

Natural Resource Review
for the Proposed Kellogg Creek
Subdivision in Milwaukie, Oregon
(Township 2 South, Range 2 East, Section 6AD,
Clackamas County, TL 600 and Portions of 700, 900, 901)

Prepared for
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1.0 INTRODUCTION

The City of Milwaukie (the “City”) has mapped Water Quality Resource (WQR) and Habitat Conservation Area (HCA) within the proposed Kellogg Creek Subdivision project site. Brownstone Development, Inc. (the “Applicant”) seeks approval for the proposed development through a Type III General Discretionary Review. The following document demonstrates how the proposed project will be in compliance with the applicable development standards that are listed in the Natural Resources (NR) Zoning Code Section 19.402 of the City of Milwaukie Municipal Code (MMC). Pacific Habitat Services, Inc. (PHS) has prepared a Natural Resource Review in accordance with MMC Section 19.402 to support the land use application. The information necessary to process the application is provided in the following sections. Supporting information is included in Attachment A (Figures) and Attachment B (Wetland Delineation Report).

2.0 APPLICANT INFORMATION

2.1 Applicant

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2.2 Applicant’s Agent

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3.0 SITE INFORMATION

The following information is for the parcel which is the subject of this natural resource review.

Site Address: 13333 SE Rusk Road, Milwaukie, OR 97222
Zoning: Residential R-3 and R-10
Legal Description: Tax Lot (TL) 600 and portions of TL 700, 900, 901, Section 6AD 2S 2E (15.58 acres), Clackamas County

3.1 Site Description

The site is located southwest of Highway 224 (Pacific Highway), north of SE Kellogg Creek Drive, and north and west of SE Rusk Road. Mt. Scott Creek flows to the west along the northern edge of the study area, and the North Clackamas Park Milwaukie Center borders the western edge. The site is located within a residential area; undeveloped woodland is located immediately to the north and northwest of the study area, and the Turning Point Church is located in the southeast corner of the site at 13333 SE Rusk Road (Figures 1 and 2). The eastern half of the property, near the church, is relatively level; however, the western half descends abruptly to a lower woodland area. Site elevations range from approximately 80 feet National Geodetic Vertical Datum (NGVD) in the eastern half of the site, to approximately 66 feet NGVD in the lower reaches of the western half of the site. The site has not been subject to recent construction activities; however, it appears that the substrate throughout much of the central and eastern half of the site consists of fill material, up to more than 12 feet thick, likely associated with the construction of the church, over two decades ago.

On November 21, 2016, PHS identified and delineated one potential wetland area (Wetland A) and Mt. Scott Creek (south bank only), as well as six potentially artificially created wetland areas (Wetlands B through G). Descriptions of the on-site wetlands and non-wetland waters are provided below, and are further detailed in the Wetland Delineation Report (Attachment B). Figure 3 shows the existing site conditions.

Mt. Scott Creek, a tributary to Kellogg Creek and the Willamette River, is a perennial stream that generally flows to the west along the northern boundary of the study area. The stream banks are well defined and near vertical at the location of the OHW line. The plant community of the riparian area along the creek includes a deciduous overstory of big-leaf maple (*Acer macrophyllum*), Oregon white oak (*Quercus garryana*), Oregon ash (*Fraxinus latifolia*), and red alder (*Alnus rubra*); and a shrub and herbaceous understory composed of species such as snowberry (*Symphoricarpos albus*), Pacific ninebark (*Physocarpus capitatus*), Scouler's willow (*Salix scouleriana*), English hawthorn (*Crataegus monogyna*), Fuller's teasel (*Dipsacus fullonum*), and spreading bentgrass (*Agrostis stolonifera*). Mt. Scott Creek continues outside the project area to the north, west and east.

An approximately 0.70-acre (30,386 square feet) wetland (Wetland A) is located in the low-lying woodland area in the western half of the site, south of Mt. Scott Creek. The plant community within Wetland A is a combination of deciduous woodland bordered by open fields. Dominant species within the woodland include an overstory of Oregon ash and black cottonwood (*Populus balsamifera*), with a woody understory of Oregon ash, black cottonwood, red-osier dogwood (*Cornus alba*), snowberry, and Himalayan blackberry (*Rubus armeniacus*). The open fields include reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), large-leaf avens (*Geum macrophyllum*), slender rush (*Juncus tenuis*), rough bluegrass (*Poa trivialis*), bitter dock (*Rumex obtusifolius*), and common dandelion (*Taraxacum officinale*).

The adjacent upland areas include Oregon ash, Himalayan blackberry, snowberry, English hawthorn, reed canarygrass, Fuller's teasel, large-leaf avens, bull thistle (*Cirsium vulgare*), fringed willowherb (*Epilobium ciliatum*), Dewey sedge (*Carex deweyana*), common selfheal (*Prunella vulgaris*), Western swordfern (*Polystichum munitum*), lentil vetch (*Vicia tetrasperma*), creeping buttercup, spreading bentgrass, field horsetail (*Equisetum arvense*), narrow-leaf goosefoot (*Chenopodium leptophyllum*), spotted cat's ear (*Hypochaeris radicata*), European centaury (*Centaureum erythraea*), wild carrot (*Daucus carota*), tansy ragwort (*Senecio jacobaea*), and colonial bentgrass (*Agrostis capillaris*).

In addition to Wetland A, six potentially artificially created wetlands (Wetlands B –G) are located in the central portion of the site. These wetlands generally consist of small, shallow, isolated depressions. Table 2 lists the area of each wetland.

Wetland	Area (square feet / acres)
B	905 / 0.02
C	176 / 0.004
D	172 / 0.004
E	998 / 0.02
F	301 / 0.007
G	666 / 0.02
Total	3,218 / 0.07

All six of these wetlands are similar in character. The plant communities in both the wetland and upland areas are primarily composed of weedy grasses and herbs; the wetland areas include reed canarygrass, spreading bentgrass, soft rush (*Juncus effusus*), spotted cat’s ear, and oxeye daisy (*Chrysanthemum vulgare*); the adjacent upland areas include wild carrot, curly dock (*Rumex crispus*), colonial bentgrass, bluegrass (*Poa sp.*), common velvet grass (*Holcus lanatus*), tall fescue (*Schedonorus arundinaceus*), yellow glandweed (*Parentucellia viscosa*), and English plantain (*Plantago lanceolata*).

Hydrology within Wetlands B through G primarily consists of surface runoff and precipitation. As discussed in the *Subsurface Conditions* section of the geotechnical evaluation report (Appendix E of the Wetland Delineation Report), fill material in the central portion of the site was observed to be approximately 10 feet thick, and groundwater was not encountered in the test pits in the vicinity of these wetlands. Therefore, it is reasonable to assume that these wetlands are not hydrologically connected to the water table, and as such, are considered to be non-jurisdictional artificially created wetlands.

The wetland delineation report (Attachment B) has been submitted to the Oregon Department of State Lands (DSL) for review and approval. Upon receipt of the concurrence letter from DSL, the Applicant will provide a copy to the City for its files.

4.0 PROJECT DESCRIPTION

The Kellogg Creek Subdivision will consist of the construction of a planned residential development with 92 dwelling units, associated parking, roads, utilities, landscaping, and three stormwater treatment facilities. Mt. Scott Creek (a perennial stream) and Wetland A (a Title 3 wetland) are both Primary Protected Water Features, as defined in the City’s Natural Resources Code (MMC 19.402). As such, the proposed project is subject to discretionary review under MMC Subsections 19.402.8, 19.402.9, 19.402.11, 19.402.12, and 19.402.13I – J. This Natural Resource Review describes the existing Water Quality Resource (WQR) and Habitat Conservation Area (HCA) on the site and demonstrates project compliance with the applicable sections of the municipal code.

This Natural Resource review includes an evaluation of the condition of the WQR on the site, an analysis of potential impacts from the proposed development on the WQR and the HCA, a mitigation plan to compensate for those impacts, and an HCA boundary verification and updated map.

5.0 EXISTING WQR AND HCA ON THE PROJECT SITE

Mt. Scott Creek and Wetland A are primary protected water features, and as described in Table 19.402.15, Determination of WQR Location in MMC Subsection 19.402.15, primary protected water features have an associated vegetated corridor of 50 to 200 feet wide depending on the slopes adjacent to the resource. The slopes adjacent to the south side of Mt. Scott Creek are less than 25 percent, and therefore, the associated vegetated corridor in this area is 50 feet wide. For the same reason, the vegetated corridor along the north, south and west side of Wetland A are also 50 feet wide. However, the slopes along a short segment of vegetated corridor adjacent to the eastern edge of Wetland A, vary in steepness from less than to greater than 25 percent near the fill slope; therefore, in this area, the width of the vegetated corridor ranges from 50 to 130 feet. The extent of the vegetated corridor on the project site, based on the surveyed boundaries of the wetland and waterway is depicted on Figure 4. The total area of WQR on the site (not including the stream and wetland) is approximately 103,187 sf (2.37 acre). Section 6.3 MMC19.402.11.C describes the condition of the vegetated corridor.

Mt. Scott Creek and Wetland A also have associated HCAs. The Milwaukie Interactive Zoning Map (<http://milwaukie.maps.oregis.com/apps/webappviewer/index.html?id=48bfb9fc517446f9af954d4d1c4413af>) shows HCAs extending onto the northern and western portions of the site. The City's GIS-mapped HCA is depicted on Figure 4. The total area of HCA on the project site is approximately 175,791 sf (4.04 acre). This HCA, and the WQR noted above, are used in the impact evaluation and alternatives analysis below.

6.0 COMPLIANCE WITH MILWAUKIE MUNICIPAL CODE

6.1 MMC 19.402.8 – Activities Requiring Type III Review

Within either WQRs or HCAs, the following activities are subject to Type III review and approval by the Planning Commission under Section 19.1006, unless they are otherwise exempt or permitted as a Type I or II activity.

B. The activities listed below shall be subject to the review criteria for partitions and subdivisions provided in Subsections 19.402.13.H and I, respectively:

- 2. The subdividing of land containing a WQR or HCA.*

The proposed project site contains both WQR and HCA, and the project will require the subdividing of land.

6.2 MMC 19.402.9 – Construction Management Plans

B. Construction management plans shall provide the following information:

- 1. Description of work to be done.*
- 2. Scaled site plan showing a demarcation of WQRs and HCAs and the location of excavation areas for building foundations, utilities, stormwater facilities, etc.*
- 3. Location of site access and egress that construction equipment will use.*
- 4. Equipment and material stockpile areas.*
- 5. Erosion and sediment control measures.*

As stated above in Section 4, the project is the construction of a planned residential development with 92 dwelling units, associated parking, roads, utilities, landscaping, three stormwater treatment facilities, and balanced cut/fill in the floodplain. Site preparation will include grubbing and grading. A demarcation of WQRs and HCAs and the location of excavation areas for building foundations, utilities, stormwater facilities, etc. are shown on Figure 5. Figures 5A and 5B show alternative site plans, which are discussed below in Section 6.4. The site access and egress locations that construction equipment will use, as well as equipment and material stockpile/staging areas, are shown on the Construction Management Plan (Figure 6). As shown on Figure 6, erosion control fencing will be placed at the limits of disturbance. This fencing will act as a physical barrier and prevent the encroachment of machinery into portions of the WQR and HCA areas that are to remain undisturbed.

The following components of the erosion control plan will protect against erosion, prevent the transport of sediments offsite and into the remaining WQR and HCA areas, and ensure that impacts are minimized. The proposed project will have no detrimental impact on resources or functional values of WQR and HCA areas designated to be left undisturbed. The use of construction fencing and erosion and sediment control barriers at the limits of work, as well as other methods described below will prevent direct physical impacts to nearby areas of WQR and HCA to remain undisturbed.

- Prior to the start of any earth-moving activities, construction fencing will be installed at the limits of the work area, which in this case will be along the outer edge of the proposed development. Sediment fence will be installed inside the construction fencing.
- All base erosion and sediment prevention control measures (including inlet protection, perimeter sediment control, gravel construction entrances, etc.) will be in place, functional, and approved in an initial inspection prior to the start of any construction activities.
- Construction entrances will be installed prior to construction and maintained for the duration of the project.
- Active inlets to stormwater systems will be protected with approved inlet protection measures. All inlet protection measures will be regularly inspected and maintained as necessary. These inlet protection measures will prevent runoff from reaching discharge points.
- Exposed cut and fill areas will be stabilized through the use of temporary seeding and mulching or other appropriate measures.
- Seed used for temporary or permanent seeding will be per specifications.

- Slopes receiving temporary or permanent seeding will have the surface roughened to improve seed bedding and reduce run-off velocities.
- Stockpiled soil or strippings will be placed in an approved, stable location and configuration. During “wet weather” periods, stockpiles will be covered with straw mulch. Sediment fence will be placed around the perimeter of all stockpiles.
- Appropriate dust control measures, including the application of a fine spray of water, straw mulching or other approved measures, will be used in areas subject to wind erosion. Any saturated materials hauled off site will be transported in watertight trucks to prevent the spillage of sediment or sediment-laden water.

The proposed project will have no detrimental impact on resources or functional values of WQR and HCA areas designated to be left undisturbed. The use of construction fencing and erosion and sediment control barriers at the limits of work, as well as other methods described in the Construction Management Plan will prevent direct physical impacts to nearby areas of WQR and HCA to remain undisturbed.

6. *Measures to protect trees and other vegetation located within the potentially affected WQR and/or HCA. A root protection zone shall be established around each tree in the WRQ or HCA that is adjacent to any approved work area. The root protection zone shall extend from the trunk to the outer edge of the tree’s canopy, or as close to the outer edge of the canopy as is practicable for the approved project. The perimeter of the root protection zone shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Material storage and construction access is prohibited within the perimeter. The root protection zone shall be maintained until construction is complete.*

The Tree Removal and Protection Plan is shown on Figure 7 and the accompanying Tree Survey and Removal Table is shown on Figure 7A. Tree protection will be as recommended by a qualified arborist or, at minimum, will include the following protective measures:

- All trees to be protected on the project site and adjacent to the site shall be clearly identified and protective fencing will be installed at the perimeter of the dripline (to avoid soil compaction, removal of vegetation, and/or tree branches) prior to any grubbing, clearing, grading, parking, preparation or storage of materials or machinery, or other construction activity on the site. The fencing will be secured and consist of a material that cannot be easily moved, removed, or broken during construction activities
- No machinery repair, cleaning or fueling will be performed within 10 feet of the dripline of any of trees identified for protection;
- There will be no digging of trenches for placement of public or private utilities or other structure within the critical root zones of trees to be protected;
- If required by the City, a consulting arborist or other qualified biologist will be present during construction or grading activities that may affect the dripline of the trees to be protected.

6.3 MMC 19.402.11 – Development Standards

A. Protection of Natural Resources During Site Development

During development of any site containing a designated natural resource, the following standards shall apply:

1. *Work areas shall be marked to reduce potential damage to the WQR and/or HCA.*

In addition to erosion and sediment control measures, previously discussed in the Construction Management section, work areas shall be marked to reduce potential damage to the WQR and/or HCA.

2. *Trees in WQRs or HCAs shall not be used as anchors for stabilizing construction equipment.*

No trees within the WQR or HCA will be used as anchors for stabilizing construction equipment.

3. *Native soils disturbed during the development shall be conserved on the property.*

Native soils disturbed during development will be conserved on the property.

4. *An erosion and sediment control plan is required and shall be prepared in compliance with requirements set forth in the City's Public Works Standards.*

The erosion and sediment control plan is shown on the Construction Management Plan (Figure 6), was discussed in the previous section, Construction Management Plan, and was prepared in compliance with requirements set forth in the City's Public Works Standards.

5. *Site preparation and construction practices shall be followed that prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any WQR adjacent to the project area.*

As discussed above in the Construction Management Plans section, Best Management Practices (BMPs) will be implemented during site preparation and construction in order to prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any WQR adjacent to the project area.

