development shall be permitted until the City has received verification of DSL approval for development on the subject site.

Section 4.5.110 - USE LIMITATIONS AND EXCEPTIONS WITHIN DRAINAGEWAYS AND WETLANDSSUBJECT TO EASEMENTS AND SAFE HARBOR REGULATIONS

In addition to the requirements of the underlying zone, the following limitations and exceptions shall apply to activities within drainageways and wetlands, and shall require prior review and approval by the appropriate local, state, and federal agencies.

a. Removal of vegetation from drainageways is prohibited, except for the following purposes as approved by the City Manager or the City Manager's designee:

1. Stream restoration and enhancement programs;

2. Removal of non-native vegetation;

3. Planting of native plant species;

4. For the development of water-related or water-dependent uses, provided they are designed and constructed to minimize impact on the existing riparian vegetation;

5. Removal of emergent in-channel vegetation that has the potential to cause flooding

6. Perimeter mowing/cutting of vegetation for fire hazard prevention.;

b. Building, Paving, and Grading Activities: Within drainageway and wetland areas, the placement of structures or impervious surfaces, including grading, excavation, and the placement of fill, is prohibited except as stated below. Exceptions to the drainageway and wetland restrictions may be made for the purposes identified in items 1-4 of this section, provided they are designed and constructed to minimize adverse impacts to the riparian or wetland area, In the case of wetlands, no development shall be permitted until the City has received verification of DSL approval for development on the subject site, or written indication from DSL that the department is not concerned with the development.

2. Construction of streets, roads, and pedestrian connections that are included in the

City of Corvallis Transportation Plan;

d. Site Maintenance: the limitations imposed by this section do not preclude the routine maintenance of structures. Maintenance of lawns, planted vegetation and landscaping shall be kept to a minimum and shall not include the spraying of herbicides or other pesticides. Where replanting is done, vegetation shall be replanted with native species. Maintenance trimming of existing trees shall be kept to a minimum, and under no circumstances shall the maintenance trimming be so severe it compromises the tree's health, longevity, and resource functions. Vegetation within utility easements shall be kept in a natural state and replanted when necessary with native plant species.

Section 4.5.120 MITIGATION FOR DISTURBANCES TO DRAINAGEWAYS AND WETLANDS

Developers are encouraged to avoid impacts to drainageways and wetland areas. Where impacts cannot be avoided, mitigation of impacts shall be required. Mitigation shall be done in accordance with local, state, and federal wetland laws and the following provisions:

a. Where a drainageway must be crossed or otherwise encroached upon to allow appropriate development of property, crossings shall be constructed in accordance with engineering standards adopted by the City.

b. Proximity to Impacted Area: Wetland mitigation should occur as close to the impacted area as possible. The mitigation site should have hydrological and soil characteristics that are suitable for wetland restoration. Also, the mitigation site should retain sufficient natural buffer so as to sustain a class of wetland or habitat type that is typical of the natural surrounding watershed. There are four levels of incentives for restoration. Incentives shall be applied to property in a manner that is proportional to the amount of wetland mitigated. The incentives are as follows:

Section 4.5.130: VARIANCES

Variations from the standards in this chapter may be achieved through the Planned Development process described in Chapter 2.5. Lot Development Option processes. For any existing lot or parcel demonstrated to have been rendered unbuildable by application of this ordinance, the property owner may apply for such variation from development restrictions and prohibitions found in this chapter through the Lot Development Option prodcedures contained in Chapter 2.12 of this Code. For situations in which a property owner can demonstrate that a mapping error has incorrectly shown a drainageway or wetland on said property, the map correction may be processed through the Directors Interpretation prcedures identified in chapter 2.16 of this code.

Section 4.6.20 - PERFORMANCE STANDARD

Residential subdivisions and planned developments on parcels of more than 1 acre shall be designed so that solar access protection, as defined in Chapter 1.6, is available at ground level to the following:

a. South face of existing residential buildings adjacent to the development;

b. In residential subdivisions, a minimum of 80 percent of lots with sufficient east/west dimension to allow orientation of the long axis of a building to utilize solar energy; and

c. In planned developments, a minimum of 80 percent of the buildings with sufficient east/west dimension to allow the long axis of the building to utilize solar energy.

Section 4.6.30 - WAIVER OF STANDARD IN SUBDIVISIONS

A waiver from the requirements of Section 4.6.20 above may be granted by the Planning Commission to the minimum extent necessary to:

a. Preserve existing vegetation;

b. Reflect physical land development constraints related to the shape or topography of the site;

c. Accommodate north-facing slopes of 10 percent or more; or

d. Meet City design requirements for provision of streets, drainageways, utilities, landscaping, and location of buildings consistent with minimum setbacks.

Section 4.6.50 - WAIVER OF STANDARD IN PLANNED DEVELOPMENTS

For residential planned developments, a waiver from the requirements of Section 4.6.20 above may be granted by the Planning Commission based on the provisions of Section 4.6.30 above or to the minimum extent necessary to:

a. Meet a broad range of residential needs by encouraging use of innovative site development techniques and a mix of dwelling types; or

b. Address future housing needs in the community by encouraging affordable housing, as defined in Chapter 1.6, to increase housing choices.

A waiver may not be granted under this section unless the applicant demonstrates that the loss of solar access for current and future generations has been mitigated by a substantial increase in energy efficiency of the proposed dwellings over Uniform Building Code requirements.

Section 4.7.90 - ALLOCATION PROVISIONS AND SIGN STANDARDS BY DISTRICT

The following provisions and design standards, organized by district designation, specify how a property's total sign allocation may be utilized. Unless specified elsewhere in these regulations, total sign allocation shall be determined by multiplying length of the property's primary frontage by the primary frontage multiple, which varies from district to district.

4.7.90.01 - Sign Standards for All Residential Districts

Sign Type	Primary Frontage Multiple	Maximum Sign Area	Maximum Sign Height	Maximum Sign Projection	Setback

Attached	1/10 sq. ft	5 sq. ft	16 ft	6 in.	
Temporary	1/10 sq. ft	5 sq. ft	4 ft		

Special Instructions:

a. **Attached signs shall not extend above eaves.**

b. **Unless specified below, signs shall be limited to one frontage.**

c. **Where a primary frontage exceeds 100 ft:**

1. **Permanent free-standing signs are allowed (minimum setback is 5 ft);**
2. **Maximum height for temporary and free-standing signs is 6 ft;**
3. **Maximum sign area is 16 sq. ft;**
4. **Illuminated signs are permitted.**

4.7.90.09 - Signs in Planned Developments

A sign plan shall be required for all Planned Developments (See Chapter 2.5). The plan shall establish the location and allocation guidelines for signs in a way that ensures all parties in the development have an equitable opportunity to communicate through signs without creating undue negative effects on surrounding properties. The sign plan shall be reviewed by the following procedures:

a. **The plan shall be reviewed by the Planning Commission concurrently with Detailed Development Plan review.**

b. **Before approving the sign plan, the Commission shall find that the signs in the proposed sign plan comply with these regulations and are compatible with the type of development (existing and future) surrounding the Planned Development. Whereas other development standards in Planned Developments may be varied, standards for signs in Planned Developments shall not benefit the development to a greater degree than is otherwise permitted by the provisions of these regulations.**

c. **An approved sign permit for each sign in a Planned Development shall be obtained prior to construction or installation. A proposed sign shall comply with these regulations and any additional guidelines or conditions specified in the approved sign plan before a permit may be issued for the sign.**

d. **Modifications of a Planned Development Sign Plan shall follow the provisions for a Major Planned Development Modification (Chapter 2.5).**

Section 4.7.110 - VARIANCE TO STANDARDS

There may be rare instances where a combination of strict application of the standards in

this chapter and/or public safety concerns may preclude use of signs as a communication medium for a primary frontage. In these cases it may be appropriate to vary a particular standard to enable a property owner to utilize signage in a manner similar to others in the district.

c. A variance request shall not be granted for any of the following:
- Size of a proposed sign;
- Limitations on visibility resulting from required landscaping;
- Location of buildings or other structures;
- Lack of exposure on a primary sign frontage;
- Convenience or economic hardship to the applicant;
- Inclusion of signs otherwise prohibited by these regulations.

d. To approve a sign variance request, the Land Development Hearings Board must find that the application meets all of the following criteria:

1. The type of the proposed sign is not of a type prohibited by these regulations.

2. The variance is the minimum remedy necessary to eliminate the hardship.

3. The variance does not substantially subvert the basic regulating formula relating the amount of sign area to the amount of sign frontage.

4. No other alternative solution that complies with these regulations is available to the applicant.

Applicable Oregon Administrative Rules

660-023-0090 – Riparian Corridors

(4) When following the standard inventory process in OAR 660-023-0030, local governments shall collect information regarding all water areas, fish habitat, riparian areas, and wetlands within riparian corridors. Local governments may postpone determination of the precise location of the riparian area on lands designated for farm or forest use until receipt of applications for local permits for uses that would conflict with these resources. Local governments are encouraged, but not required, to conduct field investigations to verify the location, quality, and quantity of resources within the riparian corridor. At a minimum, local governments shall consult the following sources, where available, in order to inventory riparian corridors along rivers, lakes, and streams within the jurisdiction:

(a) Oregon Department of Forestry stream classification maps;

(b) United States Geological Service (USGS) 7.5-minute quadrangle maps;

(c) National Wetlands Inventory maps;

(d) Oregon Department of Fish and Wildlife (ODFW) maps indicating fish habitat;

(e) Federal Emergency Management Agency (FEMA) flood maps; and

(f) Aerial photographs.

(5) As a safe harbor in order to address the requirements under OAR 660-023-0030, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance from all fish-bearing lakes and streams shown on the documents listed in subsections (a) through (f) of section (4) of this rule, as follows:

(a) Along all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) the riparian corridor boundary shall be 75 feet upland from the top of each bank.

(b) Along all lakes, and fish-bearing streams with average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet from the top of bank.
(c) Where the riparian corridor includes all or portions of a significant wetland as set out in OAR 660-023-0100, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland.

(8) As a safe harbor in lieu of following the ESEE process requirements of OAR 660-023-0040 and 660-023-0050, a local government may adopt an ordinance to protect a significant riparian corridor as follows:

(a) The ordinance shall prevent permanent alteration of the riparian area by grading or by the placement of structures or impervious surfaces, except for the following uses, provided they are designed and constructed to minimize intrusion into the riparian area:

(A) Streets, roads, and paths;

660-023-0100 – Wetlands

(3) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-0110 through 141-086-0240 and adopt the LWI as part of the comprehensive plan or as a land use regulation; and

(b) Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b) and adopt the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(4) For significant wetlands inside UGBs and UUCs, a local government shall:

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

Applicable West Corvallis - North Philomath Plan Policies (Chapter 6.6)

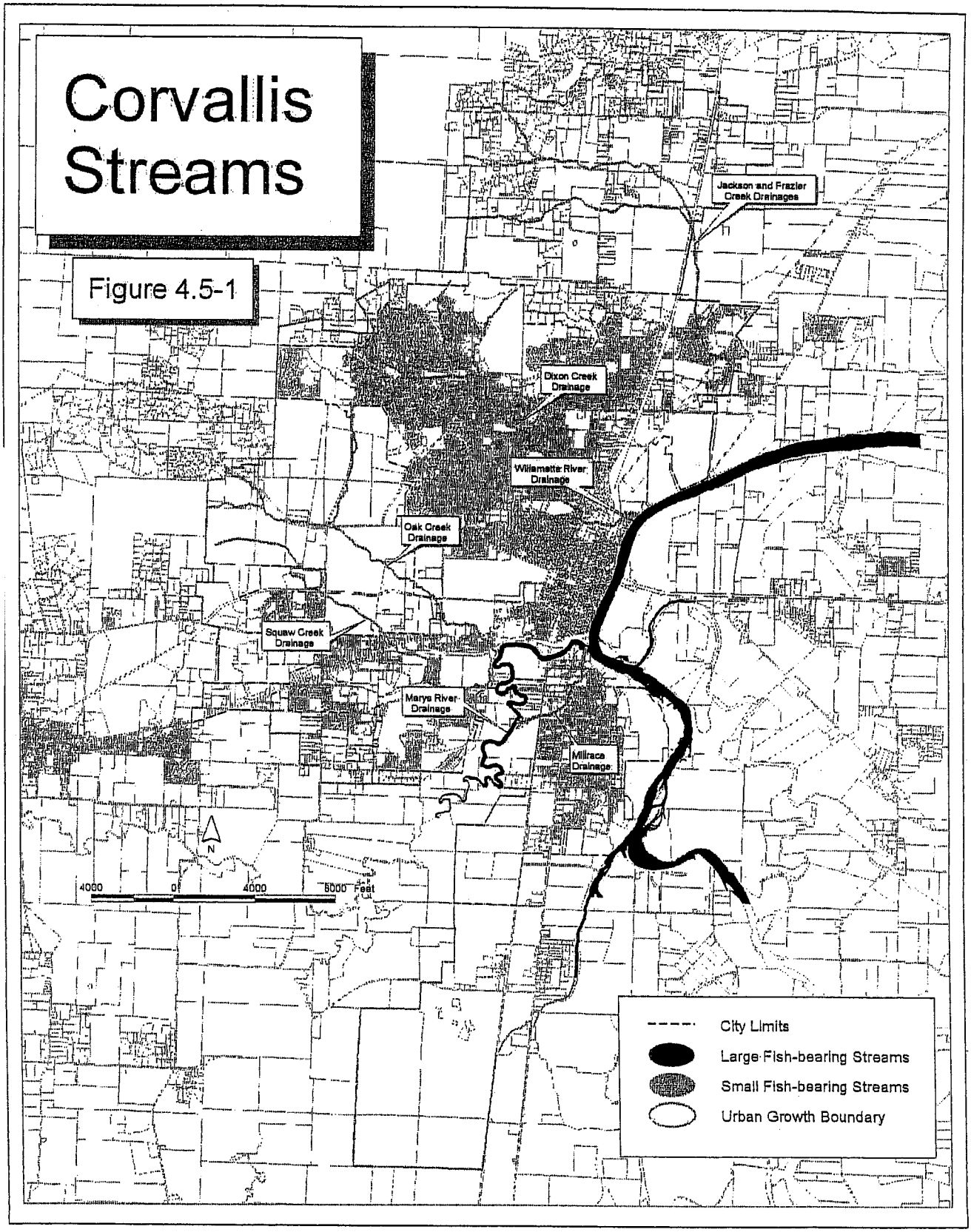
C-I-2 Require landowners and developers to incorporate designated streets, trails, bikeways, and transit facilities into their plans and to provide adequate connections to adjoining properties.

C-I-3 Require frequent intersections within subdivisions and other developments (at least one full intersection per 350 feet of street length within residential developments and neighborhood villages, excluding any Research and Technology areas) to provide more direct routes for pedestrians and bicyclists.

C-I-4 Prohibit the use of cul-de-sacs within residential areas inside the UGBs of Corvallis and Philomath unless terrain or existing road patterns require them. Short-term cul-de-sacs and street stub ends may be allowed to provide later connections to adjoining properties.

C-I-6 Require sidewalks on both sides of a street as part of new development wherever feasible. Allow sidewalks on only the developed side of a street when the street forms the edge of designated open space.

C-I-26 Align new roadways to maintain vistas of hillsides.



Note: For precise determination of fish-bearing streams in Corvallis, contact Planning Division Staff.

Please circulate to all members.

904 NW 34th st.
Corvallis, Or. 97330
Feb. 21, 2007

RECEIVED
FEB 22 2007
Community Development
Planning Division

City of Corvallis
Planning Commission
PO Box 1083
Corvallis, Or. 97333

To the Planning Commission:

If the Witham Oaks development is approved and the traffic pileup at the 35th street lights increases from today's one-block-long extent to two or three blocks, you will begin to hear from drivers.

The proposed 220-home Witham Oaks subdivision was vetoed two or three times by voters. Why they finally gave in might be attributed to fatigue or threats of clear cutting the acreage. Whatever the reason, it was a mistake.

Besides excess traffic, there will be conflicts between residents and OSU agriculture over odors from the manure piles and other conflicting uses. The rural nature of the area surrounding the county fairgrounds will be spoiled and the stage set for new encircling development.

Traffic signals at 35th and 36th streets will probably have to be redesigned, given the glut of cars, and that will be only one of the new expenses.

You can avert these problems by disapproving the development, or you can cope with the resulting chaos. Just don't try to charge present residents for the extra expenses!

Sincerely,

Jeanne Riha

Jeanne Riha

Exhibit II - 191

Adams, Eric

From: duane liner [danburyuconn@hotmail.com]
Sent: Sunday, March 04, 2007 10:40 AM
To: Adams, Eric
Subject: Witham Oaks Conceptual and Detailed Development Plan Tentative Subdivision Pl

Mr. Eric Adams,

Please see below some questions and comments regarding "Witham Oaks Conceptual and Detailed Development Plan Tentative Subdivision Plat" which has a Public Hearing scheduled for March 21, 2007.

Questions:
1. Are there materials on the internet for review? I could not find any (at least not easily) on the City web site.

2. Will a traffic signal be installed on Harrison at the new intersection? Was a traffic study done to evaluate the need for such?

I will not be able to attend so please consider these comments.

1. If a traffic signal will not be installed at this time, will a left turn lane from Harrison Blvd (east bound) to the new Circle Blvd be included? If a left turn lane is not proposed then I think it should be conditioned as a requirement - for safety (rear end accidents) and traffic movement (cars stuck in line behind some one trying to make a left).

2. As part of the original annexation, mention was made of connecting to the multi-use trail that goes to the covered bridge. If this multi-modal feature is not part of the plan, then I'd recommend for the with holding of final approval of the plat conditional upon the City determining if sufficient efforts to achieve this feature have been pursued. I would recommend the City facilitate discussions with this developer and OSU to make this connection a reality. I believe the developer has had some discussions on this but has probably dropped it as some roadblocks were hit. I would expect that the City has good working relationships with OSU and together a solution that would be beneficial to the City and OSU communities can be achieved. I feel this connection of the multi-use trails is a golden opportunity that should not be missed and should be pursued vigorously. I hope the City an developer share this feeling and agree to make this happen.
I voted for this annexation because, and only because of the mention of this connection.

Mr. Adams thank you in advance for considering these comments and for any answers you can supply me regarding my two questions.

Sincerely

duane j liner
3213 NW Harrision Blvd

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March 9, 2007

Elizabeth Schwartz
3930 NW Witham Hill Drive, apt 64
Corvallis, OR 97330
(541) 752-3016

To the Corvallis Planning Commission and residents:

I have been a resident of Corvallis for the past three years. In 2004 I moved from upstate New York, where my entire family still lives, to the west coast in order to get some room to breathe. I love this area because it hasn't been tainted by over-development the way the east coast has. I fell in love with Corvallis because of all the parks and open spaces, because the town seemed to recognize that there is great value in leaving land undeveloped and that there are intangible gains that come from not trying to squeeze every penny out of each acre of land. Quoting from the Corvallis Parks and Recreation website, "Open space benefits our community in many ways. It offers opportunities for recreation. It provides ecosystem services--processes that contribute to economic, human, and wildlife well-being. It adds beauty and pleasure, and gives relief from the hard surfaces of the city landscape." This philosophy is exactly what I was looking for when I moved to Oregon.

Upon arriving in Corvallis I moved immediately into the Oak Vale apartments at the top of Witham Hill Drive. Since moving there we have fallen in love with the area and continually talk about how it is so nice to be close to everything but away from the bustle of downtown Corvallis. We live close to campus but are removed from the activity, the traffic, and the noise. Adding to the peacefulness that comes with living in that area is the multi-use path and trails that extend just behind our apartment complex. We consider this area our backyard and use it daily. We walk our dog through the trails, and do daily training exercises with her along the multi-use path. There are neighborhoods all around us that we also walk in but we prefer the multi-use path because it is away from cars and distractions and is safer for our little puppy. The calm, quiet solitude of the path is much more enjoyable to us than walking through any neighborhood, and the proximity to our house means we use it continually. I run along the path and we pick blackberries there in the summer. It is an essential part of the lifestyle that comes from living in the Witham Oaks area.

Obviously, in my ideal world that area would be left untouched. I would love to see it purchased by the town and added to the adjacent open space area so that we, and everyone else who recreates there, could continue to enjoy it for a long time to come.

At the same time, I recognize that the land is privately owned and it is zoned for light residential development. I try to see it through the owner's perspective. He's been paying taxes on the land but has not been financially recouping anything. He understandably wants to gain back those losses and make some profit off of the land. So I'm trying to be understanding and realistic. I went downtown to see the plan with the

hopes that it wouldn't encroach too much on our use of the area and that I wouldn't have to write this letter.

However, the plan as it is currently written is unacceptable. It asks the residents of our area to sacrifice far too much. First and foremost, the extension of Circle Boulevard to Harrison Boulevard would severely detract from the Witham Oaks region. It would become a main thoroughfare connecting opposite sides of town. It would completely change the character of the area which currently gets mostly local traffic. There are many other ways to get to Harrison Boulevard. They may not be as direct, but the few minutes that people would save driving along the proposed Circle Boulevard extension are not worth the destruction of the atmosphere that the residents of our area enjoy.

The path would also lose much of its appeal under the current development plan. It would essentially become a sidewalk and would be like walking through any other neighborhood in Corvallis. The sounds of the birds and frogs that accompany us on our walks would be replaced by typical neighborhood noises: cars driving by, lawnmowers running, people sitting in their backyards, etc. True, half of the path would still be surrounded by wetlands but the path is not that long to begin with. The feel of the area, which is currently its greatest asset, would be entirely different.

And lastly, the effect on wildlife and the wetlands is certainly going to be drastic. I know that there is a plan in place to filter water back into the wetland area but I cannot believe that there will not be an incredible amount of run-off during the winter months that will pollute the lower lying areas. There are better people than me to speak to the wildlife effects, but I expect that loss of habitat will have a large impact on the birds, small mammals, and deer that live in that area.

With all those concerns in mind I offer up a compromise that I hope will give the owner what he's looking for while preserving the general feeling and value of the area for those of us who use it so frequently. I suggest eliminating the Circle Boulevard extension completely from the plan because of the drastic change it will impose on the area's traffic flow and general neighborhood feel. The development would be accessed from Harrison Boulevard only but would be generally connected to other neighborhoods via the multi-use path. The area surrounding the path should be left as a buffer so that the path can maintain its secluded feel. It will most assuredly get a lot more use and will not be as peaceful as it currently is, but at least it wouldn't be surrounded by houses on either side.

Under this recommended plan I see gains and losses on all sides. The current owner would be able to profit from the land he has paid taxes on for so long, but not as much as he had hoped to in his original plan. The rest of the community that uses that area so much would have to sacrifice some of the peace and solitude that we enjoy, but not all of it, and we'd be able to use the area in much the same way as we currently do. The major loss would be to the wildlife and natural areas, but if development is to happen, that is inevitable.

As you deliberate about the Witham Oaks development project I ask you to seriously consider the impact that it will have on the northwest Corvallis community. Approving the plan as it currently is would destroy the atmosphere of the area. And at the minimum, I ask for a development plan that addresses the concerns I've listed here and reduces the impact felt by those of us who live in the area and use the trails and multi-purpose path so frequently.

Thank you so much for your time.

Sincerely,

Elizabeth Schwartz

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DEC 1 9 2006
Community Development

WITHAM OAKS

PLANNED DEVELOPMENT

Conceptual and Detailed Development Plan
Tentative Subdivision Plat
Right of Way Vacation
Variance

December 19, 2006

Prepared for Matrix Development and Legend Homes

WITHAM OAKS

DETAILED DEVELOPMENT PLAN
TENTATIVE SUBDIVISION PLAT
RIGHT-OF-WAY VACATION
VARIANCE

PROPOSAL: We request approval of the following applications: a Conceptual and Detailed Development Plan, Tentative Subdivision Plat, a Right-of-Way Vacation and a Variance on a 94.62 acre parcel of land. The noted applications would enable the following:

- Preservation of 54% of the site in open space.
- Creation of 221 single family lots of varying sizes for a variety of housing types;
- Site specific development standards for individual lot development;
- A Home Owners' Association to maintain common area tracts within the development and enforcement of Covenants, Conditions and Restrictions (CCRs).
- Extension of Circle Boulevard. from its current terminus, through the site for a connection with Harrison Boulevard;
- Improvements to Harrison Boulevard along the site's frontage
- Local streets to serve the interior of the development;
- Walking trails and open space tracts throughout the development and for off-site connections to the Witham Hill Natural Area Park to the north and Arnold Park to the southeast;
- Reconfiguration of the northern ½ of the existing 12-foot multi-modal path through the site at the north end for safe pedestrian and bicycle movement in coordination with the extension of Circle Boulevard;
- Realignment of the right-of-way for Circle Boulevard. to avoid impacts to the locally significant wetlands; and
- Signage appropriate for the development.

DESCRIPTION OF SITE: The subject site is located north of and adjacent to Harrison Boulevard, and west of 36th Street. It has approximately 1,300 feet of frontage along Harrison Boulevard. The southern terminus of the recently extended Circle Boulevard is located approximately 1,000 feet to the north. Circle Boulevard was extended in June 2002 to the site's northerly boundary in order to provide access to the City of Corvallis' 35-acre Open Space area, now referred to as Witham Hill Natural Park, located adjacent to and northerly of the subject parcel. The Harrison Boulevard/53rd Street intersection is approximately 1,200 feet to the west of the property's westerly boundary.

The subject parcel was annexed into the City in 2003. The lands to the north, west, and south are located outside the City limits but within the Urban Growth Boundary. Directly to the north and part of the larger parent parcel, is the 35-acre With Hill Natural Area Park.

Abutting this open space area to the north/northeast are the Witham Hill apartments. With the exception of a 5-acre parcel on the south end, abutting the site to the east are lands within the City limits and developed with single-family residences, a church, and the 3.26-acre Arnold Park. A lot line adjustment approved by Benton County (LD-01-24) resulted in the transfer of 0.83 acres of land along the eastern perimeter of the site from the previous ownership to six of the adjacent property owners along the eastern boundary. The land to the south, across Harrison Boulevard, contains the Oregon State University Dairy Research facility. The land to the west is primarily undeveloped, with the exception of the Oregon State University (OSU) Poultry facility which contains several buildings, most of which are used for bird rearing and research, and a few rural residences.

The site is currently undeveloped and has been historically used for pasture and orchards. The northwestern portion of the site contains a portion of Witham Hill, as designated in the City's Open Space and Hillsides Report. The lower (southern) portion of the site is partially cleared and contains 19.87 acres of delineated jurisdictional wetlands (Ex 7.0). The wetland area extends in a north south shaped "finger" up the drainage way toward the north. The entire wetland area and adjacent uplands are dominated by non-native vegetation with very few native plant species present. Many of the dominant non-native species are invasive in wetland and upland prairies and woodlands in the Willamette Valley. These include English hawthorn, domestic pear, Armenian (Himalayan) blackberry, Scot's broom, sweetbriar rose, and several species of pasture grasses.

East of the creek are open meadows dominated by non-native pasture grasses with scattered small trees and shrubs, including English hawthorn, domestic apple, domestic pear, Armenian (Himalayan) blackberry and sweetbriar rose. There are a few native Oregon ash and Oregon crabapple growing in this area as well. Also on the east side of the creek is an area of fill that is dominated by dense Armenian blackberry, English hawthorn, and Suksdorf's hawthorn. This area is proposed for either a storm water retention pond or a wetland mitigation site. The stream corridor on the east side of the bike path has a narrow, broken overstory of small trees including Oregon ash, Suksdorf's hawthorn and English hawthorn. The northern third of this reach has very little woody vegetation, and is dominated by dense pasture grasses. Habitats on the west side of the creek and bike path have more woody vegetation because they have been heavily invaded by English hawthorn and Armenian blackberry. A patch of young Oregon ash forest is located near the south boundary of the site, on both sides of the bike path. In general, invasive plant species have severely impacted the plant communities on the site. A few native herbaceous species are present, mostly in areas west of the bike path. However, no native dominated plant communities remain on the site.

Storm water runoff from the developed and undeveloped portions of Witham Hill is carried down slope to the subject site via a drainage channel along the west side of Circle Boulevard. The drainage channel enters the subject site and continues south along the west side of the 12-foot multi use path and then crosses under the multi-use path via a culvert approximately ¼ of the way into the site. This fans the storm water out a bit to the east and then a smaller channel crosses back over to the west side of the multi-use path approximately 200 feet north of Harrison Boulevard. where again the storm water is fanned

out across the site. There exists a smaller channel in this area that traverses through the wetland area at the south end of the site to reach the ditch along Harrison Boulevard.

The site generally slopes south toward NW Harrison Boulevard, with the eastern portion of the property sloping down toward the west. Some slopes in the northwest and easterly portions of the site exceed 20% (Exhibit 6). Oregon White Oak trees dominate the northern portion of the site. Several large Douglas Firs and other invasive trees, shrubs and grasses are competing with the Oregon White Oaks and native vegetation in this area. The central area of the site is more gradually sloped than the northern portion of the site, and includes grasslands, shrubs, and a remnant orchard area. Much of this area has been overgrown with invasive exotic plants, such as Himalayan blackberry, Scotch broom, English hawthorn, Cherry, Holly and poison oak. A drainage channel, which begins at the northeast corner of the site with the channel extending from the roadside ditch along Circle Boulevard, splits partway down the slope and fans out into a larger wetland area in the southerly third of the property on either side of the multi-use path. This portion of the site includes areas of wetland prairie, wetland shrub, an ash grove, and the small stream corridor (Exhibit 7). It also includes areas of upland that are outside the delineated wetland boundary.

DESCRIPTION OF REQUEST: We request approval of a Conceptual and Detailed Development Plan to allow for development of a residential Planned Unit Development on 43.20 acres of the parent parcel of 94.62 acres. Approximately 51.42 acres (or 54%) of the total site are excluded from the developed portion of the site as protected open space either via Comprehensive Plan zone of Open Space-Conservation or establishment of common open space tracts. The open space areas contain wetlands, stands of Oregon White Oaks, and steep slopes, as well as walking trails and landscaped common areas.

The remaining 43.20 acres (46%) of the site are proposed to accommodate the following:

- Creation 221 lots of varying sizes (3,328 to 12,899 square feet) for a variety of housing types;
- A gross density of 2.3 units to the acre and a net density (minus open space areas) of 5.1 units to the acre, both of which are within the density range for the RS-6 zoning district;
- Establishment of development standards for individual lot development;
- Establishment of a Home Owners' Association to maintain common area tracts within the development and enforcement of Covenants, Conditions and Restrictions (CCRs);
- Extension of Circle Boulevard. from its current southerly terminus, through the site for a connection with Harrison Boulevard;
- Establishment of local public streets to serve the interior of the development;
- Establishment of walking trails and open space tracts throughout the development and for off-site connections to the Witham Hill Natural Area Park to the north and Arnold Park to the southeast;

- Reconfiguration of the existing 12-foot multi-modal path through the northern portion of the site for safe pedestrian and bicycle movement in coordination with the extension of Circle Boulevard.;
- Retention of the existing location of the 12-foot multi-use path through the southern portion of the site for continued use and enjoyment of a path through the large open space area;
- Vacation and reestablishment of the right-of-way for Circle Boulevard to avoid wetlands at the south end near Harrison Boulevard.

The proposed development is a Planned Development, which allows for deviations from the underlying development standards provided an overall benefit is achieved by such deviations that would not otherwise be possible through a standard subdivision. The most significant overall benefit is the preservation of 54% of the site in open space and a trail system that connects the development with open space and developed park areas and existing trails. Flexibility and innovation are used in the creation of development standards for the individual lots. The following matrix outlines the requested development standards as part of the overall development plan:

DEVELOPMENT STANDARD MATRIX

Lot Area minimum	Attached	4,200 sq ft.	5,200 sq ft.	6,200 sq ft +	Discussion
Lot width	33' minimum	42' minimum on average*	52' minimum	62' +	The different lot widths allow for a variety of lot sizes, housing types and a range of prices. * some lots are narrower at the street's curvature.
* Max lot coverage	70%	60%	60%	60%	Our proposed lot coverages were designed to meet the new (forthcoming) code standards for the RS-6 district. These lot coverages allow for a variety of house types and styles, and lot coverage commensurate with lot size and housing type.
Setbacks front	***House:12' Porch: 10'*** Garage 19'	***House:12' Porch: 10'*** Garage: 19'	***House: 12' Porch: 10'*** Garage: 19'	***House:12' Porch: 10'*** Garage: 19'	These are the min. proposed setbacks for each lot. Setbacks may be increased on a lot by lot basis. These standards allow for garage and driveway parking, so that each lot provides at a minimum the 2 required off-street parking spaces.
side	*0' one side and 4' on unattached side*	4' w/ 1' allowance for bldg projection (example:	4' w/ 1' allowance for bldg projection (example:	5' w/ 1' allowance for bldg projection (example:	Allows for architectural projections and provides greater interest along side of house. The attached homes may have a portion of the garage with a common wall along the

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Lot Area minimum	Attached	4,200 sq ft.	5,200 sq ft.	6,200 sq ft +	Discussion
		fire place or bay window)	fire place or bay window)	fire place or bay window)	property line. The entire length of the home may not be attached. On the unattached side, a 4 foot side yard will be utilized.
rear	*15'*	15'	15'	15'	Meets the minimum 15 foot rear yard setback.
Height (max)	30'	30'	30'	30'	Meets the standard

COMPARATIVE MATRIX OF EXISTING, FORTHCOMING AND PROPOSED DEVELOPMENT STANDARDS

Standard	Existing Code	New Code (to be adopted 12/31/06)	Proposed PUD standard	Discussion
Lot Size SF detached SF attached	5,000 sq ft 5,000 sq ft	3,500 sq ft 2,500 sq ft	4,072-12,899 3,328-4,842	Range in lot sizes to accommodate attached homes, and detached homes of varying sizes and styles. Proposed standards exceed the forthcoming development standards for this zoning district.
Lot width SF detached SF attached	50ft 50ft	50 ft 40 ft w/ alley 25 ft	28' on curved street 33' min	Deviations from the current code requirements are necessary to provide for a variety of lot sizes and housing types. Proposed standards exceed the new code standards.
Front yard setback	10 ft	10 ft with enclosed porches up to 5 ft	10 ft to porch, 12 ft to house	No deviation requested from existing or new code standard.
Rear yard setback	15 ft	5 ft w/ 15 ft of usable side yard	15 ft	Meets the existing standard.
Combined front / rear yard setback	35 ft	No requirement	No combined standard proposed	We are not proposing a combined standard, but by default it would be 25', which is a 10' deviation from the existing combined standard of 35'. Greater open space is provided in common open space tracts as opposed to individual lots.
Side yard				1 foot side yard setback

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Standard	Existing Code	New Code (to be adopted 12/31/06)	Proposed PUD standard	Discussion
• Detached • Single attached and 0- lot line	5 ft 0-ft setback on one side with 8 ft min opposite side.	4 ft 0-ft setback on one side with 8 ft min opposite side.	4 ft 0' on attached side, and 4' on unattached side.	reduction on lots that are generally less than 6,200 square feet. Attached homes may be attached along a portion of the wall at the garage and may be detached or attached on opposite side.
Garage	19 ft	19 ft	19 ft	No deviation is requested
Height	30 ft	30 ft	30 ft	No deviation requested
Lot Coverage	40%	60% Interior townhomes no max lot coverage	60/70%	Additional lot coverage requested and designed to be consistent with new (yet to be adopted) RS-6 standards.,
Off-street parking	2 spaces	2 spaces	2 spaces	No deviation requested

Through the Planned Development process, deviations from standards are allowed. In order to accommodate and protect significant natural features, provide additional open space and trail connections, work with the topography on site and provide for a range of lot sizes and housing types, we are requesting deviations from the following specific standards:

Chapter 3.3.30 Development Standards

- Reduction in lot sizes
- 1 foot reduction in the side yard setbacks
- Reduction in lot widths
- Increased lot coverage

Chapter 3.37.40.a AG-OS Setbacks

- Reduced building setback for structures abutting the AG-OS district in the northern and eastern portions of the property. Some structures may be within 25 feet of the AG-OS boundary line.

Chapter 4.0.40.a.1 and 2 Improvements Required with Development

- On arterials and collectors, requirement for sidewalks to be separated from curbs by a tree planting area a minimum of 12 feet in width and sidewalks 6 feet in width. We are requesting a 6' planter strip and a 5 foot sidewalk along Harrison to minimize impacts to the wetlands in this location. We are also requesting a reduced planter strip (8'6") along a portion of Circle to accommodate the stream channel and 12' multi use path and a sidewalk 5 feet in width.
- We are also requesting a sidewalk on one side of the street in two locations: Circle Boulevard in the lower half of the site from Harrison to Street "A"; and the

Street "A" extension east from Circle Boulevard. This request is to minimize impacts to significant natural features, wetlands and hillsides/trees, respectively.

Chapter 4.0.80. Improvements Required with Development

- "Development site" means each lot and each lot needs to have its own individual connection to the public system. Some lots may have private storm water conveyance systems across their yard within an easement. In order to minimize exceeding the 8' cut and fill requirement to the extent possible, some lots are proposed with a daylight basement option. Doing so would eliminate the potential of discharging foundation drains and roof drains into the public streets on which these lots front; therefore we are proposing a private storm system in the back of these lots as shown on the preliminary utility plan (see exhibit 15.0).

Chapter 4.1.40.a.2 Standards for Off-Street Parking and Access

- Reduced distance between Circle Boulevard and nearby driveway access ways. The Land Development Code requires 150 feet between accesses (driveways) and intersections. Our proposed realignment of Circle Boulevard places the centerline of Circle Boulevard within approximately 49.5 feet of the Beit Am gravel driveway centerline and within approximately106.5 feet from the centerline of the LDS church's westerly most driveway.

Chapter 4.5.10: Safe Harbor provisions

- Reduced buffer from upland edge of riparian corridor (wetland). The City of Corvallis has adopted the State's Safe Harbor provisions as interim standards until such time the new Land Development Code is adopted (December 31, 2006). The interim Safe Harbor provisions required a 50 foot buffer from the upland edge of the riparian corridor. Because the City's Natural Features inventory maps identify the stream channel/drainage way on site as having "fish present", the upland edge of the riparian corridor is considered to be the wetland boundary. However, based on information from Oregon Dept. of Fish and Wildlife it is unlikely fish are present (Exhibit D) on site and likely that the City's inventory is incorrect. Please refer to a more detailed discussion under the Detailed Development Plan section below.

Chapter 4.6.20.c Solar Access provisions for Planned Unit Developments

- Reduced percentage of buildings with solar access at ground level. We propose on average that 72.6% of the proposed homes have one full wall exposed to the sun with 84% of the proposed homes having one full wall exposed to the sun at noon on November 21st.

CONCEPTUAL AND DETAILED DEVELOPMENT PLAN

As the Conceptual Development Plan and Detailed Development Plan are the same, we will address the criteria for the establishment of these together.

APPLICABLE COMPREHENSIVE PLAN POLICIES

3.2.1 The desired land use pattern within the Corvallis Urban Growth Boundary will emphasize:

- ***A. Preservation of significant open space and natural features;***
- ***B. Efficient use of land;***
- ***C. Efficient use of energy and other resources;***
- ***D. Compact urban form;***
- ***E. Efficient provision of transportation and other public services; and***
- ***F. Neighborhoods with a mix of uses, diversity of housing types, pedestrian scale, a defined center, and shared public areas.***

4.2.1 Significant natural features within the Urban Growth Boundary shall be identified and inventoried by the City or through the development process. These shall include:

- ***A. Seasonal and perennial streams and other natural drainage ways, wetlands, and flood plains;***
- ***B. Lands abutting the Willamette and Marys Rivers;***
- ***C. Land with significant native vegetation as defined in the Oregon Natural HeritagePlan (1998), which may include certain woodlands, grasslands, wetlands, riparian vegetation, and plant species;***
- ***D. Ecologically and scientifically significant natural areas;***
- ***E. Significant hillsides;***
- ***F. Outstanding scenic views and sites; and***
- ***G. Lands that provide community identity and act as gateways and buffers.***

4.2.2 Natural features and areas determined to be significant shall be preserved, or have their losses mitigated, and/or reclaimed. The City may use conditions placed upon development of such lands, private nonprofit efforts, and City, State, and Federal government programs to achieve this objective.

4.3.5 A buffer between urban density development and resource land shall be provided, consistent with Section 3.2 of this Plan, to protect Open Space - Agriculture and Open Space - Conservation lands from intrusion by urbanization and to protect urban lands from potential impacts from forest or agricultural practices. For forest and agricultural uses that currently exist on non-open space designated lands, transitional buffering shall be provided to address compatibility concerns.

4.6.2 Development on hillsides shall not endanger life and property nor land and aquatic resources determined to be environmentally significant.

4.6.5 On tree-covered hillsides, development shall be designed to preserve as many trees as possible and tree removal shall be consistent with the approved development plan.

4.6.6 On tree-covered hills, the design of dwellings and their placement shall be planned to retain a sufficient number of trees to preserve a green, tree-covered hillside appearance. If a proposed development pattern would result in the loss of a tree-covered hillside appearance, assuming the development plan has been designed to minimize the loss of existing trees to the extent that it is safe and practicable, the development may proceed, provided the following provisions are met: 1) the loss of trees is further minimized by development techniques such as clustering; and 2) a sufficient number of new trees are planted to recreate (at maturity) a green, tree-covered hillside appearance.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

A. Plan development to fit the topography, soil, geology, and hydrology of hillsides and to ensure hillside stability both during and after development.
B. Preserve the most visually significant slopes and ridgelines in their natural state by utilizing techniques such as cluster development and reduced densities.
C. Preserve significant natural features such as tree groves, woodlands, the tree-meadow interface, and specimen trees.
D. Align the built surface infrastructure, such as roads and waterways, with the natural contours of terrain and minimize cutting and filling in developments.
E. Minimize soil disturbances and the removal of native vegetation and avoid these activities during winter months unless impacts can be mitigated.
F. Design developments and utilize construction techniques that minimize erosion and surface water runoff.
G. Demonstrate a concern for the view of the hills as well as the view from the hills.
H. Provide landscaping that enhances the identified open space resources.
I. Design developments that consider landscaping management that will minimize the threat of fire on improved property spreading to wildland habitat.

4.6.9 Where development of hillsides occurs, removal of vegetation will be minimized to control erosion. Vegetation disturbed during development shall be replaced or enhanced through landscaping.

4.6.16 Witham Hill:
Development proposals on Witham Hill that include areas of visual contrast between forest and grassland habitat shall consider protection of the grassland open space that abuts the forested area. Where feasible, building mass and other land development will be sited and designed within areas of trees to retain visual contrast between grassland and the vegetated / developed areas. Areas with slopes greater than 20% on the west side of Witham Hill, as identified in the Open Space - Hillside Report (November, 1983), shall be retained in Open Space - Conservation uses.

4.9.1 Significant watercourses, lakes, and wetlands shall be preserved, or have their losses mitigated, in order to: maintain clean water, support natural vegetation, protect the aquatic habitat, retain existing significant public vistas, and provide wildlife habitat and recreation sites. Site-specific buffering and setback requirements may be required, as necessary, to achieve protection.

4.10.1 Development within the Urban Growth Boundary shall conform to the Corvallis Drainage Master Plan which includes the site-specific provisions included in the 1996 South Corvallis Drainage Master Plan and subsequent updates of these Plans.

4.10.2 Significant riparian lands within the Urban Growth Boundary shall be identified and inventoried by the City or through the development process, and the City shall work to preserve and enhance native stream corridor vegetation on both public and private lands. (QL-6)}

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4.10.3 Significant drainage ways shall be kept in a natural state to protect tree lines, maintain their natural functions, and enhance native plant species, to the maximum extent practicable.

4.10.4 Within the Urban Growth Boundary, appropriate drainage way dedications and easements adequate for flood protection, conveyance of storm water, channel access and maintenance protection of riparian environment, and channel migration shall be secured along all open drainage ways needed for public conveyance of storm water, prior to or at the time of development.

4.10.7 To minimize the negative impacts of development, storm water runoff after development should be managed to produce no significant reduction of water quality than prior to development unless more appropriate provisions are identified in adopted comprehensive storm water management plans.

4.10.8 Grading and filling in drainage ways shall be regulated to prevent negative impact on the channel, floodway and flood plain, riparian habitat, wetlands, and other properties. Where drainage ways are disturbed through development, the developer shall return the drainage way to its natural state, to the extent practicable.

4.10.9 Negative impacts on habitat and migration corridors for birds, wildlife, aquatic life, and on open space and the recreation qualities of significant drainage ways shall be minimized.

4.11.11 Regarding significant wetlands downstream of development sites, the cumulative unavoidable losses of significant wetland acreage and function attributable to upstream development should be mitigated by the City. Such mitigation can be achieved, in part, through dedication of open space, drainage ways, and related natural infrastructure.

4.11.12 Development upslope of wetlands shall minimize interference with water patterns discharging to wetlands, and shall minimize detrimental changes in water quality for waters discharging to wetlands.

4.13.2 Development on land identified with significant plant communities, or significant fish and wildlife habitats, shall be planned to minimize the impact on the significant resources.

4.13.4 The City shall encourage the retention of large, varied habitat areas on private and public lands including inventoried plant communities.

5.2.1 Both public and private properties located along entrance corridors to the City of Corvallis shall be attractively landscaped, left as open space, or maintained as active agricultural or forest lands.

5.5.2 Parks and open space areas shall help shape and guide urban development.

5.5.3 The City shall explore creative incentives and development mechanisms to encourage protecting significant open space resources. Such mechanisms could include density transfer (i.e. clustering), transfer of development rights, Open Space – Conservation districts, and special district provisions that could allow development at lower densities than otherwise permitted.

5.5.6 Open space is a basic community infrastructure, like roads and utilities, and should be funded, at least in part, by commercial and residential development and redevelopment.

5.5.8 Maintaining large tracts of undeveloped open space resource land outside the City's Urban Growth Boundary, especially along the City's entrance corridors, is important to the community identity and the creation of effective community gateways.

5.5.9 The City shall take a proactive role in acquiring and protecting the open space needed to complete a linked greenbelt around the Urban Growth Boundary.

9.2.4 Neighborhoods shall be pedestrian-oriented. Neighborhood development patterns shall give priority consideration to pedestrian-based uses, scales and experiences in determining the orientation, layout, and interaction of private and public areas.

9.2.5 Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment, or infill that may occur in these areas. These neighborhood characteristics are as follows:

A. Comprehensive neighborhoods have a neighborhood center to provide services within walking distance of homes. Locations of comprehensive neighborhood centers are determined by proximity to major streets, transit corridors, and higher density housing. Comprehensive neighborhoods use topography, open space, or major streets to form their edges.

B. Comprehensive neighborhoods support effective transit and neighborhood services and have a wide range of densities. Higher densities generally are located close to the focus of essential services and transit.

C. Comprehensive neighborhoods have a variety of types and sizes of public parks and open spaces to give structure and form to the neighborhood and compensate for smaller lot sizes and increased densities.

D. Neighborhood development provides for compatible building transitions in terms of scale, mass, and orientation.

E. Neighborhoods have a mix of densities, lot sizes, and housing types.

F. Neighborhoods have an interconnecting street network with small blocks to help disperse traffic and provide convenient and direct routes for pedestrians and cyclists. In neighborhoods where full street connections cannot be made, access and connectivity are provided with pedestrian and bicycle ways. These pedestrian and bicycle ways have the same considerations as public streets, including building orientation, security-enhancing design, enclosure, and street trees.

G. Neighborhoods have a layout that makes it easy for people to understand where they are and how to get to where they want to go. Public, civic, and cultural buildings are prominently sited. The street pattern is roughly rectilinear. The use and enhancement of views and natural features reinforces the neighborhood connection to the immediate and larger landscape.

H. Neighborhoods have buildings (residential, commercial, and institutional) that are close to the street, with their main entrances oriented to the public areas.

I. Neighborhoods have public areas that are designed to encourage the attention and presence of people at all hours of the day and night. Security is enhanced with a mix of uses and building openings and windows that overlook public areas.

J. Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g., by setting them back from the front facade of the residential structure.) Parking lots and structures are located at the rear or side of buildings. On street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.

K. Neighborhoods incorporate a narrow street standard for internal streets which slows and diffuses traffic.

L. Neighborhood building and street proportions relate to one another in a way that provides a sense of enclosure.

M. Neighborhoods have street trees in planting strips in the public right-of-way.

9.3.2 Where a variety of dwelling types are permitted by the development district, innovative site development techniques and a mix of dwelling types should be encouraged to meet the range of demand for housing.

9.3.5 Residential developments shall conform to the density ranges specified by the Comprehensive Plan and be of housing types permitted by the applicable zoning district.

9.4.9 Residential development should consider and accommodate to the maximum extent possible, the future needs of senior citizens.

9.5.13 New subdivisions and planned developments of more than 5 acres in low density districts shall incorporate two or more of the following elements in at least 10% of the total acreage:

A. Zero lot line or attached dwellings (where allowed);
B. Minimum allowed lot area; or
C. Dwelling size less than 1,200 square feet.

10.2.9 All developments shall comply with adopted utility and facility master plans and the Capital Improvement Plan.

10.2.11 Developers shall be required to participate financially in providing the facilities to serve their projects as a condition of approval.

10.2.12 Developers will be responsible for the construction of all facilities internal to and fronting their properties and for needed extensions of facilities to and through their site.

11.2.1 The transportation system shall be planned and developed in a manner which contributes to community livability, recognizes and respects the characteristics of natural features, and minimizes the negative effects on abutting land uses.

11.2.2 The transportation system shall be managed to reduce existing traffic congestion and facilitate the safe, efficient movement of people and commodities within the community.

11.2.3 The City shall develop and promote alternative systems of transportation which will safely, economically, and conveniently serve the needs of the residents.

11.2.12 The transportation system shall reflect consistency with the Corvallis Comprehensive Plan, land use designations, and regional and statewide transportation planning efforts.

11.3.9 Adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection level-of-service (LOS) standards and to avoid traffic diversion to local streets. The level-of-service standards shall be: LOS "D" or better during morning and evening peak hours of operation for all streets intersecting with arterial or collector streets, and LOS "C" for all other times of day. Where level-of-service standards are not being met, the City shall develop a plan for meeting the LOS standards that evaluates transportation demand management and system management opportunities for delaying or reducing the need for street widening. The plan should attempt to avoid the degradation of travel modes other than the single-occupant vehicle.

11.3.10 In addition to level-of-service and capacity demands, factors such as livability, sustainability, and accessibility.

11.3.12 New local streets, neighborhood collectors, collector streets, and arterial streets shall be located and designed to manage traffic volume and speed to minimize negative impacts on abutting land uses.

11.4.3 All traffic generators shall provide adequate parking.

11.6.3 Pedestrian access shall be addressed in the review of proposed cul-de-sac developments. The City shall require pedestrian rights-of-way interconnecting the ends of such streets where feasible.

11.5.1 Bikeways shall be conveniently located, be adequately constructed, have minimal stops and obstructions, and have safe crossings on major streets.

11.5.2 Bikeways shall provide safe, efficient corridors which encourage bicycle use. Bicycle use of major streets shall be considered as improvements are made to major transportation corridors.

11.5.7 All new collector and arterial streets shall be designed to accommodate bicycle facilities.

11.5.12 Safe and convenient bicycle facilities that minimize travel distance shall be provided within and between new subdivisions, planned developments, shopping centers, industrial parks, residential areas, transit stops, and neighborhood activity centers such as schools, parks, and shopping.

11.6.4 New development and redevelopment projects shall encourage pedestrian access by providing convenient, useful, and direct pedestrian facilities.

11.6.6 Safe and convenient pedestrian facilities that minimize travel distance shall be provided by new development within and between new subdivisions, planned developments, shopping centers, industrial parks, residential areas, transit stops, and neighborhood activity centers such as schools, parks, and shopping.

11.6.7 Where minimizing travel distance has the potential for increasing pedestrian use, direct and dedicated pedestrian paths shall be provided by new development.

12.2.3 The City shall require all future subdivisions, planned developments, and other major developments, plus commercial and industrial development, be designed to reduce demands for artificial heating, cooling, and lighting by considering topography, microclimates, vegetation, and site and structure orientation which maximizes southern exposure. The City shall develop incentive programs for those developments that demonstrate sound energy conservation design and/or construction, such as density incentives or similar programs.

13.12.1 The City shall work to ensure that development within the west Corvallis Urban Fringe is consistent with the West Corvallis - North Philomath Plan.

13.12.6 The City shall revise the Land Development Code to require a clear edge between open space and developed areas. This edge shall be defined by the use of streets or public trails, or by other means which encourage visual or physical access to the open space.

13.12.18 The City shall maintain the scenic character of West Hills Road, Harrison Boulevard / Oak Creek Road, Reservoir Road, and Philomath Boulevard through mechanisms such as gateway standards, or securing easements to preserve existing vegetation or views.

Article 40. Comprehensive Plan Map Legend

40.1 Residential Use Designations

40.1.1 Low Density Residential: 2 to 6 units per acre

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These areas will provide low density residences and necessary urban services to maintain stable residential neighborhoods.

***OPEN SPACE CONSERVATION DESIGNATION NOT IN COMPREHENSIVE PLAN*

FINDINGS IN COMPLIANCE WITH COMPREHENSIVE PLAN POLICIES: The proposed site plan achieves the rare standard of 54% of the site placed in permanent open space. These open spaces are primarily comprised of oak trees, forested hillsides and wetlands, all of which have been identified on the city's natural features inventory as areas of high protection. The developable area of the site contains few natural resources and gentler terrain. Street connections provide safe, looped access ways and the extension of necessary street connections, per the city's adopted Transportation Master Plan. Circle Boulevard will be extended to Harrison Boulevard with on street dedicated bike lanes. Trails are provided throughout the site to provide alternative pedestrian connections, and provide pedestrian connections to open spaces, off-site trail systems and/or existing parks and natural areas consistent with the Transportation and Parks and Recreations Master Plans.

Collector streets are extended through the site and improved along site frontage per the Transportation System Plan. Local public streets serve every lot within the development and are designed to provide a connected internal street system with future street connectivity to the west. Water and sewer lines are extended throughout the site to serve each lot consistent with the adopted Water and Wastewater System Plans. Storm water is treated and detained on site, to standards which meet and exceed those adopted by the City of Corvallis.

Individual lot development provides for a variety of housing sizes and styles within the allowed density range, adequate parking on each lot and within the public local street system. Homes will address Pedestrian Oriented design guidelines to ensure development is completed on a pedestrian scale with attractive street aesthetics and minimized garages. Homes will be attached and detached single family to be compatible with the surrounding development and consistent with the uses allowed in the RS-6 zoning district. Energy conservation is maximized by the site's south facing layout which enables up to 84% of the homes to utilize solar gain during the mid-day. Additionally the homes will be built to the Earth Advantage energy savings program standards.

A landscaped buffer between the proposed lot development and the OSU owned land which is currently in agricultural use is provided to provide use separation and a visual buffer. Medium and large canopy street trees are proposed along all streets to provide for shading and additional vegetative cover to enhance the public aesthetic. Individual lot development and overall site development is "stepped down" the hillside to minimize impacts associated with grading. The entrance to the city limits along Harrison will be retained as wetland area, minus necessary street and storm water improvements, thereby providing a visual

buffer from the development to the north and retaining the natural aesthetic along this gateway to the City's west side.

Compliance with the City's Transportation Master Plan necessitates the extension of Circle Boulevard, which will require some wetland fill in the northern and southern portions of the site. This fill impacts both the wetland area and the associated buffer. However, the impacts to the wetland and its associated buffer are greatly reduced by the proposed realignment of Circle Boulevard. A fill permit issued through the Division of State Lands (DSL) will require mitigation consistent with Federal and State Law. We anticipate mitigation efforts to be completed on site, in compliance with DSL guidelines as well as the Army Corps of Engineers requirements. In coordination with our mitigation efforts, we are proposing a Conceptual Habitat Enhancement Plan which will serve to minimize development impacts to the wetland edge through removal of non-native invasive species and the planting of native species that are suited to wet conditions and improved habitat values (Exhibit L).

For more detailed descriptions of the proposal and supporting findings of compliance with Land Development Code Criteria and general Comprehensive Plan Policies, please refer to the discussions below. Given the findings above and the discussion below, the proposal is consistent with the stated Comprehensive Plan policies applicable to the development.

APPLICABLE LAND DEVELOPMENT CODE CRITERIA:

Chapter 3.3 RS-6 (Low Density) District
Section 3.3.20 RS-6 Permitted Uses

3.3.10 – Purpose

This district implements the Low Density Comprehensive Plan designation, which allows a range of 2-6 dwelling units per acres. It is intended to provide a broader variety of single family housing types than in other Low Density districts. This district also permits smaller lots than generally allowed in the RS-3.5 and RS-5 districts and encourages greater efficiencies in provision of streets, utilities, and usable open space.

3.3.20.01 – General Development

a. Primary Uses Permitted Outright

1. a. Residential Use Types:
Family
b. Residential Building Types:
Single Detached
Single Detached (Zero lot line)
Duplex
Single Attached (Zero lot line, 2 units)

PROPOSED FINDING: The proposed development is for the creation of 221 single family detached (198) and attached homes (23), both of which are permitted outright uses

within the district. The development plan achieves a gross density of 2.3 units to the acre and a net density (minus open space areas) of 5.1 units to the acre, both of which are within the allowed density range of the RS-6 zoning district. Therefore, the proposal is consistent with the applicable standard.

Chapter 3.37 AG-OS (AGRICULTURE-OPEN SPACE) DISTRICT
Section 3.37.20 - PERMITTED USES
3.37.20.01 - General Development
a. Primary Uses Permitted Outright

PROPOSED FINDING: We are not proposing any developed uses within the AG-OS areas other than the extension of necessary infrastructure. Streets and utilities are allowed in AG-OS zoning district as these are necessary elements to the uses allowed within the district. Please refer to the discussion below on our proposed deviation from the special buffering and setback requirements.

Section 3.37.40 - SETBACKS

The following minimum setbacks shall apply to all structures other than fences or walls in the OS-AG District.

a. Boundary Area - A setback of not less than 25 ft shall be provided along each OS-AG District boundary line where the line abuts any residential district.

Section 3.37.50 - SPECIAL BUFFERING
When residential development is proposed next to AG-OS land, a continuous plant or plant/berm buffer is required along lot lines where dwellings are proposed within 100 ft of AG-OS land lot lines. The responsibility of providing such a buffer shall be that of the applicant of proposed new development, whether residential or agriculture uses.

PROPOSED FINDING: Please refer to the discussion below under *Discussion of Proposed Development Standards* for the projects proposed deviation from this standard.

Chapter 4.5 FLOOD CONTROL, STORM DRAINAGE, RIPARIAN, AND WETLAND PROVISIONS

Section 4.5.10 - PURPOSES
These provisions are intended to reduce flood damage and loss of life in areas subject to periodic flooding. They are also intended to protect open, natural streams, drainage ways, and wetlands as integral parts of the City environment. They are also intended to maintain both the hydrological and biological functions of open drainage way and wetland systems in accordance with the Corvallis Storm water Master Plan, the Administrative Rule (OAR Chapter 660, Division 23) that implements Statewide Planning Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources, and other State and Federal regulations, including Goal 6 - Air, Water, and Land Resources Quality, Goal 7 - Areas Subject to Natural Disasters and Hazards, and Goal 11- Public Facilities and Services These provision are important in order to manage storm water drainage, minimize maintenance costs, protect properties adjacent to drainage ways, improve water quality, protect riparian and wetland plant and animal habitats, and provide opportunities for trail linkages.

Consistent with the Corvallis Comprehensive Plan, these provisions are also intended to minimize harm to natural systems from their use as a storm water facility; to preserve the hydrologic conveyance and storage capacity; to allow for natural channel lateral migration and bank failure and for channel widening and other channel modification that result from changes in hydrology from future urban development; to provide proper shading of the stream to maintain or improve water quality; to allow for a vegetative management strategy that encourages native riparian species; to provide a pollutant filtering zone for surface runoff; to allow for natural stream

processes to minimize stream channel, bank, and corridor maintenance needs; to buffer urban uses from stream processes; and to provide a source for delivery of large wood.

Corvallis is required by Periodic Review Work Task #13 (June 26, 2000) to adopt interim standards that regulate impacts to riparian and wetland areas within its jurisdiction. These interim standards implement the State's "safe harbor" provisions consistent with OAR 660, Division 23, and shall apply until the City has completed the full Goal 5 process for inventorying natural features, balancing their protection against other community and statewide needs (e.g., housing and economic development), and developing new standards to implement the results of this effort. Once this effort is complete, a thorough review of this chapter shall be completed either to adopt new standards or to amend existing standards to address floodplain protection, storm drainage, and riparian and wetland areas.

Section 4.5.100 - STANDARDS FOR PROPERTIES WITH WETLANDS
Development on land with hydric soils, wetland vegetation, or that contains a wetland identified on a local, state, or national wetland inventory shall comply with State and Federal wetland regulations as interpreted by the State and Federal agencies charged with enforcing such laws. Development is also subject to the following provisions:

a. Development plans that avoid impacts to wetlands on a development site may use lot sizes within the project that are reduced from district minimums by up to 25 percent, and may receive a per acre density bonus for non-wetland acreage equal to one third (33 1/3 percent) of the district's minimum density per acre, or one and one half (1½) units per acre, whichever is greater. The density bonus is to be added to the maximum allowed density for land uses on the development site.

b. The following "safe harbor" provisions, taken from Oregon Administrative Rule 660, Division 23, also apply:

1. For properties with wetlands that have a Wetland Delineation approved by the Division of State Lands (DSL), the protected wetland area shall be defined as the upland-wetland edge, as identified in the Wetland Delineation and graphically represented on a site plan map.

OAR 660 Section 23 subsection (90) states:

(5) As a safe harbor in order to address the requirements under OAR660-023-0030, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance from all fish-bearing lakes and stream shown on the documents listed in subsections (a) through (f) of section (4) of this rule, as follows:

(b) Along all lakes, and fish bearing streams with average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet from the top of bank.

PROPOSED FINDING: Please refer to the discussion below under *Discussion of Proposed Development Standards* for the projects proposed deviation from this standard.

Chapter 4.6.20 Solar Access – Performance Standard

Section 4.6.10 - PURPOSES
This chapter is intended to require that opportunities for use of solar energy be protected during the design of new residential subdivisions and residential planned developments. Solar energy can make a significant long-term contribution to the City's energy supply. Use of this energy can be encouraged by providing and protecting solar access for use of property owners.

Section 4.6.20 - PERFORMANCE STANDARD
Residential subdivisions and Planned Developments of more than 1 acre shall be designed so that solar access, as defined by Chapter 1.6, is available at ground level for the following:

c. In Planned Developments, a minimum of 80% of the buildings with sufficient east/west dimension to allow the long axis of the building to utilize solar energy.

Exhibit II - 213

Section 4.6.50 - WAIVER OF STANDARD IN PLANNED DEVELOPMENTS

For residential planned developments, a waiver from the requirements of Section 4.6.20 above may be granted by the Planning Commission based on the provisions of Section 4.6.30 above or to the minimum extent necessary to:

a. Meet a broad range of residential needs by encouraging use of innovative site development techniques and a mix of dwelling types; or

b. Address future housing needs in the community by encouraging affordable housing, as defined in Chapter1.6, to increase housing choices.

A waiver may not be granted under this section unless the applicant demonstrates that the loss of solar access for current and future generations has been mitigated by a substantial increase in energy efficiency of the proposed dwellings over Uniform Building Code requirements.

PROPOSED FINDING: Please refer to the discussion below under *Discussion of Proposed Development Standards* for the projects proposed deviation from this standard.

Chapter 4.7.90.09 Corvallis Sign Regulations - A sign plan shall be required for all Planned Unit Developments (See Chapter 2.5). The plan shall establish the location and allocation guidelines for signs in a way that ensures all parties in the development have an equitable opportunity to communicate through signs without creating undue negative effects on surrounding properties....

PROPOSED FINDING: Please refer to the discussion below under *Discussion of Proposed Development Standards* for the projects proposed deviation from this standard.

Exhibit II - 214

DISCUSSION OF PROPOSED DEVELOPMENT STANDARDS:

As stated in Chapter 2.5 of the Land Development Code, Planned Developments, specifically *Section 2.5.10 – BACKGROUND*, "*development regulations with pre-stated requirements often frustrate innovation and use of new techniques of project and architectural design that are in the public interest, but were not contemplated when requirements were adopted. It is the intent of [the Planned Development] chapter to establish those procedures necessary to permit flexibility in the land development process.*" Furthermore, Section *2.5.20 PURPOSES* states the following

Planned Development review procedures are established in this chapter for the following purposes:

a. *Promote flexibility in design and permit diversification in location of structures;*
b. *Promote efficient use of land and energy and facilitate a more economical arrangement of buildings, circulation systems, land uses, and utilities;*
c. *Preserve to the greatest extent possible existing landscape features and amenities, and utilize such features in a harmonious fashion;*
d. *Provide for more usable and suitably located recreation facilities and other public and common facilities than would otherwise be provided under conventional land development procedures;*
e. *Combine and coordinate architectural styles, building forms and building relationships within the Planned Development;*

f. Provide the applicant with reasonable assurance of ultimate approval before expenditure of complete design monies, while providing the City with assurances that the project will retain the character envisioned at the time of approval;
g. Promote and encourage energy conservation; and
h. Provide greater compatibility with surrounding land uses than what may occur with a conventional project.

With these purposes and background in mind, we are proposing specific development standards for the proposed development. The standards meet existing underlying standards in some cases, but require deviation from some underlying standards. The overall benefit of allowing the proposed deviations is to develop a creative and flexible site design which achieves the following:

- 54% of the site in open space;
- Preservation of the site's significant natural features;
- a range of lot sizes;
- development standards that allow for a variety of home sizes and styles;
- street cross sections that respond to the natural terrain and presence of existing significant natural features;
- walking trails and open space tracts throughout the development and for off-site connections;
- a gross density of 2.3 units to the acre;
- a development plan that provides a connected street system;
- a development that is stepped down the hillside;
- architecturally appealing development on individual lots; and
- pedestrian-oriented development

As such, we are the proposing specific development standards, as outlined in the table below.

COMPARATIVE MATRIX OF EXISTING, FORTHCOMING AND PROPOSED DEVELOPMENT STANDARDS

Standard	Existing Code	New Code (to be adopted 12/31/06)	Proposed PUD standard	Discussion
Lot Size SF detached SF attached	5,000 sq ft 5,000 sq ft	3,500 sq ft 2,500 sq ft	4,072-12,899 3,328-4,842	Range in lot size to accommodate attached homes, and detached homes of varying sizes. Proposed standards exceed the forthcoming development standards for this zoning district.
Lot width SF detached	50ft	50 ft 40 ft w/	28' on curved street	Deviations from the current code requirements are necessary to provide for a variety of lot sizes and

Exhibit II - 215

Standard	Existing Code	New Code (to be adopted 12/31/06)	Proposed PUD standard	Discussion
SF attached	50ft	alley 25 ft	33' min	housing types. Proposed standards exceed the new code standards.
Front yard setback	10 ft	10 ft with enclosed porches up to 5 ft	10 ft to porch, 12 ft to house	No deviation requested from existing or new code standard.
Rear yard setback	15 ft	5 ft w/ 15 ft of usable side yard	15 ft	Meets the existing standard.
Combined front / rear yard setback	35 ft	No requirement	No combined standard proposed	We are not proposing a combined standard, but by default it would be 25', which is a 10' deviation from the existing combined standard of 35'.
Side yard • Detached • Single attached and 0-lot line	5 ft 0-ft setback on one side with 8 ft min opposite side.	5 ft 0-ft setback on one side with 8 ft min opposite side.	4 ft 0' on attached side, and 4' on unattached side.	1 foot side yard setback reduction on lots that are generally less than 6,200 square feet. Attached homes may be attached along a portion of the wall at the garage and may be detached or attached on opposite side.
Garage	19 ft	19 ft	19 ft	No deviation is requested
Height	30 ft	30 ft	30 ft	No deviation requested
Lot Coverage	40%	60% Interior townhomes no max lot coverage	60/70%	Additional lot coverage requested and designed to be consistent with new (yet to be adopted) RS-6 standards.,
Off-street parking	2 spaces	2 spaces	2 spaces	No deviation requested

Below is a list of the deviations requested with a discussion of the benefits received by the proposed deviation:

Chapter 3.3.30 Development Standards

- ***Reduction in lot sizes***
- ***1 foot reduction in the side yard setbacks***
- ***Reduction in lot widths***
- ***Increased lot coverage***

JUSTIFICATION: Through the proposed development standards, lot widths and sizes are varied from what would be permitted in the RS-6 district so as to provide smaller lots for the attached townhomes, a variety of house plans on lots of varying widths and sizes and lot coverages that are commensurate with the new forthcoming code standards. The distribution of lot sizes if fairly even with approximately 37% of the lots being below 5,000 square feet, approximately 30% of the lots between 5,000- 6,000 square feet, and approximately 33% of the lots over 6,000 square feet in size. This variety will increase the visual appeal from the street, avoids a monotonous pattern of 5,000 square foot lots, enables choices in the marketplace, and creates a community intended for diverse ownership, from young couples and retirees or empty-nesters, to growing families. Many of the new standards (lot coverages, lot sizes and widths) are similar to what the new forthcoming code will be requiring, thereby making the development compatible with other new developments in town. Additionally, our gross density, with the proposed lot sizes is only 2.3 units to the acre, which is just above the minimum density allowed within the RS-6 zoning district. With larger lot sizes, we would have difficulty meeting the minimum density on site, which would necessitate developing areas that we currently have put into open space.

Chapter 3.37.40.a AG-OS Setbacks

- ***reduced building setback for structures abutting the AG-OS district in the northern and eastern portions of the property. Some structures may be within 25 feet of the AG-OS boundary line.***

JUSTIFICATION: The intent of the buffering and setback requirements of the AG-OS district is to address compatibility issues between agriculturally based and residential uses. Where the development abuts the OSU agricultural land to the west, a 25-foot landscaped buffer within a common open space tract behind and adjacent to the rear of the lots, is proposed to minimize conflicts between the agriculturally-based research uses to the west and the proposed residential uses on the subject site. Additionally, each lot has a minimum 15 foot setback from the rear property line (fence), so at a minimum a 40 foot setback/buffer is provided between uses. When the property was annexed a couple of years ago, we pursued a Comprehensive Plan Amendment to designate the areas of significant resources as Open Space Conservation on the Comprehensive Plan. Because there is no Open Space Conservation zoning district to implement the OS-C designation on the Comprehensive Plan, the only alternative was to propose AG-OS zoning. However, no agricultural use is intended or proposed in these areas. As such, we self-imposed the underlying standard for the setback along the north, south and east sides. These areas have no agricultural uses and therefore no conflict occurs.

. To achieve the large amount of open space on site, we are requesting a variance from the 25-foot setback for the following lots that abut the AG-OS district: 3-30, 107, 108, 115, 116, 140, 155 and 156, 208 and 221. The benefits achieved on site as a result of the open space zoning is 54% of the site in open space, and the area left for development being significantly minimized. This achieves community wide planning goals for the preservation of open space and visually preserving the tree covered hillside appearance and wetlands. The goals of providing open space, protecting natural resources and

achieving the minimum gross density on site are achieved through allowed deviations from underlying setback/buffering standards. Without such deviation and with the goal of meeting the stated density on site, fewer internal open space areas and trails would be provided, which is not the intended outcome of the Comprehensive Plan.

Chapter 4.0.40.a.1 and 2 Improvements Required with Development

- ***On arterials and collectors, requirement for sidewalks to be separated from curbs by a tree planting area a minimum of 12 feet in width and sidewalks 6 feet in width.***

JUSTIFICATION: We are requesting deviations from the street standards to minimize impacts to the wetlands in the southern portion of the site, preserve trees in the northeast portion of the site and to allow for adequate room for the stream/drainage way and 12-foot multiuse path in the northern portion of the site. Specifically, we propose a 6' planter strip and a 5 foot sidewalk along Harrison to reduce impacts to the wetlands in this location. We also request a reduced planter strip (8'6") along a portion of Circle to accommodate the stream channel and 12' multi use path and a sidewalk 5 feet in width (Ex 17.0).

We are also requesting a sidewalk on one side of the street in two locations: Circle Boulevard in the lower half of the site from Harrison to Street "A"; and the Street "A" extension east from Circle Boulevard. These requested deviations are intended to minimize impacts to significant natural features, wetlands and hillsides/trees, respectively. Without the requested deviations, there would be increased impacts to significant natural resources and trail connections through the site. Additionally, in order to accommodate the wider street sections, the site design would have to be modified which could result in either reduced densities, smaller lots or reduced open space areas.

Chapter 4.0.80. Improvements Required with Development

- ***"development site" means each lot and each lot needs to have its own individual connection to the public system.***

JUSTIFICATION: In order to minimize exceeding the 8' cut and fill requirement, lots 181-190 and 200-205 are designed to accommodate basement homes. Doing so eliminates the potential for discharging foundation drains and roof drains to the public streets on which these lots front. As such we are proposing a private storm system along the back of these lots as shown on the preliminary utility plan (see Exhibit 15.0). These lots will have a private storm water conveyance system across the lots within an easement. The easement will be described on the face of the recorded plat, with maintenance responsibilities and benefits outlined in the CCRs. Without such a deviation, individual lot development costs are increased significantly for the homebuilder. This cost is passed on to the homebuyer. Additionally, the end result of the requested deviation is individual lot development that is stepped down the hill consistent with City policy.

Chapter 4.1.40.a.2 Standards for Off-Street Parking and Access

- ***Reduced distance between Circle Boulevard and nearby driveway access ways***

JUSTIFICATION: The Land Development Code requires 150 feet between accesses (driveways) and intersections. Our proposed realignment of Circle Boulevard right of way places the centerline of Circle Boulevard within approximately 49.5 feet of the centerline of the Beit Am gravel driveway to the east and within approximately 106.5 feet from the centerline of the LDS church's westerly most driveway, which is further to the east from the Beit Am driveway. We have contacted representatives of Beit Am to discuss the potential for providing a curb cut approach to their site where it fronts Circle Boulevard. While no decision has been made, this is a possibility in the future. We are requesting the ability to provide this curb cut without the need for going back through the process to apply for a Planned Development Modificiation. We would anticipate that the access way is gated or barricaded inside the lot to prevent traffic from accessing this undeveloped 5 acre site. Regardless of whether or not Beit Am accepts a curb cut along Circle Boulevard for future access purposes, if our ROW vacation request is approved, we anticipate that future development of this site would require closing their access along Circle given it's proximity to the driveway for Jesus Christ of the Latter Day Saints church. Without the requested deviation, the right of way for Circle Boulevard will be required to be located further to the west, resulting in increased impacts to the locally significant wetland.

Chapter 4.5.10: Safe Harbor provisions

- ***reduced setback from upland edge of riparian corridor (wetland). The City of Corvallis has adopted the State's Safe Harbor provisions as interim standards until such time the new Land Development Code is adopted (Dec. 31, 2006). The interim Safe Harbor provisions required a 50 foot buffer from the upland edge of the riparian corridor. Because the City's Natural Features inventory maps identify the drainage way on site as being "fish bearing" the upland edge of the riparian corridor is considered to be the wetland boundary.***

JUSTIFICATION: During the City's Natural Features Inventory process, the drainage way through the site was identified on the inventory data sheets as having "fish present". Wetland specialists on site felt it was unlikely that fish would be present. In researching the inventory work, we discovered that neither the City nor the City's consultants actually documented fish present, but rather relied on information provided by someone at OSU (name unknown) and ODFW staff. We were given the name of the appropriate staff person at ODFW to discuss the fish bearing issue in greater detail. This individual stated that ODFW has never documented fish present in the stream. Furthermore, based on a couple of site visits within the last year, ODFW have determined that it is "unlikely to be used to any significant degree by native migratory fish"(please refer to Exhibit F). We therefore the city has incorrectly identified the stream on site as fish bearing. Furthermore, we find several discrepancies on the inventory data sheet and what we have been told by several consultants that have spent many hours on site, in the field assessing the on-site wetland/stream resource. The data sheets provided by the City of Corvallis'

Inventory process (Exhibit M) states that the stream has not been modified, that warm water fish are present and that the wetland site is not appropriate for educational use. We believe all of these data statements are incorrect because:

- The stream has been significantly modified through the site by the construction of the city's sanitary sewer line and raised 12-foot multi use path;
- Fish have not been documented on site, neither by the City, its consultants nor the State Dept. of Fish and Wildlife, and
- Based on discussions with several interested parties within the community, this wetland area is ideal for educational use given the presence of the path and it's proximity to OSU.

Section 4.5.130 allows for the City to correct mistakes in the inventory, explaining:

> *For situations in which a property owner can demonstrate that a mapping error has incorrectly shown a drainage way or wetland on said property, the map correction may be processed through the Directors Interpretation procedures identified in chapter 2.16 of this code.*

Based on discussions with the consultants for the City and the letter from the Oregon Dept. of Fish and Wildlife, we have demonstrated that the City has not adequately documented fish present in the stream on site. It is presumptuous to apply a standard to a resource when the presence of such resource has neither been document by the City, its consultants, or the State. Through this Detailed Development Plan and related applications, we request that the City correct the inventory to reflect the more accurate and site specific information submitted that demonstrates that the drainage is not fish bearing

While we believe that the evidence supports correcting the error in the inventory, in an abundance of caution we have addressed the approval criteria applicable to fish bearing streams. We request that the City make findings in the alternative – (1) that the inventory included a mistake and the drainage way is in fact not fish bearing; and (2) the applicant has nonetheless gone above and beyond the requirements and is providing enhancement measures that would comply with the criteria applicable to fish bearing streams.

Pursuant to Chapter 4.5.130 we request a variance through the Planned Development process to the safe harbor standard which established a 50 foot buffer from the wetland edge. Justification for deviating from this standard is as follows:

First of all, as noted in the narrative above describing site conditions, the existing wetland is not a pristine. Rather it has a history of disturbance as described below:

- A series of aerial photos dating back to 1944 shows plowing in the wetland for farming/agricultural uses, a road extending through the wetland to serve the homestead to the north (Exhibit E);
- Non-native invasive plant s taking hold when agricultural activities ceased;

- City's extension of a sanitary sewer line through the site in the 1990s;
- Construction of the raised 12-foot multiuse path through the site;
- Unauthorized 4-wheel drive activities on site through the wetland area as late as 2004/5; and
- Unauthorized garbage dumping activity.

Secondly, the Safe Harbor standard is an interim standard that will no longer be applied to new development as of Dec. 31st 2006. It will become an interim standard that is to be repealed and replaced with a forthcoming provision for no buffer requirement. In other words, if this application had been submitted a few months later, no buffer standards would apply at all. Therefore, the buffers that are provided and enhancement offered exceeds what is required by the City's new regulations.

Thirdly, the 50 foot buffer area impacted by development that doesn't qualify for exemption (lots) or isn't going to be mitigated via our forthcoming wetland mitigation plan for the extension of necessary infrastructure, is a fairly small and defined area south of Street A and north of the proposed water quality facilities south of lot 106. We have significantly reduced the potential impacts to the wetlands and the potential 50 foot safe harbor buffer through the proposed realignment of Circle Boulevard. By moving Circle Boulevard to the east, we reduce the impacts as follows:

	Existing ROW alignment	Proposed ROW alignment	Net Reduction of Impacts
Impacts to Wetlands	140,996 sq ft	86,614 sq ft	54,382 sq ft (1.25 acres)
Impacts to Buffer	158,137 sq ft	121,796	36,341 (.83 acres)

There are several areas of the site that extend into the 50 foot setback but which are necessitated by infrastructure improvements (extension of Circle Boulevard and improvements to Harrison Boulevard). Mitigation for these areas will be included in our wetland fill permit application packet subject to DSL and the Army Corps of Engineers review and approval. We anticipate mitigation for these impacts to occur on site, consistent with state and federal requirements. We do not want to propose enhancement work or other mitigation type work within the wetland area that may serve to be a cross purposes with what will ultimately be proposed through the wetland fill permitting process. Anticipated impacts associated with lot development encroachments within the 50-foot setback area include potential for erosion associated with grading activities and loss of existing vegetation and associated habitat. Prior to any grading activities, an Erosion Control Plan consistent with city standards is required to be reviewed and improved by City staff, with erosion control fencing in place prior to on site work. Relative to vegetation and habitat loss, the site is dominated by non-native invasive

species. No native dominated plant communities exist in this area. Nonetheless, the existing plant communities do provide some habitat value, albeit non-native habitat.

Within this area there are 12 lots and portions of 2 streets that either abut or are within the 50 foot setback area. A small area is impacted along the very rear of the property lines for lots 84-86 and 105, and a portion of the cul-de-sac for Street G. In this area, a vegetated bioswale will be created to treat storm water run off before dispersing it to the wetlands below. Reduction of non-native invasive species will take place for the creation of the proposed storm facilities and be replaced with plants species appropriate to the conditions and functions of the bioswale as specified in the King County Storm water Management Manual which the City has adopted as its standard. Additionally, in the area west of the multi-use path, below street "A" and north of the water quality facilities that are near lot 106, the following lots have a portion of the lot within the 50-foot buffer: 106-108, 115-117, 140, and 155-156. In general, the wetland-upland boundary in this area is approximately 3360 feet in length. With the proposed site plan, approximately 2085 feet (62%) would meet or exceed the 50 foot setback distance between the developed area and the wetland-upland boundary. The remainder (1275 feet; 38%) would have a distance of less than 50 feet. Of this remaining 38%, approximately 695 feet (21%) would have a 25 to 50 foot buffer, and approximately 500 feet (15%) would have a buffer less than 25 feet. Only (2%) of the area along this distance would have no buffer.

To address impacts associated with the reduction of the 50 foot buffer in these areas we are proposing a separate Conceptual Habitat Enhancement Plan (Exhibit L) for areas of the site, described below and graphically represented on EX 7.0. As noted in the Conceptual Habitat Enhancement Plan, the entire wetland area and adjacent uplands are dominated by non-native vegetation with very few native plant species present. Many of the dominant non-native species are invasive in wetland and upland prairies and woodlands in the Willamette Valley. These include English hawthorn, domestic pear, Armenian (Himalayan) blackberry, Scot's broom, sweetbriar rose, and several species of pasture grasses.

Per the recommendation contained within the Conceptual Habitat Enhancement Plan, proposed enhancements will focus on increasing native woody vegetation and controlling invasive exotic trees and shrubs near the proposed development and along the creek. Enhancement measures will be implemented between the development area and the bike path from Street A east of lot 156 south to the area adjacent to the east side of lot 107 Attachment A of the Conceptual Habitat Enhancement Plan). Proposed enhancement measures include the following:

1. Remove/control non-native woody vegetation. A variety of methods is available including manual (cut with chainsaws), mechanical (mowing, brush hog) and chemical (herbicide). A combination of methods likely will be necessary. For example, shrubs and trees such as Armenian blackberry and English hawthorn can be mowed or brush hogged, but will resprout from the cut stumps. The stumps can be treated topically with herbicide immediately after cutting, and resprouts

can be treated with a follow-up topical application. Broadcast spraying of herbicides should be avoided to minimize impacts on non-target species including birds, invertebrates, and remnant native plants.

2. Plant native trees and shrubs that are appropriate to the site and to the particular habitats present. Plantings will occur both in uplands and along that portion of the stream corridor that extends from Street A south along the west side of the path. Planting stock should be obtained from local seed or cuttings. Importation of plant material from distant sites or other ecoregions is discouraged because planting stock may not be adapted for the local site conditions, and may negatively impact genetics of local native species. A list of native species that could potentially be used is included in Attachment B with information about habitat and hydrologic requirements, and habitat values. Native trees and shrubs should be planted along the stream to enhance stream habitat and water quality. In upland areas, clumped and more widely spaced plantings will allow intermittent views from the developed area into the wetlands and vice versa, and protect additional site values associated with open habitats.

The proposed enhancement measures will improve habitat values in several ways. Exotic, invasive trees and shrubs currently impact much of the site and surrounding habitats by infilling valuable open habitats, displacing native plant and specialist invertebrate species and providing a seed source for infestation of other sites. Efforts to remove these species will open habitat for native species that will be planted to replace the exotics and will reduce their spread to surrounding habitats through dispersal by birds and other wildlife. While many of the exotic species provide some wildlife habitat values in the form of food, cover and nesting habitat, their overall impact on the site and surrounding areas is to reduce species and habitat diversity and to crowd out native plant species to which local wildlife species are adapted.

Streamside plantings of native trees and shrubs can have several beneficial effects on stream habitat, water quality, and downstream conditions in Oak Creek. Woody vegetation will shade the stream which will help to keep summer stream flow cooler. Dense roots of willows, creek dogwood and other riparian shrubs will help to knit the soil together to resist the erosive force of the stream and stabilize stream banks, resulting in less down cutting of the stream channel, and less sediment carried downstream. The network of roots also will filter sediment and pollutants, preventing or slowing their release into the stream. Downstream fish habitats will benefit from cooler, cleaner flows coming off the site.

Areas away from the stream will also benefit from plantings of native trees and shrubs. The plantings will increase habitat diversity on the site, especially if much of the remainder of the site remains in a relatively open (prairie) condition. Plantings of Oregon white oak, Valley ponderosa pine and a mix of native shrubs will provide structural diversity, food and cover for resident and migratory songbirds, small mammals, insects and other invertebrates. The plantings will partially screen the developed area from the wetlands and from more distant viewpoints. Dense patches of appropriately placed

shrubs can be used to restrict access from some parts of the wetlands to control impacts from human use.

According to the Oregon Natural Heritage Information Center (ORNHIC), no rare species have been documented on the site. A population of Nelson's checkermallow (*Sicalcea nelsoniana*, federal and state listed as Threatened) is documented along Harrison Boulevard approximately ¼ mile west of the Witham Oaks site. The agricultural history of the Witham Oaks site and the degraded nature of the habitats present in the proposed habitat enhancement area make it very unlikely that Nelson's checkermallow is present. The proposed enhancements are not anticipated to impact Nelson's checkermallow, or other rare species.

The total square footage of lots and portions of Street G cul-de-sac and Street A that are within the 50 foot buffer area is 25,347 square feet. We propose a 2:1 ratio of enhancement to impact. Per the attached map included in the Conceptual Habitat Enhancement Plan, the total area to be enhanced is 51,633 square feet.

Although a wetland mitigation plan has not been completed at this time, the enhancements outlined in this conceptual plan could be coordinated with and complementary to wetland mitigation activities on the site. For example, streamside plantings of native trees, shrubs and herbs could be extended north along the stream corridor through the developed area to the northern boundary of the development property providing connectivity to habitats in the City's open space parkland to the north. Also, if native prairie type habitats are specified in the mitigation plan, the woody vegetation planted for habitat enhancement will increase habitat diversity in an otherwise more open landscape.

In addition to the habitat values improved via implementation of the Habitat Enhancement Measures proposed above, the wetland system function and habitat values will be improved with the following:

- Improved treatment of storm water runoff prior to entering wetland area;
- Wetland mitigation activities conducted on site and which may include native plantings, creation of additional wetland area, and/or areas of wetland enhancement;
- Clean up of debris within the wetland area concurrent with development of the upland areas;
- Monitoring of the site (i.e., more "eyes" on the site) for prevention of illegal, unauthorized activities within the wetland.

Given the measures above, we have adequately mitigated any impacts to wetlands and wetland buffers that might have occurred without the implementation of the full 50 foot buffer and the realignment of Circle Boulevard.

Chapter 4.6.20.c Solar Access provisions for Planned Unit Developments

- ***reduced % of buildings with solar access at ground level.***

JUSTIFICATION: The standard for solar access currently applied to planned developments requires a minimum of 80% of the buildings with sufficient east/west dimension to allow the long axis of the building to utilize solar energy. As outlined above, the Land Development Code requires that planned unit developments provide the right to unobstructed solar access for at least four hours between 9am and 3pm on November 21 of each year. Furthermore, the code states that a minimum of 80% of the buildings in a PUD must have sufficient east/west dimension to allow the long axis of the building to utilize solar energy and designed so that solar access protection is available at ground level. A shadow study completed for this layout (EX 12.0-12.2) indicates the following:

- at 9 am, 67% of the proposed homes have an entire wall exposed to the sun.
- at 12 pm, 84% of the proposed homes have an entire wall exposed to the sun.
- at 3 pm, 67% of the proposed homes have an entire wall exposed to the sun.

On average, over the course of the 6 hours during the middle of the day on November 21st, 73% of the homes have an entire wall exposed to the sun. Of the 221 homes, approximately 125 (over 56%) of the lots are primarily oriented such that the long axis of the building is on an east-west axis and could utilize solar energy (via roof panels). 78 or 26% of the lots are oriented in such a manner that the front or rear of the house has southern exposure and the long axis runs in a north south manner. Most often it is the front and rear portions of the house that have the greatest window coverage and ability to for solar gain. Many of the lots are on an angle between the north-south and east-west axis and therefore could benefit from front/rear solar gain and solar panels on the roofs. Nonetheless, the site plan does not meet the solar standard.

Alternatively, the new forthcoming Phase 3 update to the Land Development Code (to be adopted Dec 31, 2006) modifies the solar access standards to consider solar access based on a minimum of 30 lineal feet of a dwelling gaining solar exposure at the ground floor. As noted above, based on the current layout and building setbacks, 73% of the homes will have an entire wall exposed to the sun during the hours between 9am and 3pm on November 21st. Given the lot widths and setbacks, these homes will have at least 30 lineal feet of wall gaining solar exposure, consistent with the forthcoming standard.

The requested waiver from the solar standard for the proposed Planned Development is appropriate and balanced by the following benefits:

- Over 54% of the site has been placed in open space, thereby minimizing the developable portion of the site, consolidating the development pattern, and allowing greater protection of the site's natural resources.
- 37% of the lots are either below 5,000 square feet in size (the underlying zoning standard) or attached townhomes. This allows a range in lot sizes, dwelling types and the retention of large areas of open space,
- The shape the site sets the east west street grid pattern given the north south orientation of Circle Boulevard and minimal distance for east west connecting streets.

- The topography is such that the north end of the site requires an east-west street orientation to maintain adequate street grades and preserve the northern portion of the site in open space.
- The central and southern portion of the site creates lots that are primarily oriented on the east-west axis such that the long axis of the building can utilize solar energy.

To balance the energy issue, Legend Homes, the homebuilder for the development, will build the homes to an Earth Advantage Certified standard which means the homes will exceed the minimum UBC energy efficiency standard by 15%. Please refer to the Earth Advantage program information attached as Exhibit I. Additionally, individual home owners will have the ability to further their solar energy utilization through the application of solar roof panels. Given the fact that 56% of the homes will be oriented in such a manner that the long axis of the building (and roof) is primarily on an east-west grid, panels could be utilized on these homes as well as the homes on a more diagonal axis.

Upon annexation, 39% of the site was placed in Open Space-Conservation zoning. The proposed detailed development plan adds another additional 15% to open space areas, thereby providing 54% of the site in open space. The purpose of this was to provide permanent protection of significant natural features, additional enhancement areas for the wetlands; and to provide some usable open space within the development for additional walking trails and pocket park areas. The result of this planning effort is a site that provides the community with a larger benefit of permanent open space and protection of its significant natural resources. The disadvantage is that is creates a site plan with a significantly reduced developable area. When developable area is reduced, constraints on how the land is laid out have greater impact, necessitating some creative planning for circulation, lot sizes, lotting pattern, density, etc. The site plan creates a gross density of only 2.3 units to the acre, which is just above the minimum density requirement for this site. If a larger developable area had been created, lots could have been larger, making the solar standard easier to achieve. If all the lots were bigger and oriented in such a manner to have the front or rear of the house maximize solar gain, higher housing costs and less open space would result. In summary, the Planned Development process strives to achieve balance between competing goals. While significant open space was achieved with this site, solar access is slightly compromised. Individual home owner choices could further the solar potential on this site.

We feel that 54% of the site in open space is a greater long term benefit to the community. Most of the homes have an entire wall exposed to the sun for 6 hours during the day. Solar access is achievable on individual homes via roof panels. Energy efficiency is achieved through more stringent self imposed building standards than required by the Uniform Building Code. As such, preservation of natural features, additional open space, walking trails and homes will be built to Earth Advantage standards is sufficient mitigation and provides adequate balancing of goals for the site.

Chapter 2.5 Planned Development
Section 2.5.40.04 - Review Criteria

Requests for approval of a Conceptual Development Plan shall be reviewed to assure consistency with the purposes of this chapter, policies and density requirements of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council. In addition, the following compatibility factors shall be considered:

- ***Basic Site Design;***
- ***Visual Elements;***
- ***Noise Attenuation;***
- ***Noxious Odors***
- ***Lighting;***
- ***Signage;***
- ***Landscaping for Buffering and Screening;***
- ***Traffic;***
- ***Effects on off-street parking;***
- ***Effects on air and water quality.***

Basic Site Design: The 57.75 acres of developable area is generally limited to the center of the site with the Open Space-Conservation areas surrounding the development area to the north, northwest, east and south. 54% or 51.42 acres of the total site are preserved as open space, either via Comprehensive Plan designations of Open Space Conservation or in common open space tracts. Within the developable area are 221 single family lots, 23 of which are attached homes and 198 detached homes. Lot sizes range in size from 3,328 to 12,899 square feet. The attached townhomes are located on both the east and west sides of the proposed Circle Boulevard extension. The distribution of lot sizes is fairly even with approximately 37% of the lots being below 5,000 square feet, 30% of the lots between 5,000- 6,000 square feet, and 33% of the lots over 6,000 square feet in size. The larger lots tend to occur on the boundary with the Open Space-Conservation areas so as to provide more transition from the smaller lots sizes on the interior of the site.

Circle Boulevard is proposed to be extended from its current southern terminus on the north end to Harrison Boulevard to the south. We are proposing moving the right of way for Circle Boulevard from the center of the site on the south half of the property to the east so as to avoid wetlands. At the northeastern edge of the site, are 8 attached single family homes and 6 detached single family homes served by a dead-end local street "A" off Circle Boulevard. This street is dead ended to allow for more open space and preservation of a small view corridor between our site and the property to the north owned by Gloria Chaves. Additionally, we are pursuing a lot line adjustment with Mrs. Chaves along this northerly property boundary to allow for future access to Mrs. Chaves property when future redevelopment on her property occurs. As noted in Exhibits 9 and 11, the area subject to the lot line adjustment will allow an access drive to be aligned with Street B. It is anticipated that this lot line adjustment will be submitted in January of 2007. Should this lot line adjustment be approved it will reduce the total amount of open space in this area by 8,232 square feet, which is a reduction of only 0.004% of the total open space on site.

Across Circle Boulevard to the west are 15 single family attached homes that are separated from Circle Boulevard by both the 12 foot multi-use path and Tract F which will accommodate the open drainage way, associated plantings, and a trail. The lots are accessed by local streets I and C and have a trail that roughly splits these townhouse lots into two separate groups and connects to the multi-use path along Circle Boulevard. At the north end of the site, where the property gains elevation and adjoins the Open Space Conservation area to the north, are larger lots that are served by street D that roughly parallels the Open Space Conservation boundary. The first Circle Boulevard intersection (Street B) from the north end is approximately 350 feet south of the centerline of the intersection of Circle Boulevard. with Dale Drive. The streets in this northern section run primarily in an east-west direction due to the topography, maximum street grade requirements and the boundary of the open space area.

Within this general northern area is a grouping of large mature Oregon White Oak trees that have been preserved within Tract C, with a soft surface trail connection through the site. The trail connection continues between lots 13 and 14 across the street to the northwest to provide access to the City's Witham Hill Natural Park to the north. The preservation of the oak trees is supported by a survey (Exhibit 5 and arborist report Exhibit G) that identifies the tree species, diameter at breast height and general health of the tree. Last winter, the large 65" oak tree located on the area that is now utilized as lot 172, fell down. All other trees within this area remain. The trail will be field located to ensure protection of the oaks.

Consistent with Comprehensive Plan policies relative to the West Corvallis-North Philomath (specifically 13.12.6 and 13.12.18) the site preserves large amounts of open space to preserve the Oregon white oak trees and the wetlands along Harrison Boulevard. This site plan defines and protects the open space areas from the residentially developed areas. Preservation and enhancement of the wetland area maintains a natural corridor or gateway to the city along Harrison Boulevard.

As the development extends down the hill, the grades become less steep and the lot sizes begin to decrease to accommodate a different house size. The "perimeter" street follows the open space area along the west side of the site in a north-south direction and then turns to an east-west direction along the southern portion of the site to run along the wetlands. Lots 31 to 43 have Tract E between the rear of the lots and the adjoining OSU property, with a landscaped buffer behind lots 34-43 to address issues of incompatibility due to the adjacent agriculturally-based uses and to meet the requirement for such buffering as outlined in Chapter 3.37 AG-OS zoning district. In the center and southern portion of the site, the majority of the blocks run in a north-south direction as topography allows. A second intersection (Street A) with Circle Boulevard is provided approximately 600 feet south of the centerline of the northerly intersection (Street B). Within the central portion of the site are several smaller open space areas that provide a visual break from the lotting pattern, additional open space areas and an east-west trail connections from the western terminus of street A through the site to Street D. This

allows for pedestrians to travel westerly through the site in open space tracts to minimize out of direction travel and meet the intent of the block length standard.

The 12-foot multi-modal path will stay in its current location through the southern half of the site and then be realigned in the northern half to reduce conflicts with the extension of Circle Boulevard. It will stay on the west side of Circle Boulevard until it reaches the northerly intersection, at which point it will cross Circle Boulevard at the north end of the intersection with Street B to connect with the existing path on the east side of Circle to the north. Where the multi-modal path terminates at the south end, it will be reduced to be 10 feet in width and redirected to the west where it will terminate at our property boundary. From the multi-use path terminus at Harrison Boulevard, a 5-foot sidewalk will extend to the east to connect to Circle Boulevard.

Pedestrian accommodations are made via the following provisions:

- Sidewalks are provided on both sides of the street, excepting the lower half of Circle Boulevard from Harrison Boulevard to Street A and Street A on the east side of Circle from the corner of lot 221 to the corner of lot 208.
- Realignment of northern ½ of 12-foot multi-modal path through site. The path will stay in its current location until it meets its intersection with Street A. From here it will remain on the west side of, and parallel to, Circle Boulevard and then cross Circle on the north side of the intersection with Street B, where it will continue up to its connection with the existing location on the east side of Circle to the north.
- A 10-foot hard surface trail from Circle Boulevard to Arnold Park, between the existing Latter Day Saints Church and the 5 acre parcel to the north.
- A 5-foot hard surface trail from the 12-foot multi-modal path along Circle Boulevard to Street C, between lots 164 and 165.
- 5-foot hard surface trail connection from Street D to Tract A between lots 13 and 14. From the back of these lots it will then become soft surface through the open space area to the north where it adjoins the City's Witham Hill Natural Area Park to the north.
- A 5-foot hard surface trail from the westerly terminus of Street A through Tracts I and J for connection to Streets F and D.
- 5-foot soft surface trail from Street C to Street D through Tract C.
- 5-foot sidewalk along Harrison Boulevard from the 12-foot multi-modal path terminus at Harrison Boulevard to the easterly property boundary.
- 10-foot multi-modal trail along Harrison Boulevard to the west property boundary.
- Two areas have been created between lots 3 and 4 and 30 and 31 to allow unimproved trail access to the open space areas. These are areas to be left in their natural state with no improved landscaping proposed. The intent of these areas is to allow some pedestrian movement to and from the open space areas.

In July 1996, the West Corvallis-North Philomath Plan was completed which developed a framework for future development on the west side of Corvallis and north of Philomath. The subject property is within this area. The plan was based largely on the desire for

defined urban areas, the protection of and planning for open spaces, pedestrian oriented neighborhoods that provide for a mix of housing, development that is sensitive to the natural environment, and interconnected transportation systems.

