HILLSBORO RESERVOIR SITING STUDY

TECHNICAL MEMORANDUM 3

PREPARED FOR

CITY OF HILLSBORO

FEBRUARY 2009

PREPARED BY

CH2MHILL

WB102008004PDX 355740.01.6S 2/2/2009 KK

Hillsboro Reservoir Siting Study

PREPARED FOR: City of Hillsboro

PREPARED BY: Brad Phelps, P.E./CH2M HILL
Bill Simonds, P.E./CH2M HILL

DATE: February 5, 2009

PROJECT NUMBER: 355740.01.SC

1.0 Preface and Background Summary

This Technical Memorandum 3 (TM-3) has been prepared to document and describe the requested changes in criteria and evaluation of the reservoir site selection process following the input acquired at a public hearing held before the City of Hillsboro Utilities Commission on November 20, 2008. This TM-3 includes reformatted versions of Technical Memorandum No. 1 and Technical Memorandum No. 2, as further described below.

The purpose of the reservoir site selection process is to provide a methodical and understandable process by which to determine potential properties for acquisition and the eventual construction of three new reservoirs. These reservoirs are needed to meet the requirements of Hillsboro's drinking water needs and its contract with the Joint Water Commission (JWC) partners. The City of Hillsboro, to meet system demands, provides for emergency drinking water needs (in the event the JWC regional supply system is hampered to provide adequate water supply), and per its agreement with the partners of the Joint Water Commission (JWC), is required to have in its distribution system an in-town drinking water reservoir storage volume equal to 3 days of average day demand. To address this requirement, the City plans to increase its in-town storage by about 15 million gallons (MG) reservoir in the near future, add a second 15-MG reservoir by 2015, and add a third 15-MG by about 2028. The City is prepared to acquire the properties to site these three incremental reservoir storage facilities now, and to construct the first of the three new reservoir facilities by 2010.

The City engaged CH2M HILL to assist in identifying locations and specific properties where these new reservoirs could be constructed. To develop the preferred sites, a ranking process was developed using specific criteria for the evaluation. These criteria were used for ranking potential parcels. The selection of the criteria was performed by the Reservoir Siting Committee (RSC) consisting of an array of various City department representatives and reservoir experts from CH2M HILL. In addition to developing the criteria elements, a weighting factor was then developed for each of the criteria to help define the importance of each as it related to the other criteria. A point system between 1 and 5 was then attributed to each parcel for each criteria element. This point system was then multiplied by the criteria weighting factor and a total score was developed for each parcel that had been selected. Initially over four hundred parcels were identified within the siting study area. The siting study area included parcels both inside the City limits and outside the City limits. Each site

was then screened further for adequacy of parcel dimensions to provide sufficient area for the needed facilities. Some parcel configurations did not lend themselves to necessary dimensions for the facilities, and those sites were removed from the list. As well, sites which lay within a hydraulic influence zone of the existing reservoirs were within the boundary of the 100-year floodplain, and site within the defined area of highest relative earthquake zone hazard were removed from further evaluation. The remaining 82 sites were then processed using the scoring method. The evaluation process and the top-ranked sites were discussed in a workshop with the Reservoir Siting Committee (RSC) on July 25, 2007. Technical Memorandum 1 was then submitted to the City in September 2007.

Following workshop review, the top six sites were selected for further detailed evaluation and analysis. This evaluation included geotechnical study, onsite field survey, determination of permit requirements and restrictions, development of a formal property appraisal, and layout of reservoir and support facilities on each of the six sites. On July 17, 2008, a public meeting was held to inform the public of the current study findings. Informal comments were received from the public including suggested modification of some of the site selection criteria (removal of land costs from criteria consideration), and the details of the six selected sites were documented in November 2008. The City decided to hold a public hearing on the siting study, and on November 19, 2008 a public hearing was conducted before the City of Hillsboro Utilities Commission. The public suggested further modification of some of the site selection criteria and re-evaluation, including a re-ranking of the sites, which resulted in the re-evaluation and revisions to top-ranked sites. This Technical Memorandum No. 3 presents the detailed information of this re-evaluation following the public hearing.