6. *Stormwater flows that result from proposed development within and to natural drainage courses shall not exceed predevelopment flows.*

The primary purpose of the stormwater management plan (Figure 8) is to effectively treat the stormwater runoff from the new development while maintaining the same hydrologic input as is currently present at pre-development/pre-Lewis and Clark conditions. Key components of the stormwater management plan will include treating and detaining stormwater in three vegetated stormwater treatment facilities/ponds (A – C). Treated stormwater from facilities A and B will be discharged with the use of flow spreaders; storm facility C will connect back into the existing storm sewer system in SE Kellogg Creek Drive.

7. *Prior to construction, the WQR and/or HCA that is to remain undeveloped shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Such markings shall be maintained until construction is complete.*

As discussed above in the Construction Management Plans section, prior to construction, construction fencing, sediment fencing, and other erosion and sediment control barriers will be installed at the limits of work, in order to prevent impacts to nearby areas of WQR and HCA to remain undisturbed.

8. *The construction phase of the development shall be done in such a manner as to safeguard the resource portions of the site that have not been approved for development.*

As discussed above in the Construction Management Plans section, BMPs will be implemented and erosion and sediment control methods will be in place prior to construction in such a manner as to safeguard the resource portions of the site that have not been approved for development.

9. *Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.*

Where practicable, lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

10. *All work on the property shall conform to a construction management plan prepared according to Subsection 19.402.9.*

All work on the property will conform to a construction management plan, as previously discussed, prepared according to Subsection 19.402.9.

B. General Standards for Required Mitigation

Where mitigation is required by Section 19.402 for disturbance to WQRs and/or HCAs, the following general standards apply:

1. Disturbance

- a. *Designated natural resources that are affected by temporary disturbances shall be restored, and those affected by permanent disturbances shall be mitigated, in accordance with the standards provided in Subsection 19.402.11.C for WQRs and Subsection 19.402.D.2 for HCAs, as applicable.*

Designated natural resources that are affected by temporary disturbances will be restored. The proposed site plan will unavoidable result in permanent disturbances to both WQR and HCA areas, and as such, the areas of permanent disturbances will be mitigated in accordance with the standards provided in Subsections 19.402.11.C and 19.402.D.2, respectively. See Figure 9 - Mitigation Plan.

2. Required Plants

Unless specified elsewhere in Section 19.402, all trees, shrubs, and ground cover planted as mitigation shall be native plants, as identified on the Milwaukie Native Plant List. Applicants are encouraged to choose particular native species that are appropriately suited for the specific conditions of the planting site; e.g., shade, soil type, moisture, topography, etc.

All proposed mitigation plants will consist of native species as identified on the Milwaukie Native Plant List. Plants will be chosen for: 1) their suitability to the soils and hydrology of the site, 2) their natural occurrence in the area, 3) their wildlife habitat enhancement value, and 4) their local availability. The table on Figure 9 shows selected species to be planted.

3. Plant Size

Replacement trees shall average at least a ½-in caliper – measured at 6 in above the ground level for field-grown trees or above the soil line for container-grown trees – unless they are oak or madrone, which may be 1-gallon size. Shrubs shall be at least 1-gallon size and 12 in high.

4. Plant Spacing

Trees shall be planted between 8 and 12 ft on center. Shrubs shall be planted between 4 and 5 ft on center or clustered in single-species groups of no more than 4 plants, with each cluster planted between 8 and 10 ft on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.

5. Plant Diversity

Shrubs shall consist of at least 2 different species, If 10 trees or more are planted, then no more than 50% of the trees shall be of the same genus.

Mitigation plant size, spacing and diversity will be in accordance with the requirements stated in items 3 – 5, above (See table on Figure 9).

6. Location of Mitigation Area

a. On-Site Mitigation

All mitigation vegetation shall be planted on the applicant's site within the designated natural resource that is disturbed, or in an area contiguous to the resource area; however, if the vegetation is planted outside of the resource area, the applicant shall preserve the contiguous planting area by executing a deed restriction such as a restrictive covenant.

All mitigation vegetation will be planted on-site and within the designated natural resource that is disturbed or in an area contiguous to the resource area. The mitigation areas proposed for planting are shown in Figure 9 Mitigation Plan.

7. Invasive Vegetation

Invasive nonnative or noxious vegetation shall be removed within the mitigation area prior to planting, including, but not limited to, species identified as nuisance plants on the Milwaukie Native Plant List.

Invasive nonnative or noxious vegetation, and nuisance plants will be removed from the mitigation area prior to planting.

8. Ground Cover

Bare or open soil areas remaining after the required tree and shrub plantings shall be planted or seeded to 10% surface coverage with grasses or other ground cover species identified as native on the Milwaukie Native Plant List. Revegetation shall occur during the next planting season following the site disturbance.

Following the installation of the required tree and shrub plantings, remaining bare/open soil areas will be planted or seeded to 100% surface coverage with an native grass seed mix or other ground cover species during the next planting season following the site disturbance.

9. Tree and Shrub Survival

A minimum of 80% of the trees and shrubs planted shall remain alive on the second anniversary of the date that the mitigation planting is completed.

a. Required Practices

To enhance survival of the mitigation plantings, the following practices are required:

- (1) Mulch new plantings to a minimum of 3-in depth and 18-in diameter to retain moisture and discourage weed growth.*
- (2) Remove or control nonnative or noxious vegetation throughout the maintenance period.*

b. Recommended Practices

To enhance survival of tree replacement and vegetation plantings, the following practices are recommended:

- (1) Plant bare root trees between December 1 and April 15; plant potted plants between October 15 and April 30.*
- (2) Use plant sleeves or fencing to protect trees and shrubs against wildlife browsing and the resulting damage to plants.*
- (3) Water new plantings at a rate of 1 in per week between June 15 and October 15 for the first two years following planting.*

In order to meet the minimum of 80% tree and shrub survival of the mitigation plantings on the second anniversary of the date that the mitigation planting is completed, the applicant will follow the “Required” and “Recommended” planting and maintenance practices, as described above in Items a and b.

c. Monitoring and Reporting

Monitoring of the mitigation site is the ongoing responsibility of the property owner. Plants that die shall be replaced in kind as needed to ensure the minimum 80% survival rate. The Planning Director may require a maintenance bond to cover the continued health and survival of all plantings. A maintenance bond shall not be required for land use applications related to owner-occupied single-family residential projects. An annual report on the survival rate of all plantings shall be submitted for 2 years.

An annual monitoring site visit will be conducted and a report will be prepared and submitted to the City for two years after planting. The report will allow an analysis of the survival rate of the mitigation plantings and what corrective measures, if any, are needed to ensure the minimum 80% required survival rate for woody plantings at the end of the second monitoring season.

10. Light Impacts

Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.

Where practicable, lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

C. Mitigation Requirements for Disturbance within WQRs

- 1. The requirements for mitigation vary depending on the existing condition of the WQR on the project site at the time of application. The existing condition of the WQR shall be assessed in accordance with the categories established in Table 19.402.11.C.**

Plant communities within the vegetated corridor include a mixture of wooded and non-wooded communities. PHS identified two separate plant communities within the on-site vegetated corridor based on the predominance of woody species in the community. South of Mt. Scott Creek, and along the western property boundary to the north and south of the west end of Wetland A, the vegetated corridor has a well-developed forest canopy; while along the eastern and southern edges of Wetland A, the vegetated corridor has only a few scattered trees. PHS took seven sample points to characterize the plant communities; two along the south side of the creek, two along the northeast side of Wetland A, one along the south side of Wetland A, and two near the western property boundary to the north and south of Wetland A. A brief description and an evaluation of the condition of each of the communities are provided below (See Figure 4 for location of sample points).

South of Mt. Scott Creek

The WQR south of Mt. Scott Creek contains a moderately dense canopy predominantly composed of red alder (*Alnus rubra*), Oregon white oak (*Quercus garryana*), black cotton wood (*Populus balsamifera*), and big-leaf maple (*Acer macrophyllum*). Common species in the understory include English hawthorn (*Crataegus monogyna*), snowberry (*Symphoricarpos alba*), Pacific willow (*Salix lasiandra*), Scouler's willow (*Salix scouleriana*), Pacific ninebark (*Physocarpus capitatus*), red-osier dogwood (*Cornus alba*), clustered rose (*Rosa pisocarpa*), twinberry honeysuckle (*Lonicera involucrata*), Himalayan blackberry (*Rubus armeniacus*), and beaked hazel (*Corylus cornuta*). The groundcover contains a diverse mixture of native and non-native species, including Pacific dewberry (*Rubus ursinus*), Fuller's teasel (*Dipsacus sylvestris*), Watson's willow-herb (*Epilobium watsonii*), nipplewort (*Lapsana communis*), common velvetgrass (*Holcus lanatus*), colonial bentgrass (*Agrostis capillaris*), fringe cup (*Tellima grandiflora*), brome (*Bromus sp.*), and Western swordfern (*Polystichum munitum*). Tables 1 and 2 summarize the species composition at two sample points within the plant community.

Table 1. Plant Community South of Mt. Scott, Characterized by Sample Point 1

Botanical Name	Common Name	♦Cover (%)
Trees		50
<i>Alnus rubra</i>	Red alder	30
<i>Fraxinus latifolia</i>	Oregon ash	5
<i>Salix scouleriana</i>	Scouler's willow	7
<i>Salix lasiandra</i>	Pacific willow	2
<i>Acer macrophyllum</i>	Big-leaf maple	1
<i>Crataegus monogyna</i>	English hawthorn	10
Shrubs and Saplings		60
<i>Populus balsamifera</i>	Black cottonwood	5
<i>Symphoricarpos albus</i>	Common snowberry	5
<i>Rosa pisocarpa</i>	Clustered rose	13
<i>Oregon white oak</i>	<i>Quercus garryana</i>	10
<i>Rubus armeniacus</i> ***	Himalayan blackberry	2
<i>Physocarpus capitatus</i>	Pacific ninebark	15
<i>Crataegus monogyna</i>	English hawthorn	5
<i>Corylus cornuta</i>	Beaked hazelnut	3
<i>Cornus alba</i>	Red-osier dogwood	2
Groundcover		55
<i>Rubus ursinus</i>	California dewberry	5
<i>Dipsacus sylvestris</i> **	Fuller's teasel	25
<i>Epilobium watsonii</i>	Watson's willow-herb	30
<i>Lapsana communis</i> **	Nipplewort	10
<i>Holcus lanatus</i>	Common velvetgrass	5
<i>Agrostis capillaris</i>	Colonial bentgrass	20
<i>Tellima grandiflora</i>	Fringe cup	2
<i>Bromus sp.</i>	Common brome	3

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 2. Plant Community South of Mt. Scott, Characterized by Sample Point 2

Botanical Name	Common Name	♦Cover (%)
Trees		60
<i>Alnus rubra</i>	Red alder	20
<i>Quercus garyana</i>	Oregon white oak	40
<i>Salix scouleriana</i>	Scouler’s willow	5
<i>Populus balsamifera</i>	Black cottonwood	10
<i>Acer macrophyllum</i>	Big-leaf maple	5
Shrubs and Saplings		80
<i>Lonicera involucrate</i>	Twinberry honeysuckle	2
<i>Symphoricarpos albus</i>	Common snowberry	30
<i>Rosa pisocarpa</i>	Clustered rose	5
<i>Oregon white oak</i>	<i>Quercus garryana</i>	5
<i>Populus balsamifera</i>	Black cottonwood	5
<i>Physocarpus capitatus</i>	Pacific ninebark	10
<i>Crataegus monogyna</i>	English hawthorn	5
<i>Corylus cornuta</i>	Beaked hazelnut	3
<i>Cornus alba</i>	Red-osier dogwood	2
Groundcover		35
<i>Rubus ursinus</i>	California dewberry	5
<i>Dipsacus sylvestris</i> **	Fuller’s teasel	2
<i>Polystichum munitum</i>	Western swordfern	3
<i>Lapsana communis</i> **	Nipplewort	3
<i>Holcus lanatus</i>	Common velvetgrass	3
<i>Agrostis capillaris</i>	Colonial bentgrass	10
<i>Tellima grandiflora</i>	Fringecup	5
<i>Bromus sp.</i>	Common brome	22

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

The plant community south of Mt. Scott Creek has a moderately dense tree canopy with coverage that varies from 50 to 60 percent. Canopy coverage across the entire plant community exceeds 50 percent. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent. As such, the existing condition of the WQR south of Mt. Scott Creek meets the definition of a Class A (“Good”) WQR, as defined in Table 19.402.11.C of the municipal code.

Northeast of Wetland A

A few scattered trees are present within the vegetated corridor northeast of Wetland A; however, the plant community in this area generally lacks a canopy layer and is predominantly composed of reed canarygrass (*Phalaris arundinacea*) and other grasses and various groundcover. Tables 3 and 4 summarize the species composition within the plant community east of Wetland A.

Table 3. Plant Community Northeast of Wetland A, Characterized by Sample Point 3

Botanical Name	Common Name	♦Cover (%)
Trees		20
<i>Salix scouleriana</i>	Scouler's willow	20
<i>Crataegus monogyna</i>	English hawthorn	20
<i>Fraxinus latifolia</i>	Oregon ash	5
<i>Populus balsamifera</i>	Black cottonwood	5
Shrubs and Saplings		40
<i>Salix scouleriana</i>	Scouler's willow	20
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Crataegus monogyna</i>	English hawthorn	20
<i>Corylus cornuta</i>	Beaked hazelnut	5
<i>Rubus armeniacus***</i>	Himalayan blackberry	5
Groundcover		90
<i>Phalaris arundinacea**</i>	Reed canarygrass	60
<i>Dipsacus sylvestris**</i>	Fuller's teasel	40
<i>Tanacetum vulgare**</i>	Common tansy	15
<i>Epilobium watsonii</i>	Watson's willow-herb	15
<i>Cirsium arvense</i>	Canada thistle	5

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 4. Plant Community Northeast of Wetland A, Characterized by Sample Point 4

Botanical Name	Common Name	♦Cover (%)
Trees		5
<i>Acer macrophyllum</i>	Big-leaf maple	5
Shrubs and Saplings		10
<i>Acer macrophyllum</i>	Big-leaf maple	10
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Rubus armeniacus***</i>	Himalayan blackberry	5
Groundcover		100
<i>Phalaris arundinacea**</i>	Reed canarygrass	100
<i>Dipsacus sylvestris**</i>	Fuller's teasel	15

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

As described above and shown by Sample Points 3 and 4, the plant community northeast of Wetland A has little to no tree canopy coverage. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent; however, tree canopy coverage is less than 25 percent. Therefore, the existing condition of the WQR east of Wetland A meets the definition of a Class C ("Poor") WQR, as defined in Table 19.402.11.C of the municipal code.

South of Wetland A

Similar to the vegetated corridor along the northeast side of Wetland A, the area to the south of Wetland A also has a few scattered trees present. The plant community south of Wetland A also generally lacks a canopy layer and is primarily composed of reed canarygrass and a few other species of grasses and various groundcover. Table 5 summarizes the species composition within the plant community south of Wetland A.

Table 5. Plant Community South of Wetland A, Characterized by Sample Point 5

Botanical Name	Common Name	♦Cover (%)
Trees		5
<i>Crataegus monogyna</i>	English hawthorn	5
Shrubs and Saplings		10
<i>Quercus garyana</i>	Oregon white oak	10
<i>Rubus laciniatus</i> **	Cut-leaf blackberry	5
<i>Rubus armeniacus</i> ***	Himalayan blackberry	10
Groundcover		100
<i>Phalaris arundinacea</i> **	Reed canarygrass	90
<i>Dipsacus sylvestris</i> **	Fuller's teasel	40
<i>Epilobium watsonii</i>	Watson's willow-herb	10
<i>Cirsium arvense</i> ***	Canada thistle	10

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

As described above and shown by Sample Point 5, the plant community south of Wetland A has almost no tree canopy coverage. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent; however, tree canopy coverage is less than 25 percent. Therefore, the existing condition of the WQR south of Wetland A meets the definition of a Class C ("Poor") WQR, as defined in Table 19.402.11.C of the municipal code.