The proposed development plan includes approximately 54% of the total site as open space, either in natural open space areas identified as Open Space Conservation on the Comprehensive Plan, or within the PD (RS-6) zone but set aside as common open space tracts. The amount and location of the open space areas provide a natural transition to the more developed residential areas to the north and east and the agricultural based OSU lands to the west and south. With the exception of the town homes on the east site of Circle Boulevard, the site plan offers larger lots on the north and southern boundary of the developed portions of the site to provide a natural transition from the Open Space-Conservation areas and the smaller lots on the interior of the site. The town homes are separated from the existing residential development to the east by a minimum of 30 feet of elevation change and approximately 200 feet of horizontal distance. Additionally, within Tract K are existing trees and shrubs that we plan on retaining as they exist today based on neighborhood comments and requests at our 2 neighborhood meetings. There will be a visual contrast between the preserved treed areas and wetlands from the residentially developed portions of the site. The layout respects the natural terrain via the street layout, grading proposals and placement of the steepest slopes in Open Space Conservation designation.

Grading: Comprehensive Plan Policy 4.6.7.a calls for development to fit the topography of the site. As can be seen on Exhibit 6.0 portions of the site contain slopes in excess of 20% grade. As demonstrated on Exhibits 17.1 and 17.2, the development steps down the hillside to the greatest extent practicable given the limitations on street grades, preservation of opens space and significant trees, street connectivity, and individual lot development needs. More specifically, the area of Circle Boulevard from about 120' south of Street "A" to the southern edge of Street "B" is proposed to be raised in elevation in excess of 8' to address a myriad of potential design, public safety, and functionality issues that would not otherwise exist:

1. The alignment of Circle Boulevard through this area (existing as well as proposed) resides in the low point of the existing drainage channel, bounded to the east and west by slopes exceeding 20% in some places. Furthermore, the existing channel has a bottom slope approaching 6%, exhibiting velocities and potential for scour that would create the need for heavily armored embankments and would pose a hazard to the public during times of heavier rainfall. Elevating Circle Boulevard through this proposed area of higher population will reduce (normalize) the flow within the channel to approximately 2.1%, minimizing velocities and the potential for scour. This 2.1% grade will also provide a gentler grade for the multiuse path through the area closest to the proposed channel realignment, providing an additional measure of safety for those using these facilities, also allowing the channel to have a broader aesthetic appeal.

2. If left at current grade, roadways intersecting Circle Boulevard (Streets "A" and "B") would be forced to cut deeply into the existing hillside in order to meet safe stopping sight distances, and to create intersections that will meet current A.D.A. design criteria. Even with deep cuts, these streets would still exhibit grades nearing the maximum allowable 15%. With the elevation of Circle Boulevard, these streets intersecting Circle Boulevard will now have approach grades between 2% and 5.3%, and intersection designs can meet and comply with A.D.A. and City of Corvallis requirements for safety and accessibility.

Lots are created to provide for adequate room for a house and small amount of yard space within the rear of the lots. For the most part, the stepped down grading occurs on lots that fall within the steepest areas of the site or lots just outside these areas so that the grading can "catch" up to the topography. Lots 10-36, 53-64, 123-128, 172-180, 192-199 have more grading at the back of the lot. This lowers the home from the adjoining open spaces along lots 10-36, providing a greater aesthetic transition between the AG-OS areas and the individual lots/homes by reducing the height of the homes on the lots. This is intended to provide for usable yard transition from the steeper open space area at rear of the lot or to provide a defined transition down the hillside. Without the grading at the rear of the lot, the driveway would be much steeper and the homes would have a garage that is under the house, requiring the homeowner carrying small children, groceries etc, to navigate stairs up into the house from either the street or the garage. It adds significant cost the construction of the home, which is ultimately passed on to the homeowner. This is counter productive to the goals that are intended to provide housing at reasonable costs, choices in the market place and economic vitality. We have heard loud and clear from homeowners that garages under the houses are neither desired nor affordable. While we understand the city's goal in stepping the lots down, we have provided the stepping down at the rear of the lot as opposed midway through lot, which forces this transition at the front of the house. However, in an effort to address Comprehensive Plan Policy 4.6.7.a and provide for a variety of housing styles, we have stepped lots 181-190 and 200-205 down midway through the lot to provide houses that have a walkout basement.

In general, the 8' cut and fill standard is primarily found in the area along and adjacent to Circle Boulevard from behind lot 2 to the south through both Streets A and B. Other areas exceeding this standard are located in portions of lots 23-26, 28-29, 31-34, 59-62, 172-175, 181, and 201-204. Overall, only a small percentage (3.5%) of the grading on the lots exceeded the 8 foot rule. The greatest cut is 14.6' on Lot 19, and the greatest fill is 12.6' on Lot 159. Pursuant to the forthcoming Land Development Code Chapter 4.5 provisions for hillside development, allowing cuts/fills to exceed the 8 foot standard is appropriate on steeper hillsides when street and pedestrian alignment is necessary or connections are needed per the City's adopted Transportation Plan and there are protections for significant natural features. We are requesting the ability to exceed the existing 8 foot standard to extend Circle Boulevard at a desirable grade, make appropriate local street connections, meet block perimeter standards, provide trails and protect significant Oregon White Oaks. With Planned Developments, reasonable deviations from the underlying standards are justified provided an overall benefit is achieved by

allowing such deviations that wouldn't otherwise be possible with a standard subdivision. We have tried to minimize the areas that exceed the 8' foot standard while providing 54% of the site in open space, extending trail connections, providing a range of lot sizes and housing types to meet and balance other goals desired by the City's Comprehensive Plan.

Visual Elements: Visual elements of a development plan are found in a variety of features: layout, landscaping, and architectural styles. The layout is described above. Landscaping is addressed in the Landscaping Section below.

Architectural Elements of the houses: We are proposing two housing types: detached and attached single family residential. These homes may be a combination of single, single and ½ and two-three story homes to provide a variety of development patterns, housing styles, price ranges, and floor plans (please refer to Exhibit H for examples of the typical house elevations). The three story homes are for those lots in the north where there may be a walk-out basement on a terraced lot (lots 200-205 and 181-190). Additionally, there may be homes that are on side slopes with garages under the above stories. While not yet adopted, the forthcoming Land Development Code addresses visual elements and human-scale development patterns. The homes to be built within the proposed development will substantially conform to menu items listed in the yet-to-be-adopted Pedestrian-Oriented Design Standards of Chapter 4.10. The homebuilder has not yet designed the houses, as it is premature in the process to do so. However, with respect to building orientation and privacy as identified in the Code Update, we propose that each home will incorporate the following:

Building Orientation, Privacy and Facades:

- homes that will be oriented toward and have primary entrances facing the street
- side yards that will exceed 3 feet so as to ensure privacy
- Garages that meet the standards outlined below

In order to address visual/street façade issues consistent with the forthcoming Pedestrian-Oriented Design Standards, we propose that each home contain at least three of the following features:

Menus for Pedestrian Features and Design Variety:

1. Covered front porches with a minimum dimension of 36 square feet;
2. A minimum area of 20 percent windows and/or dwelling doors on facades (including garage facades) facing streets, sidewalks, and multi-use paths;
3. 2 different types of building materials such as rock and/or brick column bases and horizontal lap siding;
4. A minimum of 2.25-inch trim or recess around windows and doors that face the street;
5. Increased roof pitches most likely between 8:12 and 10:12;
6. Eaves with a minimum 18-inch overhang;
7. Architectural details such as beam ends, eave brackets, windows with grids or divided lights, or pergola/trellis work integrated into the building façade for windows, nooks, dormers, eaves, etc.

Please see the attached examples (Exhibit H) of homes which contain some of the above listed features. These do not represent the exact homes that may be constructed on site, rather are intended to present visual examples of common features which comply with the above provisions.

Garage Door Orientation: The City of Corvallis' Comprehensive Plan policy 9.2.5.j (listed above) states that domestic garages are to be located behind houses or otherwise minimized (e.g. by setting them back from the front façade of the residential structure.) The current Land Development Code contains no specific standards that apply this policy. Within the last two years, the Planning Commission has been interpreting this policy through the application of specific garage standards in developments such as Willamette Landing. The Planning Commission approved a menu of garage options that were found to meet the intent of the Comprehensive Plan policy relative to garage minimization. We support this policy and proposes explicit garage door orientation standards to balance the following objectives: (1) create an attractive human-scale pedestrian environment (2) minimize the garage appearance relative to the house, and (3) provide variety in the neighborhood street scenes. To achieve the objectives, the following minimum garage standards are proposed. We propose that all the garages shall meet a least one of the following four criteria:

1. The garage shall be oriented toward a rear or side public street;
2. The front of the garage shall not project any closer to the street than 2-feet behind a minimum 10-foot wall of living area of the home facing the street;
3. The garage shall be recessed a minimum of 4 feet behind any habitable living space of the residence, OR, if the garage is flush with or in front of the house a maximum of four feet, a covered porch shall extend a minimum of 6 feet from the face of the house and be a minimum of 36 square feet.
4. The garage door(s) shall be oriented away from the street at a minimum 90 degree angle (side loaded garage). The side wall of the garage facing the street must have at least 15% of its area as windows. A side-loaded garage is defined as a garage whose doors open at a 90 degrees or greater angle to the front street.

The homes proposed will include detached and attached single family residential homes on a variety of lot sizes. Together, the variety of housing types and lot sizes will provide for a varied streetscape and a pedestrian friendly environment. Front yards will be landscaped in a typical residential fashion with grass, groundcovers, shrubs and ornamental trees. Street trees will be planted within the planter strip between the street and sidewalk,

Noise Attenuation: Site construction will create temporary noise associated with the operation of equipment. Long term noise will be typical of residential development, as found in the surrounding neighborhoods. No additional mitigative measures are necessary.

Noxious Odors: Noxious odors generated on site will be typical with residential development. Homes will be constructed to meet or exceed Uniform Building Standards. No additional mitigative measures are necessary.

Lighting: Homes will have downward shielded lighting so as to not create glare on adjoining properties. Intersections will be lighted with shielded or downward facing lighting so as to reduce the amount of glare projected on neighboring homes.

Signage: Free standing, monument signage will be placed at the northwest corner of the Circle Boulevard intersection with Harrison Boulevard. Sign materials will be composed of manufactured stone or other brick type materials, with integrated landscaping components. More specifically, the architectural structure upon which the signage will be attached is a maximum of 7 feet 2 inches tall and is approximately 41 ½ feet long. A landscaped planting "bench" area runs along the majority of the face of the structure for an overall length of 34 feet 8 inches. This bench area is up to 5 feet deep to accommodate ornamental plantings and to help break up the mass of the structure. The shape of the structure is linear but in somewhat of a u-shape with the two "wing" areas that are approximately 13 feet long extending off the main face of the structure at roughly a 45 degree angle. Please refer to Exhibit J for a graphic representation of the proposed structure.

Section 4.7.90.01 of the Land Development Code limits signage in a residential district to total of 16 square feet. It is requested that a variance be approved that would allow for an additional 4 square feet of signage area. Because the final name of the subdivision is not yet determined (final approval is subject to both city and county staff review to avoid duplication of names) it is requested that the total sign area be allowed to be 20 square feet. This should allow adequate room for lettering if a longer name is chosen/approved.

It is anticipated that some lighting may occur with the monument signage. Should lighting be installed, it will be directed away from the street and line of vision of motorist to reduce safety conflicts. Please refer to the variance section below for a more detailed description of the sign plan variance requested.

Landscaping for Buffering and Screening: Much of the site will be left in Open Space – Conservation tracts, and will be managed to protect and enhance the existing native environment. However, tracts A and C are primarily intended to serve as Oregon White Oak preserve areas. For tract A, subsequent to all land use approvals associated with this application, we propose dedicating much of this area (and the wetland) to the City of Corvallis. In doing so, a mutually agreed to management plan completed by a third party specialist will be prepared and used for long-term management of this area. For Tract A, these practices will most likely mimic work that has already been initiated in the Witham Hill Natural Area park, which includes the removal of non-native and native invasives that threatened the viability of the oaks. Examples of such species are Douglas fir trees, cherry, hawthorn, holly, blackberry, etc. Should the city not agree to receive this area as a donation, maintenance responsibility of the open space areas will be turned over the Home Owners Association. Maintenance and use provisions of these areas, as well as all

other common open space tracts, will be clearly spelled out in the CCRs that are recorded with the final plat. Additionally, as it typically done, the face of the final plat will list the open space tracts use and maintenance responsibilities.

With tract C, this tract is to be owned and maintained by the HOA, with the goal of protecting the Oregon White Oaks. While removal of underbrush and larger competing non-native plants (scotch broom, trees, blackberries etc) will occur to further protect the long term viability of these native oaks, some seed mix (Protime Ecology mix – Exhibit K) for groundcover will be spread to add an desired aesthetic. No irrigation will occur in this area, and the seed mix that is proposed will be spread in the spring while temperatures are warmer and rainfall is present to aid in germination. As noted above, the large 65" oak that was standing in the area where lot 172 is now located fell last winter (2005) Please refer to Exhibits 18.1 and 18.4.

Tract M is mostly comprised of wetland and Open Space Conservation open space, to be retained for the most part in it's natural state. Some areas that are outside the wetland boundary will be utilities for storm water facilities. All landscaping associated with any storm water facilities will be required to comply with King County standards, as adopted by the City. Additionally, some wetland mitigation will occur on site due to the wetland fill areas associated with the Circle Boulevard extension. Wetland mitigation work may include some native and wetland plantings that could serve to further enhance the vegetation in this area. Plantings proposed will be reviewed and approved by the Oregon Dept. of State Lands (DSL) and the Army Corps of Engineers.

Landscaping along Circle Boulevard will include large canopy street trees within the landscape planter strips and riparian tolerant plantings along the open drainage channel that parallels Circle Boulevard on the north end. All local internal streets will be landscaped with medium canopy street trees planted in coordination with utility and street tree spacing requirements. Front and rear yard landscaping will be typical of residential development and may include ornamental trees, grass, shrubs, perennials and annuals.

Please refer to Exhibits 18.0 – 18.4 which graphically represent the proposed planting plan for common open space tracts and street trees.

Traffic: We propose the extension of Circle Boulevard to the intersection with Street A with the first phase of development. A graveled drive with an approved (locked or breakaway) gate will be extended with the first phase from Street A to Harrison for construction traffic and emergency response crews. The remainder of Circle Boulevard will be extended with the Phase 3. Harrison Boulevard improvements are proposed to occur with Phase 4.

A Traffic Impact Analysis was prepared for the project and it included with the report (Exhibit A). In summary, the TIA analyzed several intersections affected by development of the site, including the extension of Circle Boulevard to Harrison Boulevard. The intersections included in the scope of the analysis were identified and approved by the City of Corvallis based on city policy for appropriate distances from the

development site. The findings of the report state that the intersection of Circle/Witham Hill is expected to operate at a level of service (LOS) E during AM peak hours under 2009/2010 with Phase 3 and a LOS of F with 2010/2011 anticipated build scenarios. A LOS F is expected for both AM and PM peak hours under 2027 Build Conditions. A mitigation measure to address these deficiencies is to signalize the intersection by 2009 with Phase 3.

The TIA also found that the Harrison Boulevard/29th Street intersection is expected to operate at LOS E during the PM peak of the 2027 no build scenario. In other words, with our without our development, this intersection will experience a LOS E during the PM peak hours in 2027. The following recommendations have been prepared to address the operational deficiencies identified with the analysis:

- Signalize the intersection of Circle/Witham Hill Drive by completion of Phase 3 (A+B) or 3A in 2009.
- No mitigation is recommended for the intersection of Harrison Boulevard and 29th Street since volume reduction from diverted trips to Circle Boulevard extension improves the operation of the intersection to an acceptable LOS.

Please refer to the attached Traffic Impact Analysis for a more detailed description of the intersections studied, anticipated impacts and proposed mitigation.

Effects on off-street parking: Consistent with the Land Development Code, each home will provide for 2 off-street parking spaces. On street parking will be provided via local streets. No additional mitigation is necessary.

Effects on air and water quality: The proposed development is not expected to generate air impacts beyond that of other typical residential developments. Typical air quality impacts include air conditioning and heating unit exhaust and smoke and odors associated with outdoor cooking facilities such as barbeques. Exhaust from vehicles will also be added. None of these are anticipated to reach beyond the levels anticipated for residential development of this size and density.

With respect to water quality, please refer to the detailed discussion of storm water under the Tentative Subdivision Plan *Storm Drainage* section below.

Please refer to the attached Storm water report (Exhibit B) and subdivision section below for a more detailed description of how storm water will be treated. Homes will be constructed with elements and features that meet or exceed Uniform Building Code standards.

There is an existing well on site, a remnant from the original homestead. This well will be abandoned per the standards and practices required by the State Dept. of Environmental Quality.

We are also requesting the ability to grade beyond the limits of the individual phases so that overall a balanced cut and fill can occur. As is current practice, grading is typically limited to the phase boundary of that particular platted phase. If we are not allowed to do this, we will be importing soil with some phases (Phase I) and exporting soil in others (Phase 4). Our request is intended to reduce the number of construction trips in and out of the site with heavy equipment, thereby reducing development costs and potential traffic issues. Our Erosion and Sediment Control Plan would cover the areas to be expanded to so that all precaution is taken to minimize soil erosion and sediment transport. No additional mitigation is necessary.

SUMMARY CONCLUSIONS FOR CONCEPTUAL AND DETAILED DEVELOPMENT PLAN: The proposed development plan meets the purposes and standards for both Conceptual and Detailed Development Plans. The deviations requested allow for innovative site planning and a balancing of goals overall. The site plan achieves a rare standard of over 54% of the site in permanent open space. The proposal meets the purpose and intent of a Planned Unit Development and the overarching goals of the City of Corvallis Comprehensive Plan.

Applicable Comprehensive Plan Policies: (Please refer to the Detailed Development Plan for a more detailed listing of applicable Comprehensive Plan policies)

3.2.1 *The desired land use pattern with the Corvallis Urban Growth Boundary will emphasize:*

a. Preservation of significant open space and natural features;
b. Efficient use of the land;
c. Efficient use of energy and other resources;
d. Compact urban form;
e. Efficient provision of transportation and other public services; and
f. Neighborhoods with a mix of uses, diversity of housing types, pedestrian scale, a defined center, and shared public access.

9.2.5 *Development shall reflect neighborhood characteristics appropriate to the site and area. New and existing residential, commercial, and employment areas may not have all of these neighborhood characteristics, but these characteristics shall be used to plan the development, redevelopment or infill that may occur in these areas. These neighborhood characteristics are as follows:*

a. Comprehensive neighborhoods have a neighborhood center to provide services within walking distance of homes Locations of comprehensive neighborhood centers are determined by proximity to major streets, transit corridors, and higher density housing. Comprehensive neighborhoods use topography, open space, or major streets to form their edges.
b. Comprehensive neighborhoods support effective transit and neighborhood services and have a wide range of densities. Higher densities generally are located close to the focus of essential services and transit.
c. Comprehensive neighborhoods have a variety of types and sizes of public parks and open spaces to give structure and form to the neighborhood and compensate for smaller lots and increased densities.
d. Neighborhood development provides for compatible building transitions in terms of scale, mass, and orientation.
e. Neighborhoods have a mix of densities, lot sizes, and housing types.
f. Neighborhoods have an interconnecting street network with small blocks to help disperse traffic and provide convenient and direct routes for pedestrians and cyclists. In neighborhoods where full street connections cannot be made, access and connectivity are provided with pedestrian and bicycle ways. These pedestrian and bicycle ways have the same considerations as public streets, including building orientation, security-enhancing design, enclosure, and street trees.
g. Neighborhoods have a layout that makes it easy for people to understand where they are and how to get to where they want to go. Public, civic and cultural buildings are prominently sited. The street pattern is roughly rectilinear. The use and enhancement of views and natural features reinforces they neighborhood connection to the immediate and larger landscape.
h. Neighborhoods have buildings (residential, commercial and institutional) that are close to the street, with their main entrances oriented to the public areas.
i. Neighborhoods have public areas that are designed to encourage the attention and presence of people at all hours of the day and night. Security is enhanced with a mix of uses and building openings and windows that overlook public areas.
j. Neighborhoods have automobile parking and storage that does not adversely affect the pedestrian environment. Domestic garages are behind houses or otherwise minimized (e.g. by setting them back from the front façade of the residential structure.) Parking lots and structures are located at the rear or side of the

buildings. On-street parking may be an appropriate location for a portion of commercial, institutional, and domestic capacity. Curb cuts for driveways are limited, and alleys are encouraged.

k. Neighborhoods incorporate a narrow street standard for internal streets which slows and diffuses traffic.

l. Neighborhood building and street proportions related to one another in a way that provides a sense of enclosure.

m. Neighborhoods have street trees in planting strips in the public right-of-way.

11.6.13 (PEDESTRIAN) New commercial and residential development shall generally provide for a maximum block perimeter of 1,500 except where is would negatively impact significant natural features.

Applicable Land Development Code Criteria:

Section 2.4.30.04 – Review Criteria

Requests for approval of a tentative subdivision plat shall be reviewed to assure consistency with the purposes of this Code, pertinent development standards of the Code including Chapters 4.0 – Improvements Required with Development; 4.1 – Parking, Loading, and Access Requirements; 4.2 – Landscaping, Buffering, and Screening; 4.4 – Land Division Standards; and 4.5 – Flood Control and Drainage Provisions; and density requirements of the Comprehensive Plan.

Water Service: This site is located within the City's first, second, and third level water service areas. First level water service is available from a 20-inch line located along Harrison Boulevard. This line runs along the entire south frontage of the site. Level one water would extend northward on Circle Boulevard. approximately 500', but would not be used for any domestic service within Witham Oaks or any currently developed properties. The majority of the development in this application is located within the second level water service area.

The City has constructed a 16-inch, 2nd level waterline with the extension of Circle Boulevard to the northeast. This waterline extension has been looped to the existing 8-inch waterline in Dale Drive. Second level water service also exists to the southeast from an existing 6-inch line in Elizabeth Place. While there is an existing City of Corvallis easement running toward Elizabeth Place, a connection cannot currently be made without additional easements through existing residential properties. Development of our site can occur without this easement. However, in order for this general area to meet the City's adopted Water Distribution System Facility Plan, the city would need to obtain the above described easement.

Based on preliminary site plans, the only use of level 1 water will be for fire hydrants located along the southern end of Circle Boulevard, or on Harrison Boulevard adjacent to our site. Second level service would be extended from an existing 16" second level water line at the intersection of Dale Drive and Circle Boulevard. The level 2 system could be looped if a connection were provided to an existing line dead-ended in Elizabeth Place. We will extend a 12-inch line easterly from the property line toward Elizabeth Place, and will terminate at the end of an available City of Corvallis easement to provide a future connection point. The existing 8-inch line in Dale Drive is currently connected to an existing 16-inch line, and will not be changed. Third level water is

available, if needed, by extending a connection to an existing 8-inch distribution system within the apartment complexes to the north. Third level water may only be required to serve possible 2nd floor taps in lots to the extreme north of the site. A true determination will be made during final engineering, when floor-plans are matched to precise water models.

Sanitary Sewer Service: An existing 12-inch sanitary sewer traverses the site from north to south. This sewer connects with another existing 12-inch line along Harrison Boulevard, and continues to the city grid to the east.

The existing sewer line is sufficient to adequately serve new residential development on the site, however additional facilities will need to be installed to comply with the City's "to and through" policies.

When developed, a network of gravity lines constructed within the local streets would serve homes on this site. These lines would gravity flow to the 12-inch sanitary sewer traversing the site. All sewer lines would be constructed in conformance with adopted City standards. Access to all sanitary sewer manholes would be provided within street rights-of-way or public utility easements.

Storm Drainage: The following information on the proposed storm water management plan was provided by our Water Resources Engineer, Scott Ferre with Otak, Inc: In accordance with the City of Corvallis water quality design standards, the 1998 King County Surface Water Management Manual (KCSWMM) was referenced for water quality facility selection and design. The Oregon Department of Environmental Quality (DEQ) Document titled *Storm water Management Plan Submission Guidelines for Removal/Fill Permit Applications Which Involve Impervious Surfaces* from July, 2005 was referenced to develop the storm water management plan for the proposed development.

Background: The Witham Oaks Development is proposed for construction upstream of an existing wetland area which falls under the jurisdiction of the Oregon Division of State Lands (DSL). DSL can require existing wetlands to be preserved, or mitigated if they are impacted by development. The water quality plan for Witham Oaks has been designed to meet City of Corvallis and DEQ water quality guidelines, and to meet DSL requirements for the wetland areas through careful selection of water quality facility discharge locations.

The three primary concerns associated with runoff from the proposed Witham Oaks development include:

- Pollution such as sediment, bacteria, fertilizers, pesticides/herbicides, grease and oils
- Increased wetland water surface elevations resulting in inundation and destruction of wetland habitat and vegetation.

- Decreased wetland water surface elevations resulting in drying up and destroying wetland habitat and vegetation.

Water quality facilities will be used to treat runoff for pollution and to help condition runoff prior to discharge to downstream systems. Increased wetland water surface elevations could occur from increased runoff resulting from an increase of impervious area associated with the development. Decreased water surface elevations could occur due to infiltration and overland flows being cutoff by impervious surfaces and collection/conveyance systems that concentrate flows and discharge them to single outfalls. This could prevent water from spreading out and flowing through parts of the wetland.

Proposed Water Quality System Overview: Runoff generated by the proposed development will be collected and conveyed by a series of catch basins, pipes, and open channels for conveyance to water quality facilities. Water quality facilities are designed to treat flows prior to discharge to the wetland area. Once flows are treated the water quality facilities will discharge flows along the upstream wetland boundary in a manner that flows will be spread out over the wetland area to help maintain existing condition wetland water surface elevations throughout the entire wetland area. This will be accomplished by utilizing flow spreaders located along the upstream boundary of the wetland.

As treated water flows overland through the wetland area, water will infiltrate, evaporate, and store in vegetation and soil depressions, and in the existing shallow pools that develop in portions of the wetland area as it does today. Excess runoff not captured by the wetland area will flow through the wetland to an existing ditch and into storage areas downstream and outside of the existing wetland area. These storage areas will regulate the release of excess flows to the downstream system as described later in this report.

Methodology: A method was needed to address the possibility of the proposed development impacting water surface elevations of the existing wetland area and to help design storage areas to regulate increased flows. The software model XP-SWMM, Version 10, was selected to evaluate possible wetland water surface elevation impacts. Both existing and proposed condition modes were developed.

The XP-SWMM models were developed using two model layers. Flows were calculated in the model's runoff layer using the Santa Barbara Urban Hydrograph method and an SCS Type 1A storm distribution. Precipitation depths for 24-hour events were obtained from the City of Corvallis Storm water Management Manual.

The hydraulic layer was used to model the wetland's geometry and flow properties as a large, broad, rough, shallow, open channel. The wetland geometry was determined by surveying many points throughout the wetland and by developing a digital terrain model in Auto Cad. Cross sections were obtained from the digital terrain model and entered into the XP-SWMM natural cross section editor. Field observations were made to estimate appropriate properties for modeling wetland flows.

Wetland flow properties for this project include shallow, sub-critical flows with very low velocities over a very rough, tumultuous flow path. Roughness coefficients based on field observations were selected and adjusted until model results indicated typical wetland flow properties using existing condition flows.

After determining that the existing condition model results were indicative of field observations, proposed condition water surface elevations were modeled using proposed condition flows. A comparison was made between the modeled existing and proposed conditions flows to estimate how the proposed condition flows affect the wetland water surface elevations.

Results show that proposed condition flows have little effect on the existing condition water surface elevations. The natural processes of wetlands such as infiltration, evaporation, and depression storage work to reduce flows. The existing wetland area downstream of the proposed development also has broad, shallow areas that form pools during storm events. A slight increase in water surface elevation over a broad wetland with these features results in a very large addition of natural storage. Thus the increased flows from the proposed development spread out over the large wetland area and result in very little increase in water surface elevation.

After increased flows spread out and are reduced by the wetland area, flows that are not stored by the wetland will be held in the storage areas downstream of the wetland which will regulate flows to the downstream system. These storage areas will work to store excess water so that it can't accumulate and cause excessive ponding in the wetland.

A proposed flow control structure located at the outfall to an open channel flowing south through Oregon State University Dairy Property (OSU) will regulate some of the excess flow. An existing 12-inch culvert which conveys flows from the existing ditch to the west along the north side of Harrison will be left in place and will work to regulate the remaining excess flows to the west.

These control structures in combination with the storage areas will work to minimize impacts to the downstream system. Excess flows will be regulated so that flow rates released from the developed site match flow rates released under existing conditions for the 2, 5, and 10-year, 24-hour storm events as specified by the City of Corvallis. In addition flow regulation and storage will work to match the developed 100-yr, 24-hour flow from the site to the existing 10-year, 24-hour flow from the site to the open channel through OSU, as specified by OSU.

Conclusion: The storm water system developed for the proposed Witham Oaks development is designed to treat storm water in accordance with the City of Corvallis Standards and DEQ Guidelines. An XP-SWMM Model was constructed to evaluate the wetland's response to the proposed development, and to design storage areas which will regulate flows to minimize downstream impacts. Please refer to the Witham Oaks Storm

water Management Plan for tabulated existing and proposed condition model results, and a discussion of the results.

As noted in the Planned Development section above, in order to minimize exceeding the 8' cut and fill requirement to the extent possible, some lots are proposed with a daylight basement option. Doing so would eliminate the potential of discharging foundation drains and roof drains into the public streets on which these lots front; therefore we are proposing a private storm system in the back of these lots as shown on the preliminary utility plan (see Exhibit 15.0).

Streets: The City of Corvallis Transportation Plan Map calls for a neighborhood collector street (Circle Boulevard) to be developed through the site between Harrison Boulevard and Witham Hill Drive. The City constructed the first 1,100 feet of Circle Boulevard from Witham Hill Drive in 2003, to serve the newly acquired open space/park tract to the north of the project site. We propose the extension of Circle Boulevard to Harrison Boulevard to match the existing Circle Boulevard, which was constructed to Urban Local Collector standards. Please refer to Exhibit 17.0 for a detailed graphic on the proposed street cross sections. As noted in the PUD section, we are requesting deviations from the street standards for portions of Circle Boulevard due to the presence of wetlands in the southern half and the drainage channel and 12-foot multi use path in the northern half.

The property is currently bisected by an 80-foot wide right-of-way originally intended for the future extension of Circle Boulevard. Years ago, the City constructed a multi-use path and sanitary sewer line along this alignment. This right-of-way currently crosses directly through much of the delineated wetlands. It is our desire to minimize impacts to the wetlands. To achieve this, we are proposing the realignment of Circle Boulevard to the eastern property line boundary (Exhibit 8.0).

The City of Corvallis Transportation Plan Map designates Harrison Boulevard adjacent to the site as an arterial street. Harrison Boulevard is currently developed to rural road standards with two 10 +/- foot asphalt travel lanes, 6-foot bike lanes, gravel shoulders and roadside ditches. There are no sidewalk facilities adjacent to the property. A sidewalk is located along the north side of Harrison Boulevard just east of the site, where it is extended to and through the Jesus Christ of the Latter Day Saints (LDS) church site. There is a gravel access drive between our site and the LDS church site. The gravel drive provides access to the undeveloped 5 acre Beit Am site north of the LDS site, which is still within the County. We have met with representatives of the Beit Am site to discuss providing access to their 5-acre site from Circle Boulevard, so that the access drive along Harrison Boulevard could be eliminated. As of the time of our application submittal, no decision has been made by the Board of Directors for Beit Am. Should this access drive be eliminated, we would propose the construction of a sidewalk from our easterly property corner on Harrison to connect to the westerly terminus of the sidewalk in front of the LDS church site.

Along Harrison, we will construct curbs at the outside edge of the existing on street bike lane, and provide a 6 foot landscape planter strips. This is a deviation from the 12 foot standard and is intended to minimize additional impacts to the adjoining wetlands along Harrison. From the existing multiuse path, a 5 foot sidewalk will be extended to the east and a 10 foot multi use path to the property boundary to the west, consistent with the Parks and Recreation Master Plan.

The Circle Boulevard alignment north of Street A will remain within the current Circle Boulevard. right-of-way, but has several issues to be addressed with this project. The existing Circle Boulevard. to the north of our site does not align itself with the center of the existing on-site right-of-way. Rededicating the right-of-way to the west to align with the existing Circle Boulevard would remove properties near Dale Drive from bounding the right-of-way and would create a gap of approximately 12 feet between the terminus of Dale Drive and the new Circle Boulevard. We are proposing to build a non-centered alignment which will be gradually brought back to alignment through the site.

As outlined above, the area of Circle Boulevard from about 120' south of Street "A" to the southern edge of Street "B" is proposed to be raised in elevation in excess of 8' to address a myriad of potential design, public safety, and functionality issues that would not otherwise exist:

- The alignment of Circle Boulevard through this area (existing as well as proposed) resides in the low point of the existing drainage channel, bounded to the east and west by hills with slopes exceeding 20% in some places. Furthermore, the existing channel has a bottom slope approaching 6%, exhibiting velocities and potential for scour that would create the need for heavily armored embankments and would pose a hazard to the public during times of heavier rainfall. Elevating Circle Boulevard through this proposed area of higher population will reduce (normalize) the flow within the channel to approximately 2.1%, minimizing velocities and the potential for scour. This 2.1% grade will also provide a gentler grade for the multiuse path through the area closest to the proposed channel realignment, providing an additional measure of safety for those using these facilities, also allowing the channel to have a broader aesthetic appeal.
- If left at current grade, roadways intersecting Circle Boulevard (Streets "A" and "B") would be forced to cut deeply into the existing hillside in order to meet safe stopping sight distances, and to create intersections that will meet current A.D.A. design criteria. Even with deep cuts, these streets would still exhibit grades nearing the maximum allowable 15%. With the elevation of Circle Boulevard, these streets intersecting Circle Boulevard will now have approach grades between 2% and 5.3%, and intersection designs can meet and comply with A.D.A. and City of Corvallis requirements for safety and accessibility.

Within the development, all streets are designed to local street standards with 14 foot travel lanes (including on street parking both sides), 6 foot landscape planter strips and 5 foot sidewalks. One exception to this is Street A east of Circle which has a sidewalk on

one side of the majority of the street to minimize impacts (cuts and removal of trees) to the adjoining open space area.

Trails / Parks: The 12-foot multi-modal path will stay in its current location through the southern half of the site and then be realigned in the northern half to reduce conflicts with the extension of Circle Boulevard. It will stay on the west side of Circle Boulevard until it reaches the northerly intersection, at which point it will cross Circle Boulevard on at the north end of the intersection with Street B to connect with the existing path on the east side of Circle to the north. Where the multi-modal path terminates at the south end, it will be reduced to 10 feet in width and redirected to the west where it will terminate at our property boundary. From the multi-use path terminus at Harrison Boulevard, a 5-foot sidewalk will extend to the east to connect to Circle Boulevard.

Pedestrian accommodations are made via the following provisions:

- Sidewalks are provided on both sides of the street, excepting the lower half of Circle Boulevard from Harrison Boulevard to Street A and Street A on the east side of Circle from the corner of lot 221 to the corner of lot 208.
- Realignment of northern ½ of 12-foot multi-modal path through site. The path will stay in its current location until it meets it's intersection with Street A. From here it will remain on the west side of, and parallel to, Circle Boulevard and then cross Circle on the north side of the intersection with Street B, where it will continue up to its connection with the existing location on the east side of Circle to the north.
- A 10-foot hard surface trail from Circle Boulevard to Arnold Park, between the existing Latter Day Saints Church and the 5 acre parcel to the north.
- A 5-foot hard surface trail from the 12-foot multi-modal path along Circle Boulevard to Street C, between lots 164 and 165.
- 5-foot hard surface trail connection from Street D to Tract A between lots 13 and 14. From the back of these lots it will then become soft surface through the open space area to the north where it adjoins the City's Witham Hill Natural Area Park to the north.
- A 5-foot hard surface trail from the westerly terminus of Street A through Tracts I and J for connection to Streets F and D.
- 5-foot soft surface trail from Street C to Street D through Tract C.
- 5-foot sidewalk along Harrison Boulevard from the 12-foot multi-modal path terminus at Harrison Boulevard to the easterly property boundary.
- 10-foot multi-modal trail along Harrison Boulevard to the west property boundary.
- Two areas have been created between lots 3 and 4 and 30 and 31 to allow unimproved trail access to the open space areas. These are areas to be left in their natural state with no improved landscaping proposed. The intent of these areas is to allow some pedestrian movement to and from the open space areas.

Chapter 2.4 Subdivisions and Major Replats

Section 2.4.20 – PURPOSES
Land division review procedures are established in this chapter for the following purposes:
a. Ensure building sites are of sufficient size and appropriate design for their intended uses and lots to be created are within density ranges permitted by the Comprehensive Plan;
b. Minimize negative effects of development upon the natural environment and to incorporate natural features into the proposed development where possible;
c. Ensure economical, safe, and efficient routes for pedestrians, bicycles, and motor vehicles;
d. Create residential living environments that foster a sense of neighborhood identity and are protected from the adverse effects of heavy traffic and more intensive land uses; and
e. Promote energy efficiency.

2.4.30.04 - Review Criteria
Requests for approval of a tentative subdivision plat shall be reviewed to assure consistency with the purposes of this Code, pertinent development standards of the Code including Chapters 4.0 - Improvements Required with Development; 4.1 - Parking, Loading, and Access Requirements; 4.2 - Landscaping, Buffering, and Screening; 4.4 - Land Division Standards; and 4.5 - Flood Control and Drainage Provisions; and density requirements of the Comprehensive Plan.

Chapter 4.0 Improvements Required with Development:

Section 4.0.40 – Pedestrian Requirements

Exhibit II - 246

PROPOSED FINDING: We are requesting a 5 foot sidewalk along Harrison to minimize impacts to the wetlands in this location. We are also requesting a sidewalk on one side of the street in two locations: Circle Boulevard in the lower half of the site from Harrison to Street "A"; and the Street "A" extension east from Circle Boulevard. These requests are to minimize impacts to significant natural features, wetlands and hillsides/trees, respectively. The proposed tentative plat is in conformance with Section 4.0.40 due to the fact that sidewalks are planned along both sides of the streets (excepting a portion of Circle Boulevard and street A) internal to the subdivision, and pedestrian ways are provided (Exhibit 14). Additionally, a pedestrian connection is proposed across Tract J between Streets F and D to meet the intent of Comprehensive Plan Policy 11.6.13 which states that new residential development provide for a maximum block perimeter of 1,500 feet. The subdivision is planned in conformance with the requirements that pedestrian travel must be safe and convenient, avoiding long blocks.

Section 4.0.50 – Bicycle Requirements

The proposed tentative plat is in conformance with Section 4.0.50 due to the fact that bicycle travel will be accommodated via shared travel lanes on streets internal to the subdivision, 2 6-foot bike lanes on Circle and Harrison Boulevards, and the 12-foot multi-modal path through the site.

Section 4.0.60 – Transit Requirements

We are providing the concrete pad for a transit shelter along Harrison near the intersection with Circle Boulevard. Please refer to Exhibit 9.0 for a graphic representation of this location. We are not proposing the construction of the shelter, only

the concrete pad for the future construction of such shelter. In addition, should a shelter be needed in the future along Circle Boulevard, use of the landscape strip could be converted to a pad for shelters in either the north or south direction.

Section 4.0.70 – Street Requirements

Circle Boulevard from Harrison to Street A will consist of two 10' travel lanes, two 6' bike lanes, two 12 ' planter strips, and a 5 ' sidewalk on the east side of the street. From Street A to Street B, Circle Boulevard will consist of two 10' travel lanes, two 6' bike lanes, a 12' planter strip and 5' sidewalk on the east side of the street and a 8'6" planter strip on the west side, which separates the 12 foot multiuse path from the street. North of Street B, Circle will consist of two 10' travel lanes, two 6' bike lanes, two 12' planter strips, and a 5' sidewalk on the west side of the street and the 12 foot multi use path on the east side.

Harrison Boulevard will propose curbs at the outside edge of the existing on street bike lane, and a 6 foot landscape planter strip. This is a deviation from the 12 foot standard and is intended to minimize additional impacts to the adjoining wetlands along Harrison. From the existing multiuse path, a 5 foot sidewalk will be extended to the east and a 10 foot multi use path to the property boundary to the west, consistent with the Parks and Recreation Master Plan.

All local streets are designed to meet the City of Corvallis street standards with 14 foot travel lanes (with on street parking), 6 foot landscape planter strips and 5 foot sidewalks. The smallest curve radius in the development is 100 feet. Streets will be constructed to public standards with 3.5 inches of AC and 8.5 inches minimum of compacted base over a prepared sub grade. Please refer to Exhibit 17 for a graphic representation of the proposed street cross-sections.

Section 4.0.80 Public Utility Extensions

All proposed building lots within the subdivision will be served with public water, sanitary sewer, and storm drainage facilities, consistent with the respective facilities master plans adopted by the City of Corvallis. These facilities will be installed concurrently with development, and extend to the boundaries of the site, as described in the attached exhibits. As noted in the Planned Development section above, in order to minimize exceeding the 8' cut and fill requirement to the extent possible, some lots are proposed with a daylight basement option. Doing so would eliminate the potential of discharging foundation drains and roof drains into the public streets on which these lots front; therefore we are proposing a private storm system in the back of these lots as shown on the preliminary utility plan (see Exhibit 15.0).

Section 4.0.90 – Public Improvement Procedures

All construction of public improvements will comply with adopted procedures governing plan submittal, plan review and approval, permit requirements, inspection and testing,

work progress, easements, dedications and as-built drawings as required by Section 4.0.90.

Section 4.0.100 – Franchise Utility Installations

Installation of all franchise utilities, including electrical transmission, natural gas, telephone, cable television and street lighting, will comply with adopted procedures, including those of utility providers and those contained in Section 4.0.100.

Section 4.0.110 – Land for Public Purpose

The proposed tentative subdivision plat complies with the requirements of Section 4.0.110 as adequate easements will be provided for all public facilities located outside of public rights-of-way. Pedestrian connections within common tracts will be provided with public access easements over them. No public dedications of land are proposed at this time other than for street rights-of-way and drainage ways. All easements and dedications necessitated by this review process will be recorded on the face of the final plat.

Section 4.0.120 – Mail Delivery Facilities

All mailboxes will meet U.S. Post Office requirements.

Section 4.0.130 – Ponding Areas and Flood Hazards

The proposed grading and drainage plans submitted with the tentative plat will allow for effective management of storm water runoff, in accordance with City standards and accepted engineering principles. Please refer to the water quality and storm water discussions above for a more detailed description of proposed storm water facilities.

Section 4.1 – Parking Loading and Access Requirements

Section 4.1.30 – Off Street Parking Requirements

Section 4.1.40 – Standards for Off-Street Parking and Access

This section requires, in part, that all driveways, accesses, and private streets be designed and constructed in accordance with City Engineering standards. Each lot will provide for 2 off-street parking spaces. As noted in the narrative above, we are requesting a deviation from the 150' spacing standard for access ways. Our proposed realignment of Circle Boulevard right of way places the centerline of Circle Boulevard within approximately 49.5 feet of the centerline of the existing but undeveloped Beit Am gravel driveway and within approximately106.5 feet from the centerline of the LDS church's westerly most driveway. We have contacted representatives of Beit Am to discuss the potential for providing a curb cut approach to their site where it fronts Circle Boulevard. While no decision has been made, this is a possibility in the future. We are requesting the ability to provide this curb cut without the need for going back through the process to apply for a Planned Development Modificiation. We would anticipate that the access way

is gated or barricaded inside the lot to prevent traffic from accessing this undeveloped 5 acre site. Regardless of whether or not Beit Am accepts a curb cut along Circle Boulevard for future access purposes, if our ROW vacation request is approved, we anticipate that future development of this site would require closing their access along Circle given it's proximity to the driveway for Jesus Christ of the Latter Day Saints church. Without the requested deviation, the right of way for Circle Boulevard will be required to be located further to the west, resulting in increased impacts to the locally significant wetland.

All streets will be improved and vision clearance standards will be met. No backing up or maneuvering will be required with the proposed layout. Driveways to the individual homes will not exceed 15% slope.

4.2 – Landscaping, Buffering, and Screening

The proposed subdivision is in compliance with the purpose and standards of Chapter 4.2. The proposed landscape plan specifies typical plantings for street trees and open space buffers, consistent with City standards. Street trees will be installed or guaranteed as required by the City of Corvallis. Customized landscaping of individual lots will typically occur as houses are occupied, though the developer may landscape some home sites prior to occupancy. A landscaped buffer is provided within tract E to meet the intent of the buffering requirement of AG-OS district. Please refer to the landscaping section above for a more detailed discussion related to this issue. Exhibits 18.0-18.4 contain the proposed landscaping plans for the project.

4.4 – Land Division Standards

Section 4.4.20 – General Provisions

Section 4.2.20 established general dimensional standards for blocks, lots and access. Section 4.4.20 allows modifications to these requirements through the Planned Development process. The proposed tentative plat requires the following modifications.

a. Lot Size:	Flexible lot sizes below the 5,000 square foot size are requested. The minimum lot size proposed is 3,328 square feet.
b. Access:	All lots are accessed by a public street.
c. Through lots:	There are no through lots proposed.
d. Lot lines:	Not all lot lines meet at a right angle to the street due to curvature of the street or cul-de-sacs. Some lots are proposed with less than the standard width, while others exceed it. These variations are necessary to meet the density and provide for a variety of lot sizes for a variety of

housing types, consistent with the Comprehensive Plan goals for neighborhood characteristics and the purposes of a Planned Development.

e. Lot Grading: The 8' cut and fill policy is intended as a goal for development on hillsides to mimic the topography to the greatest extent practicable. Given the significant reduction of the developable area of the site, requirements for street grades and existing topography, we are not able to limit grading on site to only 8 feet. Please refer to the Basic Site Design section within the Conceptual and Detailed Development Plan section above for a more detailed discussion of lot grading. Additionally, Exhibits 6.0 16.0 and 16.1 are graphic representations of the slopes, proposed grading and grading analysis, respectively, of the proposed grading plan.

f. Building lines: A 1-foot reduction is requested from the required 5-foot side yard setback to allow for a more efficient use of the land.

g. Large lots: Several large lots are proposed due to the curvature of the streets and adjacency to open space. The largest lot is 12,899 square feet in size.

Exhibit II - 250

Section 4.5 – Flood Control and Drainage Provisions

Please refer the Conceptual and Detailed Development Section above for a detailed discussion on the applicable provisions of Section 4.5 to this proposed development.

CONCLUSIONS ON TENTATIVE SUBDIVISION PLAT: With the Planned Development overlay, the proposed development is allowed deviations from the underlying standards provided an overall benefit is achieved. We have requested deviations from standards as described above. Given the benefit of significant amounts of open space created on site, and other benefits described above, the requested deviations are warranted. The proposal is consistent with the applicable criteria for Tentative Subdivision Plat approval and the intent and purposes of a Planned Development.

RIGHT-OF-WAY VACATION

Note: Review and approval of the Detailed Development Plan must occur prior to, but is contingent upon, Approval of the Right of Way vacation. We have packaged our request for the Right of Way Vacation as supplementary information in support of the site plan and application for the Detailed Development Plan.

Request: We are requesting approval of a Right-of-way Vacation for the existing Circle Boulevard to avoid and reduce impacts to the locally significant wetlands on site. Please refer to Exhibit 8.0 for a graphic representation of the area to be vacated and re-established.

Section 2.8.20 - PURPOSES
The procedures and review criteria established in this chapter are used for vacating public lands and plats for the following purposes:

- ***a. Permit vacation of public lands not needed for municipal purposes where it is consistent with the community land use policies and goals; or***
- ***b. Permit private ownership of public land where the proposed use of the lands promotes the public welfare; and***
- ***c. Permit vacating of all or part of undeveloped plats.***

2.8.30.02 - Application Requirements

- ***a. Applications submitted by property owners shall be made on forms provided by the Director and be accompanied by a map of the area proposed to be vacated and such other information as may be necessary for an adequate review of a petition.***
- ***b. At the time the application to vacate public land is submitted, the person(s) filing the application shall submit a letter or letters of consent from affected property owners. For purposes of this Code and in compliance with ORS 271.080, affected property owners shall be defined as follows:***
  - ***1. All abutting property owners, and***
  - ***2. Owners of not less than two-thirds in area of the real property affected thereby.***

2.8.30.06 - Review Criteria
A vacation may be approved if the City Council finds that the request:

- ***a. Is consistent with the purposes of this chapter, policies of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council;***
- ***b. Will not have a negative effect on access between public rights-of-way or to existing properties, potential lots, or public facilities/utilities;***
- ***c. Will not have a negative effect on traffic circulation or emergency service protection; and***
- ***d. Will serve the public interest, present and future.***

PROPOSED FINDING: The proposed vacation involves the full length of Circle Boulevard right of way as it crosses through our property. We have proposed the full vacation for precision and ease of surveying. As currently aligned, the city's right-of-way begins in the northeast corner of the site and traverses in a southwesterly direction across and down through the site, and through the middle of the identified locally significant wetland system that exists in the southern portion of the site. The vacation is necessary to allow for a beneficial realignment of the proposed Circle Boulevard extension from its current terminus to Harrison Boulevard. The realignment shifts the lower portion of the right-of-way to the east along the property boundary, thereby avoiding the majority of the wetlands at the south end of the site. The realignment

significantly reduces the potential impacts to the wetlands and the potential 50 foot safe harbor buffer as follows:

	Existing ROW alignment:	Proposed ROW alignment	Net Reduction of Impacts
Impacts to Wetlands	140,996 sq ft	86,614 sq ft	54,382 sq ft (1.25 acres)
Impacts to Buffer	158,137 sq ft	121,796	36,341 (.83 acres)

A sanitary sewer line and 12-foot multi-use path is located within the existing right-of-way. The sanitary sewer line and path will remain in their current locations in the area proposed to be vacated up to where Street A intersects with Circle Boulevard. We propose placing a public access easement over the path for public access and City maintenance purposes. The proposed right-of-way vacation maintains public recreational and city maintenance access to the multi-use path and underlying sanitary sewer line, respectively. Leaving the current right-of-way as is maintains the possibility for future use of that area. This is not necessary. The only necessary element to these facilities is an easement granted to the public and the City of Corvallis for a width of 20 feet (12 + 4 feet on either side).

The proposed vacation is consistent with the purposes and review criteria of Chapter 2.8 because it:

- proposes a public access easement for use of the multi use path and maintenance access to sanitary sewer line;
- is consistent with Comprehensive Plan policies 4.10.3, 4.10.9, 4.11.12, 4.13.4 and 11.2.1 which call for preservation of open space areas, significant drainage ways and minimizing impacts to resources. Additionally, the proposed vacation is consistent with Comprehensive Plan Policies 11.5.12, 11.6.4, 11.6.6. and 11.6.7 which call for convenient and safe pedestrian and bicycle access;
- will not have a negative impacts on public access or public facilities/utilities;
- will not have a negative impact on traffic circulation or emergency service protection; and
- will serve the public interest in the present and future by protection of the wetlands and maintaining the through multiuse path connection from Harrison Boulevard for connection to the north. Where it adjoins Circle Boulevard.

VARIANCE TO THE SIGN STANDARDS FOR RESIDENTIAL PLANNED DEVELOPMENTS

Section 4.7.90.09 contains specific criteria for signs in Planned Developments while Section 4.7.110 contains specific criteria for variances to the sign standards. Free standing, monument signage is proposed to be placed at the northwest corner of the Circle Boulevard intersection with Harrison Boulevard. Sign materials will be composed of manufactured stone or other brick type materials, with integrated landscaping components. More specifically, the architectural structure upon which the signage will be attached is a maximum of 7 feet 2 inches tall and is approximately 41 ½ feet long. A landscaped planting "bench" area runs along the majority of the face of the structure for an overall length of 34 feet 8 inches. This bench area is up to 5 feet deep to accommodate ornamental plantings and to help break up the mass of the structure. The shape of the structure is linear but in somewhat of a u-shape with the two "wing" areas that are approximately 13 feet long extending off the main face of the structure at roughly a 45 degree angle. Please refer to Exhibit J for a graphic representation of the proposed structure. In summary, we are requesting a variance from the sign standards of Section 4.7.90.01.c to allow for an additional 4 square feet of signage for a total monument sign that is 20 square feet in size, commensurate with the size of community and site frontage.

Comprehensive Plan Policies

3.2.7 All special developments, lot development options, intensifications, changes or modifications of nonconforming uses, Comprehensive Plan changes, and district changes shall be reviewed to assure compatibility with less intensive uses and potential uses on surrounding lands. Impacts of the following factors shall be considered:

- *A. Basic site design (i.e., the organization of uses on a site and its relationship to neighboring properties);*
- *B. Visual elements (i.e., scale, structural design and form, materials, etc.);*
- *E. Lighting;*
- *F. Signage;*

5.2.1 Both public and private properties located along entrance corridors to the City of Corvallis shall be attractively landscaped, left as open space, or maintained as active agricultural or forest lands.

13.12.18 The City shall maintain the scenic character of West Hills Road, Harrison Boulevard / Oak Creek Road, Reservoir Road, and Philomath Boulevard through mechanisms such as gateway standards, or securing easements to preserve existing vegetation or views.

Land Development Code Applicable Standards:

4.7.90.01 Sign Standards for All Residential Districts

Special Instructions:

c. Where a primary frontage exceeds 100 ft;

1. *Permanent free standing signs are allowed (minimum setback is 5 ft);*
2. *Maximum height for temporary and free-standing signs is 6 ft;*
3. *Maximum sign area is 16 sq. ft;*
4. *Iluminated signs are permitted.*

4.7.90.09 Signs in Planned Developments

Exhibit II - 253

A sign plan shall be required for all Planned Developments (See Chapter 2.5). The plan shall establish the location and allocation guidelines for signs in a way that ensures all parties in the development have an equitable opportunity to communicate through signs without creating undue negative effects on surrounding properties. The sign plan shall be reviewed by the following procedures:

a. The plan shall be reviewed by the Planning Commission concurrently with Detailed Development Plan review.

b. Before approving the sign, the Commission shall find that the signs in the proposed sign plan comply with these regulations and are compatible with the type of development (existing and future) surrounding the Planned Development. Whereas other development standards in Planned Developments may be varied, standards for signs in Planned Developments shall not benefit the development to a greater degree than is otherwise permitted by the provisions of these regulations.

c. An approved sign permit for each sign in a Planned Development shall be obtained prior to construction or installation. A proposed sign shall comply with these regulations and any additional guidelines or conditions specified in the approved sign plan before a permit may be issued for the sign.

d. Modifications of a Planned Development Sign Plan shall follow the provisions for a Major Planned Development Modification (Chapter 2.5).

Section 4.7.110 Variance to Standards

There may be rare instances where a combination of strict application of the standards in this chapter and/or public safety concerns may preclude use of signs as a communication medium for a primary frontage. In these cases it may be appropriate to vary a particular standard to enable a property owner to utilize signage in a manner similar to others in the district.

1. **The type of sign is not of a type prohibited by these regulations**
2. **The variance is the minimum remedy necessary to eliminate the hardship**
3. **The variance does not substantially subvert the basic regulating formula relating the amount of sign area to the amount of sign frontage**
4. **No other alternative solution that complies with these regulations is available to the applicant.**

PROPOSED FINDINGS: This sign type is permitted by the provisions contained within Chapter 4.7. The unique hardship to the applicant is that the site is 94 acres overall, with no part of the developable fronting on Harrison Boulevard due to the presence of wetlands along the site's frontage with Harrison. Until very recently, planned developments were not required to provide a sign plan. Signage was installed with the construction of the subdivision, without review of specific sign standards. As such, signage for other developments, such as Grand Oaks, is large and has the benefit of direct frontage on the main entry way. Additionally, because the final name of the subdivision is not yet determined (final approval is subject to both city and county staff review to avoid duplication of names) it is requested that the total sign area be allowed to be 20 square feet. This should allow adequate room for lettering if a longer name is chosen/approved.

The site frontage along Harrison Boulevard is approximately 1,300 lineal feet. Under strict application of the frontage requirement, a site with 101 lineal feet of frontage would be allowed the same amount of signage as our site, which has 12 times more frontage.

Our request is to increase by only 25% the sign area allowed, when we potentially have 12 times more frontage that other properties subject to the same standard. Therefore, the requested 4 foot deviation is the minimum necessary to eliminate the hardship and is a small enough request that it does not substantially subvert the basic formula relating the amount of signage to the amount of sign frontage. No alternative solution is available to us. As such, the proposed variance meets the review criteria.

CONCLUSION: Based on the information and proposed findings above, with the exhibits submitted with this narrative, we meet the applicable Comprehensive Plan policies and Land Development Code criteria for the following applications and therefore respectfully request APPROVAL of each:

- **Conceptual and Detailed Development Plan**
- **Tentative Subdivision Plat**
- **Right-of-Way Vacation**
- **Sign Variance**

LIST OF EXHIBITS

Engineered Exhibits

EX 1.0	Cover Sheet (Vicinity Map
EX 2.0	Existing Conditions Map
EX 3.0	Existing Comprehensive Plan Designation
EX 4.0	Existing Zoning Designations
EX 5.0	Tree Survey
EX 6.0	Slope Analysis
EX 7.0	Wetland Delineations and Buffer area
EX 8.0	Proposed Right of Way Vacation
EX 9.0	Detailed Development Plan
EX 10.0	Phasing Plan
EX 11.0	Tentative Site Plan
EX 12.0	Solar Access Plan: 9am
EX 12.1	Solar Access Plan: 12 noon
EX 12.2	Solar Access Plan: 3pm
EX 13.0	Harrison Boulevard
EX 14.0	Circulation Plan
EX 15.0	Preliminary Utility Plan
EX 16.0	Preliminary Grading Plan
EX 16.1	Preliminary Grading Plan: cut/fill analysis
EX 16.2	Preliminary Profiles
EX 16.3	Preliminary Profiles
EX 17.0	Street Sections
EX 17.1	East-West Grading Cross Sections
EX 17.2	North-South Grading Cross Sections
EX 18.0	Preliminary Street Tree Plan
EX 18.1-4	Landscaping Plans
EX L.1.0	Sign Detail

Exhibit A	Traffic Impact Analysis
Exhibit B	Stormwater Report and Memo
Exhibit C	Memorandum of Understanding with OSU re: Stormwater
Exhibit D	Letter from the Division of State Lands re: Wetland Delineation
Exhibit E	Historic Photos of the site
Exhibit F	Letter from ODFW re: Fish Bearing Stream on Site
Exhibit G	Tree Evaluation
Exhibit H	House Elevations
Exhibit I	Earth Advantage program information
Exhibit J	Sign Plan
Exhibit K	Seed mix for Tract C
Exhibit L	Conceptual Habitat Enhancement Plan
Exhibit M	Natural Feature Inventory Data Sheets

WITHAM OAKS
CORVALLIS, OREGON

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Community Development
Planning Division

PROJECT MAP

EXHIBIT INDEX

EX 1.0	COVER SHEET (VICINITY MAP)
EX 2.0	EXISTING CONDITIONS MAP
EX 3.0	EXISTING COMPREHENSIVE PLAN DESIGNATION
EX 4.0	EXISTING ZONING DESIGNATIONS
EX 5.0	TREE SURVEY
EX 6.0	SLOPE ANALYSIS
EX 7.0	WETLAND DELINEATIONS
EX 8.0	PROPOSED ROW VACATION
EX 9.0	DETAILED DEVELOPMENT PLAN
EX 10.0	PHASING PLAN
EX 11.0	TENTATIVE SITE PLAN
EX 12.0	SOLAR ACCESS PLAN: 9 AM
EX 12.1	SOLAR ACCESS PLAN: NOON
EX 12.2	SOLAR ACCESS PLAN: 3 PM
EX 13.0	HARRISON BLVD
EX 14.0	CIRCULATION PLAN
EX 15.0	PRELIMINARY UTILITY PLAN
EX 16.0	PRELIMINARY GRADING PLAN
EX 16.1	PRELIMINARY GRADING PLAN: CUT/FILL ANALYSIS
EX 16.2	PRELIMINARY PROFILES
EX 16.3	PRELIMINARY PROFILES
EX 17.0	STREET SECTIONS
EX 17.1	EAST-WEST GRADING CROSS SECTION
EX 17.2	NORTH-SOUTH GRADING CROSS SECTION
EX 18.0	PRELIMINARY STREET TREE PLAN
EX 18.1	OPEN SPACE TRACTS A, B, C, & H, CIRCLE BLVD 1 & 2 PLANTING PLAN
EX 18.2	OPEN SPACE TRACTS D, F, K & N PLANTING PLAN
EX 18.3	OPEN SPACE TRACTS E, I, J, O & P, ENTRY SIGN PLANTING PLAN
EX 18.4	OPEN SPACE TRACTS K & L PLANTING PLAN/ DETAILS & LEGEND
EX 11.0	MONUMENT DESIGN

APPLICANT/DEVELOPER

Name: Matrix Development Corporation
Contact: Randy Rutherford
Phone: (503) 620-8080, ext. 280
Fax: (503) 598-8900

PLANNER

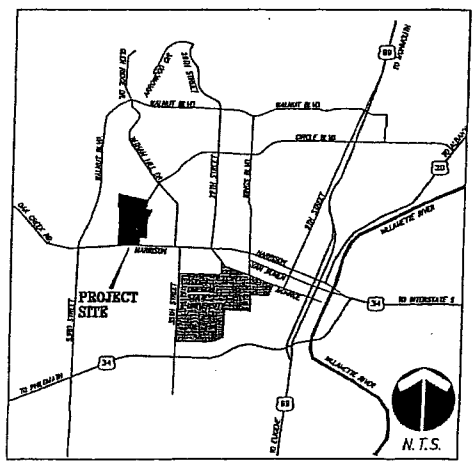
Name: Pahlisch Homes
Contact: Terri Valiant
Phone/Fax: (541) 754-7235
Email: tvaliant@pahlischhomes.com

CIVIL ENGINEER

Name: Otak Incorporated
Contact: Jasmin B. Woodside, PE
Phone: (541) 738-1611
Fax: (541) 738-1612
Email: jasmin.woodside@otak.com

GOVERNING JURISDICTION

Name: City of Corvallis
Contact: Planning Division
Phone: (541) 766-6908
Fax: (541) 766-6936



VICINITY MAP

WITHAM OAKS
CORVALLIS, OREGON
COVER SHEET

otak Incorporated
408 SW 4th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1611
FAX: (541) 738-1612
Internet: WWW.Otak.COM

12059
Project No.
EX 1.0

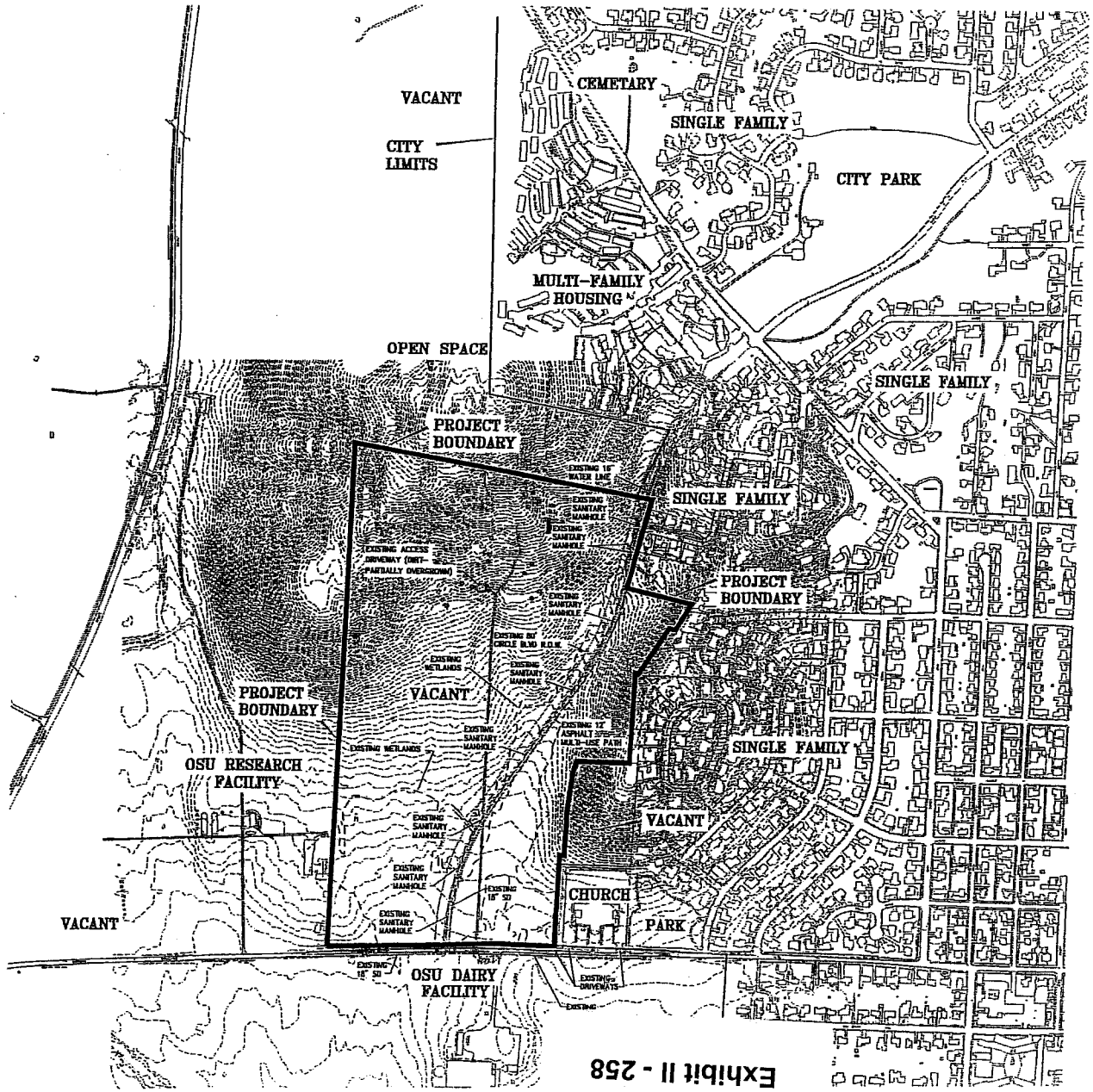


Exhibit II - 258

0' 150' 300' 600'

CALL BEFORE YOU DIG
1-800-424-5555

CORVALLIS OFFICE
513 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2102
FAX: (541) 754-1141

LEGEND HOMES

MATRIX
ENGINEERING

WITHAM OAKS
CORVALLIS, OREGON
EXISTING CONDITIONS MAP

otak
incorporated
625 SW 5th St., Suite B
Corvallis, Oregon 97333
Phone: (541) 738-1611
FAX: (541) 738-1872
Internet: WWW.OTAK.COM

12059
Project No.
EX 2.0

LEGEND

COMPREHENSIVE PLAN DESIGNATION	
LD	RESIDENTIAL – LOW DENSITY
HD	RESIDENTIAL – HIGH DENSITY
OS-AG	AGRICULTURAL – OPEN SPACE
OS-C	CONSERVATION – OPEN SPACE
OS-C	CONSERVATION – OPEN SPACE; WITHIN PROJECT BOUNDARY

PROJECT SUMMARY

LD	57.75 AC
OS-C	36.87 AC
TOTAL	94.62 AC

0' 150' 300' 600'

CALL BEFORE YOU DIG
1-800-424-5555

Date

CORVALLIS OFFICE
225 SW Third Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-7193
FAX: (541) 754-1141

LEGEND HOMES

MATRIX

WITHAM OAKS

CORVALLIS, OREGON

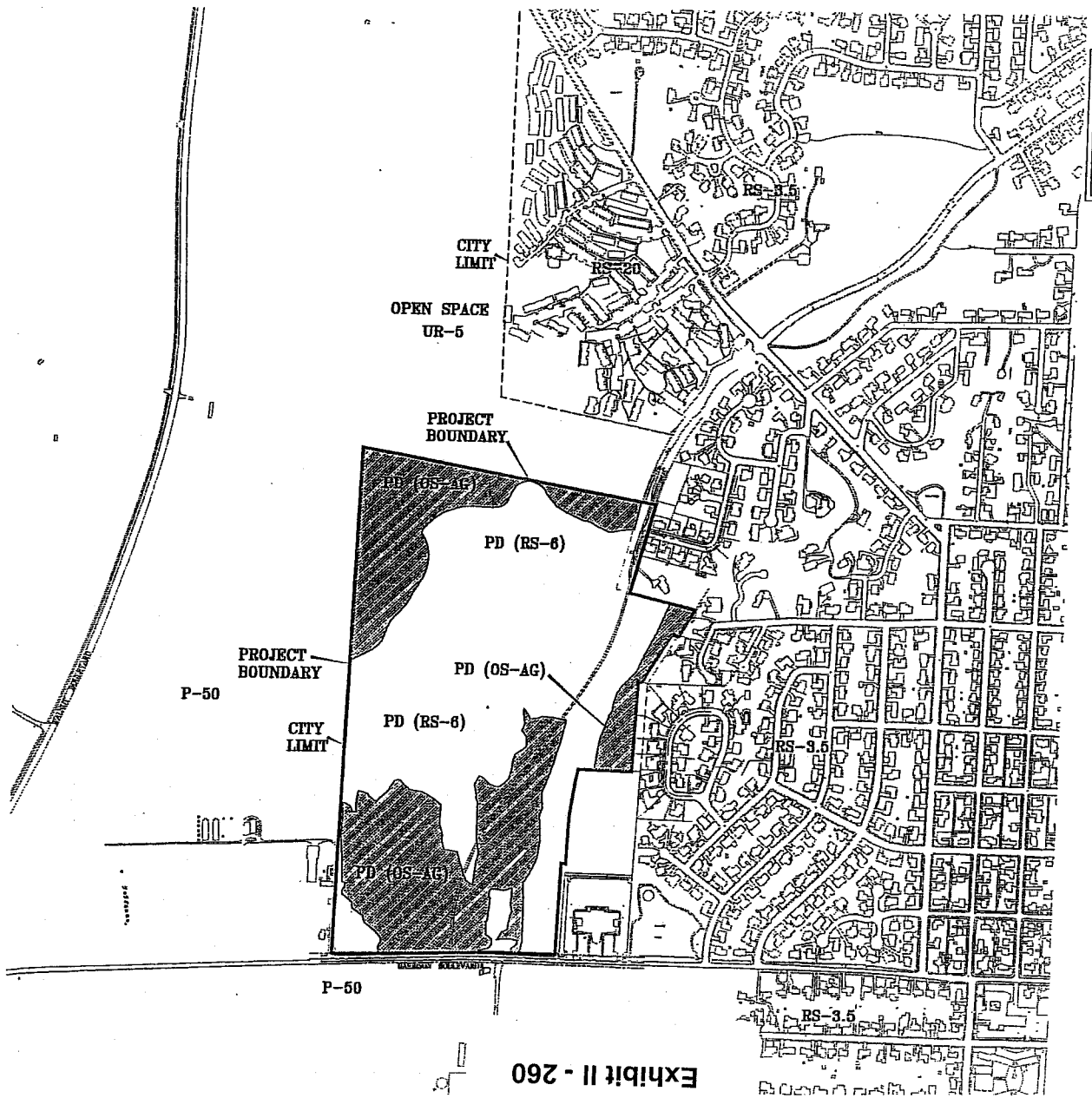
EXISTING COMPREHENSIVE PLAN DESIGNATION

otak
Incorporated

435 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 758-1851
FAX: (541) 758-1852
Internet: TTY.Otak.COM

12059
Project No.

FX 30



LEGEND

EXISTING ZONING DESIGNATION

PD (OS-AG)	AGRICULTURAL - OPEN SPACE
RS-3.5	LOW DENSITY RESIDENTIAL
PD (RS-6)	LOW DENSITY RESIDENTIAL
RS-20	MULTI-FAMILY RESIDENTIAL
UR-5	URBAN RESIDENTIAL (5 ACRE MINIMUM)
P-50	PUBLIC LAND (50 ACRE MINIMUM)

PROJECT SUMMARY

RS-6	57.75 AC
OS-AG	36.87 AC
TOTAL	94.62 AC

0' 150' 300' 600'

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CORVALLIS, OREGON

EXISTING ZONING DESIGNATIONS

otak incorporated

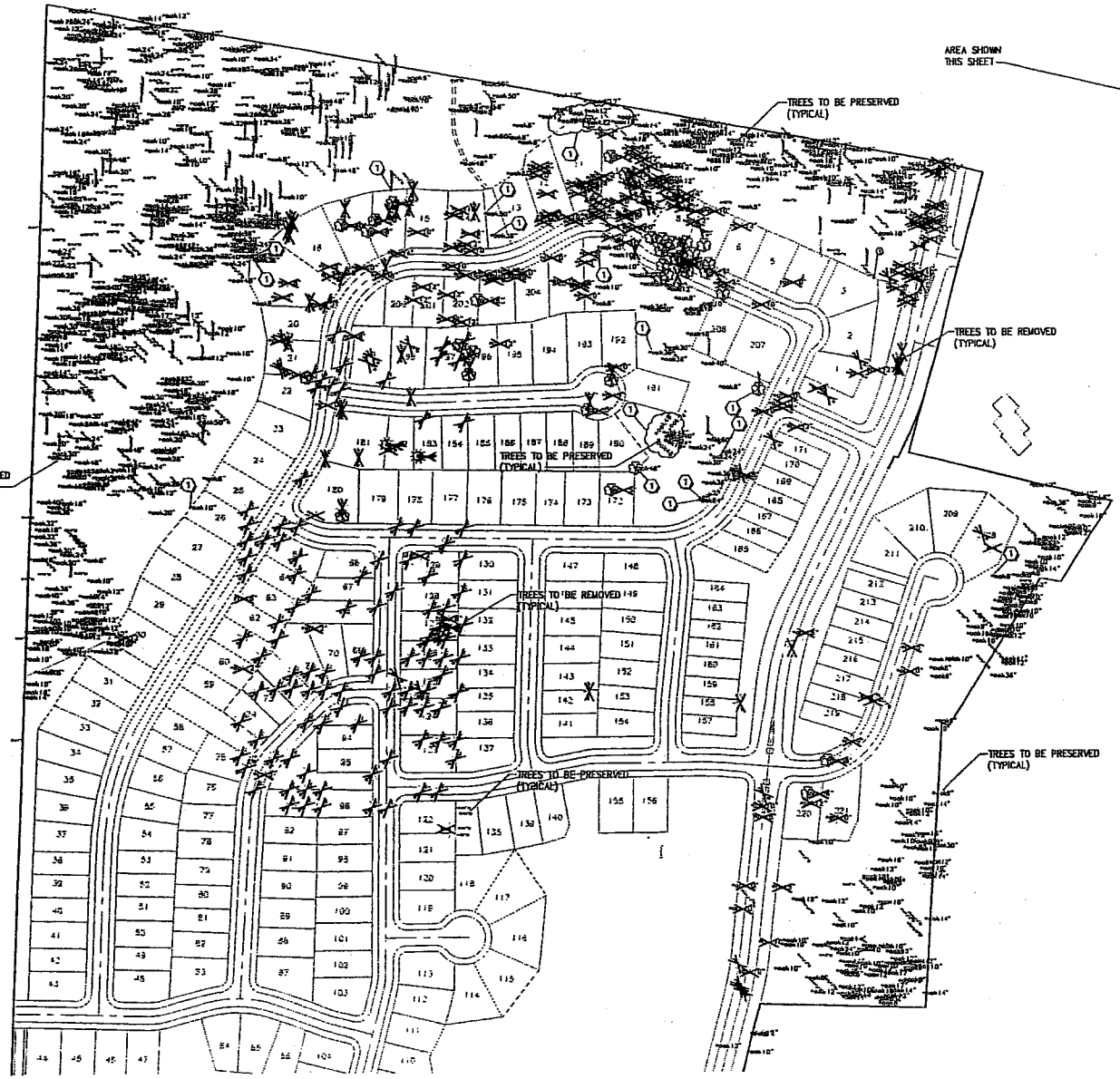
12059

Project No.

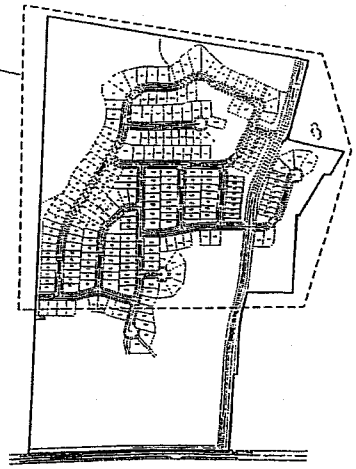
FX 4.0

Attachment I - 65
PLD06-00012, et al.

Exhibit II - 260



TREE SURVEY
SCALE: 1"=100'



KEY MAP
SCALE: 1"=100'

(1) THESE TREES HAVE THE POTENTIAL TO BE PRESERVED. A FINAL DETERMINATION WILL BE BASED ON ACTUAL CANOPY OF EACH TREE THROUGH A REPORT COMPLETED BY A CERTIFIED ARBORIST AT THE TIME OF FINAL ENGINEERING.

0' 50' 100' 200'

CALL BEFORE YOU DIG
1-800-424-

WITHAM OAKS
CORVALLIS, OREGON
TREE SURVEY

otak Incorporated
435 NW 6th St., Suite B
Corvallis, Oregon 97330
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FAX: (541) 738-1812
Internet: WWW.Otak.COM

Project No. 12059
EX 5.0

CORVALLIS OFFICE
121 SW Morrison Street
Corvallis, Oregon 97333
PHONE: (541) 754-1119
FAX: (541) 754-1141

LEGEND HOMES

MATRIX DEVELOPMENT

Date

Attachment I - 66
PLD06-00012, et al.

SHEET LIST
Checklist 100
Revised
DOS5:0001
DOS2:0180
DOS6:C30

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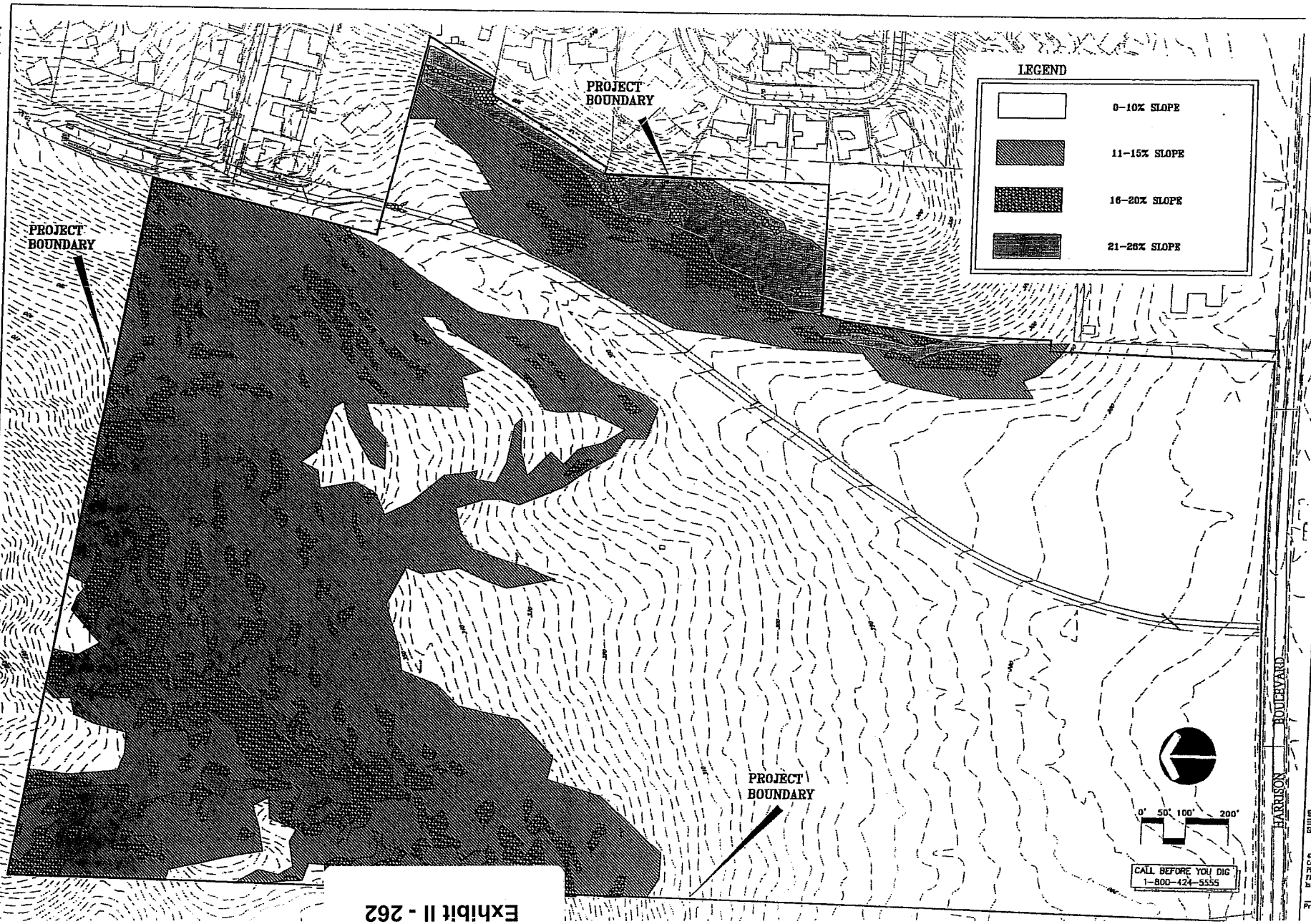

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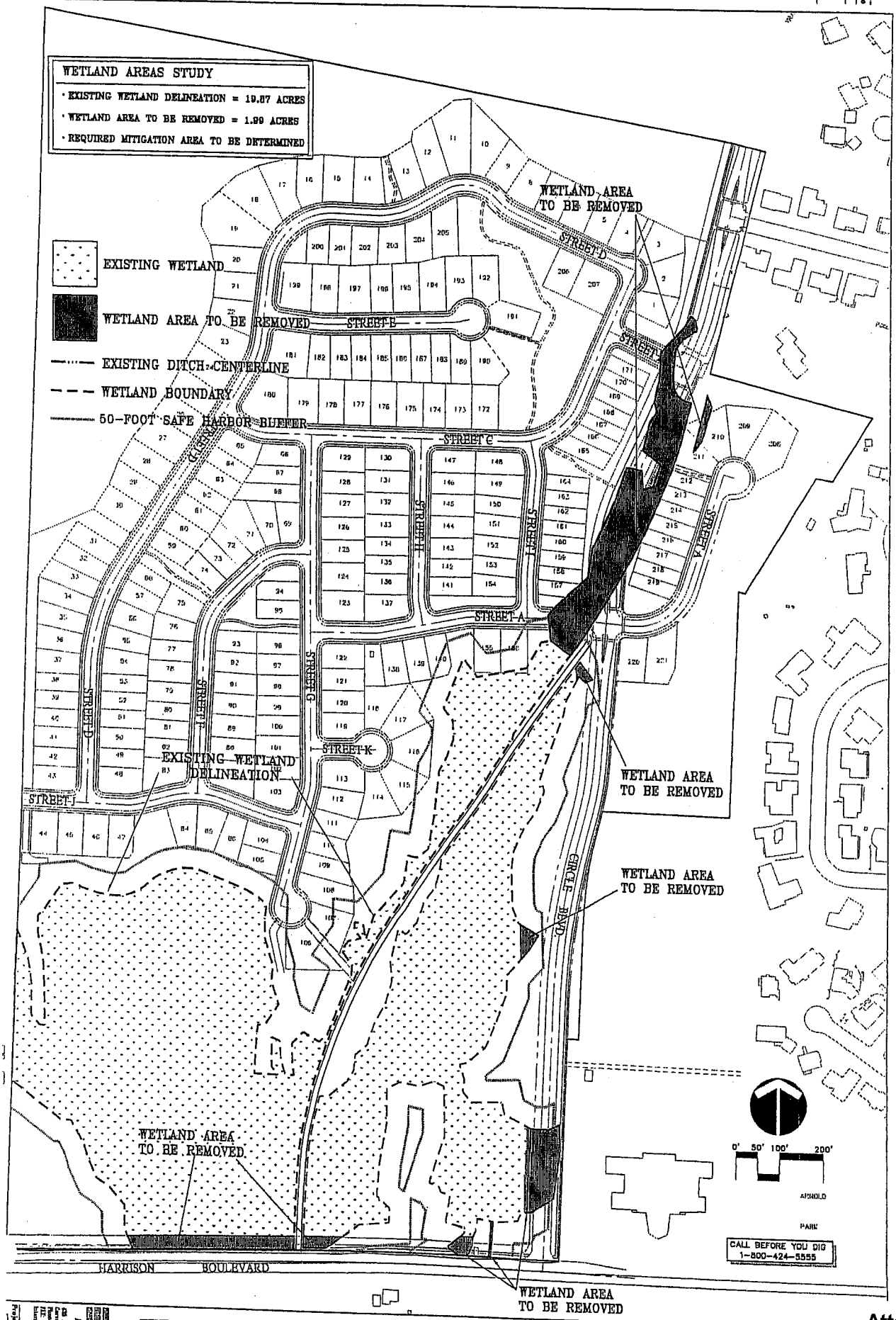
CORVALLIS, OREGON
SLOPE ANALYSIS

otak
Incorporated
Project No. 12059

LEGEND HOMES

MATRIX



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CORVALLIS, OREGON
WETLAND DELINEATIONS

Exhibit II - 263

Attachment I - 68
PLD06-00012, et al.

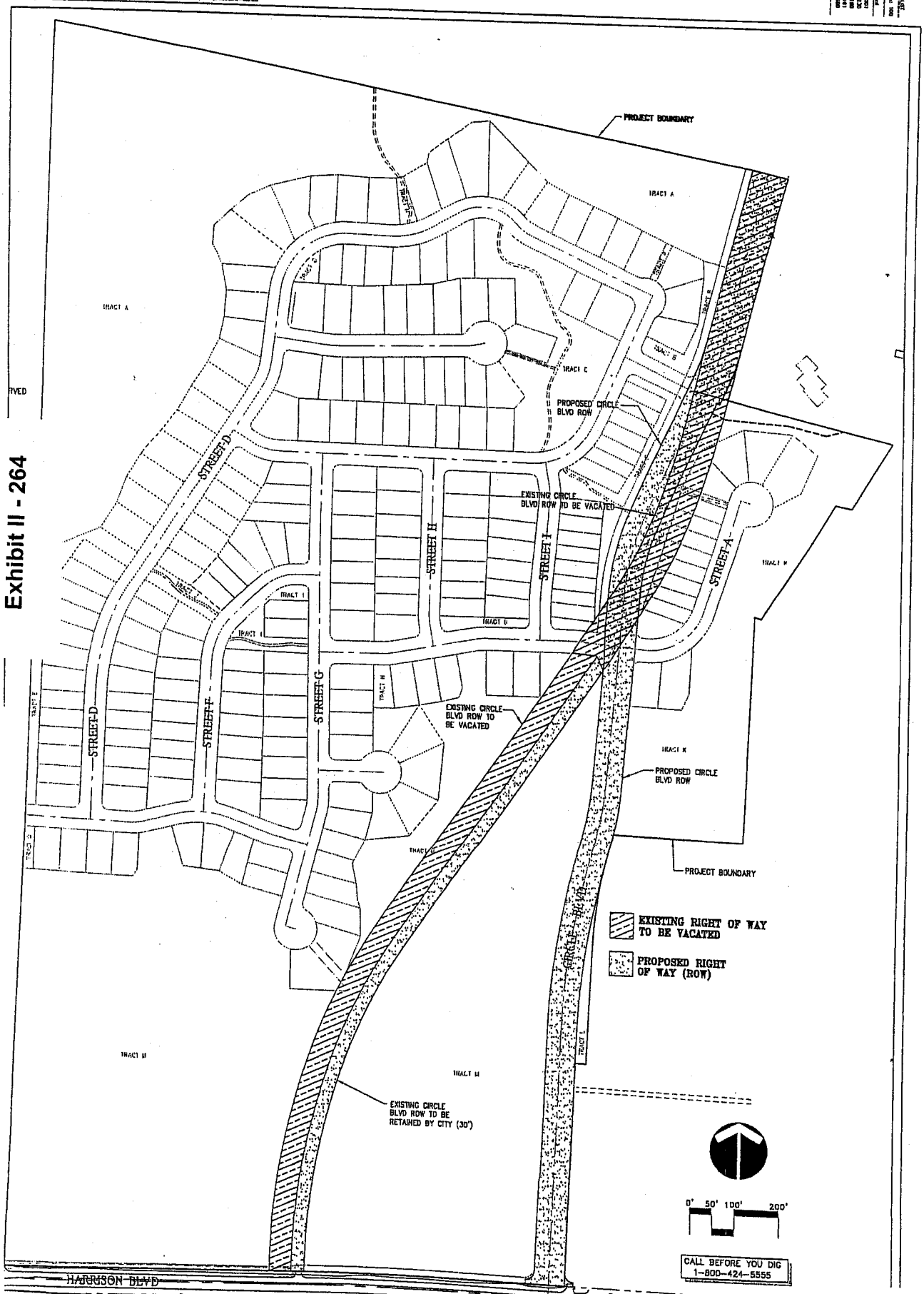


Exhibit II - 264

WITHAM OAKS

CORVALLIS, OREGON

PROPOSED ROW VACATION

Oak Incorporated

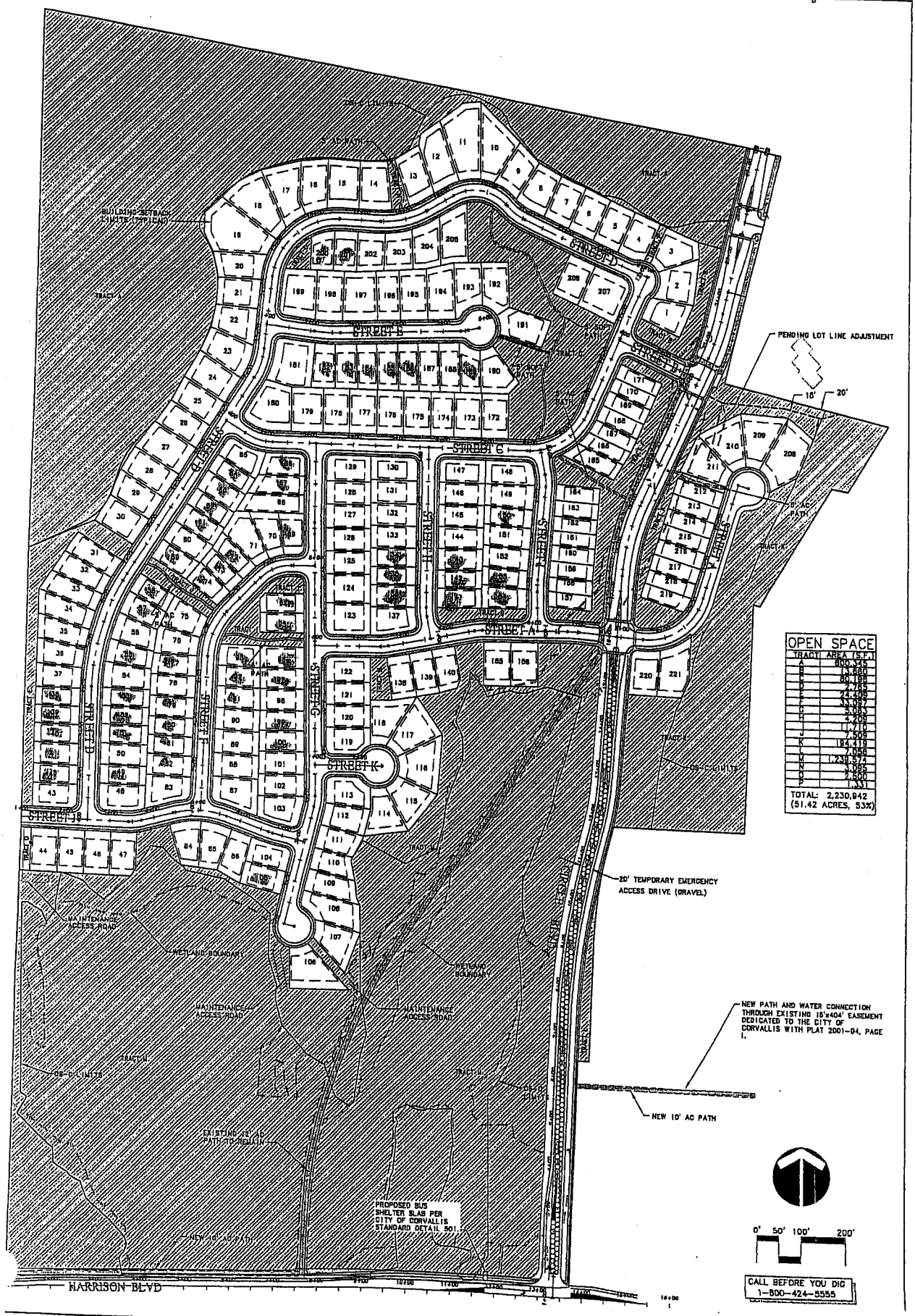
MATRIX PARTNERSHIP

LEGEND HOMES

CORVALLIS OFFICE
313 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-3102
FAX: (541) 754-1141

Project No. 12059

Attachment I - 69
PLD06-00012, et al.



WITHAM OAKS

CORVALLIS, OREGON

DETAILED DEVELOPMENT PLAN

Project No. 12059

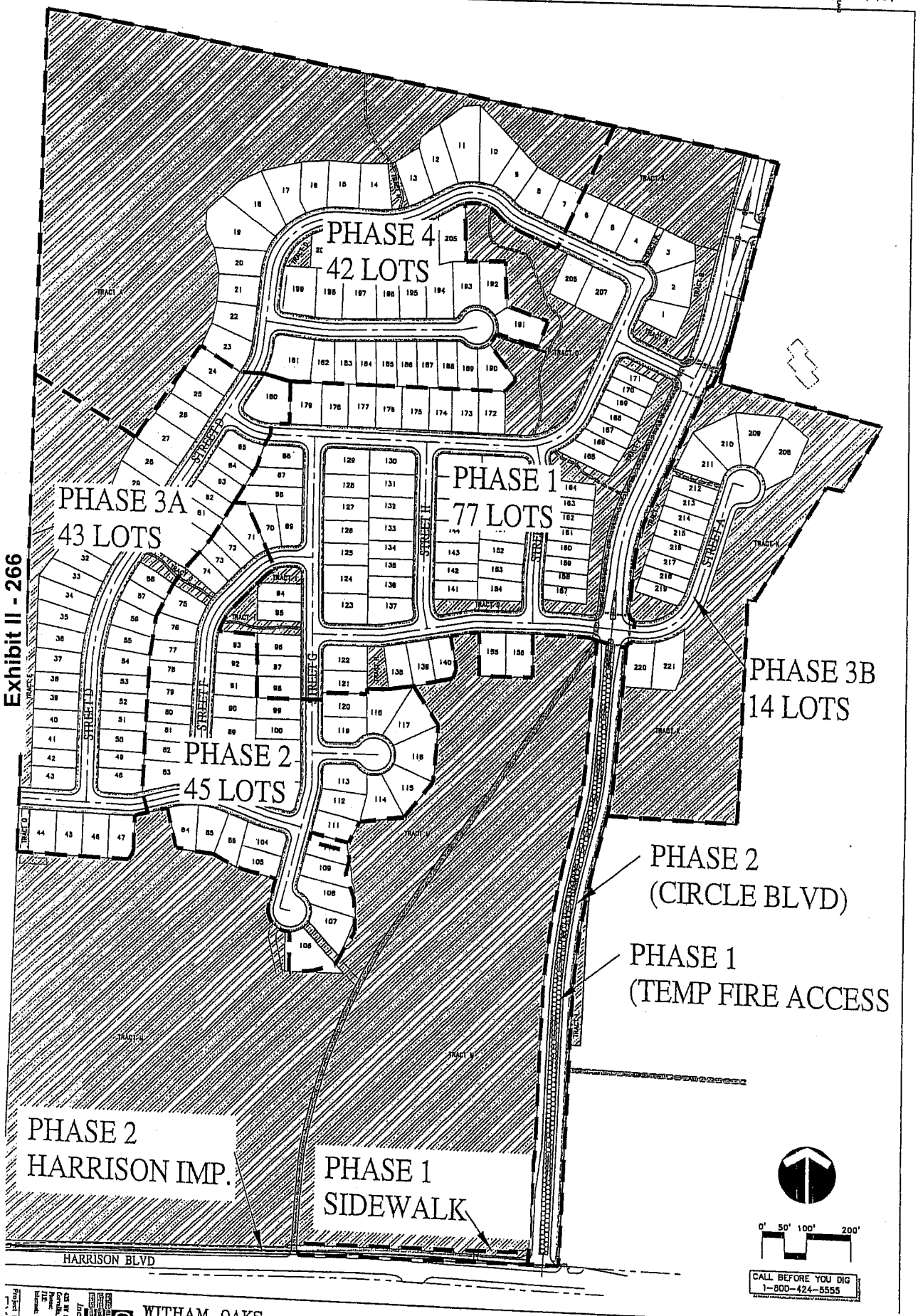
MATRIX

LEGEND HOMES

CORVALLIS OFFICE
513 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2102
FAX: (541) 754-1141

Exhibit II - 265

Attachment I - 70
PLD06-00012, et al.

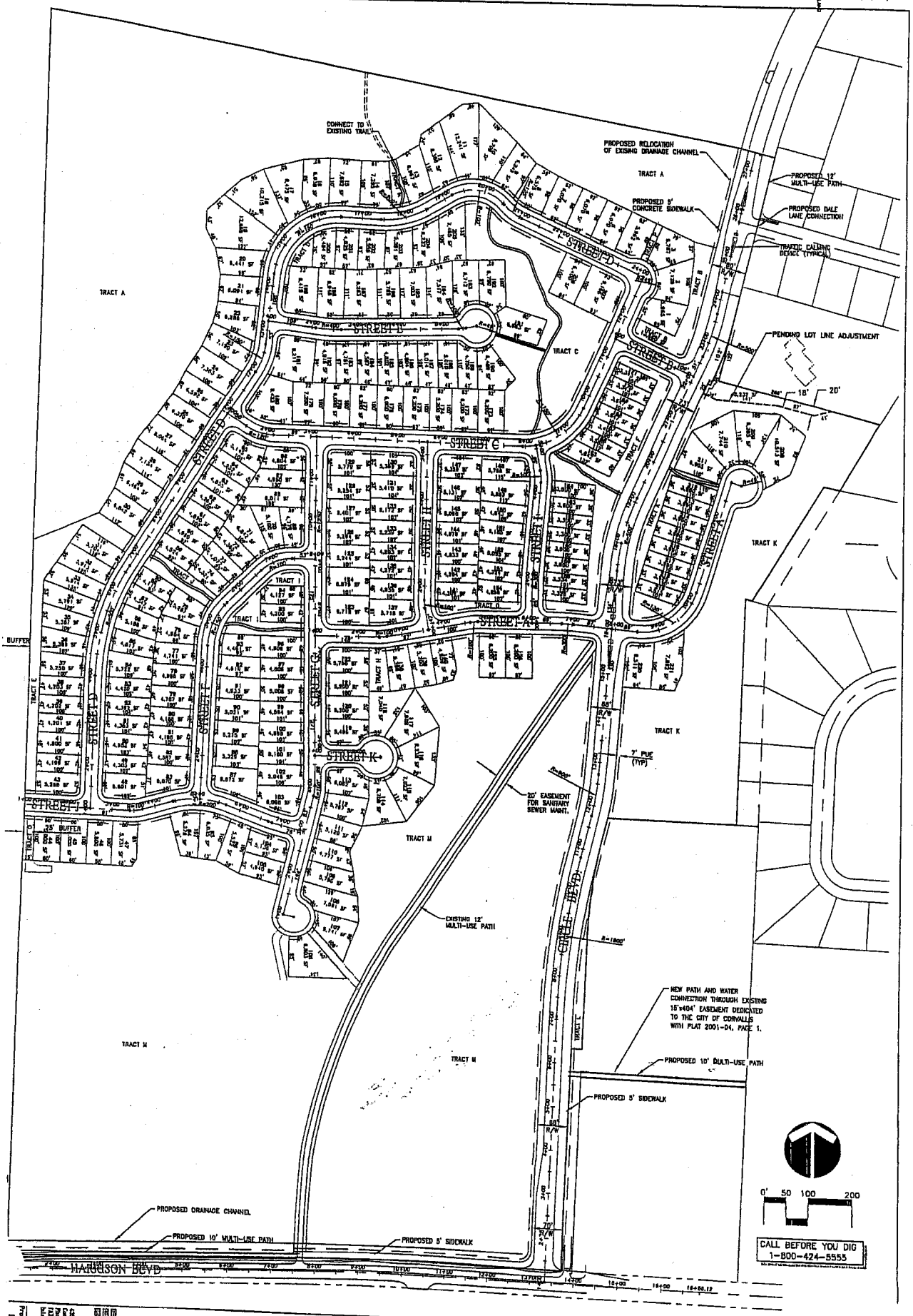


WITHAM OAKS
CORVALLIS, OREGON
PHASING PLAN

MATRIX
LEGEND HOMES

CORVALLIS OFFICE
315 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2183
FAX: (541) 754-1141

Exhibit II - 266



WITHAM OAKS

CORVALLIS, OREGON

TENTATIVE SITE PLAN

Project No. 12059

MATRIX

LEGEND HOMES

CORVALLIS OFFICE
315 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2102
FAX: (541) 754-1141

Exhibit II - 267

Attachment I - 72
PLD06-00012, et al.