For this Technical Memorandum 3, we have also included detailed information from the previous Technical Memorandums No. 1 and No. 2. Information presented between Sections 2 thru 10 was contained and documented in TM-1 and TM-2. This information is repeated in this TM-3 .to allow the reader an understanding of the full siting process and evaluations the City has undertaken to date. Some of the information presented in Section 2 thru 10 do not apply to the current process of site selection, but is being provided for historic process and evaluation documentation purposes.

2.0 Hillsboro Reservoir Storage Facilities (Existing and Future)

2.1 Existing System Storage Facilities

The City's existing drinking water storage facilities consists of two reservoirs. The first one, the 6-MG 24th Avenue Reservoir, initially constructed in 1961, was recently renovated to comply with current seismic building codes and to provide increased inlet and outlet flow. The seismic retrofit also required a reduction in the available water depth in the reservoir which in turn changed the reservoir capacity to 5.6 MG. The other existing reservoir, the 15-MG Evergreen Reservoir, was commissioned in 2005 along with its companion pump station for delivery of water into the distribution system. Both reservoirs provide operational, and fire suppression flow needs, in addition to serving as emergency storage facilities for the water system.

2.2 New Water Storage Facilities

The City anticipates that the three new reservoirs will each have a capacity of about 15 MG and will be located on three distinct and separate sites. Preferably, they would be located close to the JWC regional transmission pipelines located on the perimeter of City of Hillsboro. Each new reservoir will be designed with a pump station to convey stored water from the reservoir into the City's distribution system, as is the case with the City's existing reservoirs. The first of these reservoir and pump station facilities is desired to be designed and constructed in the near future; the other two reservoir/pump station facilities are needed to satisfy storage requirements by 2028. When constructed, the three new reservoirs will bring total in-town storage in the Hillsboro water distribution system to approximately 65.6 MG.

Exhibit 2-1 graphically presents an overview of existing reservoir storage facility capacities and the projected timeline for addition of the three new 15-MG reservoirs.

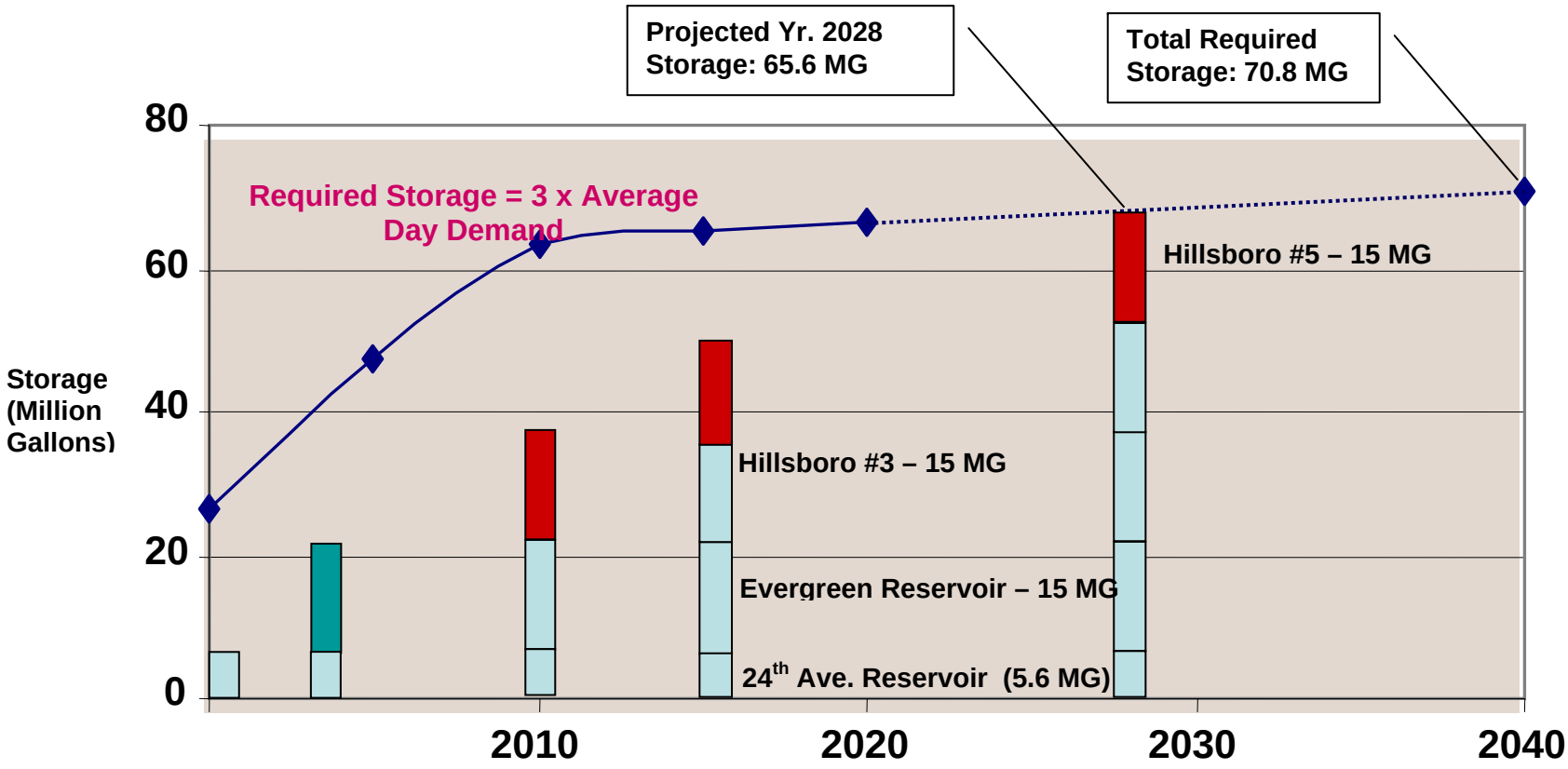
3.0 Reservoir Site Selection Process Overview