West of Wetland A

The WQR west of Wetland A contains a dense canopy predominantly composed of Oregon ash and Oregon white oak. Common species in the understory include English hawthorn, snowberry, Himalayan blackberry, bald-hip rose (*Rosa gymnocarpa*), and clustered rose. The groundcover contains a diverse mixture of native and non-native species, including Pacific dewberry, English ivy (*Hedera helix*), Fuller's teasel, Watson's willow-herb, nipplewort, Western swordfern, big-leaf avens (*Geum macrophyllum*), and common dandelion (*Taraxacum officinale*). Tables 6 and 7 summarize the species composition at two sample points within the plant community.

Table 6. Plant Community West of Wetland A. Characterized by Sample Point 6

Botanical Name	Common Name	♦Cover (%)
Trees		90
<i>Fraxinus latifolia</i>	Oregon ash	25
<i>Quercus garyana</i>	Oregon white oak	30

Botanical Name	Common Name	♦Cover (%)
Shrubs and Saplings		40
<i>Symphoricarpos albus</i>	Common snowberry	50
<i>Rubus armeniacus</i> * **	Himalayan blackberry	10
<i>Crataegus monogyna</i>	English hawthorn	15
Groundcover		55
<i>Rubus ursinus</i>	California dewberry	15
<i>Geum macrophyllum</i>	Big-leaf avens	20
<i>Epilobium watsonii</i>	Watson's willow-herb	5
<i>Lapsana communis</i> **	Nipplewort	35
<i>Taraxacum officinale</i>	Common dandelion	15
<i>Polystichum munitum</i>	Western swordfern	5
<i>Hedera helix</i> **	English ivy	5

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 7. Plant Community West of Wetland A, Characterized by Sample 7

Botanical Name	Common Name	♦Cover (%)
Trees		90
<i>Fraxinus latifolia</i>	Oregon ash	10
<i>Quercus garyana</i>	Oregon white oak	5
Shrubs and Saplings		50
<i>Symphoricarpos albus</i>	Common snowberry	50
<i>Rosa gymnocarpa</i>	Bald-hip rose	10
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Crataegus monogyna</i>	English hawthorn	40
Groundcover		60
<i>Rubus ursinus</i>	California dewberry	60
<i>Geum macrophyllum</i>	Big-leaf avens	40
<i>Epilobium watsonii</i>	Watson's willow-herb	10
<i>Dipsacus sylvestris</i> **	Fuller's teasel	20
<i>Polystichum munitum</i>	Western swordfern	15

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

The plant community west of Wetland A has a dense tree canopy averaging 90 percent. Canopy coverage across the entire plant community exceeds 50 percent. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent. As such, the existing condition of the WQR west of Wetland A meets the definition of a Class A (“Good”) WQR, as defined in Table 19.402.11.C of the municipal code.

6.4 MMC 19.402.12 - General Discretionary Review

A. Impact Evaluation and Alternatives Analysis

An impact evaluation and alternatives analysis is required to determine compliance with the approval criteria for general discretionary review and to evaluate development alternatives for a particular property. A report presenting this evaluation and analysis shall be prepared and signed by a knowledgeable and qualified natural resource professional, such as a wildlife biologist, botanist, or hydrologist. At the Planning Director's discretion, the requirement to provide such a report may be waived for small projects that trigger discretionary review but can be evaluated without professional assistance.

The alternatives shall be evaluated on the basis of their impact on WQRs and HCAs, the ecological functions provided by the resource on the property, and off-site impacts within the subwatershed (6th Field Hydrologic Unit Code) where the property is located. The evaluation and analysis shall include the following:

1. *Identification of the ecological functions of riparian habitat found on the property, as described in Subsection 19.402.1.C.2.*

Subsection 19.402.1.C.2 of the MMC identifies seven functions and values that contribute to water quality and to fish and wildlife habitat in urban streamside areas. Descriptions of the functions and values provided by the riparian habitat on the project site are provided below.

Vegetated corridors to separate protected water features from development – With exception of the southeast corner of the site, at the location of the church, the site is undeveloped. The vegetated buffer south of Mt. Scott Creek provides a buffer that separates this existing development in the southeast corner of the site from the primary protected water features. The moderately dense tree cover and the dense shrub and herbaceous vegetation along the south side of the creek provide wildlife habitat and water quality benefits to the stream.

Microclimate and shade – Trees within the WQR provide shade to the stream and help to regulate the microclimate within the riparian corridor.

Streamflow moderation and water storage – The floodplain on the south side of Mt. Scott Creek is vegetated with a mixture of trees, shrubs and herbaceous vegetation. During high flow events, vegetation within the floodplain helps to slow floodwaters and reduce downstream flooding. Although much of the floodplain south of the creek predominantly consists of non-woody vegetation, the stream gradient within the site is relatively gradual, and therefore, the riparian corridor within the project area provides limited streamflow moderation and water storage functions.

Water filtration, infiltration, and natural purification – Vegetation within the riparian corridor along Mt. Scott Creek slows runoff from adjacent areas and filters sediments and other pollutants from the runoff before it reaches the stream. By slowing the runoff, the vegetation also increases the potential for water to infiltrate into the soil before reaching the stream. However, the predominantly clay loam soils within the project area reduce the ability of the water to infiltrate into the soil.

Bank stabilization and sediment and pollution control – Streambanks within the project area are generally well-vegetated with trees, shrubs and herbaceous vegetation. This vegetation helps to stabilize the banks, and no evidence of active bank erosion within the project site was observed.

Large wood recruitment and retention and natural channel dynamics – Within the project area, trees occur on both the north and south sides of Mt. Scott Creek. These trees have the potential to become large woody material. When these trees fall into the stream, they have the potential to affect the natural channel dynamics. However, because of the relatively small size of the stream, any large woody material that falls into the stream is likely to remain on the project site rather than be carried downstream.

Organic material resources –Vegetation within the riparian corridor provides organic material that serves as the basis for the aquatic food web. Under the existing conditions, the riparian corridor within the project site is vegetated with a mixture of trees, shrubs, and herbaceous species, which contribute organic materials to the stream.

2. *An inventory of vegetation, sufficient to categorize the existing condition of the WQR per Table 19.402.11.C, including the percentage of ground and canopy coverage materials within the WQR.*

An inventory of vegetation, sufficient to categorize the existing condition of the WQR per Table 19.402.11.C, including the percentage of ground and canopy coverage materials within the WQR, was provided earlier in this document in Subsection 19.402.11.C “Mitigation Requirements for Disturbance within WQRs” of the Development Standards.

3. *An assessment of the water quality impacts related to the development, including sediments, temperature and nutrients, sediment control, and temperature control, or any other condition with the potential to cause the protected water feature to be listed on DEQ’s 303(d) list.*

The proposed project will result in impacts to WQR and HCA associated with Mt. Scott Creek and Wetland A. A 92-unit residential subdivision will be constructed in the central portion of the site. Construction of the subdivision will include two stormwater facilities and grading in the northwest corner of the site for floodplain storage; these features will result in impacts to 53,915 sf (1.24 acre) of WQR and approximately 61,776 sf (1.42 acre) of HCA beyond the limits of the WQR. The WQR impact also includes approximately 3,527 sf (0.08 acre) of wetland impact. The wetlands proposed for impact are of low quality, lacking vegetated structure, and primarily composed of a monoculture of reed canarygrass. Required permits from the State (Department of State Lands (DSL)) and Federal (U.S. Army Corps of Engineers (COE)) agencies for the proposed wetland impacts, and associated wetland mitigation plan, will be obtained, and upon receipt, the Applicant will provide a copy to the City for its files. The areas of permanent and temporary disturbance within the HCA and WQR are summarized in Table 8, below and shown on Figure 5.

It should be noted that the proposed soft-surface paths within the WQR and / or HCA are unpaved and no wider than 30 inches, and therefore, are exempt trails, and as such, meet the standards established in MMC Subsection 19.402.4.A.17, and are not considered to be permanent disturbance within the WQR and HCA.

Table 8. Summary of Permanent and Temporary Disturbance in the WQR and HCA

Activity	Permanent Disturbance (sq.ft./ac.)		Temporary Disturbance (sq.ft./ac.)	
	WQR	HCA	WQR	HCA
92-Unit Subdivision	34,732 / 0.80	46,355 / 1.06	0 / 0	0 / 0
Floodplain storage	0/0	0/0	19,183 / 0.44	15,421 / 0.35
Total	34,732 / 0.80	46,355 / 1.06	19,183 / 0.44	15,421 / 0.35

The proposed project is not anticipated to have any adverse impacts to water quality. The use of erosion and sediment controls during construction will prevent sediment-related impacts to water quality. The proposed project is not anticipated to result in additional nutrient inputs to the stream, and the restoration of the floodplain/ on the south side of Mt. Scott Creek will increase shade on the stream as the riparian plantings mature, helping to reduce water temperatures in the stream. The stormwater outfalls will discharge treated stormwater to the WQR, and the flow-spreaders at the outfalls will dissipate flows preventing erosion and sedimentation downslope of the outfalls and prevent impacts to water quality.

4. *An alternatives analysis, providing an explanation of the rationale behind choosing the alternative selected, listing measures that will be taken to avoid and/or minimize adverse impacts to designated natural resources, and demonstrating that:*
 - a. *No practicable alternatives to the requested development exist that will not disturb the WQR or HCA.*

Because of the location, size and orientation of the resources within the site, and the existing development/church, and limited access points from SE Kellogg Creek Drive, impacts to the WQR and HCA are unavoidable. The alternative site plan (Figure 5A) would have resulted in approximately 34% more permanent impacts to the WQR, with a total of 46,666 sf / 1.07 ac of WQR impacts; permanent impacts to the HCA (42,823 sf / 0.98 acre) resulting from the alternative site plan would have been approximately 8% less impact than the proposed site plan; however, impacts to the wetland (17,592 sf / 0.40 acre) resulting from the alternative site plan would have been significantly greater (5 times greater) than the proposed site plan. In order to avoid and minimize impacts to the resources, while still allowing the project to be practicable, the Applicant conducted an alternatives analysis, which resulted in the proposed plan as having less adverse effects to the water resources than the alternative design.

An additional alternative site plan was analyzed in order to investigate whether the natural resource impacts could be further minimized. Figure 5B illustrates the additional alternative site plan. However, due to the complexities associated with the combination of the R-10 and R-3 zones transecting the central portion of the site, this alternative would not have allowed the development to meet the City’s minimum density requirements, and therefore, is not a practicable option. This site layout generally shows how the site could be designed under standard R-10 and R-3 zoning without using the Planned Development provisions and within the context of the Natural Resource standards in MMC 19.402.13.I related to subdivisions. The language in that section provides two options for lot layout:

1. *At least 90% of the property’s HCA and 100% of the property’s WQR shall be located in a separate tract. Applications that meet this standard are not subject to the discretionary review requirements of Subsection 19.402.12.*

or

2. *If a subdivision cannot comply with the standards in Subsection 19.402.13.I.1, the application shall comply with the following standards:*

a. *All proposed lots shall have adequate buildable area outside of the WQR and HCA...*

The alternative site layout complies with subsection (1) above and indicates that 100 percent of the WQR and 90 percent of the HCA will remain intact in a separate tract. Lots have been laid out on the site consistent with that standard and consistent with the existing split zoning (10,000 square foot lots in R-10 and 3,000 square foot lots in R-3). As shown, the alternative site plan provides 34 lots (27 R-3 lots and 7 R-10 lots). However, this is not a sufficient number of lots to meet the City's required minimum density for the R-3 zone. The table below shows how minimum density was calculated for the site.

Zone	Gross Acres	Deduct Gross SF	Deduct Floodway	Deduct Proposed ROW	Deduct Open Space	Net SF	Net Acres	Min Required Units
R3	9.58	417,305	52,359	39,837	189,922	135,187	3.10	36
R10	4.44	193,406	21,753	37,517	74,488	59,649	1.37	5

These calculations assume the entire WQR area and more than 90 percent of the HCA will remain in a separate tract owned in common by the future residents of the subdivision. Once floodway, right-of-way and common open space are deducted from the gross R-3 acreage, the net buildable area is 3.10 acres. With a minimum density requirement of 11.6 units per acre, the total amount of units required for the R-3 zone is 36 units. As shown on the alternative site plan, only 27 units fit within the R-3 portion of the site. In order to meet minimum density requirements in the R-3 zone, nine additional units would be needed, which would result in substantial impacts to the WQR and HCA.

b. *Development in the WQR and/or HCA has been limited to the area necessary to allow for the proposed use.*

Development within the WQR and HCA has been limited to the area necessary to allow for the proposed use. The development has been designed taking into consideration the City's building, design, and development requirements, while avoiding and minimizing resource impacts to the greatest extent practicable, and still allowing the project to be financially feasible. As such development in the WQR and HCA has been limited to the outer portions of each, in areas that are of lowest quality.

c. *If disturbed, the WQR can be restored to an equal or better condition in accordance with Table 19.402.11.C; and the HCA can be restored consistent with the mitigation requirements of Subsection 19.402.11.D.2.*

Restoration and mitigation for impacts to the WQR and HCA will be done in accordance with Table 19.402.11.C and Subsection 19.402.11.D.2, respectively. Details of the restoration and mitigation are described in more detail below in Subsection 19.402.12.A.6.b.

It should be noted that the DSL and COE requirement for mitigation for the wetland impact will be met and details will be discussed in the permit, which upon receipt, the Applicant will provide to the City.

- d. Road crossings will be minimized as much as possible.*

Road crossings are located along the inside edge of the development, which will eliminate the need for side slopes, and thereby, minimize the area of impact to the WQR and HCA.

5. *Evidence that the applicant has done the following, for applications proposing routine repair and maintenance, alteration, and/or total replacement of existing structures located within the WQR:*
- a. Demonstrated that no practicable alternative design or method of development exists that would have a lesser impact on the WQR than the one proposed. If no such practicable alternative design or method of development exists, the project shall be conditioned to limit its disturbance and impact on the WQR to the minimum extent necessary to achieve the proposed repair/maintenance, alteration, and/or replacement.*
 - b. Provided mitigation to ensure that impacts to the functions and values of the WQR will be mitigated or restored to the extent practicable.*

Not applicable. The proposed project does not include routine repair and maintenance, alteration, and/or total replacement of existing structures within the WQR.

6. *A mitigation plan for the designated natural resource that contains the following information:*
- a. A description of adverse impacts that will be caused as a result of development.*

The proposed project will result in impacts to WQR and HCA associated with Mt. Scott Creek and Wetland A. A 92-unit residential subdivision will be constructed in the central portion of the site. Construction of the subdivision will include three stormwater facilities and grading in the northwest corner of the site for floodplain storage; these features will result in impacts to a total of 53,915 sf (1.24 acre) of WQR and approximately 61,776 sf (1.42 acre) of HCA beyond the limits of the WQR. The WQR impact also includes approximately 3,527 sf (0.08 acre) of wetland impact. The areas proposed for grading for floodplain storage will be restored with native vegetation plantings. The areas of permanent and temporary disturbance within the HCA and WQR are summarized in Table 8, above.

- b. An explanation of measures that will be taken to avoid, minimize, and/or mitigate adverse impacts to the designated natural resource; in accordance with, but not limited to, Table 19.402.11.C for WQRs and Subsection 19.402.11.D.2 for HCAs.*

As discussed above, impacts to the WQR and HCA are unavoidable. Adverse effects to the resources have been minimized by reducing the number of dwelling units (from 100 to 92) and redesigning the development layout, thereby, limiting impacts to the outer edges of the resources to the greatest extent practicable.

Mitigation for the unavoidable impacts will be provided through the inventory of man-made debris and noxious materials that might be present within the WQR and the removal of any such material present; the implementation of a stormwater plan that meets City requirements for runoff rates and water quality; the removal of non-native, invasive plants from the riparian corridor along the south side of Mt. Scott Creek; and the installation of tree and shrub plantings within the remaining WQR and HCA areas, and floodplain storage area to restore a diverse, native plant community. Compliance with the mitigation requirements outlined in Table 19.402.11.C and Subsection 19.402.11.D.2 to compensate for proposed impacts to the WQR and HCA are described below.