6am 9am 12 3pm 6pm

WITHAM OAKS
CORVALLIS, OREGON
SOLAR ACCESS PLAN
9 AM

otak
incorporated

Project No. 12059

WITHAM OAKS
CORVALLIS, OREGON
SOLAR ACCESS PLAN
NOON

otak
incorporated

Project No. 12059

6am 9am 12 3pm 6pm

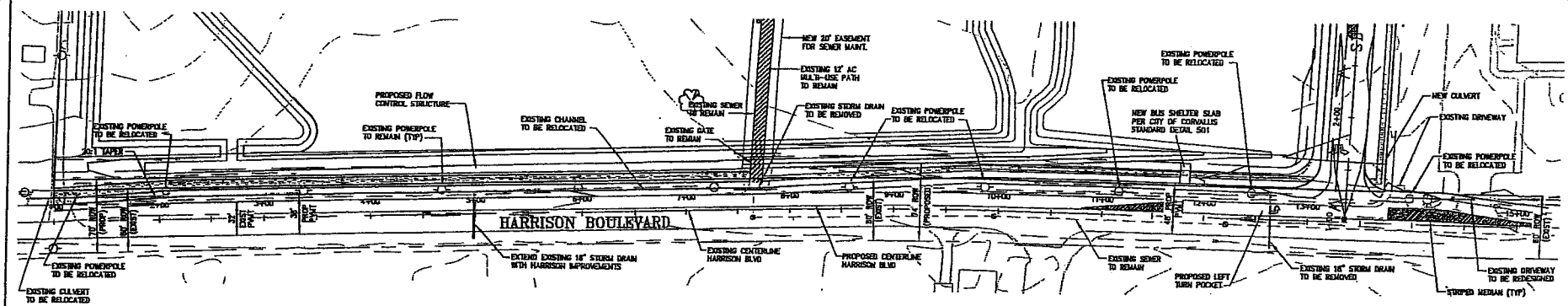
WITHAM OAKS
CORVALLIS, OREGON
SOLAR ACCESS PLAN
3 PM

otak
Incorporated
Project No. 12059

MATRIX
LEGEND HOMES

Attachment I - 75
PLD06-00012, et al.

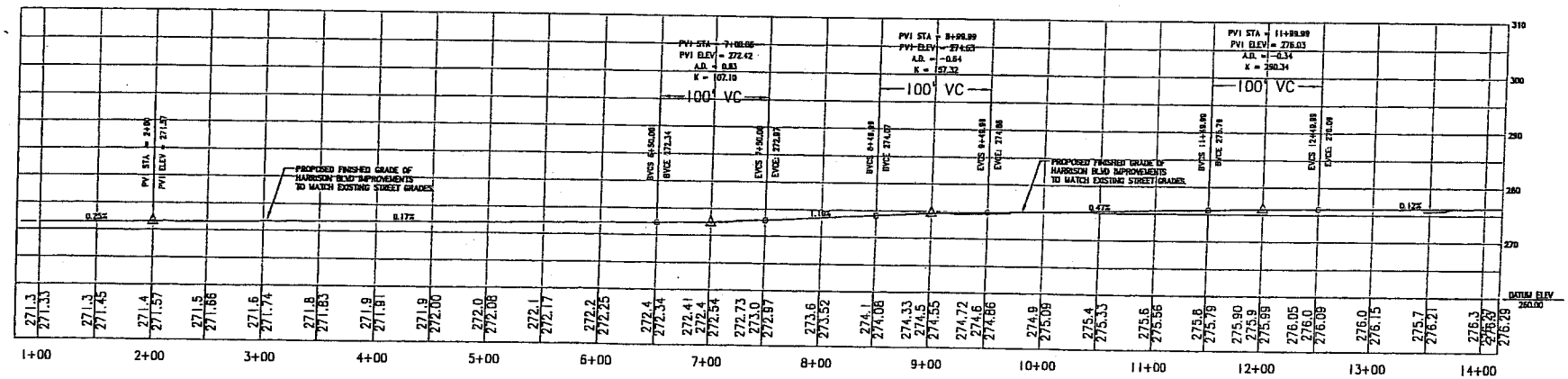
Exhibit II - 270



HARRISON BOULEVARD
SCALE: 1"=50'

PRELIMINARY ONLY

0' 50' 100' 200'



HARRISON BOULEVARD
SCALE: 1"=50' H
1"= 5' V

WITHAM OAKS
CORVALLIS, OREGON
HARRISON BOULEVARD

otak Incorporated
635 NW 6th St., Suite B
Corvallis, Oregon 97333
Phone (541) 738-1081
FAX (541) 738-1812
Internet: WWW.Otak.COM

12059
Project No.

CORVALLIS OFFICE
333 SW Western Avenue
Corvallis, Oregon 97333
PHONE (541) 754-1700
FAX: (541) 754-1141

LEGEND HOMES

MATRIX DEVELOPMENT

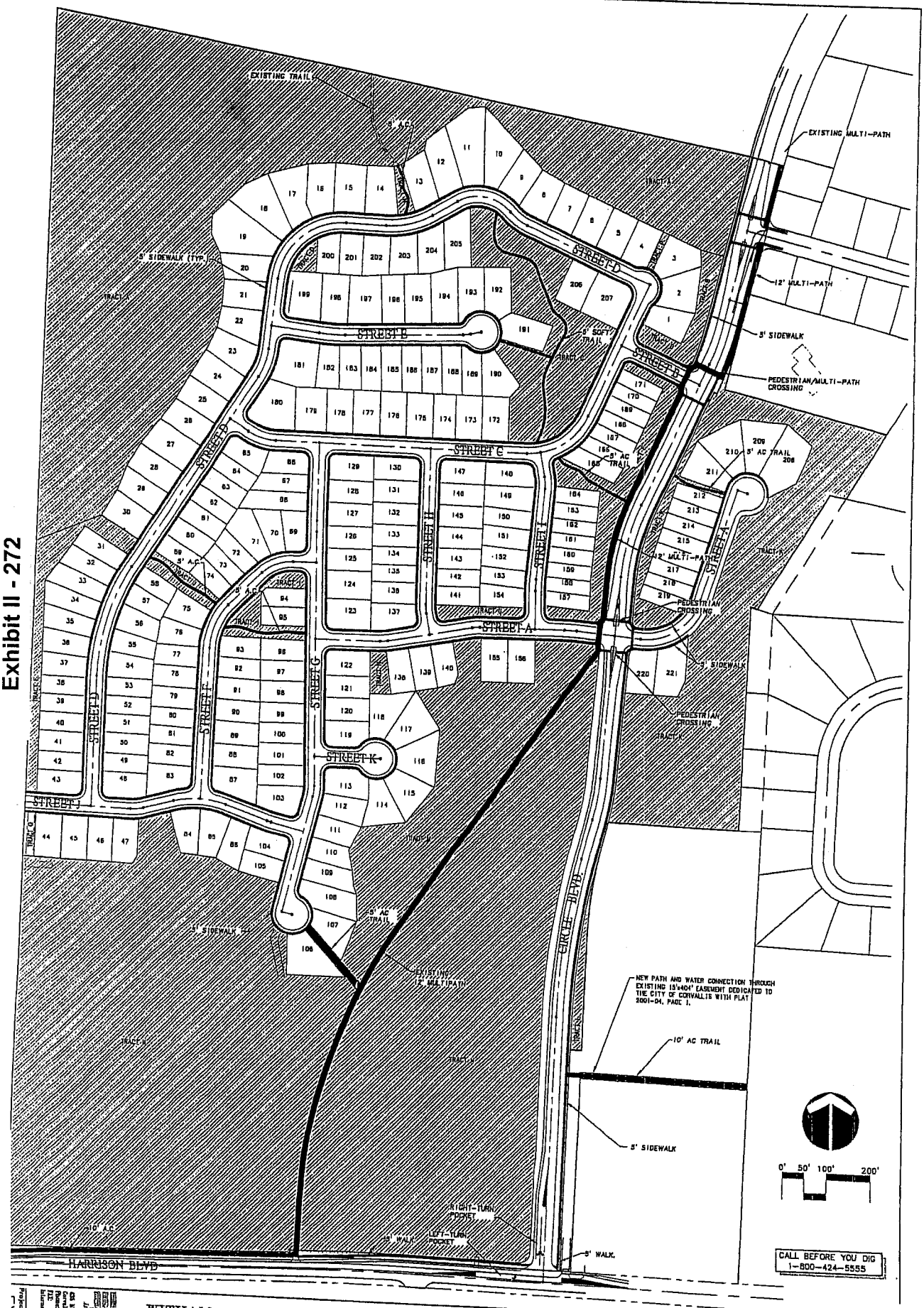
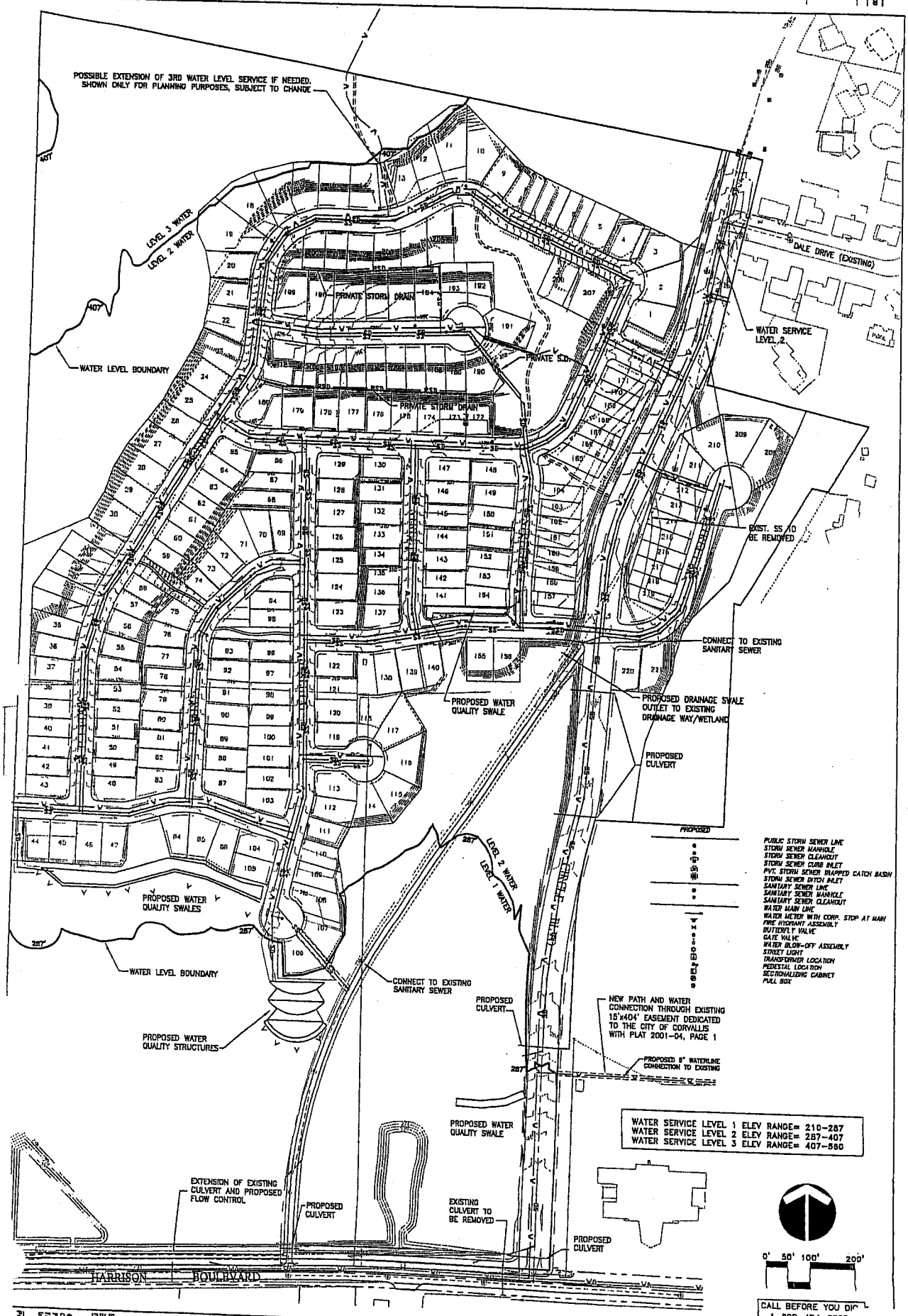


Exhibit II - 272

WITHAM OAKS
CORVALLIS, OREGON
CIRCULATION PLAN

Attachment I - 77
PLD06-00012, et al.



WITHAM OAKS

CORVALLIS, OREGON

PRELIMINARY UTILITY PLAN

MATRIX PARTNERSHIP

LEGEND HOMES

CORVALLIS OFFICE
515 SW Washington Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-3102
FAX: (541) 754-1141

Project No. 12059

Exhibit II - 273

Attachment I - 78
PLD06-00012, et al.

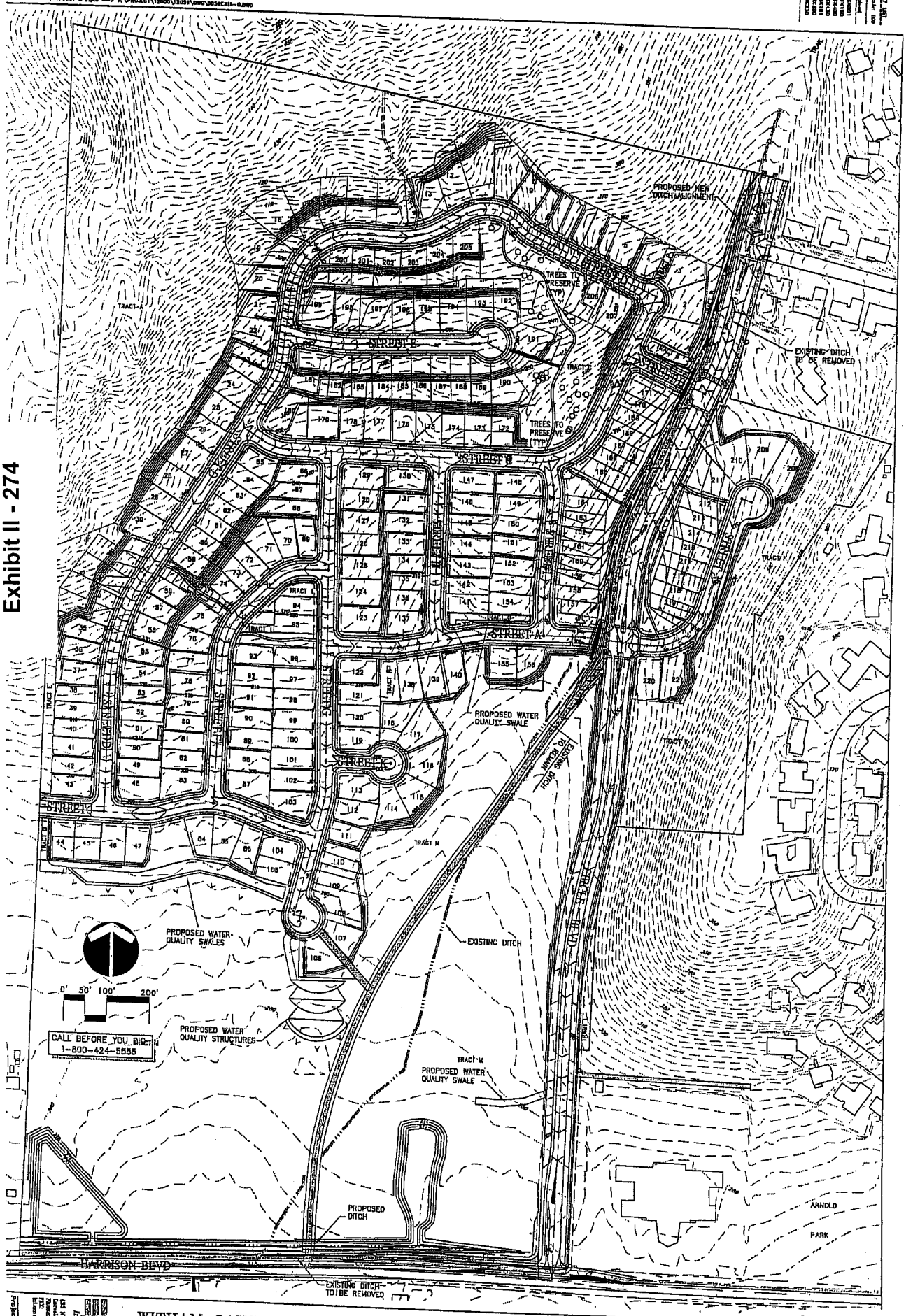


Exhibit II - 274

WITHAM OAKS

CORVALLIS, OREGON

PRELIMINARY GRADING PLAN

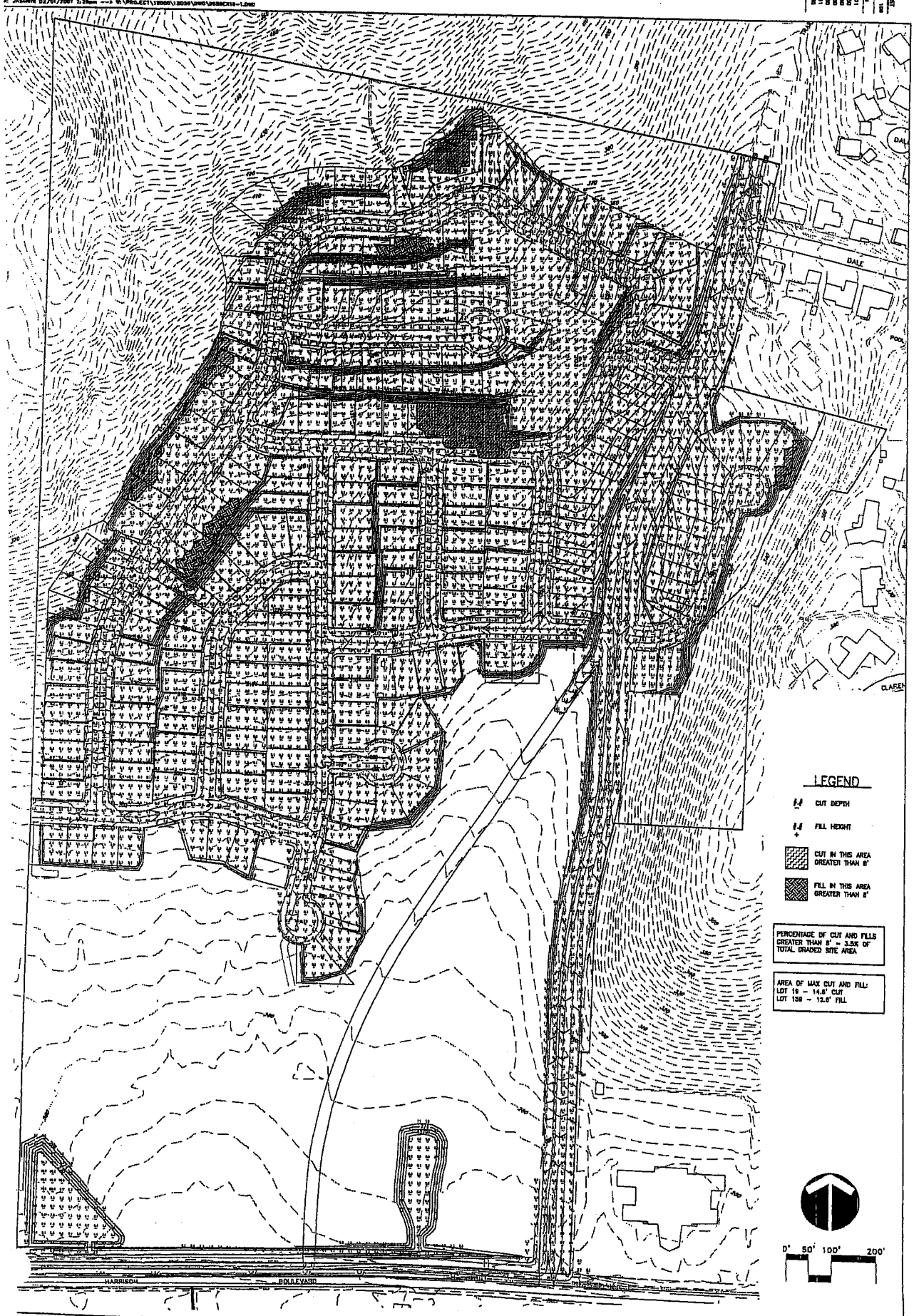
Project No. 12059

MATRIX

LEGEND HOMES

CORVALLIS OFFICE
315 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2102
FAX: (541) 754-1141

Attachment I - 79
PLD06-00012, et al.



WITHAM OAKS

CORVALLIS, OREGON

PRELIMINARY GRADING PLAN
CUT AND FILL ANALYSIS

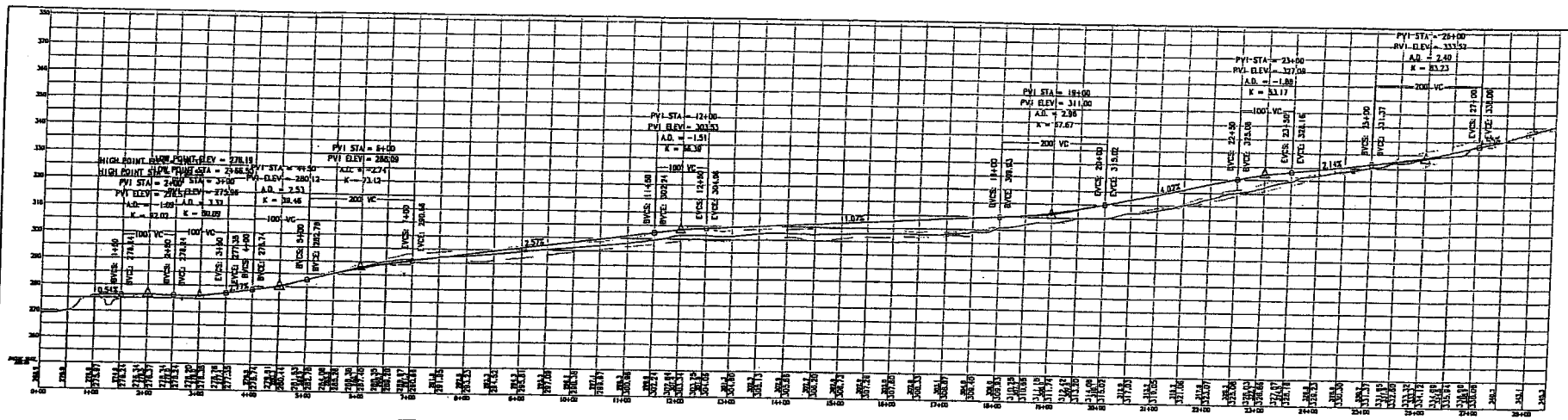
MATRIX

LEGEND HOMES

CORVALLIS OFFICE
513 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-3102
FAX: (541) 754-1141

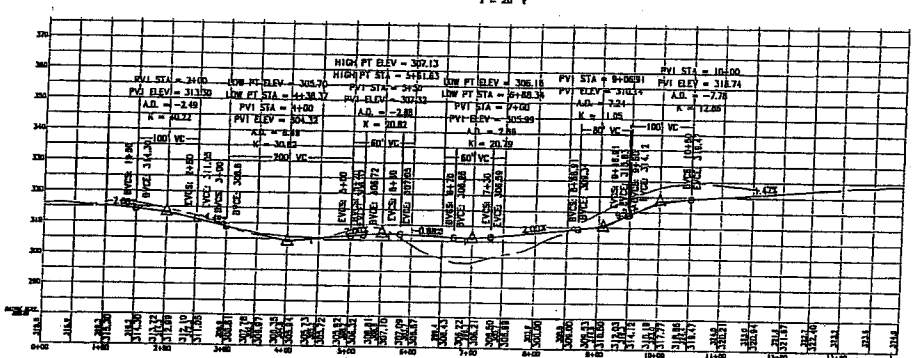
Project No. 12059

Exhibit II - 275

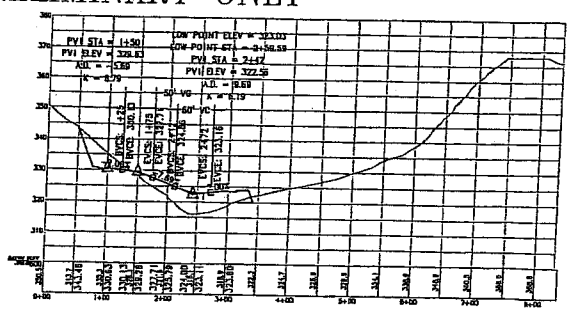


CIRCLE BLVD
SCALE: 1"=100' H
1"= 20' V

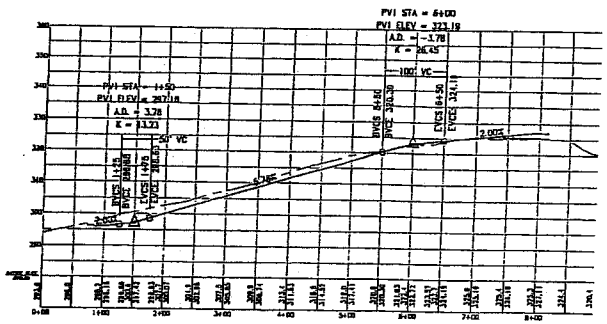
ALL PROFILES ARE PRELIMINARY ONLY



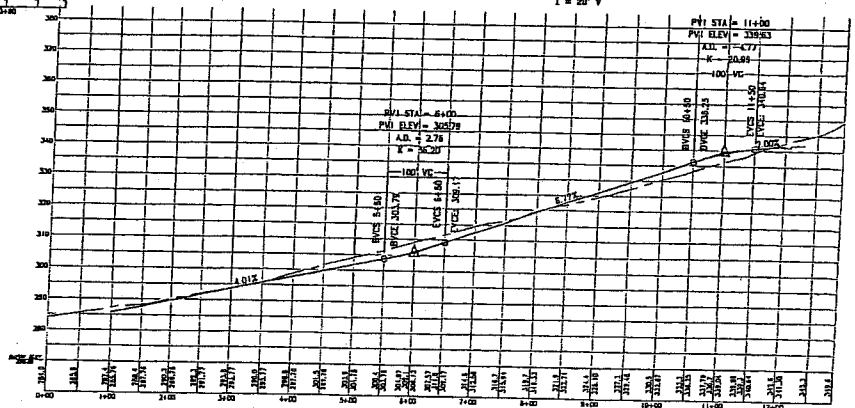
STREET A
SCALE: 1"=100' H
1"= 20' V



STREET B
SCALE: 1"=100' H
1"= 20' V



STREET F
SCALE: 1"=100' H
1"= 20' V



STREET G

Exhibit II - 276

CORVALLIS OFFICE
315 SW Washington
Corvallis, Oregon 97333
PHONE: (541) 754-1103
FAX: (541) 754-1141

LEGEND HOMES

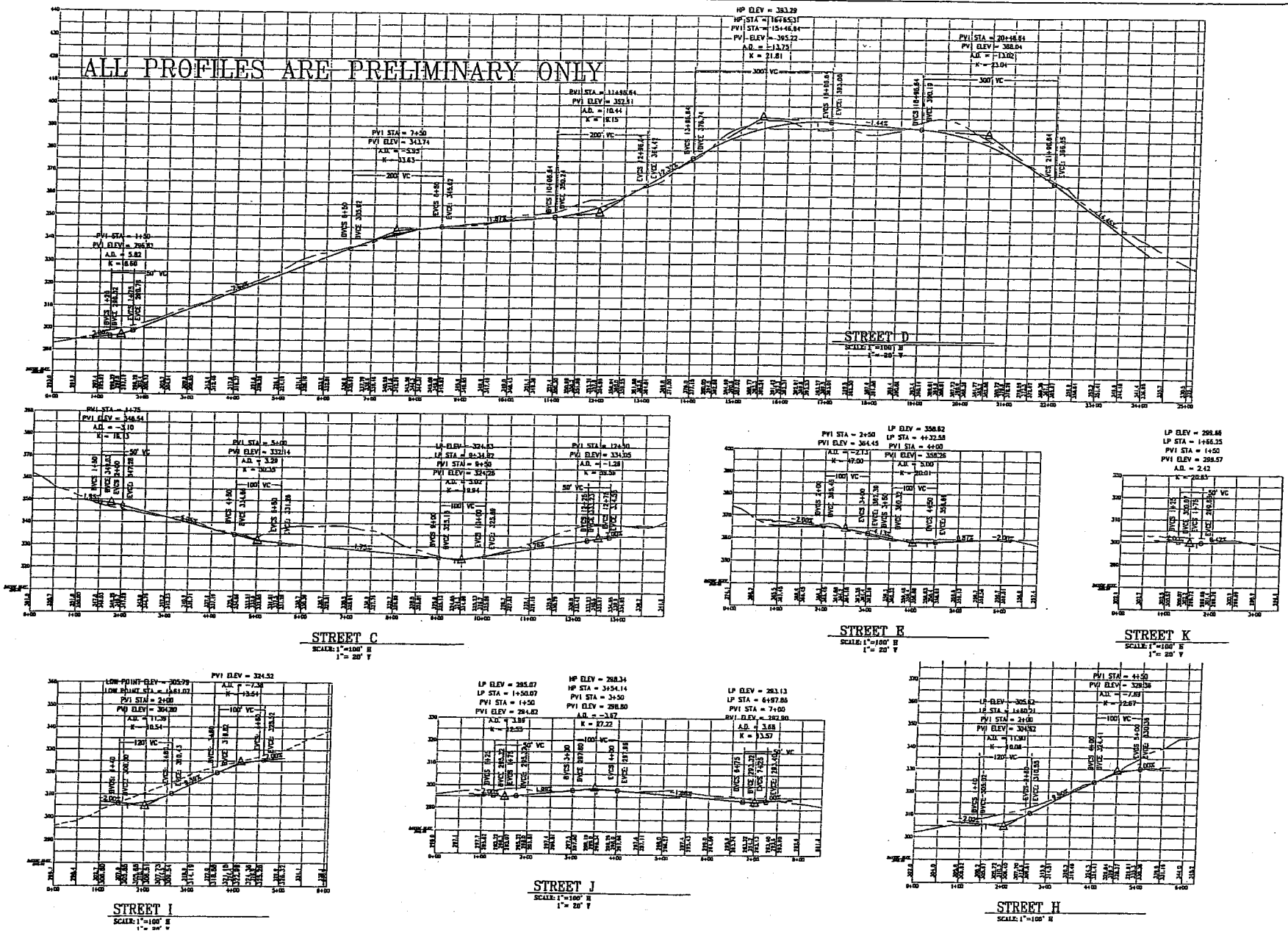
MATRIX
ENGINEERING

WITHAM OAKS
CORVALLIS, OREGON
PRELIMINARY PROFILES

otak
Incorporated
135 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1811
FAX: (541) 738-1812
Internet: WWW.OTAK.COM

12059
Project No.

Checked By
Date



WITHAM OAKS
CORVALLIS, OREGON

PRELIMINARY PROFILES

otak
Incorporated
435 NW 6th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1021
FAX: (541) 738-1022
Internet: WWW.OTAK.COM

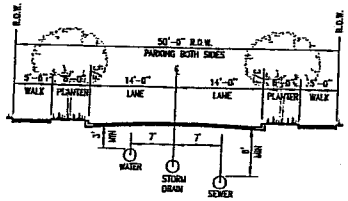
Project No. 12059

CORVALLIS OFFICE
333 SW Fifth Avenue
Suite 100
Corvallis, Oregon 97333
PHONE: (541) 754-2102
FAX: (541) 754-1141

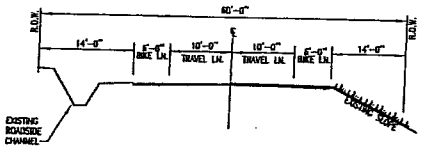
LEGEND HOMES

MATRIX MANAGEMENT

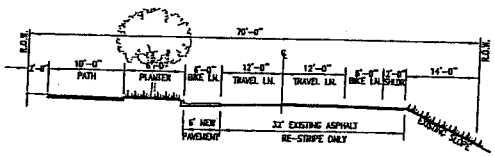
Date



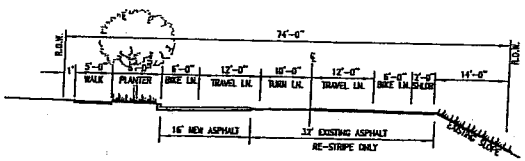
Typical Local Street
NOT TO SCALE



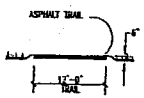
Existing Harrison Boulevard
NOT TO SCALE



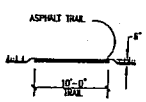
Proposed Harrison Boulevard
(Sta 1+00 to Sta 7+12)
NOT TO SCALE



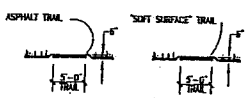
Proposed Harrison Boulevard
(Sta 7+12 to Sta 13+30)
NOT TO SCALE



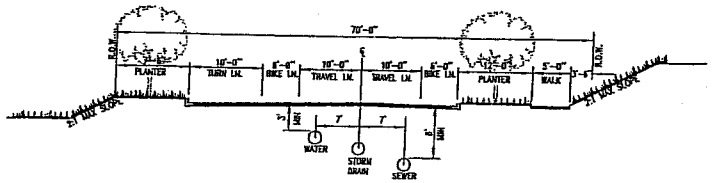
Multi-use Path
Circle Blvd
NOT TO SCALE



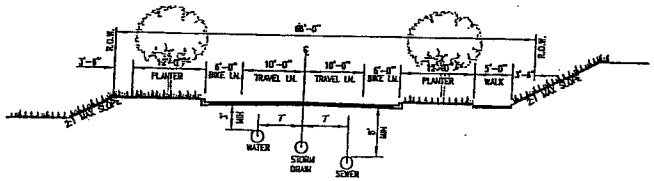
Multi-use Path
Harrison Blvd
NOT TO SCALE



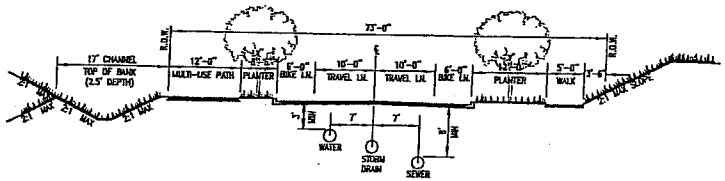
Pedestrian Trail
NOT TO SCALE



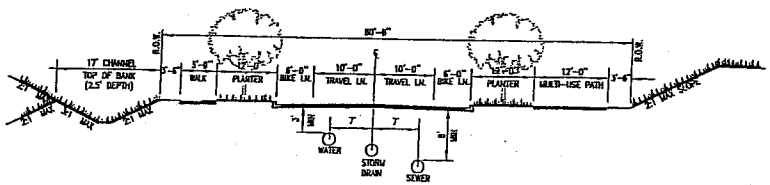
Circle Boulevard
(Sta 1+00 to Sta 3+60)
NOT TO SCALE



Circle Boulevard
(Sta 3+60 to Sta 15+63)
NOT TO SCALE



Circle Boulevard
(Sta 15+63 to Sta 22+15)
NOT TO SCALE



Circle Boulevard
(Sta 22+15 to Sta 27+43)
NOT TO SCALE

WITHAM OAKS
CORVALLIS, OREGON
STREET SECTIONS

Otak Incorporated
435 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1601
FAX: (541) 738-1612
Internet: WWW.Otak.COM

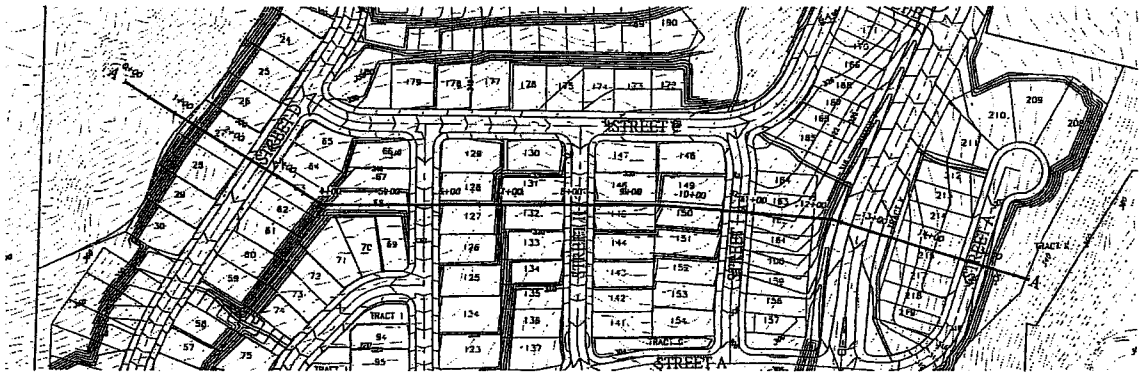
12059
Project No.

CORVALLIS OFFICE
311 SW Washington
Corvallis, Oregon 97333
PHONE: (541) 754-3100
FAX: (541) 754-1141

LEGEND HOMES

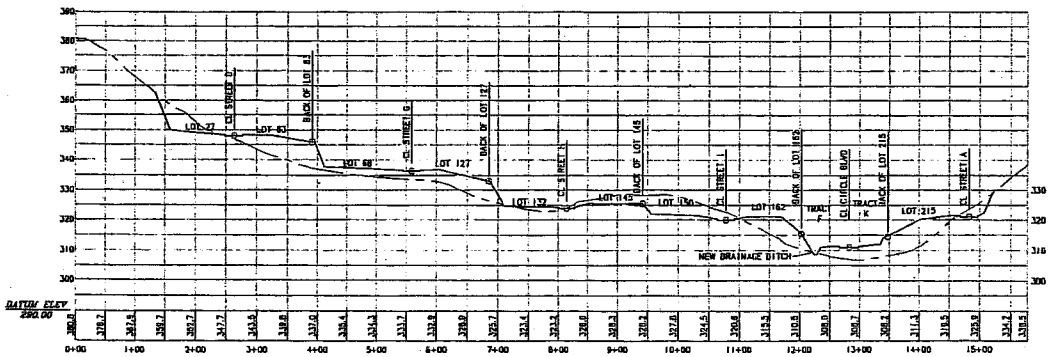
MATRIX ENGINEERING

Date

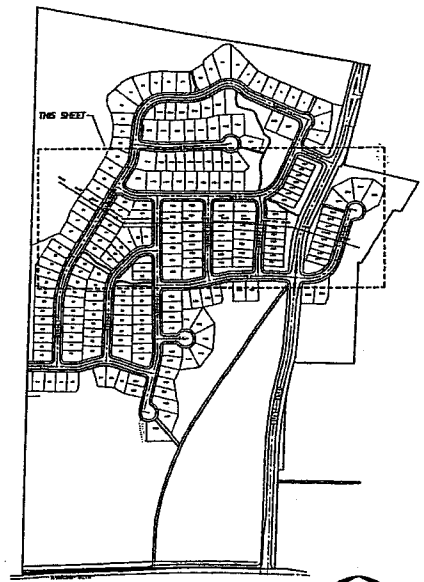


A 17 SECTION A-A
EAST-WEST SECTION
PLAN VIEW

0' 50' 100' 200'



A 17 SECTION A-A
EAST-WEST SECTION
PROFILE VIEW
SCALE: 1"=100' H
1"= 20' V



KEY MAP
SCALE: 1"=300'

Date
Designed
Drawn
Checked

CORVALLIS OFFICE
515 SW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-1169
FAX: (541) 754-1141

LEGUND HOMES

MATRIX PROPERTIES

WITHAM OAKS
CORVALLIS, OREGON
EAST-WEST GRADING CROSS SECTION

otak Incorporated
435 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1811
FAX: (541) 738-1812
Internet: WWW.OTAK.COM

12059
Project No.
EX 17.1
Sheet No.
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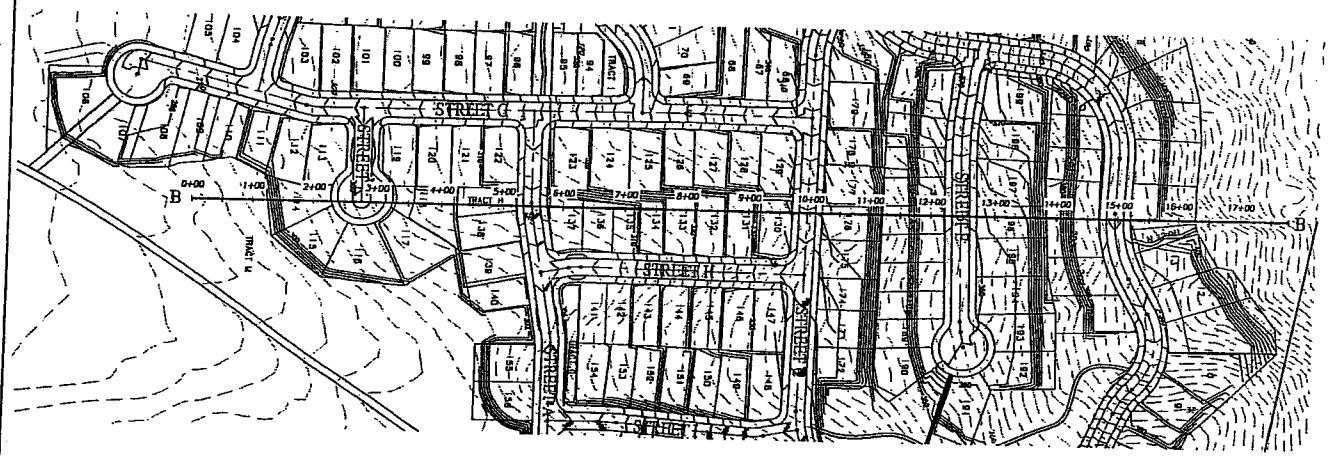
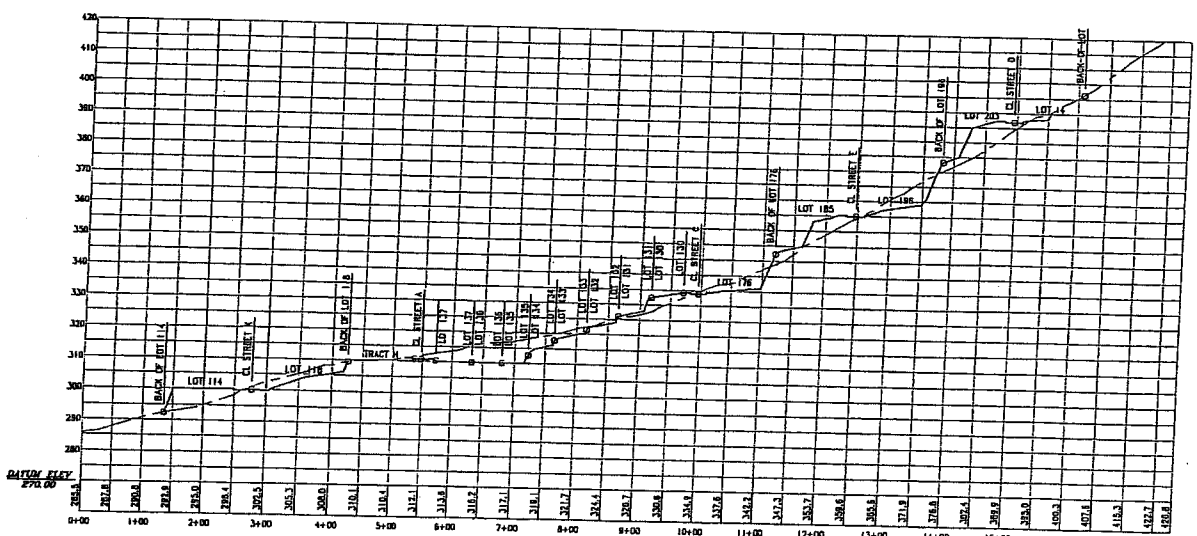
Attachment I - 84
PLD06-00012, et al.

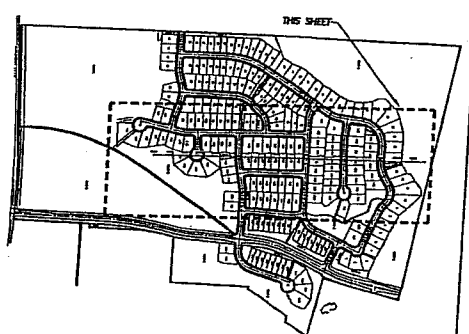


B 17 SECTION B-B
NORTH-SOUTH SECTION
PLAN VIEW

0' 50' 100' 200'



B 17 SECTION B-B
NORTH-SOUTH SECTION
PROFILE VIEW
SCALE: 1"=100' H
1"= 20' V



KEY MAP
SCALE: 1"=400'

WITHAM OAKS
CORVALLIS, OREGON
NORTH-SOUTH GRADING CROSS SECTION

otak Incorporated
455 NW 5th St., Suite D
Corvallis, Oregon 97330
Phone: (541) 738-1811
FAX: (541) 738-1812
Internet: WWW.OTAK.COM

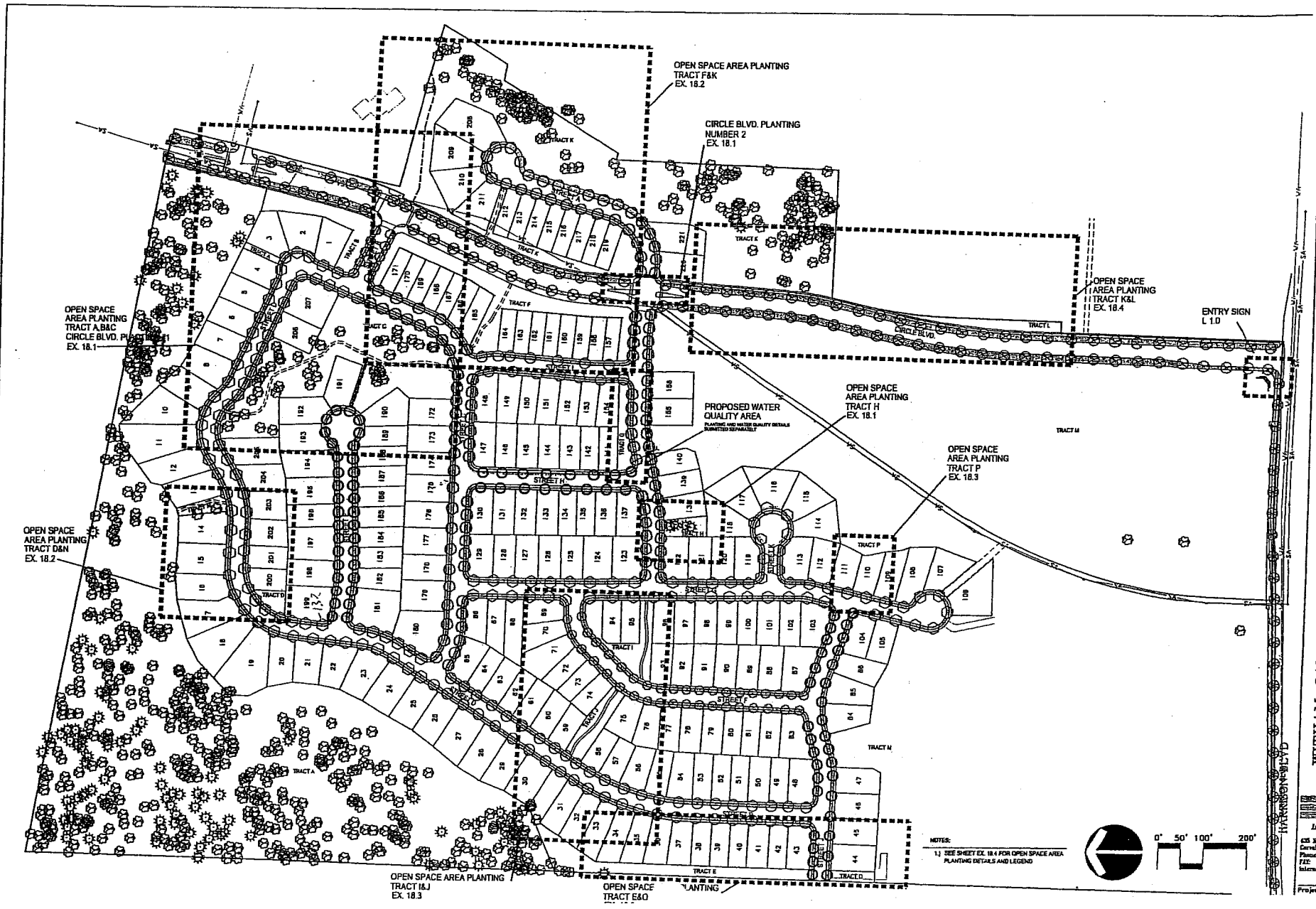
12059
Project No.

Checked By

CORVALLIS OFFICE
315 NW Western Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-2100
FAX: (541) 754-1141

MATRIX
ENVIRONMENTAL

SHEET LIST
Elevation 100
Scanned
0058X001
0058X002
0058X230
0058X400
0058X430



Drawn KEL

Checked By Date

CORVALLIS OFFICE
315 SW Washington Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-3102
FAX: (541) 754-1141

LEGEND HOMES

MATRIX NORTHWEST

WITHAM OAKS

CORVALLIS, OREGON

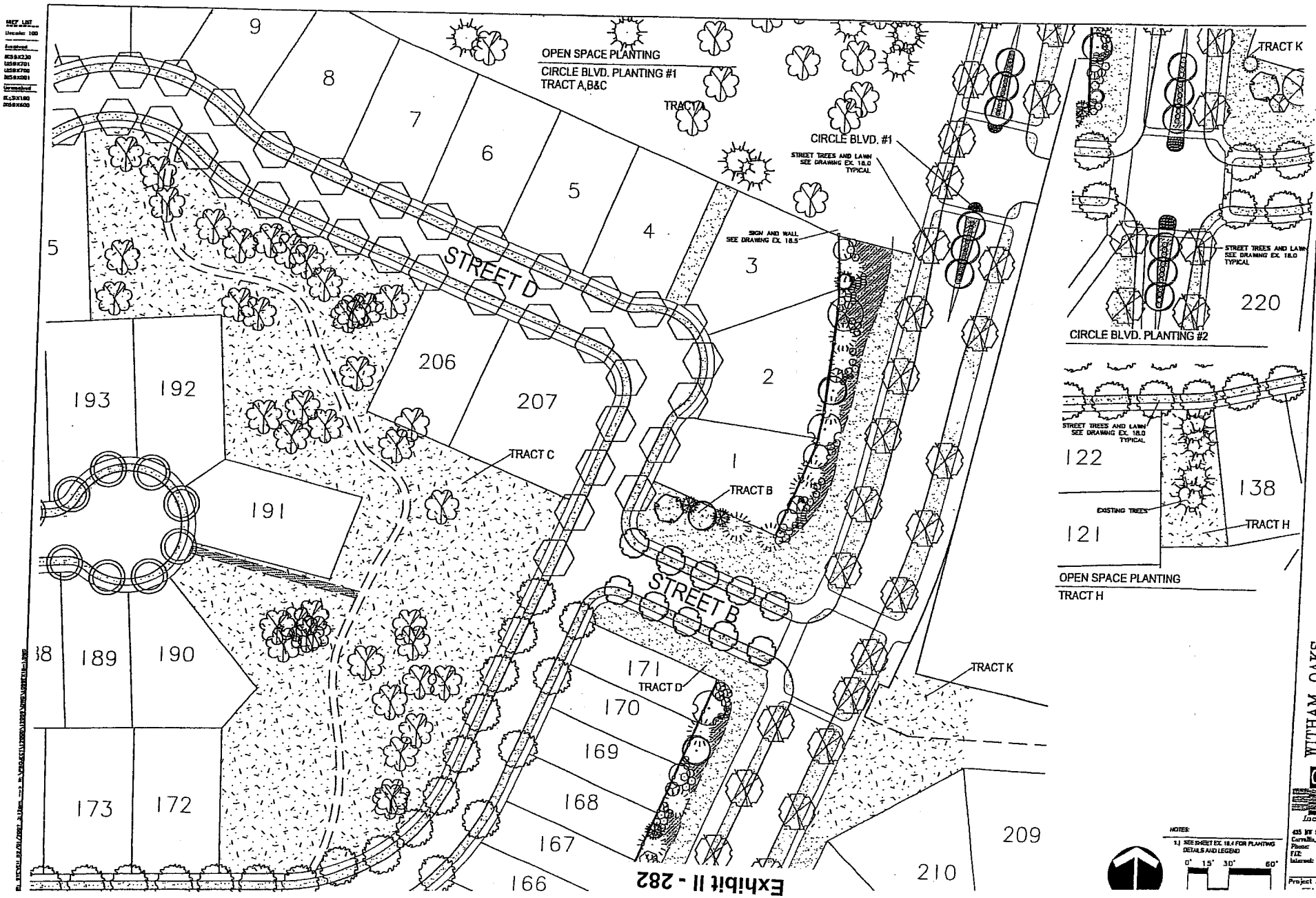
PRELIMINARY STREET TREE PLAN

otak Incorporated

625 SW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1811
FAX: (541) 738-1812
Internet: WWW.OTAK.COM

12059
Project No.

Attachment I - 86
PLD06-00012, et al.


OPEN SPACE PLANTING
CIRCLE BLVD. PLANTING #1
TRACT A,B&C
TRACT A
CIRCLE BLVD. #1
STREET TREES AND LAWN SEE DRAWING EX. 18.0 TYPICAL
SIGN AND WALL SEE DRAWING EX. 18.5
STREET D
STREET B
TRACT B
TRACT C
TRACT D
TRACT H
TRACT K
CIRCLE BLVD. PLANTING #2
OPEN SPACE PLANTING
TRACT H
EXISTING TREES
9
8
7
6
5
4
3
2
1
5
206
207
193
192
191
189
190
173
172
171
170
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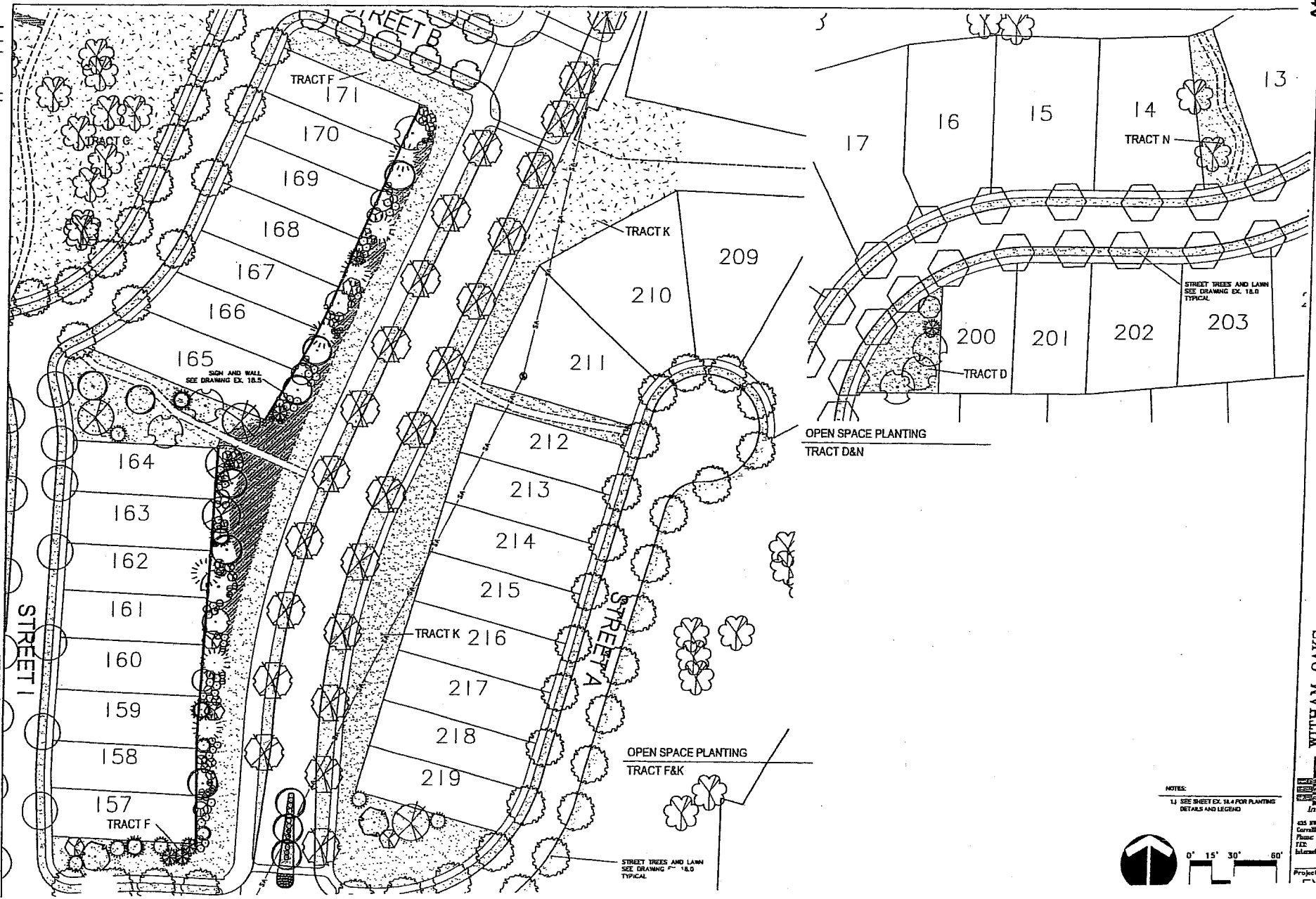
166
122
121
138
220
209
210
NOTES:
1.) SEE SHEET EX. 18.4 FOR PLANTING DETAILS AND LEGEND
0' 15' 30' 60'
WITHAM OAKS
CORNVALLIS, OREGON
OPEN SPACE TRACT A, B, C & H,
CIRCLE BLVD 1 & 2
PLANTING PLAN
otak
Incorporated
435 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1411
FAX: (541) 738-1412
Internet: WWW.OTAK.COM
12059
Project No.
CORVALLIS OFFICE
312 SW Madison Avenue
Corvallis, Oregon 97333
PHONE: (541) 753-9580
FAX: (541) 754-1141
LEGEND HOMES
MATRIX
PACIFIC NORTHWEST


STREET B
STREET I
STREET A
TRACT F
TRACT G
TRACT K
TRACT N
TRACT D
TRACT F&K
TRACT D&N
171
170
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168
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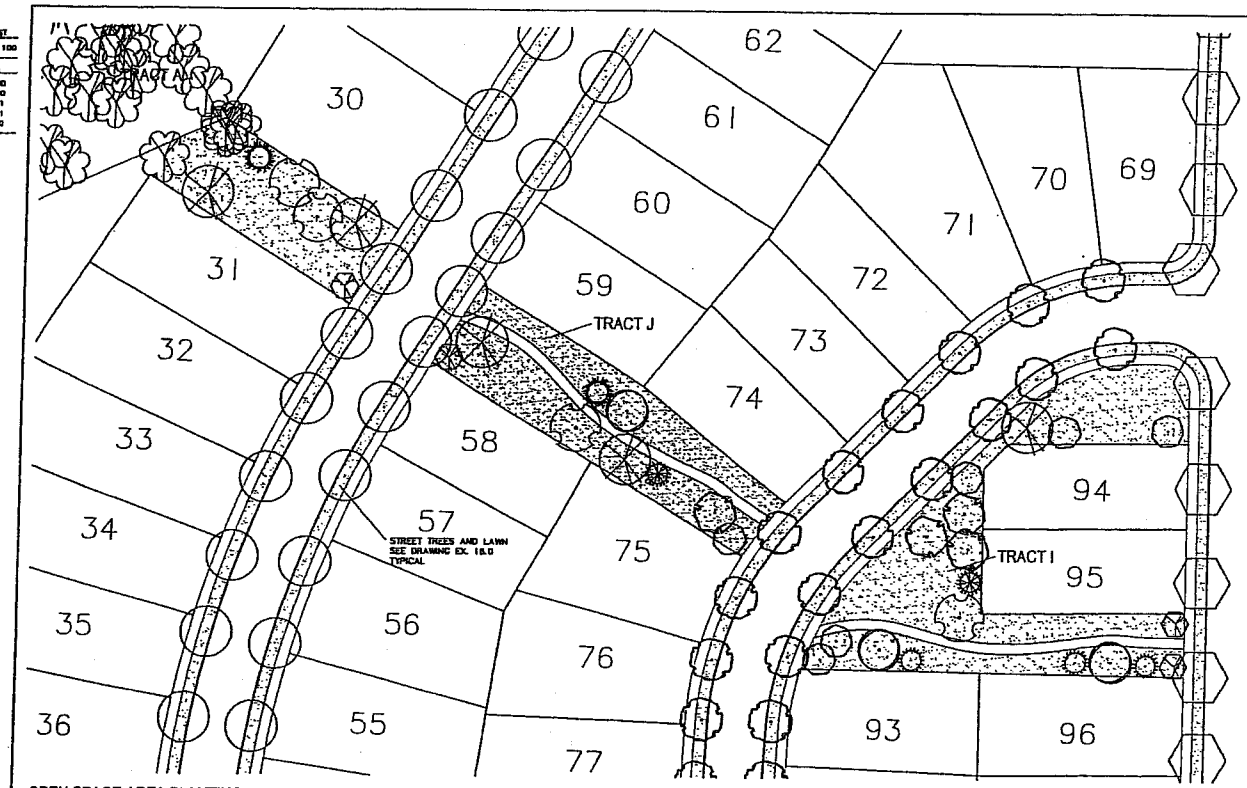
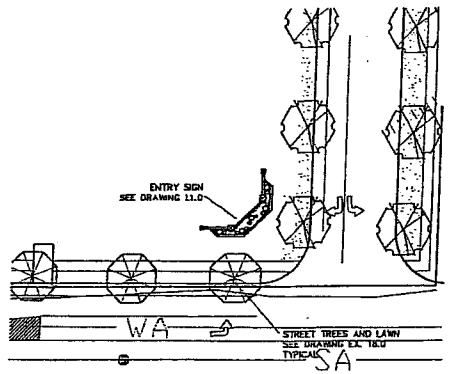
203
SIGN AND WALL
SEE DRAWING EX. 18.5
STREET TREES AND LAWN
SEE DRAWING EX. 18.0
TYPICAL
OPEN SPACE PLANTING
TRACT F&K
OPEN SPACE PLANTING
TRACT D&N
NOTES:
1.) SEE SHEET EX. 18.4 FOR PLANTING DETAILS AND LEGEND
0' 15' 30' 60'
WITHAM OAKS
CORVALLIS, OREGON
OPEN SPACE TRACT D, F, K & N
PLANTING PLAN
otak
Incorporated
12059
Project No.
LEGEND HOMES
MATRIX
Drawn
Checked By
Date

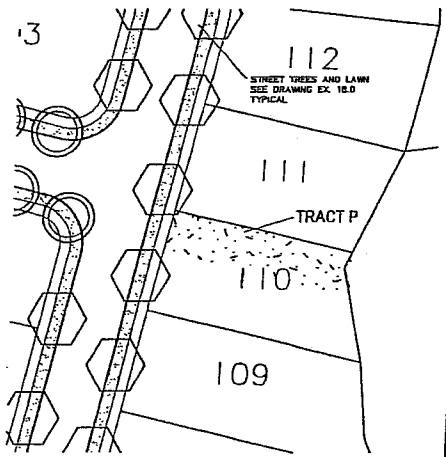


OPEN SPACE AREA PLANTING

TRACT I&J

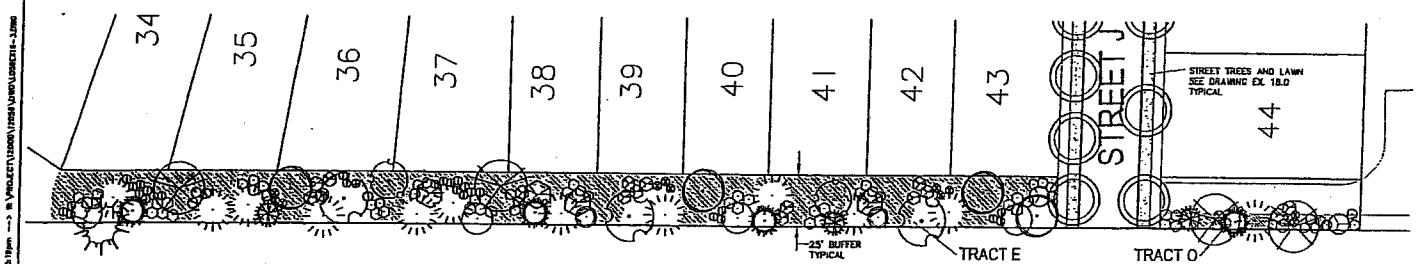


ENTRY SIGN



OPEN SPACE AREA PLANTING

TRACT P



OPEN SPACE AREA PLANTING

NOTES:

1.) SEE SHEET EX. 18.4 FOR PLANTING DETAILS AND LEGEND

0' 15' 30' 60'

WITHAM OAKS
CORVALLIS, OREGON
OPEN SPACE TRACT E, I, J, O & P
ENTRY SIGN
PLANTING PLAN

otak Incorporated
625 NW 5th St., Suite B
Corvallis, Oregon 97330
Phone: (541) 738-1811
FAX: (541) 738-1812
Internet: WWW.OTAK.COM

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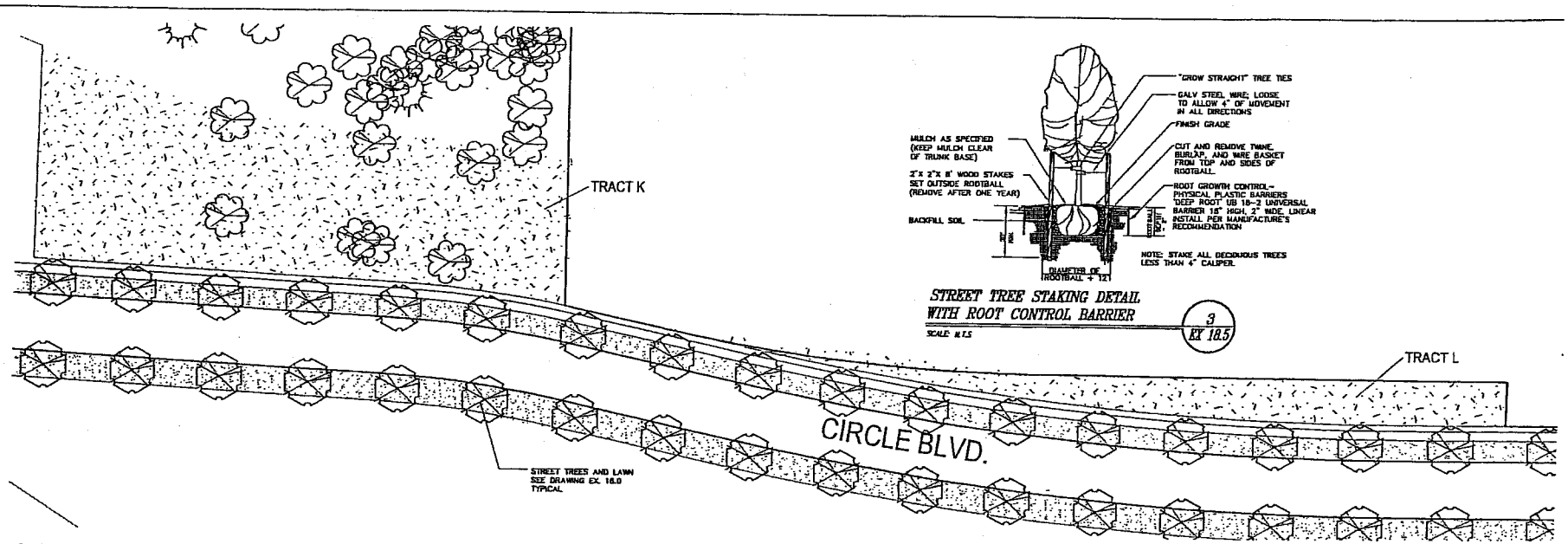
Project No.

CORVALLIS OFFICE
115 SW Madison Avenue
Corvallis, Oregon 97333
PHONE: (541) 754-1180
FAX: (541) 754-1141

LEGEND HOMES

MATRIX
MANAGEMENT

Exhibit II - 284



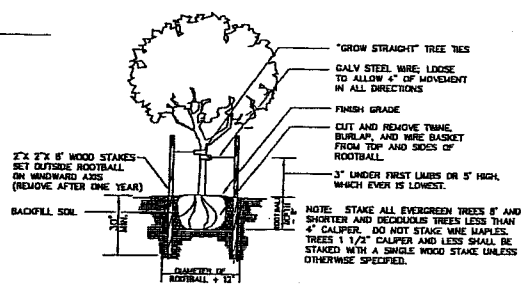
OPEN SPACE PLANTING

TRACT K&L

STREET TREE STAKING DETAIL WITH ROOT CONTROL BARRIER

SCALE: N.T.S

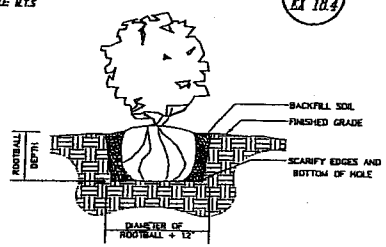
3 / EX 18.5



TREE STAKING DETAIL

SCALE: N.T.S

1 / EX 18.4



SHRUB PLANTING DETAIL

SCALE: N.T.S

2 / EX 18.4

0' 15' 30' 60'

PLANTING LEGEND

STREET TREES

SYMBOL	QUANTITY	COMMON NAME / Botanical name:	Size and Description
	100	TULIP TREE / Liriodendron tulipifera:	2" Cal., B&B
	80	GREENSPIRE LINDEN / Tilia cordata 'Greenspire' :	2" Cal., B&B
	131	KATSURA TREE / Cercidiphyllum japonicum:	2" Cal., B&B
	121	CRIMSON KING NORWAY MAPLE / Acer Platanoides ' Crimson King':	2" Cal., B&B
	83	MARSHALL'S SEEDLESS ASH / Fraxinus pennsylvanica lanceolata:	2" Cal., B&B
	48	BRADFORD PEAR / Pyrus calleryana 'Bradford':	2" Cal., B&B
	24	AMERICAN HORNBEAM / Carpinus caroliniana:	2" Cal., B&B

LAWN

LAWN (SEEDED)
Pro-time 309 (supreme mix) Grass Seed by Hobbs and Hopkins, Ltd at a rate of 8 lbs/1000 square feet.

NOTES

ALL PLANTER STRIPS AND STREET TREES WILL BE PROVIDED WITH AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM DESIGNED BY CONTRACTOR IN CONFORMANCE TO LOCAL CITY AND STATE CODES. CONTRACTOR WILL PROVIDE MATERIALS AND INSTALL ALL IRRIGATION DOWNSTREAM OF THE EXISTING WATER METER.

PLANTING LEGEND

TREES

SYMBOL	QUANTITY	COMMON NAME / Botanical name:	Size and Description
LC	11	LELAND CYPRESS / Cupressocyparis leylandii:	8'–10' HT., B&B
CS	15	'FAT ALBERT' COLORADO BLUE SPRUCE / Picea pungens 'Fat Albert':	8' HT., B&B
DF	27	DOUGLAS FIR / Pseudotsuga menziesii:	8' HT.
KD	4	CHINESE KOUSA DOGWOOD / Cornus Kousa Chinensis:	8' HT.
GB	8	GINKGO BILOBA / Maidenhair Tree:	2 1/2" Cal., B&B
SA	15	LITTLELEAF LINDEN / Tilia cordata:	2 1/2" Cal., B&B
YC	5	YOSHINO CHERRY / Prunus x yedoensis:	2 1/2" Cal., B&B
AA	30	AUTUMN APPLAUSE ASH / Fraxinus americana 'Autumn Applause':	2 1/2" Cal., B&B
LM	15	SUMMIT ASH / Fraxinus pennsylvanica 'Summit':	2 1/2" Cal., B&B
SW	14	SOURWOOD / Oxydendrum arboreum:	6'–7' HT.
JS	6	JAPANESE SNOWBELL / Styrax japonicus:	2" Cal., B&B
ER	7	EASTERN REDBUD / Cercis canadensis:	2 1/2" Cal., B&B
NS	9	NORWAY SPRUCE / Picea abies:	6' Ht.
PB	7	PAPER BIRCH / Betula papyrifera:	2 1/2" Cal., B&B
		EXISTING TREES TO REMAIN	

SHRUBS

SYMBOL	QUANTITY	COMMON NAME / Botanical name:	Size and Description
DGS	34	DWARF GLOBE BLUE SPRUCE / Picea pungens 'Glauca Globosa':	24"; HT., B&B
DBB	58	DWARF BURMAN BUSH / Euonymus alata 'Compacta':	24" HT., 4'
DRA	32	DWARF RUSSIAN ALMOND / Prunus tenella:	24" HT.
DAB	22	DAVID VIBURNUM / Viburnum davidii:	2 Gal., 3'
RHF	38	RHODODENDRON 'P.J.M':	24"–30", B&B, 4'
RHJ	87	RHODODENDRON 'JEAN MARIE DE MONTEGUE':	24"–30", B&B, 5'
OLL	7	OTTO LUYKEN CHERRY LAUREL / Prunus laurocerasus 'Otto Luyken':	24"–30" HT., 5'
AWS	44	ANTHONY WATERER SPIREA / Spirea bumalda 'Anthony Waterer':	2 Gal., 3'
RSP	80	RENAISSANCE SPIREA / Spirea nashotoiful 'renaissance':	2 Gal., 5'
DFV	12	DOUBLEFILE VIBURNUM / Viburnum p. tomentosum:	24"–30" HT.

LAWN AND GROUND COVER:

KBM – 'MASSACHUSETTS KINNIKINNICK' / Arctostaphylos uva-ursi 'Mass.': 4" POTS, 18" O.C.

LAWN (SEEDED)
Pro-time 309 (supreme mix) Grass Seed by Hobbs and Hopkins, Ltd at a rate of 8 lbs/1000 square feet.

MEADOW MIX (ROUGH SEEDED)
Pro-Time 710 FOX PLUS Grass Seed by Hobbs and Hopkins, Ltd at a rate of 2 lbs/1000 square feet.

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Corvallis, Oregon 97330
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LEGEND HOMES

MATRIX PARTNERS

WITHAM OAKS
CORVALLIS, OREGON
OPENSPACE TRACTS K & L
PLANTING PLAN/
DETAILS & LEGEND

otak
Incorporated

455 NW 5th St., Suite D
Corvallis, Oregon 97330
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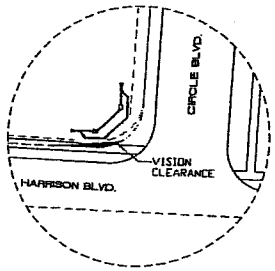
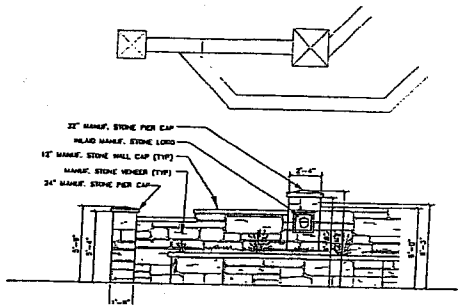
FAX: (541) 758-1812
Internet: WWW.Otak.COM

12059
Project No.

/06
Date



SITE PLAN
SCALE 1/8" = 1' - 0"



WEST WING ELEVATION
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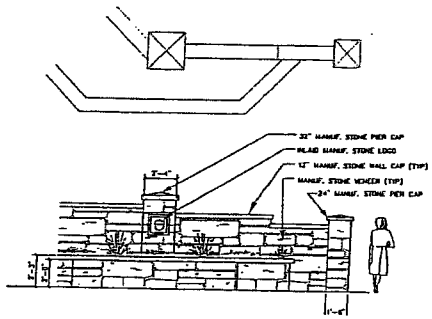

EAST WING ELEVATION
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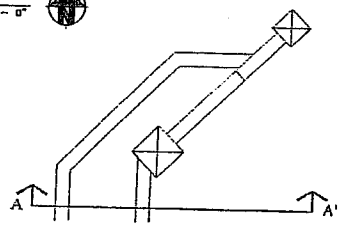

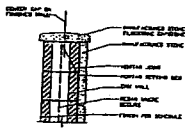

WALL SECTION
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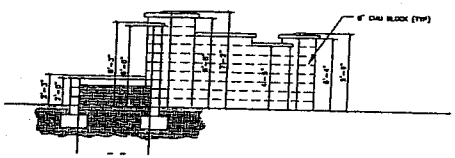

SECTION A - A'
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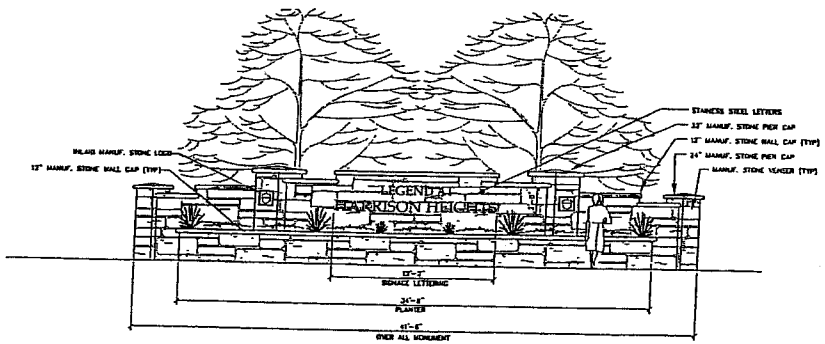

FRONT ELEVATION
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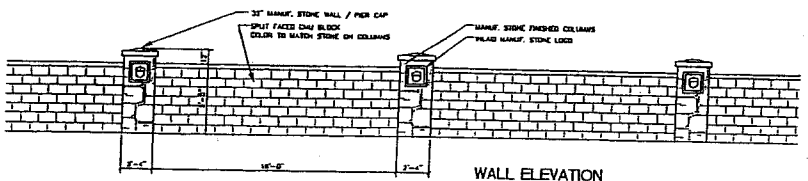
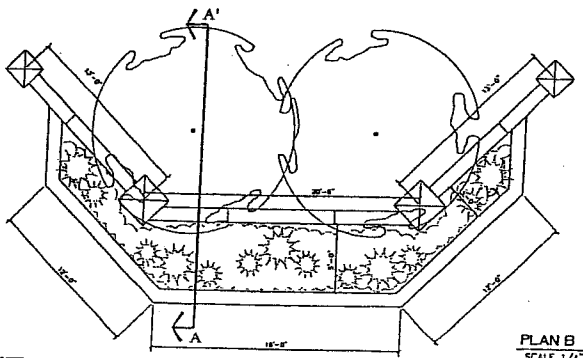


WALL ELEVATION
SCALE 1/4" = 1' - 0"



PLAN B
SCALE 1/4" = 1' - 0"

NO.	DATE	REVISION

OTTEN LANDSCAPE ARCHITECTS inc.
3933 SW Kelly Avenue • Suite B • Portland, Oregon 97239-4293
Phone (503) 972-0311 • Fax (503) 972-0314 • www.ottenla.com

WITHAM OAKS
CORVALLIS, OR

MONUMENT DESIGN

DATE	11-29-06
SCALE	AS NOTED
DRAWN	KC
CHECKED	JO
SHEET NO	L1.0

TIA-2

PTV America, Inc.
1128 NE 2nd Street, Suite 204
Corvallis, OR 97330
Phone: 541-754-6836
Fax: 541-754-6837
www.ptvamerica.com

traffic mobility logistics.

FEB 1 2007

REGISTERED PROFESSIONAL ENGINEER 17636 OREGON JAN. 17, 1995 THOMAS BAUER

EXPIRES: 12/31/07

MEMO

To: Keith Turner, P.E., City of Corvallis

From: Thomas Bauer, P.E., PTOE, PTV America

Cc:

Date: February 1, 2007

Subject: Witham Oaks TIA Revision

This memo serves as an addendum to the November 2006 Witham Oaks Traffic Impact Analysis performed by PTV America, based on revisions requested by staff. It includes two additional study area intersections. These intersections are along 29th Street at Grant Avenue and Circle Boulevard. This addendum also utilizes a revised analysis procedure for all signalized intersections and the two new study intersections. This procedure utilizes a level-of-service (LOS) based on the volume-to-capacity (v/c) ratio rather than control delay that was used in the November 2006 TIA. Trip generation and distribution in this analysis are unchanged from the November 2006 analysis.

Revised Analysis Summary

The traffic analysis of this revision results in no significant changes in traffic operations for the intersections along 29th Street at Grant Avenue and Circle Boulevard. An updated level-of-service table for all No Build and Build scenarios can be found in Tables 1 and 2 respectively. Deficiencies are identified for the future No Build scenarios at the intersection of Harrison Blvd and 35th Street, and along 29th Street at Harrison Blvd, Grant Ave, and Circle Boulevard. These deficiencies are also present in the Build scenarios, but are not a result of the Witham Oaks development. Deficiencies identified in this analysis that were not identified in the November 2006 report are attributed to the new v/c based LOS thresholds used.

Traffic Counts

Peak hour traffic counts were performed at the intersection of Circle Blvd and 29th Street on January 23rd, 2007. Traffic counts for Grant Ave and 29th Street were provided by the City of

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Corvallis taken on January 12th, 2005. All other traffic counts for the Witham Oaks TIA were conducted during OSU dead week and finals week of 2005. All other Corvallis schools were still in normal operation. While dead week and finals week result in different schedules at OSU, they still constitute of OSU being in full operation. As such, the counted traffic volumes during dead week are not expected to be lower than during any other weeks of the OSU school year. In general, traffic volumes typically fluctuate around 10% on any given day. This fluctuation is accounted for in the standard traffic analysis procedures of the Highway Capacity Manual which were employed for this TIA.

Principle Findings

The findings of this analysis are described as follows:

- All study area intersections operate at acceptable levels of service during peak hours with the addition of Phase 1 site generated traffic and without the full Circle Blvd Extension.
- The intersection of Circle Blvd/29th Street is expected to operate at LOS F during both peak periods under both Build and No Build conditions by 2027..
- The intersection of Grant Ave/29th Street is expected to operate at LOS E during the AM peak hour under 2009, 2010, and 2011 No Build conditions. The intersection operates at LOS E beginning in 2010 for the PM peak. The 2027 No Build conditions are LOS F for both peak periods. For the Build scenarios, this intersection is expected to operate at LOS E for the AM peak beginning in 2009 with phase 3 (A or A/B) through phase 4 in either 2010 or 2011. The PM peak begins to operate at LOS E with phase 4 in 2010 or 2011. The 2027 Build Out scenario is expected to operate at LOS F for both peak periods. The Grant Ave and 29th Street intersection only meets signal warrants under both 2027 Build and No Build scenarios.
- The intersection of Harrison Blvd./29th Street is expected to operate at LOS E during the AM peak and LOS F during the PM peak of the 2027 No Build and Build scenarios.
- The intersection of Harrison Blvd./35th Street is expected to operate at LOS E during the AM peak of the 2027 No Build and Build scenarios.

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Recommendations

Note: These recommendations address expected deficiencies under No Build conditions. They could be initiated by the City to address deficiencies outside the influence or responsibility of the Witham Oaks development. There is no mitigation required as a result of the impact of the Witham Oaks Development based on this (January 2007) analysis. Deficiencies and mitigation recommendations for study area intersections not included in this analysis can be found in the November 2006 Witham Oaks Traffic Impact Analysis report.

- Signalize the intersection of Circle Blvd / 29th Street when signal warrants are met.
- Signalize the intersection of Grant Ave / 29th Street when signal warrants are met. An optional recommendation is to construct a roundabout. A large adjacent traffic island accommodates the necessary right-of-way for a roundabout and a roundabout solution would address the unique geometry of this 5-leg intersection.
- Provide turn pockets for the SBR and WBR movements at the intersection of Harrison Blvd. / 29th Street. Existing right-of-way and existing sidewalk geometry allows for the SBR turn pocket. Existing pavement width on the east approach should allow for restriping to accommodate the WBR turn lane. Additional capacity restraints will still exist after these improvements. These capacity issues are to be addressed by the Harrison Corridor Plan.
- The intersection of Harrison Blvd / 35th Street has recently been signalized. With these improvements the intersection is estimated to operate at LOS E during the PM peak under all 2027 conditions. Due to adjacent right-of-way constrains, no improvements are recommended. These capacity issues are to be addressed by the Harrison Corridor Plan.

Improvement Analysis

Results of the improvements analysis are shown below in Table 3. All recommended mitigation measures improve the deficient intersections to an acceptable LOS with the exception of 29th and 35th Streets along Harrison Boulevard. Harrison Blvd capacity constraints are to be addressed by the Harrison Corridor Plan.

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Table 1. No Build Level of Service

		No Build Scenarios													
Intersection	Period	2005		2007		2008		2009		2010		2011		2027	
		LOS*	v/c	LOS*	v/c	LOS*	v/c	LOS*	v/c	LOS*	v/c	LOS*	v/c	LOS*	v/c
Harrison Blvd. &	AM	B	0.63	B	0.65	B	0.66	B	0.68	B	0.69	C	0.70	E	0.95
29th Street	PM	C	0.76	C	0.79	D	0.81	D	0.82	D	0.84	D	0.85	F	1.12
Harrison Blvd. &	AM	B	0.60	B	0.63	B	0.64	B	0.65	B	0.67	B	0.68	E	0.93
35th Street	PM	A	0.46	A	0.48	A	0.49	A	0.50	A	0.51	A	0.52	C	0.71
Harrison Blvd. &	AM	A	0.38	A	0.40	A	0.41	A	0.42	A	0.42	A	0.43	A	0.59
36th Street	PM	A	0.50	A	0.52	A	0.53	A	0.54	A	0.55	A	0.56	C	0.74
Harrison Blvd. &	AM	A	0.46	A	0.48	A	0.49	A	0.50	A	0.5	A	0.51	B	0.69
53rd Street	PM	A	0.54	A	0.56	A	0.57	A	0.58	A	0.59	B	0.60	D	0.80
Circle Blvd. &	AM	A	0.55	A	0.58	B	0.60	B	0.61	B	0.63	B	0.64	F	1.00
29th Street	PM	A	0.56	A	0.59	B	0.61	B	0.63	B	0.64	B	0.66	F	1.02
Grant Ave. &	AM	D	0.81	D	0.86	D	0.88	E	0.91	E	0.94	E	0.96	F	1.54
29th Street	PM	C	0.77	D	0.82	D	0.85	D	0.88	E	0.91	E	0.94	F	1.54

*LOS based on v/c per City of Corvallis TSP

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Table 2. Build Level of Service

		Build Scenarios																	
		Phase 1 2007		Phase 2 No Circle 2008		Phase 2 W/ Circle 2008		Phase 3 (A+B) 2009		Phase 3 A 2009		Phase 3 B 2010		Phase 4 2010		Phase 4 2011		Build Out 2027	
Intersection	Peak	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
Harrison Blvd. &	AM	B	0.65	B	0.67	B	0.65	B	0.68	B	0.68	B	0.69	C	0.70	C	0.71	E	0.95
29th Street	PM	D	0.80	D	0.82	D	0.80	D	0.84	D	0.84	D	0.86	D	0.86	D	0.88	F	1.11
Harrison Blvd. &	AM	B	0.64	A	0.66	B	0.65	B	0.69	B	0.69	C	0.70	C	0.71	C	0.72	E	0.98
35th Street	PM	A	0.49	A	0.51	A	0.50	A	0.53	A	0.53	A	0.54	A	0.55	A	0.56	C	0.70
Harrison Blvd. &	AM	A	0.41	A	0.43	A	0.42	A	0.45	A	0.44	A	0.46	A	0.46	A	0.47	B	0.63
36th Street	PM	A	0.54	A	0.56	A	0.54	A	0.57	A	0.57	A	0.58	A	0.59	B	0.60	C	0.74
Harrison Blvd. &	AM	A	0.48	A	0.46	A	0.49	A	0.51	A	0.51	A	0.52	A	0.52	A	0.53	C	0.71
53rd Street	PM	A	0.49	A	0.57	A	0.56	A	0.59	A	0.58	A	0.59	B	0.60	B	0.61	D	0.82
Circle Blvd. &	AM	A	0.59	B	0.61	B	0.60	B	0.64	B	0.64	B	0.66	B	0.66	B	0.68	F	1.02
29th Street	PM	B	0.60	B	0.62	B	0.64	B	0.67	B	0.66	B	0.68	B	0.69	C	0.71	F	1.07
Grant Ave. &	AM	D	0.86	D	0.89	D	0.87	E	0.90	E	0.90	E	0.93	E	0.94	E	0.96	F	1.50
29th Street	PM	D	0.84	D	0.87	D	0.81	D	0.86	D	0.85	D	0.89	E	0.90	E	0.93	F	1.44

*LOS based on v/c per City of Corvallis TSP

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Table 3. Mitigated Level of Service

NOT REQUIRED TO MITIGATE THE IMPACTS ASSOCIATED WITH THE WITHAM OAKS DEVELOPMENT

Mitigated LOS for 2027 Build Conditions				
Intersection	Mitigation Strategy	Peak Period	LOS	v/c
Harrison Blvd. & 29th Street	Add SBL and WBL turn pockets	AM	B	0.69
		PM	E	**0.92**
Harrison Blvd. & 35th Street	No Mitigation	AM	E	**0.98**
		PM	C	0.70
Circle Blvd. & 29th Street	Signalize	AM	A	0.54
		PM	A	0.52
Grant Ave. & 29th Street	Signalize	AM	C	0.73
		PM	C	0.76
			LOS	Delay
Grant Ave. & 29th Street	Roundabout	AM	A	7.7
		PM	A	7.6

*Roundabout analysis based on FHWA methodology

Exhibit II - 292

Witham Oaks Development
Traffic Impact Analysis

Corvallis, Oregon

Final Report

November 2006

REGISTERED PROFESSIONAL ENGINEER
OREGON
JAN. 17, 1986
THOMAS BAUER
EXPIRES: 12/31/07

Prepared for:
Matrix development

Exhibit II - 293

traffic mobility logistics.

Prepared by:
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1 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Purpose of the Report and Study Objectives

This report documents the traffic impact of the proposed Witham Oaks development site in northwest Corvallis. The purpose of this study is to analyze the traffic impacts for the AM and PM peak hours on the street network in the study area caused by the site-generated traffic and the extension of Circle Boulevard to Harrison Boulevard. The following scenarios are analyzed corresponding to development phases:

- 2005 No Build
- 2007 No Build and Phase 1 Build (Opening Day with partial Circle Blvd. extension)
- 2008 No Build and Phase 2 Build (Partial Circle Blvd. extension)
- 2008 No Build and Phase 2 Build (Full Circle Blvd. extension)
- 2009 No Build and Phase 3 (A+B) Build (Full Circle Blvd. extension)
- 2009 No Build and Phase 3A Build
- 2010 No Build and Phase 3B Build
- 2010 No Build and Phase 4 Build
- 2011 No Build and Phase 4 Build
- 2027 No Build and Build (20-year planning horizon)

Recommendations for improvements are made when intersections are projected to operate below level-of-service (LOS) 'D'. An intersection must be operating at a LOS 'D' or better to meet the minimum LOS requirements set by the City of Corvallis.

1.2 Executive Summary

1.2.1 Site Location and Study Area

The Witham Oaks development is located in northwest Corvallis on Witham Hill. Primary access to the site will be provided by Circle Boulevard including its proposed extension to Harrison Boulevard. The study area includes a total of nine intersections:

- Circle Boulevard/Witham Hill Drive
- Grant/Witham Hill/36th Street
- Harrison Boulevard/ 29th Street

- Harrison Boulevard/ 35th Street
- Harrison Boulevard/ 36th Street
- Harrison Boulevard/ Witham Drive
- Harrison Boulevard/ Merrie Drive
- Harrison Boulevard/ Circle Extension
- Harrison Boulevard/ 53rd Street

1.3 Existing Conditions

Under current traffic conditions, all nine intersections in the study area are operating at acceptable levels of services for both the AM and PM peak hours. The subject site currently is undeveloped and consists of field land with wetlands along the south boarder and increasing tree stands up the hill to the north property boundary. A multi-purpose path exists through the site from Circle Blvd. to Harrison Boulevard.

1.3.1 Development Conditions

The Witham Oaks development will construct 198 single family detached housing residential units and 23 attached townhouse residential units. The new residential units will be constructed over a 4 phase plan. Circle Boulevard will be extended through the proposed site to Harrison Boulevard along with the construction of phase 2. The new Circle Boulevard extension will be constructed to neighborhood collector standards.

1.3.2 Principal Findings

The findings of this analysis are described as follows:

- The intersection of Circle/Witham Hill is expected to operate at LOS E during the AM peak hour under 2009/2010 Phase 3 and a LOS of F with 2010/2011 Build conditions. A LOS F is expected for both AM and PM peak hours under 2027 Build Conditions. Signal warrants are expected to be met under 2009 conditions, for all phase 3 alternatives and subsequent development scenarios.
- The intersection of Harrison Blvd./29th Street is expected to operate at LOS E during the PM peak of the 2027 No Build scenario.

1.3.3 Recommendations

The following recommendations have been prepared to address operational deficiencies identified during the analysis.

- Signalize the intersection of Circle/ Witham Hill Drive by completion of Phase 3 (A+B) or 3A in 2009.
- No mitigation is recommended for the intersection of Harrison Blvd. and 29th Street since volume reduction from diverted trips to Circle Extension improves the operation of the intersection to an acceptable LOS.

2 PROPOSED DEVELOPMENT

The 94.62-acre site is located north of Harrison Boulevard in northwest Corvallis. The property is within the urban growth boundary and is within the city limits. East of the site are single-family homes and a church and apartment complexes are located to the northeast. Directly north of the property is a 35-acre parcel that was recently acquired by the city as open space. The property to the west is owned by OSU and is used for poultry operations. The southern boundary of the site parallels Harrison Boulevard. The location of the site and surrounding roadways are shown in ***Figure 1*** of ***Appendix A***. Study intersection locations are shown in ***Figure 2*** of ***Appendix A***.

Upon full completion of the development, the property will include 198 single family detached housing residential units and 23 attached townhouse residential units. The new residential units will be constructed over a 4 phase plan. Phase 1 is expected to be completed by 2007 and includes 62 single family detached housing residential units and 15 attached townhouse residential units. Phase 2 is expected to be completed by 2008 and adds 45 single family detached housing residential units. Phase 3 is expected to be completed by 2009 and adds 49 single family detached housing residential units and 8 attached townhouse residential units. An alternative phasing plan divides the units of phase 3 into a 2009 phase 3A and 2010 phase 3B plan. Phase 3A will include 43 single family detached housing residential units. The following phase 3B includes 6 single family detached housing residential units and 8 attached townhouse residential units. These units will either be constructed in a single phase 3 or spread over 2 phases, 3A and 3B. Phase 4 is expected to be completed by 2010 if the units of phase 3 or constructed in a single phase or 2011 if phase 3 is divided over two phases. Phase 4 adds 42 single family detached housing residential units.

Circle Boulevard currently ends south of the Witham Hill Drive intersection near the northeast boundary of the site. Access to the development for phase 1 will be provided by a partial extension of Circle Blvd. from the north. Corresponding with phase 3 development, Circle Blvd. will be extended through the site to intersect with Harrison Boulevard. This analysis covers the option of extending Circle Blvd. with development phase 2 or 3. The functional

classification for the extension will be neighborhood collector. The new intersection of Circle Blvd. and Harrison Blvd. will consist of single lane approaches with the addition of an eastbound left turn lane onto Circle Blvd.

A multi-purpose path exists through the site of the proposed development from Circle Blvd. to Harrison Blvd. The path provides access from west Corvallis to Circle Blvd. for bicyclists and pedestrians. The section of Harrison Blvd. along the southern property line will also be improved to add curbs, gutters, and a 5-foot separated sidewalk on the north side of the roadway. These improvements will tie into the existing bicycle lanes along Harrison Blvd.

3 EXISTING CONDITIONS

3.1 Transportation Facilities

3.1.1 Roadways

Roadways providing access to the site will be Harrison Boulevard, Witham Hill Drive, and the Circle Boulevard extension. Other key transportation facilities in the area will also be impacted, such as 35th Street, 36th Street, Grant Street, and the existing sections of Circle Boulevard. Table 1 displays the functional classification and characteristics of the study area roadways. Existing lane configurations and current traffic controls are shown on **Figure 3** in **Appendix A.**

Table 1. Classification and Characteristics of Study Area Roadways

Roadway	Classification	Speed	# Lanes	Sidewalk	Bike Lanes	On-Street Parking
Harrison Blvd.	Arterial	25-55	2	Partial	Partial	No
Walnut Blvd.	Arterial	35-55	2	Yes	Yes	No
35th Street	Arterial	25-35	2	Yes	Partial	West Side
Witham Hill Dr.	Collector	25	2	Partial	Yes	No
Circle Blvd.	Collector	25	2	Yes	Yes	Yes
Grant Ave.	Collector	25	2	Yes	Yes	No
36th Street	Collector	25	2	Yes	Yes	East Side
30th Street	Collector	25	2	Yes	No	Yes
29th Street	Collector	25	2	Yes	Yes	Partial
Merrie Drive	Local	25	2	Yes	No	Yes
Witham Drive	Local	25	2	Yes	No	Yes

3.1.2 Signalized Intersections

The intersections of 29th/Harrison Blvd., 35th/Harrison Blvd., 36th/Harrison Blvd., and 53rd/Harrison Blvd. are currently operating as signalized intersections. The intersection of 29th/Harrison has left turn pockets on the north, south and west approaches and operates with protected-permitted left phasing. Due to the close proximity of the intersections at 35th/Harrison and 36th/Harrison, they are operated by a single controller. Left turn pockets are

provided on the east approach of 35th/Harrison and the west approach of 36th/Harrison operating with protected-permitted lefts. Both the north approach of 36th/Harrison and south approach of 35th/Harrison have separate right turn lanes and the lefts operate with split phasing with the operation as one controller. These intersections were modeled as two separate controllers for this analysis, but measures such as lost time and maximum cycle length were taken to account for this unique setup. The intersection 53rd/Harrison Blvd. has left turn bays on all approaches and operates with protected left turn phasing. The south approach also has a right turn pocket.