The purpose of the reservoir site selection process was to provide a methodical and defensible process for site selection of three future reservoirs. This process was to provide an open and transparent process which would ensures the acquisition of acceptable properties for the three new reservoirs to meet the requirements of Hillsboro's water demands, and contract with its JWC partners.

CH2M HILL developed a specific approach to address key success factors identified for the project. The overall approach is listed below:

1. Provide a site screening and selection process based on criteria and performance objectives that was defensible and understandable.
2. Use the site selection process to screen all identified potential sites within and immediately adjacent to the City limits, and conduct further evaluation to select the six top-ranked sites.
3. For each of the six top-ranked sites:
    a. Prepare design/layout concept for reservoir facilities including topographical surveying to verify adequacy for reservoir site development. Develop planning level construction cost estimates to the project definition stage.
    b. Obtain property owner and tax assessor information, and conduct property appraisals to establish market value.
    c. Initiate contact with landowners for right-of-entry permission. Perform on-site geotechnical exploration to evaluate foundation, stability, and seismic suitability.
    d. Define permitting requirements.
    e. After generation of the information described in items a, b, c, and d above, determine if re-evaluation of the criteria and performance factors of the initial site selection process would be necessary to re-rank the six sites.

EXHIBIT 2-1
Schedule for Adding Total Storage to Keep Pace with Projected Needs
Hillsboro Reservoir Siting Study Technical Memorandum 3



After completion of the above for the six top-ranked sites, conduct additional workshops with the City and hold public hearings to obtain input to the selection process, as well as initiate negotiations with landowners for acquisition of three properties.

4.0 Site Design Criteria

To commence the project, CH2M HILL gathered data and conducted a kick-off workshop with the Reservoir Siting Committee (RSC) on January 24, 2007. The purpose of this meeting was to mutually determine the design parameters and basis for conducting the search for potential reservoir sites. Consensus was achieved on the criteria parameters that were considered as the sites were identified.

The following issues and topics were covered at the kick-off meeting:

- Past reservoir siting project findings and conclusions
- Dewatering facility issues
- Reservoir and pump station sizes and footprints
- Hydraulic concerns and goals
- JWC transmission pipeline locations
- City parameters for site size, cost limits, and position on eminent domain, if needed
- Use of existing pressure-reducing valve (PRV) stations for connection to JWC transmission pipelines
- Transfer of the existing water system computerized hydraulic model from City to consultant
- Definition of City-preferred site(s) for consultant to review (if any)
- Availability of existing public or private lands as potential sites (either willing sellers or through eminent domain)
- Collaboration of City departments to achieve mutual benefit from the site selection process

Preliminary site selection criteria were identified in the kick-off meeting. These criteria were later finalized and are described in Section 5 below.