As depicted on Figure 4, the existing condition of WQR along the south side of Mt. Scott Creek and the west edge of the property, north and south of Wetland A, is Class A (“Good”); the existing

condition of the WQR along the northeast and south sides of Wetland A is Class C (“Poor”). Mitigation requirements for disturbance in a Class A and Class C WQR, as listed in Table 19.402.11.C, are listed below, as are the components of the project design that have been incorporated to insure compliance with the mitigation requirements.

- *Submit a plan for mitigating water quality impacts related to the development, including: sediments, temperature, nutrients, or any other condition that may have caused the protected water feature to be listed on DEQ’s 303(d) list.*

Dowl will be submitting a Preliminary Drainage Report (dated January 12, 2017) demonstrating that the proposed stormwater management facilities treat runoff to meet the City of Milwaukie’s water quality requirements and detain post-development runoff at or below pre-development release rates.

- *Inventory and remove debris and noxious materials.*

At the time of site construction, the Applicant will identify man-made debris and noxious materials that may be present within the WQR. Any such debris or materials will be removed from the WQR. This will occur within mitigation and restoration areas, as shown on Figure 9.

Mitigation requirements for disturbance in a Class C WQR, as listed in Table 19.402.11.C, are listed below, as are the components of the project design that have been incorporated to insure compliance with the mitigation requirements.

- *Restore and mitigate disturbed areas with native species from the Milwaukie Native Plant List, using a City-approved plan developed to represent the vegetative composition that would naturally occur on the site.*

All disturbed areas within the WQR and HCA will be restored with native trees and shrubs and reseeded with a native seed mix. Trees and shrubs will be planted within the mitigation and restoration areas on the south side of Mt. Scott Creek to restore a native plant community within the WQR and HCA areas.

The number of trees and shrubs to be planted was determined in accordance with MMC Subsection 19.402.11.D.2. Sixteen trees will be removed from the WQR, as shown on Figure 7. As prescribed by Table 19.402.11.D.2.a, 53 trees and 114 shrubs would be required under Mitigation Option 1 to mitigate for the trees to be removed. Under Mitigation Option 2, 1,160 trees (115,691 sf impact area x 5 trees per 500 sf of impact area = 1,160 trees) and 5,790 shrubs (115,691 sf impact area x 25 shrubs per 500 sf of impact area = 5,790 shrubs) would be planted to mitigate for the 115,691 sf of impacts to the WQR and HCA. Because Mitigation Option 2 results in more tree plantings, Mitigation Option 2 was used to determine the number of trees and shrubs to be planted in accordance with MMC Subsection 19.402.11.D.2. A list of trees and shrubs proposed for planting is provided in Table 9, below and on Figure 9 - Mitigation Plan.

These mitigation plantings meet the requirements of MMC Subsection 19.402.11.D, as follows:

- All areas temporarily disturbed will be restored and permanent impacts will be mitigated by the tree and shrub plantings, as described above.

- All species proposed for planting are native species, as identified on the Milwaukie Native Plant List.
- Trees to be planted will average at least a ½-in caliper (measured at 6 inches above the ground level for field-grown trees or above the soil line for container-grown trees). Shrubs shall be at least 1-gallon size and 12 inches high.
- Trees will be planted between 8 and 12 feet on center. Shrubs will be planted between 4 and 5 feet on center or clustered in single-species groups of no more than 4 plants, with each cluster planted between 8 and 10 feet on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.
- More than two species of shrubs are proposed, and not more than 50 percent of the trees to be planted are of the same genus.
- All mitigation will occur on site.
- Invasive non-native or noxious vegetation will be removed within the mitigation area prior to planting, including, but not limited to, species identified as nuisance plants on the Milwaukie Native Plant List.
- Bare or open soil areas remaining after the required tree and shrub plantings will be seeded to 100% surface coverage with grasses or other groundcover species identified as native on the Milwaukie Native Plant List. Revegetation will occur during the next planting season following the site disturbance.

Table 9. Mitigation Area A Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Alnus rubra</i>	Red alder	232	Container or field-grown	½ in caliper
<i>Crataegus suksdorfii</i>	Black hawthorn	232	Container or field grown	½ in caliper
<i>Fraxinus latifolia</i>	Oregon ash	232	Container or field grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	232	Container or field-grown	½ in caliper
<i>Salix scouleriana</i>	Scouler’s willow	232	Container or field-grown	½ in caliper
Shrubs				
<i>Cornus alba</i>	Red-osier dogwood	965	1 gal.	12 in
<i>Rosa pisocarpa</i>	Clustered rose	965	1 gal.	12 in
<i>Malus fusca</i>	Western crabapple	965	1 gal.	12 in
<i>Physocarpus capitatus</i>	Pacific ninebark	965	1 gal.	12 in
<i>Sambucus racemosa</i>	Red elderberry	965	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	965	1 gal.	12 in
Herbaceous seed mix				
<i>Agrostis exarata</i>	Spike bentgrass	2.0 lbs/ac	Seed	n/a
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Deschampsia cespitosa</i>	Tufted hairgrass	3.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a

Species	Common Name	Quantity	Stock Type	Plant Size
<i>Hordeum brachyantherum</i>	Meadow barley	2.0 lbs/ac	Seed	n/a
<i>Lupinus rivularis</i>	Riverbank lupine	3.5 lbs/ac	Seed	n/a

The types of plants to be installed were chosen from the Milwaukie Native Plant List and by the suitability to site conditions and the types of native species that were observed on the site. The tree and shrub plantings will improve vegetation structure and diversity, and thereby, enhance wildlife habitat, in areas that presently consist of a monoculture of reed canarygrass.

- ***Plant and/or seed all bare areas to provide 100% surface coverage.***
All disturbed soil surfaces will be seeded with a native seed mix, as described in Table 9, above. Areas temporarily disturbed for the construction of stormwater outfalls and due to the removal of invasive plant species will be seeded with this seed mix.
- ***Inventory and remove debris and noxious materials.***
At the time of site construction, the Applicant will identify man-made debris and noxious materials that may be present within the WQR. Any such debris or materials will be removed from the WQR. This will occur within mitigation and restoration areas, as shown on Figure 9.
- c. ***Sufficient description to demonstrate how the following standards will be achieved:***
 - (1) ***Where existing vegetation has been removed, the site shall be revegetated as soon as practicable.***

Following the completion of the construction of the proposed stormwater outfalls, disturbed soils will be reseeded with the native seed mix described in Table 9, above. Within the mitigation and restoration areas, soils disturbed as a result of the removal of non-native invasive plants will be seeded with the native seed mix described in Table 9 as soon as practicable following the removal of the invasive plants. Woody material will be planted in the mitigation and restoration areas in the fall/winter immediately following construction to maximize the survival of the plantings.

- (2) ***Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.***

Lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

- (3) ***Areas of standing trees, shrubs, and natural vegetation will remain connected or contiguous; particularly along natural drainage courses, except where mitigation is approved; so as to provide a transition between the proposed development and the designated natural resource and to provide opportunity for food, water, and cover for animals located within the WQR.***

With the exception of the removal of invasive plants from the proposed mitigation and restoration areas, existing trees, shrubs, and natural vegetation within the WQR will remain undisturbed during the proposed construction.

- d. ***A map showing where the specific mitigation activities will occur. Off-site mitigation related to WQRs shall not be used to meet the mitigation requirements of Section 19.402.***

Figure 9 depicts the location of proposed mitigation activities. No mitigation is proposed to occur off-site.

- e. *An implementation schedule; including a timeline for construction, mitigation, mitigation maintenance, monitoring, and reporting; as well as a contingency plan. All in-stream work in fish-bearing streams shall be done in accordance with the allowable windows for in-water work as designated by ODFW.*

Construction of the proposed project is anticipated to begin in the late summer of 2017. Activities associated with the WQR/HCA mitigation are anticipated to begin in summer 2017. Removal of any existing man-made debris and noxious materials from the WQR will occur in summer 2017, as will the removal of invasive plants from the mitigation and restoration areas (Figure 9). Restoration plantings will be installed in the mitigation areas in late fall of 2017.

Monitoring of the restoration area will be conducted in the summer of 2018 and again in the summer of 2019. An annual monitoring report documenting the survival of the restoration plantings will be submitted to the City of Milwaukie by December 31 of each monitoring year. Plants that die shall be replaced in kind as needed to ensure the minimum 80% survival rate.

No in-stream work is proposed to occur as part of this project.

B. Approval Criteria

1. *Unless specified elsewhere in Section 19.402, applications subject to the discretionary review process shall demonstrate how the proposed activity complies with the following criteria:*

- a. *Avoid*

The proposed activity avoids the intrusion of development into the WQR and/or HCA to the extent practicable. The proposed activity shall have less detrimental impact to the designated natural resource than other practicable alternatives, including significantly different practicable alternatives that propose less development within the resource area.

The proposed project avoids development within the WQR and HCA to the extent practicable. As discussed earlier in this document, the alternative site designs (Figures 5A and 5B) have varying degrees of impacts to the WQR, HCA and wetlands; however, limitations due to zoning constraints and minimum density requirements resulted in choosing the optimal alternative for site development which would meet the City's minimum density requirements while also avoiding and minimizing impacts to natural resources on the site to the extent practicable.

- b. *Minimize*

If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the designated natural resource, then the proposed activity within the resource area shall minimize detrimental impacts to the extent practicable.

- (1) *The proposed activity shall minimize detrimental impacts to ecological functions and loss of habitat, consistent with uses allowed by right under the base zone, to the extent practicable.*

Implementation of the proposed mitigation will ensure the proposed project minimizes adverse effects to the ecological functions of the WQR and loss of habitat, as follows:

- The minimization of areal impacts as well as the proposed plantings to restore native plant communities on the south side of Mt. Scott Creek, along the northeast and south sides of Wetland A, and within the floodplain storage area will ensure that the WQR continues to provide vegetated corridors that separate protected water features from development.
- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and within the floodplain storage area mature, they will increasingly provide microclimate

regulation and shade for the stream and wetland, and provide better microclimate regulation and shade as compared to the existing plant communities.

- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and the floodplain storage area mature, they will provide more effective streamflow moderation during high flow events than the herbaceous plant community, predominantly composed of reed canarygrass, that is present under existing conditions.
- The diverse plant community within the WQR, HCA and floodplain storage area will continue to provide water filtration, infiltration, and natural purification functions. The proposed project will not adversely affect these functions.
- The proposed restoration plantings and the resulting diverse plant community within the WQR, HCA and floodplain storage area will continue to provide bank stabilization and sediment and pollution control functions. The proposed project will not adversely affect these functions.
- Trees will remain within the vegetated corridor following construction, and therefore, the WQR will continue to provide the potential for large wood recruitment and retention functions. No impacts are proposed for the creek, and therefore, there will be no adverse impact on channel dynamics.
- Because the WQR will continue to be vegetated with a diverse plant community, the proposed project will not adversely affect the resource's ability to provide organic inputs to the stream and riparian area.

(2) *To the extent practicable within the designated natural resource, the proposed activity shall be designed, located, and constructed to:*

(a) Minimize grading, removal of native vegetation, and disturbance and removal of native soils; by using the approaches described in Subsection 19.402.11.A, reducing building footprints, and using minimal excavation foundation systems (e.g., pier, post, or piling foundation).

In accordance with MMC Subsection 19.402.11.A, the following measures will be implemented to minimize impacts to the WQR on the site:

- Work areas will be marked to reduce potential damage to the WQR.
- Trees in the WQR will not be used as anchors for stabilizing construction equipment.
- Native soils disturbed during development shall be conserved on the property.
- The Applicant has prepared a preliminary grading and erosion control plan. Prior to the start of any construction activities, the applicant will apply for a grading and erosion control permit, consistent with the standards required by the City's Public Works Department.
- The Applicant will implement best management practices on site to prevent the drainage of hazardous materials, erosion, pollution or sedimentation within the resources and the vegetative corridors.
- The Applicant has prepared a preliminary stormwater detention and water quality plan for the project which has been designed to prevent flows within and to natural drainage courses which might exceed pre-developed conditions.

- Prior to construction, the WQR and HCA that are to remain undeveloped will be flagged, fenced, or otherwise marked and shall remain undisturbed. Such markings will be maintained until construction is complete.
- The construction phase of the development shall be done in such a manner as to safeguard the resource portions of the site that have not been approved for development.
- Lights will be placed so that they do not shine directly into the WQR and/or HCA.
- The Applicant has prepared a construction management plan which will conform to the requirements of 19.402.9. The Final Construction management plan will be provided to the City's Engineering Department prior to the commencement of construction activities.

(b) Minimize adverse hydrological impacts on water resources.

The implementation of the proposed stormwater management plan, which detains post-development runoff at or below pre-development release rates will ensure that hydrologic impacts to the water resources are minimized. Since no work is proposed in the stream, this will ensure the project avoids hydraulic impacts to the stream channel.

(c) Minimize impacts on wildlife corridors and fish passage.

No work is proposed in the stream, which will ensure the project avoids impacts to fish passage along this reach of Mt. Scott Creek. Restoration with a diverse native plant community within the riparian corridor will ensure that impacts to wildlife habitat are minimized.

(d) Allow for use of other techniques to further minimize the impacts of development in the resource area; such as using native plants throughout the site (not just in the resource area), locating other required landscaping adjacent to the resource area, reducing light spill-off into the resource area from development, preserving and maintaining existing trees and tree canopy coverage, and/or planting trees where appropriate to maximize future tree canopy coverage.

Impacts to the on-site resources have been minimized to the extent practicable.

c. Mitigate

If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the designated natural resource, then the proposed activity shall mitigate for adverse impacts to the resource area. All proposed mitigation plans shall meet the following standards:

- (1) The mitigation plan shall demonstrate that it compensates for detrimental impacts to the ecological functions of resource areas, after taking into consideration the applicant's efforts to minimize such detrimental impacts.*

As described above, implementation of the proposed mitigation will ensure the proposed project minimizes adverse effects to the ecological functions of the WQR and loss of habitat, as follows:

- The minimization of areal impacts as well as the proposed plantings to restore a native plant community on the south side of Mt. Scott Creek, around Wetland A, and within the floodplain storage area will ensure that the WQR continues to provide a vegetated corridor that separates protected water features from development.
- As the proposed tree and shrub plantings south of Mt. Scott Creek mature, around Wetland A, and within the floodplain storage area, they will increasingly provide microclimate regulation

and shade for the stream, and provide better microclimate regulation and shade as compared to the existing plant community on the south side of the creek.

- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and within the floodplain storage area mature, they will provide more effective streamflow moderation during high flow events than the predominantly reed canarygrass herbaceous plant community that is present under existing conditions.
- The diverse plant community within the WQR, HCA and floodplain storage area will continue to provide water filtration, infiltration, and natural purification functions. The proposed project will not adversely affect these functions.
- The proposed restoration plantings and the resulting diverse plant community within the WQR, HCA and floodplain storage area will continue to provide bank stabilization and sediment and pollution control functions. The proposed project will not adversely affect these functions.
- Trees will remain within the vegetated corridor following construction, and therefore, the WQR will continue to provide the potential for large wood recruitment and retention functions. No impacts are proposed for the creek, and therefore, there will be no adverse impact on channel dynamics.
- Because the WQR will continue to be vegetated with a diverse plant community, the proposed project will not adversely affect the resource's ability to provide organic inputs to the stream and riparian area.

(2) Mitigation shall occur on the site of the disturbance, to the extent practicable. Off-site mitigation for disturbance of WQRs shall not be approved. Off-site mitigation for disturbance of HCAs shall be approved if the applicant has demonstrated that it is not practicable to complete the mitigation on-site and if the applicant has documented that they can carry out and ensure the success of the off-site mitigation as outlined in Subsection 19.402.11.B.5.

In addition, if the off-site mitigation area is not within the same subwatershed (6th Field Hydrologic Unit Code) as the related disturbed HCA, the applicant shall demonstrate that it is not practicable to complete the mitigation within the same subwatershed and that, considering the purpose of the mitigation, the mitigation will provide more ecological functional value if implemented outside of the subwatershed.

All mitigation will occur on site.

(3) All revegetation plantings shall use native plants listed on the Milwaukie Native Plant List.