3.1.3 Two-Way Stop-Controlled Intersections

The T-intersection of Witham Drive/Harrison Blvd. has a stop sign on the north approach. The T-intersection of Merrie/Harrison Blvd. also has a stop sign on the north approach. The intersection of Witham Hill Dr./Circle Blvd. has stop signs on the east and west (Circle) approaches. The east leg has a right turn pocket.

3.1.4 All-Way Stop-Controlled Intersections

The intersection of Witham Hill Dr./36th/Grant is a unique 4-way stop controlled intersection with a triangular island. The southbound movement from Witham Hill Dr onto 36th, northbound right from 36th onto Grant, and westbound left and right movements are all stop controlled. Northbound from 36th onto Witham Hill Drive is uncontrolled and left from Witham Hill Drive onto Grant is served with a left turn lane yielding to through traffic.

3.1.5 Pedestrian and Bike Facilities

Moderate amounts of pedestrian and bicycle activity were observed in the vicinity of the site. Harding School, Arnold Park, and Woodland Meadows Park are major generators of pedestrian and bicycle traffic. Oregon State University also generates a substantial number of bicycle trips. Pedestrian facilities are well connected through sidewalks and multi-use paths. Bike lanes are provided along Harrison Blvd., Circle Blvd. and Witham Hill Drive connecting the development site to Corvallis's extensive bicycle network.

3.2 No Build Traffic Volumes

Turning movement counts for the AM and PM peak hours were obtained for each of the study area intersections. A growth rate of 2 percent per year, as recommended by the City of Corvallis for planning level studies, was applied to the 2005 volumes to estimate future traffic volumes. Study area intersections with turning movement counts and their corresponding count dates are shown in Table 2. **Figures 4** through **9** in **Appendix A** show the No Build traffic volumes for all scenarios.

Table 2. Study Area Intersection Count Dates

Intersection	Count Date
Harrison Blvd / 53rd St	10/27/2005
Harrison Blvd / Merrie Drive	6/7/2005
Harrison Blvd / Witham Drive	6/7/2005
Harrison Blvd / 36th St	6/8/2005
Harrison Blvd / 35th St	6/9/2005
Harrison Blvd / 29th St	6/8/2005
Grant Ave / Witham Hill Dr / 36th St	6/2/2005
Circle Blvd / Witham Hill Drive	6/2/2005

3.3 Existing LOS

A level of service (LOS) analysis was conducted for each intersection to determine current operating conditions. Level of service describes the quality of traffic flow at an intersection. An LOS "A" is the best and an LOS "F" indicates a failing intersection. For two-way stop controlled intersections, the LOS and vehicle delay for the worst operating movement is reported. Intersection averages are reported for signalized and 4-way stop intersections.

Another important measure for a capacity analysis is the volume capacity ratio. This is the ratio of the current or project demand to the capacity of the facility. While the maximum v/c ratio measured at full saturation can be no greater than 1.0, it is possible to produce a v/c ratio greater than 1.0 when the volume is compared to an estimated capacity, such as that from the 2000 Highway Capacity Manual (HCM 2000). A v/c ratio greater than 1.0 is an

indication that the estimated capacity is insufficient for the project demand and queuing is likely to occur.

TRAFFIX, a computational analysis program developed by Dowling Associates, inc. was used to calculate the level-of-service, intersection delay and volume/capacity ratio. This analysis conducted using TRAFFIX was based on the HCM 2000. Output sheets from TRAFFIX are available in **Appendix B**. The results of the existing conditions (2005 No-Build) analysis are shown in Table 3.

Table 3. Level-of-Service: 2005 No-Build (Existing)

Intersection	Type of Control	Peak Hour	LOS	Delay (sec)	v/c
Harrison Blvd. & 53rd Street	Signal	AM	B	13.1	0.43
		PM	B	15.1	0.50
Harrison Blvd. & Merrie Drive	2-Way Stop	AM	B	12.7	0.07 (SBL)
		PM	B	14.0	0.05 (SBL)
Harrison Blvd. & Witham Drive	2-Way Stop	AM	B	10.0	0.02 (SBL)
		PM	B	12.6	0.01 (SB)
Harrison Blvd. & 35th Street	Signal	AM	A	4.7	0.38
		PM	A	4.4	0.45
Harrison Blvd. & 36th Street	Signal	AM	C	29.7	0.57
		PM	A	4.6	0.46
Grant & Witham Hill & 36th Street	4-Way Stop	AM	A	9.4	0.39
		PM	B	10.0	0.39
Circle & Witham Hill Drive	2-Way Stop	AM	C	16.3	0.16 (WBL)
		PM	B	14.0	0.20 (WBR)
Harrison Blvd. & 29th Street	Signal	AM	B	14.8	0.59
		PM	B	15.2	0.75

3.3.1 Existing Deficiencies

An intersection must be operating at a LOS 'D' or better to meet the minimum LOS requirements set by the City of Corvallis. All nine intersections in the study area are presently operating at acceptable levels of services for both the AM and PM existing peak hours. The City of Corvallis did not have guidelines for minimum acceptable v/c ratios at the start of this analysis.

3.4 Transit Service

Bus service in Corvallis is provided through the Corvallis Transit System. Of the eleven routes serving the city, the Witham Oaks residents may potentially utilize two. Route 1 services downtown, OSU, and northwest Corvallis. It travels both directions on Witham Hill Drive. Route 8 connects downtown, OSU, and southwest Corvallis. It follows Harrison Blvd. westward towards 53rd Street. There is an existing stop located just north of the Circle Blvd./ Witham Hill Drive intersection. Route 1 also operates hourly.

4 TRAFFIC FORECASTS AND DISTRIBUTION

4.1 Non-Site Traffic

4.1.1 Method of Projection and Generation

Forecast volumes for 2007 (Opening Day), 2008, 2009, 2010, 2011 and 2027 (20 year horizon) scenarios are calculated for the AM and PM peak hours at the study area intersections. A growth rate of 2 percent per year was applied to the 2005 traffic volumes, as recommended by the Corvallis Transportation Plan for planning level studies.

4.2 Site Generated Traffic

4.2.1 Method of Generation

Trip generation analyses were performed for the development site plan scenarios using rates from the 7th Edition of the ITE Trip Generation Manual. Table 3 shows the results of the trip generation analysis for each scenario. Table 3.1 shows the cumulative trip generation for the completed development.

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Table 3. Trip Generation per Development Phase

ITE Code	Land Use Type	2007 Phase 1					2008 Phase 2					2009 Phase 3A					2010 Phase 3B					2009 Phase 3 (A+B)					2010 / 2011 Phase 4				
		# of units	AM In	AM Out	PM In	PM Out	# of units	AM In	AM Out	PM In	PM Out	# of units	AM In	AM Out	PM In	PM Out	# of units	AM In	AM Out	PM In	PM Out	# of units	AM In	AM Out	PM In	PM Out	# of units	AM In	AM Out	PM In	PM Out
210	Single Family Detached Housing	62	13	40	45	25	45	10	31	33	19	43	10	30	32	18	6	3	10	5	3	49	11	33	36	20	42	10	29	31	18
230	Residential Condominium/Townhouse	15	2	9	9	4	0	0	0	0	0	0	0	0	0	0	8	1	6	5	3	8	1	6	5	3	0	0	0	0	0
	Totals	77	15	49	54	29	45	10	31	33	19	43	10	30	32	18	14	4	16	10	6	57	12	39	41	23	42	10	29	31	18

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Table 3.1 Cumulative Trip Generation

ITE Code	Land Use Type	Buildout Cumulative Trip Generation				
		# of units	AM In	AM Out	PM In	PM Out
210	Single Family Detached Housing	198	44	132	146	82
230	Residential Condominium/Townhouse	23	3	15	14	7
	Totals	221	47	147	160	89

4.2.2 Trip Distribution and Assignment

Witham Oaks Development Trip Distribution:

The trip distribution percentages reflect traffic entering and leaving the proposed Witham Oaks site after the Circle Blvd. extension is completed to Harrison Blvd. Table 5 shows the trip distribution percentages that are applied to the proposed development. The trip distribution to and from the site is also detailed in **Figure 10** in **Appendix A**. Site generated traffic for each phasing scenario is shown in **Figures 12 through 18** of **Appendix A.**

Table 5. Trip Distribution Percentages

Intersection and Direction	Percentage Traffic to/from Witham Oaks
Harrison/53rd	10%
Harrison/35th	15%
South of Harrison/29th	5%
East of Harrison/29th	20%
Grant/29th	15%
East of Circle/29th	25%
North of Circle/29th	10%

4.3 Circle Boulevard Extension Diverted Traffic

Concurrent with Phase 2 construction of the development, Circle Boulevard will be extended to the south to intersect with Harrison Boulevard. With the completion of the Circle Boulevard Extension, it is expected that traffic that would normally use the 29th Street to Harrison Boulevard route between areas of west Corvallis and areas north of Circle Boulevard will begin to use the more direct route of the Circle Boulevard extension. The effect will be an increase of traffic along the Circle extension and a reduction of traffic along the 29th Street and Harrison Boulevard roadways.

The AM and PM diverted trips were calculated using the updated Corvallis travel demand model. It is estimated that approximately 58 southbound and 65 northbound vehicles will use the Circle extension when it is completed during the AM peak and 78 southbound and 87 northbound vehicles will use it during the PM peak. The diverted traffic is expected to utilize

the route of 53rd/Harrsion to Circle/Harrison to/ Circle/Witham Hill drive to bypass 29th Streets and Harrison Boulevard when traveling between areas in west and north Corvallis.

AM and PM diverted trips are taken into account for all scenarios with the Circle extension. As according to the Corvallis travel demand model, it is expected that the new Circle extension will cause a reduction in traffic volumes along 29th Street, 36th Street, Walnut Boulevard, and Harrison Boulevard. **Figure 11** of **Appendix A** shows the expected diverted trips caused by the Circle Boulevard extension.

5 STUDY SCENARIOS

5.1 No Build Scenarios

The 2005 and baseline no build analyses evaluate the no build level-of-service at the nine existing study area intersections. Future no build analyses are completed for each year of a build scenario for a baseline comparison. The lane configurations used in the 2005 and other no build scenarios are existing conditions. **Figures 4 through 9** show the 2007, 2008, 2009, 2010 and 2027 No Build volumes.

5.2 Build Scenarios

This section analyzes the traffic operations in the 2007 (Phase 1), 2008 (Phase 2), 2009/2010 (Phase 3), 2010/2011 (Phase 4) and 2027 (20 year horizon) build scenarios. Phase 3 is analyzed both as a single phase as well as a two-stage option, phase 3A and 3B. Phase 4 is analyzed for both 2010 and 2011 due to the potential two-stage phase 3 alternative. Build volumes include trips generated by the Witham Oaks proposed development. Diverted trips caused by the new Circle Boulevard extension are included for Phase 3 through Build Out. Phase 2 is analyzed with and without the diverted trips from the Circle Extension. Build volumes for scenarios with the extension were calculated by applying a 2% annual growth factor to the 2005 existing volumes after the diverted trip adjustments were applied. **Figures 19 through 27** of **Appendix A** show the 2007, 2008, 2009, 2010, 2011 and 2027 Build volumes.

5.3 Level-of-Service Tables

Tables 6 and 7 show the results of the level-of-service (LOS) analysis for each intersection for all no-build and build scenarios. For signalized and all-way stop intersections, the average level-of-service, intersection delay, and v/c ratio is shown. For un-signalized intersections, the level-of-service and delay for worst approach is shown. Intersections expected to operate worse than LOS D are shown in **bold**. An intersection must be operating at a LOS D or better to meet the minimum LOS requirements set by the City of Corvallis.

Table 6. No Build Scenarios

Intersection	Peak Period	No Build Scenarios														
		2007			2008			2009			2010			2027		
		LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
Harrison Blvd. & 53rd Street	AM	B	13	0.4	B	15.8	0.45	B	13.1	0.42	B	13.1	0.43	B	18.8	0.66
	PM	B	14.9	0.48	B	15	0.49	B	15.1	0.49	B	15.2	0.5	C	23.9	0.78
Harrison Blvd. & Merrie Drive	AM	B	12.3	0.06 (SBL)	B	12.4	0.06 (SBL)	B	12.6	0.06 (SBL)	B	12.7	0.07 (SBL)	C	16.6	0.14 (SBL)
	PM	B	13.5	0.04 (SBL)	B	13.6	0.04 (SBL)	B	13.8	0.04 (SBL)	B	14	0.05 (SBL)	C	19.1	0.10 (SBL)
Harrison Blvd. & Witham Drive	AM	A	9.9	0.02 (SBL)	A	10	0.02 (SBL)	A	10	0.02 (SBL)	B	10	0.02 (SBL)	B	10.9	0.04 (SBL)
	PM	B	12.2	0.01 (SB)	B	12.4	0.01 (SB)	B	12.5	0.01 (SB)	B	12.6	0.01 (SB)	C	15.8	0.03 (SBL)
Harrison Blvd. & 35th Street	AM	A	4.7	0.36	A	6.6	0.51	A	4.7	0.37	A	4.7	0.38	B	10.1	0.7
	PM	A	4.3	0.43	A	4.3	0.44	A	4.4	0.45	A	4.4	0.46	B	12.9	0.72
Harrison Blvd. & 36th Street	AM	C	22	0.54	B	13.5	0.86	C	27.3	0.56	C	30.3	0.57	D	54	1.12
	PM	A	4.2	0.44	A	4.3	0.45	A	4.5	0.46	A	4.6	0.46	B	19.3	0.99
Grant & Witham Hill & 36th	AM	A	9.2	0.36	A	9.3	0.37	A	9.4	0.38	A	9.4	0.39	B	11.1	0.57
	PM	A	9.8	0.37	A	9.9	0.38	A	9.9	0.38	B	10	0.39	B	12.5	0.6
Circle & Witham Hill Drive	AM	C	15.5	0.14 (WBL)	C	15.8	0.15 (WBL)	C	16.1	0.15 (WBL)	C	16.4	0.16 (WBL)	D	30.7	0.41 (WBL)
	PM	B	13.5	0.11 (WBL)	B	13.7	0.19 (WBR)	B	13.8	0.20 (WBR)	B	14	0.20 (WBR)	C	18.9	0.33 (WBR)
Harrison Blvd. & 29th Street	AM	B	14.3	0.56	B	17.2	0.63	B	14.7	0.58	B	14.9	0.59	C	33.5	0.89
	PM	B	14.4	0.71	B	14.7	0.72	B	15	0.74	B	15.3	0.75	E	57.2	1.1

Table 7. Build Scenarios

		Phase 1 2007			Phase 2 Without Circle 2008			Phase 2 With Circle Extension 2008			Phase 3 (A+B) 2009			Phase 3 A 2009			Phase 3 B 2010			Phase 4 2010			Phase 4 2011			Build Out 2027		
Intersection	Peak	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
Harrison Blvd. & 53rd Street	AM	B	12.6	0.47	B	12.8	0.48	B	12.4	0.45	B	15.8	0.44	B	15.8	0.44	B	15.8	0.44	B	16	0.46	B	16	0.47	B	18.5	0.63
	PM	B	15.7	0.55	B	15.9	0.56	B	19.1	0.55	B	19.3	0.56	B	19.3	0.56	B	19.4	0.57	B	19.5	0.57	B	19.6	0.59	C	25.6	0.8
Harrison Blvd. & Merrie Drive	AM	B	12.4	0.06 (SBL)	B	12.6	0.06 (SBL)	B	12.1	0.06 (SBL)	B	12.4	0.06 (SBL)	B	12.4	0.06 (SBL)	B	12.4	0.06 (SBL)	B	12.7	0.07 (SBL)	B	12.9	0.07 (SBL)	C	16.1	0.13 (SBL)
	PM	B	13.6	0.04 (SBL)	B	13.8	0.04 (SBL)	B	13.1	0.04 (SBL)	B	13.6	0.04 (SBL)	B	13.5	0.04 (SBL)	B	13.5	0.04 (SBL)	B	14	0.05 (SBL)	B	14.2	0.05 (SBL)	C	18.2	0.09 (SBL)
Harrison Blvd. & Witham Drive	AM	A	10	0.02 (SBL)	A	10.1	0.02 (SBL)	A	9.7	0.02 (SBL)	A	9.9	0.02 (SBL)	A	9.9	0.02 (SBL)	A	9.8	0.02 (SBL)	B	10	0.02 (SBL)	B	10.1	0.03 (SBL)	B	10.6	0.04 (SBL)
	PM	B	12.3	0.01 (SB)	B	12.5	0.01 (SB)	B	12	0.01 (SB)	B	12.4	0.01 (SB)	B	12.3	0.01 (SB)	B	12.3	0.01 (SB)	B	12.7	0.01 (SB)	B	12.8	0.01 (SB)	C	15.4	0.03 (SBL)
Harrison Blvd. & 35th Street	AM	A	9.3	0.91	A	9.8	0.77	A	9.4	0.91	B	10	0.81	A	9.9	0.81	B	10.2	0.82	B	10.5	0.79	B	10.9	0.8	C	27	0.95
	PM	A	6.1	0.85	A	6.3	0.69	A	6	0.84	A	6.2	0.68	A	6.2	0.68	A	6.2	0.69	A	6.6	0.64	A	6.7	0.65	B	10.5	0.85
Harrison Blvd. & 36th Street	AM	A	7.8	0.47	A	7.9	0.48	A	8.1	0.86	A	8.3	0.5	A	8.3	0.5	A	8.6	0.65	A	9.5	0.48	A	9.7	0.49	B	10.2	0.66
	PM	A	8.3	0.81	A	8.8	0.71	A	7.8	0.88	A	8.1	0.76	A	8.1	0.76	A	8.2	0.76	A	8.3	0.72	A	8.4	0.73	B	12.8	0.79
Grant & Witham Hill & 36th	AM	A	9.4	0.38	A	9.6	0.39	A	9.4	0.39	A	9.5	0.41	A	9.5	0.41	A	9.5	0.41	A	9.6	0.43	A	9.7	0.44	B	11.4	0.61
	PM	B	10.1	0.41	A	10.6	0.46	A	9.6	0.33	A	9.7	0.34	A	9.7	0.34	A	9.7	0.34	A	9.8	0.36	A	9.9	0.36	B	11.8	0.53
Circle & Witham Hill Drive	AM	C	17.5	0.17 (WBL)	C	19.1	0.21 (WBL)	D	32.6	0.34 (EBT)	E	42.7	0.43 (EBT)	E	39.1	0.40 (EBT)	E	39.8	0.40 (EBT)	F	54.9	0.50 (EBT)	F	60.9	0.52 (EBT)	F	>100	1.04 (EBT)
	PM	B	13.3	0.19 (WBR)	C	14.9	0.19 (WBR)	C	23	0.22 (W+EBT)	D	26.2	0.27 (W+EBT)	D	25.6	0.26 (W+EBT)	D	25.5	0.25 (W+EBT)	D	30	0.32 (WBT)	D	31.8	0.32 (WBT)	F	>100	0.73 (EBL)
Harrison Blvd. & 29th Street	AM	B	14.6	0.95	B	16	0.79	B	14.5	0.95	B	17.3	0.69	B	17.3	0.69	B	17.6	0.7	B	17.7	0.7	B	17.8	0.71	C	32.3	0.91
	PM	B	17.1	0.98	B	19.7	0.86	B	17.7	0.86	B	18.7	0.81	B	18.7	0.81	B	19.1	0.82	B	19.4	0.82	C	20	0.84	D	54.1	1.09
Harrison Blvd. & Circle Extension	AM	n/a	n/a	n/a	n/a	n/a	n/a	A	9.5	0.09 (SBL)	B	13.3	0.16 (SBL)	B	12.9	0.14 (SBL)	B	12.6	0.13 (SBL)	B	14.3	0.20 (SBL)	B	14.5	0.21 (SBL)	C	19.7	0.31 (SBL)
	PM	n/a	n/a	n/a	n/a	n/a	n/a	B	13	0.14 (SBR)	B	14.2	0.15 (SBR)	B	14	0.15 (SBR)	B	13.7	0.15 (SBR)	C	15.3	0.16 (SBR)	C	15.5	0.16 (SBR)	C	22.8	0.27 (SBR)

Note: Circle Blvd. Extension added for 2009 phase 3 and subsequent scenarios and as noted with phase 2. Scenarios with extension include diverted trips.

6 MITIGATION ALTERNATIVES

6.1 Deficiencies

Deficiencies identified during the analysis are listed as follows:

- Harrison Blvd./29th Street – LOS E in PM Peak under 2027 No Build conditions
- Circle Blvd./Witham Hill Drive – LOS E in AM Peak under 2009/2010 Phase 3 (A or B) and LOS F under 2010/2011 and 2027 Build conditions. Also LOS F in PM Peak for 2027 Build condition.

6.2 Signal Warrant Analysis

A signal warrant analysis was performed at the intersection of Circle Blvd/Witham Hill Drive. Signal warrants are met under 2009 conditions for both phase 3 and 3A.

6.3 Improvement Analysis

Circle Blvd./Witham Hill Drive: Signalization

The intersection of Circle/Witham Hill is expected to operate at LOS E during the AM peak hour under 2009/2010 Phase 3 and a LOS of F with 2010/2011 Build conditions. A LOS F is expected for both AM and PM peak hours under 2027 Build Conditions. Signal warrants are expected to be met under 2009 conditions, for all phase 3 alternatives, and therefore it is recommended that the intersection be signalized by the completion of Phase 3 (A+B) or 3A. Table 9 shows the mitigation results for this intersection.

Table 9. Mitigated LOS

Intersection	Scenario	Mitigation	Type of Control	Peak Hour	LOS	Delay (sec)	v/c
Circle Blvd. & Witham Hill Drive	2009 Phase 3A	Signalize Intersection	Signal	AM	A	9.5	0.49
				PM	B	10.2	0.30
Circle Blvd. & Witham Hill Drive	2009 Phase 3 (A+B)	Signalize Intersection	Signal	AM	A	9.7	0.50
				PM	B	10.3	0.31
Circle Blvd. & Witham Hill Drive	2010 Build	Signalize Intersection	Signal	AM	B	10.1	0.52
				PM	B	10.5	0.31
Circle Blvd. & Witham Hill Drive	2011 Build	Signalize Intersection	Signal	AM	B	10.2	0.53
				PM	B	10.5	0.32
Circle Blvd. & Witham Hill Drive	2027 Build	Signalize Intersection	Signal	AM	B	12.8	0.72
				PM	B	11.1	0.44

Harrison Blvd./29th Street: No Improvement

The intersection of Harrison/29th is expected to operate at LOS E during the PM peak hour under 2027 no build conditions. However, Harrsion/29th is expected to operate with LOS D during the PM peak hour under 2027 build conditions. This improvement in LOS from the no build to the build condition is attributed to a volume reduction for the southbound right movement due to diverted trips from the Circle Blvd. extension. No mitigation is recommended for the intersection of Harrison Blvd. and 29th Street as a result of the planned development. It should be noted however, that the calculated v/c ratio for the 2027 PM Peak is greater than 1.0 and thus exceeds the calculated capacity. The critical turning movement for this intersection is the southbound right turn. Adding an exclusive right turn lane with overlap signal phasing will improve the LOS to C and decrease the v/c ratio to 0.94. This mitigation strategy is only a recommendation to improve background traffic operations and is not related to the impacts of the Witham Oaks development.

7 FINDINGS AND RECOMMENDATIONS

The traffic impact analysis resulted in the following findings:

- The intersection of Circle/Witham Hill is expected to operate at LOS E during the AM peak hour under 2009/2010 Phase 3 and a LOS of F with 2010/2011 Build conditions. A LOS F is expected for both AM and PM peak hours under 2027 Build Conditions. Signal warrants are expected to be met under 2009 conditions, for all phase 3 alternatives and subsequent development scenarios.
- The intersection of Harrison Blvd./29th Street is expected to operate at LOS E during the PM peak of the 2027 No Build scenario.

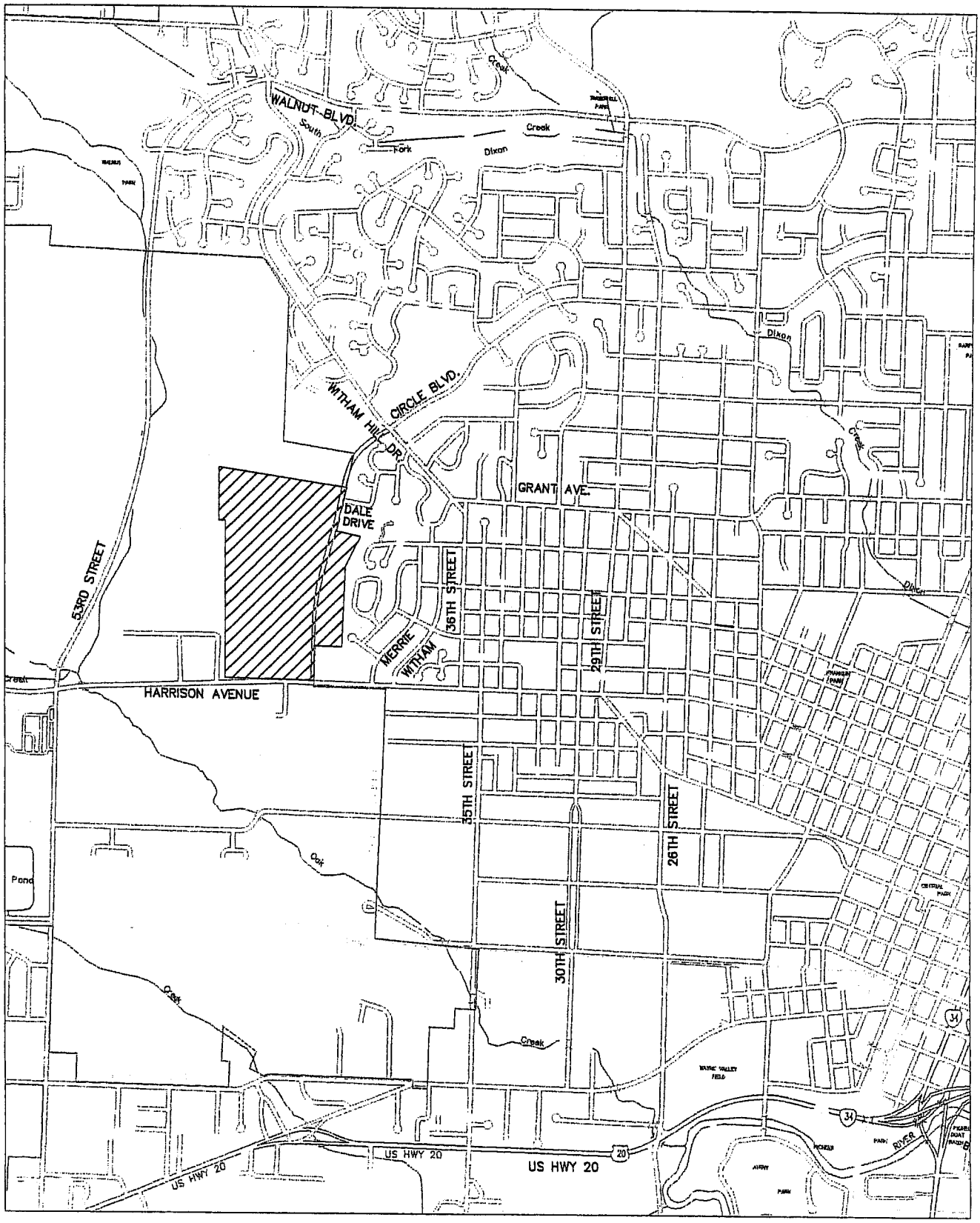
The following recommendations have been prepared to address operational deficiencies identified during the analysis.

- Signalize the intersection of Circle/ Witham Hill Drive by completion of Phase 3 (A+B) or 3A in 2009.
- No mitigation is recommended for the intersection of Harrison Blvd. and 29th Street since volume reduction from diverted trips to Circle Extension improves the operation of the intersection to an acceptable LOS.

APPENDIX A

Figures

Figure 1
Vicinity Map



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Witham Oaks Development TIA

Figure 2
Study Area &
Study Intersections

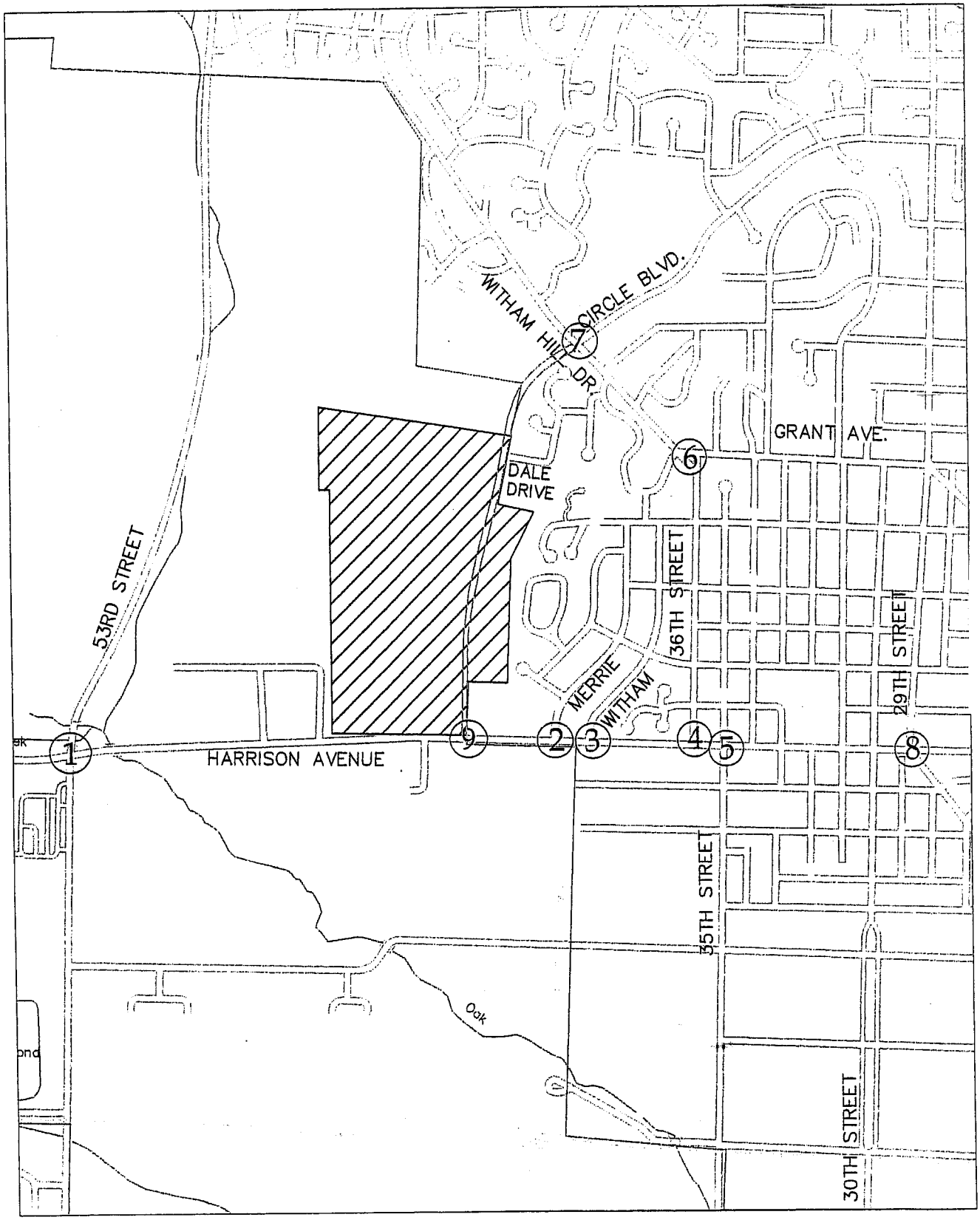
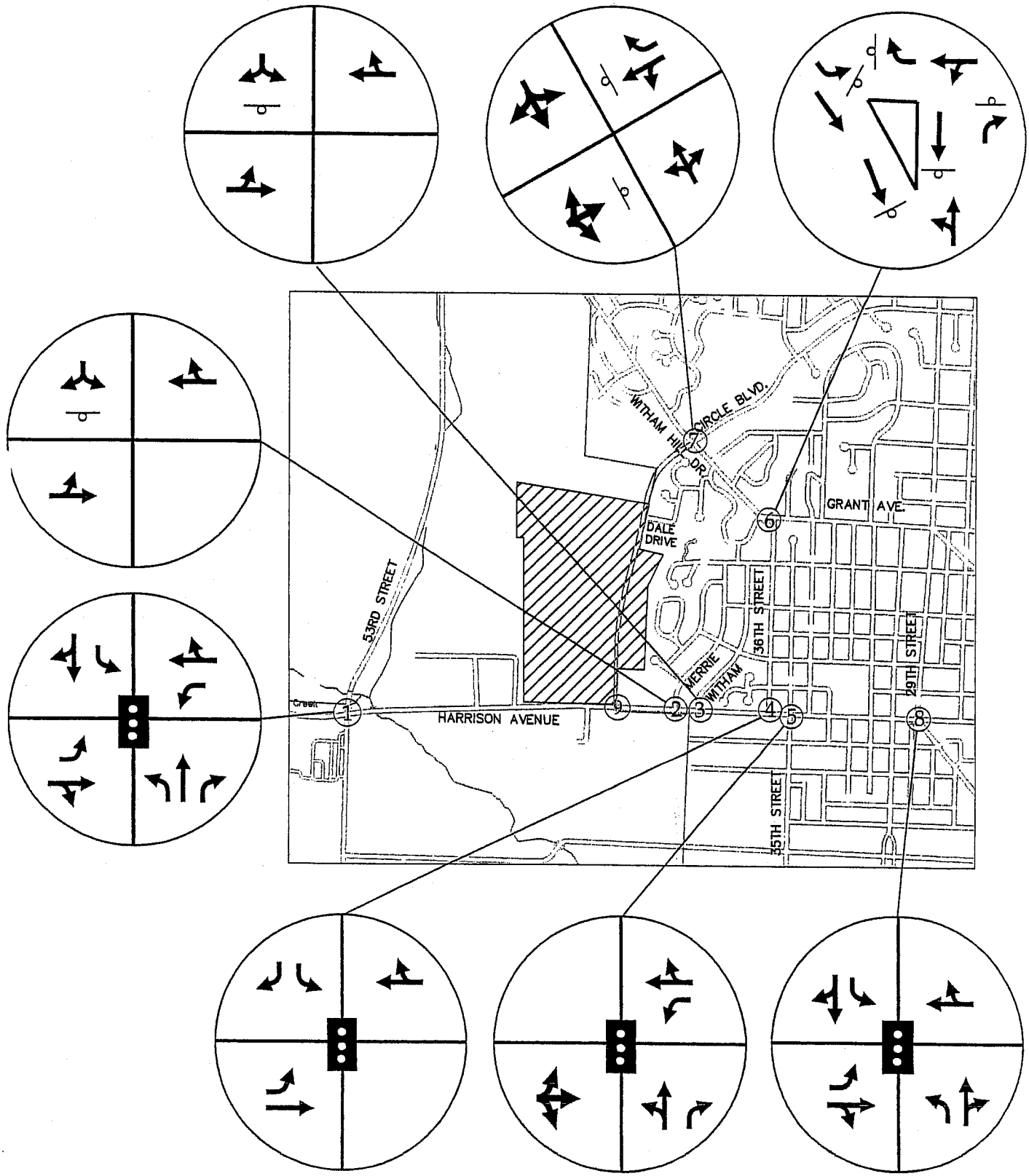


Exhibit II - 317

Figure 3
Existing Lane Configurations
and Traffic Controls



Witham Oaks Development TIA

Figure 4
2005 No Build
Existing Volumes

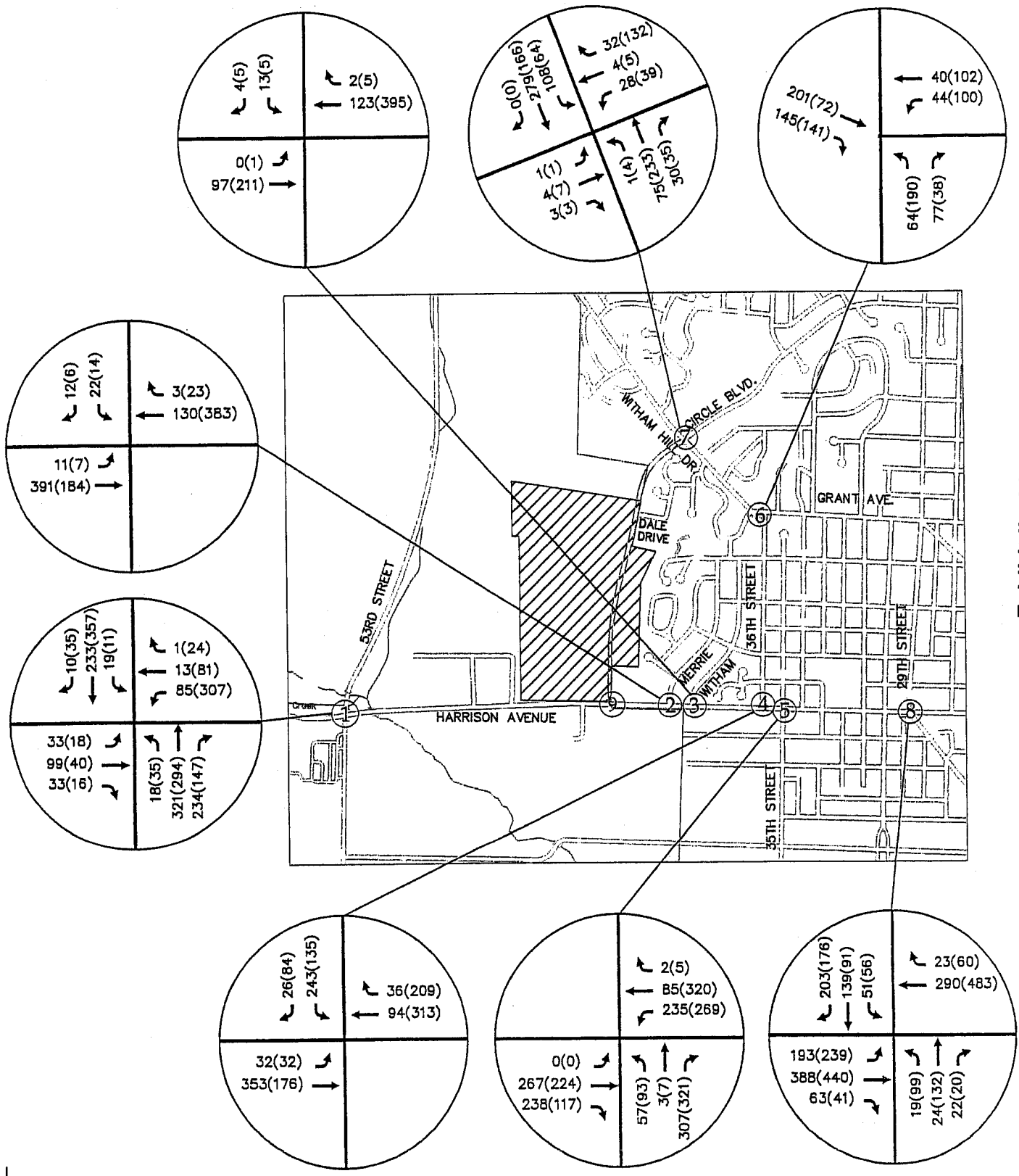


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Figure 5
2007 No Build
Volumes

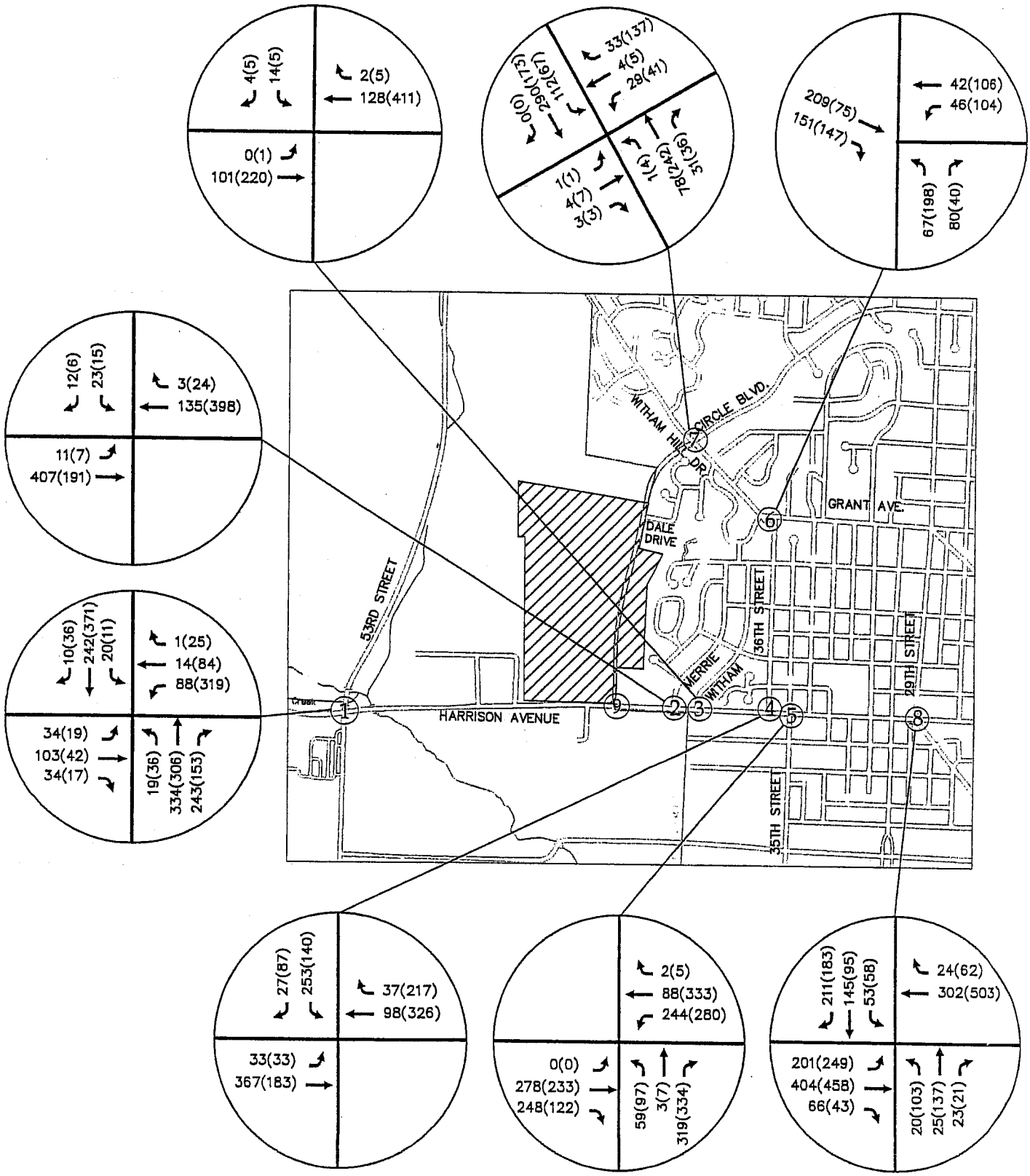

Figure 6
2008 No Build Volumes

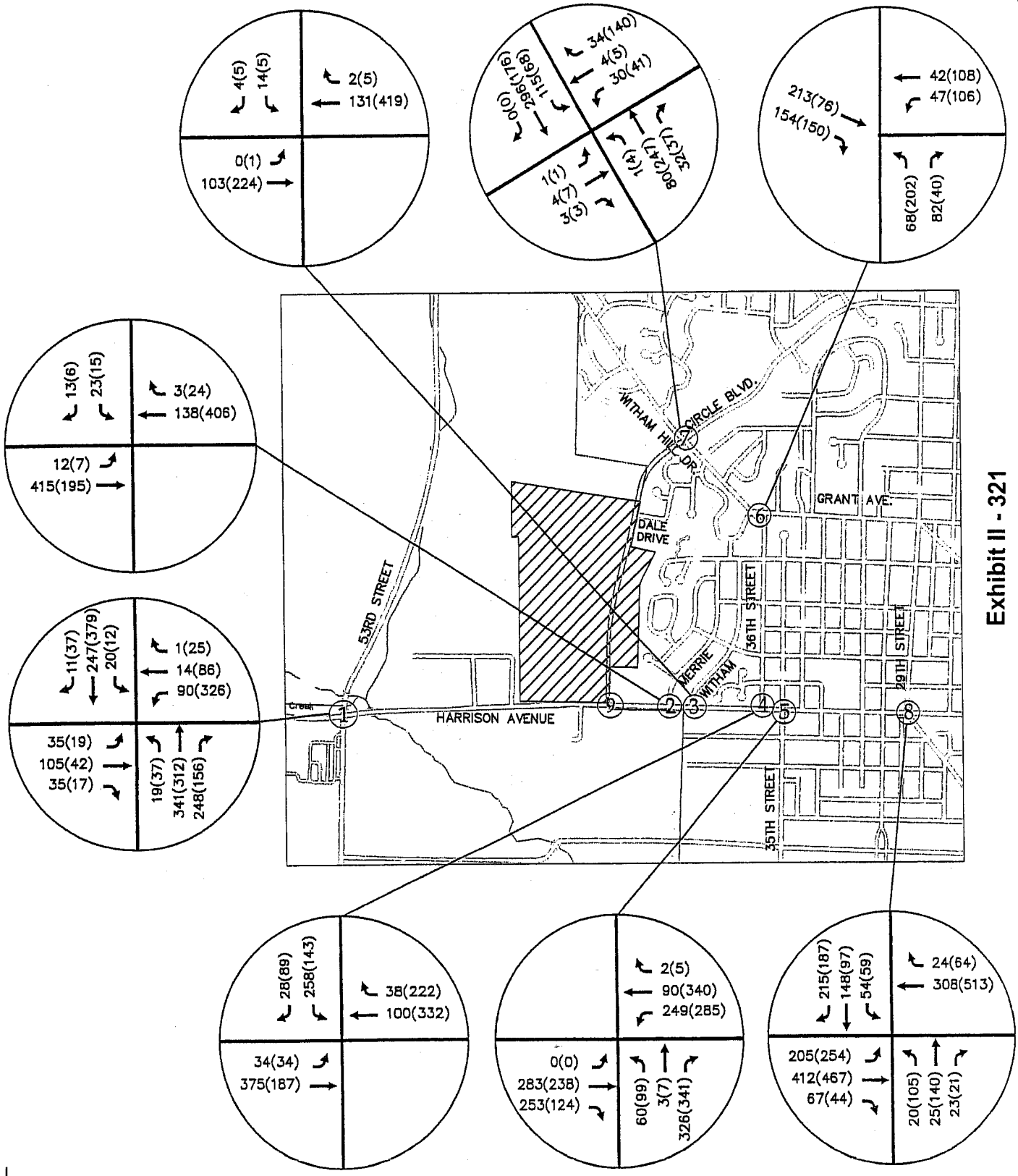

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Figure 7
2009 No Build
Volumes

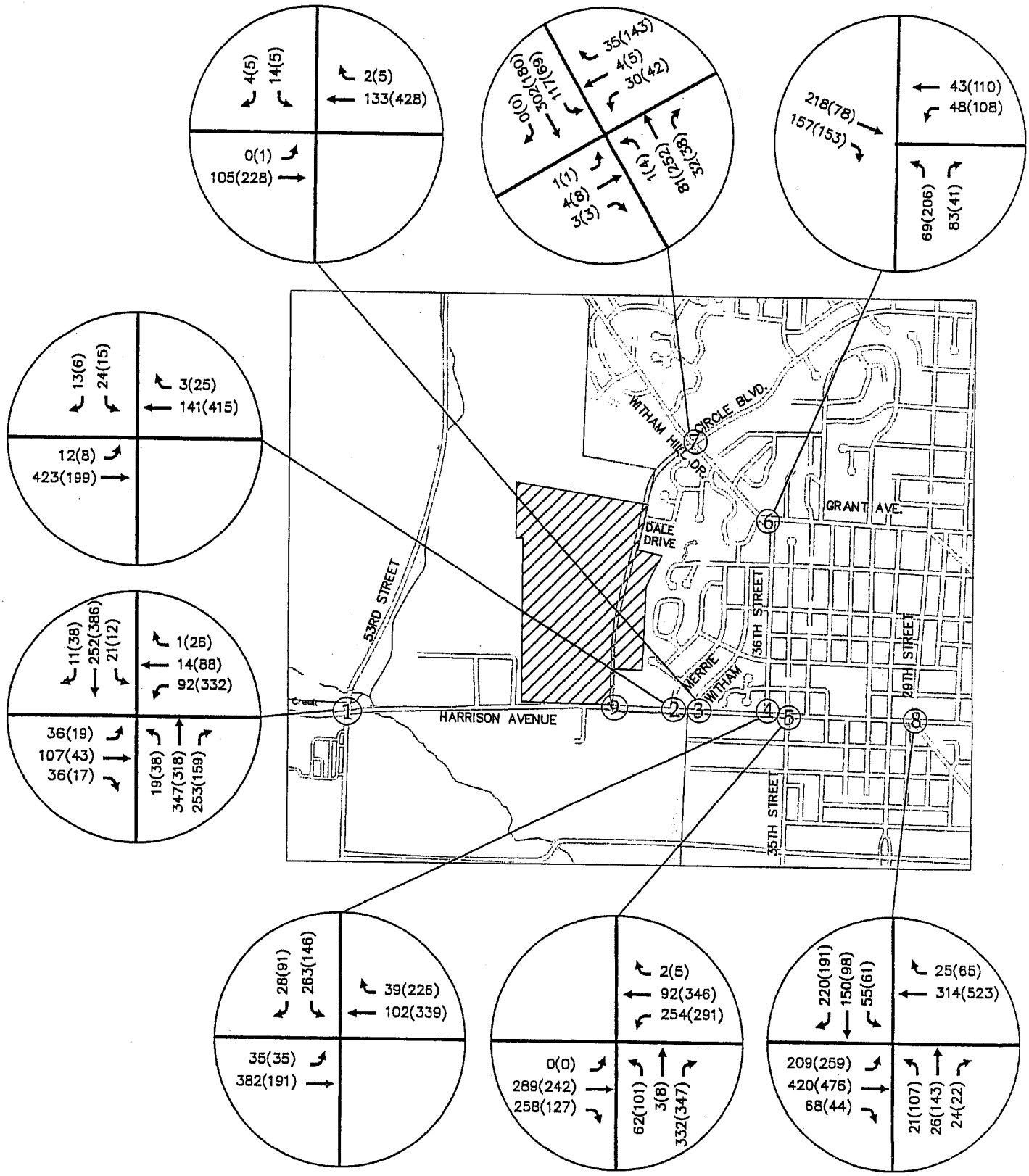
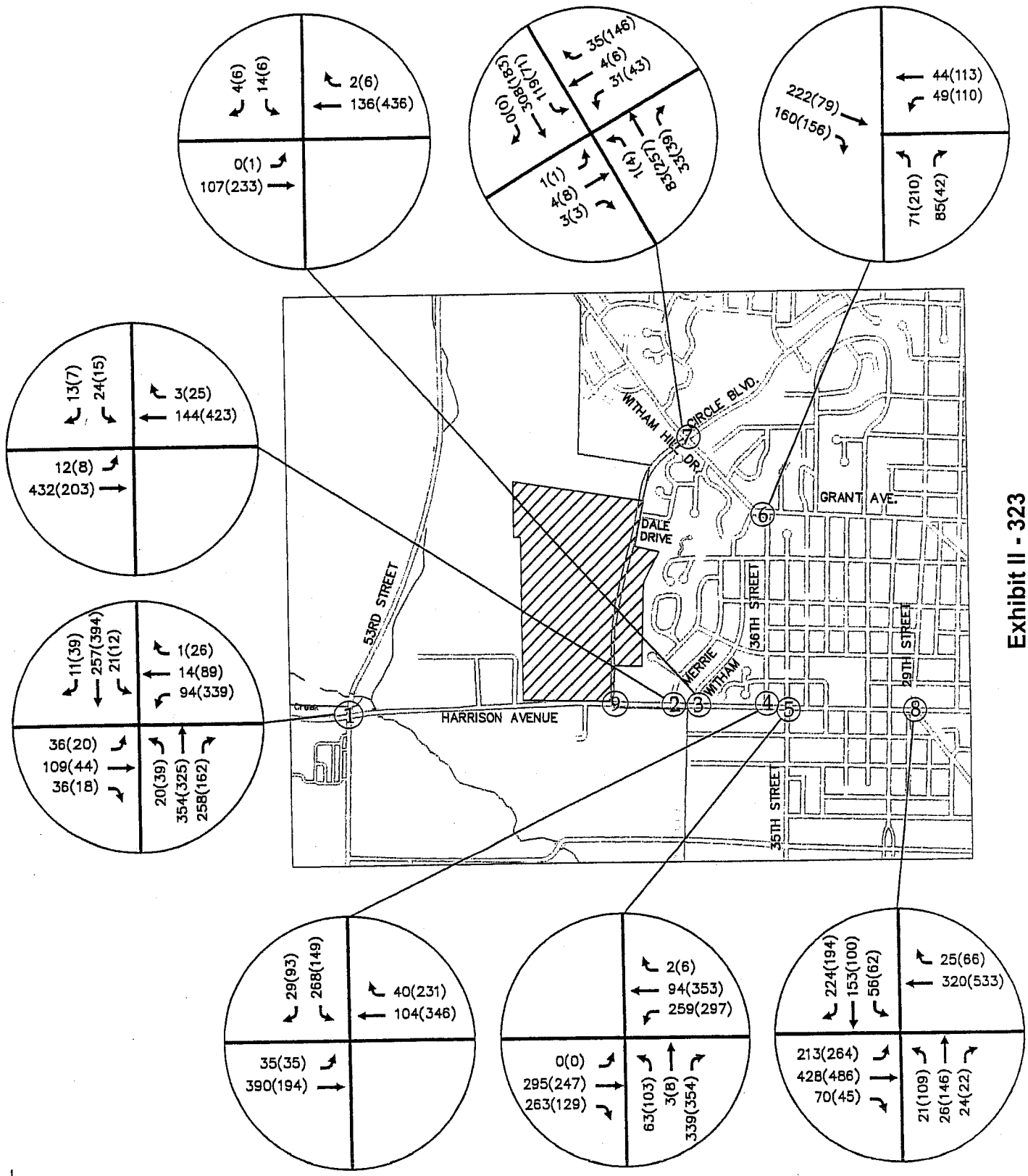


Figure 8
2010 No Build Volumes

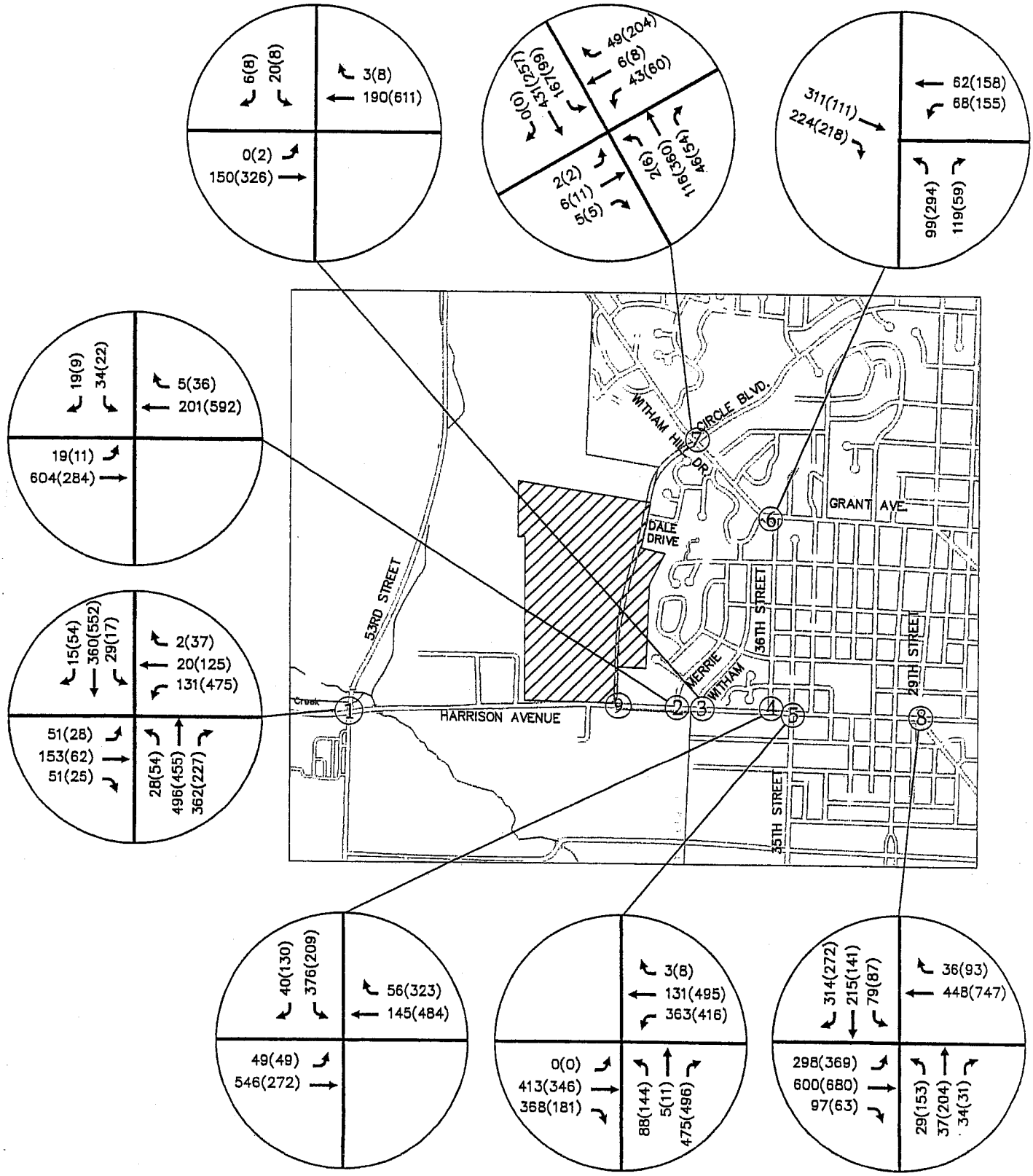


AM (PM)

Exhibit II - 323

Witham Oaks Development TIA

Figure 9
2027 No Build
Volumes



AM (PM)

Witham Oaks Development TIA

Figure 10
Traffic Distribtuion
Percentages

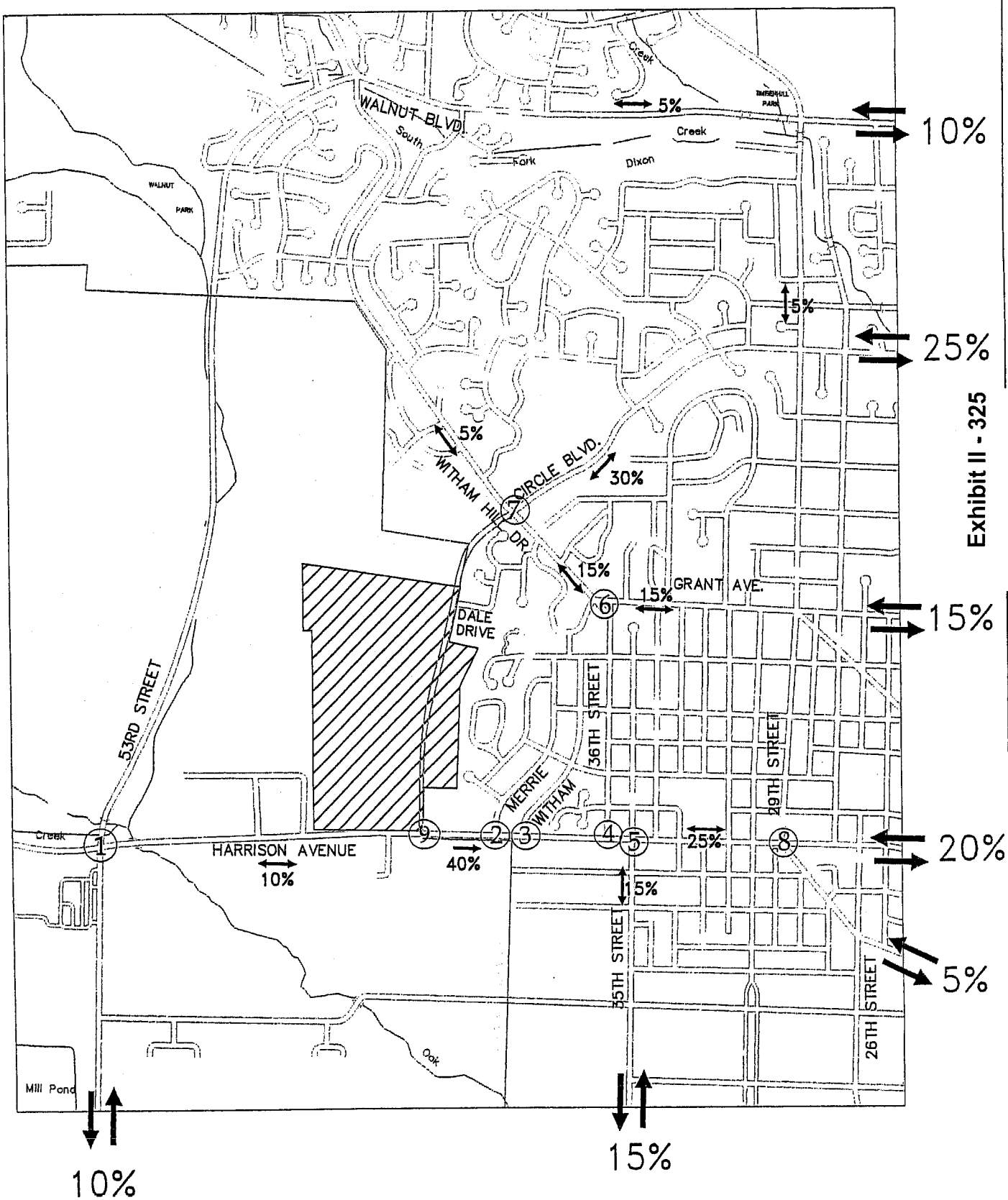


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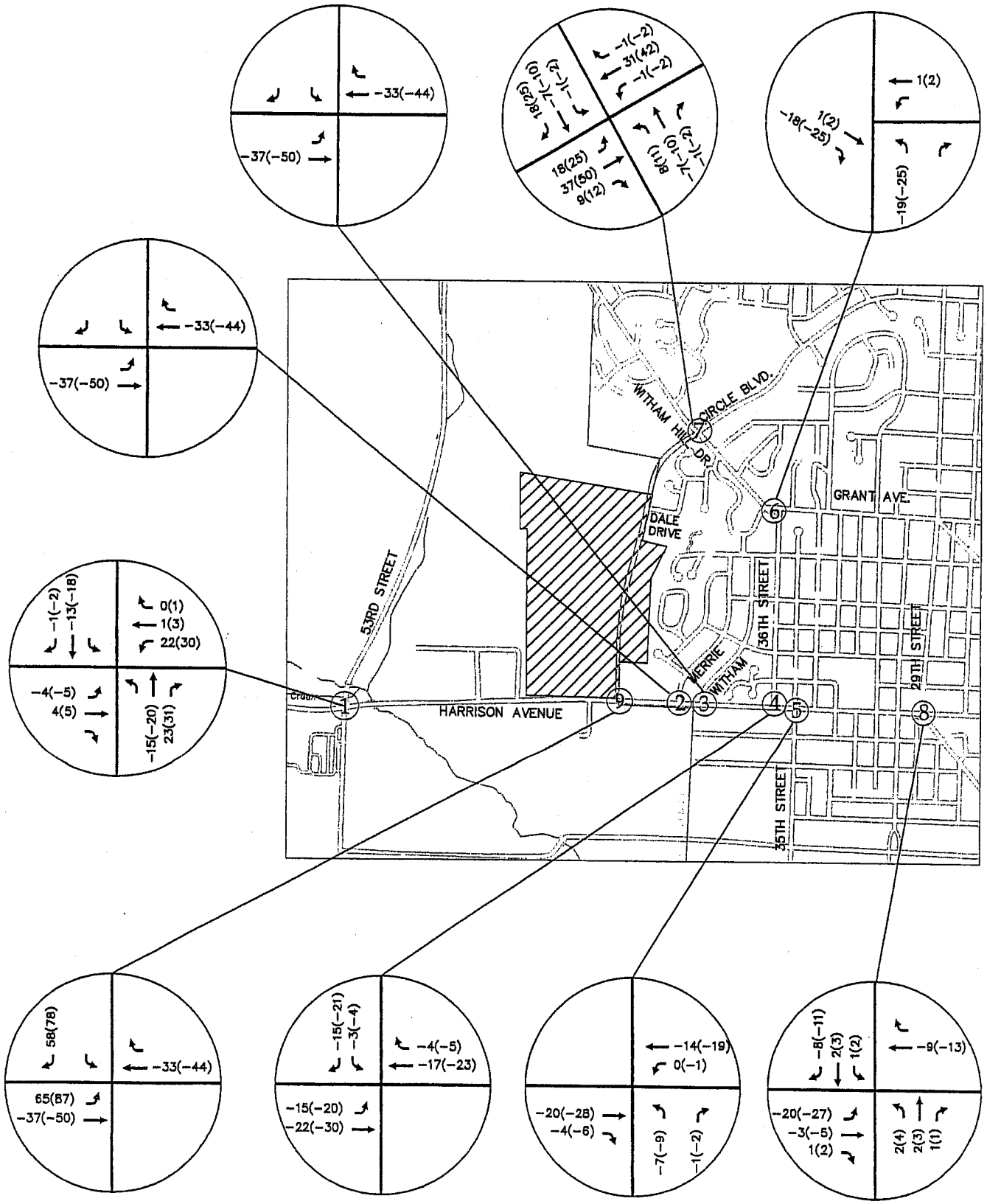
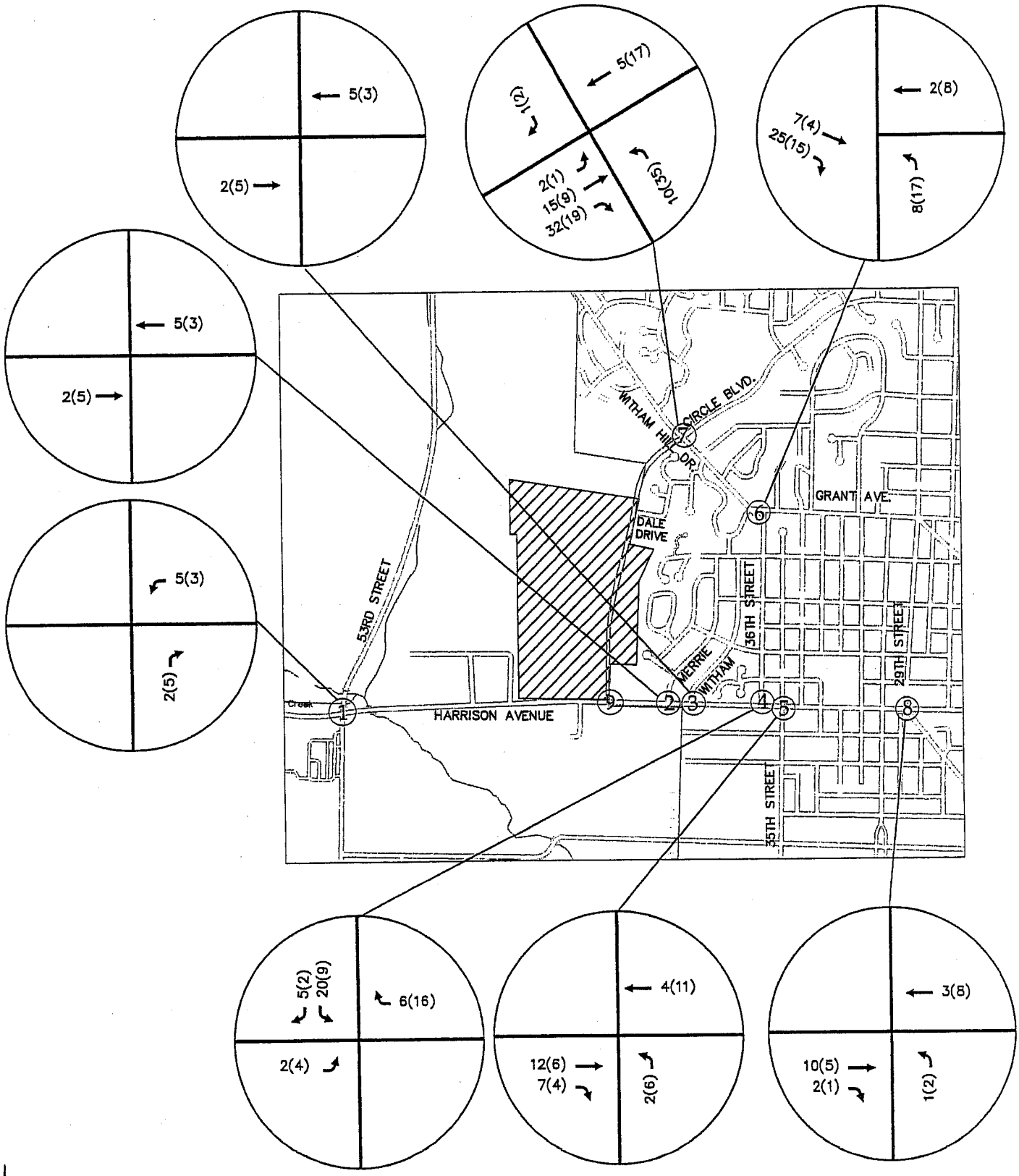
Figure 11
Circle Boulevard Extension
Diverted Trips



AM (PM)

Witham Oaks Development TIA

Figure 12
Site Generated Traffic
Phase 1



AM (PM)

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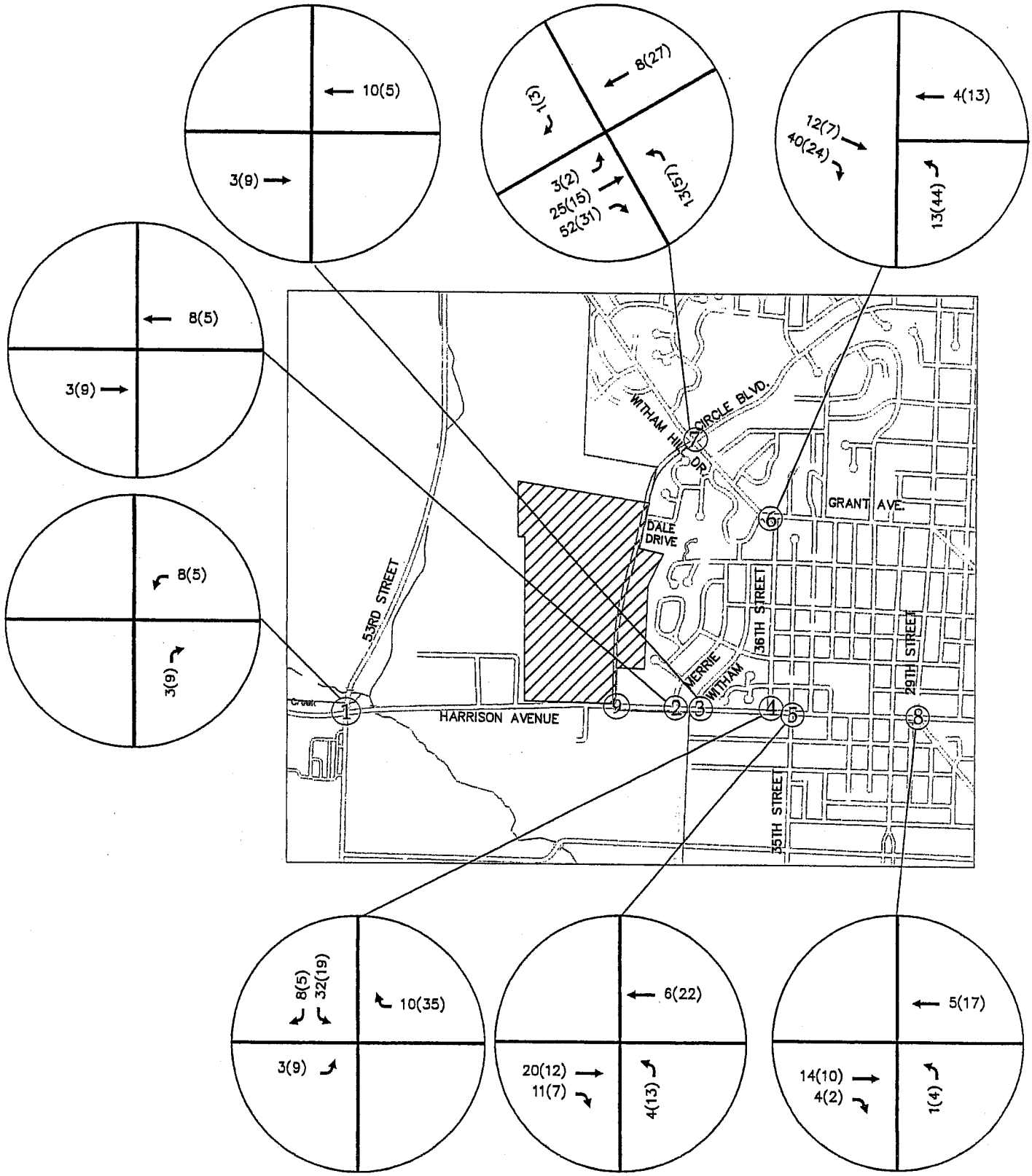
Witham Oaks Development TIA

Figure 13
Site Generated Traffic
Phase 2 (Without Circle Extension)



AM (PM)

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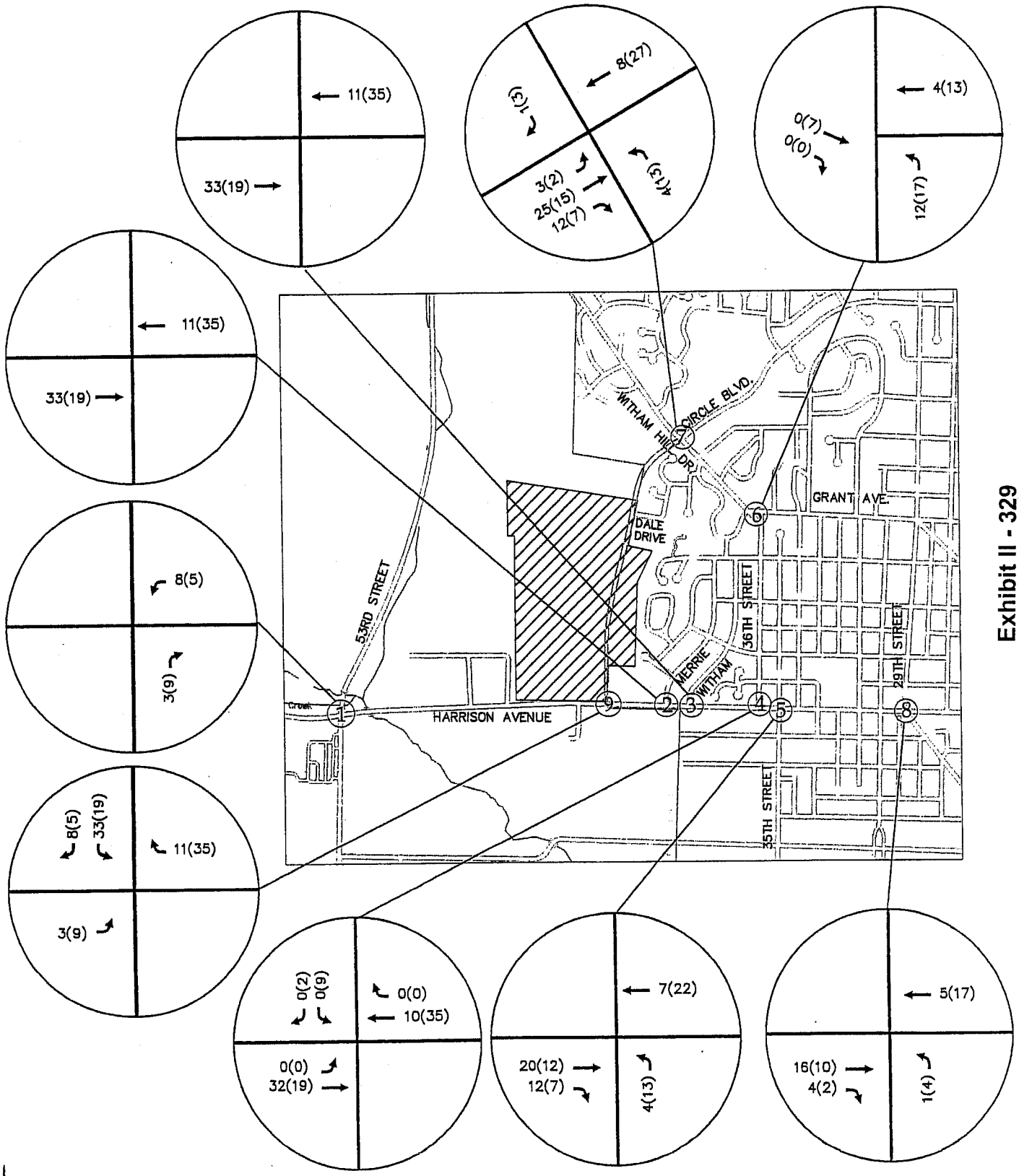
Witham Oaks Development TIA

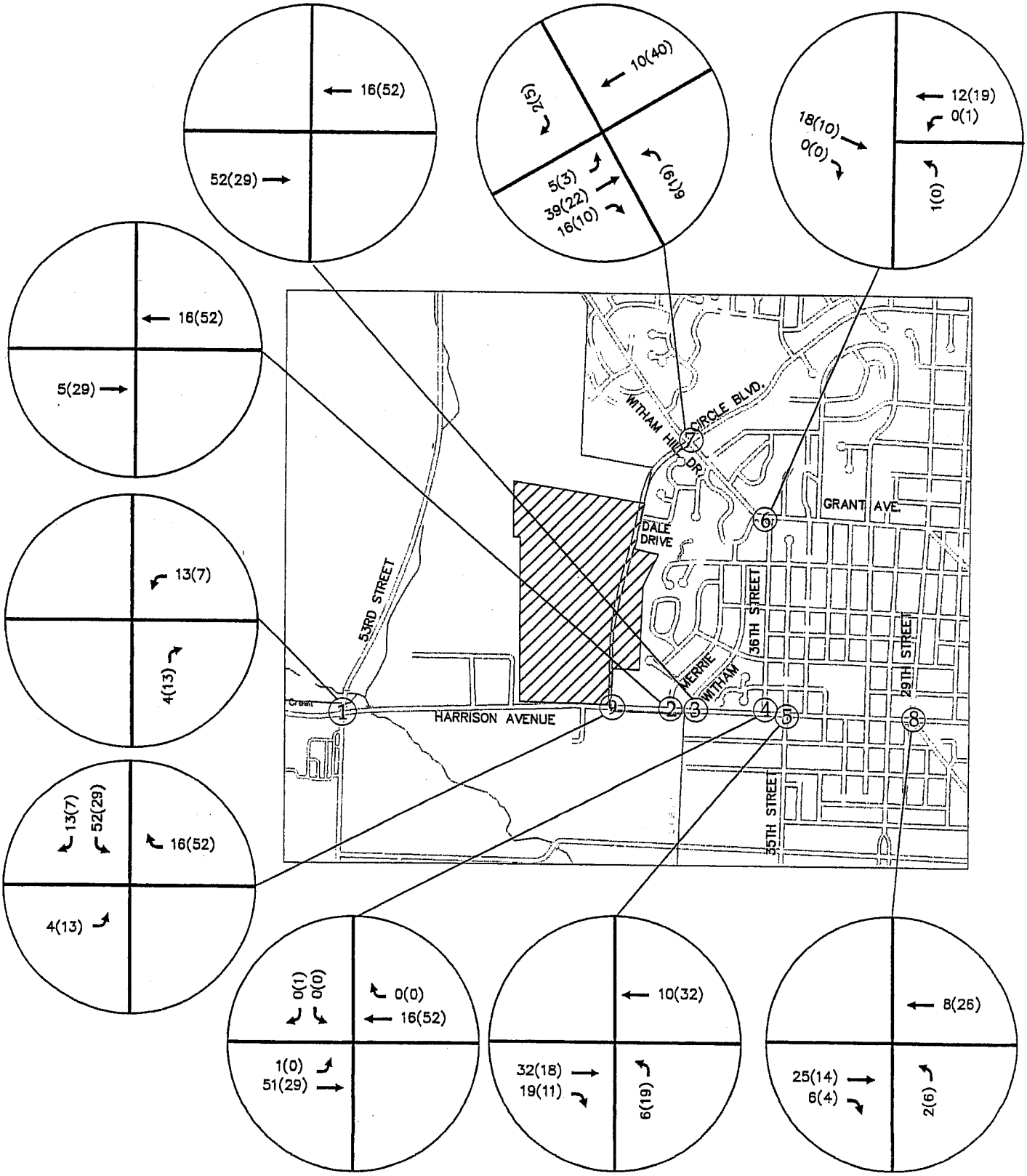
Figure 14
Site Generated Traffic
Phase 2 (With Circle Extension)



AM (PM)

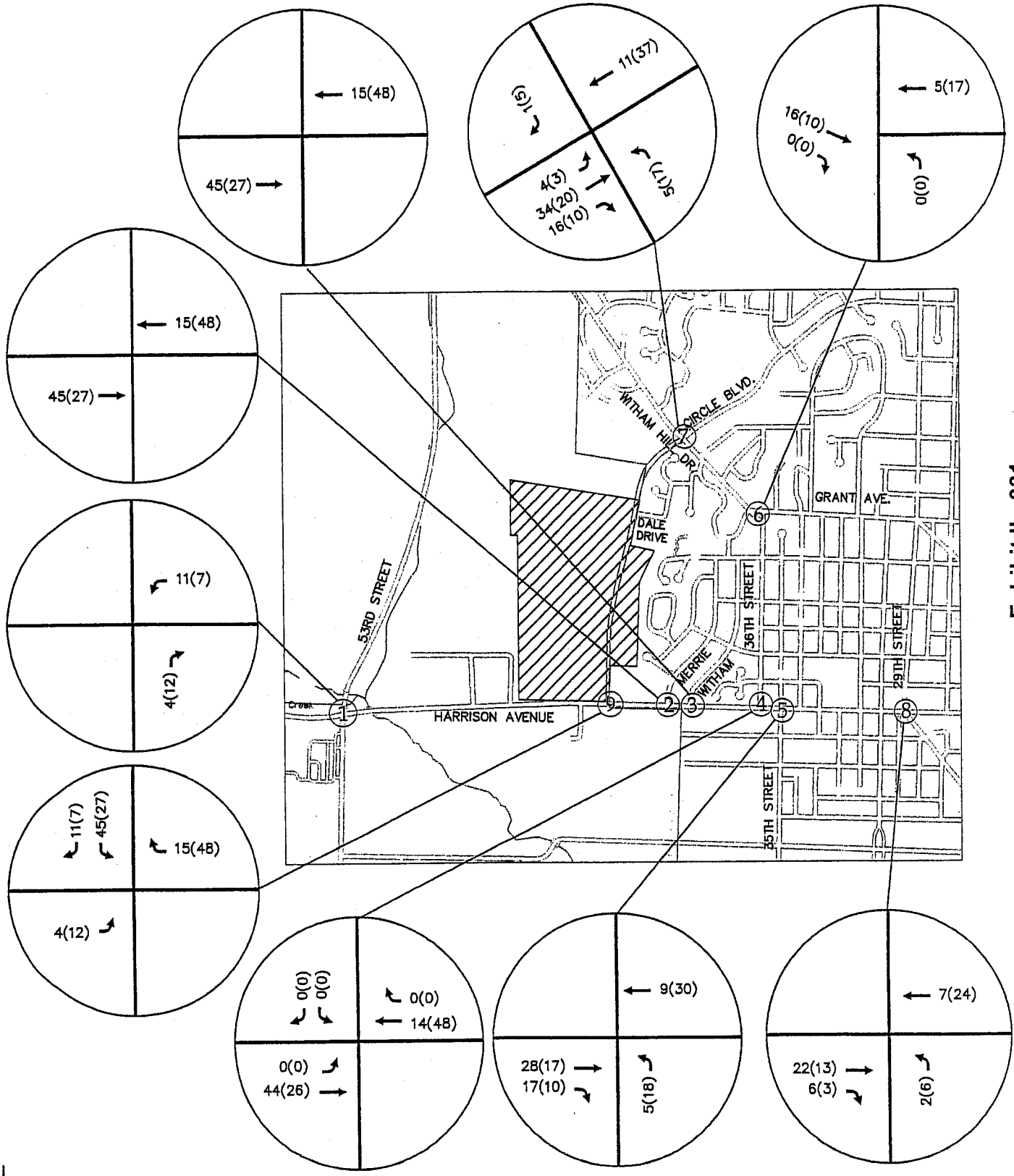
Exhibit II - 329

Figure 15
Site Generated Traffic
Phase 3 (A+B)



AM (PM)

Figure 16
Site Generated Traffic
Phase 3A



AM (PM)

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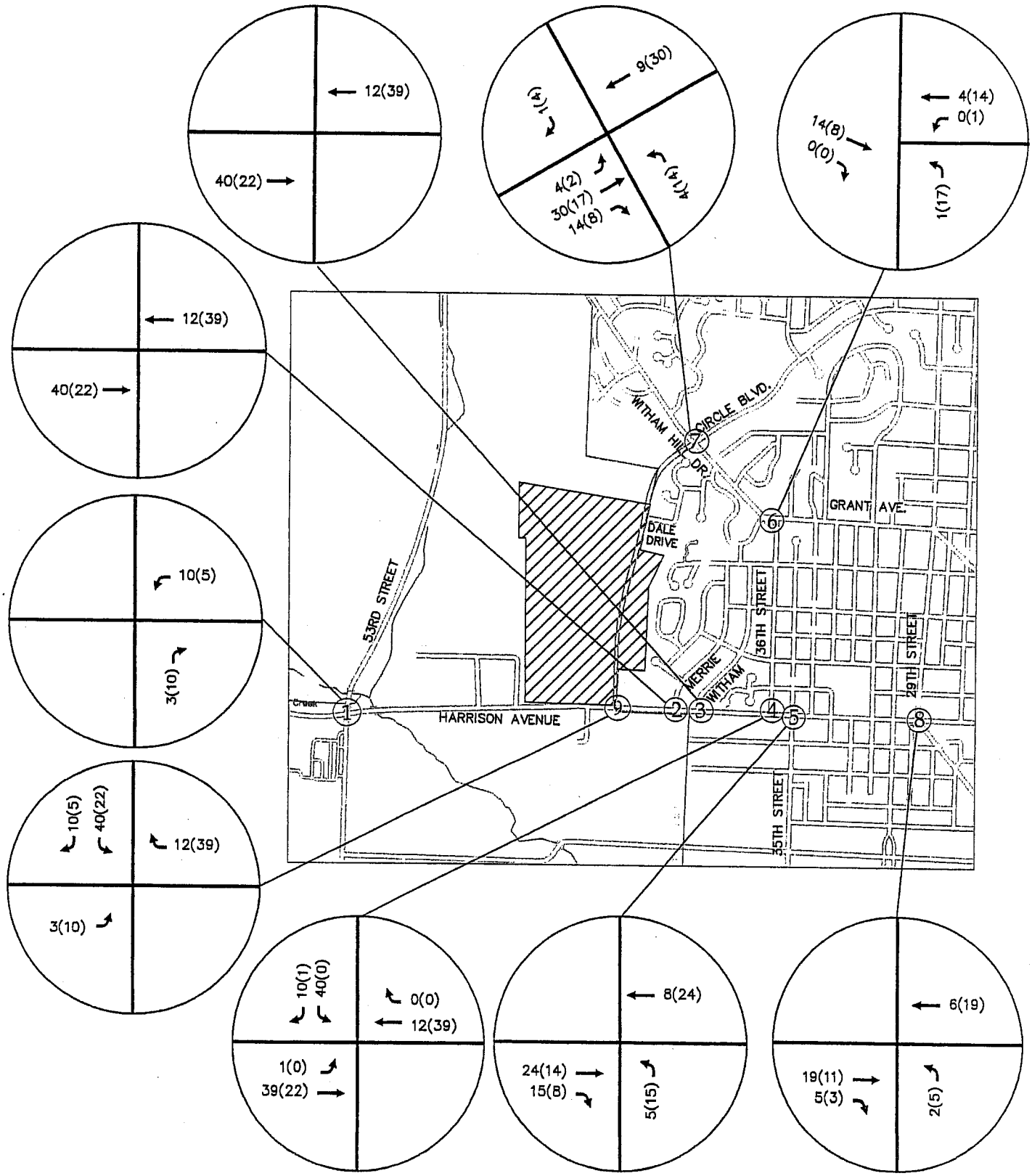
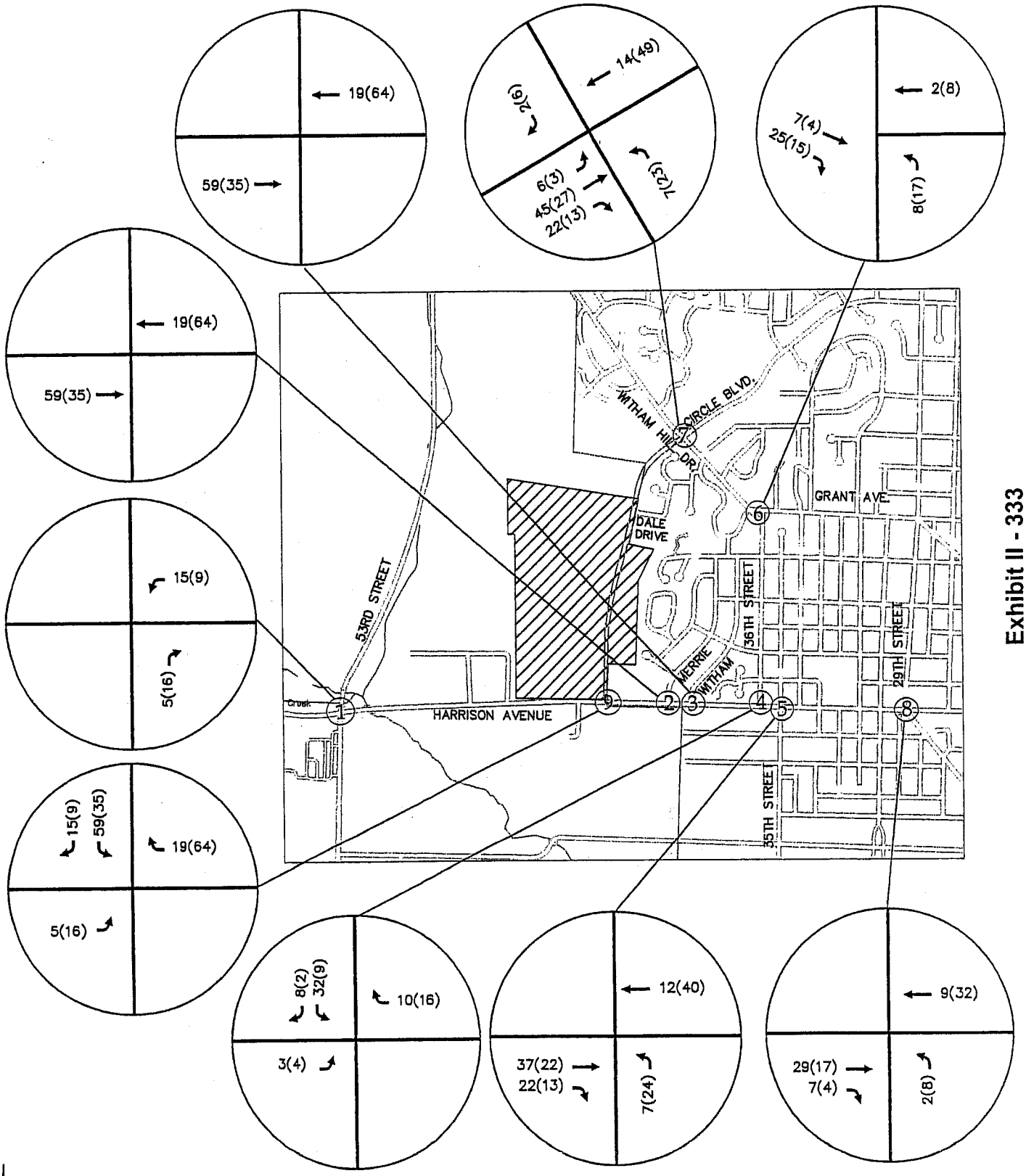
Figure 17
Site Generated Traffic
Phase 3B



AM (PM)

Witham Oaks Development TIA

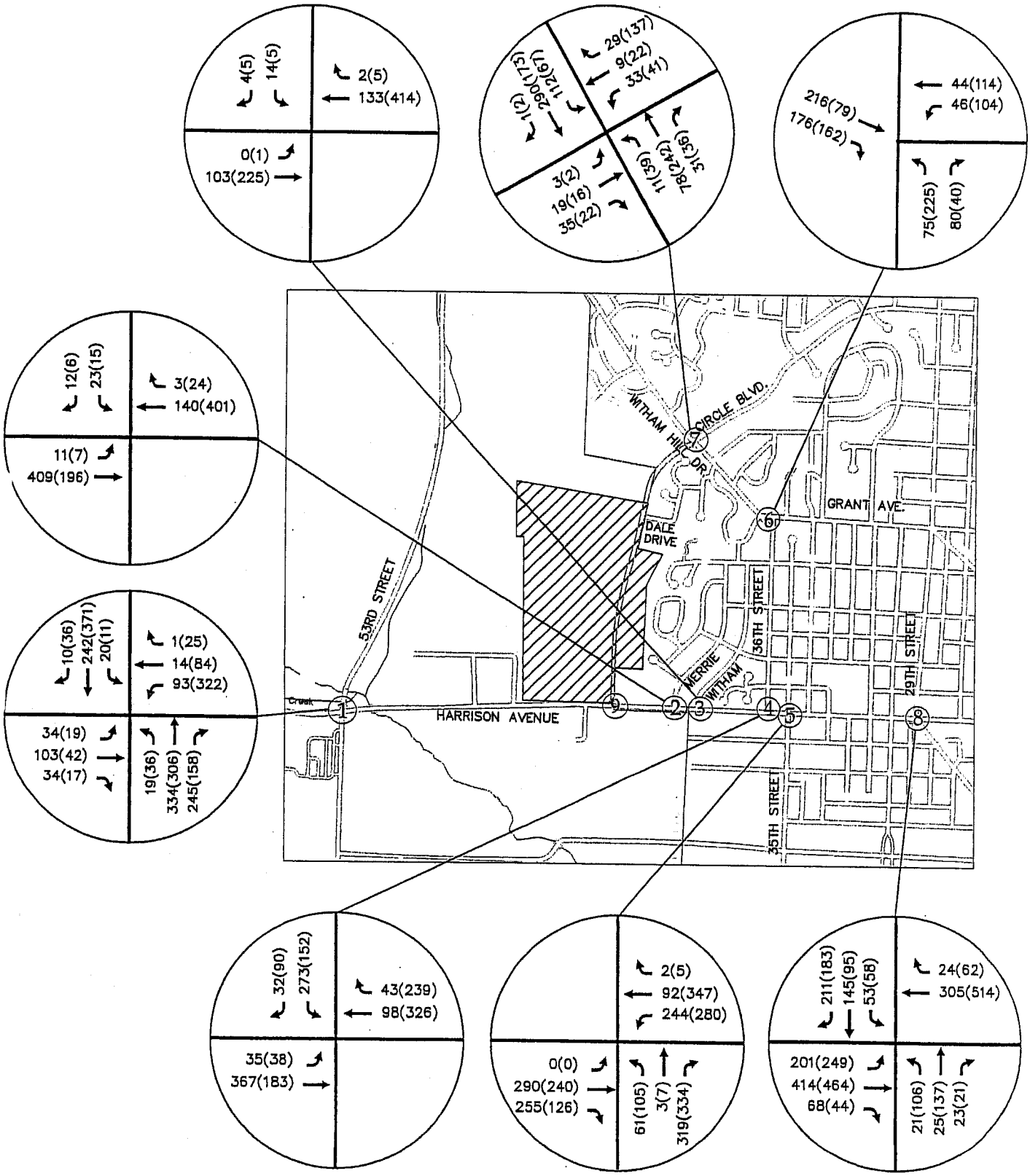
Figure 18
Site Generated Traffic
Phase 4 - Build Out



AM (PM)

Exhibit II - 333

Figure 19
2007 Build
Phase 1Volumes



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Witham Oaks Development TIA

Figure 20
2008 Build
Phase 2 Volumes (Without Circle Extension)