5.0 Final Selection Criteria

In a follow-up workshop with the RSC conducted on February 15, 2007, final site selection criteria were mutually developed and confirmed. These selection criteria and descriptions are tabulated in Exhibit 5-1.

EXHIBIT 5-1
Initial Reservoir Siting Selection Criteria
Hillsboro Reservoir Siting Study Technical Memorandum 3

	Criteria	Description
1	Geotechnical	Earth and deep soil foundation is adequate for desired purpose with minimal need for stabilized mitigation.
2	Serves Growth Potential	Site is strategically located to best serve storage needs for areas of likely high growth.
3	Water Quality	Site location meets water system needs and ability to sufficiently provide suitable service to the distribution system without disrupting the system while providing flexibility of operations (e.g., reservoir contents turnover), and compatibility with existing systems.
4	Distance to Distribution Pipes	Distance of site from point of connection to min. 18-inch main in distribution system.
5	Distance to Drainage	Distance of site from drainage discharge points for overflow events, dewatering the facility, and stormwater.
6	Environmental Impacts	Short and long term environmental impacts associated with site development, construction, and ongoing operation.
7	Total Capital Costs (Const. & Site)	Total capital costs for construction of reservoir facilities and supply/ distribution/drainage conveyance infrastructure and site property acquisition.
8	Distance to Transmission Pipeline	Distance of site from point of connection to transmission system supply piping.
9	Zoning/Planning Factors	Impacts and availability of site, which considers development restrictions.
10	Utilization of Non-Conforming/ Nuisance Sites	Ability of site to use non-conforming lots.
11	Site Accessibility	Site accessibility with respect to location and type/size of access roads for construction vehicles & ongoing maintenance.
12	Short-Term Impacts to Community/Neighbors	Short term effects of project on adjoining neighbor and local community including increased traffic, noise, and visual aesthetics.
13	Partnerships	Site offers ability to co-locate or have a combined facility with adjoining Water Utility, or new JWC facilities.
14	Multi-Use Potential	Site offers ability to provide multiple departments within the City of Hillsboro (e.g., parks, sports fields, maintenance buildings, etc.)

The purpose for reservoir siting study as well as final selection criteria confirmed by the RSC was presented by CH2M HILL to the public on March 29, 2007. The presentation was videotaped for later broadcast on public cable television. This was the first of the informational public meetings.

6.0 Selection Criteria Weighting (Pairwise Comparison) Process

A weighting process of each of the 14 evaluation criteria was developed. This weighting process, otherwise known as the pairwise comparison process was developed to establish the importance factor of each criteria element against each other. The RSC participated in the comparison and in establishing numerical ratings for the criteria during the February 15, 2007 workshop. The pairwise comparison led to a total weighted value for each criterion by summing the ratings, and resulted in a relative ranking for all criteria. In this process, the most important criteria were given the greatest weight.

Exhibit 6-1 illustrates the numerical pairwise weighting factors used in the comparison process. Exhibit 6-2 shows the matrix of weighting values, total relative weighting score, and relative ranking for each criterion.

Through this process, maintaining, delivering and ensuring water quality to the customers of Hillsboro was weighted the highest factor, while partnerships were ranked (or weighted) lowest.

EXHIBIT 6-1
Pairwise Weighting Factors
Hillsboro Reservoir Siting Study Technical Memorandum 3

Importance of Criteria 1 Relative to Criteria 2	**Importance of Criteria 2 Relative to Criteria 1**
Much greater than = 5	Much lower than = 1
Greater than = 4	Lower than = 2
The same as = 3	The same as = 3
Lower than = 2	Greater than = 4
Much lower than = 1	Much greater than = 5

EXHIBIT 6-2
Pairwise Weighting of Criteria with Score and Rank
Hillsboro Reservoir Siting Study Technical Memorandum 3