Only native species will be installed in the revegetation plantings. A list of species to be planted is provided in Table 9, above and on Figure 9.

(4) All in-stream work in fish-bearing streams shall be done in accordance with the allowable windows for in-water work as designated by ODFW.

No in-stream work is proposed to occur with this project.

(5) A mitigation maintenance plan shall be included and shall be sufficient to ensure the success of the planting. Compliance with the plan shall be a condition of development approval.

The Applicant will undertake the following mitigation maintenance measures to ensure a minimum of 80 percent of the trees and shrubs planted remain alive two years after the mitigation planting is completed.

- New plantings will be mulched to a minimum of 3-inch depth and 18-inch diameter to retain moisture and discourage weed growth.
- Non-native or noxious vegetation will be removed or controlled throughout the maintenance period.
- Plant sleeves or fencing will be used to protect trees and shrubs against wildlife browsing and the resulting damage to plants.
- New plantings will be watered at a rate of 1 inch per week between June 15 and October 15 for the first two years following planting.

It should be noted that as described in the sections above, mitigation for proposed impacts to the HCA and WQR are primarily in the form of restoration and enhancement plantings. Due to the size, shape and location of the wetland areas and associated WQR and HCA within the site, options for other mitigation measures, such as grading with gradual slopes, while avoiding further impacts to natural resources, is quite limited. As such, grading with gradual slopes, 3:1 or less, were limited to areas along the south and east sides of the existing wetland.

6.5 MMC 19.402.13 – Land Division and Property Line Adjustments

I. Subdivisions

Applications for subdivisions are subject to Type III review and shall comply with one of the following two standards:

- 1. At least 90% of the property's HCA and 100% of the property's WQR shall be located in a separate tract. Applications that meet this standard are not subject to the discretionary review requirements of Subsection 19.402.12.***

This standard is not met. As such the application is subject to the discretionary review provided in Section 6.4, above.

- 2. If a subdivision cannot comply with the standards in Subsection 9.402.13.I.1, the application shall comply with the following standards:***
 - a. All proposed lots shall have adequate buildable area outside of the WQR and HCA.***
 - b. To the extent practicable, the lot and access configurations shall mitigate the potential future impacts to the WQR and HCA from access and development.***
 - c. An Impact Evaluation and Alternatives Analysis shall be prepared in accordance with the relevant portions of Subsection 19.402.12.A.***
 - d. For properties where the HCA covers more than 85% of the total lot area, the Impact Evaluation and Alternatives Analysis shall address how the applicant's proposal retains the greatest practicable degree of contiguity of the HCA across the new lots.***

Standards b, c and d are being met, and have been discussed above in Section 6.4. Standard a cannot be met, however, mitigation for impacts to WQR and HCA has been provided. Some of the developable lots within the proposed development will not provide adequate buildable area outside of WQR and HCA areas on the site, and therefore, will remain with a WQR and/or HCA. As such, a formal variance request will be made by the Applicant, and will be subject to a Type III review.

J. Resource Area as a Separate Tract

Where required by Section 19.402, the new subdivision or partition plat shall delineate and show all WQRs and HCAs as being located in a separate unbuildable tract(s) according to the following process:

- 1. Prior to preliminary plat approval, the designated natural resource (whether WQR, HCA, or both) shall be shown as a separate tract(s), which shall not be part of any lot or parcel used for construction of any structures.*

Prior to preliminary plat approval, the WQR and HCA will be shown as separate tracts, which will not be part of any lot or parcel used for construction of any structures. Figure 10 shows the locations of the revised WQR and HCA boundaries upon completion of the proposed development.

- 2. Prior to final plat approval, ownership of the separate natural resource tract(s) shall be identified to distinguish it from lots or parcels intended for sale. Ownership in common or by a homeowners association is strongly discouraged. The tract(s) may be identified as any of the following:*
 - a. Private natural area held by the owner with a restrictive covenant and/or conservation easement.*
 - b. For residential subdivisions, private natural area subject to an easement conveying storm and surface water management rights to the City of Milwaukie, Clackamas County Water Environment Services, and/or any other relevant jurisdiction, and preventing the owner of the tract from activities and uses inconsistent with the purposes of Section 19.402.*
 - c. Public natural area where the tract has been dedicated to the City of Milwaukie or a private nonprofit with the mission of land conservation.*

As the proposed development is a residential subdivision, prior to final plat approval, the ownership of the separate natural resource tract(s) will be identified to distinguish it from lots or parcels intended for sale by identifying it as a private natural area subject to an easement conveying storm and surface water management rights to the City of Milwaukie, Clackamas County Water Environment Services, and/or any other relevant jurisdiction, and preventing the owner of the tract from activities and uses inconsistent with the purposes of Section 19.402.

- 3. The boundaries of all such tracts shall be demarcated with stakes, flags, or some similar means so that the boundaries between tracts and adjacent properties are defined in perpetuity. Fences that prevent the unfettered passage of wildlife shall not be installed along the boundary of any tract.*

The boundaries of all such tracts will be demarcated with stakes, flags, or some similar means so that the boundaries between tracts and adjacent properties are visibly defined in perpetuity. The exact means that will be used will be determined at the time of construction; however, fences that prevent the unfettered passage of wildlife will not be installed along the boundary of any tract.

6.6 MMC 19.402.15 – Boundary Verification and Map Administration

A. Boundary Verification

To determine whether the standards of Section 19.402 apply to a proposed activity at any given location, the boundaries of any designated natural resource(s) on or near the site shall be verified.

Agreement with the accuracy of the NR Administrative Map does not constitute or require a land use decision. However, for activities proposed within 100 feet of a wetland or its associated vegetated corridor, the boundary verification process outlined in Subsection 19.402.15.A.2.a(1)(b) shall be followed to identify the specific location of wetlands on the subject property. The Planning Director may waive the requirement for official wetland delineation, depending on the specific circumstances of the site and the proposed activity. Such circumstances may include, but are not limited to, the scale and potential impacts of the proposed activity, the proximity of the proposed activity to the mapped resource, and the Director's confidence in the accuracy of the NR Administrative Map relative to the resource in question. An applicant may challenge the accuracy of the NR Administrative Map through either of the boundary verification processes outlined in Subsections 19.402.15.A.1 and 2.

1. Type I Boundary Verification

The following minor corrections to mapped HCAs may be proposed according to one of the following procedures, and are subject to Type I review per Section 19.1004:

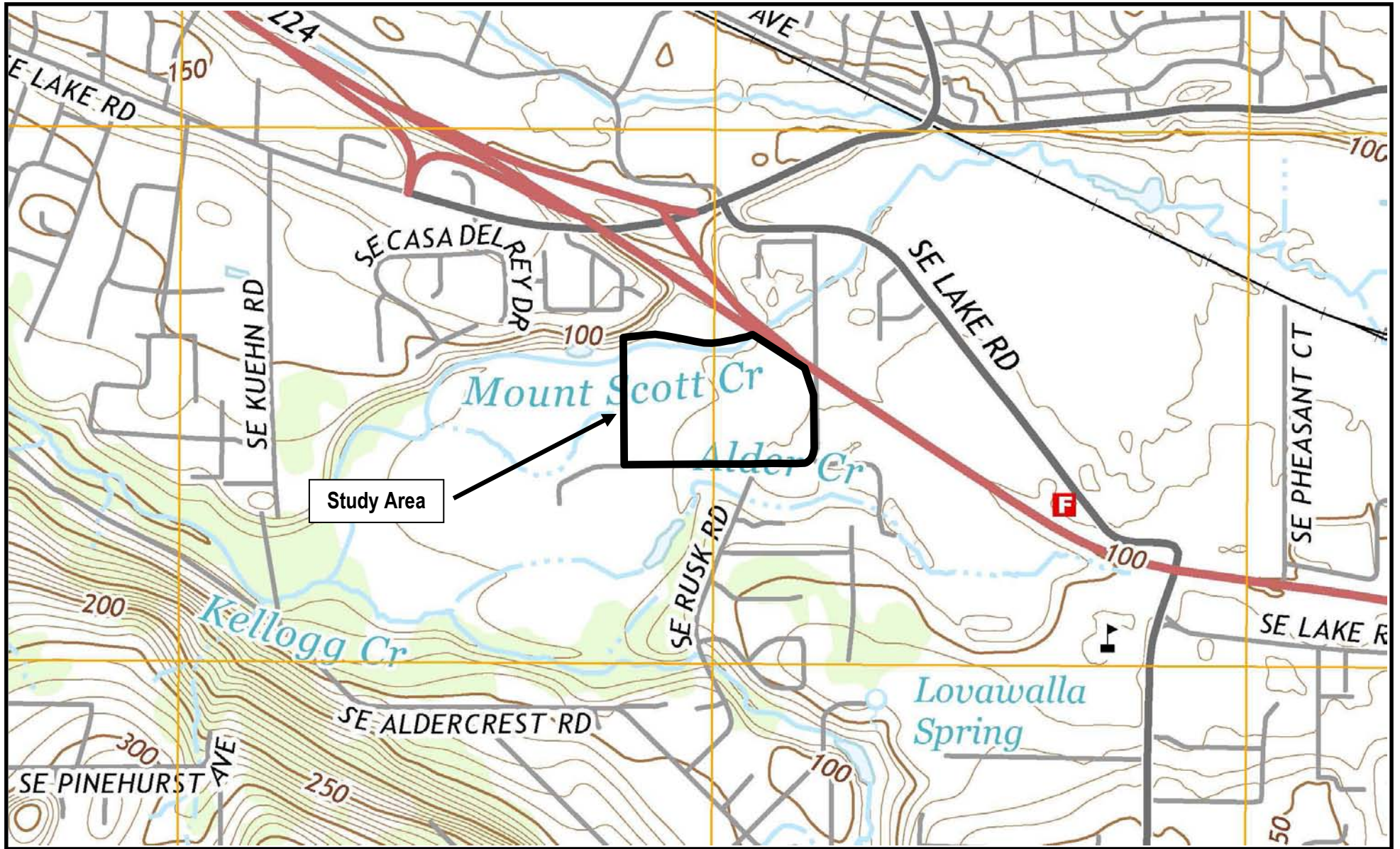
a. Simple Incongruities

The proposed site plan per approval will result in a revised HCA boundary resulting from simple incongruities associated with the development of the subject site. The proposed updated HCA boundary verification map is presented on Figure 10.

Attachment A

Figures





5975
1/29/2017



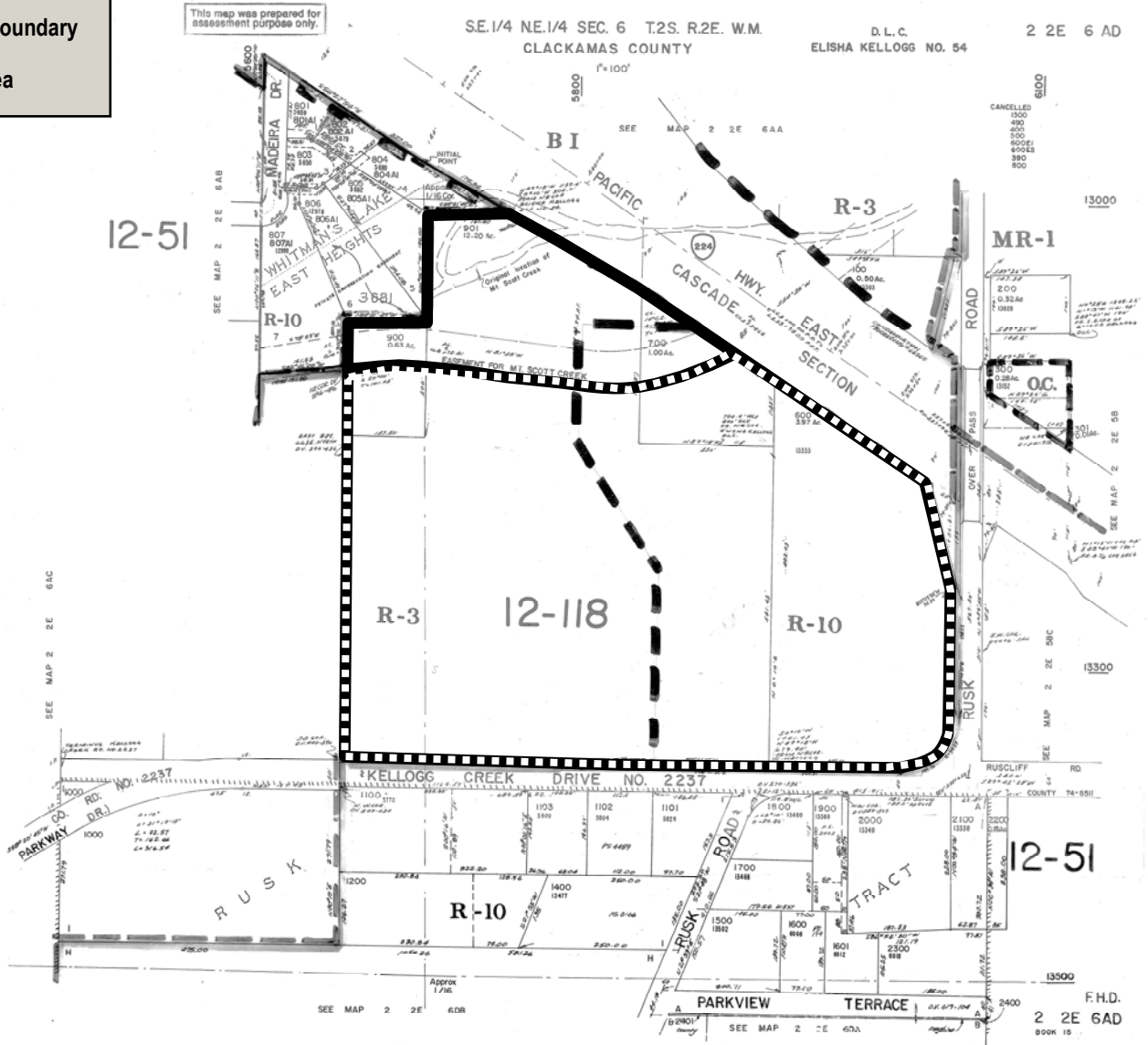
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
Kellogg Creek Subdivision - Milwaukie, Oregon
United States Geological Survey (USGS), Gladstone, Oregon, 7.5 Quadrangle, 2014
(viewer/nationalmap.gov/basic)