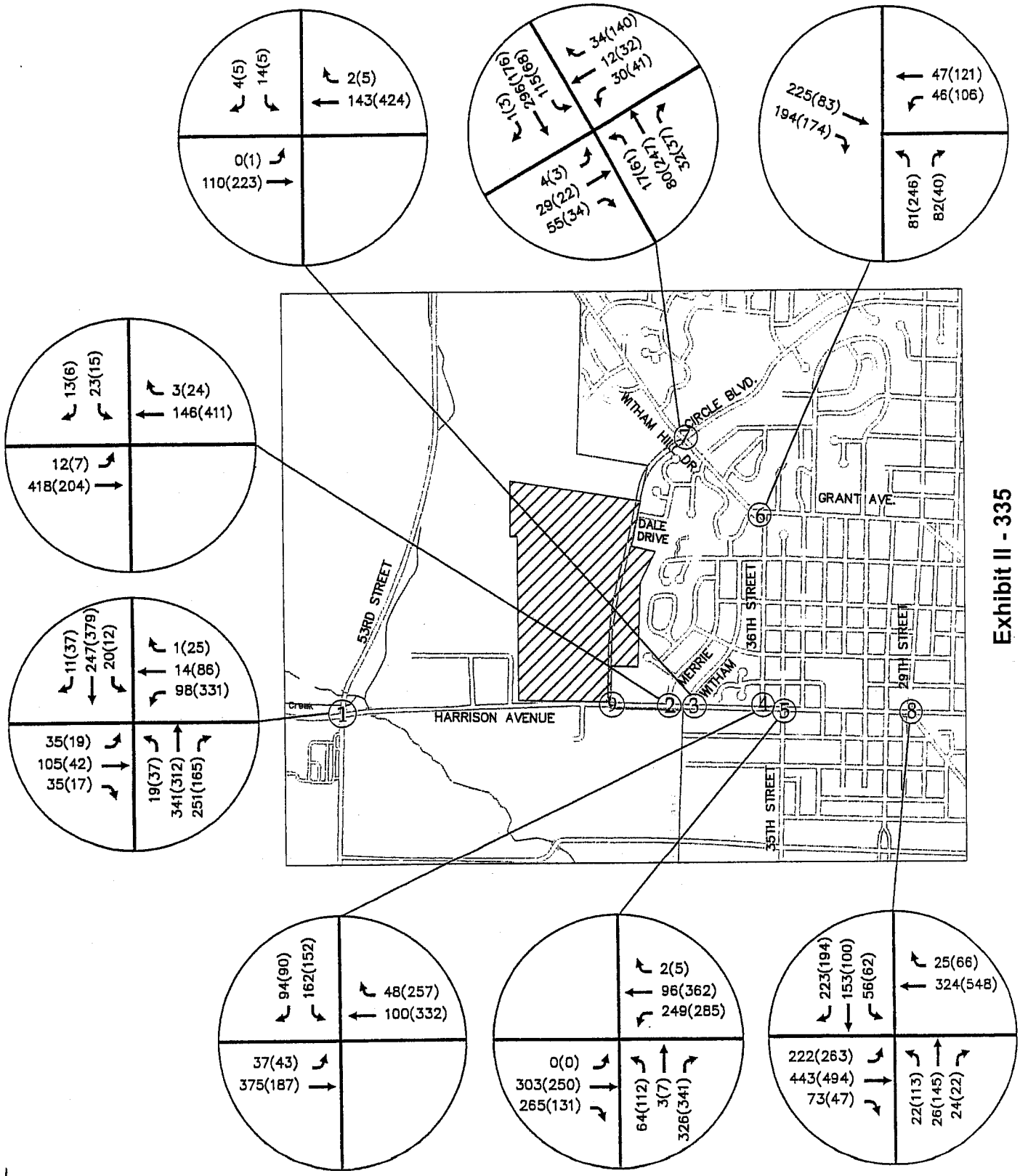

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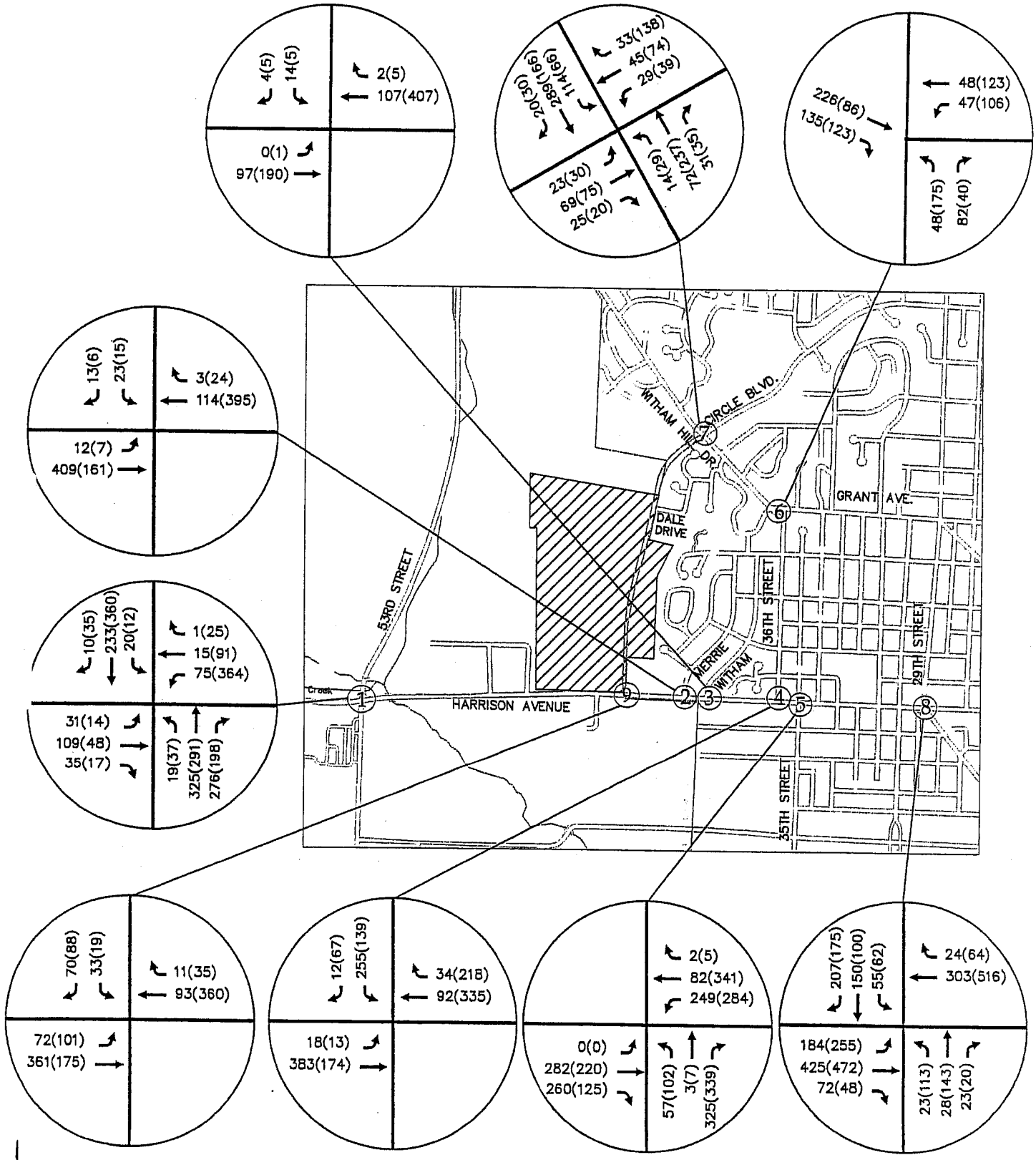
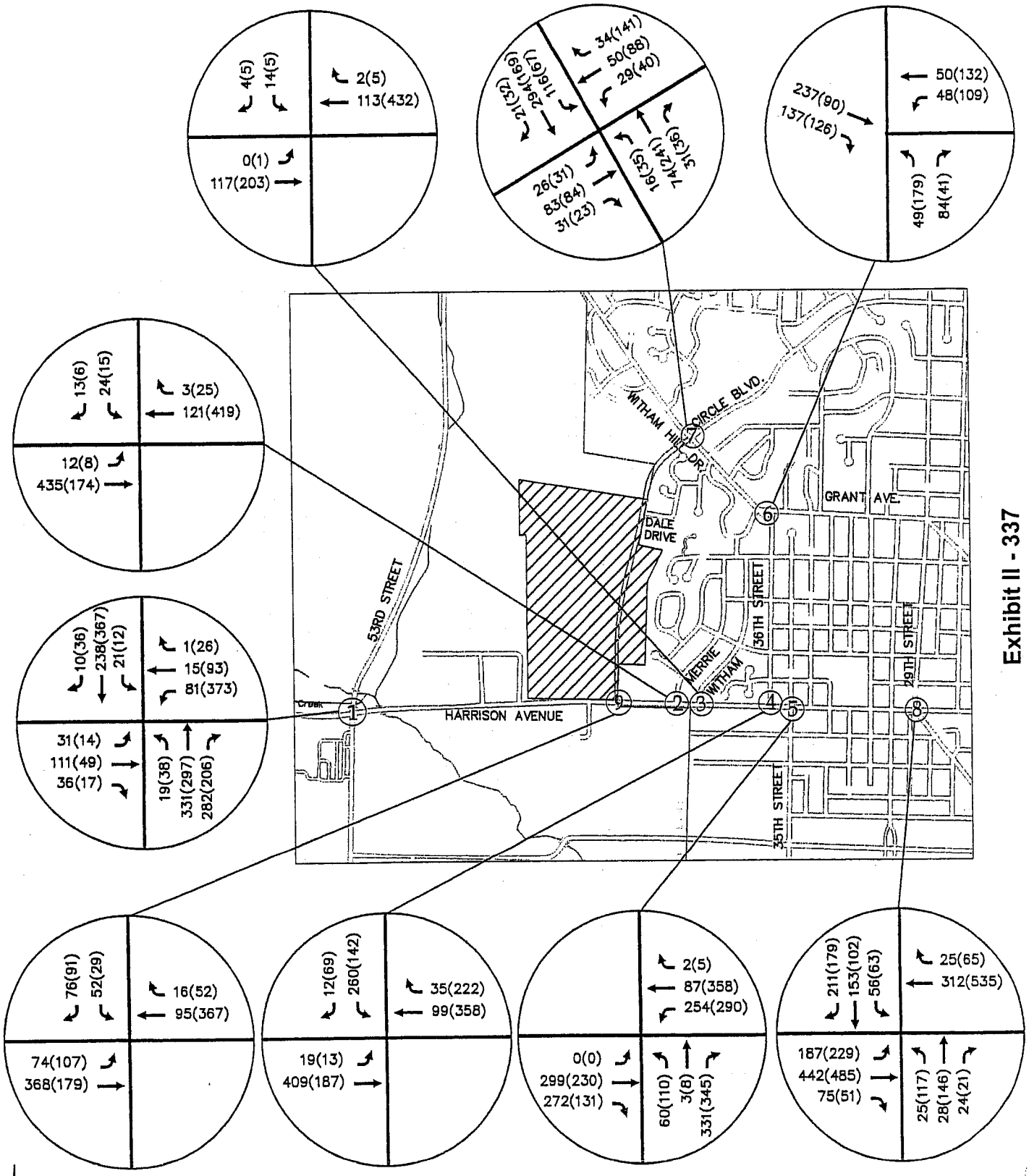
Figure 21
2008 Build
Phase 2 Volumes* (With Circle Extension)



AM (PM) * Includes diverted trips from Circle Extension

Witham Oaks Development TIA

Figure 22
2009 Build
Phase 3 (A+B) Volumes*



AM (PM) * Includes diverted trips from Circle Extension

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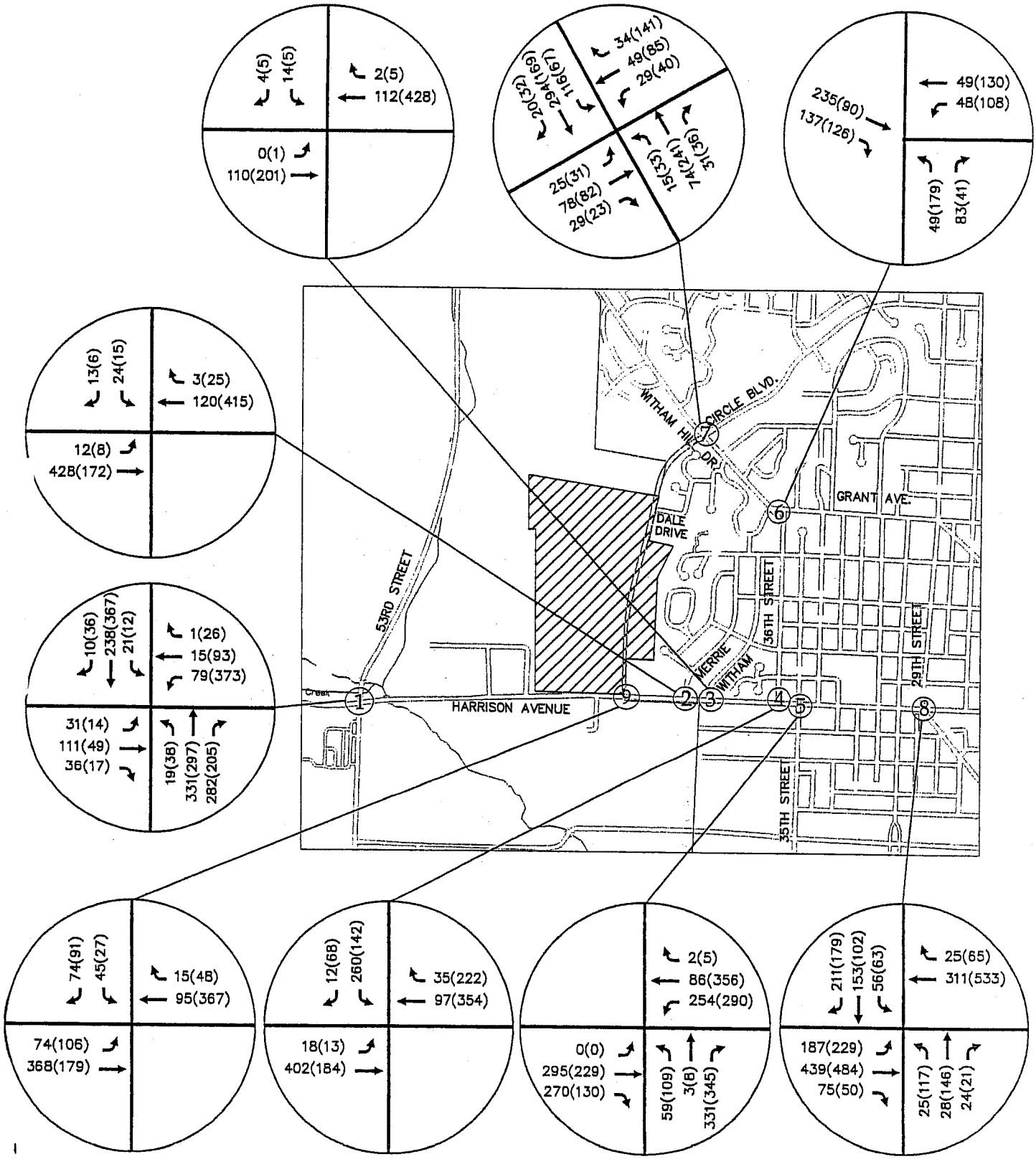
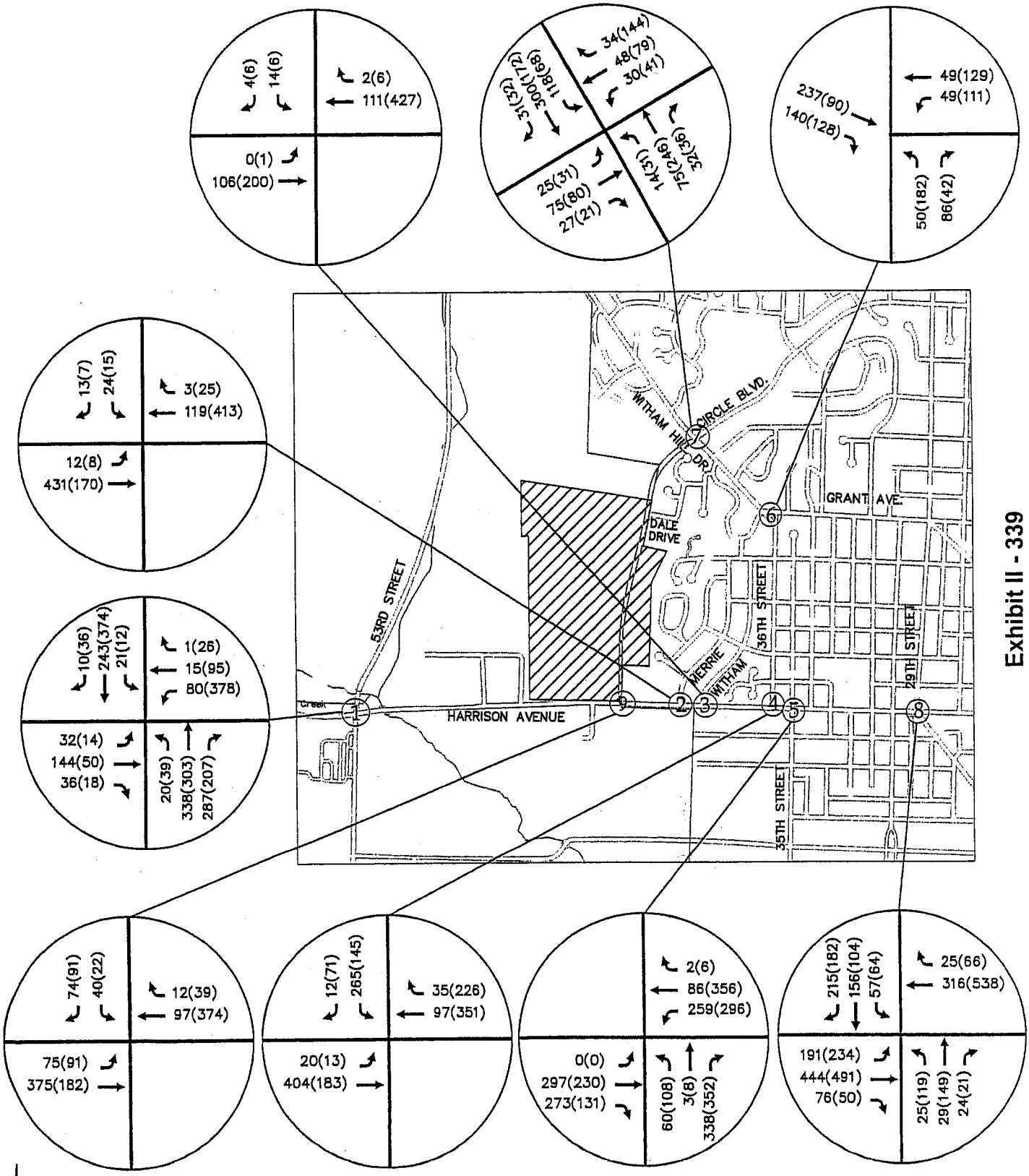
Figure 23
2009 Build
Phase 3A Volumes*



AM (PM) * Includes diverted trips from Circle Extension

Witham Oaks Development TIA

Figure 24
2010 Build
Phase 3B Volumes*



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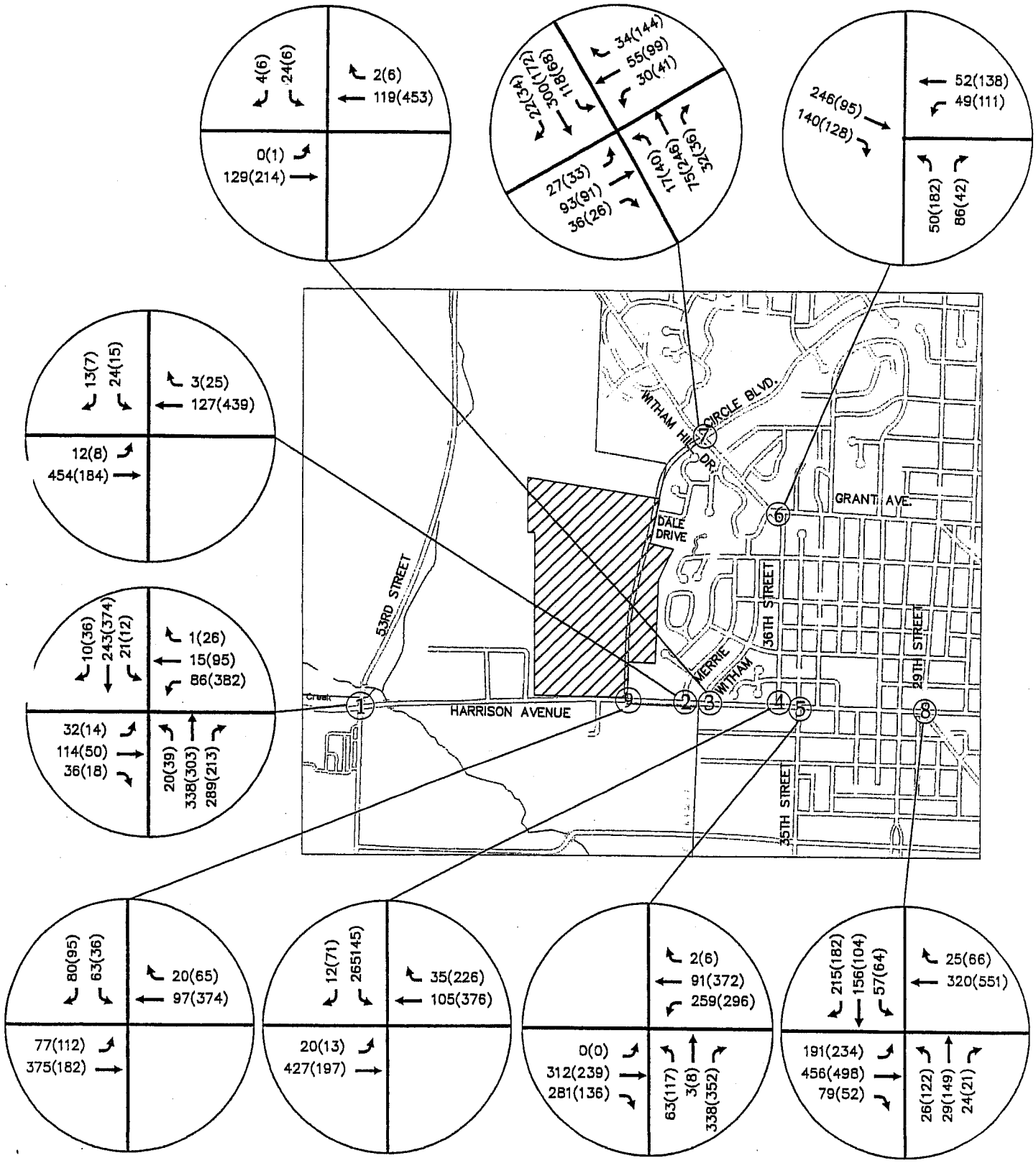
AM (PM) * Includes diverted trips from Circle Extension

Figure 25
2010 Build
Phase 4 Volumes*



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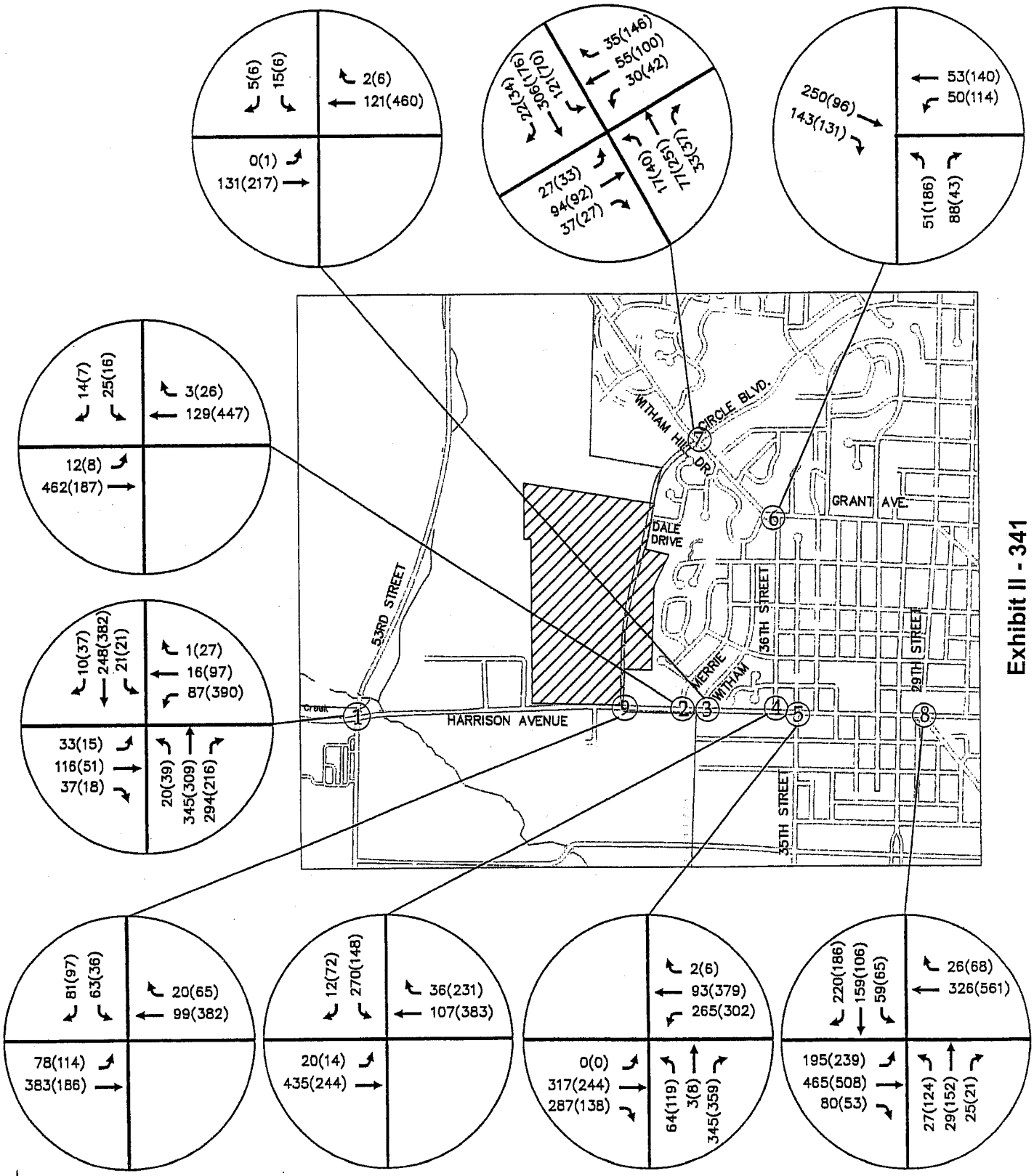
AM (PM) * Includes diverted trips from Circle Extension

Witham Oaks Development TIA

Figure 26
2011 Build
Phase 4 Volumes*



AM (PM) * Includes diverted trips from Circle Extension

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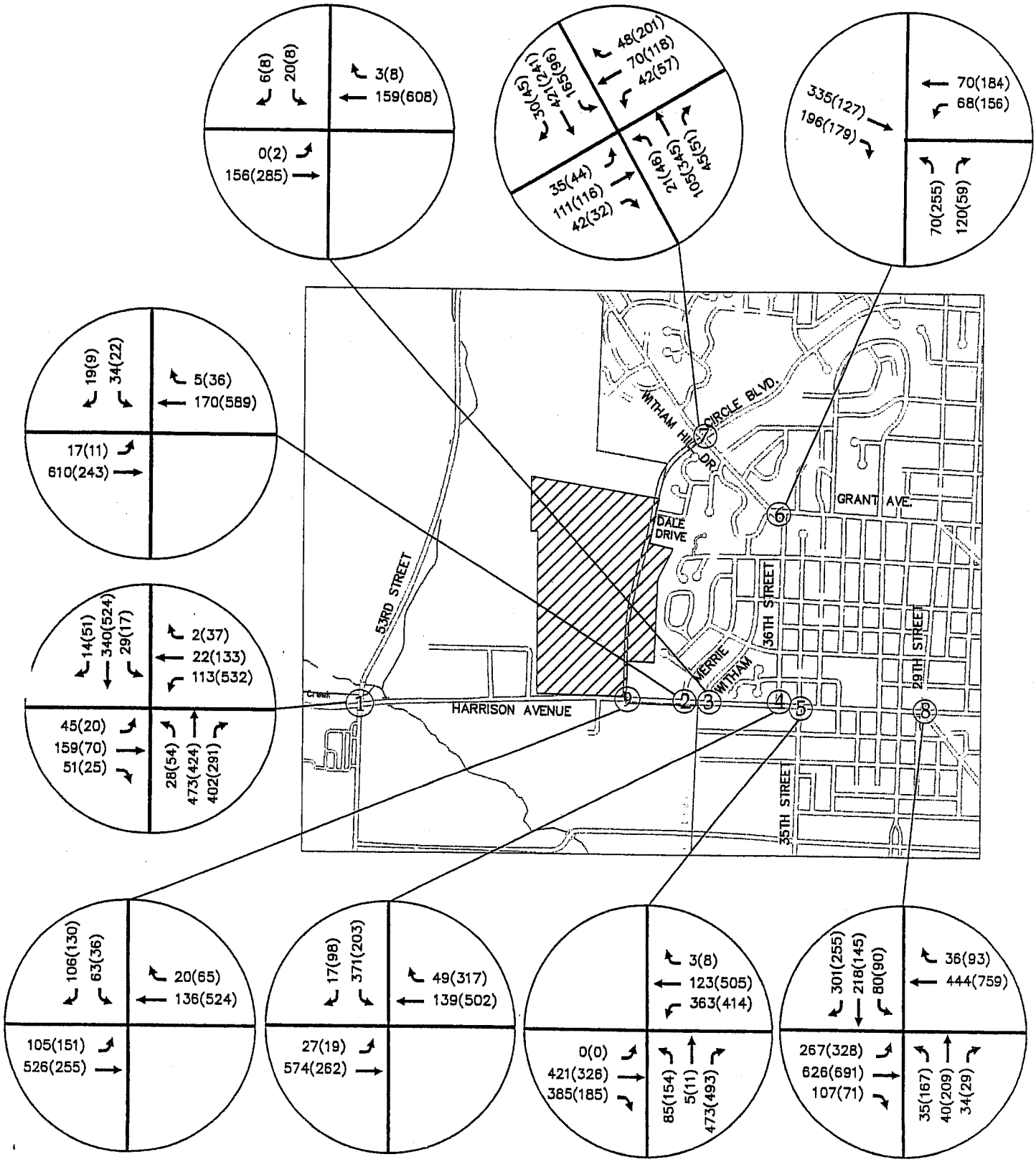
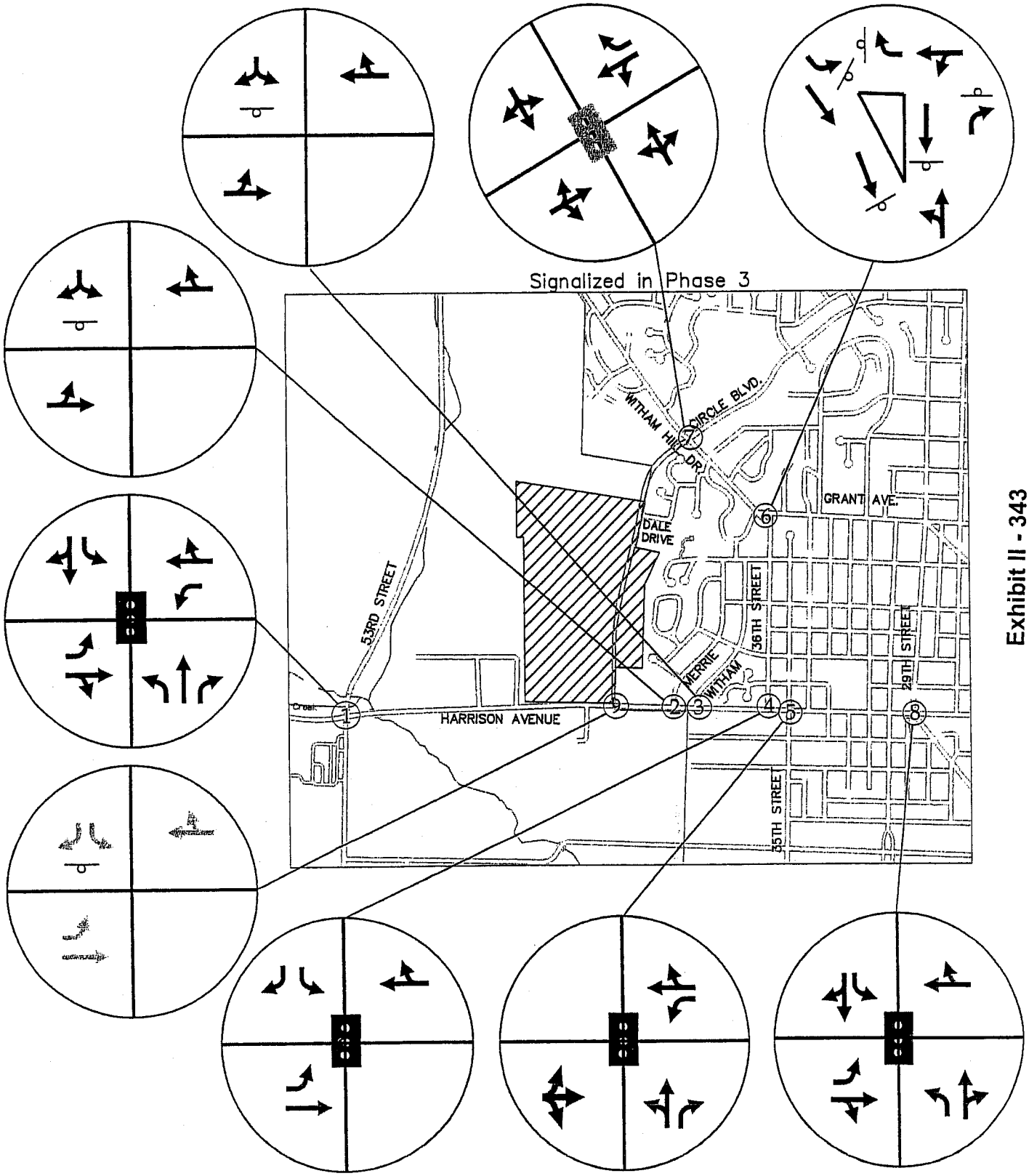
Figure 27
2027 Buildout Volumes*



AM (PM)

* Includes diverted trips from Circle Extension

Figure 28
Future Lane Configurations
and Traffic Controls



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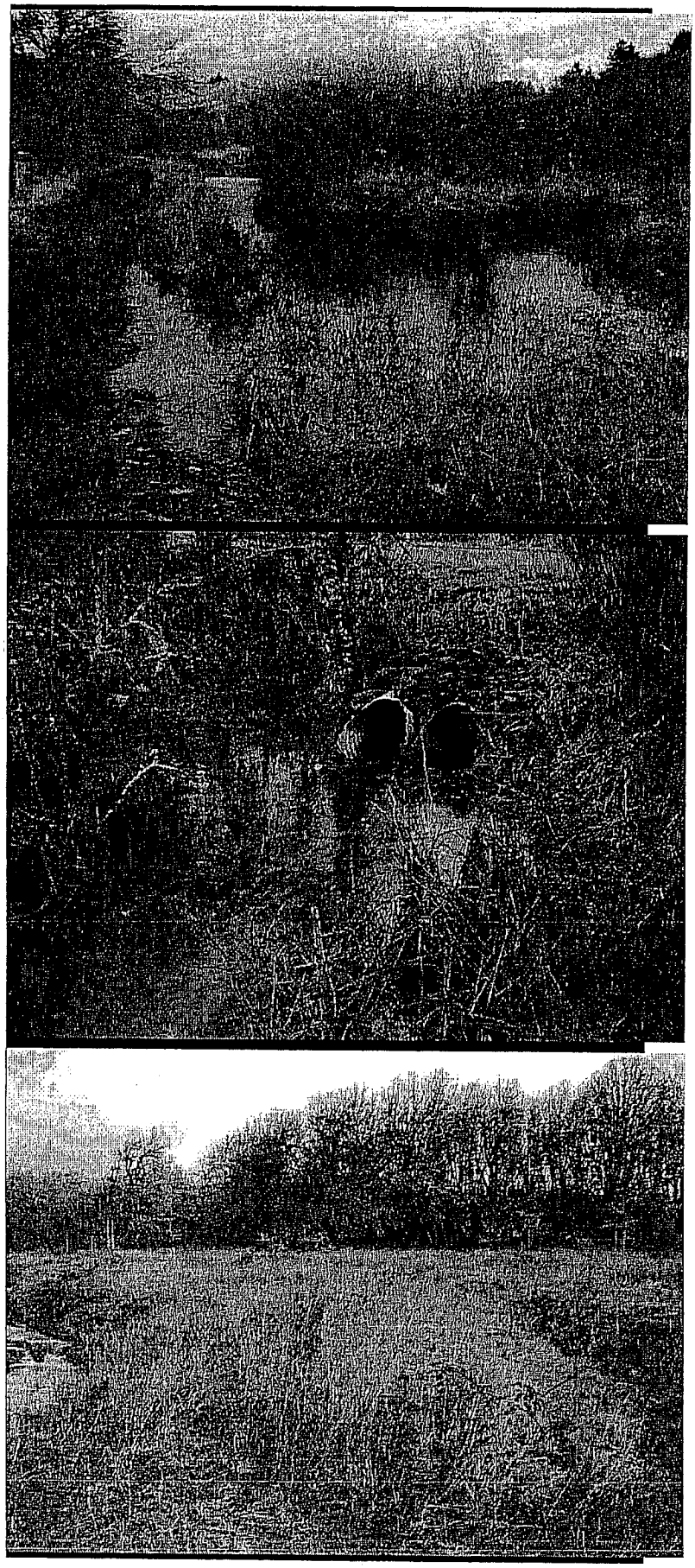
Existing Movements
Improvements



Witham Oaks

Preliminary Stormwater Report

Submitted to:

City of Corvallis

Prepared for:

Legend Homes

Prepared by

Otak, Inc.

Project No. 12059

January 30, 2007

RECEIVED
FEB 2 2007
Comm Planning Division

Acknowledgements

Witham Oaks

Preliminary Stormwater Report

Submitted to:
City of Corvallis

Prepared for:
Legend Homes

Prepared by:
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MAY 11, 2004
KEVIN JOHN TIMMINS
EXPIRES: 06-30-08

January 30, 2007

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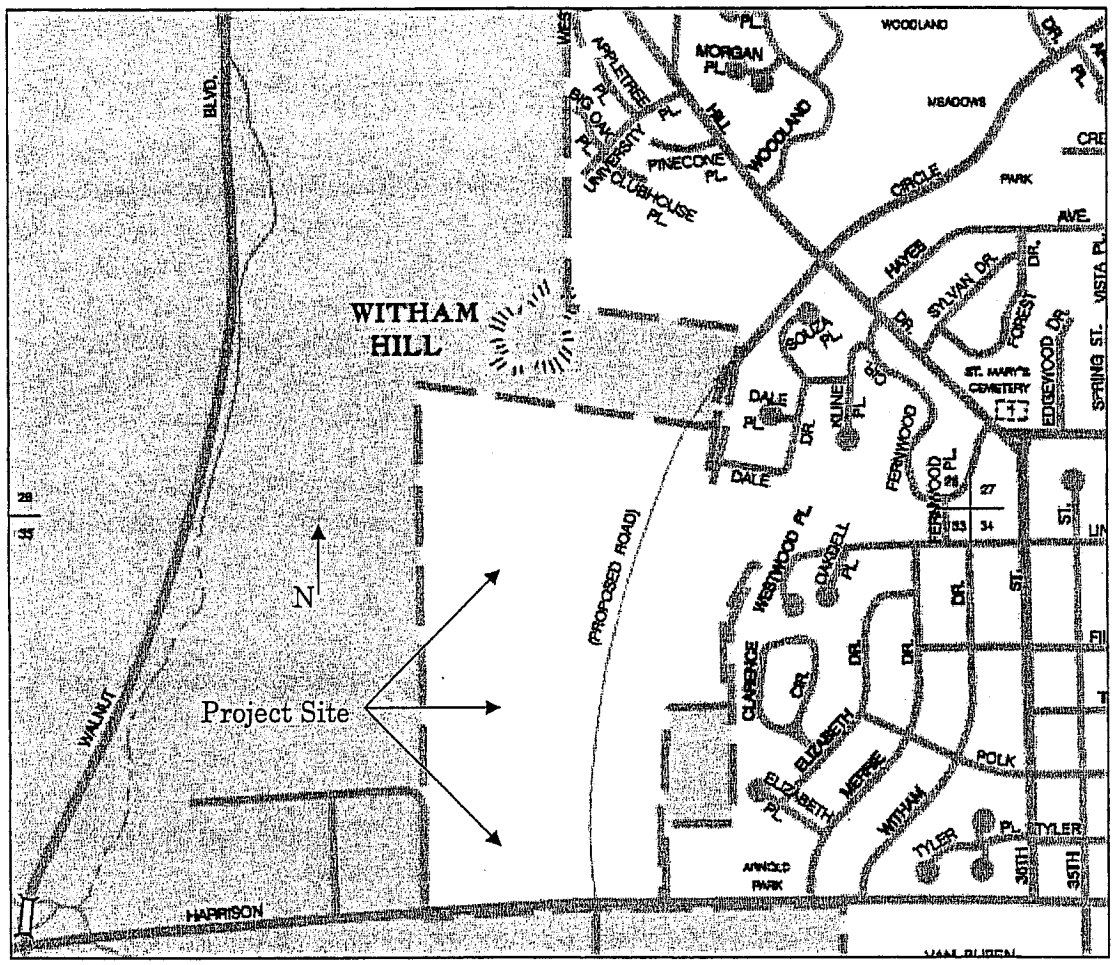
Appendix A: Existing Condition Hydrographs
Appendix B: Proposed Condition Hydrographs
Appendix C: Water Quality Hydrographs/Calculations

Introduction

This report describes the preliminary stormwater management plan for the proposed Witham Oaks development located in the City of Corvallis, Oregon. The project site is approximately 94 acres and is located along the north side of Harrison Boulevard approximately 0.5 miles west of the intersection of Harrison Boulevard and 36th Street.



Regulatory Review

The City of Corvallis adheres to the King County Surface Water Management Manual (KCSWMM). This report references the 1990 KCSWMM for hydrologic calculations and the 1998 KCSWMM for water quality design requirements. For water quantity, the City of Corvallis requires the proposed conditions peak runoff rate to match the existing conditions peak runoff rate resulting from the 2, 5, and 10-year, 24-hour storm events. In addition to City requirements, Oregon State University Facilities Services (OSU) has requested that the proposed 100-year flow match the existing 10-year flow for the outfall discharging directly to a drainage way that flows across the OSU Dairy property.

Soils

A review of the Benton County Soils Survey published by the Natural Resource Conservation Service (NRCS, formerly SCS) shows the site consists of hydrologic soil group (HSG) C and D soils. Approximately 86 percent of the site contains HSG D soils. HSG C soils provide limited infiltration; HSG D soils provide little to no infiltration, resulting in greater runoff rates.

Existing Site Description

Under existing conditions, the site generally drains from the north to the south with an average relief of seven percent. An asphalt concrete (AC) path runs north and south through the site, dividing the site into east and west sections. Runoff from the site drains southerly through wetland areas located on both sides of the path and collects in a relatively flat ditch along the project's southern boundary. This ditch conveys some flows west of the site through a culvert (Outfall 3) for discharge into a drainage way that flows south to Oak Creek. The remaining site flows are discharged to the south from the ditch via two culverts that convey flows under Harrison Boulevard. One of these culverts is located east of the AC path (Outfall 1) and the other is located west of the AC path (Outfall 2). Figure 1 shows a base map of the site and the location of Outfalls 1, 2, and 3, described above.

Outfall 2 discharges to the upstream end of a 1500-foot long channel that flows to Oak Creek. Outfall 1 discharges to a pasture where flows eventually join the same 1500-foot channel that Outfall 2 discharges to.

Proposed Conditions

Under proposed conditions, site flows will be collected from developed areas and conveyed to multiple water quality facilities located upstream of the wetland area. The water quality facilities will treat and release flows to structures which will disperse flows along the northern boundary of the wetland (water quality facilities are further discussed in the water quality section of this report and a separate memorandum dated October, 2006). These dispersed flows will then flow overland through the wetland to the existing ditch along the project's southern boundary.

The wetland will provide some storage of the increased flows resulting from the development. In addition to the storage the wetland provides, a stormwater detention facility will be constructed and will drain through outfalls 2 and 3 described above. The stormwater facility will be hydraulically connected and will be graded to the same elevation as the bottom of the ditch along Harrison. Flow control will be provided upstream of culvert 2.

The stormwater facility will be designed to regulate the proposed condition peak flows to match the existing peak flows for the 2, 5, and 10 –year, 24-hour events at both outfalls. In addition, the 100-year flow from outfall 2 will match the existing 10-year flow as requested by OSU. See Figure 1 for a base map of the site and outfall locations.

Offsite Analysis

There are offsite areas which contribute runoff to the site located to the north, west, and east of the site. These offsite areas are primarily forested, with some existing development north and east of the site. The total area contributing runoff to the site, including both onsite and offsite areas, is approximately 170 acres.

Hydrology

Site cover consists of forested and open areas, with a large wetland area located primarily on the southern portion of the site. For water quantity calculations, the project site was modeled with XP-SWMM version 10.0, which was programmed to determine peak flows using the Santa Barbara Urban Hydrograph (SBUH) method. Parameters for use with the SBUH method were determined as outlined by the KCSWMM. Drainage basins were delineated based on aerial topography, survey, and existing and proposed site plans. Separate hydrographs were generated for pervious and impervious areas. Figure 1 shows the contributing drainage basins for the site.

The 2, 5, 10, and 100-year, 24-hour precipitation depths for the project site were calculated in accordance with the City of Corvallis 2002 Stormwater Management Plan. Table 1 lists the calculated site precipitation values.

Table 1
24-Hour Precipitation Depths

Storm Event	Depth (inches)
2-yr	2.55
5-yr	2.91
10-yr	3.64
100-yr	4.73

Water Quantity

Existing Conditions XP-SWMM Model

An XP-SWMM model was used to determine the volume needed in the stormwater facility to regulate developed condition flows. The model also estimates changes to the water surface elevation in the wetland area between existing and proposed conditions.

Model geometry was obtained from an aerial survey supplemented by topographical data collected by Otak survey crews. The wetland area was modeled using cross-sections extracted from a digital terrain model generated in Auto Cad. The wetland cross-sections were modeled with a Manning's "*n*" roughness value of 0.5. The limits of the model include the upstream (northern) boundary of the wetland, and the ditch along Harrison Boulevard.

Three existing culverts were modeled as outfalls (Outfalls 1, 2, and 3). The culvert geometry was obtained from Otak survey data. Figure 1 shows model cross-section, node, and outfall locations.

The model first calculated existing runoff hydrographs using the SBUH method discussed earlier. The hydrographs were then applied as inflow to nodes in the model's geometry. Model results are located in Tables 2 through 8.

Proposed Conditions XP-SWMM Model

The existing conditions model was saved as a new file and modified for use as the proposed conditions model. In the proposed conditions model, the outfall located east of the AC path (Outfall 1) was removed. Two nodes in the proposed conditions model geometry were modified to represent the volume of the stormwater facility downstream of the wetland and to model flow control from the facility.

The hydrology was also changed so that the model would calculate proposed condition hydrographs. The hydrographs were then applied as inflow to nodes in the model's geometry. Model results are located in Tables 2 through 8.

XP-SWMM Model Results

Existing and proposed condition model results were compared to determine if the wetland and proposed stormwater facility are adequate to match proposed condition flows to existing condition flows resulting from the 2, 5, and 10-year, 24-hour storm events, and to meet the additional OSU request. Tables 2 through 5 list the proposed, existing, and change in peak runoff rates calculated by the model. The tables list data for the respective storm events including the 10, and 100-year, 24-hour storms. The changes in peak runoff rates were computed by subtracting the existing rate from the proposed rate. Therefore a positive change indicates an increase in runoff under proposed conditions.

Table 2
2-yr Change in Runoff (cfs)

Model Link	Location	Proposed	Existing	Change (prop-exist)
L23	Outfall 1	0.00	0.28	-0.28
L48	Outfall 2	8.13	8.68	-0.55
L29	Outfall 3	1.95	2.08	-0.13
-	Total Site	10.08	11.04	-0.96

Table 3 5-yr Change in Runoff (cfs)				
Model Link	Location	Proposed	Existing	Change (prop-exist)
L23	Outfall 1	0.00	0.40	-0.40
L48	Outfall 2	9.43	10.00	-0.57
L29	Outfall 3	2.59	6.35	-3.76
-	Total Site	12.02	16.75	-4.73

Table 4 10-yr Change in Runoff (cfs)				
Model Link	Location	Proposed	Existing	Change (prop-exist)
L23	Outfall 1	0.00	0.66	-0.66
L48	Outfall 2	10.00	10.40	-0.40
L29	Outfall 3	15.31	16.68	-1.37
-	Total Site	25.31	27.74	-2.43

Tables 2 through 4 show decreased flows at both proposed outfalls for each listed storm event.

Table 5 shows that the proposed 100-yr event flow from Outfall 2 is less than the existing 10-year event as requested by OSU.

Table 5 100-yr Change in Runoff (cfs)				
Model Link	Location	Proposed 100-yr	Existing 10-yr	Change (prop-exist)
L48	Outfall 2	10.36	10.40	-0.04

Tables 6 through 8 list model results for the proposed condition, existing condition, and change in water surface elevations (WSE) for the wetland area at locations identified by node numbers. The node locations can be found on Figure 2.

The tables list data for the 2, 5, and 10-year, 24-hour storm events. The change in WSE was computed by subtracting the existing WSE from the proposed WSE. Therefore a positive change indicates an increase in WSE under proposed conditions.

Table 6 2-yr Change in Wetland Water Surface Elevations (Proposed – Existing) Elevations in Feet			
Node*	Proposed	Existing	Change
3	290.12	290.01	0.11
4	284.57	284.46	0.11
5	283.13	283.05	0.08
6	281.33	281.22	0.11
7	278.77	278.68	0.09
8	275.88	275.85	0.03
9	273.52	273.49	0.03
10	272.57	272.44	0.13
11	271.37	271.30	0.07
14	291.95	291.83	0.12
15	288.57	288.43	0.14
16	285.46	285.36	0.10
17	284.09	283.97	0.12
18	282.81	282.75	0.06
19	281.14	281.04	0.10
20	278.71	278.63	0.08
21	276.98	276.93	0.05

* Nodes 3 through 11 are west of AC path; 14 through 21 are east of AC path.

Table 7 5-yr Change in Wetland Water Surface Elevations (Proposed – Existing) Elevations in Feet			
Node*	Proposed	Existing	Change
3	290.16	290.07	0.09
4	284.60	284.52	0.08
5	283.16	283.11	0.05
6	281.42	281.30	0.12
7	278.82	278.73	0.09
8	275.92	275.90	0.02
9	273.58	273.55	0.03
10	272.63	272.54	0.09
11	271.41	271.36	0.05
14	292.04	291.92	0.12
15	288.68	288.54	0.14
16	285.53	285.44	0.09
17	284.18	284.07	0.11
18	282.86	282.82	0.04
19	281.20	281.13	0.07
20	278.76	278.68	0.08
21	277.02	276.96	0.06

* Nodes 3 through 11 are west of AC path; 14 through 21 are east of AC path.

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Table 8 10-yr Change in Wetland Water Surface Elevations (Proposed – Existing) Elevations in Feet			
Node*	Proposed	Existing	Change
3	290.25	290.16	0.09
4	284.65	284.61	0.04
5	283.21	283.17	0.04
6	281.58	281.50	0.08
7	278.97	278.80	0.17
8	276.00	275.99	0.01
9	273.67	273.65	0.02
10	272.74	272.67	0.07
11	271.48	271.45	0.03
14	292.2	292.09	0.11
15	288.87	288.75	0.12
16	285.69	285.60	0.09
17	284.35	284.26	0.09
18	282.97	282.92	0.05
19	281.33	281.27	0.06
20	278.85	278.78	0.07
21	277.10	277.04	0.06

* Nodes 3 through 11 are west of AC path; 14 through 21 are east of AC path.

Flow Control

A preliminary flow control structure has been sized utilizing XP-SWMM. Orifice and weir configurations are provided in Table 9 below. The structure is proposed to be located at the upstream end of the culvert modeled as Outfall 2.

Table 9 Flow Control			
Opening	Diameter/Length	IE (ft)	Crest
Circular	18 in	267.40	-

Water Quality

Water quality calculations were performed using methods in accordance with the 1998 King County manual and the City of Corvallis Stormwater Management Plan. Figure 3 shows the proposed development divided into basins for each respective water quality facility. Also attached are hydrographs used to calculate water quality flows and volumes.

Calculations for the preliminary swale designs have also been included for water quality facilities titled WQ North and WQ East. The swale calculations represent the minimum requirements for swale design. Figure 3 shows conceptual locations and footprints for each facility to show that the chosen locations have adequate room to allow the placement of each facility.

Water quality facilities titled WQ West and WQ Central have been designed as wet ponds. The Water Quality Basin Map lists preliminary volumes to be constructed for the wetponds. Table 10 below lists the water quality facility and the design flow or volume.

Table 10
Water Quality Facility Table

Facility	Type	Design Flow or Volume*
WQ West	Wet Pond	20,036 ft^3
WQ Central	Cascading Wet Pond	28,475 ft^3
WQ North	Swale	0.49 ft^3/sec
WQ East	Swale	0.69 ft^3/sec

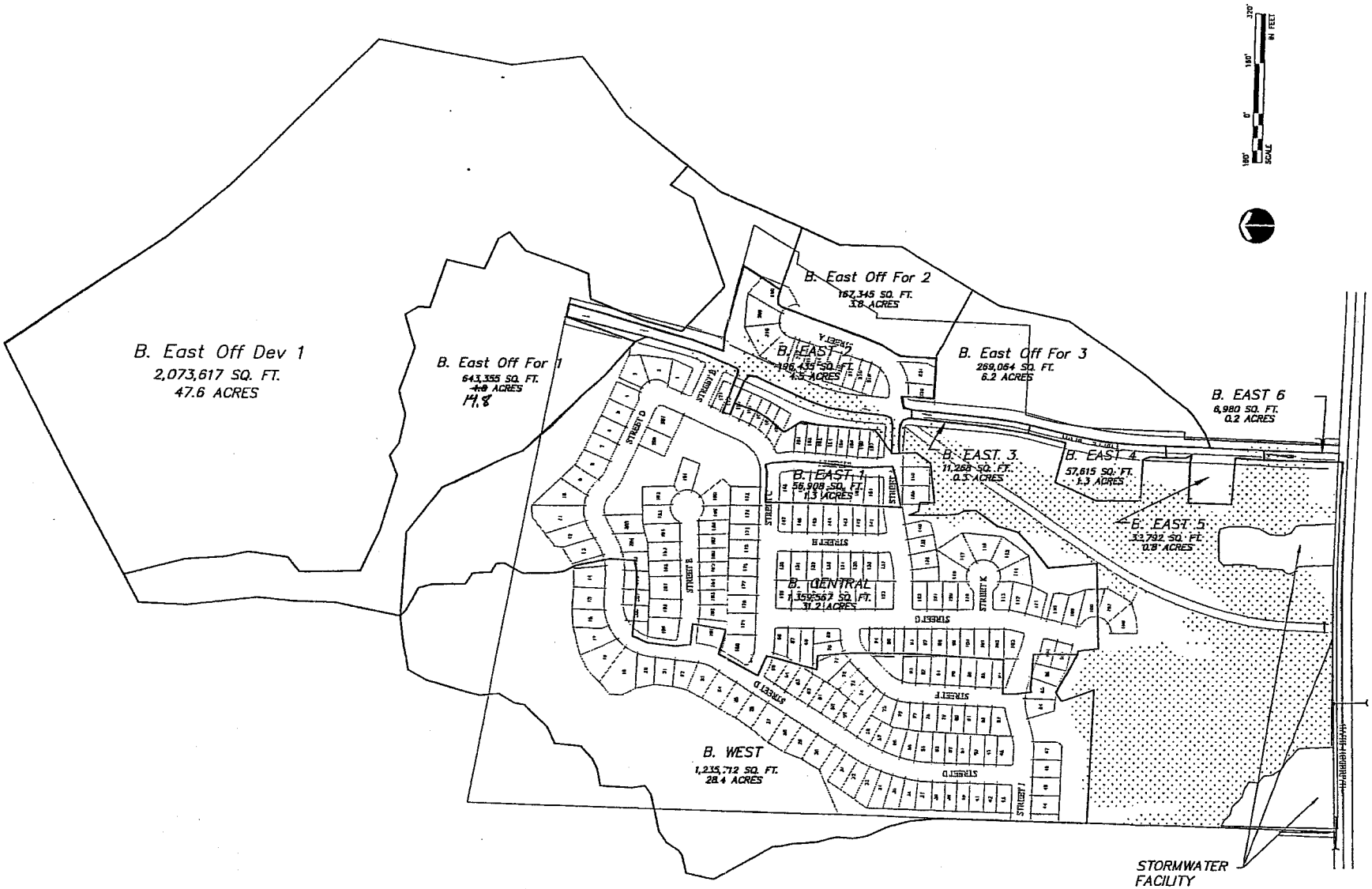
*Water Quality flows and volumes are based on a 0.9 in, 24-hour storm event as required by the City of Corvallis.

The water quality facilities will release water to structures designed to disperse flows evenly along the upstream wetland boundary. The dispersed flows will be allowed to drain and infiltrate throughout the existing wetland area as they do today.

Conclusion

This report documents the preliminary stormwater management plan for the proposed Witham Oaks development located in Corvallis, Oregon. Stormwater will be collected and conveyed to water quality facilities for treatment, then dispersed from the facilities at multiple locations to the wetland area. Increased runoff resulting from the development will be lessened by wetland processes and storage. Flows not utilized by the wetland area will overland flow into a stormwater facility downstream of the wetland along Harrison Boulevard where they will be regulated for discharge to the downstream system.

One culvert will convey flows from the project site to the south under Harrison Blvd to an existing open channel flowing through the OSU dairy property. A second culvert will convey the remaining flows to an existing ditch flowing west from the project site. The ditch flowing west from the project site eventually discharges through another culvert which also conveys flows to the south under Harrison Blvd. Both culvert crossings under Harrison Blvd drain to open channels which flow to Oak Creek.



Attachment I - 161
PLD06-00012, et al.

WITHAM OAKS
CORVALLIS, OREGON
BASIN MAP

otak Incorporated
455 NW 5th St., Suite D
Corvallis, Oregon 97330
Phone: (541) 758-1451
FAX: (541) 758-1812
Internet: WWW.otak.com

Project No. 12059

Sheet No.

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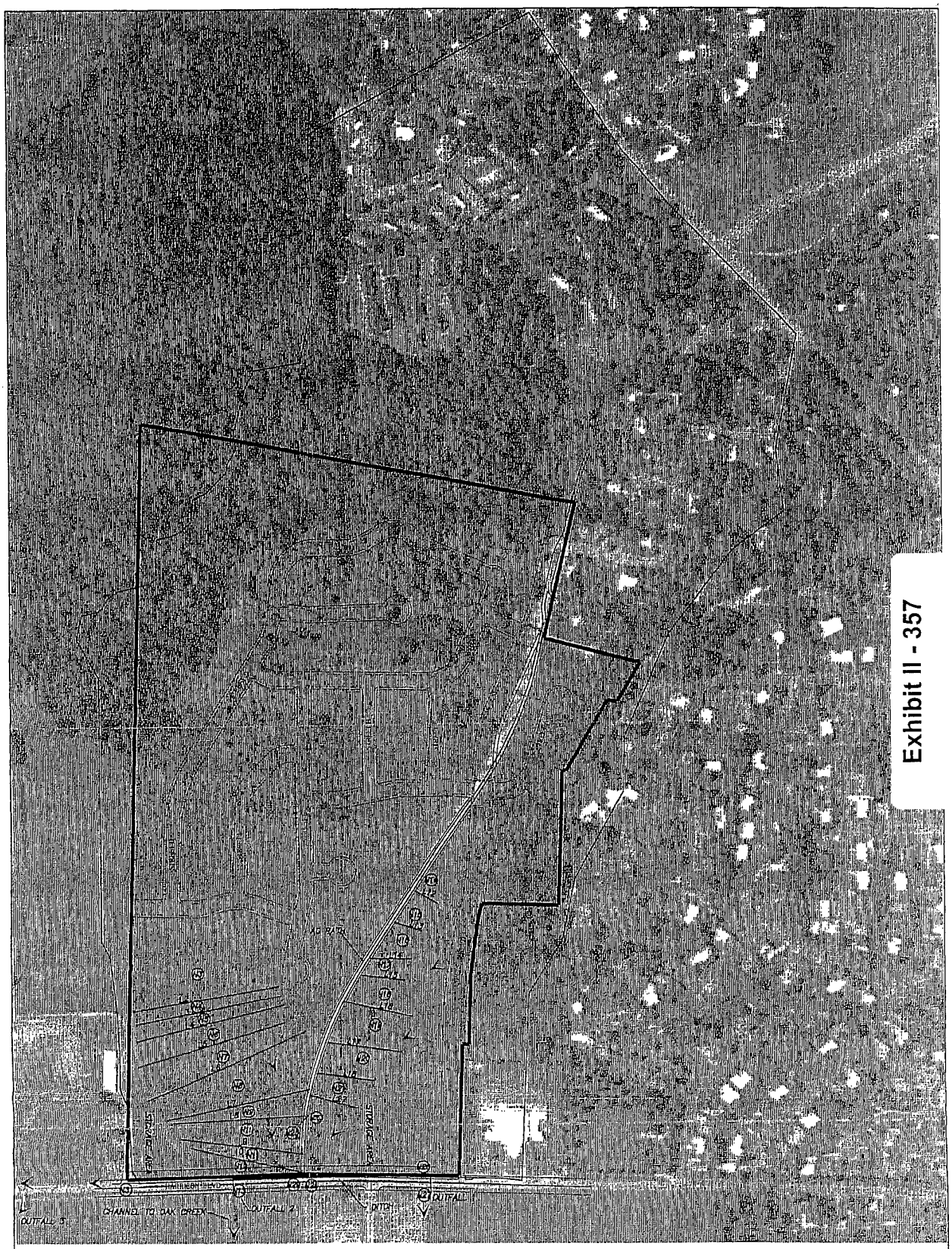


MODEL LINK L1
MODEL NODE N1
PROJECT BOUNDARY
CONTRIBUTING DRAINAGE BASIN

WETLAND AREAS

SCALE 85 0' 85 170 IN FEET

NOT FOR CONSTRUCTION

oak Incorporated
12005 SW Duncan Ferry Rd.
Lake Oswego, OR 97035-5217
Phone: (503) 635-3618
FAX: (503) 635-3619
Internet: www.oakinc.com

Witham Oaks

STORMWATER BASEMAP

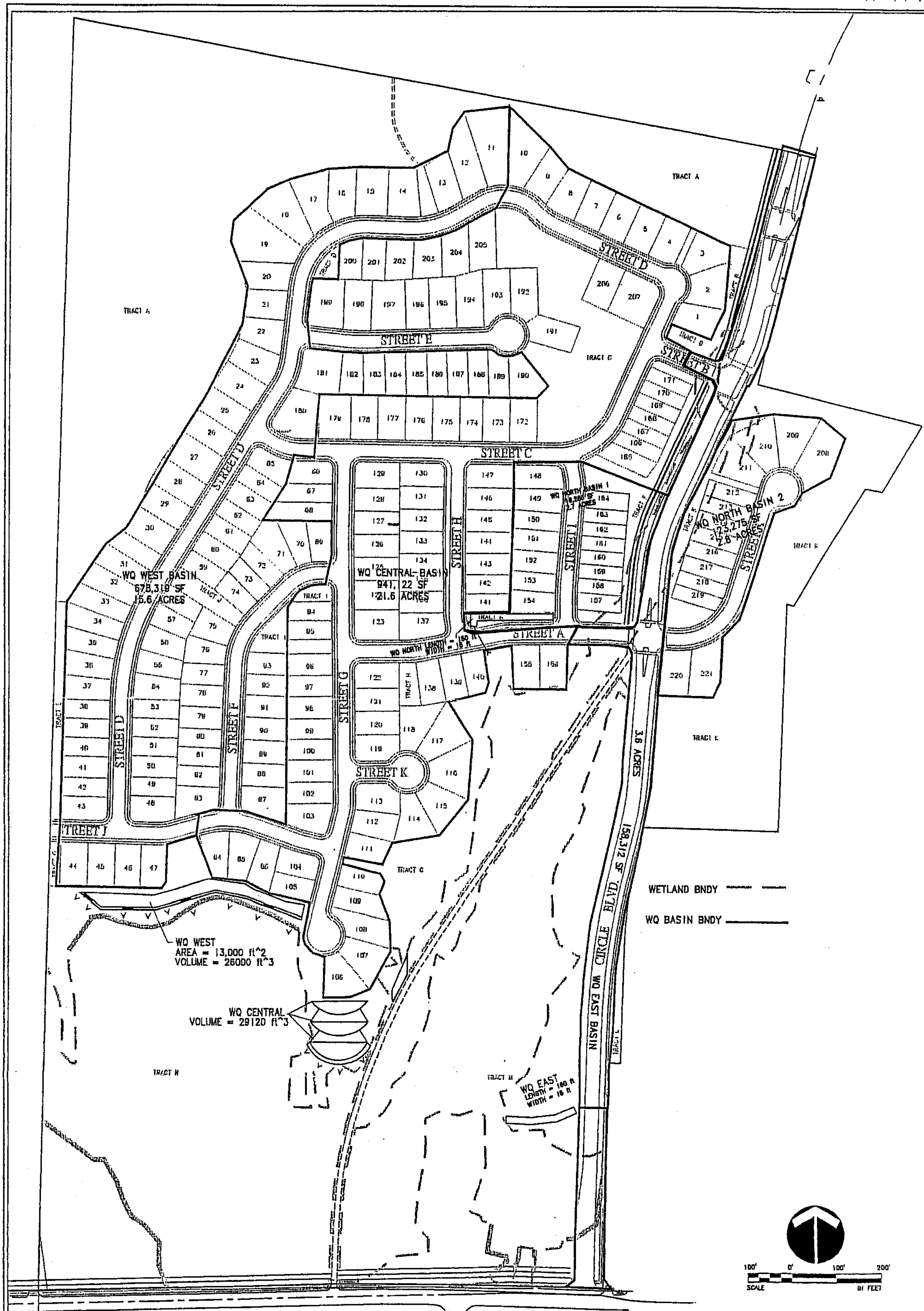
NO.	DATE	BY	REVISION COMMENTS

Project No. Drawing No.
12059
FIGURE 1
Sheet No.
Copyright 2004 ©

Exhibit II - 357

Attachment I - 162
PLD06-00012, et al.

Exhibit II - 358



Attachment I - 163
PLD06-00012, et al.

WITHAM OAKS
CORVALLIS, OREGON
WATER QUALITY BASIN MAP

oak Incorporated

MATRIX

LEGEND HOMES

Project No.
Sheet No.

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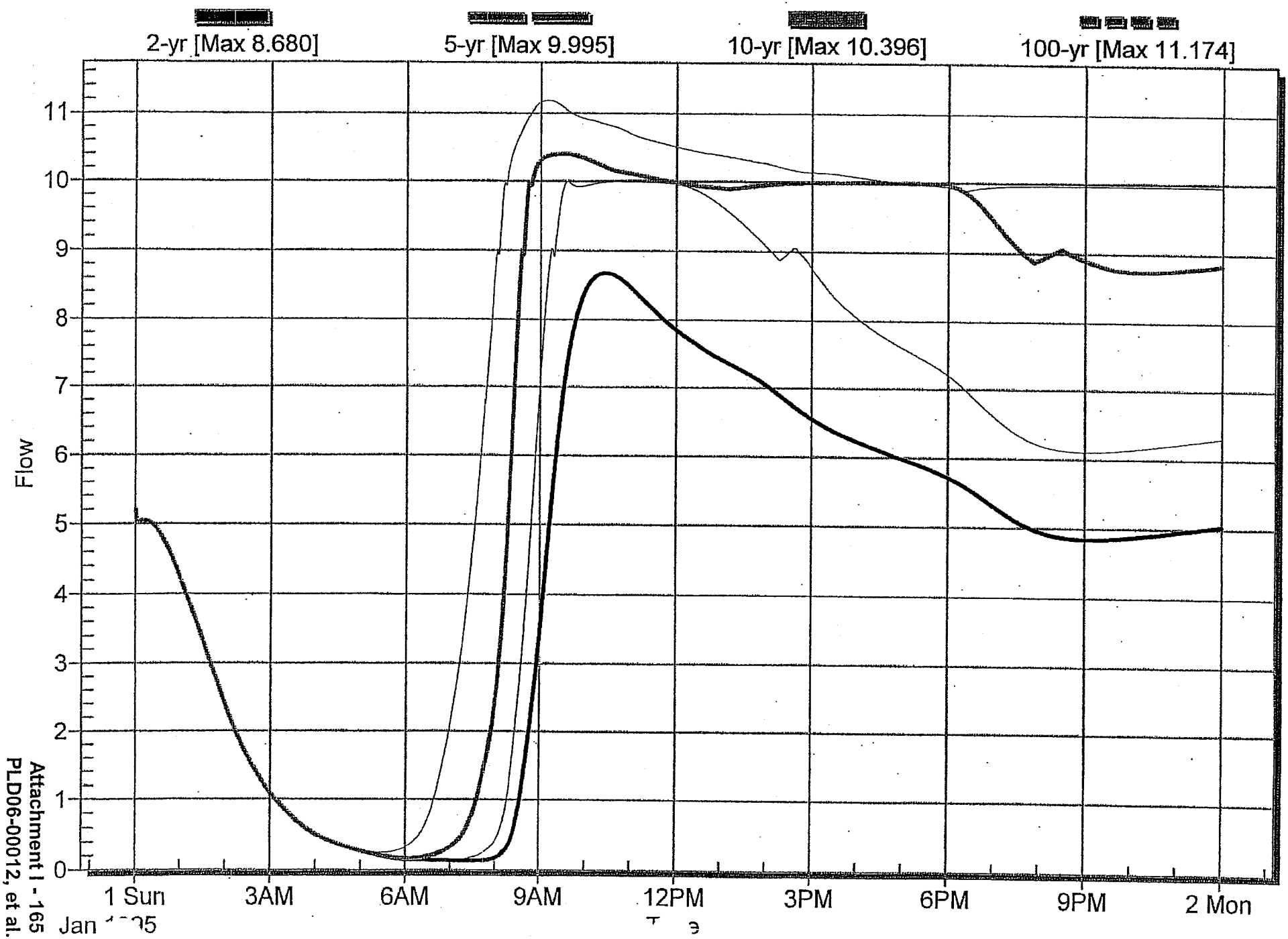
Appendix A
Existing Condition Hydrographs

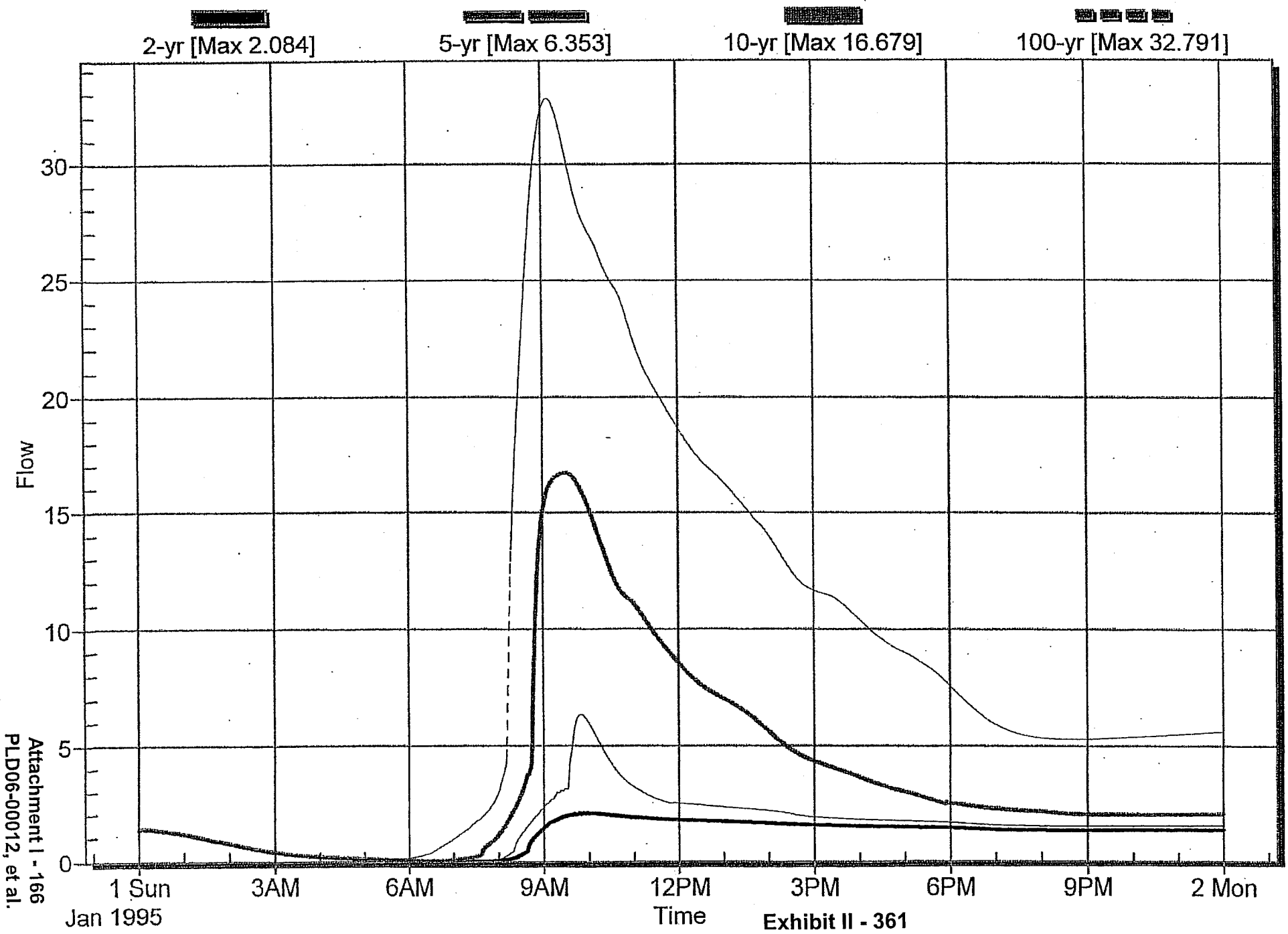
Conduit L48 from N13 to N46

Existing Flows from Outfall 2, to OSU Property south of site.



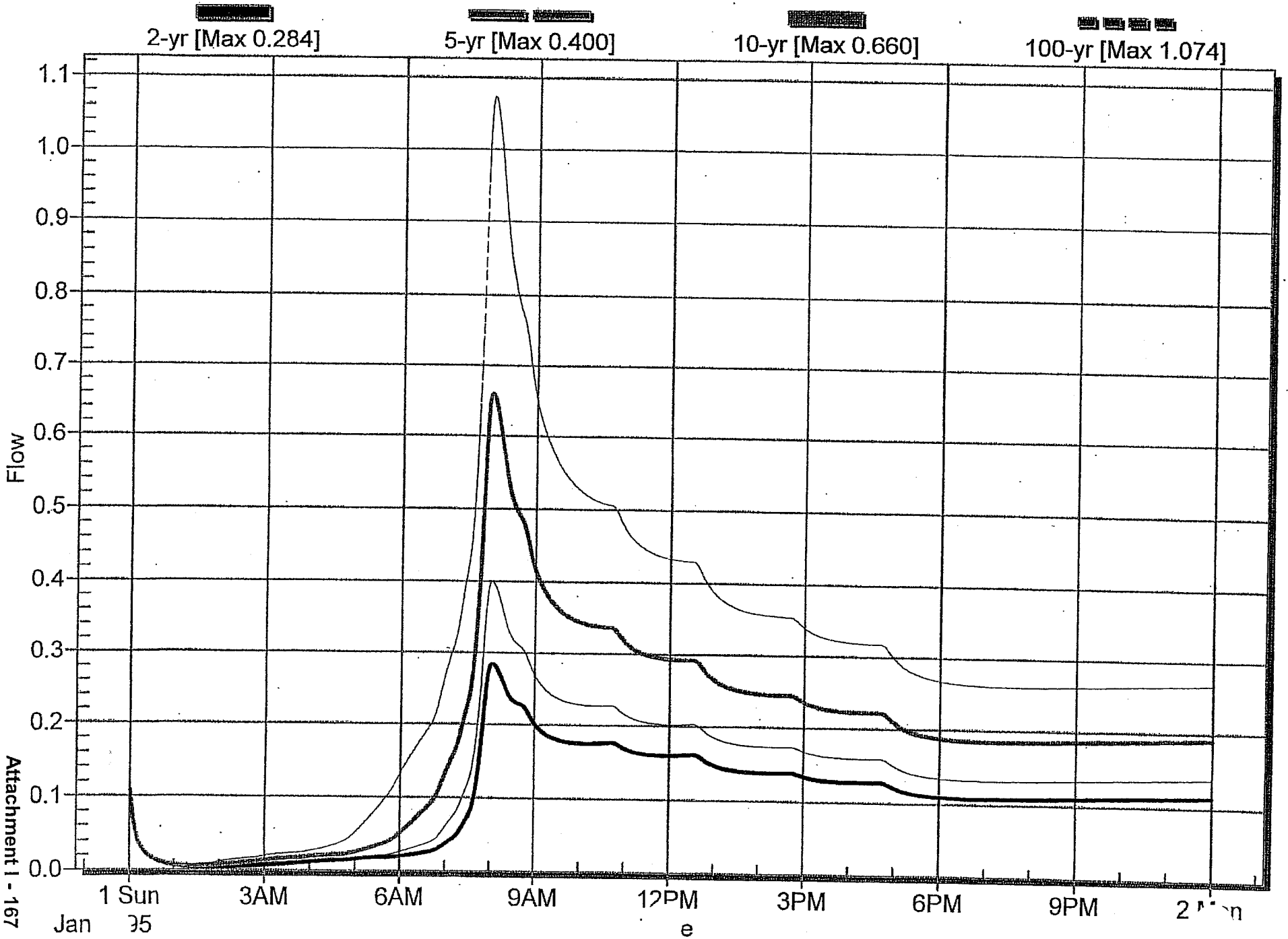
Conduit L29 from N12 to N31

Existing Flows from Outfall 3, to the West



Conduit L23 from N26 to N27

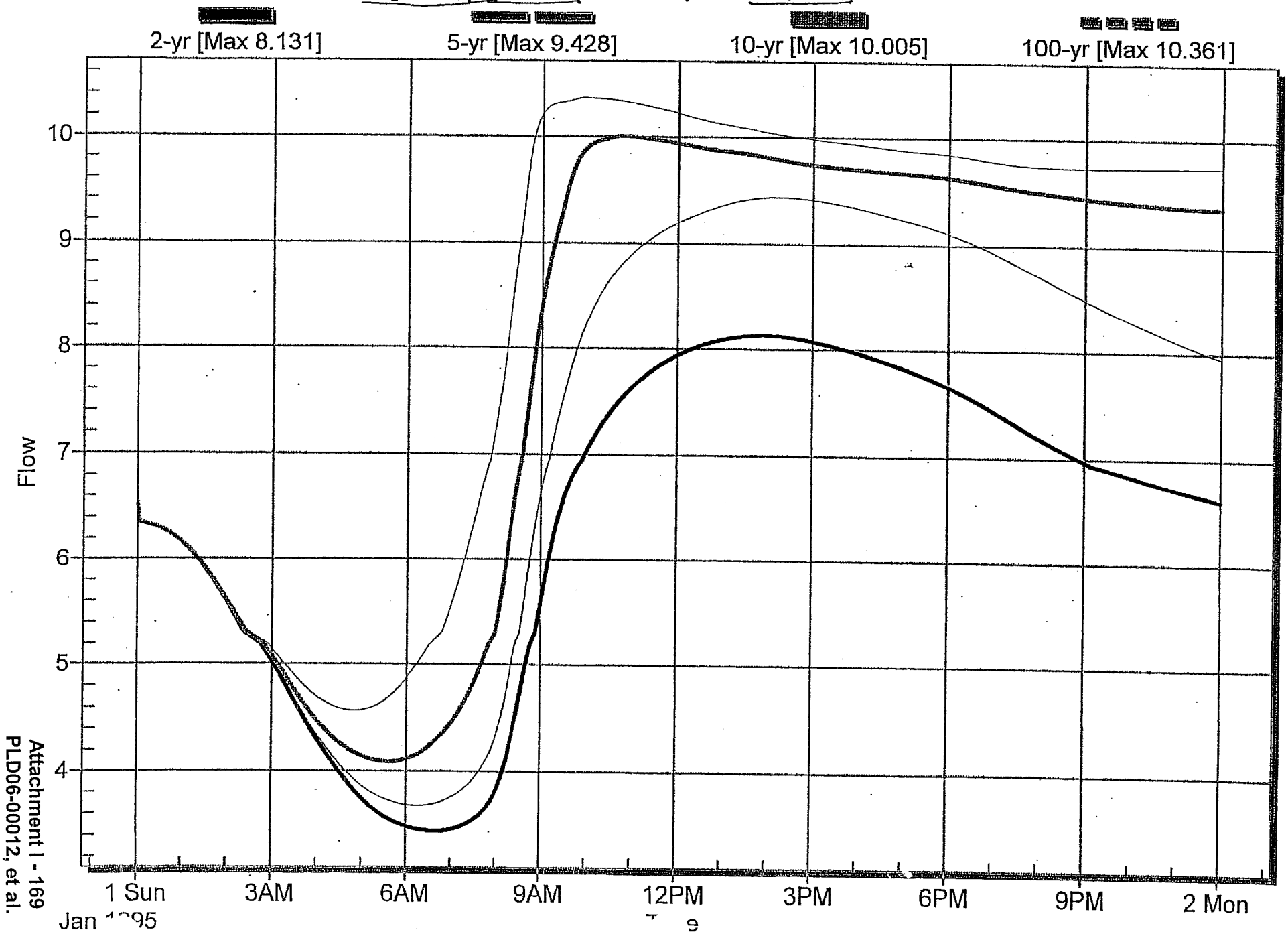
Existing Flows to outfall 1, to the South (outfall 1 to be closed)



Appendix B
Proposed Condition Hydrographs

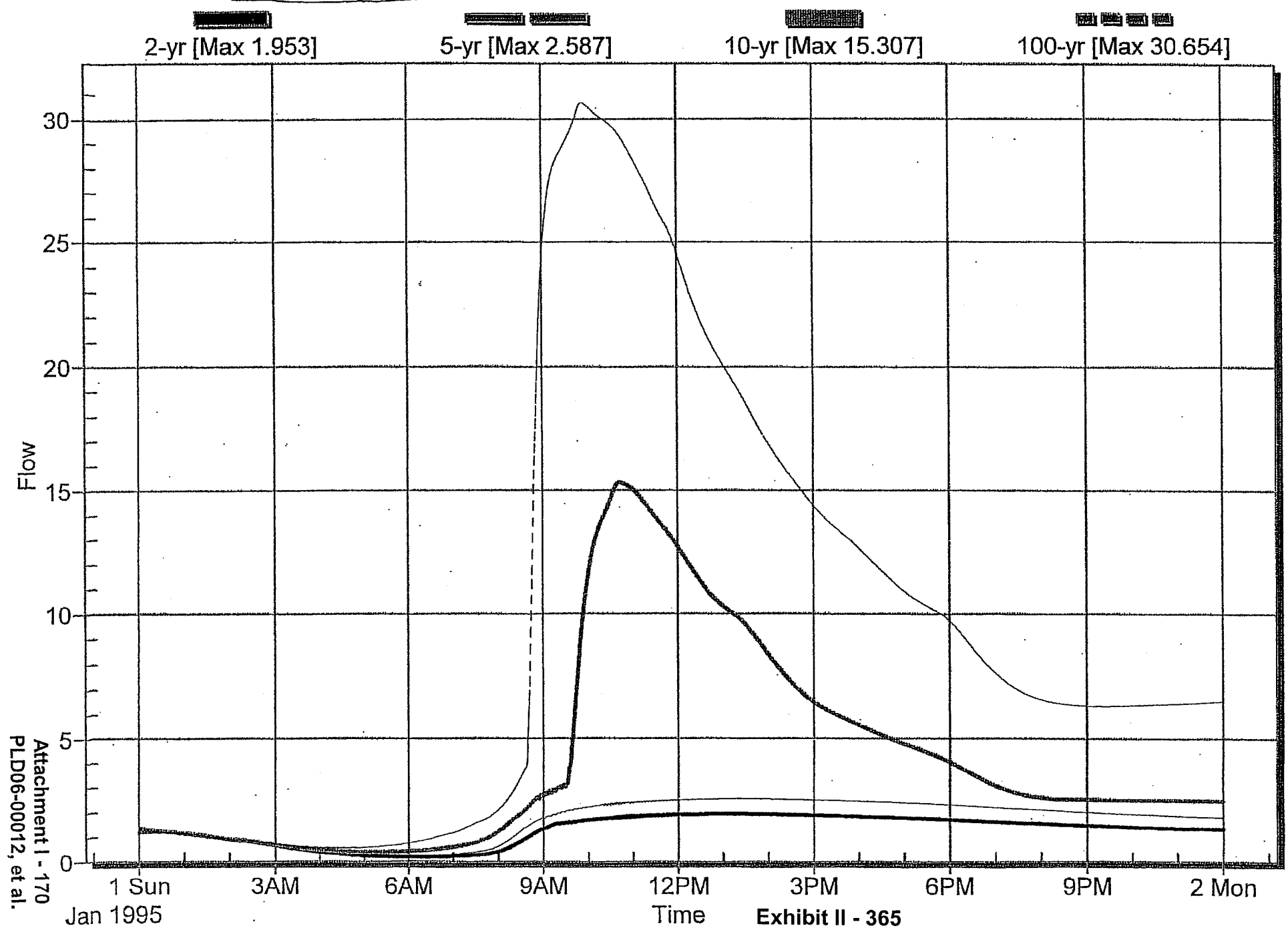
Conduit L48 from N13 to N46

Regulated, Proposed Flows From outfall 2, to OSU Property South of Site.



Conduit L29 from N12 to N31

Regulated, Proposed Flows From outfall 3, To the west



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Appendix C

Water Quality Hydrographs/Calculations

WQ North
Witham Oaks

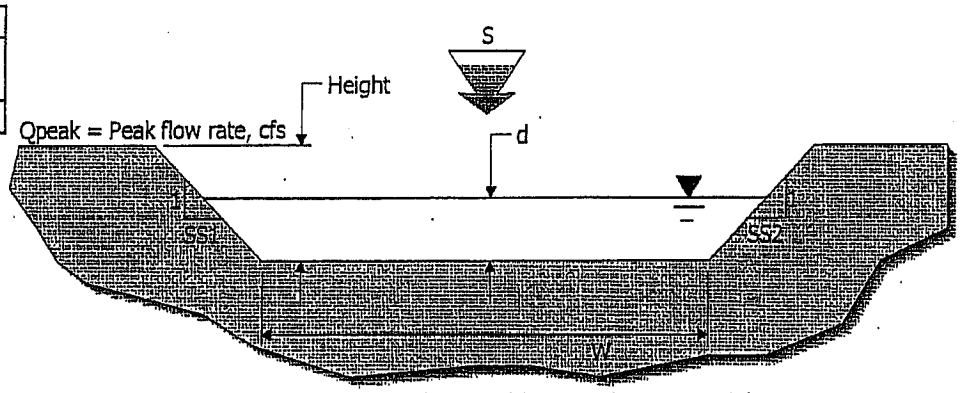

Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name		Unit
Side Slope 1	SS1	4	SS1:1
Side Slope 2	SS2	4	SS2:1
Swale Width	W	4	feet
Lengthwise Slope	S	0.01	feet/foot
Peak Flow Rate	Qpeak	0.49	cfs
Swale Height	Height	1.5	feet
Manning Coefficient	n	0.24	

Computed Data

Variable	Name		Unit
Depth	d	4.16	inches
Cross-sectional Area	A	1.87	sf
Wetted Perimeter	WP	6.86	feet
Hydraulic Radius	R	0.27	feet
Computed Peak Flow Rate	Qpkcalc	0.49	cfs
Computed Peak Velocity	Vpkcalc	0.26	ft/sec
Computed Length	**L**	**140**	**feet**

Actual length will be minimum of 100 ft

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Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Tuesday, Jan 30 2007, 2:16 PM

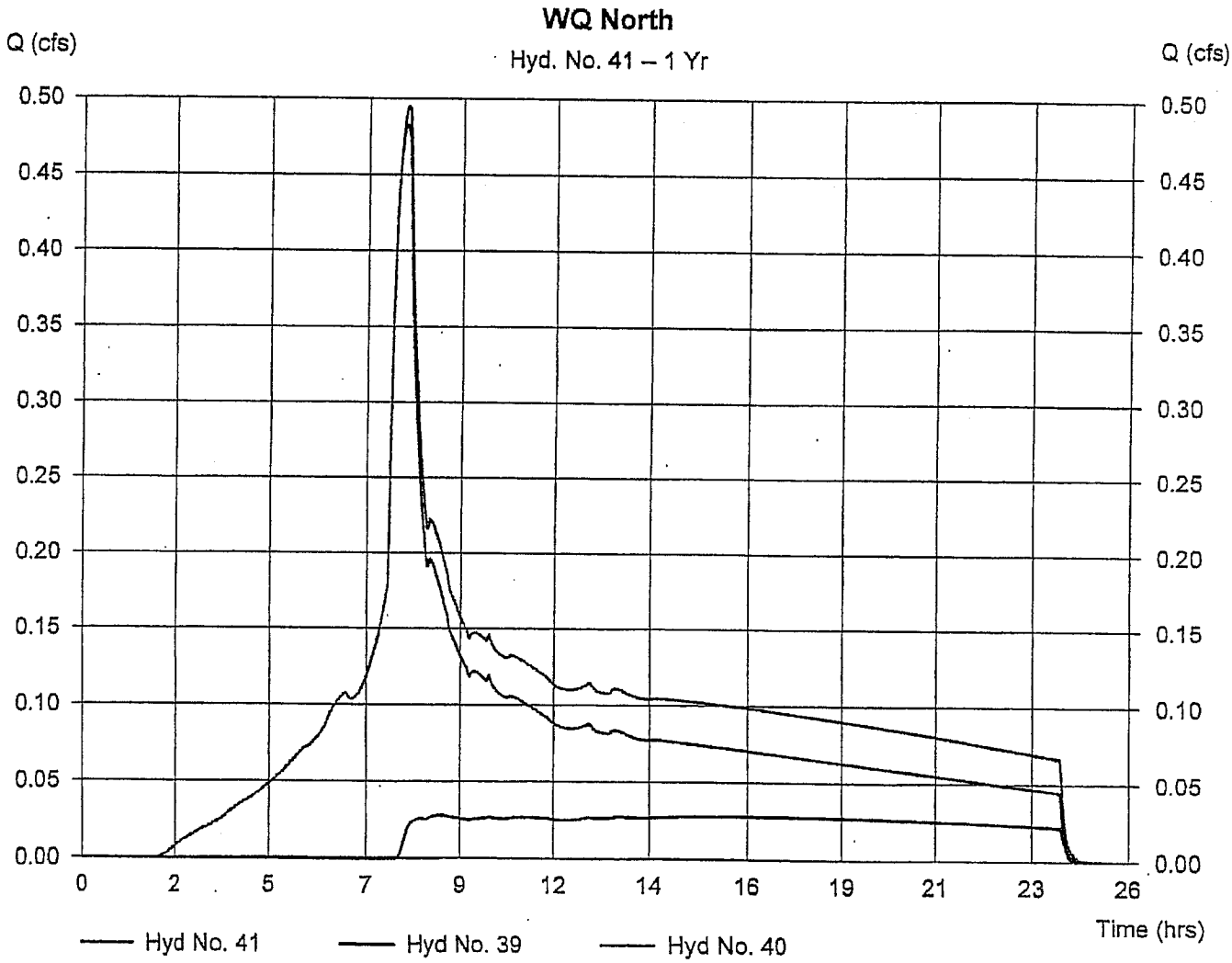
Hyd. No. 41

WQ North

Hydrograph type = Combine
Storm frequency = 1 yrs
Inflow hyds. = 39, 40

Peak discharge = 0.49 cfs
Time interval = 2 min

Hydrograph Volume = 8,308 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Tuesday, Jan 30 2007, 2:16 PM

Hyd. No. 39

WQ North DU Imp

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.48 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 2.690 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 6,779 cuft

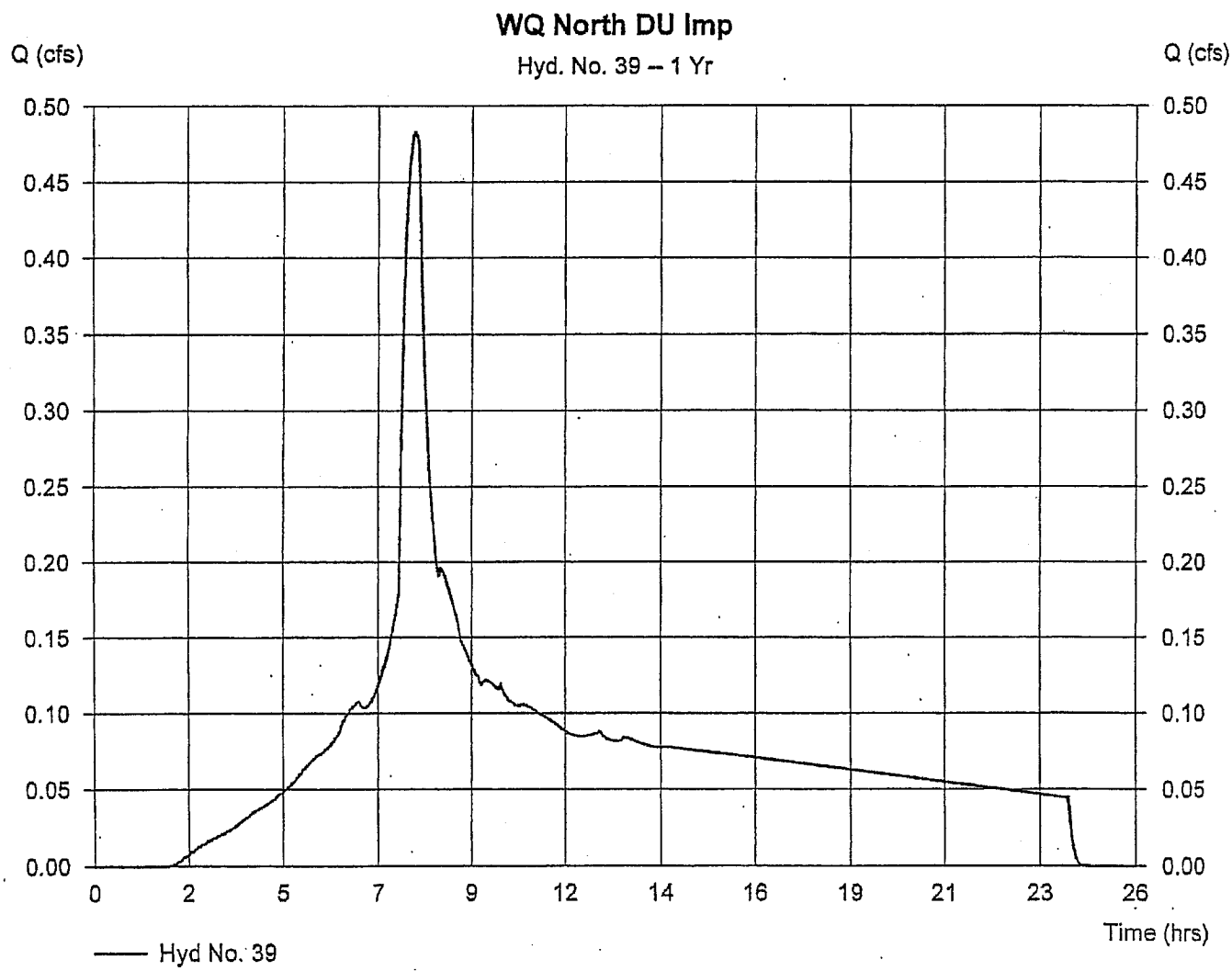


Exhibit II - 369

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

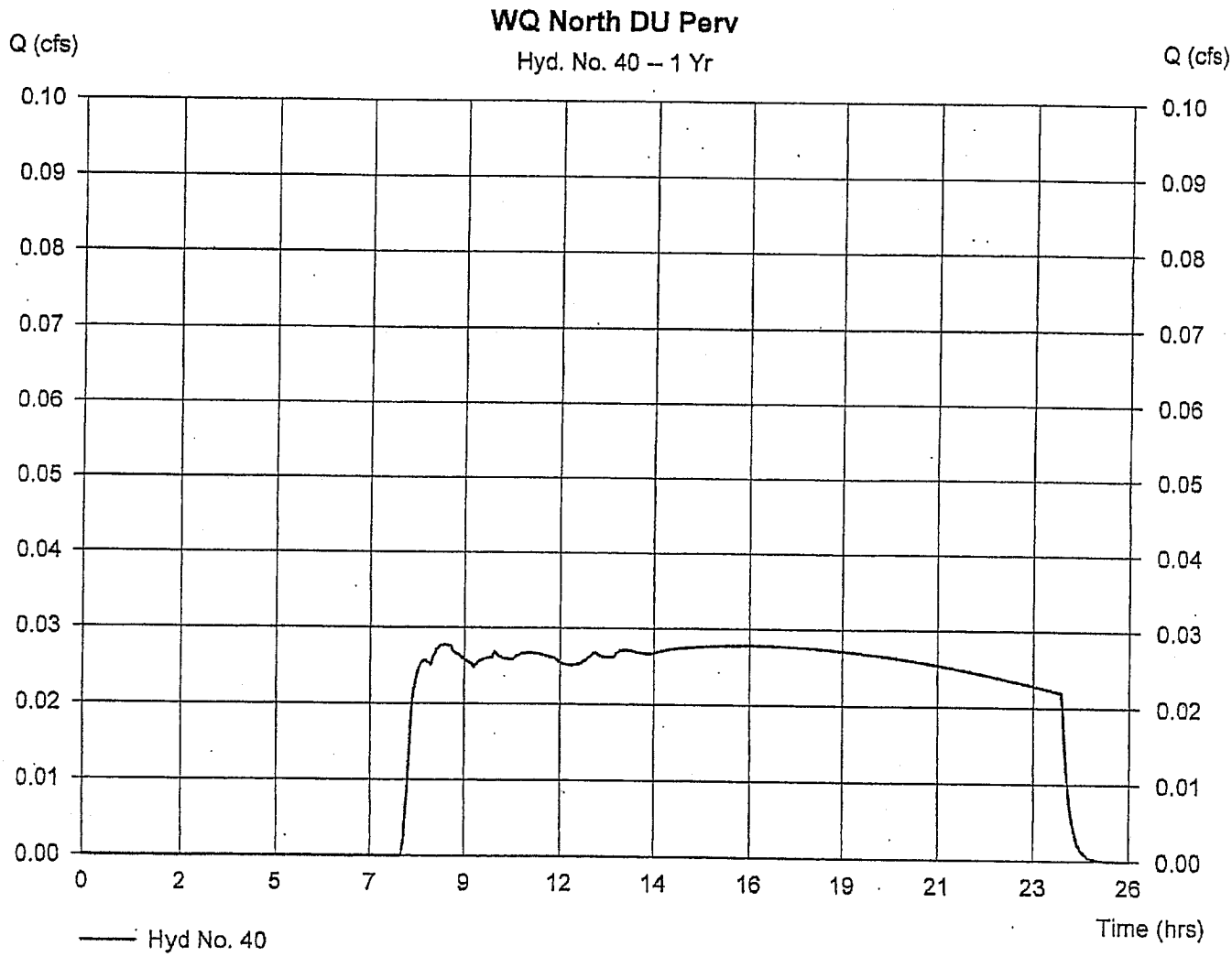
Tuesday, Jan 30 2007, 2:16 PM

Hyd. No. 40

WQ North DU Perv

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.03 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 2.810 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 1,528 cuft



WQ East
Witham Oaks

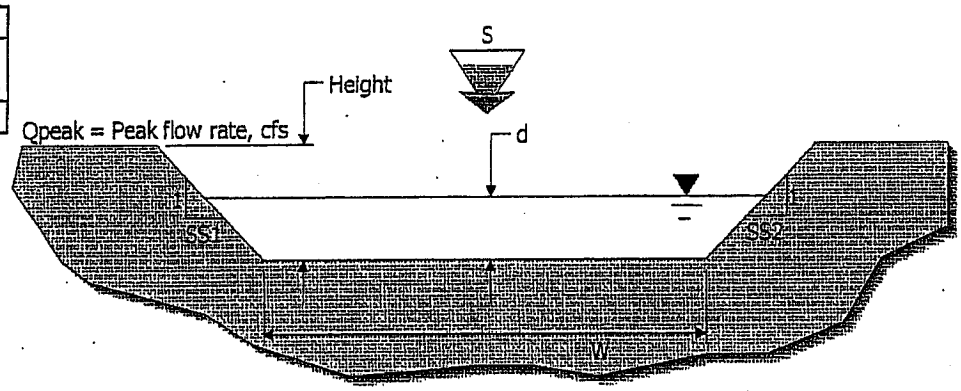


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name		Unit
Side Slope 1	SS1	4	SS1:1
Side Slope 2	SS2	4	SS2:1
Swale Width	W	4	feet
Lengthwise Slope	S	0.01	feet/foot
Peak Flow Rate	Qpeak	0.69	cfs
Swale Height	Height	1.5	feet
Manning Coefficient	n	0.24	

Computed Data

Variable	Name		Unit
Depth	d	5.02	inches
Cross-sectional Area	A	2.37	sf
Wetted Perimeter	WP	7.45	feet
Hydraulic Radius	R	0.32	feet
Computed Peak Flow Rate	Qpkcalc	0.69	cfs
Computed Peak Velocity	Vpkcalc	0.29	ft/sec
Computed Length	**L**	**156**	**feet**