#	Criteria	Geotechnical	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/ Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	Multi-Use Potential	Score	Rank
1	Geotechnical		4	2	4	3	2	4	3	5	5	4	4	5	5	**50**	**2**
2	Serves Growth Potential	2		1	2	2	2	2	2	3	4	4	3	4	4	**35**	**10**
3	Water Quality	4	5		5	5	5	5	5	5	5	5	5	5	5	**64**	**1**
4	Distance to Distribution Pipes	2	4	1		2	4	2	1	4	4	4	2	4	4	**38**	**7**
5	Distance to Drainage	3	4	1	4		3	2	5	4	5	4	4	4	4	**47**	**3**
6	Environmental Impacts	4	4	1	2	3		3	4	3	5	4	4	4	4	**45**	**4**
7	Total Capital Costs (Const & Site)[a]	2	4	1	4	4	3		4	3	5	4	2	4	2	**42**	**5**
8	Distance to Transmission Pipeline	3	4	1	5	1	2	2		4	4	4	2	4	4	**40**	**6**
9	Zoning / Planning Factors	1	3	1	2	2	3	3	2		4	4	3	5	5	**38**	**7**
10	Utilization of Non-Conforming/Nuisance Sites	1	2	1	2	1	1	1	2	2		3	4	3	3	**26**	**13**
11	Accessible Site	2	2	1	2	2	2	2	2	2	3		3	3	3	**29**	**12**
12	Short-Term Impacts to Community/Neighbors	2	3	1	4	2	2	4	4	3	2	3		5	2	**37**	**9**
13	Partnerships	1	2	1	2	2	2	2	2	1	3	3	1		1	**23**	**14**
14	Multi-Use Potential[a]	1	2	1	2	2	2	4	2	1	3	3	4	5		**32**	**11**

[a] Site costs and Multi-Use Potential initially included but later eliminated from scoring consideration in the matrix evaluation.

7.0 Site Identification, Investigation, Evaluation, and Screening

7.1 Summary of Work in this Section

Using the established design criteria, necessary data were gathered to conduct potential site identification and evaluation.

The defined site selection criteria, utility system and seismic hazards mapping, tax assessor maps, and field observations guided identification of potentially suitable reservoir sites within and/or immediately adjacent to the City limits. Larger areas of interest in the research area were considered first, followed by the identification of specific properties that existed within those larger areas.

Viable potential sites were then field investigated. Field information was used in addition to other data to conduct individual site evaluation and screening.

The following sections provide additional information about the sites' identification, field investigation, evaluation, and screening process.

7.2 Study Area Boundary Limits

The study area boundary and potential sites within the boundary is shown on Exhibit 7-1 (provided in the insert sleeve at the end of this document).

The boundary of the study area was developed during an initial Reservoir Siting Committee meeting in early 2007. The premise of the boundary was based on numerous factors. These factors included the existing water service area, future water service area, and included significant input from the City planning department as to future development areas.

Specifically the boundaries were selected on the following basis.

7.2.1 West Study Area Boundary

The western boundary was developed by taking a parallel distance of approximately 0.5 miles from the JWC North Transmission Pipeline (NTL). This distance was determined as a reasonable distance from the NTL for the supply and discharge piping attached to a proposed reservoir. This boundary extends toward the City of Cornelius, as the City of Hillsboro's first outlet from the NTL is located near Dairy Creek and Highway 8.

7.2.2 North Study Area Boundary

The northern boundary was based on a number of factors. This included the anticipated growth area within the UGB at the Northeast quadrant of the City. As this boundary was developed further westerly, an approximate parallel boundary (with an approximate 0.5 mile offset) to the UGB was chosen. This boundary also provided a reasonable distance to the existing water system infrastructure.

7.2.3 East Study Area Boundary

The boundary represents the approximate water service area boundary between the City and Tualatin Valley Water District. Although the City's easterly water service area boundary is Cornelius Pass Rd, the selection of a boundary further to the east was chosen as the study area boundary to look for possible future reservoir sites.

7.2.4 South Study Area Boundary

The southern boundary was created similarly to the western boundary, maintaining an approximate 0.5 mile offset from the JWC South Transmission Pipeline (STL).

7.3 Site Identification

To create an initial screening of all available sites, a Geographic Information System (GIS) mapping and data system were used to identify both individual, and adjacent parcels of the required minimum area for a new reservoir, pump station, and support facilities.