FIGURE

1

Tax Lot Boundary
 Study Area

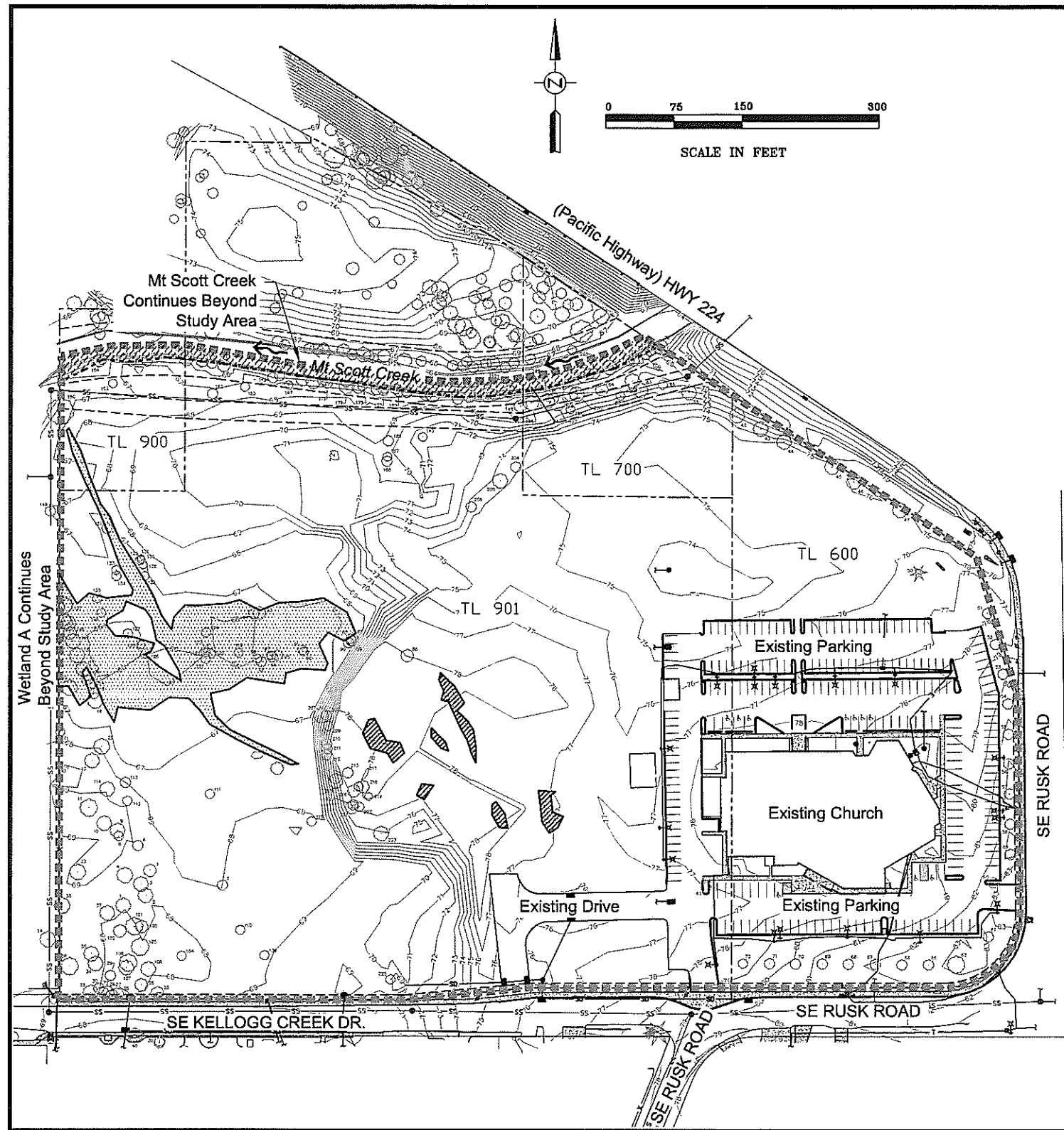


5975
 1/29/2017

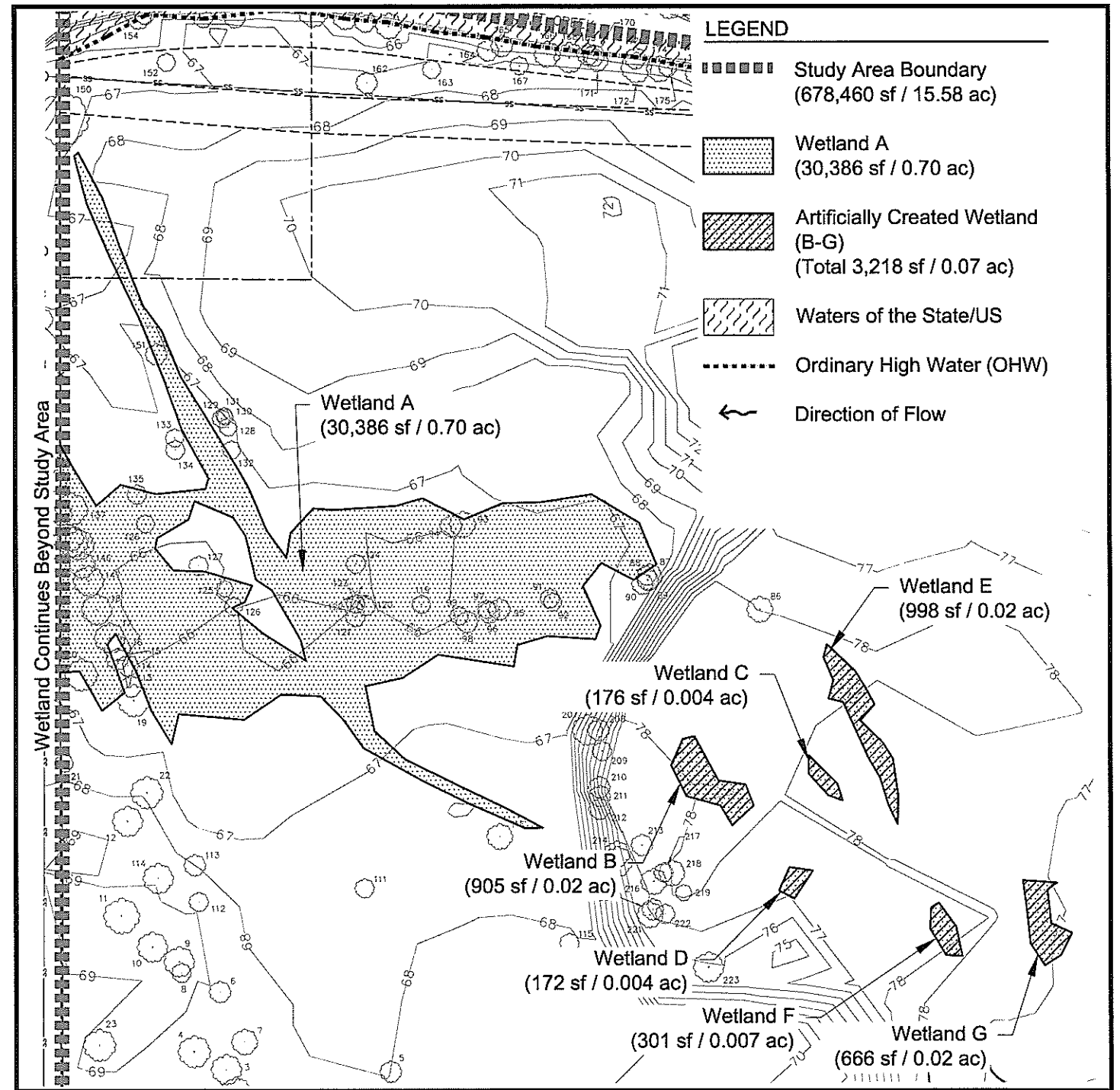
 Pacific Habitat Services, Inc.
 9450 SW Commerce Circle, Suite 180
 Wilsonville, OR 97070

Tax Lot Map
 Kellogg Creek Subdivision - Milwaukie, Oregon
 The Oregon Map (ormap.net)

FIGURE
 2



TAX LOT OVERVIEW



- LEGEND**
- ▣▣▣▣ Study Area Boundary (678,460 sf / 15.58 ac)
 - ▤▤▤▤ Wetland A (30,386 sf / 0.70 ac)
 - ▥▥▥▥ Artificially Created Wetland (B-G) (Total 3,218 sf / 0.07 ac)
 - ▧▧▧▧ Waters of the State/US
 - Ordinary High Water (OHW)
 - ← Direction of Flow

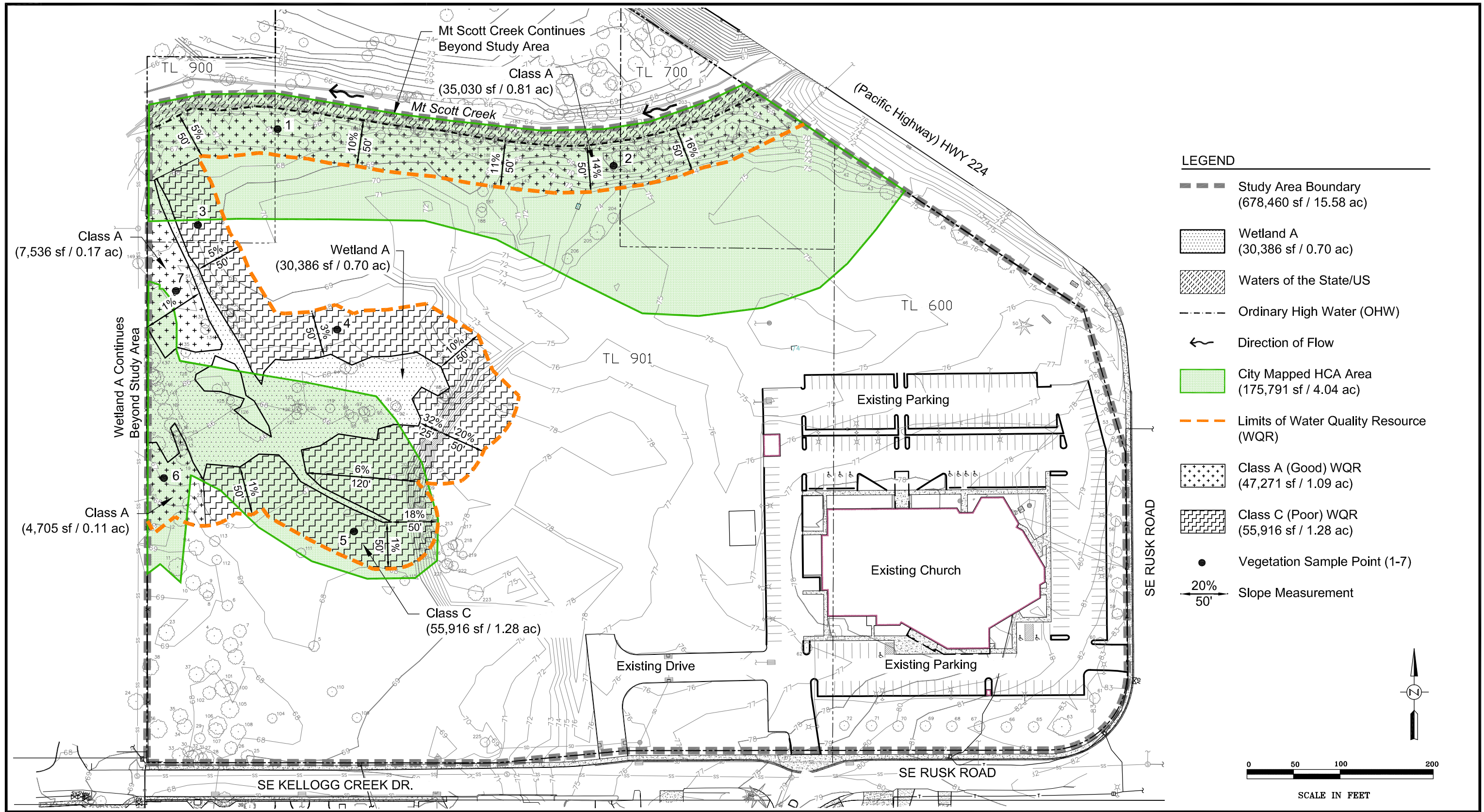
SCALE IN FEET



Survey provided by
 TerraCalc Land Surveying, Inc., 2016
 Survey accuracy is sub-centimeter and
 Sample Point accuracy is ± 3 feet.

Existing Conditions
 Kellogg Creek Subdivision - Milwaukie, Oregon

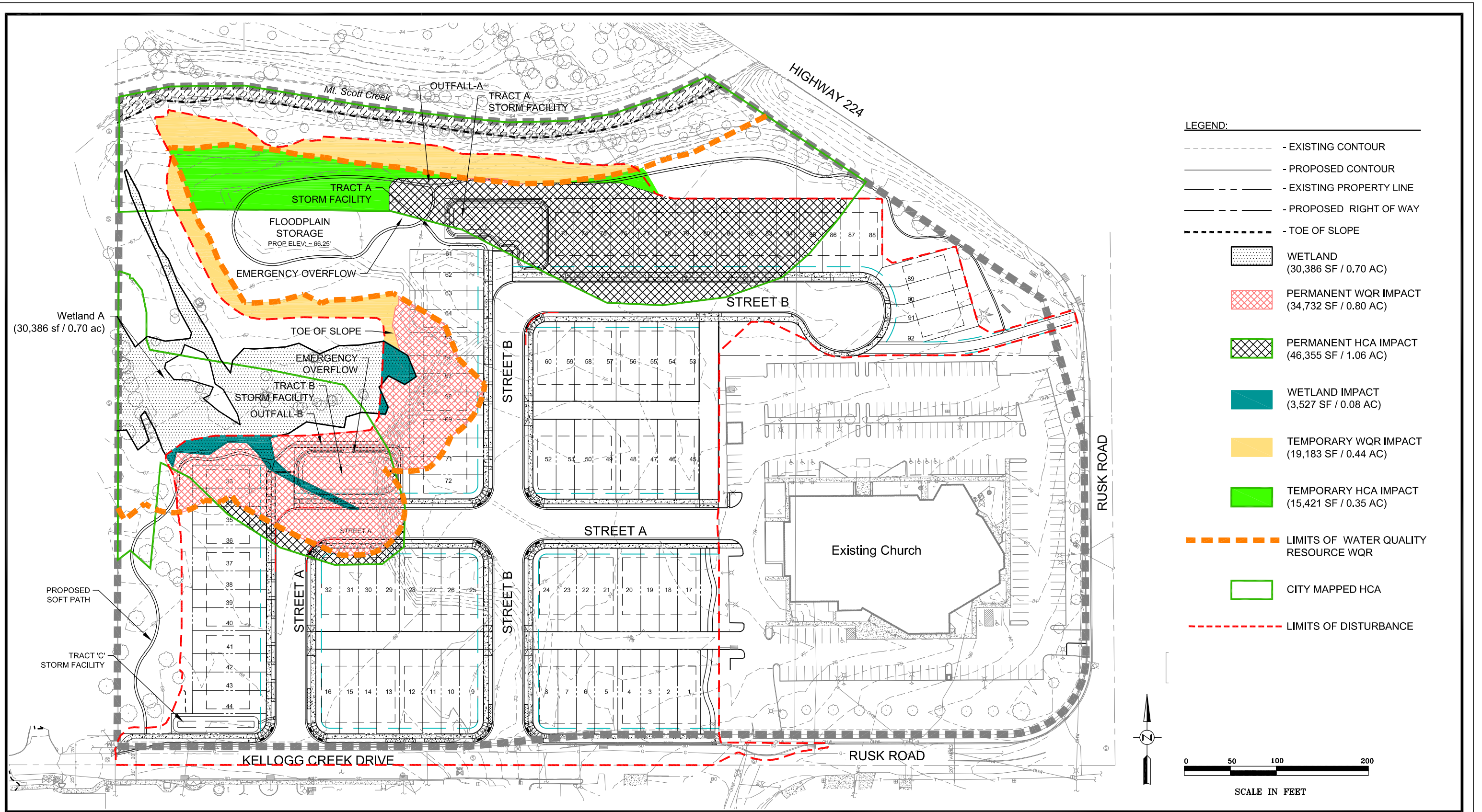
FIGURE
3



Survey provided by
TerraCalc Land Surveying, Inc., 2016.