Actual length will be minimum of 100 ft

Exhibit II - 371

Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

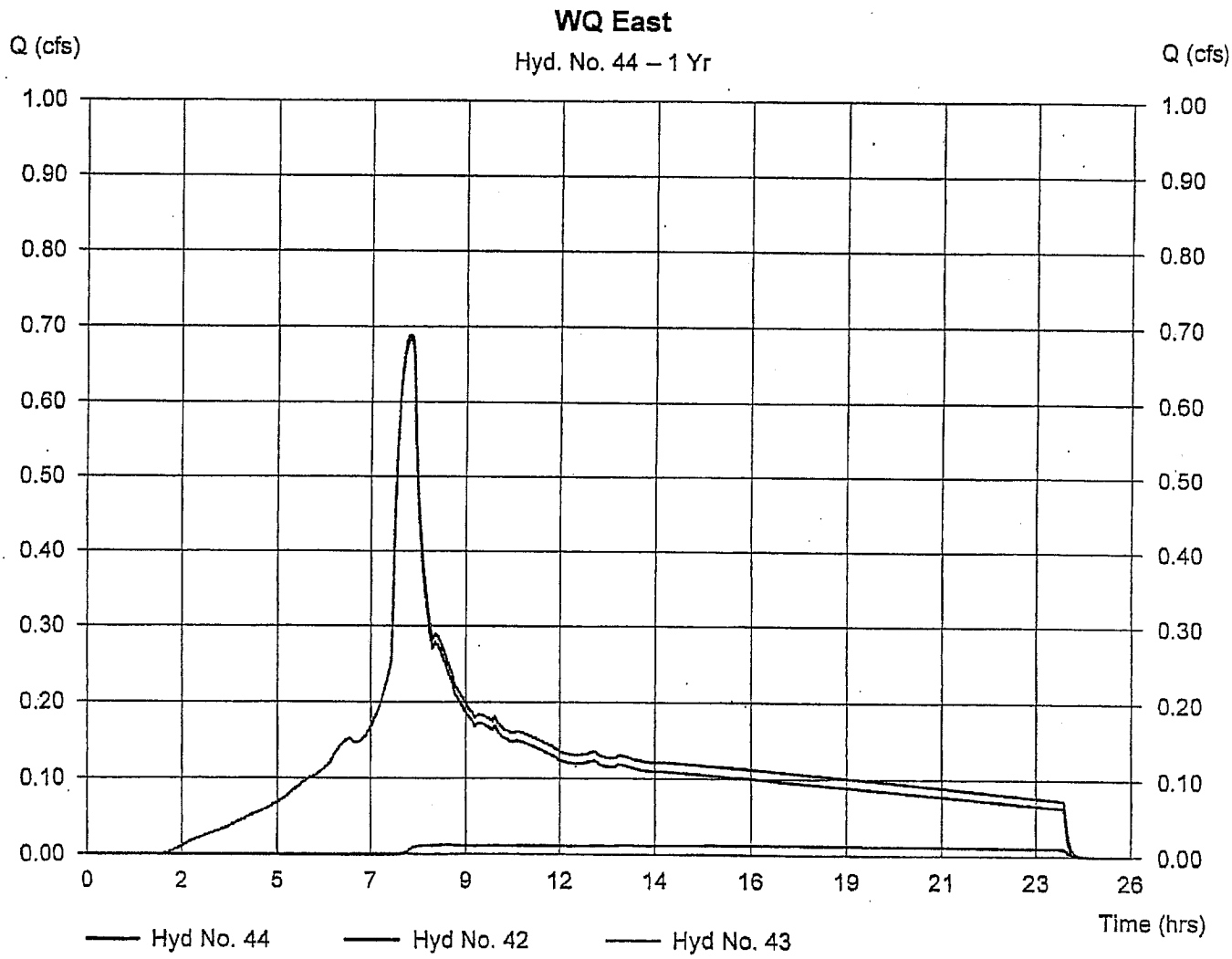
Tuesday, Jan 30 2007, 2:16 PM

Hyd. No. 44

WQ East

Hydrograph type	= Combine	Peak discharge	= 0.69 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Inflow hyds.	= 42, 43		

Hydrograph Volume = 10,282 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Tuesday, Jan 30 2007, 2:16 PM

Hyd. No. 42

WQ East Imp

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.68 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 3.810 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 9,602 cuft

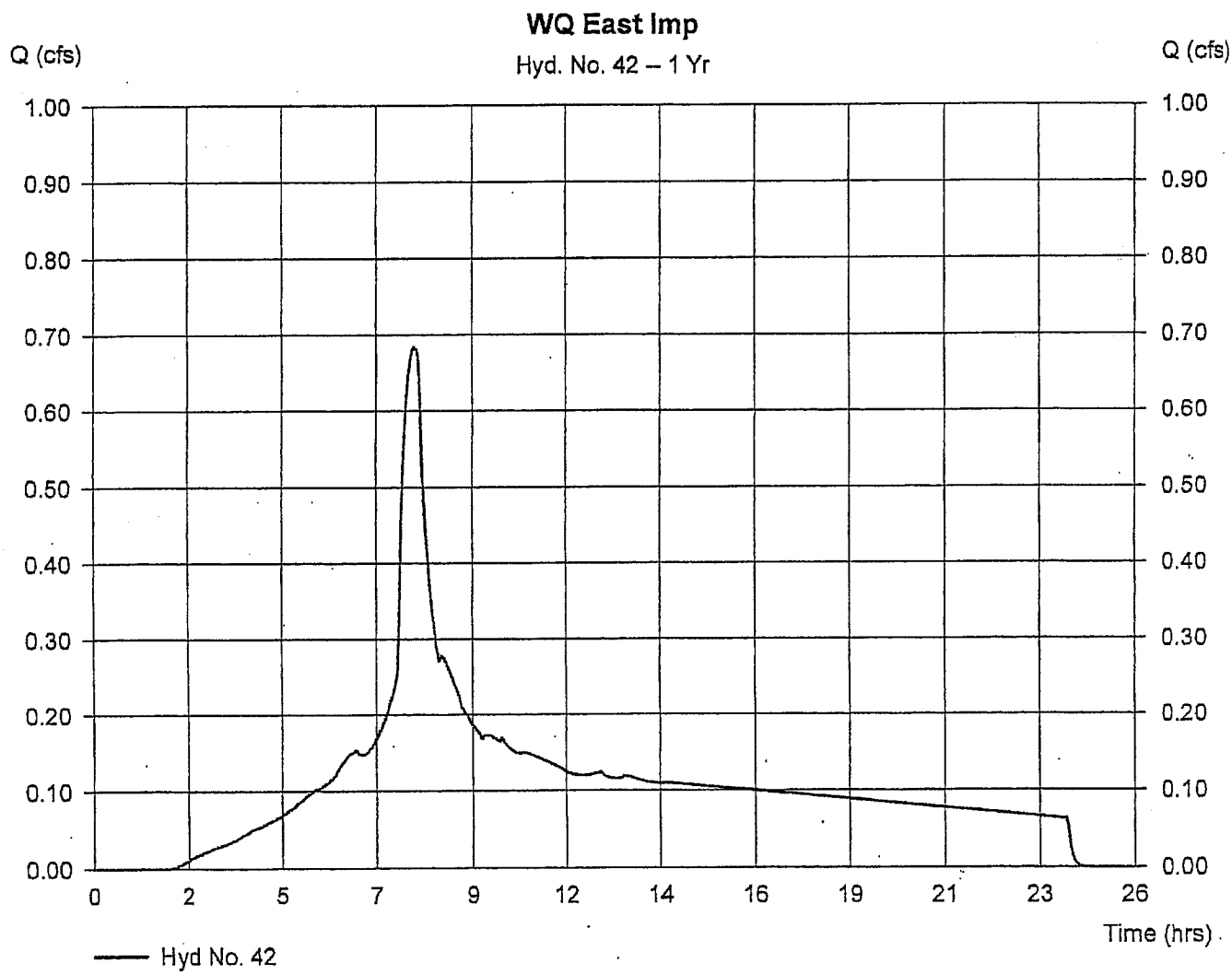


Exhibit II - 373

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Tuesday, Jan 30 2007, 2:16 PM

Hyd. No. 43

WQ East perv

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.01 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 1.250 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 680 cuft

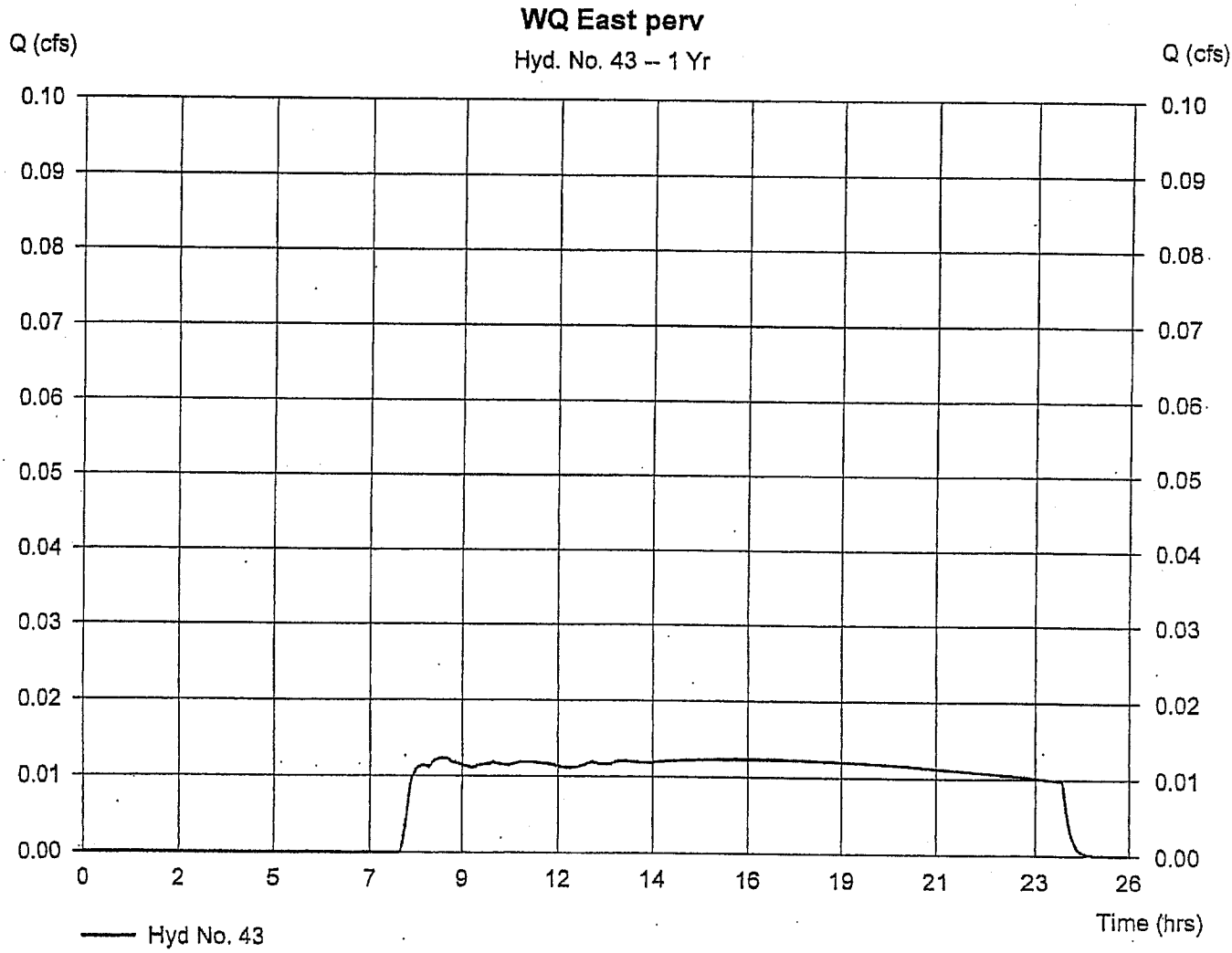


Exhibit II - 374

Hydrograph Plot

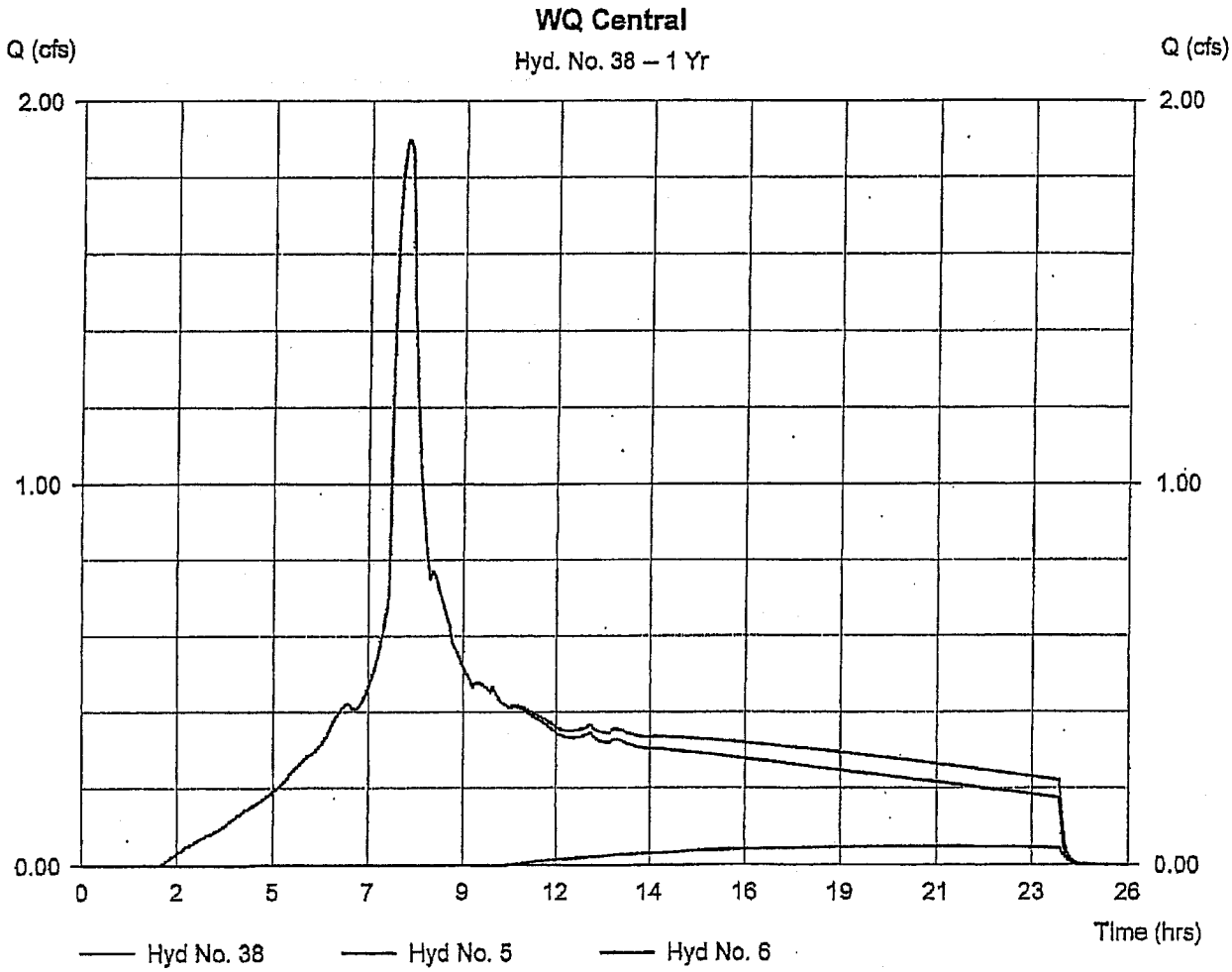
Hydraflow Hydrographs by Intelisolve — Monday, Jan 22 2007, 1:53 PM

Hyd. No. 38

WQ Central

Hydrograph type	= Combine	Peak discharge	= 1.90 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Inflow hyds.	= 5, 6		

Wet Pond Volume = Hydrograph Volume = 28,475 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

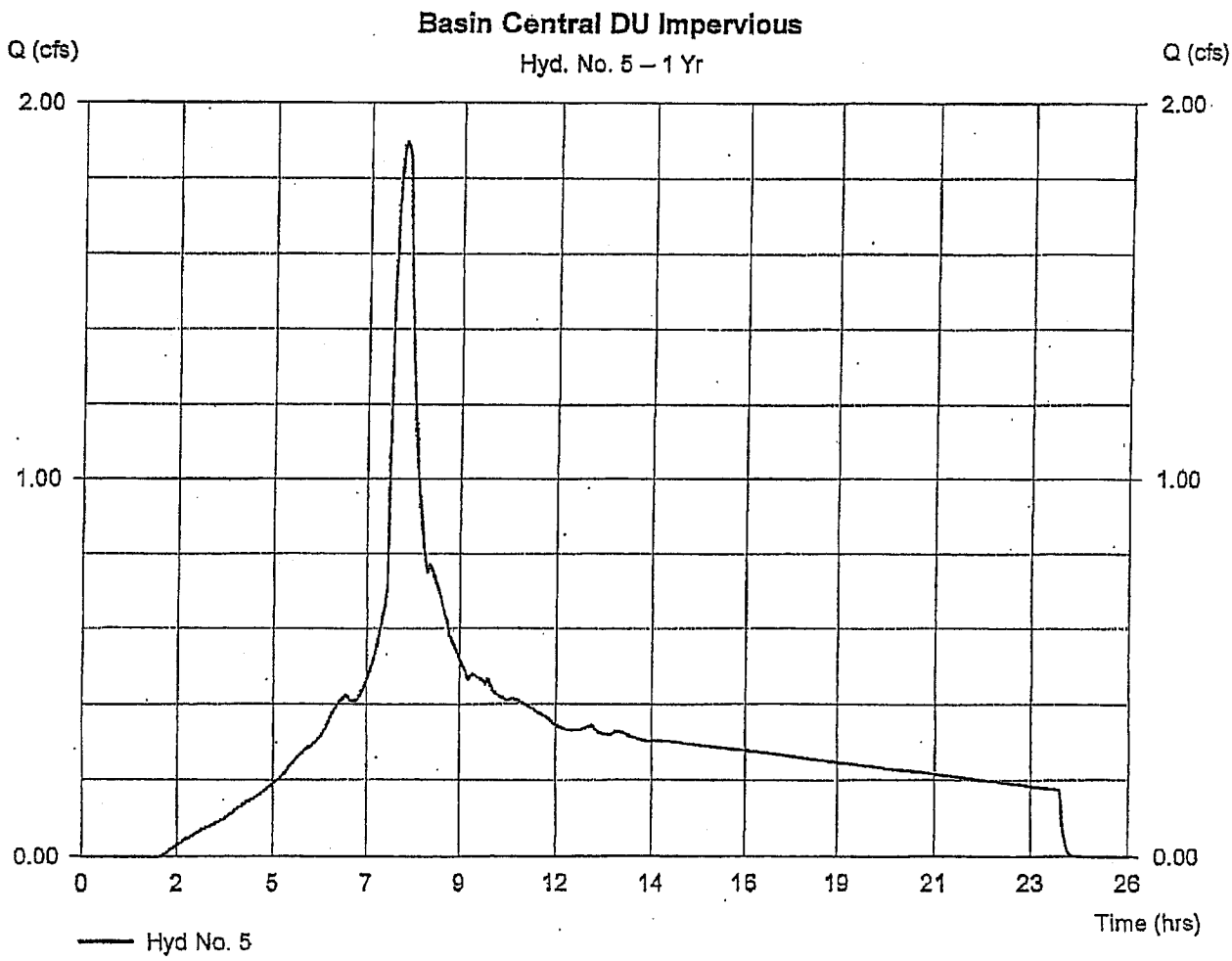
Monday, Jan 22 2007, 1:54 PM

Hyd. No. 5

Basin Central DU Impervious

Hydrograph type	= SBUH Runoff	Peak discharge	= 1.90 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 10.560 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 26,613 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jan 22 2007, 1:54 PM

Hyd. No. 6

Basin Central DU Pervious

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.05 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 11.440 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.20 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 1,862 cuft

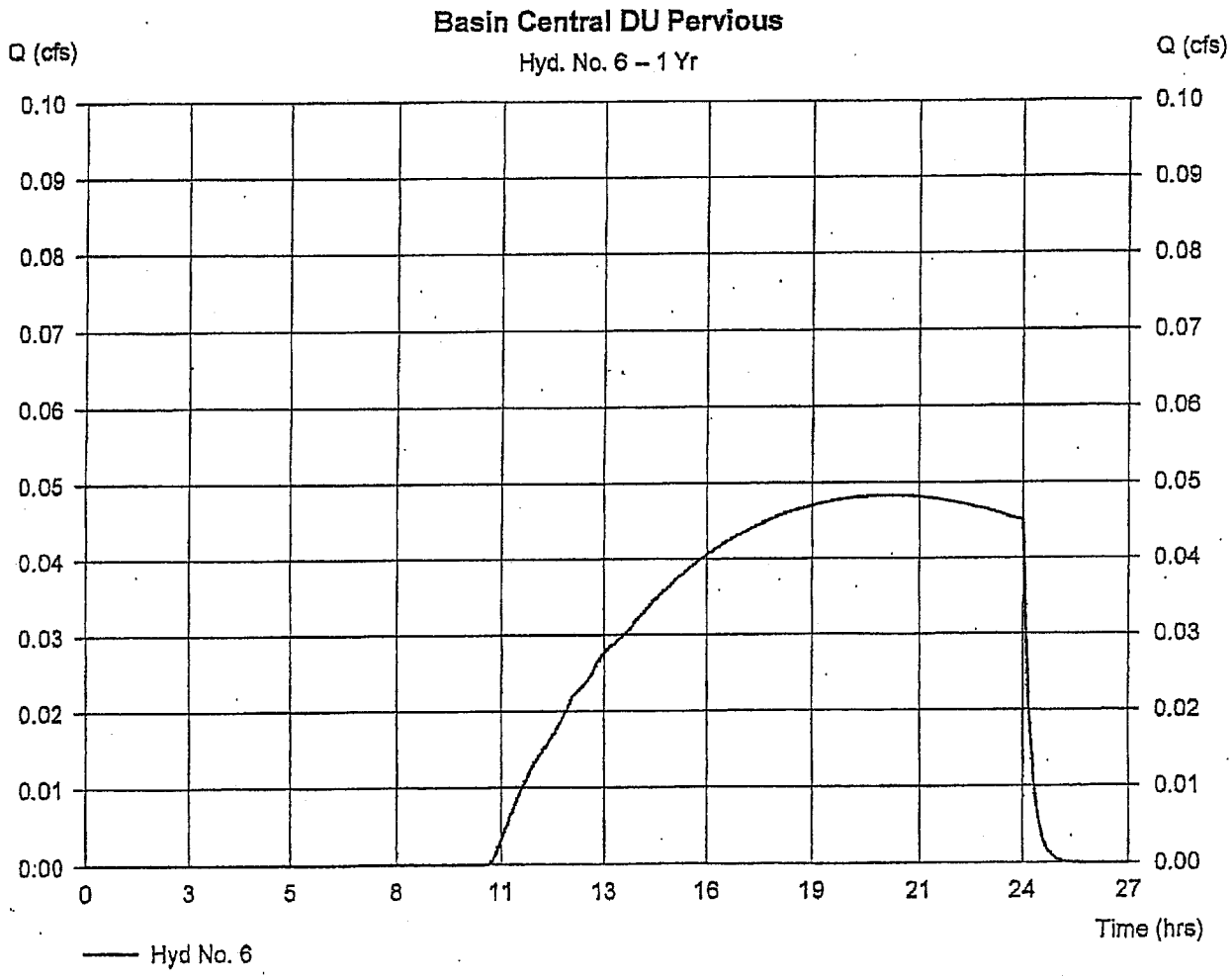


Exhibit II - 377

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

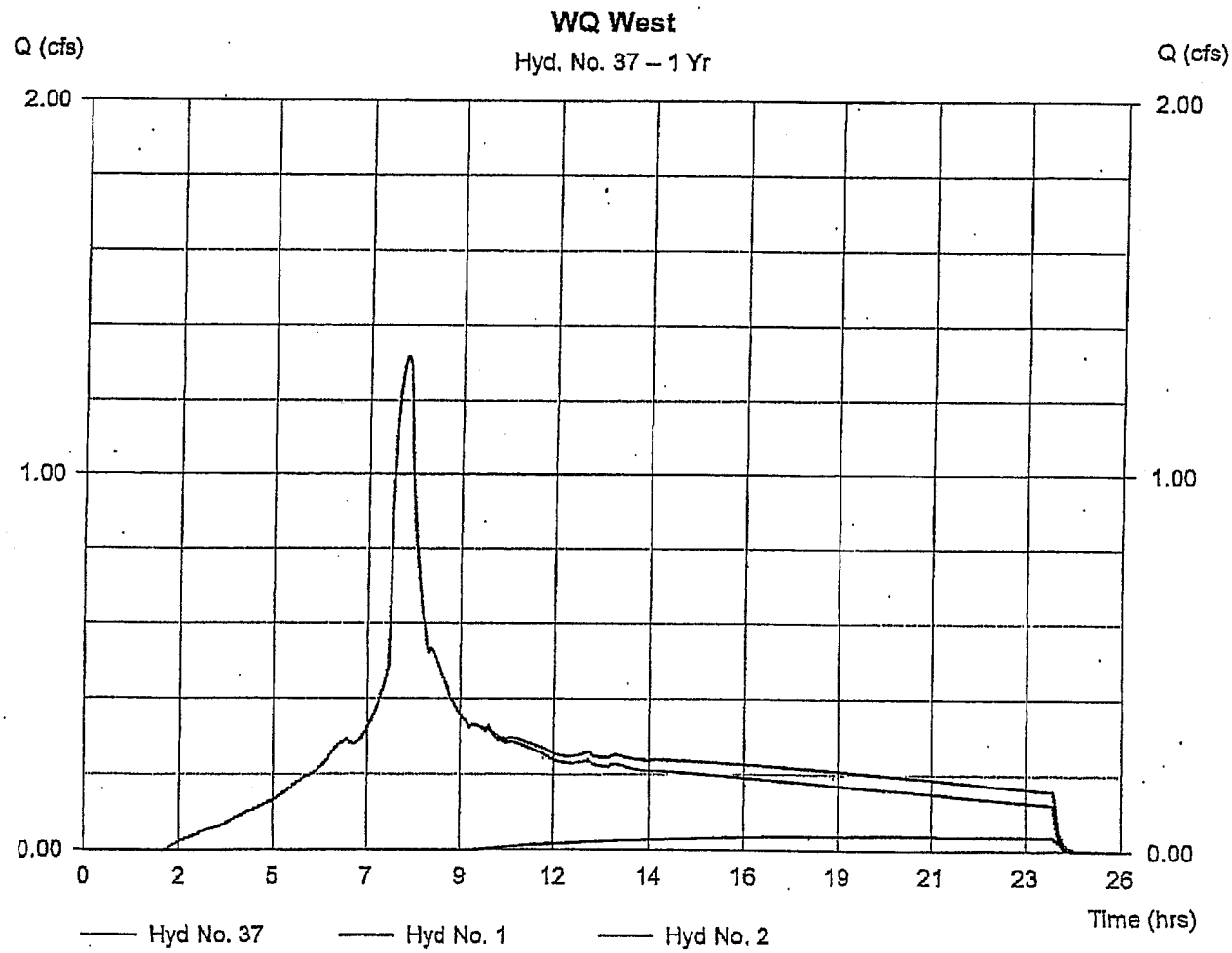
Monday, Jan 22 2007, 1:53 PM

Hyd. No. 37

WQ West

Hydrograph type	= Combine	Peak discharge	= 1.31 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Inflow hyds.	= 1, 2		

Wet Pond Volume = Hydrograph Volume = 20,036 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Monday, Jan 22 2007, 1:52 PM

Hyd. No. 1

Basin West DU Impervious

Hydrograph type	= SBUH Runoff	Peak discharge	= 1.31 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 7.320 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 18,448 cuft

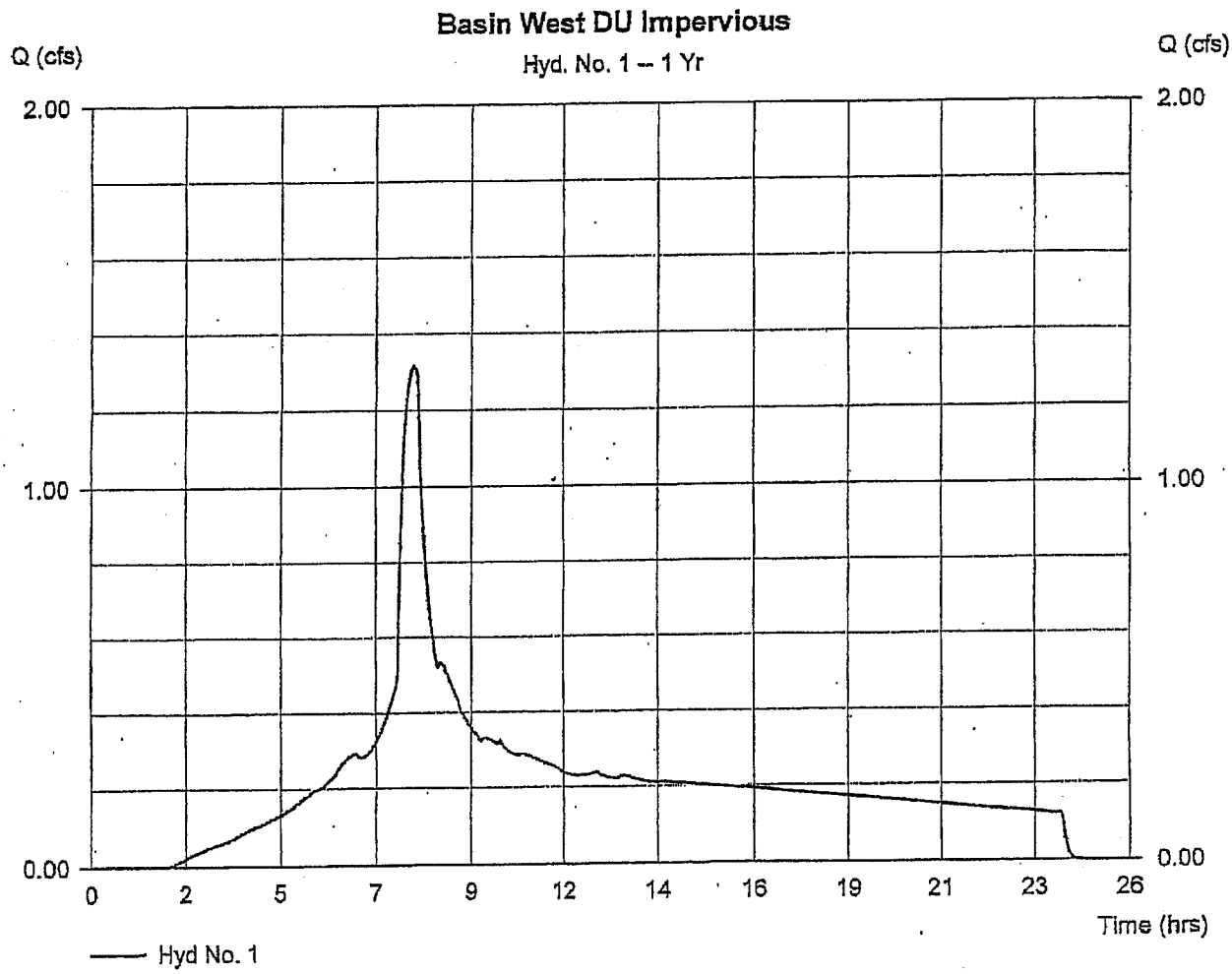


Exhibit II - 379

Hydrograph Plot

Hydraflow Hydrographs by Intellisolve — Monday, Jan 22 2007, 1:52 PM

Hyd. No. 2

Basin West DU Pervious

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.04 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 7.930 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.80 min
Total precip.	= 0.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 1,588 cuft

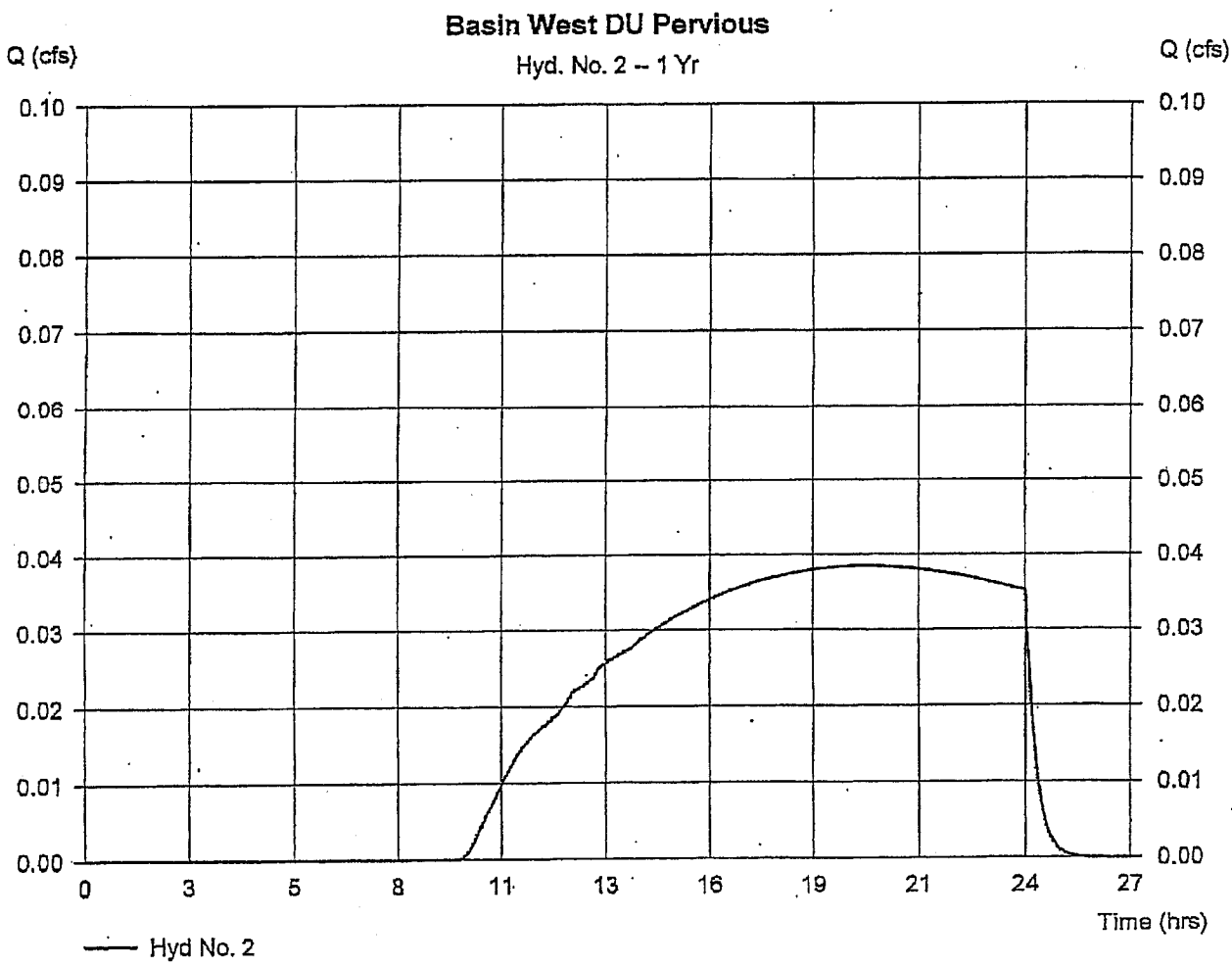


Exhibit II - 380

Finance and Administration
Oregon State University, 640 Kerr Administration, Corvallis, Oregon 97331-2156
Phone 541-737-2447 | Fax 541-737-3033

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is entered into on 15th day of August, 2006, by Matrix Development Corporation (hereinafter "Matrix") and Oregon State University (hereinafter "OSU") and serves to memorialize the preliminary storm drain system at the Witham Oaks subdivision in Corvallis, Oregon, per the attached Draft Stormwater Report prepared by OTAK, Inc. Furthermore, the Memorandum of Understanding is intended to demonstrate OSU's intent to provide an easement (to the City of Corvallis for stormwater conveyance associated with development of the Witham Oaks site,

RECITALS:

WHEREAS, Matrix is proposing development of a subdivision in the City of Corvallis to be known as Witham Oaks Subdivision (hereinafter "Subdivision"), located adjacent to and north of Harrison, comprising approximately 94 acres total;

WHEREAS, OSU owns land across Harrison to the south and downstream from the proposed development site owned by Matrix, upon which the OSU dairy facility is located;

WHEREAS, existing stormwater passes through the proposed development site via public storm facilities (culverts and open ditches) extending from the Circle Blvd. terminus, Witham Hill development areas, and natural hillside runoff;

WHEREAS, the existing stormwater is ultimately conveyed across OSU dairy lands to the south via two culverts: an easterly culvert that conveys stormwater across the field east of the dairy facility, and a westerly culvert that conveys stormwater via a ditch along the west side of the dairy. During high storm events, a third culvert along the development site frontage with Harrison conveys water along the roadside drainage way to the west, toward Oak Creek;

WHEREAS, the developer has interest in utilizing the existing drainage ditch running north-south across OSU property to convey storm water from the subdivision site.

WHEREAS, OSU is willing to consider entering into an easement, but finds more detailed information is required, which will only be available when more specific design work is completed for the subdivision.

WHERES, the developer is interested in obtaining written acknowledgement that OSU is amenable to an easement to demonstrate to the city how it will manage storm water from the subdivision, thus meeting its submission requirements for the subdivision.

WHEREAS, without a written agreement from OSU that shows intent to provide the City with an easement for the use and maintenance of stormwater facilities across OSU property, the development application is deemed incomplete and the development is unable to move forward in the public review process;

WHEREAS, Matrix and its consultant, OTAK, have indicated to OSU that Matrix's proposed Stormwater Plan will i) reduce the stormwater sheet flows that occur across the fields to the east of the dairy and will minimize impacts from flooding;.

WHEREAS, OSU is willing to grant the City an easement, provided that OSU i) may continue its current dairy operations, and ii) retains flexibility with regard to the future use of its property;

WHEREAS, Matrix has provided OSU with the attached Preliminary Stormwater Plan which, amongst other things, provides for the following:

A. Stormwater on the Matrix property will be collected and conveyed through a system of catchbasins and pipes. This system will deliver stormwater to facilities on the Matrix property, which will provide effective water quality treatment. The treatment facilities will then discharge stormwater to wetland areas on Matrix's property located south of the area proposed for development.

B. The wetland areas will provide some storage for stormwater. In addition to the wetland areas, a storage facility will be constructed along the south project boundary. This storage area will discharge flows to the west in a ditch along the north side of Harrison Blvd and south to a channel crossing the Oregon State University Dairy Operations Property. A flow control structure will be designed to detain flows from the proposed conditions 100-yr event, and convey the existing 10-yr event from the storage area to the channel crossing OSU.

C. The system will be designed to detain up to the 100-yr proposed peak flow, while conveying the 10-yr existing peak flow from the project site to the channel crossing OSU. No changes are proposed for the channel crossing OSU.

D. The 12-inch culvert under the gravel drive leading to the Poultry facility will not be up-sized. This culvert will act as a control structure for the proposed system by back-watering stormwater into the proposed storage area.

E. The culvert will be cleaned out by Matrix to eliminate current debris restrictions.

F. The easterly culvert will be capped to eliminate stormwater runoff to the south, across the fields to the east of the dairy.

In consideration of the following covenants the parties agree as follows:

1. OSU approves the Preliminary Stormwater Plan attached hereto as Exhibit A.

2. Prior to OSU granting the easement described below, final engineering drawings of the stormwater facility plans will be provided to both the City of Corvallis and OSU Dept. of Facilities for review and approval. These plans shall be consistent with the City of Corvallis Stormwater Management Plan criteria and the terms of the Preliminary Stormwater Management Plan, with the exception that OSU is requiring a more conservative design than required by the City's Stormwater Management Plan in that OSU requires Matrix to detain up to the proposed 100-year event peak flow, rather than the proposed 10-year event peak flow. Where conflicts of the two criteria occur, the stricter of the two standards shall apply unless otherwise agreed to by OSU. Any change to the Preliminary Stormwater Plan, as a result of changes required through the public review process, shall be reviewed and approved by OSU Dept. of Facilities prior to finalization. In all events, OSU must approve i) any material change from the Preliminary Stormwater Management Plan and ii) any change that affects the direction, flow, volume, quality or location of water that will migrate across OSU's property.

3. Matrix agrees to build, or caused to be built, a Stormwater Management system in compliance with the final Stormwater Management Plan approved by OSU.

4. OSU agrees to grant to the City an easement permitting the City access to the east drainage ditch, for the purpose of using and maintaining the ditch for water quality and flood control purposes. The agreement shall be presented to OSU for review and approval. In no event shall the agreement restrict dairy facility operations or adversely impact such operations by the anticipated access and maintenance needs of the City of Corvallis. Review and approval shall not be unreasonably withheld.

5. The agreement shall remain effective in perpetuity, or until such time this area is either no longer needed for public stormwater purposes or is dedicated to the City by OSU concurrent with future development of the OSU dairy property. Notwithstanding the previous sentence, OSU may require either i) that the agreement not be recorded until after Matrix has built the new Stormwater Management system, or ii) language in the agreement be added that states that the rights of the City automatically terminate in the event the Matrix development, and the approved Stormwater Management system, is not completed by a designated date. Future re-development of OSU property may be subject to applicable stormwater/drainage provisions of the Land Development Code.

6. City access will be obtained via Harrison Boulevard and limited to the easement area. Given the unique needs and operations of the dairy land, the City has agreed to advance notice to OSU for access purposes, unless it is an emergency situation.

7. Typical maintenance activities permitted by the agreement would include cleaning culverts of debris, clearing stream of foreign debris to reduce potential for flooding, rodent burrow holes will be plugged or filled, and banks will be stabilized from erosion where needed.

8. Copies of agency correspondence relative to the storm drainage system shall be made available to OSU Dept. of Facilities.

9. OSU reserves the right to nullify this MOU if during the course of the public review process, use restrictions are placed upon OSU lands which interfere with Dairy facility operations.

10. Copies of the recorded agreement and all construction permits related to the stormwater facilities shall be provided to OSU Dept. of Facilities.

We do hereby agree to the terms of this agreement.

Oregon State University	Date 8/15/06
Matrix Development V.P CRAIG F. BROWN	Date 8-28-06

Exhibit II - 384

Oregon
Theodore R. Kulongoski, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

State Land Board

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

November 30, 2006

Randy Rutherford
Matrix Development Corporation
12755 SW 69th Ave., Suite 100
Portland, OR 97223

Re: Wetland Delineation Update for Witham Oaks Site, Harrison Blvd., Corvallis, T11S R5W Sec. 33, TL 1000, 1100, 1101 & Sec. 28, TL 2300, DSL WD #06-0010 (old WD #96-0240)

Dear Mr. Rutherford:

The Department of State Lands (DSL) has completed our review of the revised wetland delineation for the site described above. As you know, this site is very difficult to delineate, and numerous site visits were conducted by Randy Cunningham, DSL, the Corps of Engineers and others. The slope wetland on the western portion of the property (west of the multi-use path) is particularly difficult due to a vegetation community that appears to be "drier" than the soils and hydrology of the site would indicate. Rather than require hydrology monitoring through next spring, at the October 20, 2006, meeting between you, Jim Goudzwaard, Randy Cunningham, Martin Schott and myself, we agreed upon the "2006 wetland delineation boundary" as mapped on the delineation map dated 11/02/06.

Please note that I have added the creek symbol to the map legend and changed the annotation "existing ditch" to "existing creek" on the creek that runs down slope near the multi-use path and through the ash forest wetland to the roadside ditch. This creek has been altered and moved around over the years, but it is a natural creek.

The wetland areas, creek and ditch segments abutting wetland are subject to permit requirements of the state Removal-Fill Law. A state permit is required for fill or excavation of 50 cubic yards or more of material in the wetland areas or below the ordinary high water line of a waterway. This concurrence is for purposes of the state Removal-Fill Law only. Federal or local wetland permit requirements may apply as well. The Army Corps of Engineers will make a determination for purposes of Section 404 of the Clean Water Act.

This jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination

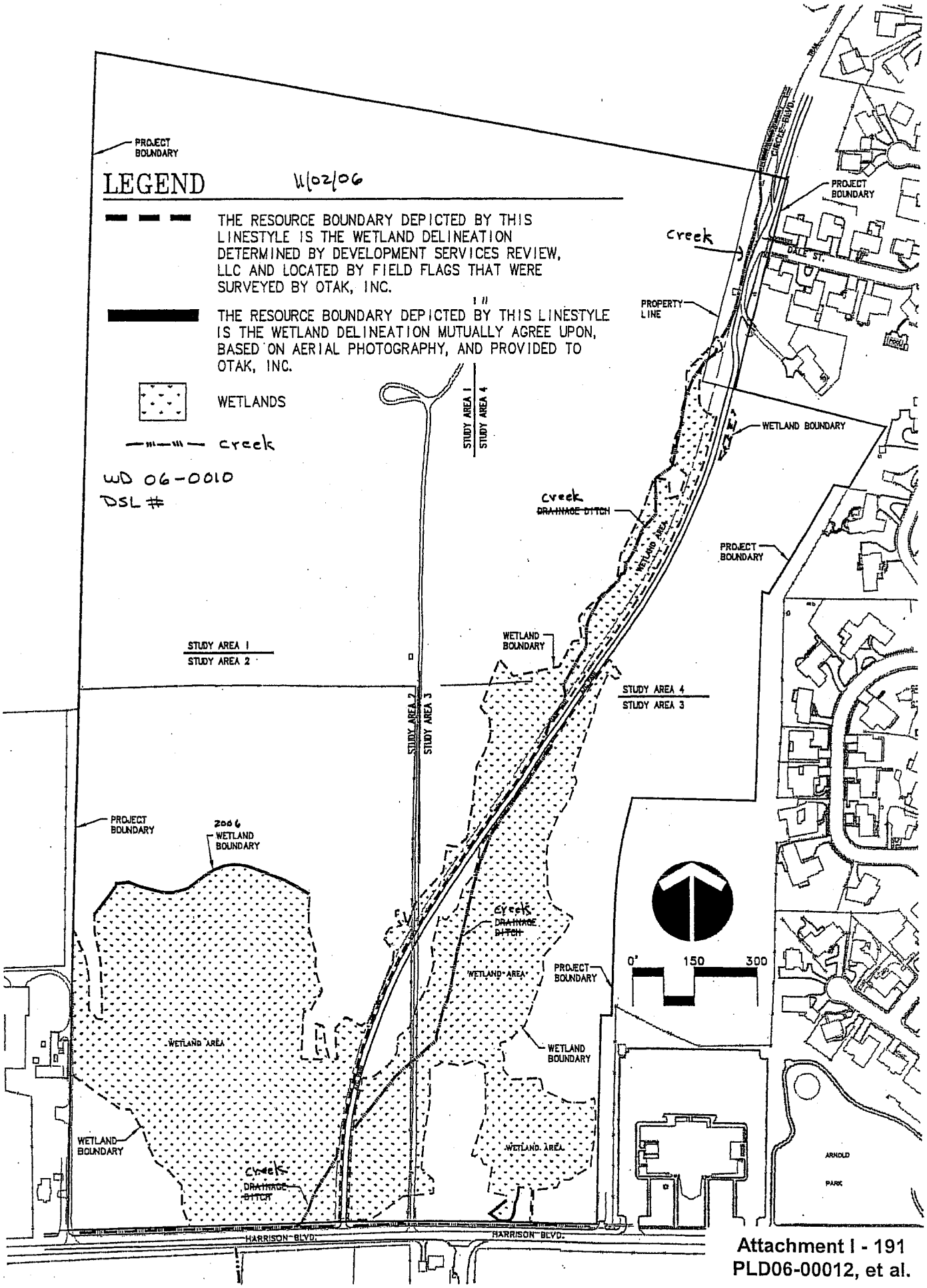
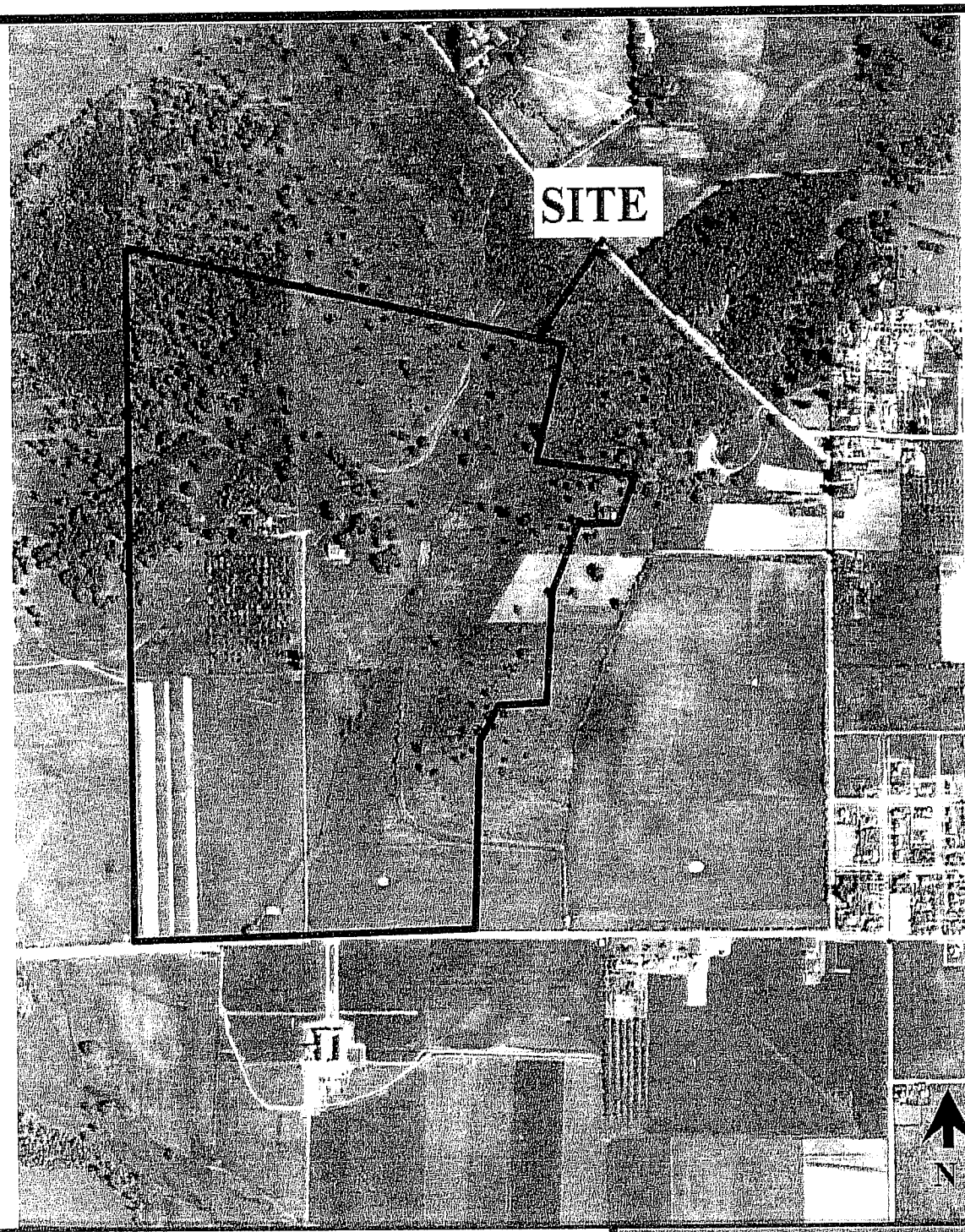


Exhibit II - 386

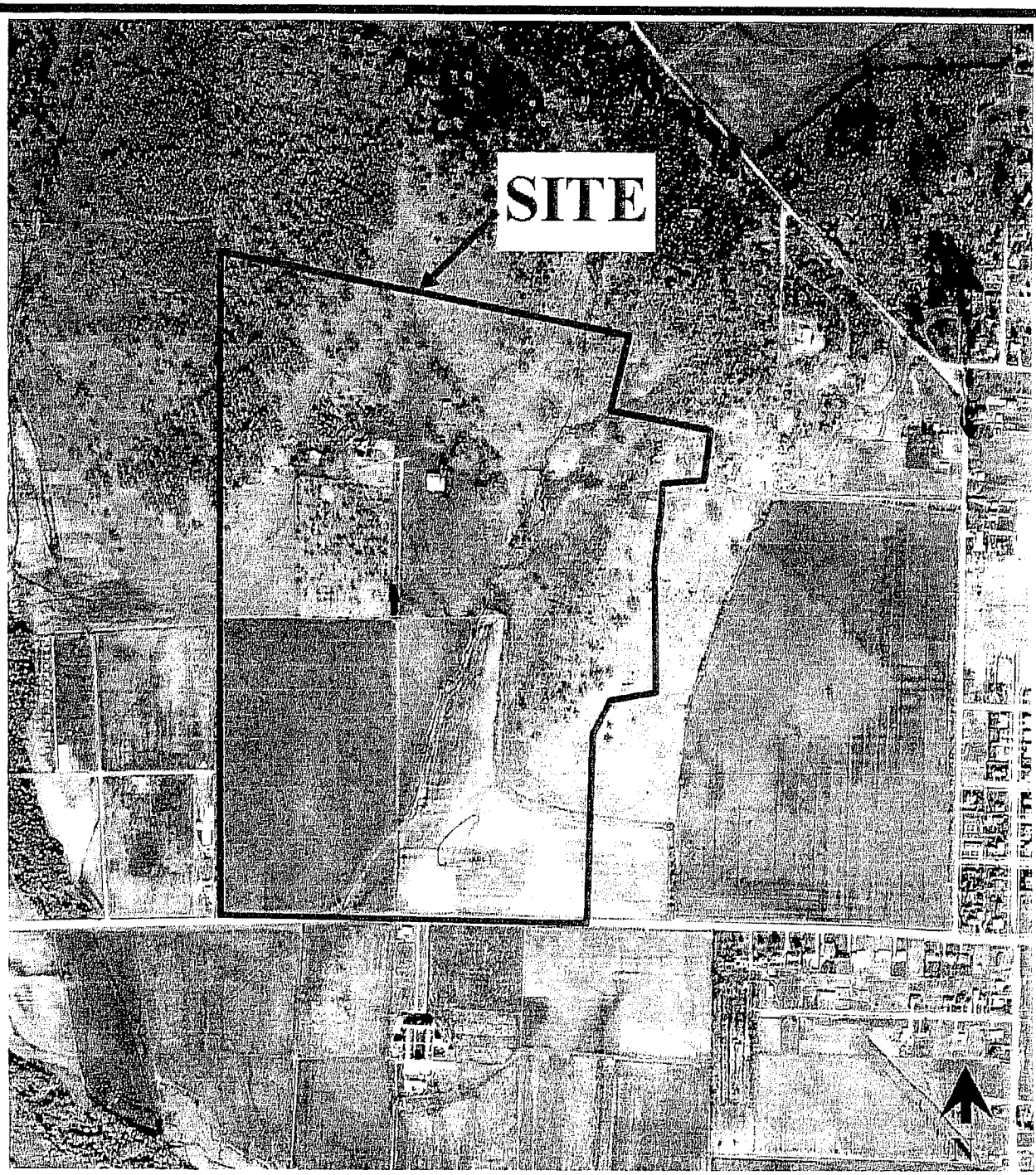


Historic 1 — 1944 Aerial

Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503) 698-1201

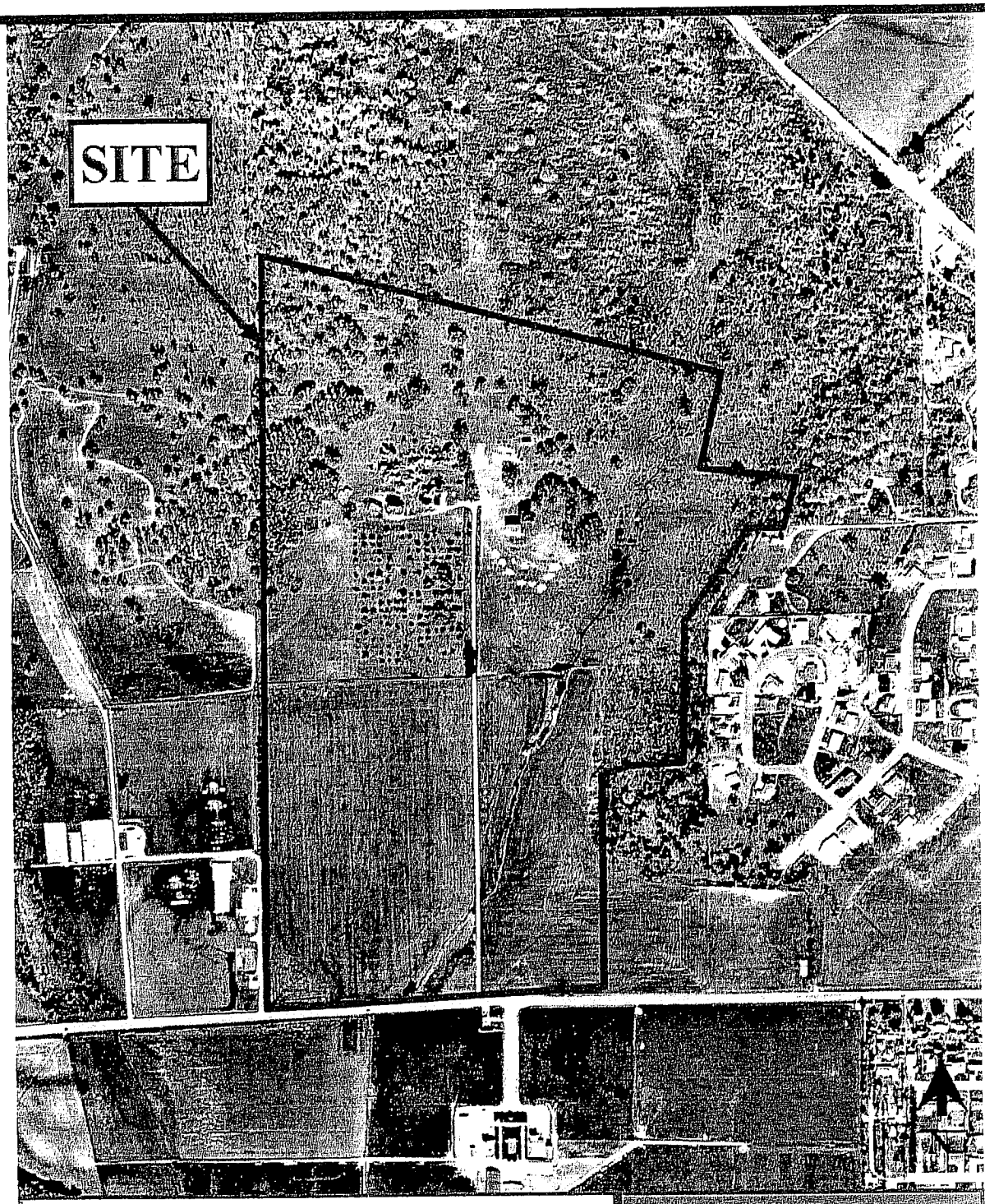
Exhibit II - 387

F



Historic 2 — 1950 Aerial

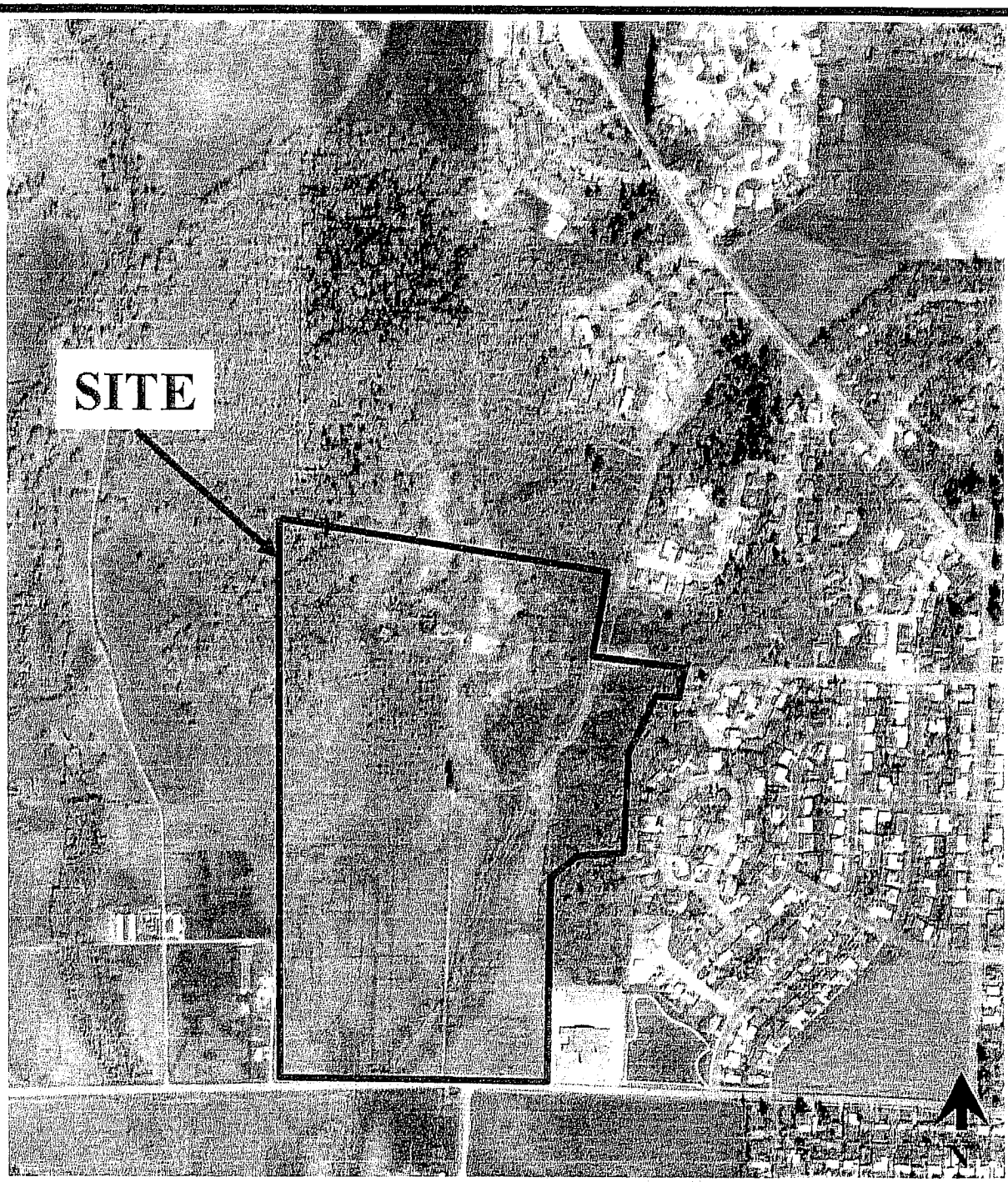
Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503)698-1201



Historic 3 — 1961 Aerial

Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503)698-1201

Exhibit II - 389



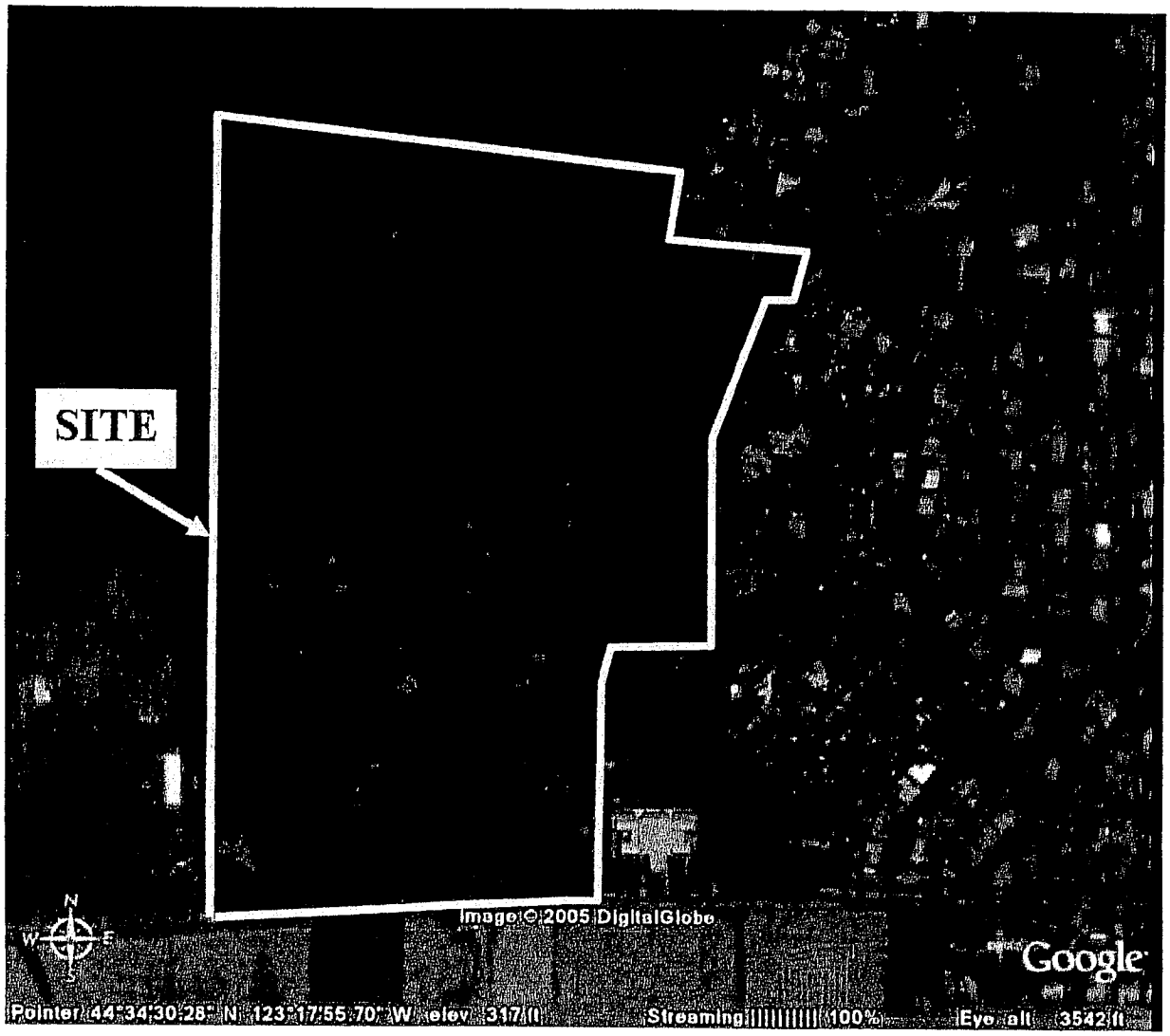
Historic 4 — 1973 Aerial

Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503) 698-1201

Historic 5 — 1983 Aerial

Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503)698-1201

Exhibit II - 391



N

Historic 7 — 2005 Aerial

Witham Oaks NRA
Corvallis
Development Services Review, LLC
13131 SE 125th Ave
Clackamas, OR 97015
(503)698-1201

Oregon
Theodore R. Kulongoski, Governor

Department of Fish and Wildlife
South Willamette Watershed District Office
7118 NE Vandenberg Ave.
Corvallis, OR 97330-9446
(541) 757-4186
FAX (541) 757-4252

Ms. Terri Valiant
Pahlisch Homes
319 NW Johnson Ave
Corvallis, OR 97330

December 12, 2006

Dear Ms. Valiant,

This letter is in regards to our conversations on December 8 and 12, 2006 concerning fish presence on the 94 acre planned development at the 4500 block of Harrison Boulevard, Corvallis OR. In an email dated December 6, 2006 and sent to you, Steve Mamoyac, District Fish Biologist for the South Willamette Watershed District stated:

"I am of the opinion that the portion of the subject tributary occurring north of Harrison Blvd is unlikely to be used to any significant degree by native migratory fish, cutthroat trout included. This perspective is based on observations of habitat made by myself and my staff during two visits to the site, the most recent being in late November of this year. If, at some point in the future, it becomes necessary to test this assumption, we may be able to provide assistance in the form of sampling the subject site. FYI, small tributaries must be sampled during the wet season when migratory fish are most likely to be present."

Please contact me if you have any questions at (541) 757 4148 ext. 251 or Karen.M.Hans@state.or.us.

Karen Hans
Salmon Trout Enhancement Program Biologist

SPERRY TREE CARE
Certified Arborists
ccb#109012
605 Howard Avenue
Eugene, Oregon 97404
Phone (541) 461-1737
Fax (541) 461-0091

Kevin Young
Corvallis Planning
501 SW Madison
PO Box 1083
Corvallis, OR 97339

December 15, 2005

Re: Witham Oaks- Tree evaluation

Introduction:
A four hour site visit of Witham Oaks was conducted on June 9, 2005. The purpose of the visit was to assess the grove of trees within the finger-shaped area of trees that extends south into Witham Oaks from the designated Open Space along the north boundary. This peninsula of land has been identified as an area of high protection by the City of Corvallis. Plans, project overview and site orientation were provided by Terri Valiant of Pahlisch Homes. Tree diameters were supplied by the surveyor and are expressed as the diameter at 4.5' above grade.

Observations:
The evaluated area has two distinct tree species zones. The upper zone is dominated by young Mazzard cherries (*Prunus avium*), followed by Oregon white oak (*Quercus garryanna*), Bigleaf maple (*Acer macrophyllum*) and Douglas-fir (*Pseudotsuga menziesii*). Most of the trees are in good health and structural condition. Tree diameters are approximately 8-15" diameter. The understory plants are native shrubs, ferns, poison oak and hawthorn and many non-natives such as blackberry and invasive grasses.

The lower portion of the finger has a grove of mature, broad-spreading 40-60 foot tall Oregon white oaks. According to the survey, the oaks diameters are between 20-55". In general, the trees are in good to excellent health. Structurally, the individual oaks have average defects for an unmaintained stand of trees such as cracks, cavities, deadwood and broken limbs. The understory

is similar to the upper zone with native shrubs, ferns, poison oak and hawthorn as well as many non-natives such as blackberry, Mazzard cherry and invasive grasses.

Conclusions:
The trees in the lower zone are clearly more valuable for tree preservation than the trees in the upper zone. The non-native Mazzard cherries throughout the upper zone are considered invasive species that will compete with the native oaks, maples and firs within this development and the City owned open space to the north. As a result, this area has been selected for home and street development.

The Oregon white oaks within the lower zone are fine examples of broad-spreading drought tolerant native tree that have grown relatively undisturbed. This area of Witham Oaks has been designated as open space with a footpath through it. A cul de sac was designed for the street above the northwest edge of this area to retain more of these trees.

With proper safety analysis and pruning the mature oaks will be well adapted to the proposed non-irrigated open grassland conservation area. Also, the path system for this area has been planned to minimize damage to the root systems of the oak grove. This proposed path will be 5 feet wide and may be a soft surface such as bark mulch to reduce excavation, soil compaction and impermeable surface areas.

Assumptions and Limiting Conditions

1. Care has been taken to obtain all information from reliable sources. The consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
2. Consultant shall not be required to give testimony or to attend court by reason of any report unless subsequent contractual arrangements are made, including payment of additional fees.
3. Any legal description provided to the consultant will be assumed to be correct. No responsibility will be assumed for matters legal in character.
4. Missing pages or alteration of any report invalidates entire report.
5. Possession of a report does not imply right of publication without the prior expressed written or verbal consent of the consultant.
6. Neither all nor any part of the contents of a report, nor copy thereof, shall be conveyed to the public through advertising, public relations, news, sales

or other media, without the expressed written or verbal consent of the consultant.

7. Information contained in a report reflects the conditions present at the time of inspection.
8. Inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There will be no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

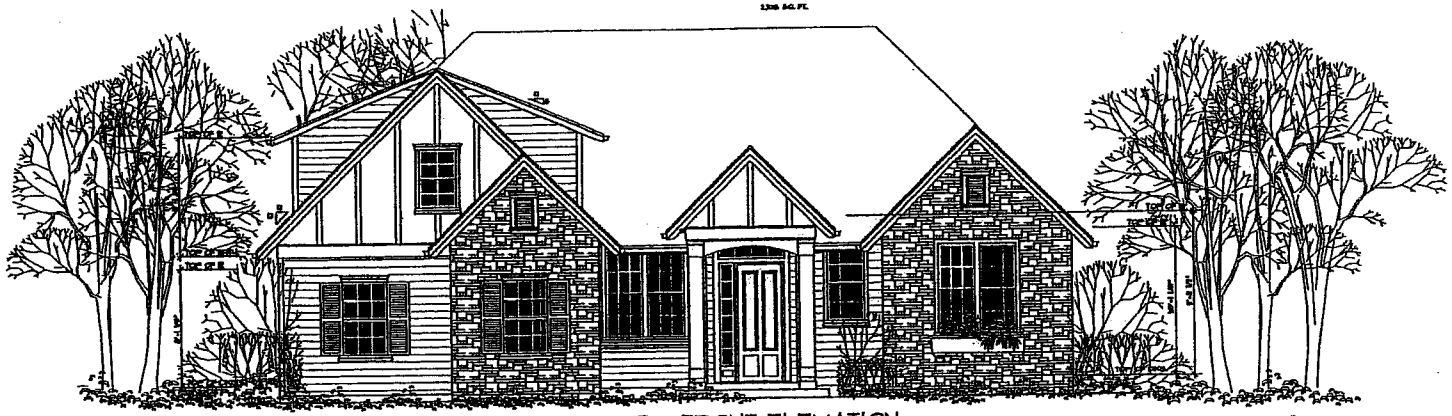
Respectfully submitted,

Nathaniel Sperry

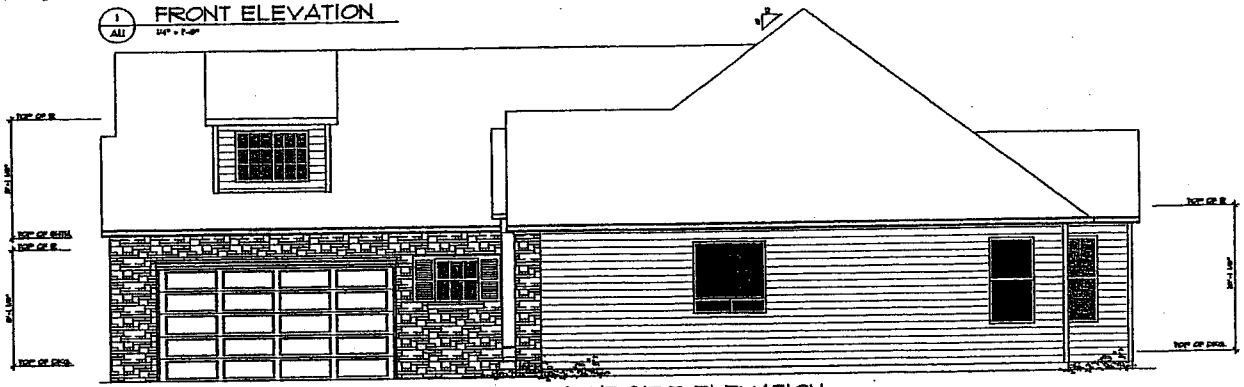
Nathaniel Sperry
ISA Certified Arborist, PN 364
Candidate Member of American Society of Consulting Arborists

ANNIKA A

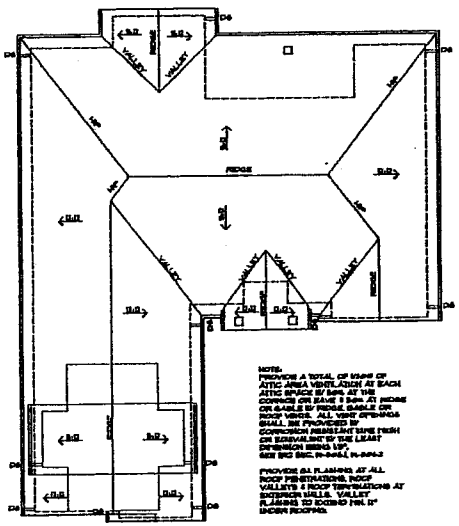
1398 SQ. FT.



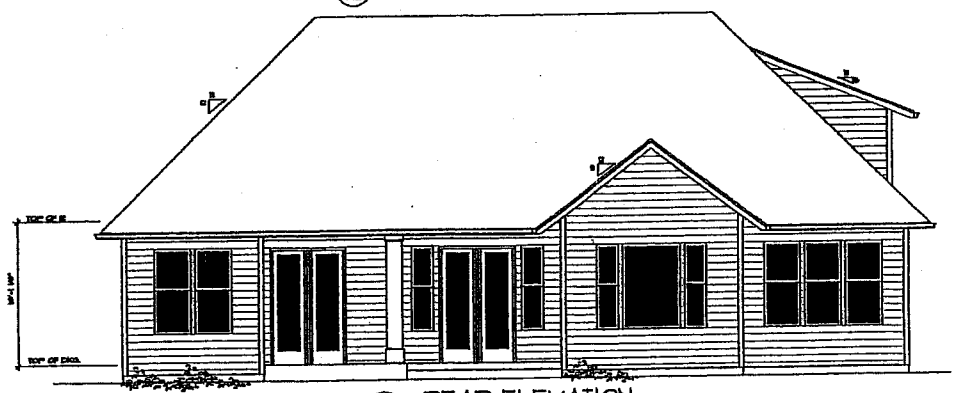
1 ALL FRONT ELEVATION 1/4" = 1'-0"



2 ALL RIGHT SIDE ELEVATION 1/4" = 1'-0"



3 ALL ROOF PLAN 1/4" = 1'-0"



3 ALL REAR ELEVATION 1/4" = 1'-0"

LEGEND

Attachment I - 202
PLD06-00012, et al.

ANNIKA A BASE PLAN
(2) CAR, GARAGE LEFT
a 2,325 sq. ft. SINGLE FAMILY RESIDENCE

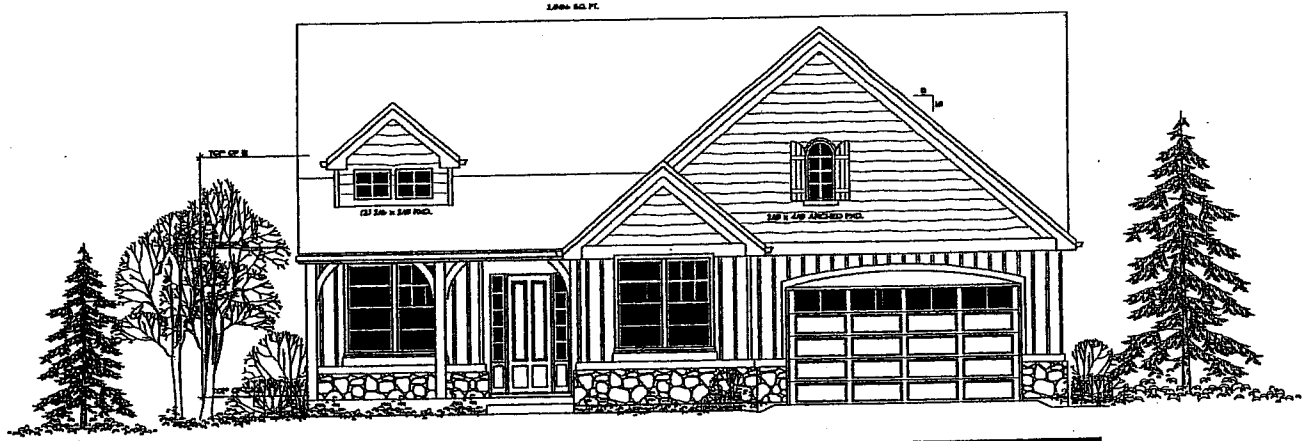
DATE: DRAWN:
REVISION:
FILE: ANNAL-ARCHS

SHEET TITLE:
ELEVATIONS
ROOF PLAN
BILLA-STIE LANDING

SHEET NUMBER
A1.1
1 OF 9

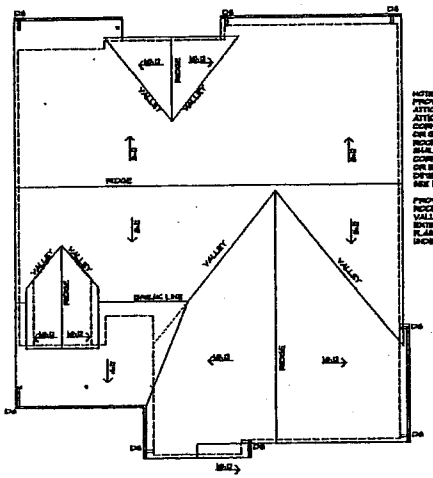
P:\PROJECTS\Corvallis\Annika\ANNAL-a1.1.dwg, 10/18/2006 12:43:34 PM

CAULDWELL



1 ALL FRONT ELEVATION
1/4" = 1'-0"

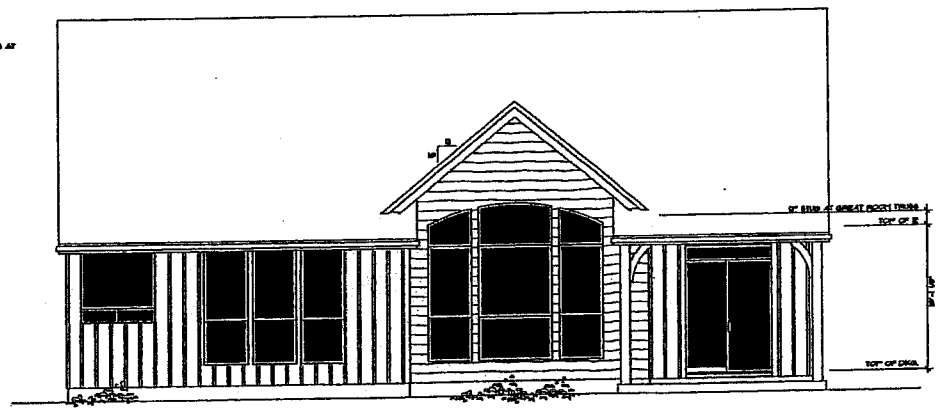
NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOW FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. FRAME & MODEL NUMBER.



NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE W/ 50% AT THE CORNICE OR EAVE & 50% AT RIDGE OR GABLE W/ RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT W/ THE LEAST DIMENSION BEING 1/8". SEE IRC SEC. R-806.1 R-806.3

PROVIDE G.I. FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

3 ALL ROOF PLAN
1/4" = 1'-0"



2 ALL REAR ELEVATION
1/4" = 1'-0"

THE Wescott COLLECTION

LICENSE HOLDER: 63006

LEGEND

Attachment I - 203
PLD06-00012, et al.

CAULDWELL BASE PLAN
(2) CAR, GARAGE RIGHT
a 2,006 sq. ft. SINGLE FAMILY RESIDENCE

DATE: 03-01-06 DRAWN: MHB

REVISIONS
- 10-09-06 - MHB
- 06-06-06 - MHB

FILE: CAULAN-AUDREN

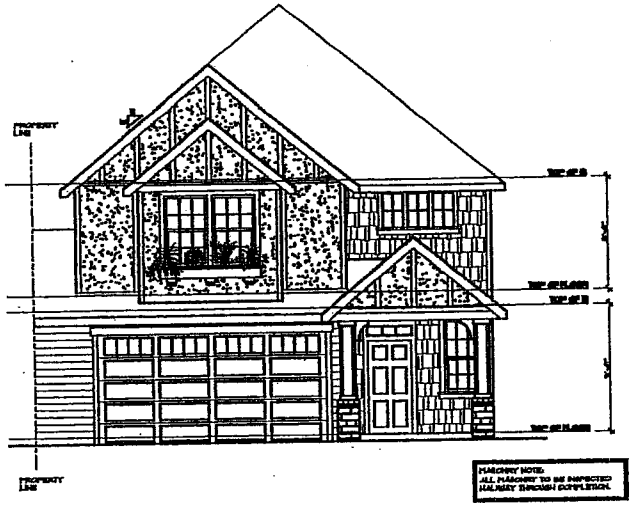
SHEET TITLE:
ELEVATIONS
ROOF PLAN

THE RIVER COLLECTION

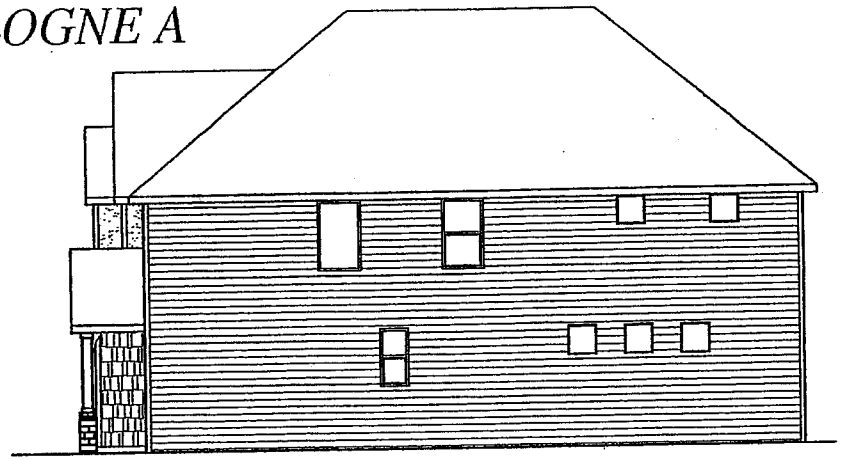
SHEET NUMBER:
A1.1
1 OF 5

P:\PROJECTS\Corvallis\Cauldwell\CALAR-a1.1(For PDF).dwg, 10/18/2006 12:51:44 PM

COLOGNE A

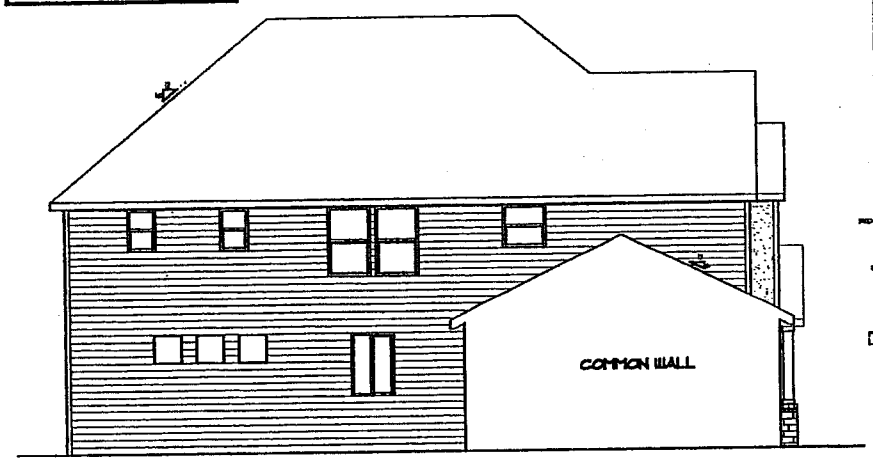


1/A1 FRONT ELEVATION

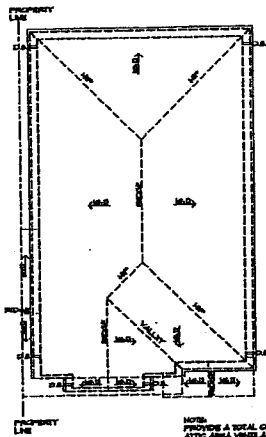


2/A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOWS FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. TRIMS & FRONTS, REFINISH.



3/A1 LEFT SIDE ELEVATION



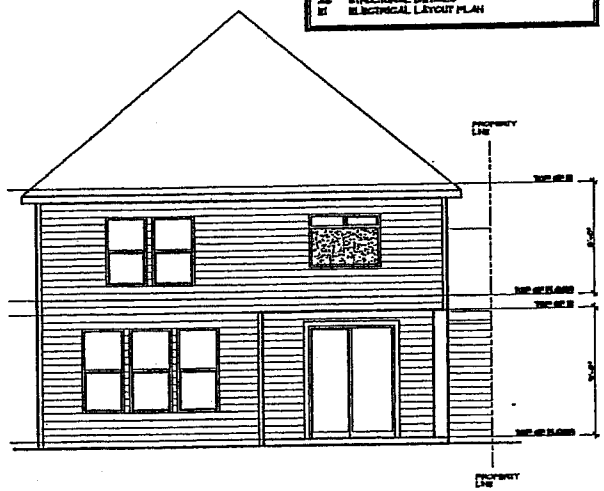
5/A1 ROOF PLAN

NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE BY 50% AT THE EAVES OR EAVE & 50% AT RIDGE ON GABLE OR PROVIDE GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR SCREENING IN THE LEAST DIMENSION BEING 1/4". SEE SEC. R-806.1 & R-806.2

PROVIDE A1 FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



4/A1 REAR ELEVATION

P:\PROJECTS\Hambach\Cologne\COLA1.dwg, 10/18/2006 1:57:40 PM

LEGEND

Attachment I - 204
PLD06-00012, et al.

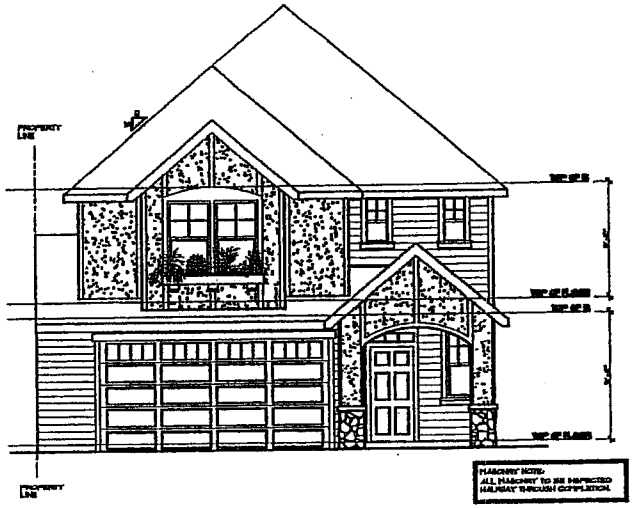
COLOGNE A BASE PLAN
(2) CAR, GARAGE LEFT
a 2,217 sq. ft. SINGLE FAMILY RESIDENCE

DATE:	DRAWN:
REVISION:	KEVIN
	KEVIN

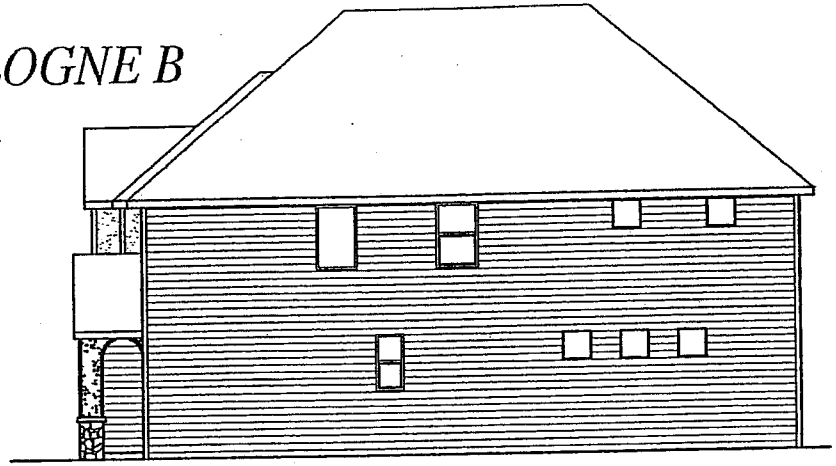
SHEET TITLE:
ELEVATIONS
ROOF PLAN

SHEET NUMBER:
A1
1 of 1

COLOGNE B

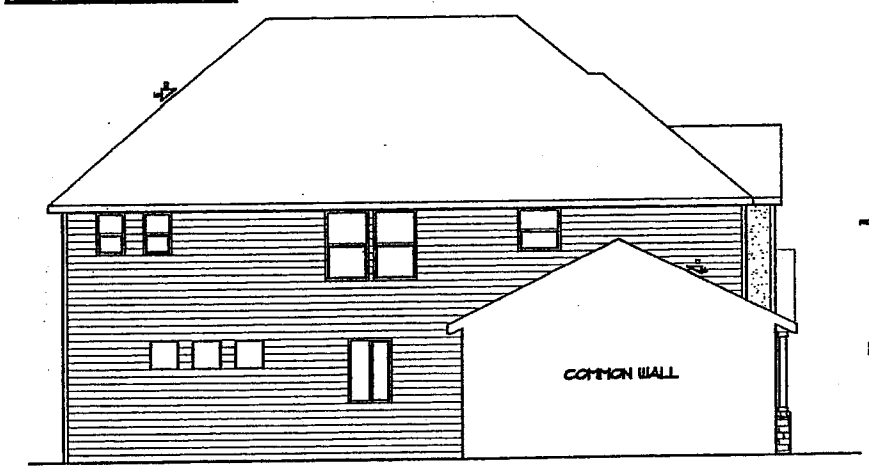


1 / A1 FRONT ELEVATION

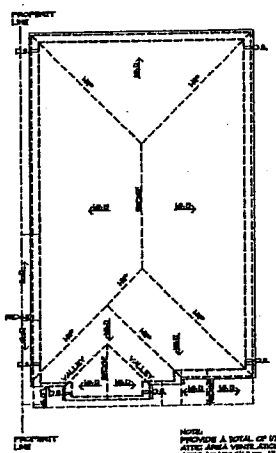


3 / A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW GRIDS ARE DIAGRAMMATIC FOR GRAPHICS.
2. ANY SIDE WINDOW FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. (MAKE & MODEL NUMBER)



2 / A1 LEFT SIDE ELEVATION



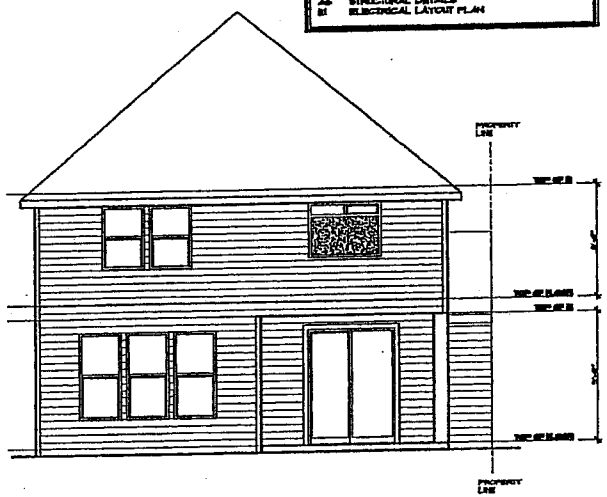
4 / A1 ROOF PLAN

NOTE:
PROVIDE A TOTAL OF [illegible] OF ATTIC AREA VENT EACH AT EACH ATTIC SPACE OF [illegible] AT THE CORNICE OR EAVE & [illegible] AT RIDGE OR GABLE OR RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED BY CORROSION RESISTANT WIRE MESH OR EQUIVALENT OF NO LESSER DIMENSION THAN [illegible]. SEE IRC SEC. R-[illegible] & R-[illegible]

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND TWO 8" UNDER SHEATHING.

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



4 / A1 REAR ELEVATION

LEGEND

Attachment I - 205
PLD06-00012, et al.

COLOGNE B BASE PLAN
(2) CAR, GARAGE LEFT
a 2,217 sq. ft. SINGLE FAMILY RESIDENCE

DATE:	DRAWN:
REVISION:	REVN:
REVISION:	REVN:
FILE:	

SHEET TITLE:
ELEVATIONS
ROOF PLAN

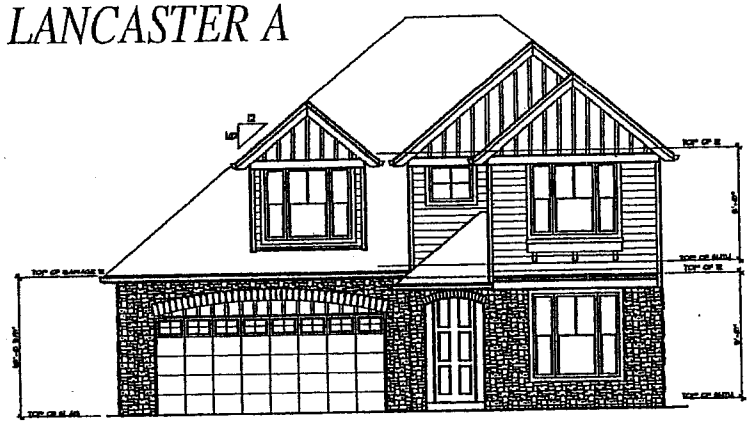
HAMBACH HOMES

SHEET NUMBER:
A1

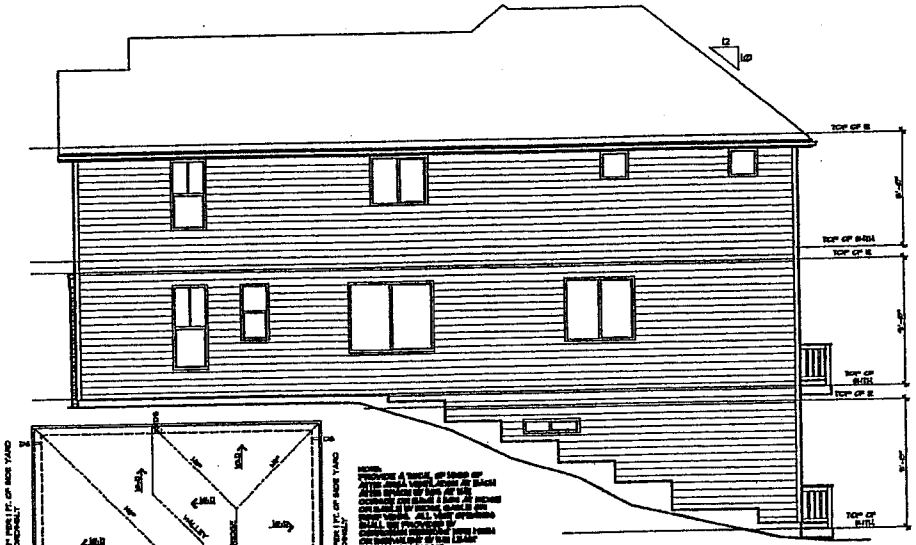
1 OF 1

P:\PROJECTS\Hambach\Cologne\COLBL.dwg, 10/18/2006 1:59:33 PM

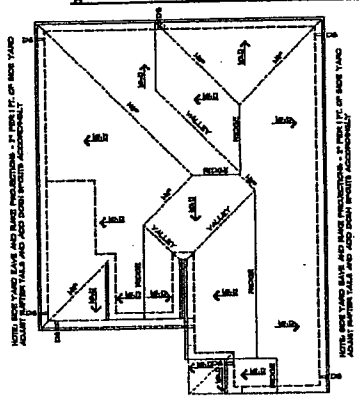
LANCASTER A



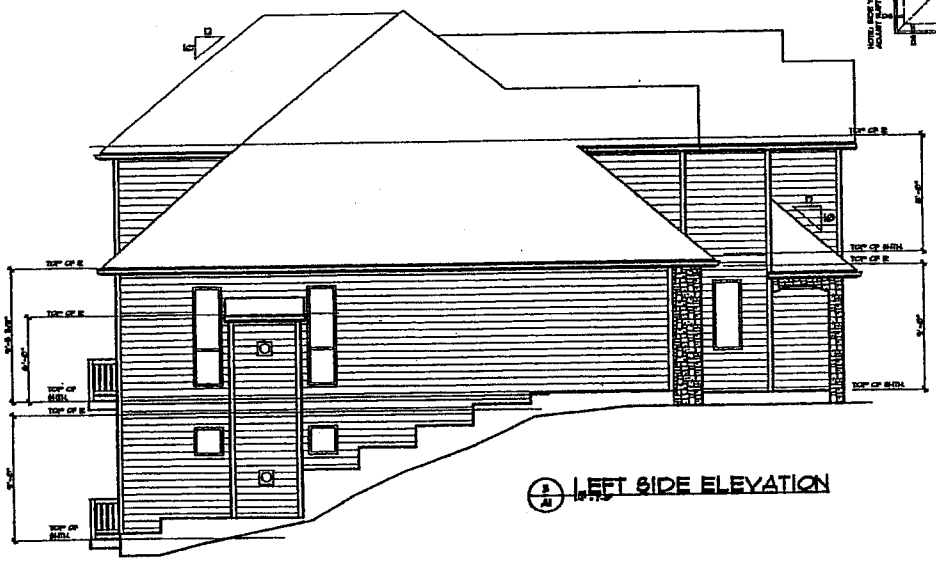
1 A1 FRONT ELEVATION



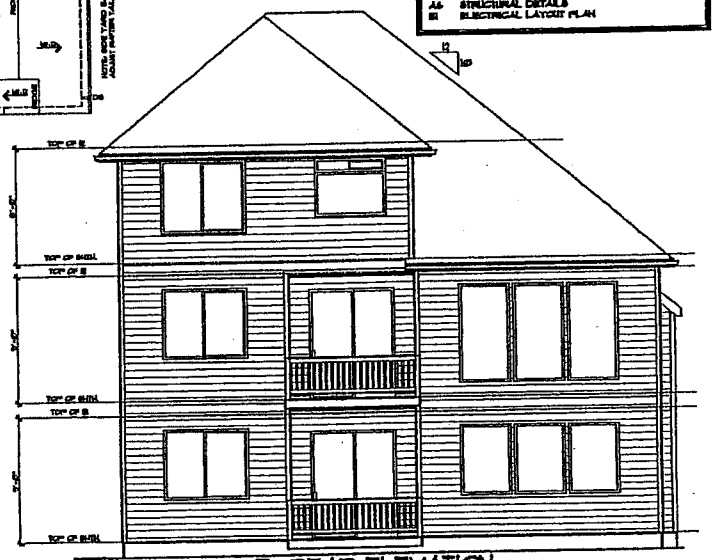
3 A1 RIGHT SIDE ELEVATION



5 A1 ROOF PLAN



2 A1 LEFT SIDE ELEVATION



4 A1 REAR ELEVATION

MASONRY NOTE:
ALL MASONRY TO BE PAINTED HALFWAY THROUGH COMPLETION.

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOWS FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. MAKE 4 PANEL NUMBER.

NOTE:
PROVIDE A TOTAL OF NINE OF [illegible] AT EACH [illegible] ALL VENT OPENINGS SHALL BE PROTECTED BY [illegible] ALL VENT OPENINGS SHALL BE PROTECTED BY [illegible] PROVIDE ALL PLANKING AT ALL [illegible] AT ALL VALLEYS [illegible] AT EACH [illegible]

NOTE: SIDE YARD EAVE AND RAKE PROJECTIONS = 2' MIN. FT. OF SIDE YARD ADJUST GUTTER TALLS AND ADD DORMERS ACCORDINGLY.

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

LEGEND

Attachment I - 206
PLD06-00012, et al.

LANCASTER A BASE PLAN
(2) CAR, GARAGE LEFT
a 3,098 sq.ft. SINGLE FAMILY RESIDENCE

DATE: DRAWN
REVISIONS:
FILE: LANAL

SHEET TITLE:
ELEVATIONS
ROOF PLAN

SHEET NUMBER:
A1
1 of 6

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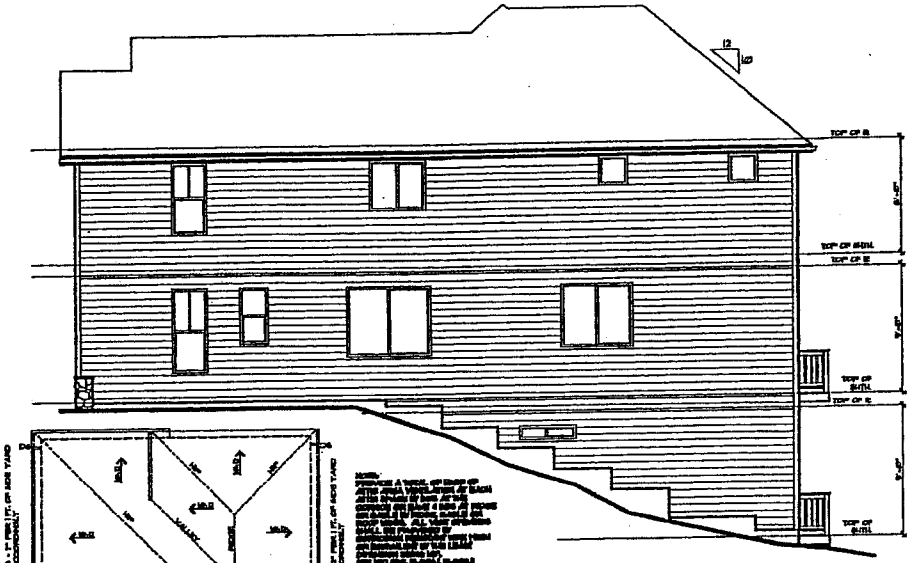
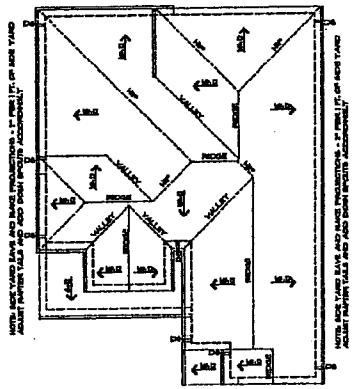
LANCASTER B

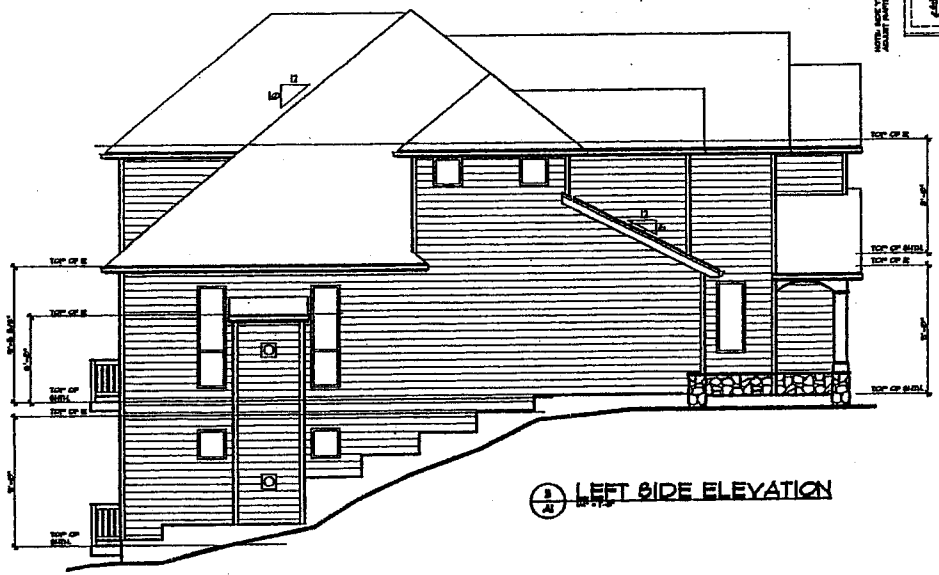
1/A1 FRONT ELEVATION



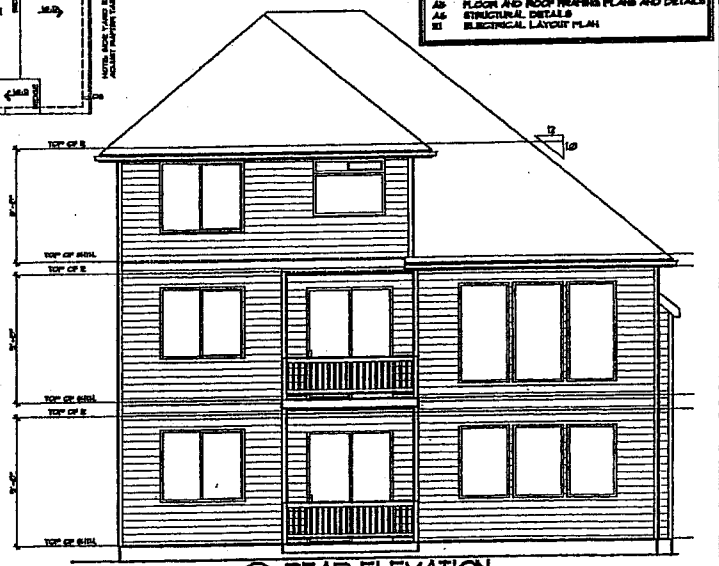
3/A1 RIGHT SIDE ELEVATION



5/A1 ROOF PLAN



2/A1 LEFT SIDE ELEVATION



4/A1 REAR ELEVATION

MASONRY NOTE:
ALL MASONRY TO BE INSPECTED HALFWAY THROUGH COMPLETION.

NOTE:
1. WINDOW SIZES ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOWS FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. PAGE 4 FOOSE NUMBER.

NOTE: SIDE YARD EAVE AND RAKE PROJECTION = 1' FOR LT. OF SIDE YARD AGAINST PARTITION WALLS AND DOWN SPOUTS ACCIDENTALLY

NOTE: SIDE YARD EAVE AND RAKE PROJECTION = 1' FOR LT. OF SIDE YARD AGAINST PARTITION WALLS AND DOWN SPOUTS ACCIDENTALLY

NOTE:
ATTIC ACCESS A TOTAL OF ONE OF THE ATTIC AREA VENTILATION OF EACH ATTIC SPACE OF THE ATTIC AT THE DISTANCE NOT MORE THAN 30 FEET FROM THE ATTIC ACCESS OR EQUAL TO THE ATTIC AREA. ALL ATTIC OPENINGS SHALL BE PROTECTED BY ROOFING MATERIALS OR OTHER MATERIALS ACCEPTABLE TO THE FIRE CHIEF. SEE SEC. R-806.2

TRUSS TYPE ALL HEADERS AT ALL BEAM PLACEMENTS MUST BE CONSULTED WITH THE TRUSS MANUFACTURER AT PLACING TO ALLOW FOR 1" CLEARANCE TO ALL TRUSS MEMBERS.

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BIELDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

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LEGEND

Attachment I - 207
PLD06-00012, et al.

LANCASTER B BASE PLAN
(2) CAR, GARAGE LEFT
a 3,167 sq. ft. SINGLE FAMILY RESIDENCE

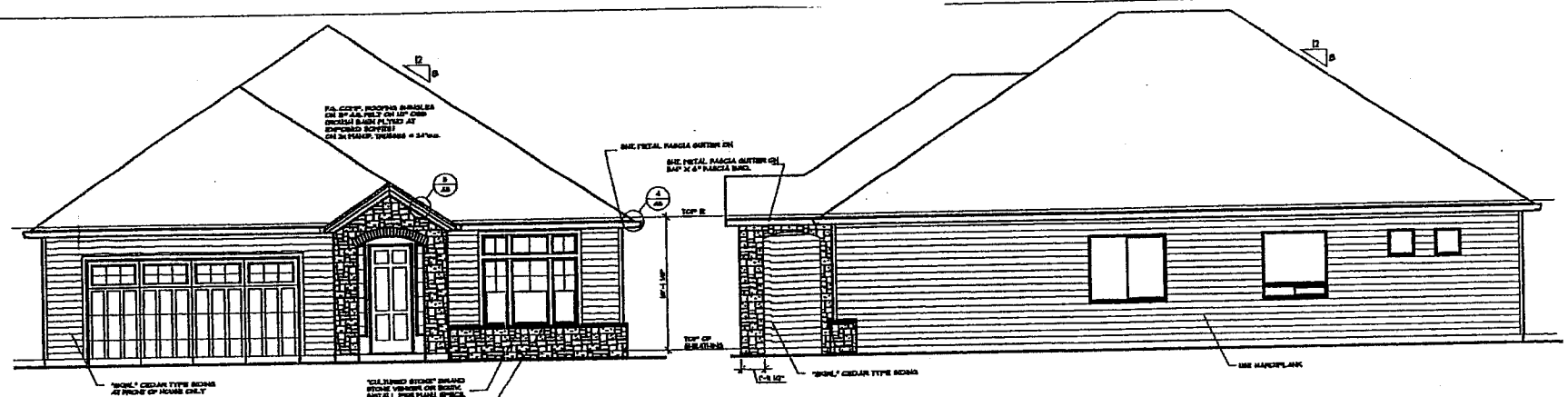
DATE:	DRAWN:
8/24/04	DEMTV
REVISION:	
8/26/04	PBS
10/7/04	PBS
1/12/04	PBS
8/22/05	KTT

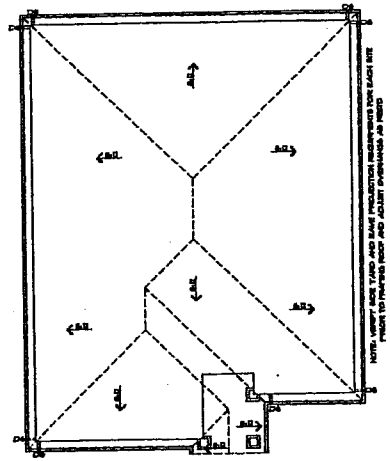
P.E.S. LANA.

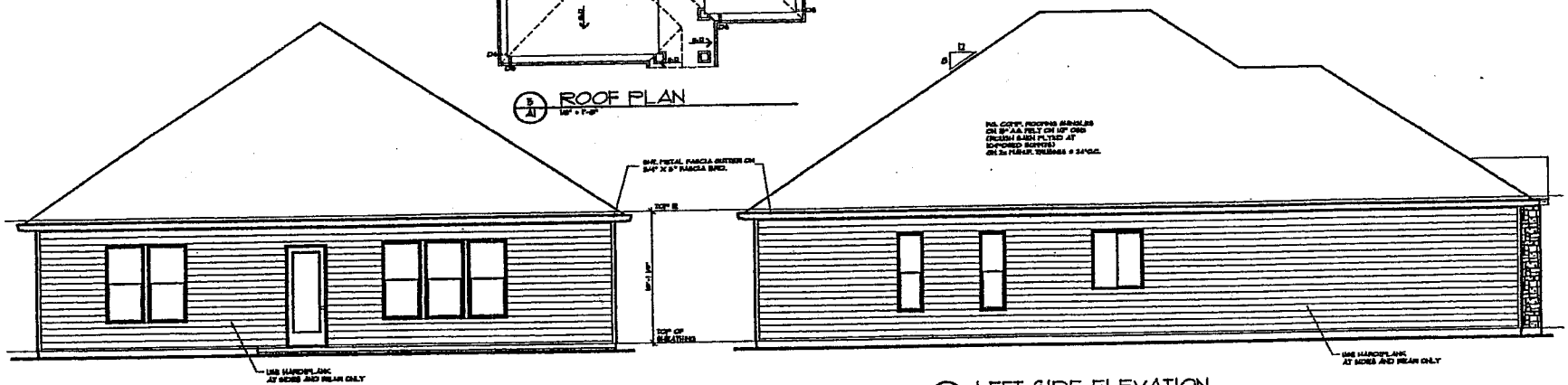
SHEET TITLE:
ELEVATIONS
ROOF PLAN
SPRING HILL

SHEET NUMBER:
A1
1 of 5

Exhibit II - 402







NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY NEW WINDOWS FACING A STREET SHALL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE, MAKE & MODEL NUMBER.

NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AS EACH ATTIC SPACE BY SUM AT THE CORNICE OR EAVE & SUM AT NOSE OR GABLE O/ RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENING SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT W/ THE LEAST DIMENSION BEING 1/8".
SEE CABO SEC. R-1401

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

NOTE: VERIFY ROOF TYPE AND EAVE PROJECTION DIMENSIONS FOR EACH SITE PRIOR TO FRAMING ROOF AND ADJUST OVERHANGS AS REQ'D

INDEX OF DRAWINGS:

A1	ELEVATIONS & ROOF PLAN
A2	FOUNDATION PLAN & DETAILS
A3	MAIN FLOOR PLAN & NOTES
A4	ROOF FRAMING PLAN & SECTIONS
A5	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

LEGEND

Attachment I - 208
PLD06-00012, et al.

LINDEN II A BASE PLAN
(2) CAR, GARAGE LEFT
a 1,920 sq. ft. SINGLE FAMILY RESIDENCE

A1

1 OF 6

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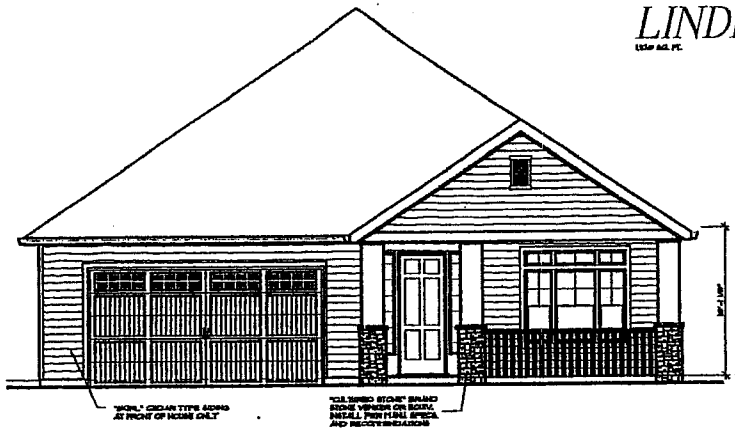
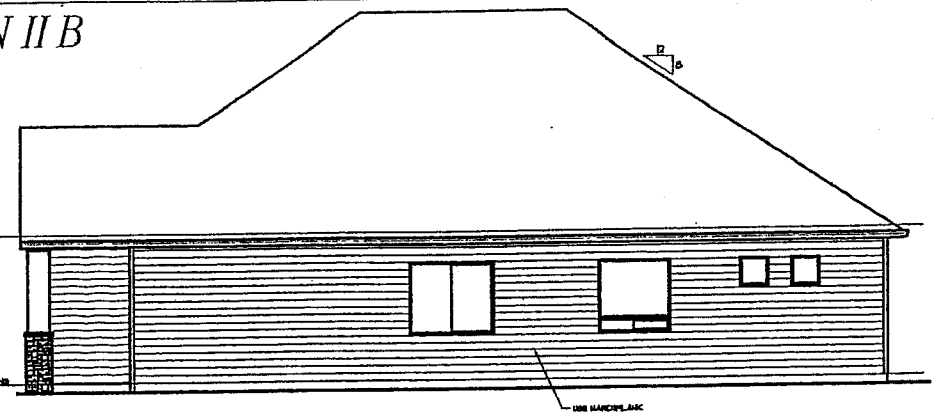
LINDEN II B

1920 sq. ft.

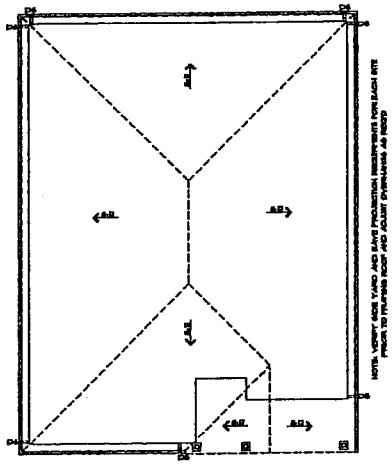


1/A1 FRONT ELEVATION



2/A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW SIZES ARE EXAGGERATED FOR GRAPHICS.
2. ANY NOT WINDOW FACING A STREET ELL BE SIMILIRED TO MATCH FRONT ELEVATION.
3. ALL INTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. MATCH 4 HOUSE. MINIMUM.



NOTE: PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE OF AIR AT THE CORNICE OR EAVE 4 INch AT RIDGE OR GABLE BY RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT OF THE LEAST DIMENSION BEING 1/8".
SEE CABO SEC. R-1/01

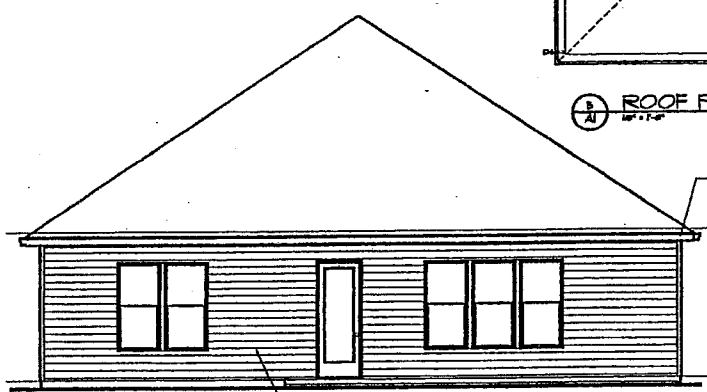
PROVIDE 6L FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND PAST 8" UNDER ROOFING.

NOTE: VERIFY SIDE YARD AND SAFE FOUNDATION RESTRIVERS FOR EACH SITE PRIOR TO FINISHING ROOF AND ADJUST OVERHANGS AS REQ'D

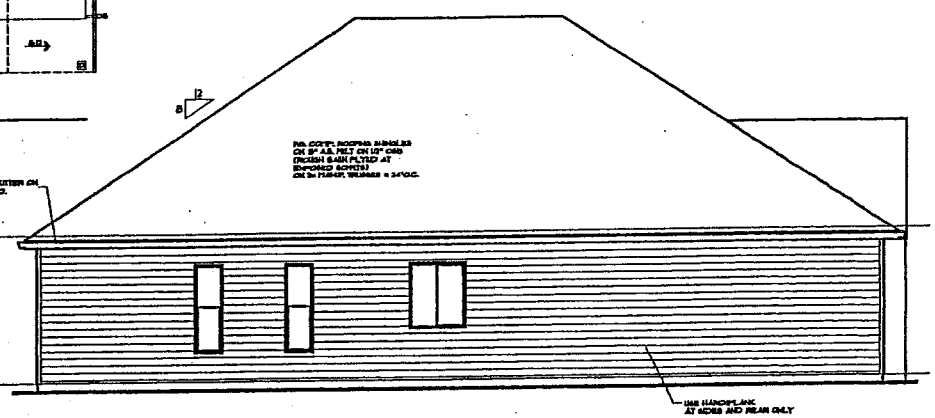
5/A1 ROOF PLAN

INDEX OF DRAWINGS:

A1	ELEVATIONS & ROOF PLAN
A2	FOUNDATION PLAN & DETAILS
A3	MAIN FLOOR PLAN & NOTES
A4	ROOF FRAMING PLAN & SECTIONS
A5	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



3/A1 REAR ELEVATION



4/A1 LEFT SIDE ELEVATION

LEGEND

Attachment I - 209
PLD06-00012, et al.

LINDEN II B BASE PLAN
(2) CAR, GARAGE LEFT
a 1,920 sq. ft. SINGLE FAMILY RESIDENCE

A1

1 OF 6

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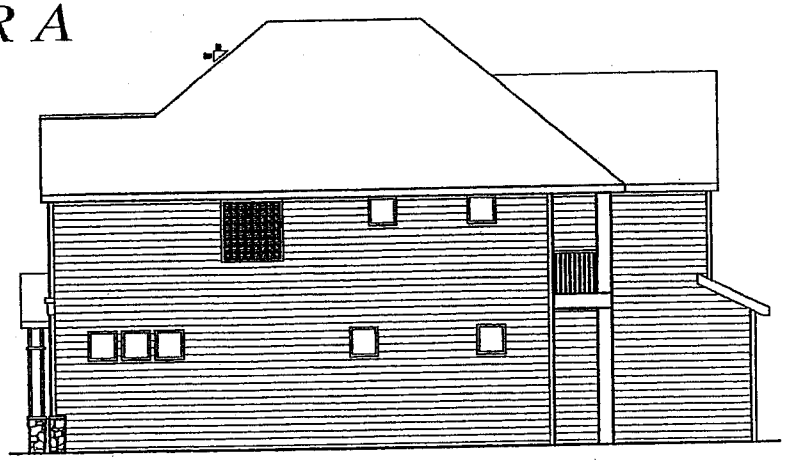
RAINER A

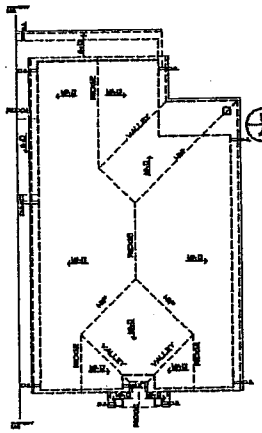
1 A1 FRONT ELEVATION

MASONRY NOTE:
ALL MASONRY TO BE REVISED HALFWAY THROUGH COMPLETION.



2 A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOW FACING A STREET WILL BE REVISED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE, FINISH & MODEL SELECTIONS.



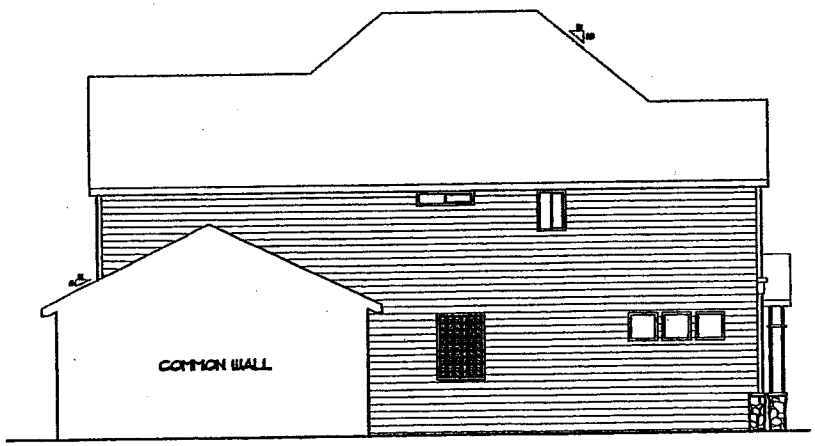
5 A1 ROOF PLAN

INDEX OF DRAWINGS:

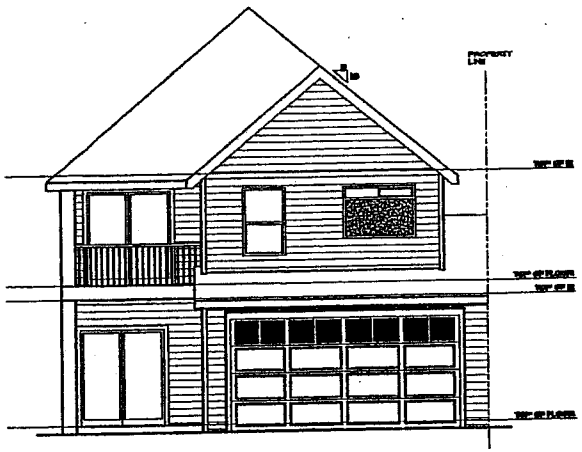
A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE OF 50% AT THE CORNICE OR EAVE & 50% AT RIDGE OR GABLE W/ FACIAL GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT W/ THE LEAST DIMENSION BEING 1/8".
REF SEC R806.2-R806.5

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND THE 12" UNDER ROOFING.



3 A1 LEFT SIDE ELEVATION



4 A1 REAR ELEVATION

LEGEND

Attachment I - 210
PLD06-00012, et al.

RAINER A BASE PLAN
(2) CAR, GARAGE LEFT
a 1,937 sq. ft. SINGLE FAMILY RESIDENCE

DATE:	DRAWN:
REVISIONS:	
10/20/06	KEVIN
10/18/06	KEVIN
2/28/06	KEVIN
8/22/05	KEVIN

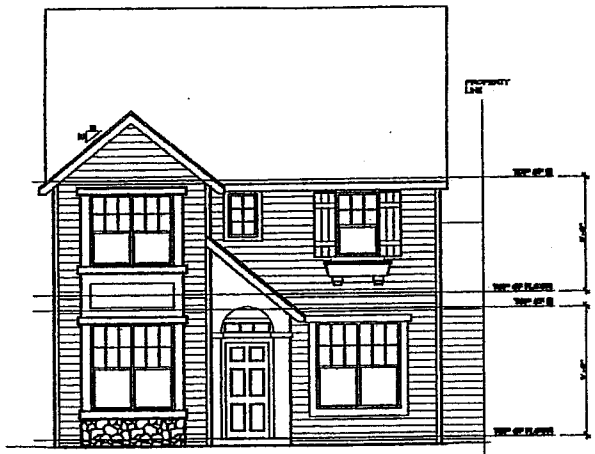
FILE: RAIAL

SHEET TITLE:
ELEVATIONS
ROOF PLAN

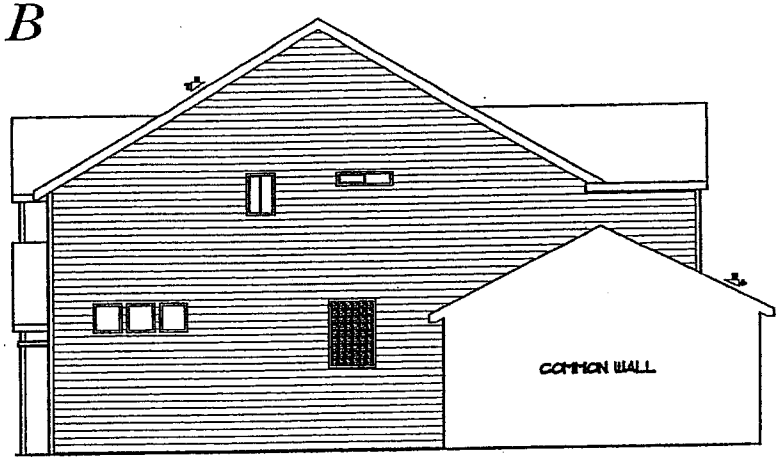
SHEET NUMBER
A1
1 OF 1

P:\PROJECTS\Hambach\Rainer\RAIAL.dwg, 10/18/2006 2:00:59 PM

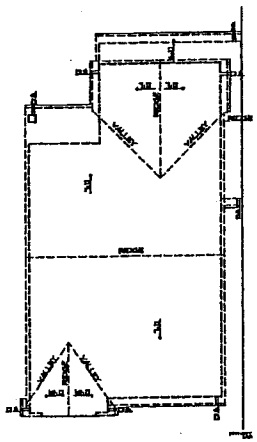
RAINER B



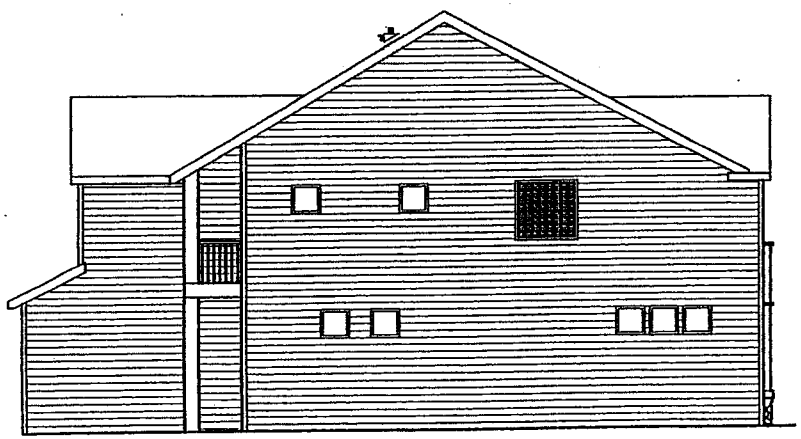
1/A1 FRONT ELEVATION



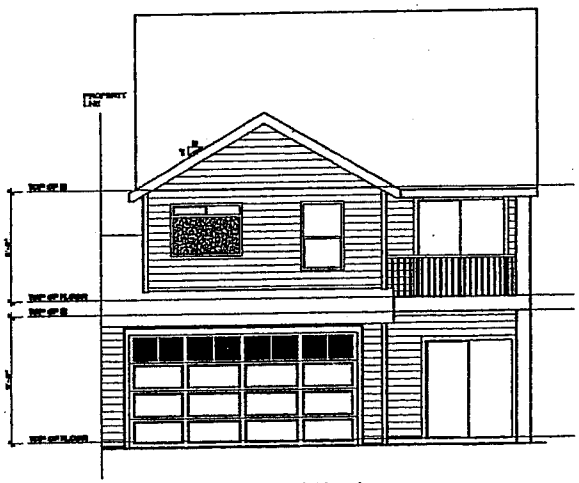
2/A1 RIGHT SIDE ELEVATION



B/A1 ROOF PLAN



3/A1 LEFT SIDE ELEVATION



4/A1 REAR ELEVATION

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

LEGEND

Attachment I - 211
PLD06-00012, et al.

RAINER B BASE PLAN
(2) CAR, GARAGE RIGHT
a 1,990 sq. ft. SINGLE FAMILY RESIDENCE

A1

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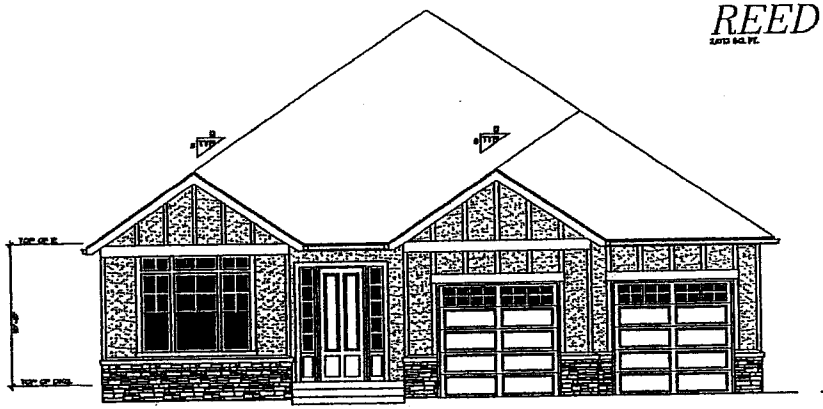
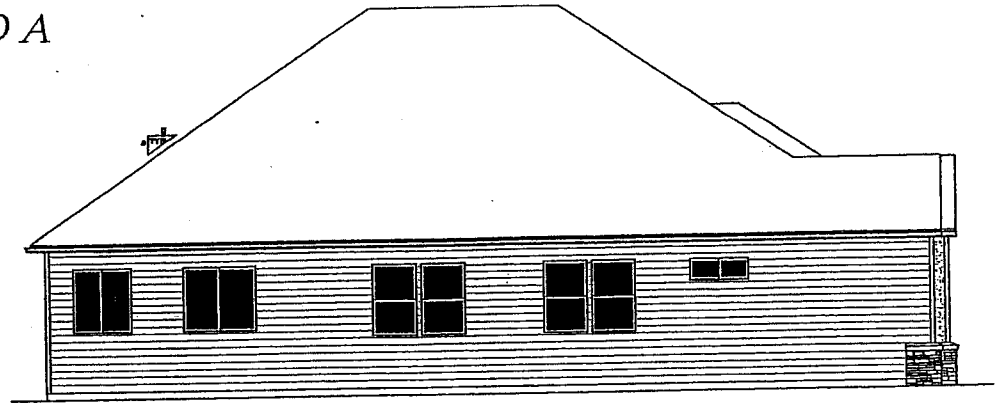
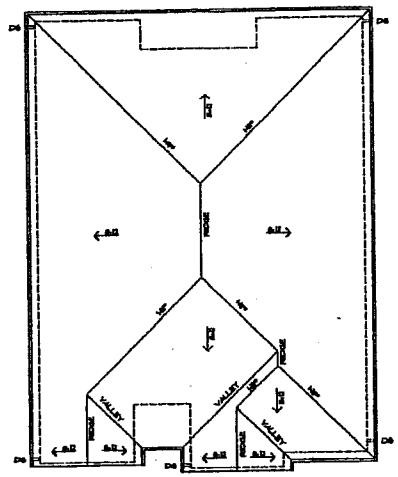
REED A



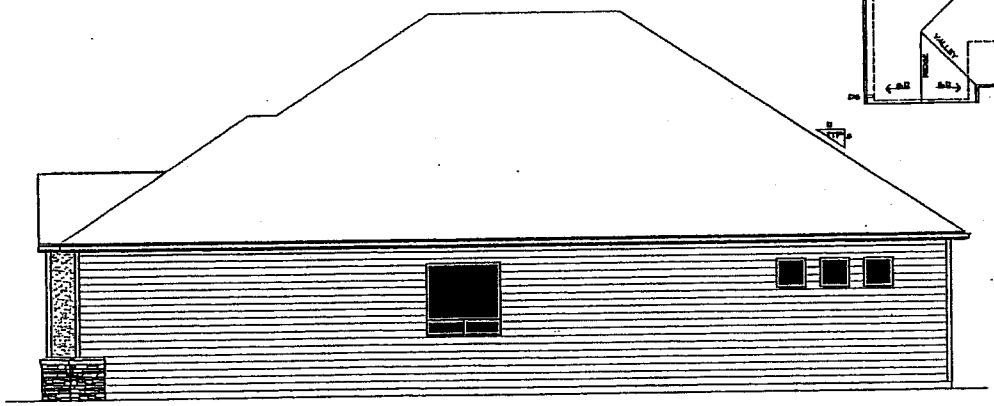
1 A1 FRONT ELEVATION



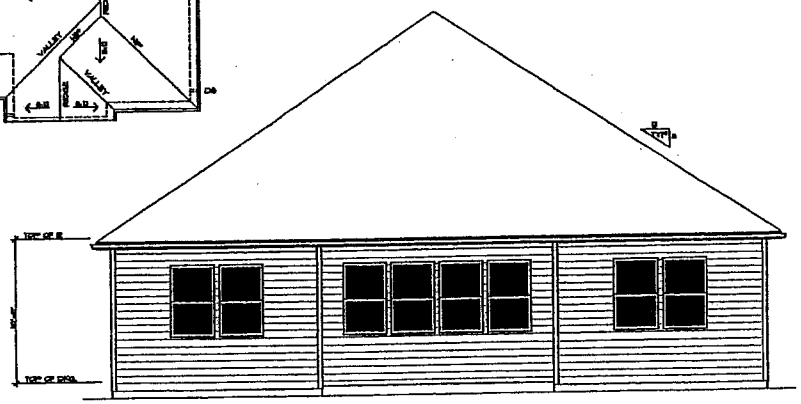
2 A1 LEFT SIDE ELEVATION



5 A1 ROOF PLAN



3 A1 RIGHT SIDE ELEVATION



4 A1 REAR ELEVATION

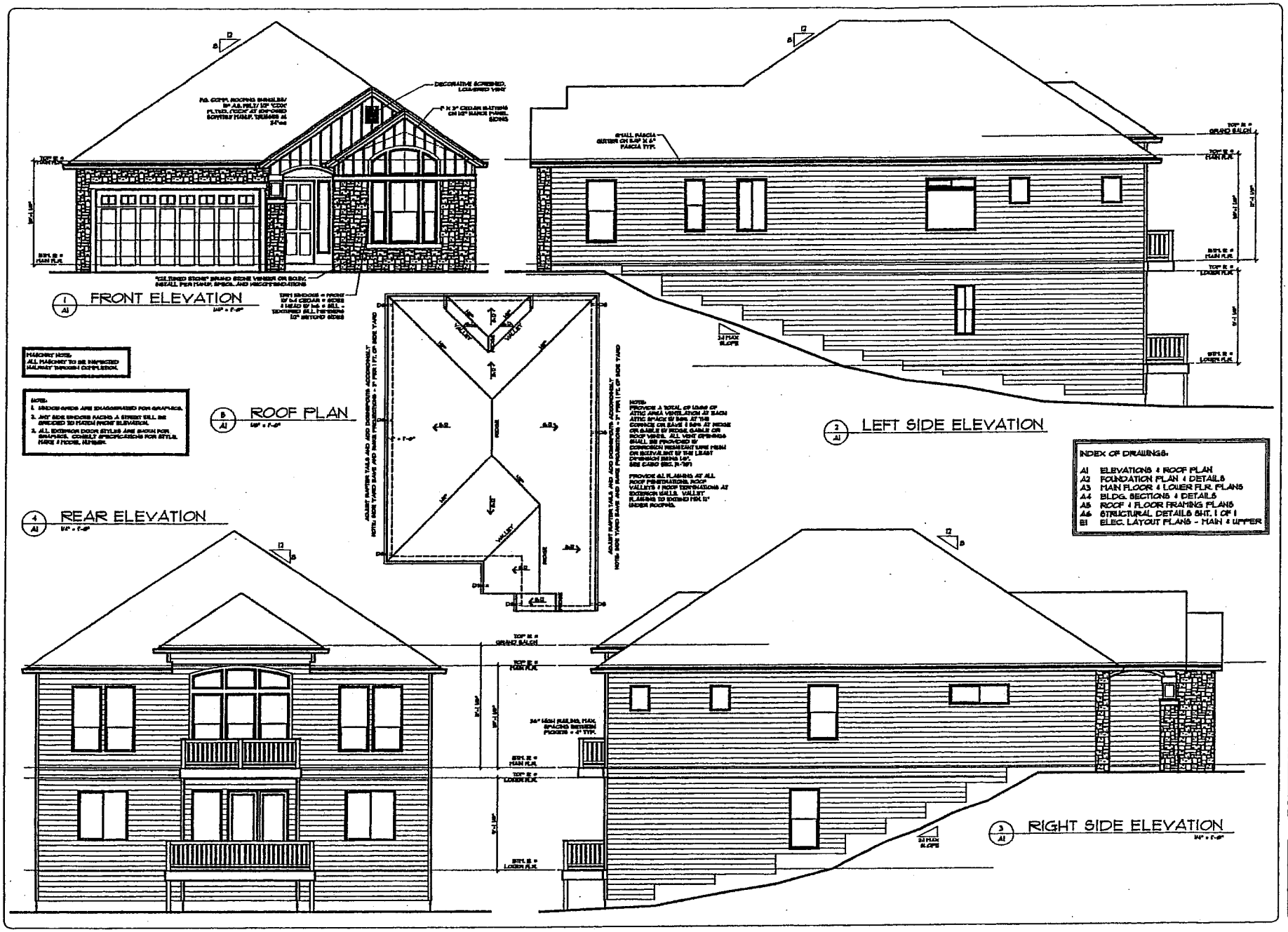
TFGFND

Attachment I - 212
PLD06-00012, et al.

REED A BASE PLAN
(2) CAR, GARAGE RIGHT
a 2,072 sq. ft. SINGLE FAMILY RESIDENCE

DATE: DRAWN:
REVISION:
SHEET TITLE:
ELEVATIONS
ROOF PLAN
STONEYBROOK HOMES
SHEET NUMBER
A1

P:\PROJECTS\Corvallis\REED\A\REDAR-a1.dwg, 10/18/2006 12:54:47 PM



LEGEND

Attachment I - 213
PLD06-00012, et al.

SIENA - A
(2) CAR - GARAGE LEFT
a 2,734 sq. ft. SINGLE FAMILY RESIDENCE

A1

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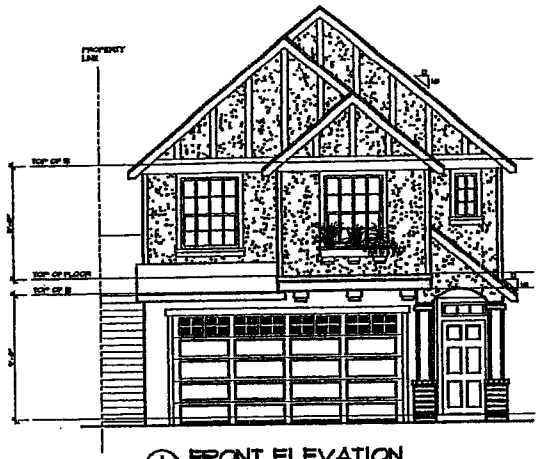
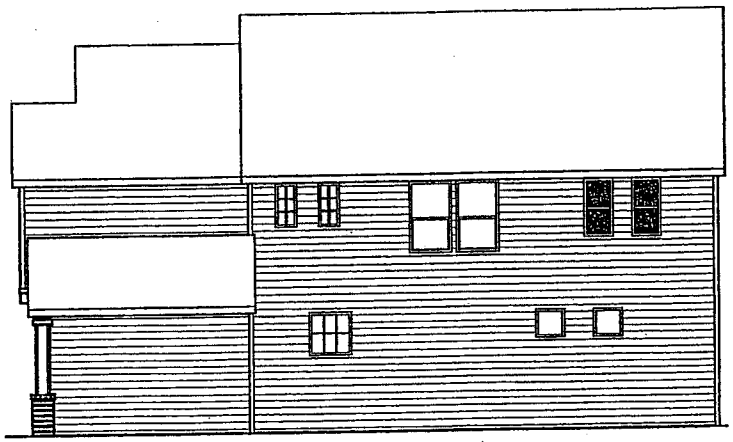
Exhibit II - 408

STEINBECK A



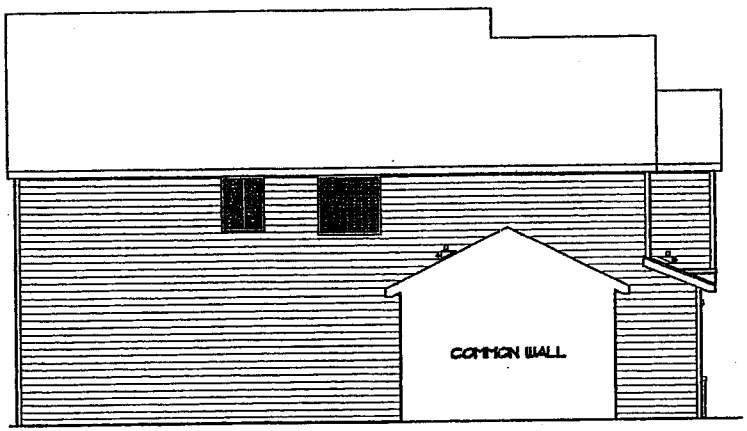
1 A1 FRONT ELEVATION



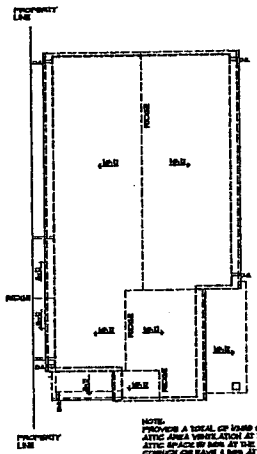
2 A1 RIGHT SIDE ELEVATION

MASONRY NOTE:
ALL MASONRY TO BE INSPECTED HALFWAY THROUGH COMPLETION.

NOTES:
1. WINDOW SIZES ARE DIMENSIONED FOR GRAPHICS.
2. ANY SIDE WINDOW FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL INTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE, PANEL & MODEL SERIES.



3 A1 LEFT SIDE ELEVATION



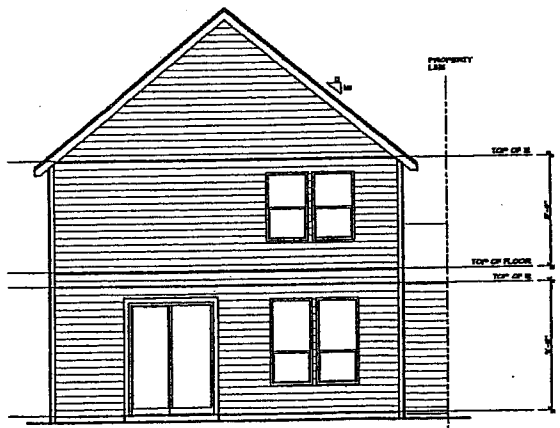
NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE BY MEA AT THE CORNICE OR EAVE 1 MIN. AT RIDGE OR GABLE BY RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED BY CORROSION RESISTANT WIRE MESH OR EQUIVALENT OF THE LEAST DIMENSION BEING 1/8". SEE SEC. R-806.1 & 806.2

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TRANSITIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

4 A1 ROOF PLAN

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



4 A1 REAR ELEVATION

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LEGEND

Attachment I - 214
PLD06-00012, et al.

STEINBECK A BASE PLAN
(2) CAR, GARAGE LEFT
a 1,724 sq. ft. SINGLE FAMILY RESIDENCE

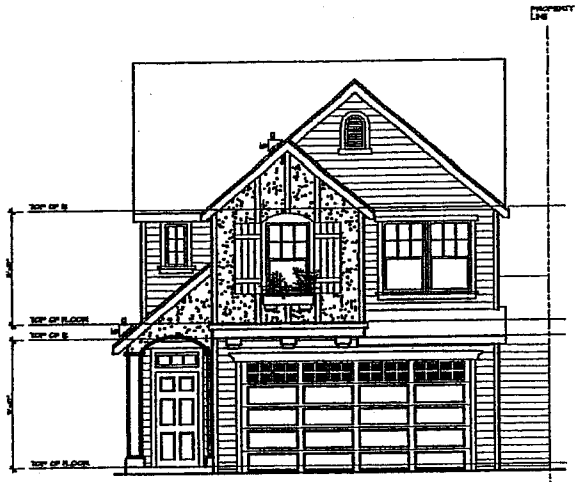
DATE:	DRAWN:
06/04/4	KEVIN
REVISION:	
10/04/4	KEVIN
10/04/4	KEVIN
10/18/06	KEVIN
"	"
FILE: STEAL	

SHEET TITLE:
ELEVATIONS
ROOF PLAN

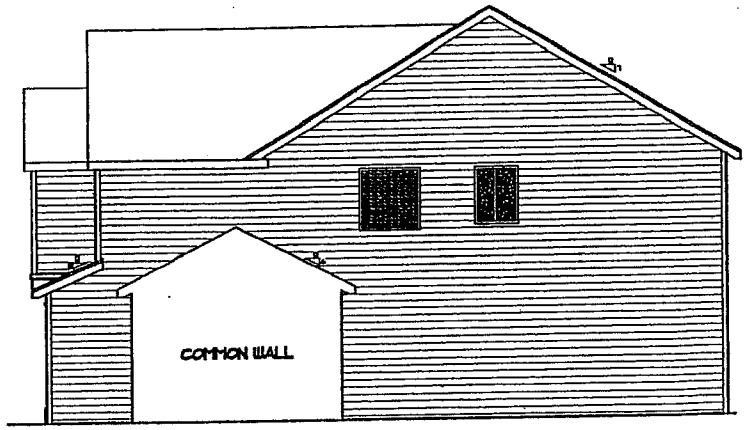
HAMBACH HOMES

SHEET NUMBER
A1
1 OF 7

STEINBECK B

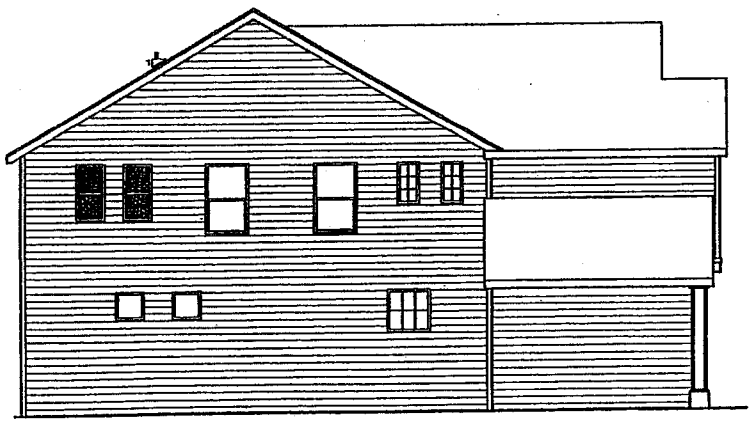


1 A1 FRONT ELEVATION

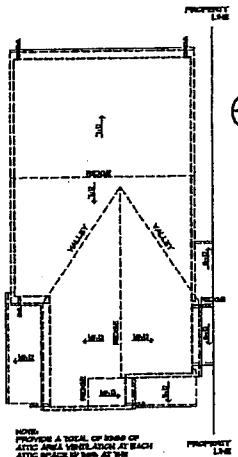


2 A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY ROOF WINDOWS FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. PAGE 4 MODEL REVIEW.



3 A1 LEFT SIDE ELEVATION



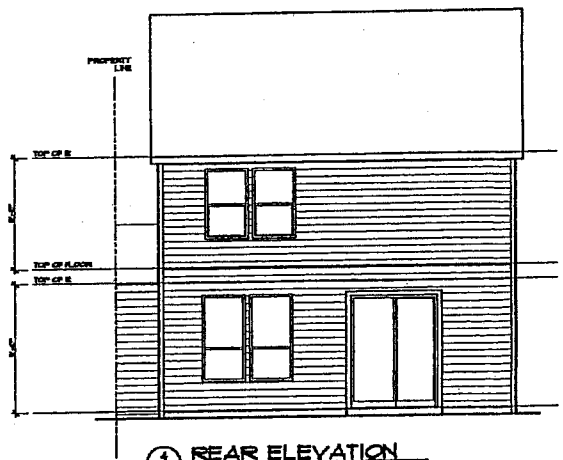
NOTE:
PROVIDE A TOTAL OF [illegible] OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE BY [illegible] AT THE CORNICE OR EAVE 4 [illegible] AT RIDGE OR GABLE W/ RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR BIRDSWALKT W/ THE LEAST DIMENSION [illegible] MIN. SEE SEC. R-[illegible] & R-[illegible]

PROVIDE G.I. FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND TEN 8" UNDER ROOFING.

4 B A1 ROOF PLAN

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



4 A1 REAR ELEVATION

P:\PROJECTS\Hannbach\Steinbeck\STEBR.dwg, 10/18/2006 2:04:36 PM

LEGEND

Attachment I - 215
PLD06-00012, et al.

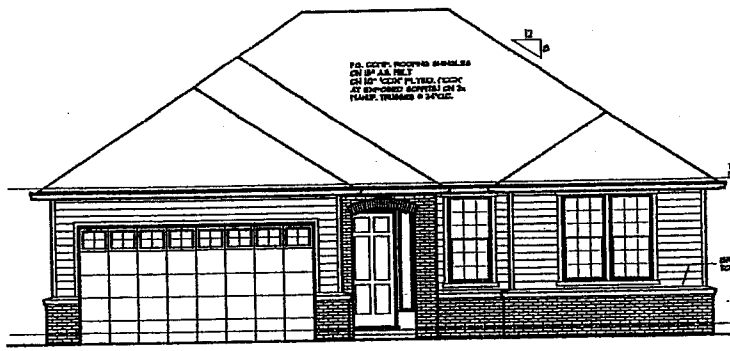
STEINBECK B BASE PLAN
(2) CAR, GARAGE RIGHT
a 1,724 sq. ft. SINGLE FAMILY RESIDENCE

DATE:	DRAWN
06-04-04	KEVIN
REVISION:	
07/13/04	KEVIN
07/17/04	KEVIN
10-4-05	KEVIN
FILE: STEBR	

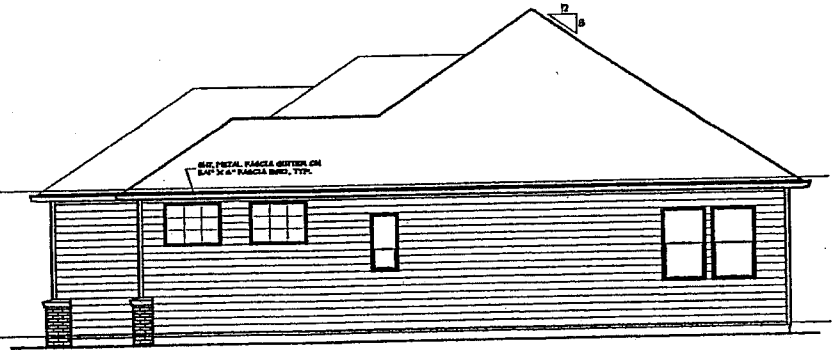
SHEET TITLE:
ELEVATIONS
ROOF PLAN
HANNBACH

SHEET NUMBER
A1
1 OF 7

Exhibit II - 410

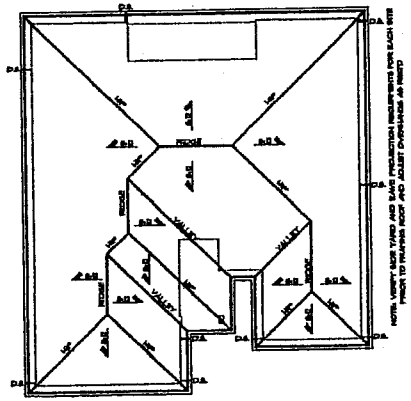


1 A1 FRONT ELEVATION
1/4" = 1'-0"



2 A1 RIGHT SIDE ELEVATION
1/4" = 1'-0"

NOTES:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY AREA WINDOW PACKING & STORMS WILL BE ADDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE, MAKE & MODEL NUMBER.



NOTE: PROVIDE A TOTAL OF 1/300 SF ATTIC AREA VENTILATION AT EACH ATTIC SPACE (SF NOTED) AT THE CORNICE OR EAVE (1 SQ. FT. PER 150 OR 0.4 SQ. FT. PER 300) GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT W/ NO LEAST DIMENSION EXCEED 1/4". SEE CABO SEC. R-1811

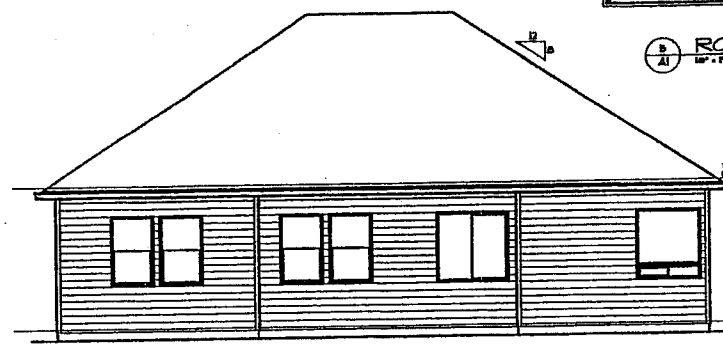
PROVIDE 6 FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND TEN 10" UNDER ROOFING.

NOTE: VERIFY SIDE YARD AND EAVE PROJECTION REQUIREMENTS FOR EACH SITE PRIOR TO FRAMING ROOF AND ADJUST DIMENSIONS AS REQUIRED

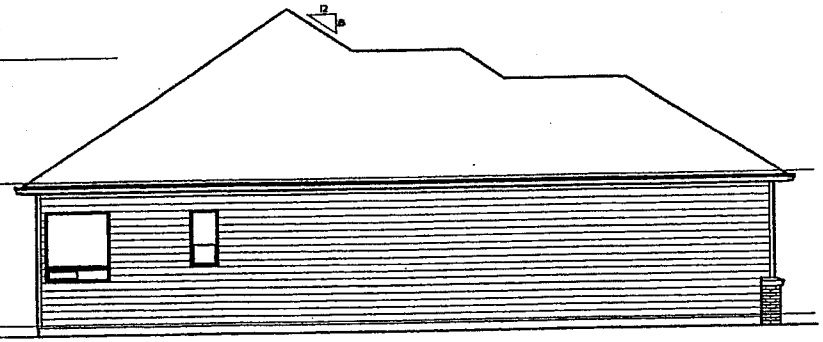
5 A1 ROOF PLAN
1/4" = 1'-0"

INDEX OF DRAWINGS:

A1	ELEVATIONS & ROOF PLAN
A2	FOUNDATION PLAN & DETAILS
A3	MAIN FLOOR PLAN & NOTES
A4	SECTIONS & DETAILS
A5	ROOF FRAMING PLAN & DETAILS
E1	ELECTRICAL PLAN



4 A1 REAR ELEVATION
1/4" = 1'-0"



3 A1 LEFT SIDE ELEVATION
1/4" = 1'-0"

LEGEND

Attachment I - 216
PLD06-00012, et al.

TAYLOR A BASEPLAN
(2) CAR, GARAGE LEFT
a 1,451 sq. ft. SINGLE FAMILY RESIDENCE

DATE: 8/10/2006 DRAWN: PBM/PN

REVISIONS:
- 10/11/06 - KEVIN
- 10/18/06 - NEW
- 10/18/06 - NEW
- 10/18/06 - NEW

PLS. TAYALDWG

SHEET TITLE:
ELEVATIONS
ROOF PLAN

STONEYBROOK HOMES

SHEET NUMBER
A1

1 OF 6

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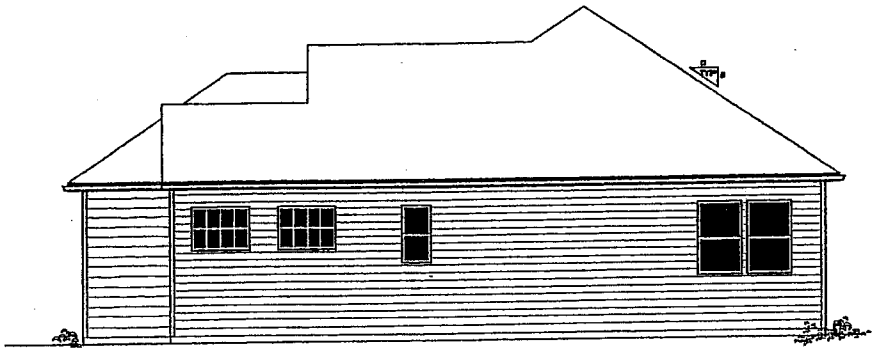
TAYLOR B

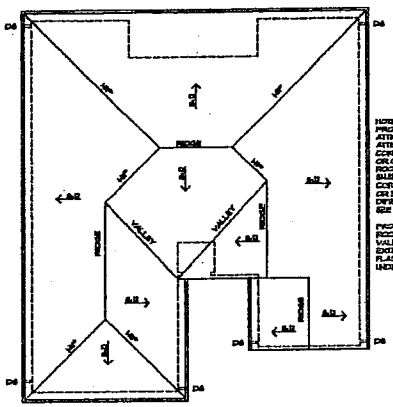
1,456 SQ. FT.

1 A1 FRONT ELEVATION
1/4" = 1'-0"



2 A1 RIGHT SIDE ELEVATION
1/4" = 1'-0"

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE WINDOWS FACING A STREET WILL BE GRIDDED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. TRIMS 4 FRONT, MIRROR.



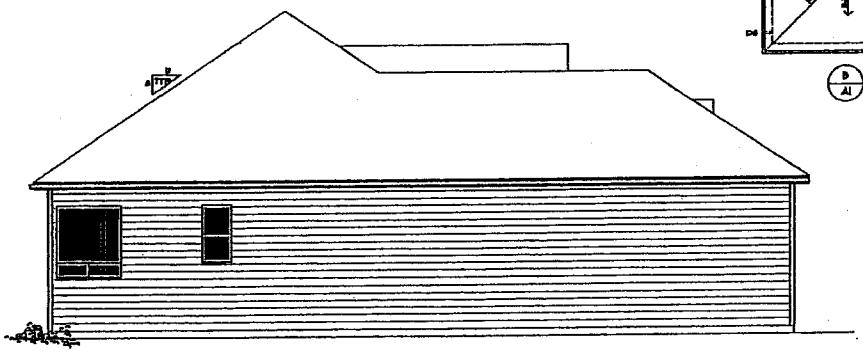
NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE W/ 50% AT THE CORNICE OR EAVE 1 INCH AT RIDGE OR GABLE W/ RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED W/ CORROSION RESISTANT WIRE MESH OR EQUIVALENT W/ THE LEAST DIMENSION BEING 1/8". SEE IRC SEC. R-806.1, R-806.2

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

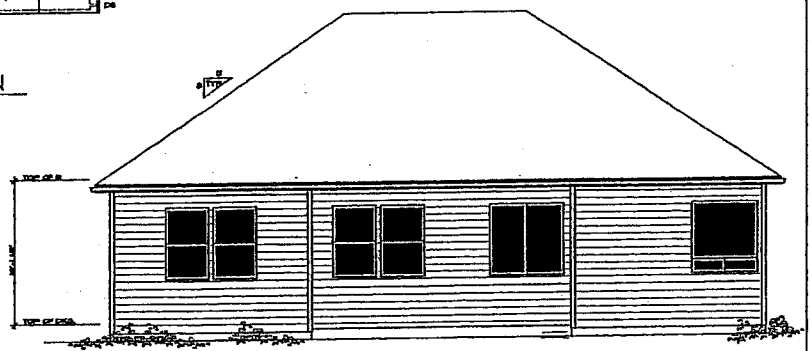
9 A1 ROOF PLAN
1/4" = 1'-0"

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	MAIN FLOOR PLAN
A4	BUILDING SECTIONS
A5	ROOF FRAMING PLAN AND STRUCTURAL DETAILS
E1	ELECTRICAL PLAN



3 A1 LEFT SIDE ELEVATION
1/4" = 1'-0"



4 A1 REAR ELEVATION
1/4" = 1'-0"

LEGEND

Attachment I - 217
PLD06-00012, et al.

TAYLOR B BASE PLAN
(2) CAR, GARAGE LEFT
a 1,456 sq. ft. SINGLE FAMILY RESIDENCE

DATE: 09/06 DRAWN: RANGER
REVISION:
FILE: TAYBL-A1.DWG

SHEET TITLE:
ELEVATIONS
ROOF PLAN
STONEYBROOK HOMES

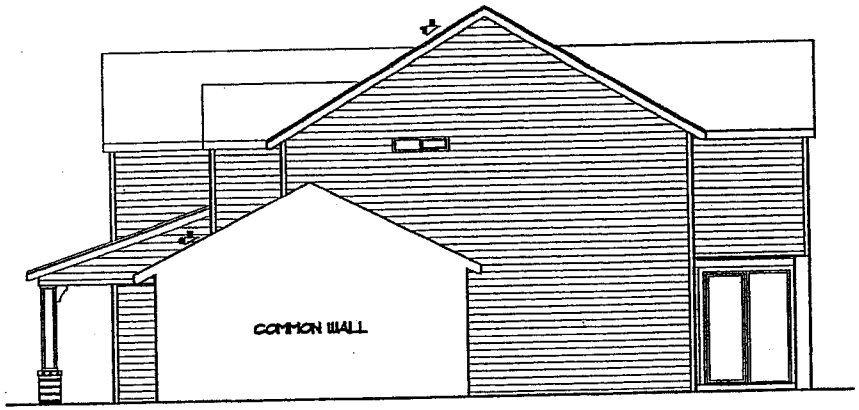
SHEET NUMBER
A1
1 OF 6

P:\PROJECTS\Corvallis\Taylor\BTAYBL-a1.dwg, 10/18/2006 1:48:03 PM

WITTENBERG A

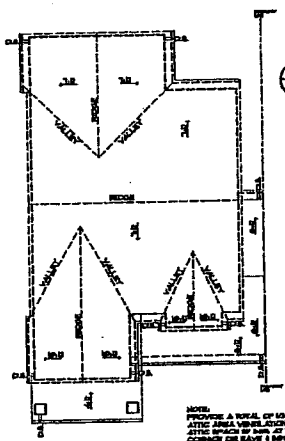
MASONRY NOTE:
ALL MASONRY TO BE INSPECTED HALMARK BANGAI COMPLETION

1/A1 FRONT ELEVATION



2/A1 RIGHT SIDE ELEVATION

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY NEW WINDOW FACING A STREET SILL MUST BE SANDED TO FLUSH FRONT ELEVATION.
3. ALL WINDOW DOOR STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE, MAKE & MODEL NUMBER.



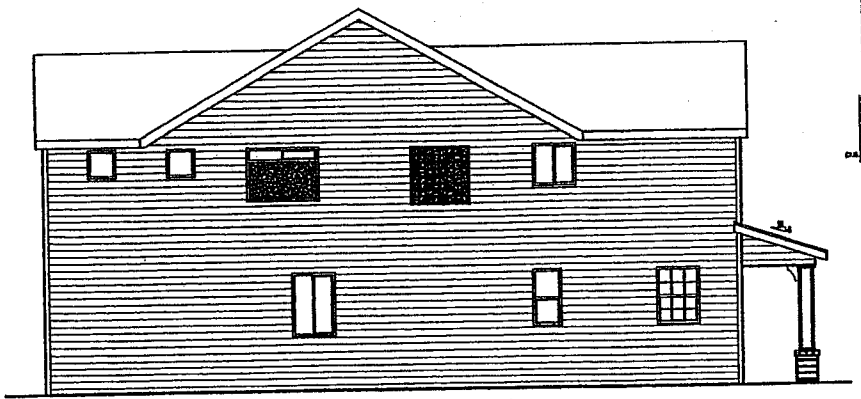
3/A1 ROOF PLAN

NOTE:
PROVIDE A TOTAL OF 1/300 OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE BY 50% AT THE CORNICE OR EAVE & 50% AT RIDGE OR GABLE W/ RIDGE, GABLE OR ROOF VENTS. ALL VENT OPENINGS SHALL BE PROVIDED BY CORROSION RESISTANT WIRE MESH OR EQUIVALENT OF THE LEAST DIMENSION 1/8" (3mm) MIN. SEE SEC. R-806.1, R-806.2

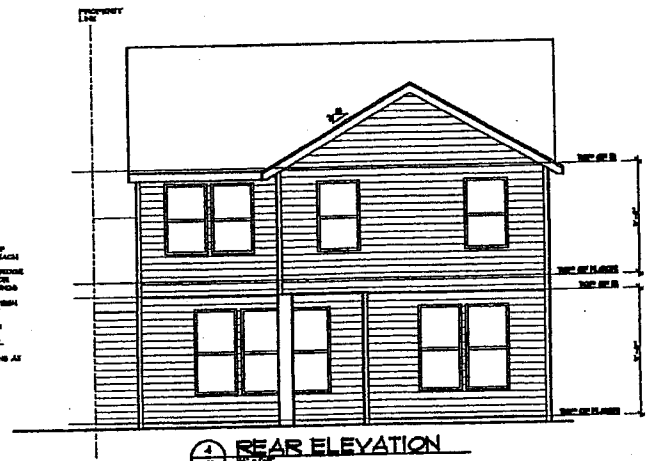
PROVIDE DETAILING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND 8" (20.3cm) UNDER ROOFING.

INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN



5/A1 LEFT SIDE ELEVATION



4/A1 REAR ELEVATION

LEGEND

Attachment I - 218
PLD06-00012, et al.

WITTENBERG A BASE PLAN
(2) CAR, GARAGE RIGHT
a 2,017 sq. ft. SINGLE FAMILY RESIDENCE

DATE	DRAWN
09/05/06	KEVIN
REVISION 1 10/02/06	KEVIN
2/06/06	KEVIN
10/06/06	KEVIN
3/13/06	KEVIN

FILE: WTAR

SHEET TITLE:
ELEVATIONS
ROOF PLAN

HARMBACH DESIGNS

SHEET NUMBER:
A1
1 OF 1

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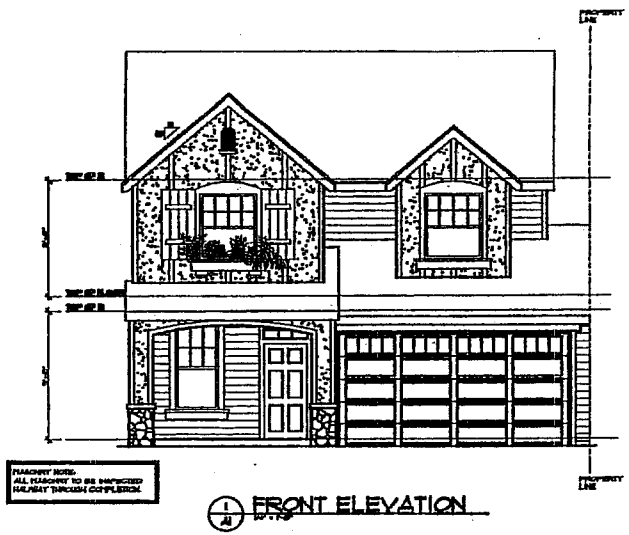
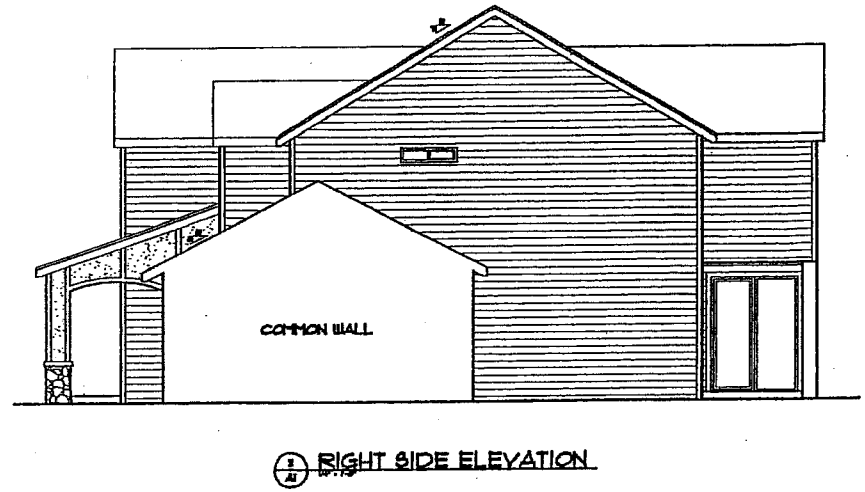
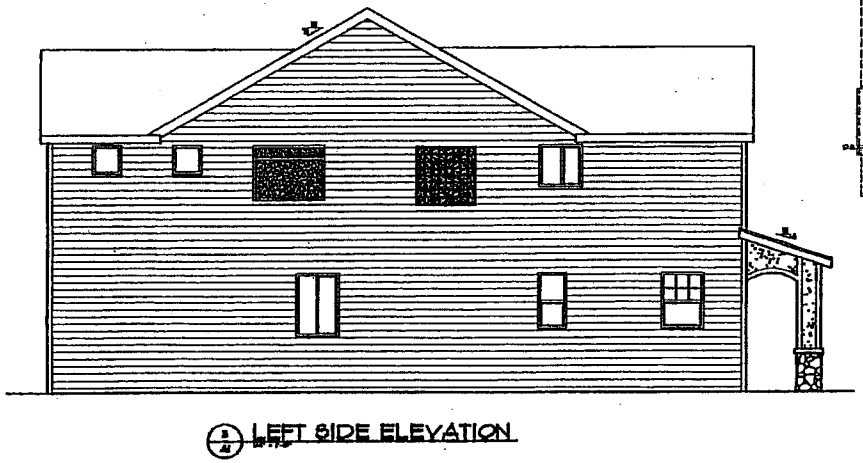
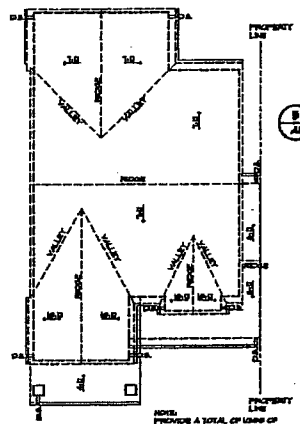
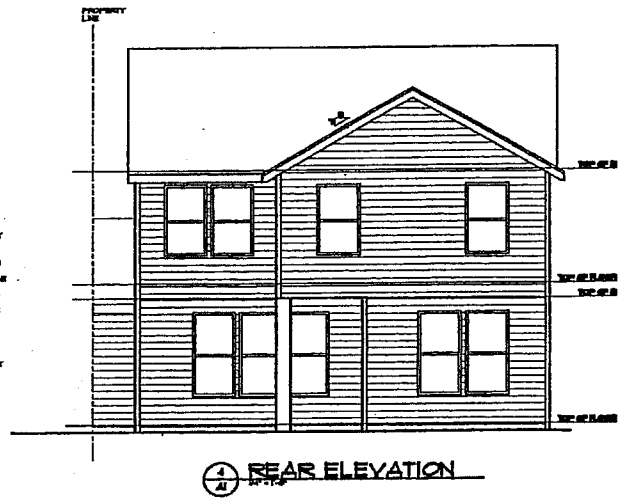
WITTENBERG B











INDEX OF DRAWINGS:

A1	ELEVATIONS AND ROOF PLAN
A2	FOUNDATION PLAN AND DETAILS
A3	FLOOR PLAN(S)
A4	BUILDING SECTIONS
A5	FLOOR AND ROOF FRAMING PLANS AND DETAILS
A6	STRUCTURAL DETAILS
E1	ELECTRICAL LAYOUT PLAN

NOTE:
1. WINDOW GRIDS ARE EXAGGERATED FOR GRAPHICS.
2. ANY SIDE GABLES FACING A STREET WILL BE GROOVED TO MATCH FRONT ELEVATION.
3. ALL EXTERIOR DOORS STYLES ARE SHOWN FOR GRAPHICS. CONSULT SPECIFICATIONS FOR STYLE. MAKE 4 PANEL MINIMUM.

NOTE:
PROVIDE A TOTAL OF UNITS OF ATTIC AREA VENTILATION AT EACH ATTIC SPACE BY MEA AT THE CORNICE OR EAVE & MEA AT RIDGE OR GABLE W/ ROOM, GABLE OR ROOF VENTS. ALL VENT OPENING SHALL BE PROVIDED W/ CORROSION RESISTANT MESH FROM ONE INCH MINIMUM BY THE LEAST DIMENSION UNDER 1/4". SEE SEC. R-806.1, R-806.2

PROVIDE ALL FLASHING AT ALL ROOF PENETRATIONS, ROOF VALLEYS & ROOF TERMINATIONS AT EXTERIOR WALLS. VALLEY FLASHING TO EXTEND MIN. 8" UNDER ROOFING.

MAGNET NOTE:
ALL MAGNET TO BE MATCHED HALFWAY THROUGH COMPLETION.

LEGEND

Attachment I - 219
PLD06-00012, et al.

WITTENBERG B BASE PLAN
(2) CAR, GARAGE RIGHT
a 2,017 sq. ft. SINGLE FAMILY RESIDENCE

DATE:	DRAWN:
10/18/06	KEVIN
REVISIONS:	
10/21/06	KEVIN
2/16/06	KEVIN
1/04/06	KEVIN
3/24/05	KEVIN

FILE: 6000

SHEET TITLE:
ELEVATIONS
ROOF PLAN

HAMBACH BARNES

SHEET NUMBER:
A1
1 OF 1

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Large Lot, Small Lot
Single Family Detached

© Legend Homes Corp.
Faulkner II

Large Lot, Small Lot
Single Family Detached

© Legend Homes Corp.
Spencer IIB

Large Lot, Small Lot
Single Family Detached

© Legend Homes Corp.
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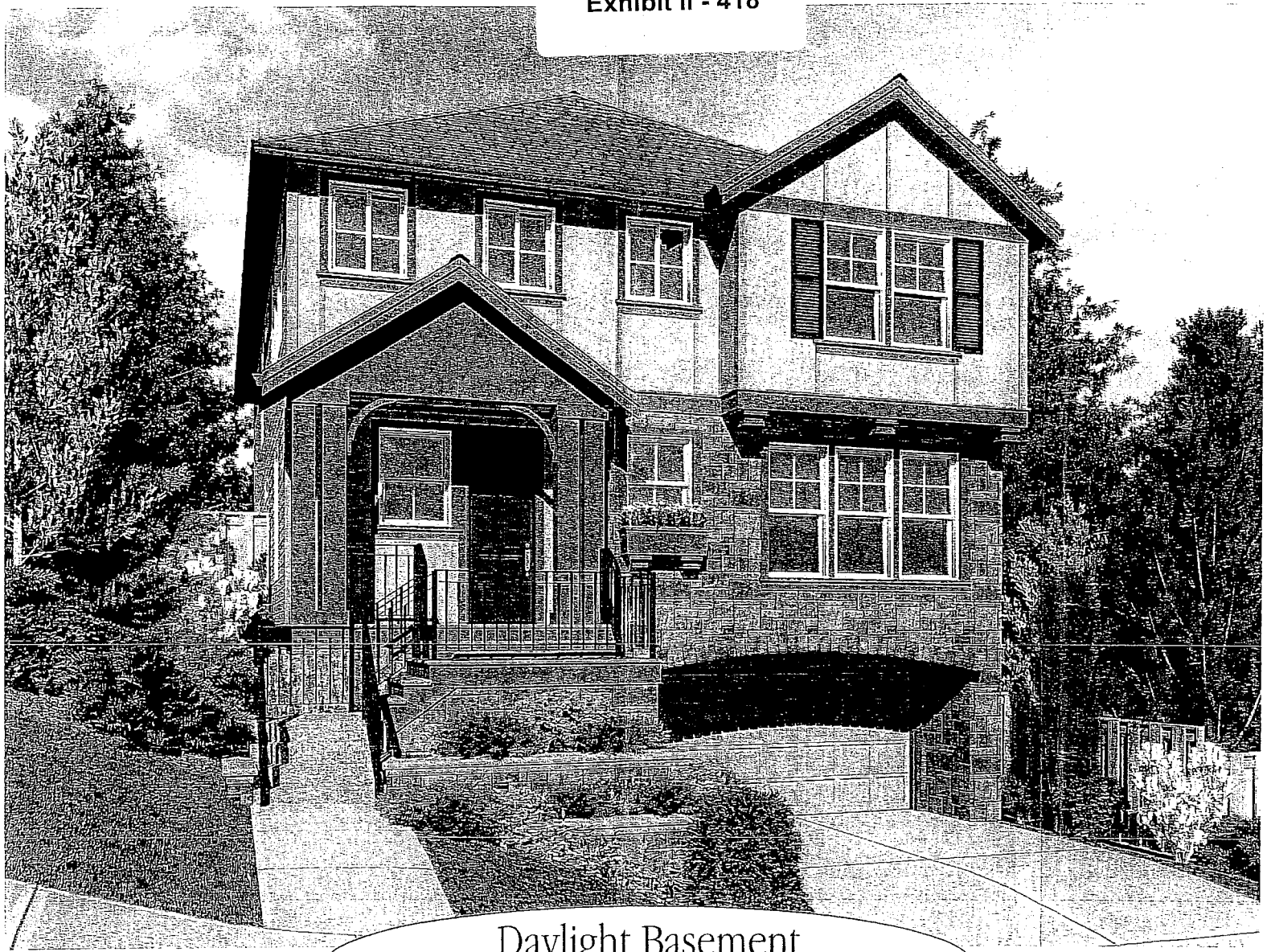
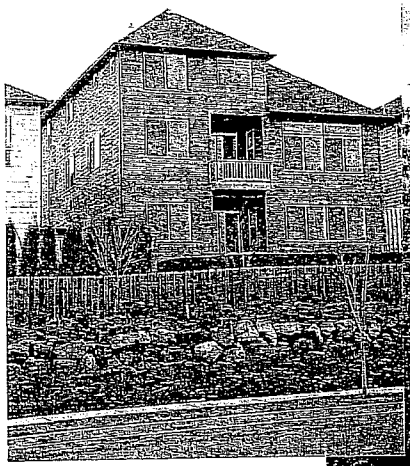


Daylight Basement
Garage Under Plans

© Legend Homes Corp.
Geneva B



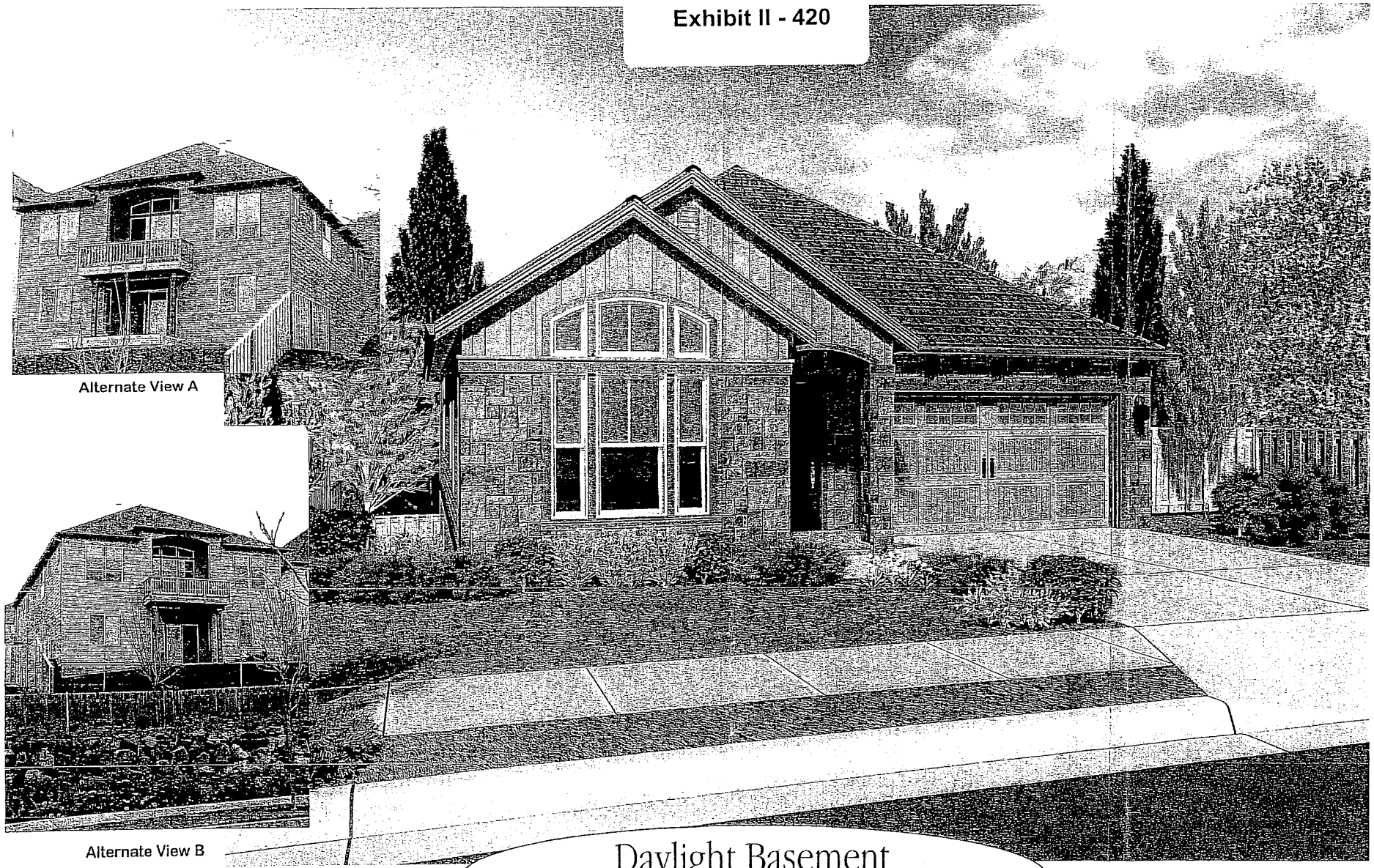
Alternate View A

Alternate View B

Daylight Basement Garage Under Plans

© Legend Homes Corp.

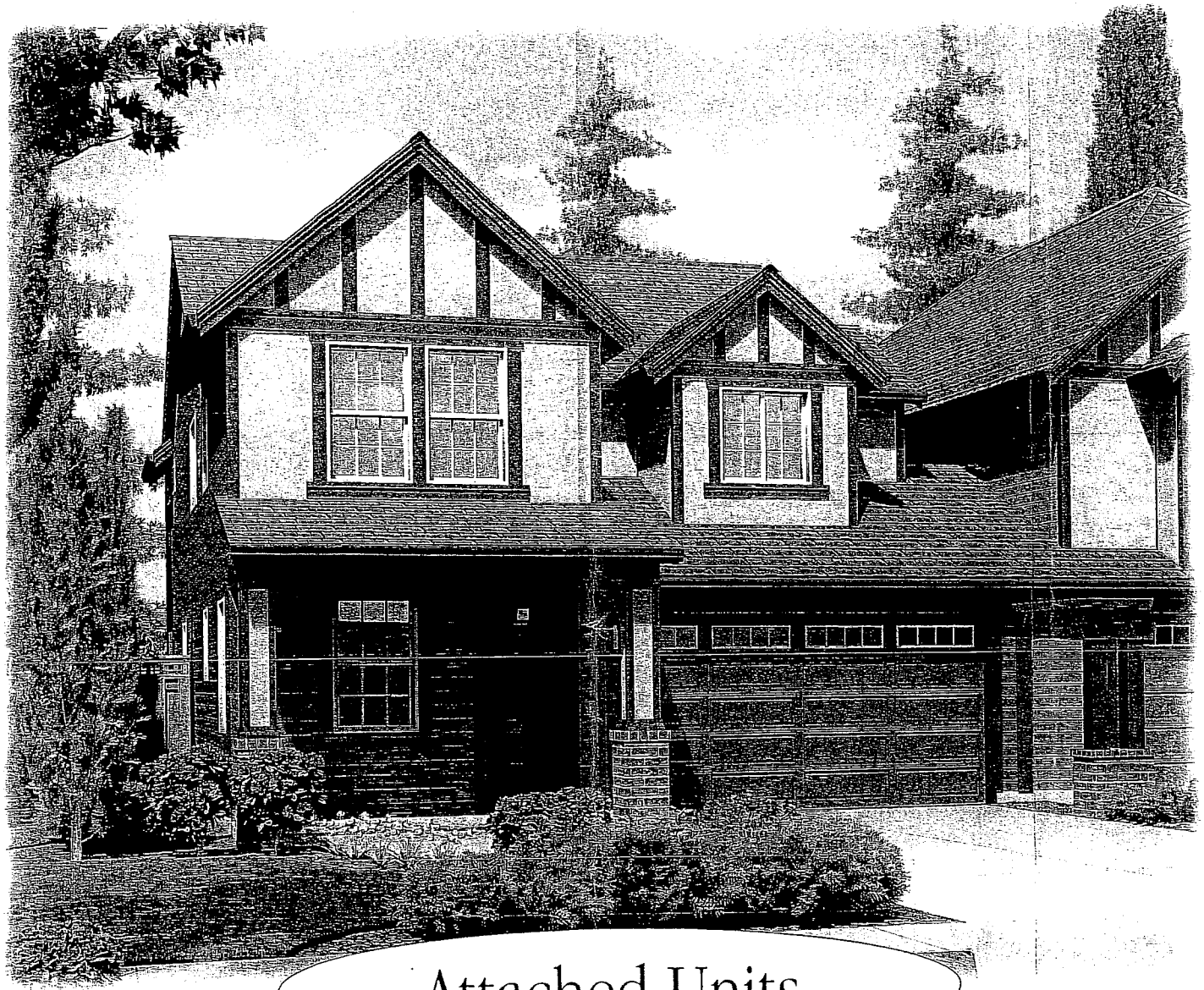
Lancaster A



Daylight Basement Garage Under Plans

© Legend Homes Corp.

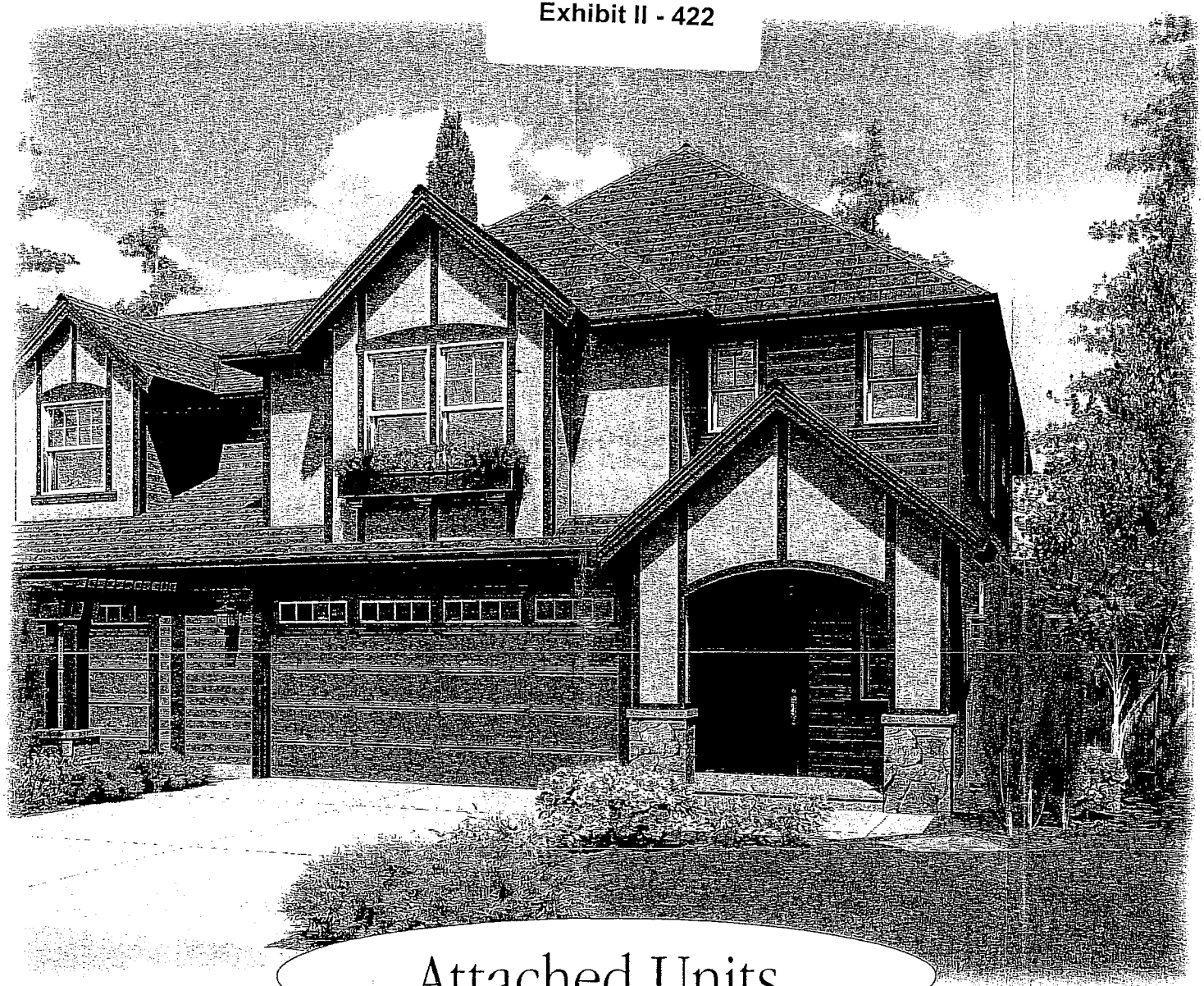
Siena A



Attached Units

© Legend Homes Corp. HB081705

Wittenberg A



Attached Units

© Legend Homes Corp. HB081705
Cologne B

Program Overview

As a builder, you know the homes you create help shape the way the owners feel about their surroundings and overall environment. We want to assist you in offering today's homebuyers houses that make them feel good about their living spaces and generate a positive outlook for their future. Earth Advantage® is a program that promotes energy-efficiency and environmental sensitivity in quality residential construction. The program incorporates cost-effective changes in construction that reduce regional environmental impacts and conserve energy. Earth Advantage will also build your awareness about the latest building techniques and products that provide homeowners with healthier indoor air.

To qualify for Earth Advantage certification, the program follows a typical construction project from planning to planting - site preparation, foundation, rough in, finish work, landscaping and cleanup. Each step of the project is rated against four specific benchmarks with the following criteria.

1. Energy Efficiency

Earth Advantage homes are 15 percent or more energy-efficient than Oregon state code–one of the highest residental building codes in the United States–requires.* Highly efficient appliances, lighting, windows and doors all make a difference in an Earth Advantage home. Tighter house-sealing concepts also help conserve energy, and furnace and water heating efficiencies must meet Earth Advantage specifications.

2. Healthier Indoor Air

Healthier indoor air, one hallmark of an Earth Advantage home, requires the installation of mechanical ventilation systems. To minimize chemical pollutants, low-toxin construction materials are used throughout the dwelling. Specified sealers, adhesives and paints meet low volatile organic compound (VOC) specifications.

3. Environmental Responsibility

Adhering to high environmental standards, Earth Advantage projects reduce the impact on local and regional streams. Materials used in an Earth Advantage dwelling are evaluated for global environmental conditions, promoting alternative (high-rated) products that dramatically reduce the rate of damage to ecosystems and species.

4. Resource Efficiency

Earth Advantage dwellings use resources wisely. A variety of products meet certification but all are durable and long lasting. Materials are sometimes made from recycled products or natural substances that reduce timber consumption. In addition, construction practices minimize non-recyclable waste and employs regulated waste clean-up methods.

*Individual results and energy savings may vary.

Program Areas

The Earth Advantage® program works for any residential builder, whether you are a single-family contractor, a manufacturer of manufactured homes, a multi-family builder or landlord. That's because benefits like energy-efficiency and healthier indoor air appeal to homebuyers and tenants alike. Today's consumers are interested in green building practices and by certifying your buildings as Earth Advantage, you're providing them with the assurance that your residential dwellings respect their concerns. In demonstrating to your customers that you share their values, you offer added incentive over your competition. We're here to ease the transition for you. We offer specialists who will assist in meeting certification, applying for utility rebates and tax credits, and training resources. This guide will help you become acquainted with construction practices and special techniques that count toward certification. Furthermore, we provide marketing activities such as advertising, public relations and web-based efforts that give you opportunities to draw the attention of new homebuyers and tenants.

1. Points Worksheet

a. Single family
b. Multifamily
c. Manufactured housing

earth advantage

Compare an Earth Advantage® Home

On the surface, an Earth Advantage home may appear quite similar to other new homes. But within the shell there's a significant difference. Compare a new Earth Advantage home to most other new homes. You'll find features that positively affect energy efficiency, indoor air quality, environmental impact and, just as important, your overall comfort.

Building Features	Standard New Home	Earth Advantage
Performance tested to save energy and increase comfort.		●
Third-party inspected & certified to be 15% more energy efficient than standard building practices*		●
Building materials and methods designed to conserve natural resources		●
Fresh-air ventilation system designed to promote healthier indoor air		●
Low- or no-VOC products used in construction		●
HVAC ductwork sealing for optimum operational efficiency		●
Dedicated compact fluorescent light fixtures to save energy		●
Whole-house ventilation system		●
Energy efficient appliances		●
Energy efficient windows (U-value not to exceed .35)		●

*Individual circumstance and savings will vary. Ask an Earth Advantage representative for details.

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Exhibit II - 425

earth advantage

New Construction Certification Process

The Earth Advantage® certification process involves six steps:

Plan Review
The builder meets with our specialist to review the building plans.

Determining Materials and Methods
Our specialist recommends the most cost-effective way to meet Earth Advantage requirements.

Consultation
During construction, our specialist provides technical and educational support to the builder and subcontractors.

Walk-Through
Periodic on-site inspections during construction ensure the proper installation of materials and appliances.

Performance Testing
Early on, a forced-air system test rates the air loss levels in the ducting. At the end of construction, a blower door test determines the air changes per hour in the home.

Certification
At the end of the process, if the standards are met the builder and the owner receive certificates that signify the home meets Earth Advantage standards.

Contact information
To learn more about the Earth Advantage program, e-mail our Earth Advantage team or give us a call at 888-EARTH33 (888-327-8433).

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Earth Advantag
Home

A BETTER WAY TO BUILD HOMES

As a builder, you already build a successful house. One that you know you can build and sell profitably. Earth Advantage® does not change the features that make your homes sell—it puts you ahead of the competition. Earth Advantage offers practical, cost-effective ways to make your present homes even better.

You choose a set of measures that fit your house style and budget. You choose from options that have been chosen for their comfort, practicality, efficiency, environmental, and healthier benefits. Each measure is only a small change. But when they are combined, the result is a better house that contributes to a better environment.

The Earth Advantage program takes a "whole-house" approach to new construction and remodeling. The following characteristics are taken into consideration when building systems, measures and products are considered to be part of an Earth Advantage home. The next section provides details on program concepts and measures.

- **Healthier Indoor Air**
  Earth Advantage homes have fewer allergens, irritants, smells and hazardous chemicals in the living space. Common indoor air pollutant sources are reduced. Better fresh air ventilation options remove stale air and bring in fresh air.