Water Quality Resource and Habitat Conservation Area Map
SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
4

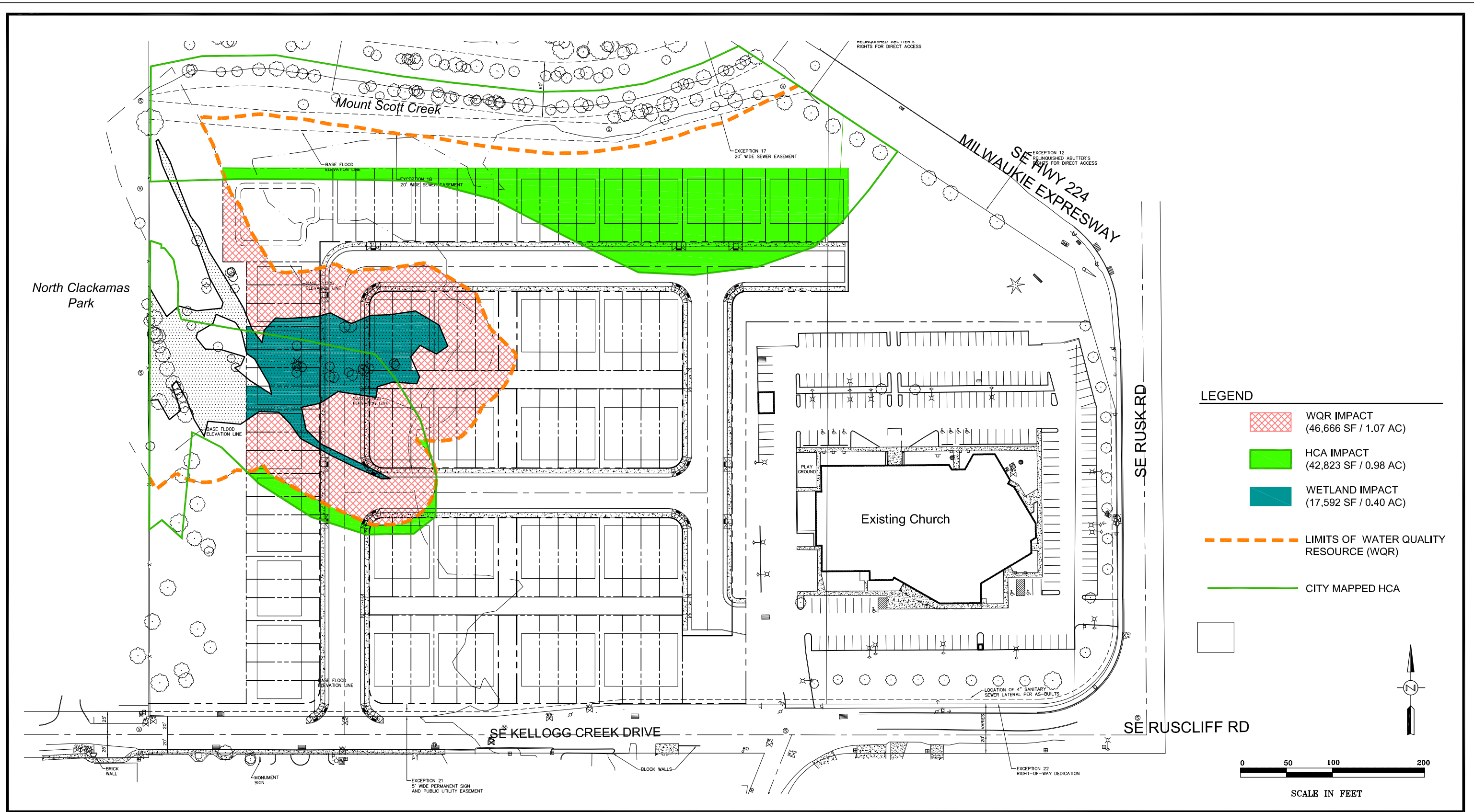


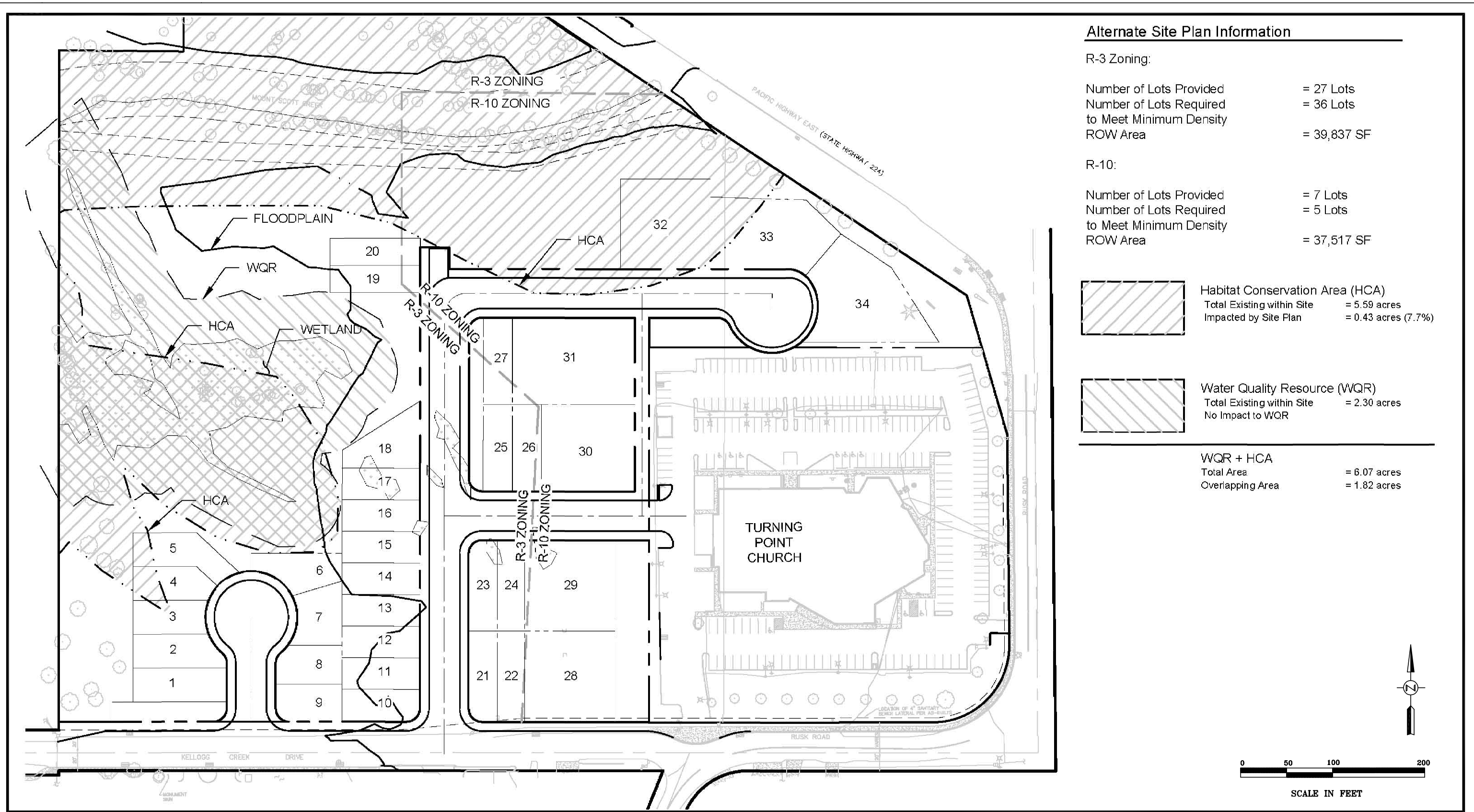
Plans provided by DOWL.

Site Plan and WQR, HCA and Wetland Impacts
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
5

4-6-2017






Alternate Site Plan Information


R-3 Zoning:

Number of Lots Provided = 27 Lots
 Number of Lots Required to Meet Minimum Density ROW Area = 36 Lots
 = 39,837 SF

R-10:

Number of Lots Provided = 7 Lots
 Number of Lots Required to Meet Minimum Density ROW Area = 5 Lots
 = 37,517 SF

 **Habitat Conservation Area (HCA)**
 Total Existing within Site = 5.59 acres
 Impacted by Site Plan = 0.43 acres (7.7%)

 **Water Quality Resource (WQR)**
 Total Existing within Site = 2.30 acres
 No Impact to WQR

WQR + HCA
 Total Area = 6.07 acres
 Overlapping Area = 1.82 acres

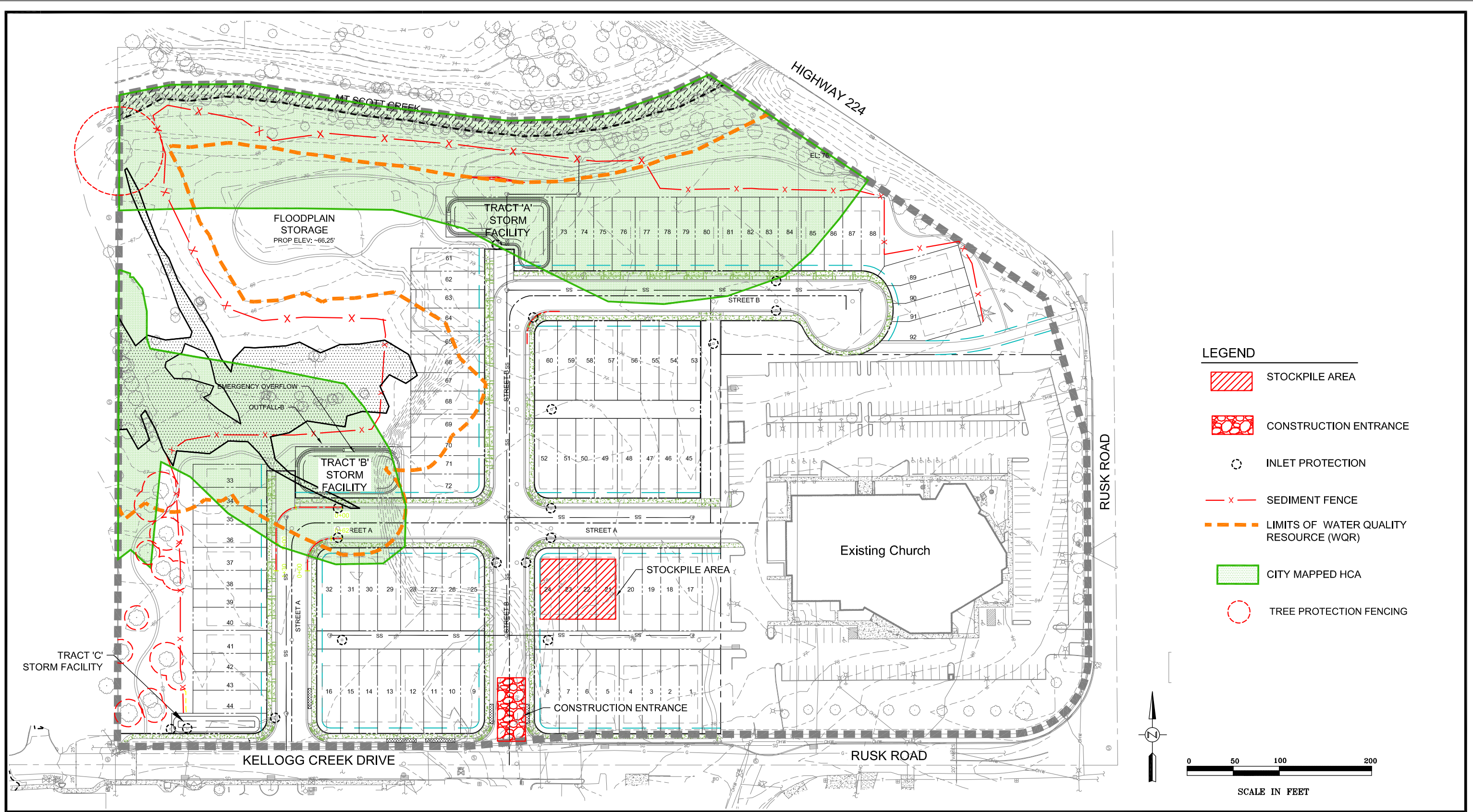


Site Plan (April 3, 2017) provided by DOWL.

Additional Alternative Site Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE 5B

4-6-2017

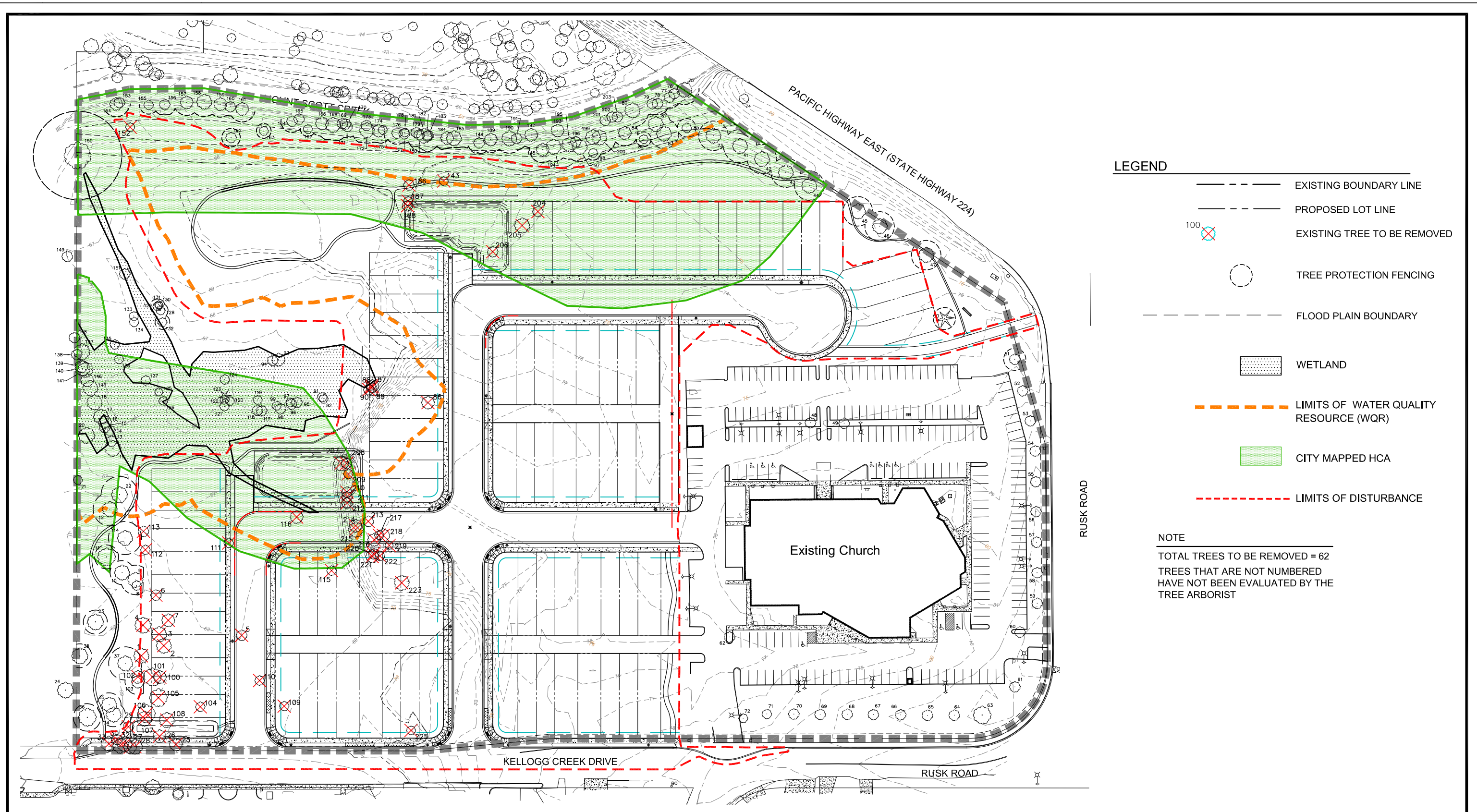


Plans provided by DOWL.

Construction Management / Erosion and Sediment Control Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
6

4-6-2017



LEGEND

- EXISTING BOUNDARY LINE
- PROPOSED LOT LINE
- 100 EXISTING TREE TO BE REMOVED
- TREE PROTECTION FENCING
- FLOOD PLAIN BOUNDARY
- WETLAND
- LIMITS OF WATER QUALITY RESOURCE (WQR)
- CITY MAPPED HCA
- LIMITS OF DISTURBANCE

NOTE
 TOTAL TREES TO BE REMOVED = 62
 TREES THAT ARE NOT NUMBERED
 HAVE NOT BEEN EVALUATED BY THE
 TREE ARBORIST



Plans provided by DOWL.