- **Environmental Responsibility**
  Earth Advantage homes have several features that protect the natural environment. "Naturescaping," or landscaping with native, hardy plants, reduces the need for harmful pesticides that injure wildlife. Erosion control measures protect topsoil. Rain water is put back into soils, rather than going down storm drains. Construction waste is disposed of properly and recycled as much as possible.

- **Resource Efficiency**
  Earth Advantage homes use resources wisely. They use recycled-content building materials such as drywall, insulation and carpet that are made from wastes. They help stretch our forest resources by using wood more efficiently, by finding other products to replace wood and by promoting high quality materials made from smaller trees and wood byproducts. Water is conserved through efficient fixtures, appliances and irrigation systems.

- **Energy Efficiency**
  Earth Advantage certified homes perform 15% better compared to a home built with standard building practices. They have better windows, more efficient water heating, high efficiency heating and cooling options, and efficient lighting and appliances. Interiors can be more quiet and clean with fewer drafts, cold spots and cold windows. Comfort can be improved year-round.

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The Earth Advantage staff can provide duct-testing and house tightness testing to Earth Advantage builders. These tests quickly show exactly where air leaks are, for cost-effective home sealing.

Earth Advantage homes range from small spec-built units to high-end customs, from the simplest measures to the most high tech. Costs vary accordingly. But it is possible to put together a set of measures that is affordable even on starter houses. In general, Earth Advantage measures cost the same or a little more than standard practice. Your Earth Advantage representative can help you research and identify specific measures that can maximize effectiveness at the least cost.

Earth Advantage also gives a name and an identity to your better building practices. It lets your customers recognize the added quality and extra value your homes provide.

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HOW TO PARTICIPATE

The Earth Advantage program is a working partnership between builders and Earth Advantage, Inc. Builders select from a menu of options and agree to include them in their new homes in accordance with Earth Advantage specifications. Earth Advantage provides technical support to builders and certifies completed homes as having met the Earth Advantage standards.

Meeting the Standards

It is easy to meet Earth Advantage standards. Follow the steps below:

- **Meet with an Earth Advantage representative**
  Schedule an appointment by calling 1-888-327-8433. The Earth Advantage representatives will show you how easy it is to take advantage of the program. They will explain the standards and help you identify opportunities for making your homes Earth Advantage. Together you will review the Earth Advantage Points Worksheets and Earth Advantage Agreement.

- **Select the Earth Advantage measures you prefer**
  Earth Advantage is flexible and offers many options for meeting the standards. The choice of measures is up to you.

- **Complete the Earth Advantage Agreement**
  After you've completed your final selection of measures, you and an Earth Advantage representative sign the agreement.

- **Begin construction**
  Earth Advantage logos, yard signs and other marketing materials also are available. Contact an Earth Advantage representative for details.

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During construction, the General Contractor is responsible for communicating the Earth Advantage measures to subcontractors so they can provide the proper materials and installations.

This is very important

Experience has shown that miscommunications are a potential weak link. Making sure the subs and their crews understand what is different on an Earth Advantage job-site will ensure successful completion. To help you with this process, an Earth Advantage representative can provide information sheets for specific types of subcontractor work. In addition, Earth Advantage Staff may conduct on-site visits, either on request or to confirm that Earth Advantage measures have been installed.

An Earth Advantage representative can be reached at 1-888-EARTH33 (327-8433) or 503-968-7160.

Testing and Technical Assistance

Earth Advantage staff can provide blower door air tightness testing to identify any major air leaks. Buildings with forced air heating can also receive a duct tightness test. Throughout the construction process, an Earth Advantage representative is available to answer technical or programmatic questions. The cost for these tests will be part of your Earth Advantage agreement. See the Earth Advantage pricing sheet.

Certification

Following completion and certification of the house, the General Contractor receives an Earth Advantage certificate to present to the homebuyer.

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EARTH ADVANTAGE CONCEPTS IN DETAIL

This section describes Earth Advantage concepts in more detail. There is an explanation for why some measures were included in the program and what environmental issue the measure addresses. Measures were selected for the Earth Advantage program by extensive research into environmental problems and evaluations of the cost and availability of solutions. Each measure makes only a small change. But taken together, a set of measures makes a significant improvement in the environmental health of a building.

Some measures, such as non-polluting interior paint, can be carried out by selecting appropriate products. Other measures, such as recycling construction waste, involve building practices and methods.

Builders are encouraged to innovate—if there is a better way, please let your Earth Advantage representative know.

Exhibit II - 431

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HEALTHIER INDOOR AIR

The quality of indoor air is an increasingly important concern for homebuyers. Air inside new homes may contain up to 100 times the pollutants of outdoor air ("The Inside Story: A guide to Indoor Air Quality," EPA Publication [402-K-93-007, April 1995]). Earth Advantage certified homes are designed with measures to reduce sources of pollutants and improve fresh air ventilation, and to provide healthier indoor air.

Healthier indoor air requires the installation of mechanical ventilation systems. To minimize chemical pollutants, low-toxin construction materials are used throughout the dwelling. Sealers, adhesives and paints meet low volatile organic compound (VOC) specifications.

How to Achieve Healthier Indoor Air

There are three steps to take for healthier, cleaner air in a new house or apartment:

- **Eliminate or reduce sources of pollution**
  Earth Advantage focuses on several sources of pollution that can either be reduced or eliminated. The easiest pollutants to control are radon, wood smoke and other combustion byproducts, interior paint and wood finishes, and outgassing from carpet and pads. Other pollutants that are more difficult and costly to control include formaldehyde, adhesives, floor coverings and pollution from garages. All of the pollutants targeted by Earth Advantage were selected because they are: common in new homes; health hazards well documented by objective scientific research; and practical to control using standard building practice and available alternatives.

- **Remove stale air, bring in fresh air**
  All houses should have effective fresh air ventilation to control excess humidity, odors, and carbon dioxide (or "stuffiness").

- **Filter the air**
  Air filtration is the "third leg of the stool" in maintaining healthy indoor air. Air filters can do an excellent job of capturing small particles such as dust, pollen, dander, mold and large bacteria. Several filtration options are available in the Earth Advantage program such as media, electrostatic and HEPA filters.

Formaldehyde Control

Formaldehyde, HCHO, is a natural substance found in minute amounts in animals and plants. At higher levels, formaldehyde is an irritant to most people. It can cause headaches, dizziness, mental impairment and a variety of other symptoms. It may cause cancer in people exposed to very high doses. Formaldehyde is found in several different building materials, but building products of particular concern include particleboard and fiberboard (MDF) because the type of glue used can outgas formaldehyde into the air.

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- **What materials outgas formaldehyde?**
  Interior-grade particleboard, and some types of medium-density fiberboards, are made with urea-formaldehyde glue. This glue readily decomposes into urea and free formaldehyde, especially in the presence of higher temperatures and humidity. Particleboard is commonly used for underlayment, cabinet frames and shelving. Fiberboard is used in cabinets and paintable trim. These materials can outgas formaldehyde for several years in a new house.

  Plywood, oriented strand board (OSB), waferboard, I-joists and all wood composites rated "Exterior" or "Exposure 1" are made with phenolic resin, or phenol-formaldehyde glue. Although this glue contains formaldehyde, the chemical bond is strong, and it does not outgas to a degree that it should cause any problems in normal use.

What are the control options?
There are three common formaldehyde control options.

- **Seal exposed particleboard areas on cabinets**
  Formaldehyde can be sealed in. Any water-resistant finish, including laminate countertop, melamine-type plastics or wood finishes, will reduce outgassing. In cabinets, it is usually the backs and bottoms of the frames that remain exposed to the indoor air. These exposed areas can be sprayed with a water-resistant finish. This is an extra step that requires careful coordination to get done before the cabinets are installed.

- **Seal particleboard underlayment**
  Sheet flooring such as linoleum laid over particleboard underlayment will seal out moisture and slow outgassing from the top side of the boards. Other particleboard surfaces can be sealed with a water-resistant paint or wood finish.

- **Use formaldehyde-free materials**
  Formaldehyde-free medium density fiberboard (MDF), such as Medex and Medite II, can be used to replace particleboard. The material cost can range from 50% to 100% more than particleboard.

Combustion Products Control

Wood smoke contains many pollutants, including:
- Respirable particulates so small they bypass the body's defense and go deep into the lungs
- Benzo-a-pyrene, a powerful cancer-causing chemical
- Aldehydes, chemicals that irritate the lungs

Wood smoke is also an irritant to people with allergies and asthma.

- **Doesn't smoke go up the chimney?**
  Fireplaces and wood stoves have the potential to spill or draft" combustion products into the living space. Fireplaces are especially prone to backdraft when the fire is smoldering and flue draft is weak.

  The powerful fans in kitchen cook tops can pull smoke from stoves and fireplaces into the home. Forced-air heating systems often cause backdrafting. When a heating system is

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starved for return air, it can depressurize the house and pull air from fireplaces and wood stoves.

- **What about gas fireplaces?**
  Burning natural gas can produce several pollutants, including carbon monoxide, nitrogen oxides, water vapor and carbon dioxide. Under normal operation, gas combustion does not produce carbon monoxide, but if a malfunction occurs, carbon monoxide gas can be generated and can cause carbon monoxide poisoning can occur. This gas causes that "stuffy" feeling because it interferes with the flow of oxygen to the body. Nitrogen oxides are also known to irritate the nose, throat and lungs, and to cause more colds and respiratory problems in children.

- **Is there a safe, non-polluting fireplace?**
  The only sure way to prevent smoke from polluting a house is to not install a fireplace or wood stove. To have the cozy warmth firelight without the hazards of smoke or fire, install an electric fireplace. Electric fireplaces look just like the wood-burning type, with an attractive mantel, hearth and decorative face. The units are easy to install because they do not require safety clearances or a chimney flue. The fireplace is installed completely inside the thermal envelope, so heat does not escape to the outdoors.

- **Other fireplace options for cleaner air**
  These options do not qualify for Earth Advantage points, but can reduce pollution. Brick and masonry fireplaces, such as the Russian fireplace, or Kakkelöffen, work by heating up a large mass that then radiates heat into the living space. These fireplaces are less likely to back-draft any smoke into the house because they burn short, hot fires with a strong draft. High-mass fireplaces give off gentle radiant heat for several hours after a fire. The heat is very comfortable.

- **Sealed combustion fireplace**
  Sealed combustion gas fireplaces pull in outdoor air for combustion and exhaust pollutants to the outdoors thus they are less likely to emit or backdraft pollutants into the house.

Volatile Organic Compounds Control

Volatile Organic Compounds, or VOCs, are carbon-based compounds that evaporate readily into the air. Generally speaking, hazardous VOCs are petroleum-based or contain chlorine. VOCs can also outgas from many common construction and finish materials.

Why are VOCs hazardous?

VOCs are a large group of chemicals that cause a wide variety of health problems, including eye and nasal irritation, headache, attention deficit, loss of memory and coordination, and impaired brain and liver function. VOCs include several known carcinogens.

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They can easily cross body membranes such as skin or cell walls and they can be stored in body fat.

Where are VOCs found?
In new homes, there are many possible sources of irritating potentially hazardous VOCs. The most common include:

- **Carpet, carpet pad and carpet adhesive**
  There is controversy about the potential health hazards of carpet. Some laboratory tests show severe health effects on mice, while others do not. Many people report health problems they attribute to new carpet. However, the carpet industry strongly denies that carpet outgases any harmful chemicals. Because there is disagreement about what, if any, hazards exist, there are no agreed-upon standards for a "safe" carpet. Generally, wool, cotton and natural fiber carpets such as coir and sisal are less likely to outgas harmful chemicals.

- **Interior paints**
  This includes both oil and latex types. Most paints release VOCs into the home. Often low/no-VOC products are manufactured without mercury or mercury compounds, or pigments of lead, cadmium or other oxides.

- **Interior wood stains and finishes**
  Wood finishes that are on site can be of concern, especially if they are petroleum based. Examples include floor, interior door and trims. Wood finishes that are applied outside the house should not outgas harmful vapors into the house.

- **Sheet vinyl flooring and vinyl adhesive**
  Sheet vinyl contains "plasticizers:' chemicals that are added to keep the vinyl pliable. These chemicals outgas VOCs. Vinyl adhesives may outgas potentially harmful VOCs.

- **Construction adhesives**
  These include framing, panel, plastic pipe, carpet, vinyl, cove, tile countertop adhesives and countertop adhesives.

  Some potentially hazardous finish materials have warnings such as "Avoid breathing vapors" or "Use only in a well-ventilated space." However, other materials may have no warnings.

  Some VOCs, such as those from adhesives or wood finishes, outgas quickly, so they may be a short-term hazard. But, these VOCs can be absorbed by drywall or fabrics. Other VOCs, such as those from carpets, may take many months to outgas

How can VOCs be controlled?

For each of the above materials, there are safer alternatives that are readily available and cost about the same as the hazardous materials and products. The challenge is to get subcontractors

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to accept using new products they may be unfamiliar with.

- **Carpet, pad and adhesives**
  Select a carpet with the CRI Indoor Air Quality Testing Program label. This label shows that the manufacturer tests carpets for VOCs. Select a waffle-type pad. Specify low-VOC or water-based adhesive.

- **Interior paint**
  Select low-VOC or solvent-free latex paints. Green Seal certified paint is a good choice as the Green Seal organization has investigated the chemical composition of the paint and certified the product as meeting their standards. If choosing a Green Seal certified paint, please note that Green Seal VOC standard may allow a higher level of VOCs than Earth Advantage standards. Earth Advantage Healthier Indoor Air points may not all be awarded if the VOC level exceeds the Earth Advantage standard you are trying to achieve. Please check the paint can for the VOC level of the paint.

- **Wood finishes**
  Water-based stains and finishes, including durable coatings for wood floors, are available from several manufacturers. Their quality and performance is similar to solvent-based products.

- **Sheet flooring**
  Install linoleum, which does not emit irritating or harmful vapors. Linoleum costs about the same as a medium-quality vinyl to install. Low-toxicity adhesives are also available.

- **Construction adhesives**
  Solvent-based adhesives are being replaced by water-based types with similar performance.

Garage Separated or Sealed

The air in garages often contains pollutants from stored chemicals such as pesticides, herbicides, cleaners, hobby chemicals and auto exhaust. If a forced air heating system is located in a garage, these pollutants can be pulled into the living space. This happens when the supply and return air are out of balance. When there is a supply register in each room, but only one or two return registers, the heating unit may be "starved" for return air, and may pull air from the garage.

- **How can garage pollution be controlled?**
  Where possible, separate the garage from the house. No pollutants can enter the living space from a detached garage.

  A forced-air heating system should be balanced so that supply and return air-flows are the same. The return side ductwork in the garage should be carefully sealed, especially around filter holders.

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Air leaks between the garage and living space can be sealed by caulking and sealing all penetrations in the wall and ceiling and running a bead of caulk or adhesive between the drywall and top and bottom plates, and around the entry door.

One benefit of checking duct tightness with an Earth Advantage "duct blaster" test is to make sure air is not pulled from a garage into the living space.

Radon Control

Radon is a natural element that is created as uranium decays into lead. It is an odorless, colorless gas found everywhere in soil and rock. When radon decays, it gives off radioactive particles (alpha particles) that can damage the lungs and cause cancer. In the PGE service territory, testing of houses has found relatively few cases of elevated radon levels. All of Oregon is either rated Zone 2 Modest potential (from 2 to 4 pCi/L) or Zone 3 Low potential (less than 2 pCi/L). Information can be found at www.epa.gov/iaq/radon/zonemap/oregon.htm and www.dhs.state.or.us/publichealth/rps/radon/levels.cfm.

- **How can radon be controlled?**
  Radon in soil can be kept out of living spaces by using standard building practices. Radon gas cannot penetrate through solid materials. So it can be blocked by a continuous barrier, such as a black-poly moisture barriers, concrete slabs or basement walls. Radon can leak through holes. The key is to seal all air leaks, because they can also be radon leaks.

- **Radon barriers**
  In crawl spaces, a 6-mil black poly moisture barrier can block radon if the edges are overlapped and sealed. The subfloor can block radon if all the air leaks and penetrations in the floor are sealed. Be sure to weather-strip the crawl space access-hatch.

  When insulation is installed under the floor, the foundation can be left open year-round, so any radon gas that does enter the crawl space can also vent out.

  In slab-on-grade floors, black poly blocks radon when laid continuously. Seal all expansion joints, cracks, gaps or holes in the concrete slab.

  In below-grade walls, any gaps or holes, such as those around water lines, should be sealed.

- **Testing for radon**
  Inexpensive indoor radon test kits are available. For information on purchasing a radon test kit from the National Safety Council, please go to: www.nsc.org/ehc/radon/coupon.htm. As of this time, there no practical method for testing soil for radon prior to construction and predicting future radon in the completed house.

Allergen Control

There are several broad categories of allergens: mold/mildew, dust mites and pollens.

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- **What are mold and mildew?**
  Mold and mildew are the same thing. Molds are fungi that release toxic chemicals into the air. Molds can cause several chronic low-level health effects, including allergic reactions, headache, dizziness, attention deficit, memory loss, sleep disturbance, nausea, skin rashes and gastro-intestinal problems. More serious effects include cancer and auto-immune diseases.

  Molds grow where surfaces are wet or damp, such as on wet framing wood or poorly drained basement walls. They can also grow where the relative humidity is high—greater than 70%. High humidity happens where there are cool surfaces, such as where the house is badly insulated (outside wall corners and top plates) or has air leaks (tongue-and-groove subfloors). For example, even in a room where the relative humidity is normal, a carpet pad over a cold floor can have a "microclimate" where the humidity is high enough to grow mold.

- **Controlling molds**
  Keep surfaces warm and dry. Make sure insulation is complete, without gaps or voids; air leaks are sealed so they don't cause cool spots; basement walls have proper drainage and damp proofing; and excess indoor humidity is controlled by exhaust fans.

  In the Pacific Northwest climate, excess indoor humidity can usually be controlled by bath and kitchen fans. High moisture sources, such as indoor spa tubs and clothes dryers, should be vented outside.

  Earth Advantage Energy Standards require better air sealing and windows, so homes are less likely to have cool spots where mold can grow. Better bath and kitchen fans designed to exhaust excess humidity are the primary way to stop the growth of mold and control areas with heavy moisture load. Ventilation options, such as the heat pump fresh air add-on, whole house ventilation systems and the heat recovery ventilator, do a good job of controlling excess humidity.

- **What are dust mites?**
  Dust mites are tiny insects so small that they can't be seen by the naked eye. Dust mites live on the skin flakes that humans continually shed, so they are found in carpets and pads, bedding and furniture—any place that humans occupy. Mite feces contain a protein that can cause an allergic reaction. About half of people with allergies and asthma react to dust mites. In some people the reaction can be very strong.

  In new homes, there are two ways to control dust mites. One is to install hard surface flooring such as wood, tile or linoleum in place of carpet and pad. These floors can be kept clean of skin flakes and mites. Carpets and pads harbor mites and special vacuums or chemicals are necessary to control them.

  The second option is to install a ventilation system that can keep the indoor relative humidity below 50%. At lower humidity, mites cannot thrive.

  In the Pacific Northwest, humidity in the house can usually be controlled by exhausting humid

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indoor air and bringing in drier outdoor air. The exception is the summertime, when air conditioning may be needed to reduce humidity below 50%. (It's important that the air conditioning system be correctly sized, so it will run long enough to dehumidify the home adequately. Oversized systems may not operate long enough to dehumidify the home and thus may lead to moisture problems in the home.)

A ventilation system for humidity control would include a humidity-sensing monitor (a humidistat), and a control to turn the ventilation system on and off. Ideally, these controls would respond automatically to changes in humidity, but manual control is an option. In cool, damp locations, such as a very shaded site, a dehumidifier may be needed to control humidity and dust mites. Both stand-alone and built-in (to a heat pump forced-air system) models are available.

- **Pollens**
  Filtration for controlling pollens is addressed in the next two sections (Fresh Air Ventilation and Air Filters).

Fresh Air Ventilation

Whole House Ventilation options are: 1) fresh air intake; 2) fresh-air intake direct to the furnace; and, 3) heat recovery ventilator (HRV) or energy recovery ventilator (ERV).

- **Fresh Air Intake**
  This system is the minimum allowed in the Earth Advantage program and requires the installation of a central exhaust fan to ensure better day-to-day air-flow throughout the house. The system has three components:

  - A quiet central exhaust fan rated at 100 to 150 cfm (at 0.25" wg) at 1.5 sone
  - A 24-hour clock timer switch for the fan
  - Fresh air vents

  The fan is set to run for at least eight hours per day. This ensures that stale air is vented out daily. The central fan is separate from the bath and kitchen fans because these fans might not operate every day, or may come on only for very short periods.

  The clock timer switch is located in a utility area where it won't be confused with a heating control.

  The fresh air vents are located in each bedroom and one in the living area. The vents allow fresh outdoor air to flow through these rooms when the whole-house fan is running.

  There are two types of fresh air vents. The most common is a vent installed in the top of a window frame. The other type of vent is installed on an exterior wall. Closets located against exterior walls are a good location for these vents.

  This measure requires fans that actual perform as rated—that is, a 50 cfm (cubic feet per

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minute) fan will really exhaust that much air. Experience has shows that fans rated at 0.1" wg, the standard measure, often don't perform. That's why the Earth Advantage program requires fans rated at 0.25" wg.

EARTH ADVANTAGE STAFF also recommends connecting all exhaust fans to smooth-metal exhaust duct for good air-flow.

- **Fresh air intake ducted directly to the furnace**
  With a fresh air intake, outdoor air is brought into the heating system and distributed through the supply ducts. This is usually done using four components:

  - An outside air duct into the return air plenum (ahead of the air filter)
  - A motorized damper on the outside air duct
  - A smart control box
  - A whole-house fan

  The smart control box includes a clock timer. When the box calls for ventilation, the outside air duct damper opens, and the heat pump fan turns on. The fan sends fresh air, mixed with room air, through the supply ducts and registers.

  The whole-house fan exhausts stale air. When the thermostat calls for heating or cooling, the outside air damper does not open and the whole-house fan does not come on. This prevents over-ventilating the house during peak heating and cooling periods.

- **Heat and Energy Recovery Ventilators**
  The heat and energy recovery ventilators are a complete fresh air ventilation system, providing the best combination of comfort, air distribution, stale air removal, air filtration, humidity control and energy efficiency. HRVs and ERVs costs range from around $1200 in a small house, up to about $2500 in large houses.

  - **Heat recovery ventilators** (HRVs)
    An HRV runs two separate air streams. One is exhaust air. The exhaust side picks up stale air in the bathrooms, utility room and kitchen, and sends it outdoors. The other side is the supply air, which delivers fresh air to bedrooms and living areas. Each side is ducted separately, and the air-flows are balanced. An HRV can be combined with a heat pump system to use the supply ducts to distribute fresh air.

    Inside the HRV unit, there is a heat exchanger. In winter, heat from the stale air leaving the house is transferred to fresh air coming in, warming it and making it more comfortable. In summer, heat is removed from outdoor air to cool the house. The unit also filters the incoming air.

    HRV controls offer the option of a humidity sensor that turns or ventilation when there is excess moisture in the air. This can help allergy sufferers by maintaining humidity below 50% and controlling dust mites.

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- **Energy recovery ventilators** (ERVs)
  Energy Recovery Ventilators or Enthalpy Recovery Ventilators provide the same features and benefits of the Heat Recovery Ventilator but has the added benefit of being able to transfer a certain amount of water vapor from the exhaust air to the incoming fresh air. This feature is desirable in areas where it gets and stays cold. This is because the system helps maintain the humidity level of the inside air. This can help make the indoor environment more comfortable.

Air Filters

Air filters are an option, but are highly recommended, to improve the air quality of the house. You can choose between media filters, electrostatic or electronic filters, and HEPA (high efficiency particulate arrestance) filters.

- **Media filters**
  Media filters are made out of paper, plastic and/or fiberglass. Efficiency is usually measured by a standard called "ASHRAE 52-76 Atmospheric Dust Spot Efficiency" or DSE. Using this measure, a standard furnace filter is less than 5% efficient.

  Media filters of 30% efficiency are a good alternative and are available in sizes to replace standard furnace filters, cost less than $10, and do not interfere with the air-flow through the heat pump or HRV.

- **Electrostatic filters**
  These filters create an electric charge that attracts and traps particles, making them clump up and fall out of the air stream. They are very efficient as long as they are cleaned regularly. There are two types: the "electronic" uses AC power to generate a static charge; the "electrostatic" uses the air flow itself to create a charge.

  These filters are often rated by "arrestance," so they have efficiency ratings of 95% or higher. A rating of 92% arrestance is roughly equivalent to 30% dust spot efficiency in a media filter.

  The main concern with these types of filters is the quick drop in efficiency levels if the filter is not maintained on a regular schedule. If the filter is not maintained the efficiency level drops very fast and the HVAC system can potentially blow particulate matter around the house. If the particulate matter on the filter becomes moist it can become a breading ground for molds that then can be blown around the house.

- **HEPA filters**
  Higher efficiency media filters are available. The "HEPA" type that can remove more than 99% of particles is considered the most efficient. However, higher efficiencies may require a filter box to be installed in the return plenum, and a higher-capacity fan to overcome air resistance.

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ENVIRONMENTAL RESPONSIBILITY

Earth Advantage certified homes are designed to reduce the impact on the environment by promoting environmentally sound building and landscape practices. Earth Advantage measures installed in a home are evaluated for their impact on environmental conditions. Earth Advantage promotes products that reduce damage to ecosystems and species. Earth Advantage homes include measures that minimize waste and promote environmentally sound building and construction.

Recycle Construction Wastes

Studies carried out by Metro, in Portland Oregon, show that almost all the waste created during construction of new homes can be recycled. Studies also show that recycling can save money, compared to disposal.

Major construction wastes (by weight) include wood scrap, drywall scrap, cardboard and metals—all of which can be recycled. Site-clearing wastes, such as soil and organic debris, may also be recycled. When all these wastes are recycled, close to 80% or more of construction waste can be recycled.

For builders who do their own recycling, the key is to keep wastes separated. This means telling the crew and subs where to put scraps into site dumpsters. Some subs, such as drywall and electrical, can sort their own wastes.

There are also clean-up companies that will remove all scrap and see that it gets recycled. They usually do not require crews to separate materials, and they can cost less than standard disposal.

To help contractors and developers recycle construction debris, Metro in Portland has developed a Construction Site Recycling Toolkit for the web. This guide lists recycling facilities and their distance from the construction site, descriptions of accepted materials, and includes helpful maps. This interactive guide can be found at:
http://www.metro-region.org/article.cfm?ArticleID=727

Metro also publishes a very helpful recycling guide for contractors. It is available by calling 503-234-3000, or on the web at: www.metro-region.org/article.cfm?ArticleID=899

Safe Disposal of Hazardous Waste

Building a house can involve using many types of hazardous chemicals (as defined by federal laws). Examples include adhesives, solvents, oil-based paints, thinners and wood finishes, pesticides, herbicides, form oil, motor fuel, oil and grease. These chemicals and their containers should be disposed of properly, and never buried on site or dumped into the street or a storm drain.

Another waste that pollutes when it goes into storm drains is concrete waste washed from trucks. Storm drains empty into streams and rivers, so any wastes dumped into them become

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water pollutants.

The most effective way to prevent pollution by hazardous waste is to switch to safer alternatives, such as water-based or low-VOC finishes, cleaners, sealants and adhesives. Many municipal waste collection stations accept hazardous wastes for a small fee.

Recharging Groundwater

Recharging groundwater means returning rain to the soil instead of letting it run off the site. Rain water that runs off impermeable surfaces, such as roofs, driveways and streets, into storm drains causes a great deal of damage to streams and rivers. This water is also lost to the soil, requiring irrigation with potable water to replace it.

When rain runs off into storm drains, local streams receive a lot of water in a short period, which erodes the stream bed and washes out animals, fish, insects and plants. Storm water also carries pollutants such as oil and grease from roadways and parking areas.

In nature, rain is absorbed into the soil and held by organic matter, so water is available to plant roots throughout the summer. The soil also acts as a natural filter where pollutants can be decomposed.

There are several options for recharging groundwater:

- **Drain roof into on-site bio-swales or dry wells**
  Roof drains can be disconnected from storm sewers and connected to a surface bio-swale system, a sub-soil percolation field or a dry well. In Washington and Clackamas Counties, where drainage goes into the Tualatin River, cleaning up non-point pollution is a priority. In Portland, the city is trying to reduce the load on the combined sanitary and storm sewers.

  The system is inexpensive if the trenching is done during foundation excavation. Drains can be plastic French drains wrapped by filter fabric and laid on a bed of gravel.

- **Use permeable paving materials**
  A variety of concrete payers that drain water are available. Some are open-cell blocks. Others are payers or cobblestones with sand in the joints to let water into the soil.

  Permeable paving reduces runoff by letting rain water drain into the soil. Concrete paving blocks provide practical surfaces walking, parking and traffic, yet allow water to pass through. A variety of styles and colors are available.

  Where water does run off impermeable surfaces, it can be routed to landscaped areas which sometimes are called bio-swales.

Protect Soil

Healthy topsoil is valuable. It contains organic matter and organisms that support healthy plants and landscaping. When topsoil is removed from a building site, new landscaping

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installed over subsoil has to be supported by lots of water, fertilizer, herbicides and pesticides until it can get established. That means more chemicals are likely to be washed off into streams where they may be harmful to birds and wildlife.

Construction activities often contaminate surface water. Grading activities remove plants and other protective ground covers, resulting in exposure of underlying soil. Bare soil can then be picked up by wind or washed away by rain or snow.

Several options for protecting the soil are:

- **Keep topsoil on-site**
  In this option, healthy topsoil excavated for footings and foundations is stored on- or off-site and respread during landscaping:

- **Erosion control**
  All local jurisdictions require at least minimal erosion control on building sites, such as black poly soil fences or compost. Smart, more effective, temporary measures to protect exposed soil are recommended:

  - "Bio-Bag" recycled wood chip bags to intercept eroded
  - Geo-fabric mats to hold soil in place until new grass or plants are established
  - Temporary seeding to establish grass or ground cover
  - Compost mulch to cover soil and absorb the force of rain
  - Divert surface water flows away from, or around, exposed soils
  - Create settling basins or ponds
  - Use vegetated swales (shallow ditches) to filter soil out of surface water runoff
  - Clean out catch basins regularly (ask your local street maintenance department)

  Where the developer is designing a site, the choice of narrow streets can greatly reduce erosion and loss of existing trees.

Protect Existing Trees

Existing mature trees are a valuable feature in a new home. They increase worth and livability. Trees:

- Clean the air by intercepting particulates
- Absorb carbon dioxide
- Provide cooling during summer by transpiring soil moisture into the air
- Provide shade
- Enhance privacy
- Add beauty

Usually, if existing trees are damaged or killed during construction, it is through accidental injury—cutting off roots when trenching, crushing roots with heavy equipment, or smothering roots by dumping soil over them. Knocking off bark also weakens or kills trees.

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Preventing such accidents requires clear communication between the general contractor and the subs that operate heavy equipment on the site.

Trees to be protected should be clearly marked. The drip zone of each tree should be marked with a fence or tape-line to keep equipment from working under the tree.

Where necessary, trees should be trimmed or pruned by a professional arborist.

Naturescaping

"Naturescaping' means using native plants in landscaping. Many native plants are already popular, such as vine maple, Oregon grape, salal and rhododendrons. Others, such as red currant, bunchberry or wild rose, are less well known, but also fit well into landscaping designs.

Two naturescaping options are:

- **Use Hardy Native Plants**
  Native plants offer several benefits. They grow well in Oregon soils, so they require less supplemental water and fertilizer. They are resistant to many diseases and pests, so they need less herbicides and pesticides. Their flowers and fruits provide food and habitat for birds, butterflies and wildlife. They are well-adapted and hardy in our climate.

  A list of some common, readily available and popular native plants can be found at www.cleanrivers-pdx.org/pdf/native_plant_list.pdf or www.audubonportland.org/pdf/native_plants.pdf.

- **Use Less Lawn**
  In this option, the total area of lawn on the site is reduced. Lawn is replaced by other landscaping.

  Lawn grass usually requires a lot of irrigation water—about the same amount as we get in annual rainfall, 35 to 40 inches. However, lawn needs most of the water during the driest time of year, so natural rainfall isn't adequate to keep a lawn green.

  Lawns also require a lot of fertilizer, pesticides and herbicides to stay green and lush. Birds are especially prone to getting sick from eating insects treated with yard chemicals.

  Few homeowners are willing to reduce the water and chemicals and let their lawn be less than perfect. The most practical way to reduce the environmental effect of lawn is to reduce the amount, or area, and use ground covers.

Safe Outdoor Wood

In the past, wood has been preserved from weather, insects and rot with very hazardous chemicals, such as creosote and pentachlorophenol. Wood preservatives, such as CCA (Copper-Chromium-Arsenate) were an improvement, but still can be hazardous and can escape into the

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environment. CCA is being phased out, but may still show up in some lumberyards until existing stock is depleted.

Two options for outdoor wood:

- **Use Safer Wood Protection**
  Wood treated with less hazardous chemicals is available. When treated wood is used as mudsill or foundation post, the material has an extended life in moist conditions, reducing maintenance and enhancing longevity. Alkaline Cooper Quat (ACQ), Copper Azole, and Borate treated wood or similar is required for these points. No CCA or ACA type treated wood is allowed to claim these points. The phase out of the sale of CCA and ACA chemicals took effect December 31, 2003. Existing stock of chemicals and treated wood can continue until existing stocks are depleted.

  Note: ACQ and copper azole are corrosive to untreated metal fasteners. Check manufacturer's specifications for approved fasteners.

  Earth Advantage discourages use of naturally rot-resistant woods, such as cedar and redwood, because these trees are scarce.

- **Use Plastic Lumber**
  Waste plastics are being recycled into several types of "plastic lumber." Usually, the plastic is mixed with wood, fiberglass or other fiber to give it tensile strength. High-quality plastic lumber appears to be weatherproof, insect-proof and rot-proof, without any hazardous chemical treatments. One manufacturer claims its plastic lumber is much less slippery than wood when wet. Plastic lumber can work well in outdoor applications such as decks, fences and walkways.

Land Use

Within Oregon, the urban growth boundaries have been established limiting the land available for development. Using the available developable land effectively is important.

- **Size of Lot**
  The Metro 2040 planning goals in Portland call for increasing density around light rail stations and at designated areas where facilities, such as streets, have the capacity for serving higher densities. Projects that support these goals help reduce urban sprawl and the loss of farm and forest lands, support transportation options, and make efficient use of public facilities and infrastructure (roads, sewers, water). Density levels that qualify for bonus points in the Earth Advantage program are 10 single-family units per acre and 24 units for multifamily developments of developable land.

- **Size of Home**
  This measure rewards smaller houses. The average size house being built in the United States is 2,500 sq feet. This is more than double the size of an average house built in 1950 (1,200 sq feet). Projections are that the average size of a house will continue to get larger. Larger houses mean that more raw materials need to be consumed to build the house. Couple this

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with the average size family becoming smaller, much more raw material resources are being consumed to house the average homeowner.

While there are no measures associated with these concepts, they are recommended by Earth Advantage.

- **One-car or No Garage**
  Autos consume large amounts of energy and produce large amounts of air and water pollution. Reducing auto trips directly benefits the environment. More and more homeowners are willing to reduce auto travel and use public transportation for trips such as commuting. A one-car garage indicates that the buyer will have one instead of two cars. This option is most practical for houses located near bus or light rail.

  No garage indicates that the homeowner will walk, use public transit, or other options such as bicycles.

- **Locate on Transit Line**
  If you select this option, the dwelling must be located close enough to a bus or light rail line to make it very easy to use public transit. The distance is negotiable, but generally is not more than two blocks.

  The 1995 "City Life" project, a mix of townhouses, condominiums, and a duplex, is located in a Portland neighborhood, one block from a major arterial and bus lines. No garages were included in the project. All the units sold within two months of completing construction.

- **Mixed Use Development**
  Developments that mix housing, shopping and work are becoming more common. For example, the Earth Advantage Belmont Dairy project in southeast Portland is designed with lofts above on-street retail stores. The Earth Advantage Hollywood Library project has affordable housing apartments above the library. The Earth Advantage Museum Place South project incorporates a grocery store at the ground level and apartments and condos above.

  The River District in Portland mixes houses, retail shopping, public buildings and office buildings. These developments encourage walking and bicycling by making distances convenient for short trips and shopping.

Sunlight/Solar Options

Sunlight kills pathogens. It is also important to mood, helping prevent Seasonal Affective Disorder—a type of depression associate with dark winters.

Orienting major glazing areas to the south is the simplest way to ensure sunny interiors as well as the benefits of solar heating and natural cooling.

- **Sun Tempering**
  Sun tempering orients major glazing areas to the south to take advantage of solar warming

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during winter, and natural shading and cooling during summer. Sun tempering can reduce annual heating energy use by about 5 to 10%. It can add day lighting to provide a sunny interior, and experience shows that Pacific Northwest buyers like day lighting. Sun tempering adds no cost; it is a design measure.

Sun tempering design guidelines include:

- 50% or more of the summer sun dwelling's glazing area faces south, within ±30°.
- The south glazing is open to the sun in winter (between 9:00 am and 3:00 pm on December 21st) and won't be shaded by buildings or trees.
- South roof overhangs are 1-1/2 to 3 feet deep for summer shading.

- **Natural cooling**

  In the Willamette Valley, natural cooling can keep a house comfortable through all but the hottest days of summer.

  Natural cooling includes a combination/mix of the following measures:

  - West-facing glazing on living spaces is not more than 10% of the total glazing area. The purpose is to prevent summer overheating by low afternoon sun.
  - Overhanging eaves shade walls and windows in summer. The overhang should be 1-1/2 to 3 feet wide.
  - Vents along the full length of eaves or soffits and the roof ridge reduce the buildup of hot air in attics.
  - Large shade trees near a building cool it in two important ways. First, a tree absorbs hot sun before it reaches the building. Second, a tree transpires water from the ground into the air. As this water evaporates from leaves, the air is cooled. Trees also temper the brightness of summer sunlight, which makes it more comfortable for most people. This adds to the feeling of coolness.

- **Solar Water Heaters**

  In Oregon's climate, solar panels can provide about half a family's annual energy for hot water. Today solar systems offer improved, more reliable protection from freezing as well as lower maintenance. With the Oregon State income tax credit for solar water heaters, the initial cost of a system is reduced and the payback is shorter. Solar panels are also a good choice for heating outdoor swimming pools.

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RESOURCE EFFICIENCY

Earth Advantage certified homes are designed to use resources wisely. Earth measures include durable, long lasting products made of recycled materials or natural materials that reduce the use of natural resources such as timber and petroleum products. Earth Advantage homes include measures that minimize waste and promote environmentally sound building and construction practices.

Efficient Use of Wood

There are two ways to reduce the amount of wood used during construction.

- **Use Composites**
  Composite wood products make much better use of trees than solid lumber. When dimensional lumber is sawn from a tree, only about half the tree is used. When a tree is chipped up and then reformed into composite products, such as oriented strandboard, nearly all the tree is used.

  Composites, such as floor trusses, offer higher strength with less material. A truss uses about 40% less wood than the same size lumber joist. And composites are usually pre-cut to fit the house plan, so very little scrap is generated.

  Dimensional lumber must be cut from high-strength trees such as Douglas fir. Composites can be made from less valuable trees, such as aspen or poplar.

  Wood, especially wood from second-growth trees, is often flawed. Lumber may be warped, cracked or checked. Lumber shrinks as it dries out, which can cause problems such as drywall corner cracks and squeaky floors. Composites are straight and uniform and do not shrink.

  Examples of composite materials are:

  - Floor trusses and subflooring
  - Studs
  - Rafters and beams
  - Interior trim
  - Decking

- **Use Advanced or Intermediate Framing**
  "Advanced Framing" includes several different measures that can reduce the amount of lumber. These can include:
  - Wall framing on 24" module
  - Ladder blocking to replace stud channels
  - Sandwich headers
  - Reducing non-structural components, such as excess window cripples or headers on gable ends
  - Drywall fasteners to replace blocking and nailer studs

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These measures were all developed by the National Association of Homebuilders in a research report titled "Reducing Home Building Costs with OVE (Optimum Value Engineering) Design and Construction." These measures have been accepted in codes. They have been widely adopted in practice. (CABO Code includes a chart showing when 24" framing modules can be used.)

Half-inch drywall can span 24" framing without waviness. But if this is a concern, "high density" ceiling board can give more confidence at only slightly more cost (about 10%). Sidings such as 5/8" T1-11 (Channel and Reverse Board-and-Batten) are rated for 24" span. Insulation batts are available in 22-1/2" width to fit the cavities.

Intermediate Framing includes all the features of Advanced Framing, except the module can remain at 16" on center.

Sustainable or Salvaged Wood

Another option is to use low-impact wood that has either been recycled or sustainably harvested.

- **Use Salvage Wood or Wood Replacements**
  Earth Advantage encourages the reuse of wood. Many builders have tried resawn lumber for flooring, beams and trims with excellent results. Clear, tight-grain wood is getting difficult to find, and is very expensive. So salvage wood is a viable alternative.

  New wood-like products have appeared that replace wood. For example, bamboo flooring that looks and performs like wood is available. Bamboo is a type of grass that grows quickly.

  Some forests are managed to harvest trees, yet keep the forest healthy. Trees are harvested individually and removed without damaging surrounding trees. Cut branches and trimmings are left to decay into new soil, instead of being burned or chipped. The healthiest and biggest trees are left to seed future generations, instead of being cut. Harvesting is designed on a long rotation, so young trees have time to grow back and replace cut trees.

  These sustainable forests have been independently certified by organizations such as Scientific Certification Systems and the Rainforest Alliance using the Forestry Stewardship Council (FSC) certification system.

- **Non-wood Structures**
  Several structural systems have been developed to replace wood framing. The most common at this time are foam-core panels, foam-filled blocks filled with rebar and concrete, and steel framing. These systems have many performance benefits compared to wood, and may be cost-competitive, depending on the type of building and the price of wood.

- **Structural Insulated Panels (Foam Panels)**
  Foam panels sandwich expanded polystyrene (EPS) foam plastic between two sheets of composite oriented strandboard (OSB). The assembly is glued together under high pressure. The panels are stronger than framing and more earthquake-resistant.

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EPS contains no chlorofluorocarbons (CFCs) or chlorine, and does not outgas harmful chemicals. To make EPS foam, one quart of oil is expanded to make 40 quarts of foam. Note that EPS is not the same as "blueboard."

EPS does not burn or sustain a flame. When exposed to high heat, it does smoke. The smoke is toxic to humans, but probably no more so than smoke from other building components or furnishings.

The panels have several benefits. They are pre-cut to the house plan, so they can go up very fast. Because little cutting is needed, not much waste is produced. They contain about 75% less wood than a framed wall. Panels have higher insulation value, reduce air leakage, and resist moisture and rot. Some panels are treated with borates to keep insects from burrowing into them. Siding and drywall can be nailed into the panels.

- **Insulated Concrete Forms**
  There are several ICF block systems on the market. Most use (expanded polystyrene) EPS blocks or panels that are laid up in courses, rebar installed, and concrete poured into cavities in the blocks. There are other systems such as Rastra uses recycled foam and a concrete mix to create the blocks. Another system uses waste wood shredded up and a concrete mix to create the blocks.

  Like foam panels, concrete-filled ICF block walls are very strong and earthquake-resistant, and they go up quickly. They also have high insulation values, are airtight, and are moisture resistant.

  ICF blocks lend themselves to stucco exterior finishes. Interior drywall is glued on or screwed into metal strips embedded in the blocks. Some builders furr out interior walls. Blocks can also be treated to resist insects.

- **Recycled-content Products**
  Many building products are being made with materials that were once thrown away. These materials deliver performance and quality at competitive prices.

  For example, recycled polyethylene terpthalate (PET) carpet made by Image Industries uses plastic from soda pop and catsup bottles. The company recycles more than 200 million pounds of bottles per year into carpets.

  Recycled content products "close the loop," by diverting wastes from landfills and turning them into new materials.

- **In-house Recycling**
  To make it easier to recycle household wastes, kitchens can be designed with built-in recycling stations. These stations can range from simple wire baskets on a cart, to built-in cupboards and drawers with removable containers.

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Recycling storage can also be located in the garage or another utility area, such as a laundry room. Household recyclables include newspaper, magazines, scrap paper, metals, plastic containers, dairy cartons, glass and deposit bottles and cans.

- **Drywall**
  Recycled drywall products include all types, such as underlayment, soffits and green board. All drywall is covered with recycled paper.

- **Insulation**
  Blown-in cellulose insulation is made from recycled newspaper and wood fiber. The insulation can be blown into attics and walls, and some companies can wet-spray into open wall cavities.

  Some fiberglass insulation contains recycled glass. Rock wool is made from recycled mineral slag left over from metal smelting. Amoco green foamboard contains more than 50% recycled post-consumer foam scrap.

- **Carpet**
  Image carpet is made from recycled plastic bottles. The bottles are chipped up and melted. The plastic (PET) is then extruded into fiber, which is then dyed and woven.

  PET carpet is suitable for residential uses. It is naturally stain-resistant, and does not outgas any harmful or irritating chemicals.

  Commercial carpet companies, such as Shaw, Collins & Aikman and Interface, recycle worn carpet. They are also recycling in-house at their manufacturing plants.

- **Ceramic Tile**
  Recycled-content tiles look and perform like any other ceramic tile. The difference is that they contain recycled glass.

- **Paint**
  Recycled unused waste paint is collected, filtered and mixed to consistent colors and sold through retailers in Portland and other areas.

- **Brick**
  Mutual Materials makes bricks that contain about 15% recycled used brick, saving on energy to fire the new brick and reusing a waste material.

- **Wall Coverings**
  The Homasote Company makes fabric-covered "DesignWall" boards in a variety of colors. The board is 100% recycled cellulose, and the fabric is jute. The boards make good tack walls.

- **Roofing**
  Several new roofing products include recycled materials. Cern-Wood roof shingles are made with a mix of wood fiber and cement.

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Classic Products shakes are recycled aluminum. Also available are recycled plastic roof, gable and soffit vents.

- **Landscape Walls**
  A Portland company, The Wall, recycles concrete into outdoor landscape walls. Recently the company has developed an exterior recycled wall finish that looks like stone.

- **Natural Flooring**
  Linoleum is made from natural non-toxic materials such as wood flour, ground limestone, pine resin, linseed oil, cork, jute and natural pigments. It has excellent wear characteristics and is available in a variety of colors and styles. Linoleum is non-toxic and replaces sheet vinyl flooring—an oil-based product that may outgas harmful chemicals.

  Flooring is also available that is made from natural fibers, including jute, coir (husk of coconut) and sisal. These fibers are very tough and long-lasting. For flooring, they are woven into handsome fabrics in natural colors and dyed patterns.

- **Concrete with Fly Ash**
  Fly ash is precipitated from coal smoke by "scrubbers" in smokestacks. Fly ash has been mixed into concrete for many years. You can let your concrete supplier know you are interested in using fly ash, and ask if it is suitable for your application.

Water Efficiency

Earth Advantage offers multiple ways to use water more efficiently:

- **Water-efficient Fixtures**
  Lavatory faucets with low-flow aerators can reduce water use by restricting

- **Water-saving Appliances**
  New energy and water efficient clothes washers and dishwashers offer an excellent opportunity to reduce household water use.

  Efficient clothes washers can save both water and energy, while reducing wear on clothes. The key is a design that uses a horizontal drum, so the washer is front-loading. These washers use much less water. (For example, the Asko model uses 14 gallons per load, as compared to 47 for a conventional washer—saving a typical family about 15,000 gallons of water per year.) Because these washers can spin faster and get more water out during the rinse cycle, less drying is needed—using less energy.

  The washers have no central agitator, so clothes wear out less quickly. They also use only about half the detergent, and rinse it out more thoroughly.

  New dishwashers use less than half the water and energy of conventional units. They are also much quieter. Some have stainless steel interiors for extremely long life.

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Irrigation Systems

Irrigation systems can be operated by timers and moisture sensors to ensure that water is not wasted. Timers are available from all major irrigation manufactures.

Other water-saving irrigation options:

- Multi-cycling (for multiple start timers)
- Low trajectory nozzles and pressure-compensating devices, or micro-spray nozzles
- Zoned systems
- Low-volume (drip is an example) irrigation systems

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ENERGY EFFICIENCY

Earth Advantage certified homes are designed to perform at least 15% better than local building practices. High efficiency appliances, lighting, windows and doors all make a difference in Earth Advantage homes. In addition, tighter house-sealing practices and higher insulation levels help reduce energy use. Higher furnace and water heating efficiencies also improve the performance of the house.

Key Features of Energy Efficient Homes

When properly used in home construction, energy features can help a home operate more energy efficiently, improve the indoor air quality, enhance the comfort of the homeowners, minimize moisture problems, and increase long-term durability of the home.

The following features are ways to improve the energy efficiency of new homes:

Create a continuous air barrier system

By creating a continuous air barrier system the air leakage between conditioned and unconditioned spaces can be minimized. Understanding how air moves in and out of a home is important. The following describes the forces that can cause air to move between conditioned and unconditioned spaces.

Air Leakage Driving Forces

Experience has shown that the air sealing measures in the 1992 Oregon Energy Code have helped ensure much more comfortable, draft-free new houses. However, Code-minimum sealing may leave some gaps—enough to cause discomfort problems and significant energy losses.

All homes allow some amount of air infiltration through gaps, holes, and penetrations in the building envelope. The air exchange rate can be highly variable from house to house. Recognized standards recommend a maximum of 0.35 air changes per hour (approximately 1/3 of the air in the dwelling is replaced in one hour). The problem with a house that is not sealed well, the air infiltration comes in from crawlspaces, attics, garages and wall cavities. This air can bring pollen, dust, mold, radon, humidity, insulation fibers, and other contaminates into the house.

The most important air leaks to seal are those at the top and the bottom of the house, especially on multi-story houses. This includes any air channels that run all the way from the bottom to the top of the house, such as duct or flue chases.

Air leakage in a home is brought about through:

- Holes – the larger the hole, the greater the air leakage. Large holes have higher priority for air sealing efforts.
- Driving force – a pressure difference that forces air flow through a hole. Holes that experience stronger and more continuous driving forces have higher priority.

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The common driving forces are:

- Wind – caused by weather conditions
- Stack effect – upward air pressure due to the buoyancy of air.
- Mechanical blower – induced pressure imbalances caused by operation of fans and blowers.

Wind is usually considered to be the primary driving force for air leakage. When the wind blows against a home, it creates a high-pressure zone on the windward areas and a low-pressure zone on leeward areas. Outdoor air from the windward side infiltrates into the home while air exits from the leeward side. Wind acts to create areas of differential pressure which cause both infiltration and exfiltration.

The temperature difference between inside and outside causes warm air inside the home to rise while cooler air falls, creating a driving force known as the stack effect. The stack effect is weak but always present. Most homes have large holes into the attic and crawl space or basement. Because the stack effect is so prevalent and the holes through which it drives air are often large, it is usually a major contributor to air leakage, moisture, and air quality problems.

Poorly designed and installed forced-air systems can create strong pressure imbalances inside the home which can increase air leakage whenever the heating and cooling system operates. In addition, unsealed ductwork located in attics and crawl spaces can draw pollutants and excess moisture into the home. Correcting duct leakage problems is critical when constructing an energy efficient home.

Pay close attention to these areas:

- **Recessed lights**
  One common air leakage area at the top of a house is created by recessed light fixtures. The fixtures not only leak air; when the lights are on, the heat of the light bulbs can actually drive warm air into the attic or vault—causing the fixture to act just like a warm chimney. "Air-lock" type fixtures do not leak air. Correct installation of these fixtures is important to keep the integrity of the home's envelope.

- **Tub drains**
  Another big leak is the hole cut in the subfloor for the drain under tubs and showers. This hole may be as much as a foot-square. One way to seal it is to cut a piece of foam board or plywood to fit around the drainpipe, and seal with expanding foam.

- **Flue chases**
  Metal flues located inside chases may leak a lot of air because the chase is tall and it acts like a chimney, letting warm room air leak out. One way to stop this leak is to seal between the flue and the chase at the fire blocking. A sheet metal collar can be cut to fit snugly between the framing and the flue.

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- **Windows**
  The Earth Advantage window U-value minimum is 0.35, instead of the Code minimum of 0.40. Usually, a Code window can be improved to Earth Advantage efficiency by adding argon gas fill. Manufacturers also offer different types of low-emissivity, or low-e, coatings. The more efficient windows may have a better coating and wider air space.

Heating Systems

Heat Pump

- Heat pump efficiency of HSPF 8.0 or better for split systems (separate indoor and outdoor units)
- Ductwork leaks sealed

The HSPF, or Heating Season Performance Factor, of 8.0 is recommended. New units are now available that are even much more efficient.

The most efficient heat pump unit can be compromised by leaky ductwork. Duct leaks can restrict the amount of supply air reaching rooms, reducing comfort. Leaks on the return can pull in air from an attic, garage or crawlspace.

Research studies conducted in the Pacific Northwest have shown that air leaks in typical forced-air system ductwork can cause 15 to 30% of the conditioned air to be lost. Typically, supply and return ducts are in unconditioned spaces such as attics and crawls. Ducts may leak at joints, especially at distribution plenums, air handlers and at floor boots. Panned joists are no longer allowed in Oregon. The air handler blower pressurizes the ducts, forcing air out at the supply leaks and pulling air into the return.

The same studies have shown that unbalanced supplies and returns increase the overall leakage of the house substantially. This usually happens when there are more supplies than returns, so the return side "balances" the system by pulling in make-up air from attics, garages or crawlspaces.

Mastic, or approved foil tape with thick adhesive, is required for duct sealing. Field studies have shown that cloth duct tape may not stay sealed over time.

Create a continuous insulation barrier

Install insulation continuously as possible between conditioned and unconditioned spaces. Areas of most concern are:

- Exterior walls
- Floor systems over unconditioned or exterior spaces
- Ceilings below unconditioned or exterior spaces
- Wall areas adjacent to attic space – such as knee walls and attic stairways
- Wall areas that extend into unheated basements – such as basement stairways

Select and install energy efficient windows

- Design home with minimal east and west glass area, locate additional glass on south side for passive heating in winter months

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- Use double-glazed windows with U-vales of 0.35 or better
- Use low-emissivity coatings and other high performance features
- Shade windows in summertime

Design heating and cooling system for efficiency

- Select high efficiency equipment designed for local climate conditions
- Size and install equipment properly
- Use Manual S, Residential Equipment Selection, to help select the equipment for the home published by the Air Conditioning Contractors Association (ACCA)
- Use Manual J calculations for sizing the heating and cooling system published by ACCA
- Eliminate potential for back drafting of combustion appliances
- Install fresh air ventilation systems to bring in outside air when needed

Seal ductwork

- Design ductwork using Manual D published by ACCA
- Size ductwork to meet the heating and cooling load of each room
- Lay out ductwork to supply proper airflow; measure airflow to assure comfort
- Seal all duct leaks, except those in removable components, with mastic or mastic plus fiber mesh
- Seal leaks around removable components with the proper tape

Exhibit II - 458

Domestic water heating

Water can be heated by a variety of sources, electric, gas, warm waste-water, propane, and the sun. No matter what the source is to heat the water, using efficient equipment and products that control the use of water will make for a cost-effective operation. The following are measures that should be considered for incorporated into your project:

- **Electric**
  Tank Energy Factor (EF) of 0.93 or higher. (On tanks over 60 gal., EF = 0.91.)
- **Gas**
  Tank Energy Factor (EF) of 0.62 or higher
- **Instantaneous Gas**
  The use of demand water heater can eliminate up to 33% of the stand-by loss from conventional tank models. The unit must meet the Oregon Department of Energy Residential Energy Tax Credit specifications for credit.
- **Solar**
  A solar hot water system consists of a solar panel positioned on the roof of a dwelling facing south or within 30° of south collecting the solar heat and transferring that heat to an exchanger in a holding tank. The pre-heated water from that tank flows into the main water heater, which allows the primary tank to use less energy to heat the water.
- **Set tank thermostat at 120° F**
  Setting the hot water tank temperature to 120° F saves energy and helps protect occupants from accidental scalding. The dishwasher can heat up its own water with its internal booster heater.

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Choose energy efficient appliances

Major appliances can use a significant amount of energy to operate. Most appliances last for many years with some last 20 or more years. Therefore, an appliance that isn't as energy efficient as other models will lock the homeowner into paying higher operating costs over the life of the appliance.

In general, look for the Energy Star® label, which ensures your client that the appliance is in the upper tier of energy efficient models. In the State of Oregon, the Oregon Department of Energy has a Residential Energy Tax Credit program that offers a tax credit on qualified major appliances. Please see www.energy.state.or.us/res/tax/taxcdt.htm for more information on systems and tax credit amounts.

Dishwashers

Things to think about when selecting a dishwasher:

- Water heating accounts for close to 80% of energy use
- Models using less water use less energy
- Look for models that have light, medium, and heavy cycle options
- Select models with supplemental or booster water heater and then set the water heater to 120%
- Model should have energy saving "air dry" or "no-heat dry" switch

Clothes Washers and Dryer

Things to think about when selecting a clothes washer:

- Select an energy and water efficient model – typically a front-load washer, though some top-load washers use as little water to wash the same size load as a front-loader
- Select a model that offers several wash and rinse cycles

Refrigerator

Things to think about when selecting a refrigerator:

- The most efficient models are in the 16 to 20-cubic foot range

Energy efficient lighting

Compact Fluorescent fixtures

These fixtures are designed to only accept fluorescent lamps. The variety of available fixtures has increased dramatically over the past few years.

Compact fluorescent lamps

The number and sizes of compact fluorescent lamps has increased dramatically in the past few years. The options to look for are lamps that will provide the same type of light quality of incandescent models. Look for lamps with a color rendering index of 82 or better and a color temperature of 2700 to 3000 Kelvin.

T8, T5 and T2 options

Many new fixtures have been developed that incorporate the T8 (1") fluorescent technology. This smaller diameter bulb allows the fixture to have a smaller profile allowing it to be used in many more locations than the T12 (1 1/2") lamp fixture. Newer developments have made the fluorescent tube even smaller in diameter with the introduction of the T5 (5/8") and T2 (1/4") lamps. This has

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allowed the incorporation of the fluorescent lamps into applications such as under the base cabinet and under top cabinet applications.

Dimmer Switches
Dimmer switches are designed for lowering the light output of lamps. This corresponds to using lower energy though it is not an equivalent lowering of the energy consumption for all sources. Please note that not all fluorescent lamps can be dimmed. Please check the manufacturer's directions for the lamp.

Motion Sensor / Occupancy Sensor
Motion sensors control the lighting by detecting either motion or heat in a space. This can lower the consumption of energy. Please note that not all fluorescent lamps are compatible with these controllers. Please check manufacturer's directions for the controller and lamp.

Passive solar designs

Your home's windows, walls, and floors can be designed to collect, store, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer. This is called passive solar design or climatic design because, unlike active solar heating systems, it doesn't involve the use of mechanical and electrical devices, such as pumps, fans or electrical controls to move the solar heat.

Five Elements of Passive Solar Design:

Aperture (Collector): the large glass (window) area through which sunlight enters the building. Typically, the aperture(s) should face within 30 degrees of true south and should not be shaded by other buildings or trees from 9 a.m. to 3 p.m. each day during the heating season.

Absorber: the hard, darkened surface of the storage element. This surface—which could be that of a masonry wall, floor, or partition (phase change material), or that of a water container—sits in the direct path of sunlight. Sunlight hits the surface and is absorbed as heat.

Thermal mass: the materials that retain or store the heat produced by sunlight. The difference between the absorber and thermal mass, although they often form the same wall or floor, is that the absorber is an exposed surface whereas storage is the material below or behind that surface.

Distribution: the method by which solar heat circulates from the collection and storage points to different areas of the house. A strictly passive design will use the three natural heat transfer modes—conduction, convection, and radiation—exclusively. In some applications, however, fans, ducts, and blowers may help with the distribution of heat through the house.

Control: roof overhangs can be used to shade the aperture area during summer months. Other elements that control under- and/or overheating include: electronic sensing devices, such as a differential thermostat that signals a fan to turn on; operable vents and dampers that allow or restrict heat flow; low-emissivity blinds; and awnings.

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Performance Testing

To help ensure a properly designed and installed air handler system and the air tightness of the shell of a home, several performance tests can be conducted. These tests will help identify weaknesses in the systems being tested and help show where corrective measures can be taken to improve the performance of the system being tested.

- **Duct Testing** – The best method to ensure airtight ducts is to pressure test the entire duct system, including all boot connections, duct runs, plenums, and air handler cabinet. Much like a pressure test for plumbing, ductwork can be tested during construction so that problems can be easily corrected.

  In most test procedures, a technician temporarily seals the ducts by taping over the supply registers and return grilles. Then, the ducts are pressurized to a given pressure – usually 25 Pascals. This pressure is comparable to the pressure the ducts experience when the air handler operates.

  The ducts are usually tested for tightness using a duct testing fan. Measuring the airflow through the fan gives an estimate of the air leakage through unsealed seams in the ductwork.

- **Blower Door Testing** – While there are many well known sources of air leakage, virtually all homes have unexpected air leakage sites called bypasses. These areas can be difficult to find and correct without the use of a blower door. This diagnostic equipment consists of a temporary door covering which is installed in an outside doorway and a fan which pressurizes (forces air into) or depressurizes (forces it out of) the building. When the fan operates, it is easy to feel air leaking through cracks in the building envelope. Most blower doors have gauges which can measure the relative leakiness of the home.

  One measure of a home's leakage rate is air changes per hour (ACH), which estimates how many times in one hour the entire volume of air inside the home leaks to the outside. The example, a home that has 2,000 square feet of living area and 8-foot ceilings has a volume of 16,000 cubic feet. If the blower door measures leakage of 80,000 cubic feet per hour, the home has an infiltration rate of 5 ACH. The leakier the house, the higher the number of air changes per hour, the higher the heating and cooling costs, and the greater the potential for moisture, comfort, and health problems.

To determine the number of air exchanges per hour, many experts use the blower door to create a negative pressure of 50 Pascals on the home. Fifty Pascals is approximately equivalent to a 20 mile-per-hour wind blowing against all surfaces of the home.

Exhibit II - 461

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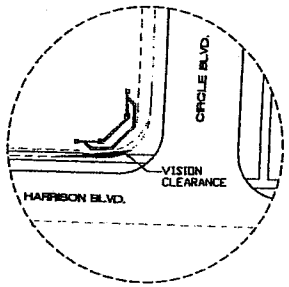
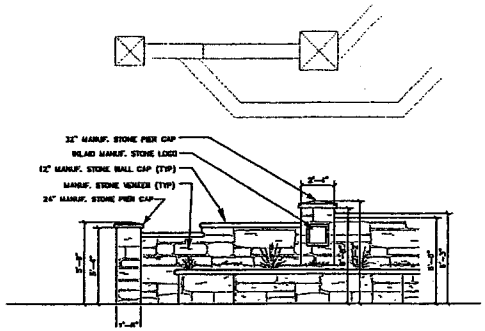
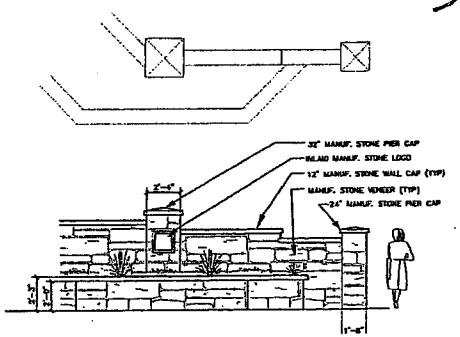


SITE PLAN
SCALE 1/8" = 1' - 0"



WEST WING ELEVATION
SCALE 1/4" = 1' - 0"



EAST WING ELEVATION
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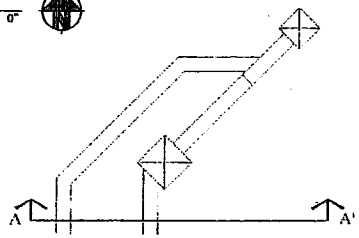

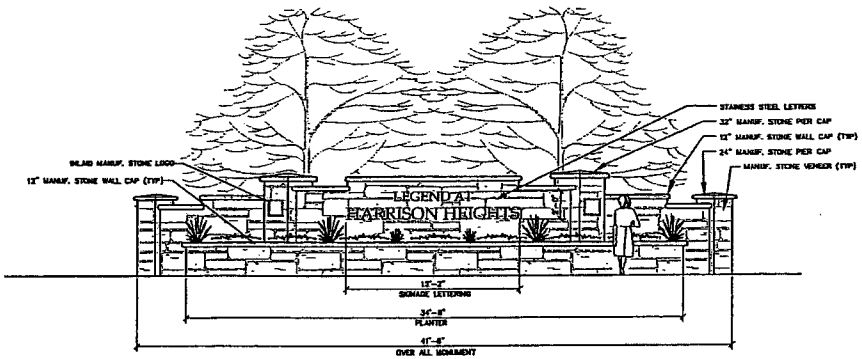

FRONT ELEVATION
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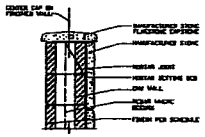

WALL SECTION
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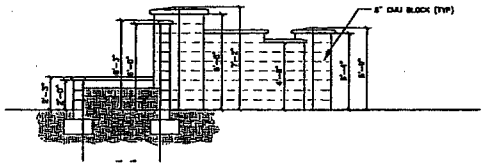

SECTION A - A'
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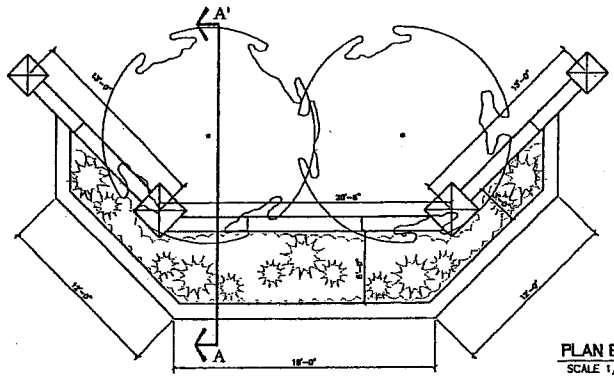
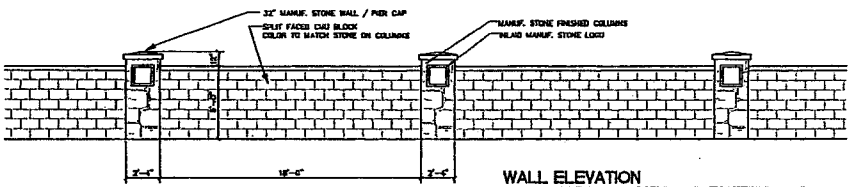


PLAN B
SCALE 1/4" = 1' - 0"



WALL ELEVATION
SCALE 1/4" = 1' - 0"

REVISIONS | NO. | DATE

Attachment I - 267
PLD06-00012, et al.

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3933 SW Kelly Avenue • Suite B • Portland, Oregon 97239-4393
Phone (503) 972-4311 • Fax (503) 972-4314 • www.ottenla.com

WITHAM OAKS
CORVALLIS, OR

MONUMENT DESIGN

DATE	11-28-06
SCALE	AS NOTED
DRAWN	RC
CHECKED	JO
SHEET NO	L1.0

ECOLOGY MIX SPECIFICATIONS

ProTime 710 PDX-PLUS Green Cover Plus Flowers

Designed to provide green cover with persistent color from year to year without supplemental irrigation or fertilizer after establishment. Mowing is not recommended for maximum bloom. PDX PLUS does well in virtually all climatic zones. Use a balanced starter fertilizer. Seeding Rate: 1.5 - 2.0 lbs per 1000 square feet depending upon slope.

PR8820 Perennial Ryegrass	*Lolium perenne 'PR8820'*	56%
Eureka Hard Fescue	*Festuca ovina duriuscula* 'Eureka'	15%
Dwarf Yarrow	*Yarrow millefolium*	7.5%
Dutch White Clover	*Trifolium repens*	6%
Perennial Lupine	*Lupinus perennis*	4.5%
Salina Strawberry Clover	*Trifolium fragiferum* 'Salina'	3%
California Poppy	*Eschscholzia californica*	3%
Sweet Alyssum	*Alyssum maritimum*	2%
Shasta Daisy	*Chrysanthemum maximum*	1.5%
Godetia	*Clarkia amoena*	1.5%

ProTime 712 PDX – Habitat

The newest in our ecology seed line, PDX-Habitat, features species selected to attract butterflies and hummingbirds to your site. Additionally, the low maintenance aspects of our other environmentally friendly mixes are the backbone of this product.

PR8820 Perennial Ryegrass	*Lolium perenne 'PR8820'*	55%
Quatro Tetraploid Sheep Fescue	*Festuca ovina l.* 'Quatro'	15%
Lemon Mint	*Monarda citriodora*	6%
Dutch White Clover	*Trifolium repens*	5%
Salina Strawberry Clover	*Trifolium fragiferum* 'Salina'	5%
Lupine	*Lupinus perennis*	4%
Godetia	*Clarkia amoena*	4%
White Yarrow	*Yarrow millefolium*	3%
Gold Yarrow	*Achillea filipendulina*	2%
Butterfly Weed	*Asclepias tuberosa*	1%

Exhibit II - 463

Mixes are subject to change without notice.

K

Conceptual Habitat Enhancement Plan For Portions of The Witham Oaks Development

December 17, 2006

Salix Associates
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Submitted to:
Matrix Development
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Introduction

This report outlines conceptual habitat enhancement measures that are proposed as part of the Witham Oaks development project. These measures are proposed to address issues associated with the presence of an intermittent stream on the site that may be a fish bearing stream as identified in the City of Corvallis Natural Features Inventory that was conducted in 2002 and adopted in 2004 by the City Council. City of Corvallis ordinance requires a minimum 50 foot buffer from the wetland-upland boundary of wetlands that are adjacent to a fish-bearing stream. The Witham Oaks development plan proposes a reduction from the minimum buffer standard along portions of the wetland-upland boundary adjacent to the southern edge of the developed area.

A wetland delineation completed in 2006 identifies wetlands adjacent to the stream. The wetland-upland boundary in this area is approximately 3360 feet in length, and under the proposed site plan, approximately 2085 feet (62%) would have or exceed the 50 foot buffer standard between the developed area and the wetland-upland boundary. The remainder (1275 feet; 38%) would have a buffer of less than 50 feet. More specifically, approximately 695 feet (21%) would have a 25 to 50 foot buffer, approximately 500 feet (15%) would have a buffer less than 25 feet and approximately 80 feet (2%) would have no buffer, (i.e. the development boundary would be immediately adjacent to the wetland boundary). The development plan, the wetlands that were delineated in 2006 and the location of the 50 foot buffer standard are shown in Exhibit 7.1 in the application submittal.

To compensate for the amount of area with reduced or no buffer, habitat enhancement plantings of native trees and shrubs, and control of invasive, exotic woody species are proposed for both upland and streamside areas between the southeast edge of the development and the bike path where the majority of reduced buffer is located. The enhancement measures will be applied at a 2:1 ratio, i.e., enhancement will be done on 2 acres for every 1 acre of reduced buffer area.

The streamside plantings will provide stream shading for cooler summer water temperatures, filter sediments and intercept pollutants, stabilize soil and streambanks to prevent channel erosion and downcutting, provide habitat for riparian invertebrates, and improve connectivity for terrestrial wildlife passage up and down the stream corridor. Plantings in uplands will increase habitat diversity on the site, provide visual screening between the developed and undeveloped areas, and potentially could function as a physical barrier to restrict human access to the wetlands. Restricted access could benefit vegetation and wildlife by reducing disturbance caused by the presence of people and pets.

Current Conditions

The development site is located on a very gently sloping, southerly aspect. The stream originates north of the site and flows along the west side of the bike path into the northern part of the proposed development area, crosses to the east side of the bike path and continues flowing south through the wetland area. It crosses back to the west side of the bike path about 200 feet north of Harrison Boulevard and leaves the site through a culvert that drains to Oregon State University lands on the south side of Harrison Boulevard. From this point it is conveyed by a channelized ditch to its outfall into Oak Creek.

The entire wetland area and adjacent uplands are dominated by non-native vegetation with very few native plant species present. Many of the dominant non-native species are invasive in wetland and upland prairies and woodlands in the Willamette Valley. These include English hawthorn, domestic pear, Armenian (Himalayan) blackberry, Scot's broom, sweetbriar rose, and several species of pasture grasses.

East of the creek are open meadows dominated by non-native pasture grasses with scattered small trees and shrubs, including English hawthorn, domestic apple, domestic pear, Armenian (Himalayan) blackberry and sweetbriar rose. There are a few native Oregon ash and Oregon crabapple growing in this area as well. Also on the east side of the creek is an area of fill that is dominated by dense Armenian blackberry, English hawthorn, and Suksdorf's hawthorn. This area is proposed for either a stormwater retention pond or a wetland mitigation site.

The stream corridor on the east side of the bike path has a narrow, broken overstory of small trees including Oregon ash, Suksdorf's hawthorn and English hawthorn. The northern third of this reach has very little woody vegetation, and is dominated by dense pasture grasses.

Habitats on the west side of the creek and bike path have more woody vegetation because they have been heavily invaded by English hawthorn and Armenian blackberry. A patch of young Oregon ash forest is located near the south boundary of the site, on both sides of the bike path.

In general, invasives have severely impacted the plant communities on the site. A few native herbaceous species are present, mostly in areas west of the bike path. However, no native dominated plant communities remain on the site.

Proposed Enhancements

Proposed enhancements will focus on increasing native woody vegetation and controlling invasive exotic trees and shrubs near the proposed development and along the creek. Enhancement measures will be implemented between the development area and the bike path from Street A east of lot 156 south to the area adjacent to the east side of lot 107 (Attachment A).

Proposed enhancement measures include the following:

1. Remove/control non-native woody vegetation. A variety of methods is available including manual (cut with chainsaws), mechanical (mowing, brush hog) and chemical (herbicide). A combination of methods likely will be necessary. For example, shrubs and trees such as Armenian blackberry and English hawthorn can be mowed or brush hogged, but will resprout from the cut stumps. The stumps can be treated topically with herbicide immediately after cutting, and resprouts can be treated with a follow-up topical application. Broadcast spraying of herbicides should be avoided to minimize impacts on non-target species including birds, invertebrates, and remnant native plants.

2. Plant native trees and shrubs that are appropriate to the site and to the particular habitats present. Plantings will occur both in uplands and along that portion of the stream corridor that extends from Street A south along the west side of the path. Planting stock should be obtained from local seed or cuttings. Importation of plant material from distant sites or other ecoregions is discouraged because planting stock may not be adapted for the local site conditions, and may

negatively impact genetics of local native species. A list of native species that could potentially be used is included in Attachment B with information about habitat and hydrologic requirements, and habitat values. Native trees and shrubs should be planted along the stream to enhance stream habitat and water quality. In upland areas, clumped and more widely spaced plantings will allow intermittent views from the developed area into the wetlands and vice versa, and protect additional site values associated with open habitats.

Analysis of Benefits of Habitat Enhancement

The proposed enhancement measures will improve habitat values in several ways. Exotic, invasive trees and shrubs currently impact much of the site and surrounding habitats by infilling valuable open habitats, displacing native plant and specialist invertebrate species and providing a seed source for infestation of other sites. Efforts to remove these species will open habitat for native species that will be planted to replace the exotics and will reduce their spread to surrounding habitats through dispersal by birds and other wildlife. While many of the exotic species provide some wildlife habitat values in the form of food, cover and nesting habitat, their overall impact on the site and surrounding areas is to reduce species and habitat diversity and to crowd out native plant species to which local wildlife species are adapted.

Streamside plantings of native trees and shrubs can have several beneficial effects on stream habitat, water quality, and downstream conditions in Oak Creek. Woody vegetation will shade the stream which will help to keep summer streamflow cooler. Dense roots of willows, creek dogwood and other riparian shrubs will help to knit the soil together to resist the erosive force of the stream and stabilize streambanks, resulting in less downcutting of the stream channel, and less sediment carried downstream. The network of roots also will filter sediment and pollutants, preventing or slowing their release into the stream. Downstream fish habitats will benefit from cooler, cleaner flows coming off the site.

Areas away from the stream will also benefit from plantings of native trees and shrubs. The plantings will increase habitat diversity on the site, especially if much of the remainder of the site remains in a relatively open (prairie) condition. Plantings of Oregon white oak, Valley ponderosa pine and a mix of native shrubs will provide structural diversity, food and cover for resident and migratory songbirds, small mammals, insects and other invertebrates. The plantings will partially screen the developed area from the wetlands and from more distant viewpoints. Dense patches of appropriately placed shrubs can be used to restrict access from some parts of the wetlands to control impacts from human use.

According to the Oregon Natural Heritage Information Center (ORNHIC), no rare species have been documented on the site. A population of Nelson's checkermallow (*Sicalcea nelsoniana*, federal and state listed as Threatened) is documented along Harrison Boulevard approximately ¼ mile west of the Witham Oaks site. The agricultural history of the Witham Oaks site and the degraded nature of the habitats present in the proposed habitat enhancement area make it very unlikely that Nelson's checkermallow is present. The proposed enhancements are not anticipated to impact Nelson's checkermallow, or other rare species.

Although a wetland mitigation plan has not been completed at this time, the enhancements outlined in this conceptual plan could be coordinated with and complementary to wetland mitigation activities on the site. For example, streamside plantings of native trees, shrubs and herbs could be extended north along the stream corridor through the developed area to the

northern boundary of the development property providing connectivity to habitats in the City's open space parkland to the north. Also, if native prairie type habitats are specified in the mitigation plan, the woody vegetation planted for habitat enhancement will increase habitat diversity in an otherwise more open landscape.

Attachments

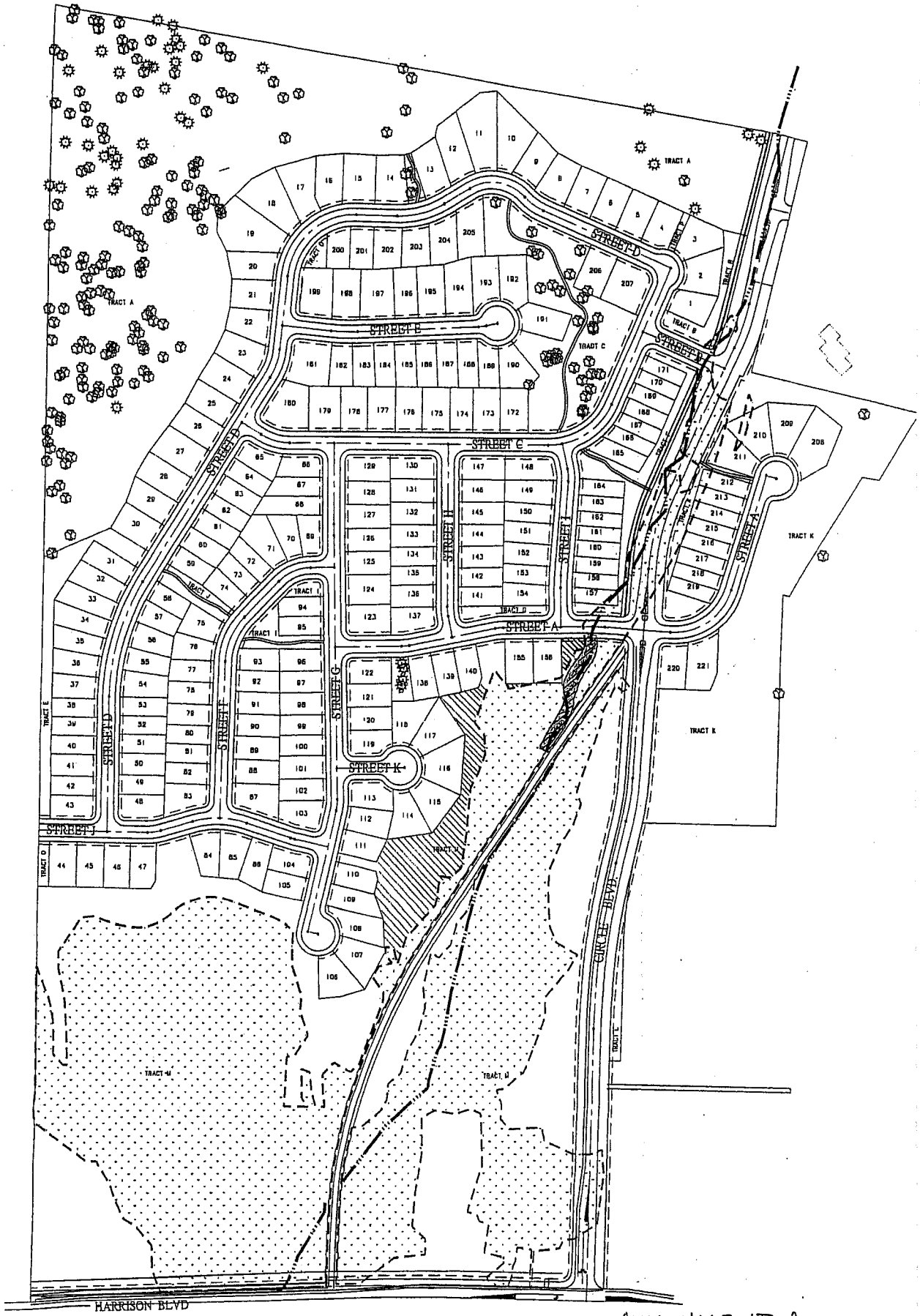
A – Aerial photo map showing locations of enhancement activities

B – List of native trees and shrubs suitable for habitat enhancement plantings

Attachment A

Exhibit II - 470

Attachment B



ATTACHMENT A
ENHANCEMENT AREAS
STREAMSIDE
UPLANDS

otak

200' 0' 200' 400'
SCALE IN FEET

Exhibit II - 472

Sample List of Native Trees and Shrubs for Witham Oaks Habitat Enhancement Plantings

Salix Associates 2006

LATIN NAME	COMMON NAME	UPLANDS	WETLANDS	STREAM	Notes on values and other considerations
TREES					
Acer macrophyllum	bigleaf maple	+			Birds, butterfly larval host; large, spreading, fast growth
Alnus rhombifolia	white alder			+	Birds, butterfly larval host; fast growing
Crataegus suksdorfii	Suksdorf's hawthorn	+	+	+	Birds eat fruits; small tree, average growth rate
Fraxinus latifolia	Oregon ash		+	+	Birds, butterfly larval host; fast growing
Pinus ponderosa	ponderosa pine	+	+	+	Birds, small mammals, butterflies; use only Valley Ponderosa Pine
Quercus garryana	Oregon white oak	+			Important for numerous species of birds, small mammals, butterflies
SHRUBS and SMALL TREES					
Amelanchier alnifolia	Pacific serviceberry	+		+	Birds, butterflies; ok to use in transitionally wet areas
Berberis aquifolium	tall Oregongrape	+			Birds, butterflies, specialist pollinators
Cornus sericea	creek dogwood		+	+	Birds, butterfly larval host; good soil stabilizer
Corylus cornuta var. californica	California hazel	+			Birds, butterfly larval host
Malus fusca	Oregon crabapple		+		Birds
Oemleria cerasiformis	osoberry	+			Birds; blooms in very early spring
Physocarpus capitatus	ninebark			+	Birds; common creekside shrub
Prunus virginiana var. demissa	chokecherry	+			Birds, butterflies, specialist pollinators
Rhamnus purshiana	cascara	+			Important late season food for western bluebird
Ribes divaricatum	straggly gooseberry			+	Birds, butterfly larval host
Rosa nutkana var. nutkana	Nootka rose	+	+	+	Birds, butterfly larval host
Rosa pisocarpa	clustered rose		+	+	Birds, butterfly larval host
Salix hookeriana	Hooker's willow				Birds, butterflies, good soil stabilizer, establish from cuttings
Salix lucida ssp. lasiandra	Pacific willow			+	Birds, butterflies, establish from cuttings
Salix sitchensis	Sitka willow		+	+	Birds, butterflies, good soil stabilizer, establish from cuttings
Spiraea douglasii	Douglas' spiraea		+	+	Birds, butterflies
Symphoricarpos albus	snowberry	+			Birds, butterflies, specialist pollinators

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Corvallis Natural Resource Inventory	**Wetland:**	**WC-OAK-W-13**
Project Location:	Benton County	**Wetland Type(s):**	PSS,PEM

Date(s) of field work:	N/A	**Approx. Area (acres):**	25.06
Onsite Assessment?:	NO	**Investigator(s):**	PF
Wetland Location:	East of Walnut Boulevard, north of Harrison Boulevard.		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	B	Q-1	B	Q-1	B	Q-1	B
Q-2	A	Q-2	A	Q-2	B	Q-2	B	Q-2	B
Q-3	B	Q-3	C	Q-3	A	Q-3	A	Q-3	C
Q-4	C	Q-4	A	Q-4	A	Q-4	C	Q-4	B
Q-5	A	Q-5	B	Q-5	B	Q-5	A	Q-5	A
Q-6	A	Q-6	B	Q-6	C	Q-6	B	Q-6	A
Q-7	A					Q-7	C		
Q-8	B								
Q-9A									
Q-9B	A								

Results:

Wildlife Habitat	Wetland provides diverse wildlife habitat
Fish Habitat	Wetland's fish habitat function is impacted or degraded
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1		Q-1	C	Q-1	A	Q-1	A
Q-2		Q-2	A	Q-2	C	Q-2	A
Q-3		Q-3	A	Q-3	A	Q-3	A
Q-4		Q-4	A	Q-4	A	Q-4	A
Q-5B		Q-5	A	Q-5	B	Q-5	A
Q-6		Q-6	B	Q-6	B	Q-6	A

Results:

Enhancement Potential	Due to diverse wildlife habitat, this wetland cannot be enhanced
Education	Wetland site is not appropriate for educational use
Recreation	Wetland provides recreational opportunities
Aesthetic Quality	Wetland is considered to be pleasing

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Corvallis Natural Resource Inventory	**Wetland:**	**WC-OAK-W-13**
Location:	Benton County	**Approx. Area (acres):**	25.06
Date:	N/A	**Wetland Types(s):**	PSS,PEM

Result:	**Wetland provides diverse wildlife habitat**	
Rationale:	More than one Cowardin class	No adjacent Water Quality limited streams
	Dominated by woody vegetation	Adjacent land use is primarily agriculture
	Less than 0.5 acres of open water	Wetland buffer is greater than 40%
Result:	**Wetland's fish habitat function is impacted or degraded**	
Rationale:	25-50% of stream is shaded	No adjacent Water Quality Limited streams
	Stream is in a natural channel	Adjacent land use is primarily agriculture
	<10% of stream has instream structures	Warmwater fish present in stream
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is precipitation	Wetland is more than 5 acres in size
	Can't determine if wetland floods or ponds	Adjacent land use is primarily agriculture
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Dominated by woody vegetation
	Can't determine if wetland floods or ponds	Agriculture downslope of wetland
	Water has unrestricted flow out of wetland	Open space upslope of wetland
Result:	**Wetland is potentially sensitive to future impacts**	
Rationale:	Stream not modified	Adjacent land use is primarily agriculture
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Dominated by woody vegetation
Result:	**Due to diverse wildlife habitat, this wetland cannot be enhanced**	
Rationale:	Though the wetland generally provides diverse habitat, portions of this wetland unit may	
	have enhancement potential.	
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	Maintained public access within 250 feet
	No visible hazards to public	Wetland is not limited mobility accessible
	Public access to other habitats exist	
Result:	**Wetland provides recreational opportunities**	
Rationale:	Maintained public access within 250 feet	Wetland provides diverse wildlife habitat
	No boat launching can be developed	No fishing is allowed
	Maintained trails, viewing areas exist	No hunting is allowed
Result:	**Wetland is considered to be pleasing**	
Rationale:	More than two Cowardin classes are visible	Wetland surrounded by natural areas
	>50% of wetland can be seen	Natural odors present at wetland
	No visual detractors are present	Some traffic and natural noises are present

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Corvallis Natural Resource Inventory	**Wetland:**	**WC-OAK-W-13**
Project Location:	Benton County	**Approx. Area (acres):**	25.06
Date:	N/A	**Wetland Types(s):**	PSS,PEM

Exclusions **: This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**

1	Is this wetland artificially created entirely from upland and		
a.	created for the purpose of controlling, storing, or maintaining stormwater		No
b.	is used for active surface mining or as a log pond		No
c.	is a ditch without a free and open connection to natural waters of the state		No
d.	is less than 1 acre and created unintentionally from irrigation or construction		No
e.	created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2	Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
	Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria **: This wetland is locally significant if "Yes" is the answer to any of the criteria below.**

1	Does the wetland provide *diverse wildlife habitat* ?	Yes	
2	Is the wetland's *fish habitat function intact* ?		No
3	Is the wetland's *water quality function intact* ?		No
4	Is the wetland's *hydrologic control function intact* ?		No
5	Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded* ?		No
6	Does the wetland contain a rare plant community?		No
7	Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8	Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
	Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria **: local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**

1	Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2	Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
	Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Exhibit II - 476

Wetland Characterization Sheet

Project Name: Corvallis Natural Resource Inventory

		Wetland Code:	**WC-OAK-W-13**
Date(s) of field work:	**N/A**	Size (acres):	**25.06**
Data Sheet Numbers:	**OFF-SITE**	Cowardin Class(es):	**PSS,PEM**
Investigator(s):	**PF**	HGM Class(es):	**S/F, RFT**

Location -- Legal:	**T. 11S, R. 5W, S. 33**
Other:	**East of Walnut Boulevard, north of Harrison Boulevard.**
Tax Lots:	
Hydrologic basin:	**Oak Creek**
Soil -- Mapped series:	**Bashaw clay, Amity silt loam, Hazelair silt loam**
Hydrologic Source:	**Precipitation**

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Fraxinus latifolia	Oregon Ash	*Agrostis tenuis*	Colonial Bentgrass
Crataegus douglasii	Douglas' Hawthorn	*Juncus tenuis*	Slender Rush
		Alopecurus pratensis	Meadow Foxtail
		Holcus lanatus	Common Velvet Grass
		Poa pratensis	Kentucky Bluegrass

Comments: **Locally Significant Wetland**

OFF-SITE. Previously delineated (DSL WD #99-0556). Witham Hill area with slope wetland to Harrison. Combination of scrub shrub (65%) and emergent wetland (35%), with intermittent drainage from hill. Zoned for residential. Existing land use is undeveloped/ abandoned pasture.

Adjacent upland species: Quercus garryanna, Rhus divsersiloba, Rubus discolor, Festuca arundinacea, Pseudotsuga menziesii, Crataegus monogyna, Cytisus scoparius

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	F = Flats	

Riparian Characterization Form

Corvallis Riparian Inventory

GENERAL INFORMATION

Location of data point: Tributary to Oak Creek south of Harrison

GPS Location: 44.5701 N 123.3009 W

Map Number: W-10

Date: 7/12/2002

Riparian Code: WC-OAK-R-14

On-site: ☒ **Off-Site:** ☐

Reach Length: 1575 feet

Investigators: CR/PF

Hydrologic Basin: OAK CREEK

WATER RESOURCE INFORMATION

Water Resource:				
Stream/River:	X	Width:	1-2	feet
Lake/Pond:		Width:		feet
Wetland:		Width:		feet

LWI Wetland Code:

Water present year-round: Yes ☐ No ☒

Are salmonids present in the adjacent water resource? Yes ☐ No ☒

Is the water resource listed for temperature on DEQ's 303(d) list: Yes ☐ No ☒

Within FEMA-mapped 100-year floodplain: Yes ☐ No ☒

Mapped soil series: Amity silt loam

Adjacent Land Uses? (Check as many as needed)

Agriculture: ☒ Residential: ☐ Undeveloped: ☒

Commercial/Indus.: ☐ Roads: ☐ Forestry: ☐

Other: ☐

Dominant tree species: *FRAXINUS LATIFOLIA*

Comments: see other page

Exhibit II - 478

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% ☐ >25% ☐

Is the stream or water resource constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☒ 25% - 75% ☐ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Corvallis Riparian Inventory

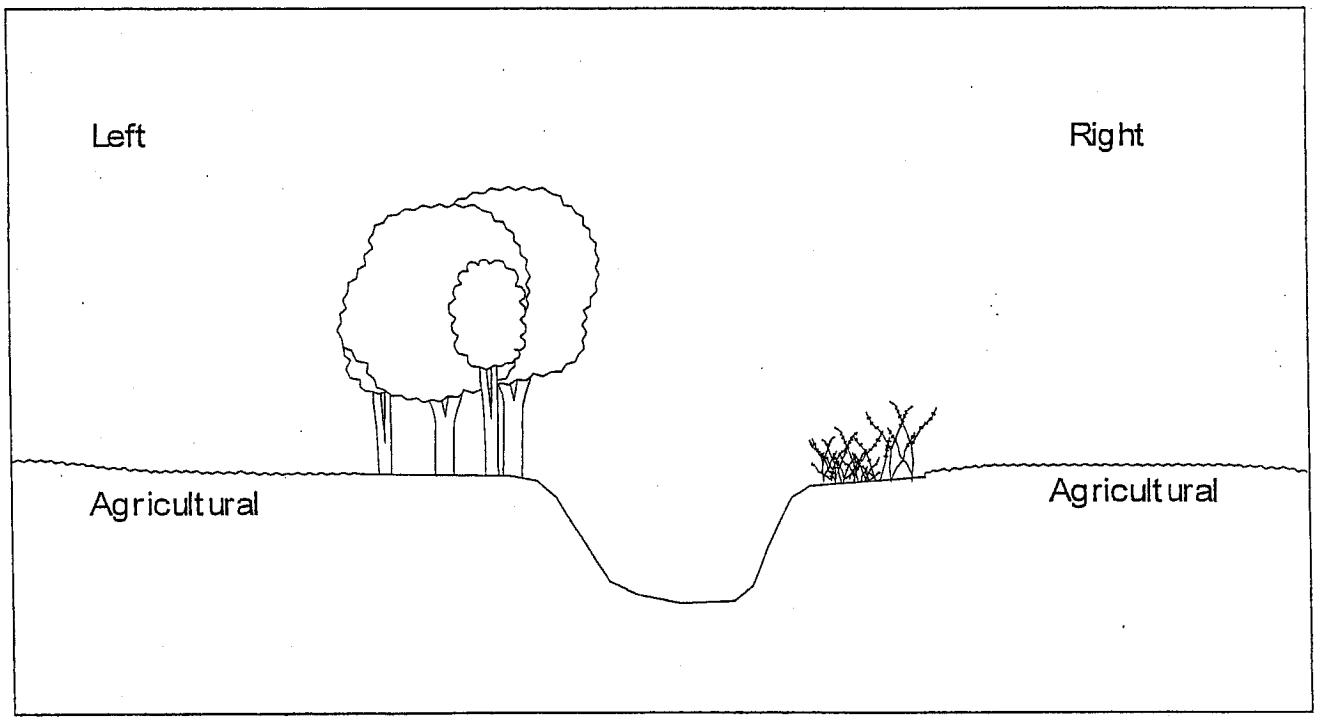
RIPARIAN CODE

WC-OAK-R-14

Date: 7/12/2002 **Investigators:** CR/PF

Dominant tree species: *Fraxinus latifolia*

Comments: Narrow drainage to Oak Creek through OSU agricultural fields. Riparian area farmed with narrow fringe of woody vegetation at top of bank.



Riparian Functional Assessment Answer Sheet

Corvallis Riparian Inventory

RIPARIAN CODE

WC-OAK-R-14

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	3
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	2
b. High, severe, very high	1 pts	
	Total Points:	13

Exhibit II - 481

Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

FUNCTION IS: HIGH

Riparian Functional Assessment Answer Sheet

Corvallis Riparian Inventory

RIPARIAN CODE

WC-OAK-R-14

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	3
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	1
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	3
b. Yes	1 pts	
Total Points:		7

Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION IS: MEDIUM

Exhibit II - 482

Riparian Functional Assessment Answer Sheet

Corvallis Riparian Inventory

RIPARIAN CODE
WC-OAK-R-14

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	3
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pts	
Total Points:		7

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS: HIGH

Exhibit II - 483

Riparian Functional Assessment Answer Sheet

Corvallis Riparian Inventory

RIPARIAN CODE
WC-OAK-R-14

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	3
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Corvallis Riparian Inventory

RIPARIAN CODE

WC-OAK-R-14

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	1
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	1
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	3
c. Greater than 75%	1 pt	
Total Points:		15

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS: MEDIUM

Exhibit II - 485

Corvallis Natural Features Inventory
Supplemental Riparian Form

Basin: OAK **Reach:** WC-OAK-R-14 **Size (acres):** 5.55
Map: W-1 **Length (feet):** 1575

Dominant Cover Type: HERBACEOUS

ARA Cover Type: Grass short (lawn, pasture)

Other ARA Types NONE

% of Total Cover Trees: 2 **Shrubs** 2 **Herbs/Vines** 96 **Bare:** 0

Dominant Cover Type At Edge of Water: WOODY

Edge of Water ARA Type Open (<30% canopy) non-oak woods

Riparian System: LOTIC

Trees:

Type: DECIDUOUS

Dominant Species: Oregon ash (Fraxinus latifolia)

Secondary Species: Douglas hawthorn (Crataegus douglasiii)

% Total Cover: ◉<10% ○ 10%-50% ○ 50%-90 ○ >90%
% Invasive Cover: ◉<10% ○ 10%-50% ○ 50%-90 ○ >90%
% Native Cover: ○<10% ○ 10%-50% ○ 50%-90 ◉ >90%

Shrubs/Sapling

Type: DECIDUOUS

Dominant Species: Douglas hawthorn (Crataegus douglasiii)

Secondary Species: English hawthorn (Crataegus monogyna)

% Total Cover: ◉<10% ○ 10%-50% ○ 50%-90 ○ >90%
% Invasive Cover: ○<10% ◉ 10%-50% ○ 50%-90 ○ >90%
% Native Cover: ○<10% ○ 10%-50% ◉ 50%-90 ○ >90%

Herbaceous

Type: MIXED

Dominant Species: Himalayan blackberry (Rubus discolor)

Secondary Species: meadow foxtail (Alopecurus pratensis), tall fescue (Festuca arundinacea), orchardgrass (Dactylis glomerata), bentgrass (Agrostis sp.)

% Total Cover: ○<10% ○ 10%-50% ○ 50%-90 ◉ >90%
% Invasive Cover: ○<10% ◉ 10%-50% ○ 50%-90 ○ >90%
% Native Cover: ◉<10% ○ 10%-50% ○ 50%-90 ○ >90%

Corvallis Natural Features Inventory
Supplemental Riparian Form

Basin: OAK **Map:** W-1

Reach: WC-OAK-R-14

RTE Species

ORNHIC Plant Community: ⦿ None Noted ○ Listed Community Noted

ORNHIC or Benton Co. NSP List ⦿ None Detected ○ Potential ○ Listed Species Detected

Riparian Condition Assessment

Land Use within: AGRICULTURAL

Land Use adjacent: AGRICULTURAL

Infrastructure Impingement: NON-IMPINGED

In Channel Alteration: UNALTERED

LWD Recruitment Potential: LOW

Shade Potential: MODERATE

RCA Functional Designation: Nearly Fully Functional

Restoration Potential

Adjacent slopes of 15% or greater	⦿ <10%	○ 10%-50%	○ 50%-90	○ >90%
Undeveloped land within 50ft of top of bank	○ <10%	○ 10%-50%	○ 50%-90	⦿ >90%
Within 100-yr floodplain:	⦿ <10%	○ 10%-50%	○ 50%-90	○ >90%
Low quality wetlands or hydric soils:	○ <10%	○ 10%-50%	○ 50%-90	⦿ >90%
Adjacent landscape areas:	⦿ <10%	○ 10%-50%	○ 50%-90	○ >90%

Opportunities: AGRICULTURAL FIELD-OSU DAIRY FIELDS

Current Efforts NONE OBSERVED

COMMENTS INTERMITTENT DRAINAGEWAY