Tree Removal and Protection Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
7

4-6-2017

Number	Dia (in)	Remove (Y/N)
1	18	Y
2	18	Y
3	18	Y
4	20	N
5	12	Y
6	12	Y
7	14	Y
8	10	N
9	16	N
10	16	N
11	24	N
12	18	N
13	12	N
14	12	N
15	12	N
16	14x2	N
17	16	N
18	18	N
19	20	N
20	20	N
21	8	N
22	20	N
23	20	N
24	20	N
25	14	Y
26	14x2	Y
27	14	Y
28	16	Y
29	12	Y
30	12	Y
31	16	Y
32	16	Y
33	16	Y
34	16	N
35	16x2	N
36	24	N
37	18	N
38	20	N
41	18	N
42	16	N
43	16	N
44	16	N
45	16	N
46	16	N
47	16	N
48	12	N
49	12	N
50	12x2	N
51	12	N
52	12	N
53	12	N
54	12	N
55	14	N
56	12	N
57	12	N
58	12	N
59	12	N
60	12	N

Number	Dia (in)	Remove (Y/N)
61	12	N
62	10	N
63	24	N
64	12	N
65	12	N
66	12	N
67	12	N
68	12	N
69	12	N
70	12	N
71	12	N
72	8	N
73	16	N
74	10	N
75	16	N
76	12x3	N
77	12	N
78	12	N
79	12	N
80	18	N
81	18	Y
82	8	N
83	16	N
84	14	N
85	10	N
86	14	Y
87	14x2	Y
88	10	Y
89	12	Y
90	12	Y
91	10	N
92	8	N
93	14	N
94	12	N
95	12	N
96	12	N
97	8	N
98	12	N
99	8	N
100	14	Y
101	24	Y
102	8x6	Y
103	14	N
104	10	Y
105	24	Y
106	24	Y
107	18	Y
108	16x2	Y
109	10	Y
110	10	Y
111	10x5	Y
112	10	Y
113	12	Y
114	18	N
115	10x8	Y
116	14	Y
117	12	N
118	12	N

Number	Dia (in)	Remove (Y/N)
119	8x2	N
120	8	N
121	10	N
122	8	N
123	6	N
124	10x2	N
125	6	N
126	8	N
127	10	N
128	8	N
129	8	N
130	6	N
131	6	N
132	8	N
133	8	N
134	10	N
135	10	N
136	8x2	N
137	20	N
138	12	N
139	14	N
140	16	N
141	16	N
143	8	Y
144	12	N
145	14x2	N
146	14	N
147	16x2	N
148	12x3	N
149	12	N
150	48	N
151	12	N
152	8	Y
153	12	N
154	14	N
155	10x4	N
156	12x2	N
157	14	N
158	16	N
159	14	N
160	10x3	N
161	14	N
162	10	N
163	8x2	N
164	12	N
165	12	N
166	14	N
167	8	N
168	18	N
169	12	N
170	12	N
171	12	N
172	16x3	N
173	12	N
174	14	N
175	8	N
176	12	N
177	10	N

Number	Dia (in)	Remove (Y/N)
178	8	N
179	10x2	N
180	12	N
181	16	N
182	12	N
183	12	N
184	14x2	N
185	18x2	N
186	12x3	Y
187	8x2	Y
188	10x2	Y
189	14x2	N
190	16	N
191	12	N
192	14x2	N
193	14	N
194	16	N
195	16	N
196	12	N
197	16	N
198	8	N
199	19	N
200	18	N
201	12	N
202	12	N
203	10x2	N
204	12	Y
205	18x2	Y
206	12x4	Y
207	16	Y
208	12x2	Y
209	10x9	Y
210	12	Y
211	12	Y
212	12	Y
213	12	Y
214	14	Y
215	16	Y
216	14	Y
217	10	Y
218	14	Y
219	6x3	Y
220	12	Y
221	14	Y
222	10	Y
223	16x2	Y
225	8x3	Y

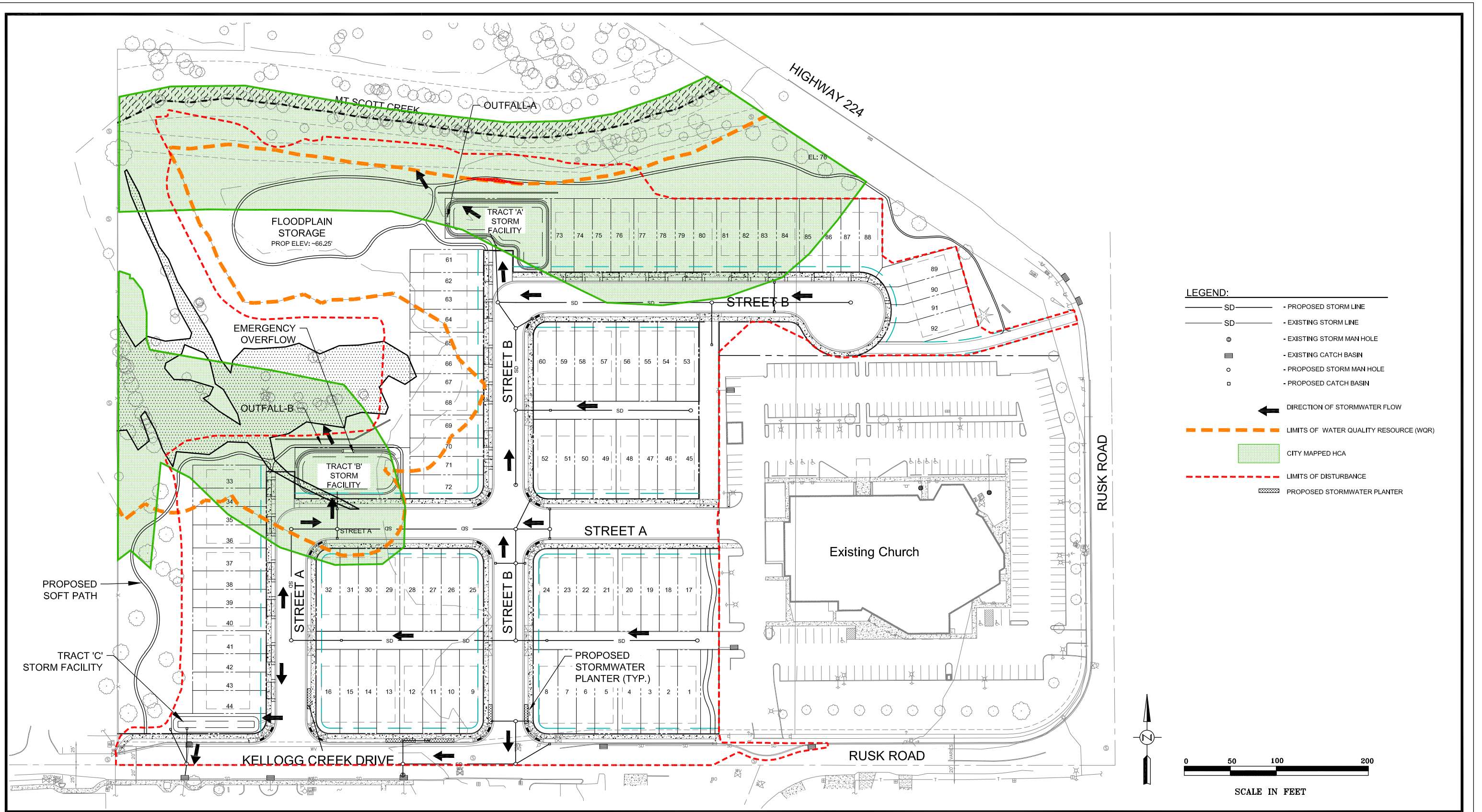
TOTAL TREES TO BE REMOVED = 62
TREES THAT ARE NOT NUMBERED HAVE NOT BEEN
EVALUATED BEEN BY THE TREE ARBORIST



Plans provided by DOWL.

Tree Protection and Removal Table
Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
7A

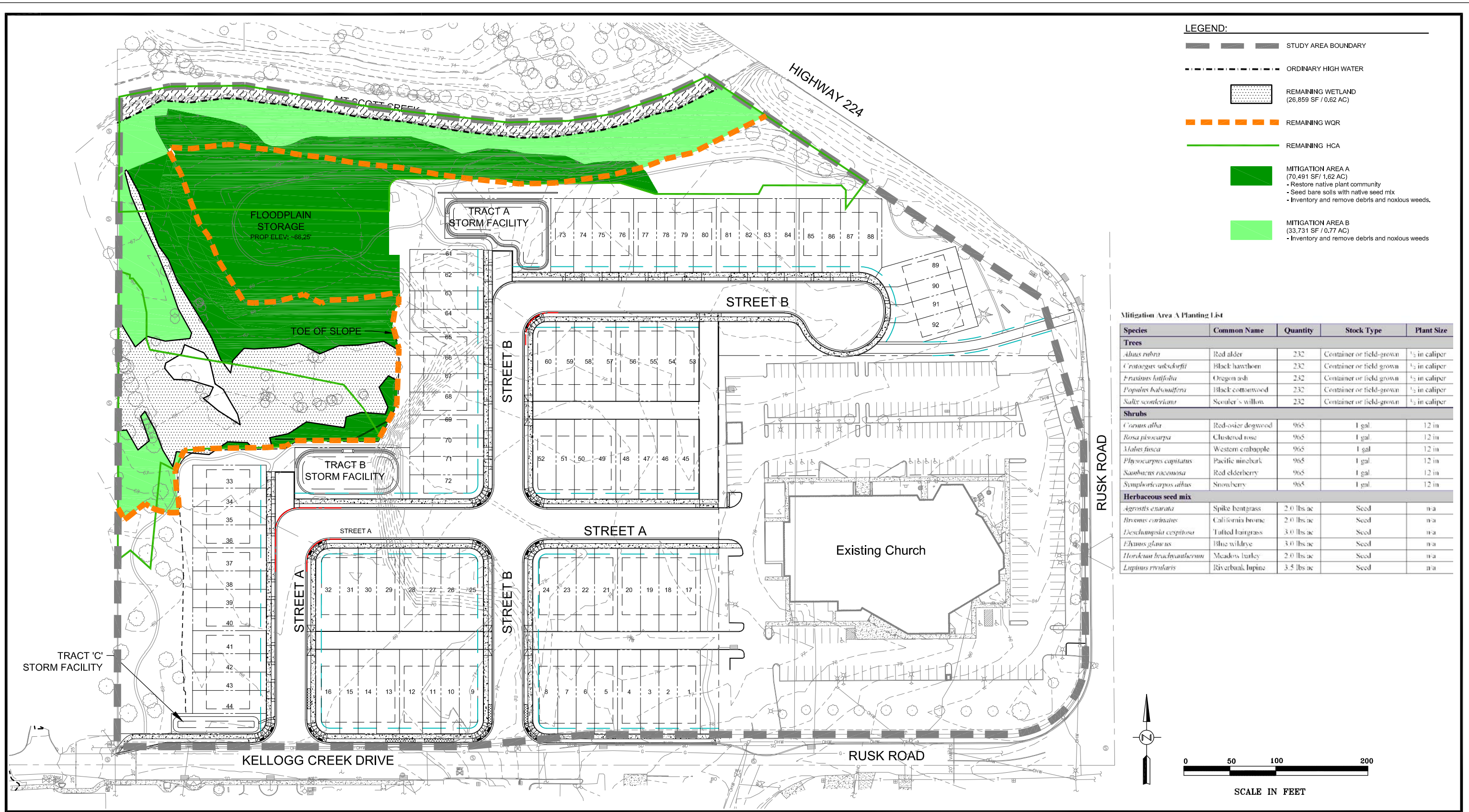


Plans provided by DOWL.

Stormwater Management Plan
SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
8

4-6-2017

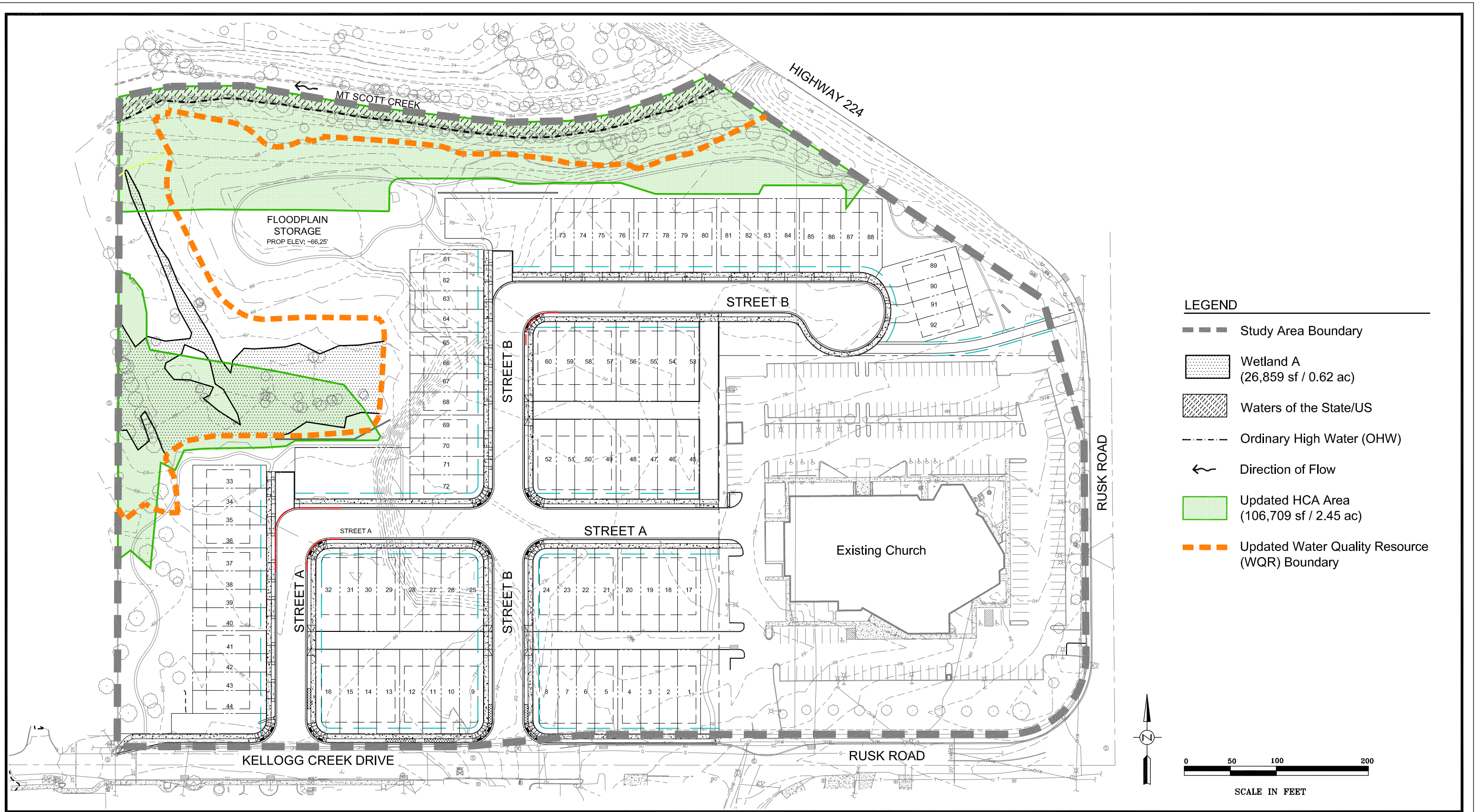


Plans provided by DOWL.

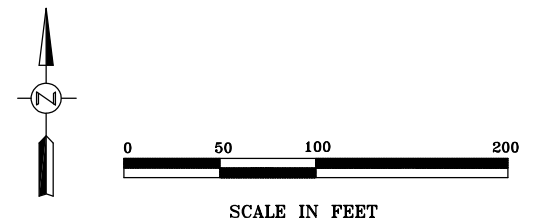
Mitigation Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
9

4-6-2017



- LEGEND**
- Study Area Boundary
 - [Stippled Box] Wetland A (26,859 sf / 0.62 ac)
 - [Hatched Box] Waters of the State/US
 - - - Ordinary High Water (OHW)
 - ← Direction of Flow
 - [Green Box] Updated HCA Area (106,709 sf / 2.45 ac)
 - [Dashed Orange Box] Updated Water Quality Resource (WQR) Boundary



Plans provided by DOWL.

HCA Boundary Verification Map
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
10

4-6-2017

Attachment B

Wetland Delineation Report

Note from City Planning staff (5/11/17): Attachment B is the Wetland Delineation Report prepared by Pacific Habitat Services (dated January 16, 2017), available as Exhibit D on the City's project webpage for this application (file #PD-2017-001). To reduce unnecessary repetition and limit file size for downloading, it is not duplicated with this document (Exhibit J).