Exhibit 7-1 identifies by number all parcels considered as potential reservoir sites within the siting study area. This exhibit also shows:

- City limits and site study area boundaries
- Existing City reservoirs, JWC transmission pipelines, pressure reducing valves, and distribution mains over 18-inches in diameter
- Parcels within the Oregon Department of Geology and Mineral Industries (DOGAMI) defined highest relative earthquake hazard zone was eliminated from further consideration
- Parcels located within the hydraulically influenced zones of the existing reservoirs, thereby presenting possible water quality problems were eliminated from further consideration
- Parcels publicly and privately held
- Parcels considered as potential reservoir sites within the siting study area greater than or equal to 5 acres with associated assessed building improvement values (a) less than or equal to $100,000. (Note: This screening element was later removed in its' entirety following the public hearing)
- Adjoining parcels, when grouped, considered as potential reservoir sites within the siting study area.
- For initial parcel identification, the following screening was applied:
- Parcels or adjoining combination of parcels must be over 5 acres to be considered viable, unless contiguous neighboring parcels increased that total to 5 acres or more.
- Sites located in seismically active areas were eliminated from further consideration.
- Sites located in the 100-year flood plain were eliminated from further consideration.

- Sites with greater than $100,000 assessed building value were eliminated from further consideration (which was later modified as described later in this TM-3). It was assumed that this threshold building value indicated the existence of a single family dwelling on the site. Displacement of residents from homes was to be avoided for reservoir siting purposes as possible.
- Sites were considered to be "hydraulically constrained" if the site was already located within the service area of one of the two existing Hillsboro reservoirs. These sites were eliminated from further consideration.

7.4 Hydraulically Constrained Sites

During the initial screening of available sites, a computerized hydraulic analysis of the City of Hillsboro water distribution system was utilized to identify areas that are adequately serviced by the City's two existing reservoirs. The analysis determined areas around the existing reservoirs which, if another reservoir were to be constructed would hamper the ability of the City to turnover the stored water in the tanks. Without proper turnover, the City could experience degraded water quality and stagnant water delivered to the customers. Having redundant reservoirs within the service areas of the existing reservoirs therefore discounted a number of available sites. Sites which were discounted from further consideration are shown in blue hatching within Exhibit 7-1.

The service area of the existing reservoirs depicted by the hydraulic model is also shown in Exhibit 7-1.

7.5 Field Investigation

After eliminating sites that were found to be hydraulically constrained or located in high earthquake hazard areas, field investigations were conducted at the remaining sites to confirm GIS data and check for fatal flaws.

Field evaluation of each site in accordance with observable siting criteria included:

- Identifying recent and ongoing development occurring since aerial photos of the sites were last taken. Sites having extensive existing development or development underway were eliminated from further consideration.
- Looking for fatal flaws such as floodplains and wetlands not otherwise designated in available information. Sites having these features were eliminated from further consideration. Sites containing only playgrounds were not eliminated from consideration at this stage.
- Assessing potential short-term construction and long-term operational environmental impacts to trees, wetlands, parks, and nature preserves.
- Evaluating site access to accommodate heavy equipment and trucks during construction and maintenance.
- Estimating noise and dust type nuisance impacts to neighbors during construction.
- Documenting select site conditions with photo records.

7.6 Site Evaluation and Scoring Guidelines

Following field observations, sites were further evaluated to determine:

- Distance from the site to transmission mains and preferably existing pressure reducing valves, 18-inch minimum or 12-inch minimum bi-directional distribution mains, and drainage ways.
- Location of parcels inside or outside the City limits.
- Ability to serve the local region growth potential. Growth potential scores varied from 1 in the core business and residential areas that are already fully developed, to a higher score of 4 on north and west sides of the Urban Growth Boundary, and up to the highest score of 5 in the area between Beaverton and Hillsboro where the greatest growth potential is deemed to exist.

Each site was then scored from 1 to 5 for each of the fourteen evaluation criteria (1 = least desirable, 3 = neutral, 5 = most desirable). Scoring guidelines applied to each criterion are summarized in Exhibit 7-2.

EXHIBIT 7-2
Reservoir Siting Selection Criteria Scoring Guidelines
Hillsboro Reservoir Siting Study Technical Memorandum 3

	Criteria	Scoring Guidelines
1	Geotechnical	Subjective scoring based on field observations and known soil conditions.
2	Serves Growth Potential	Score based on location of site within study area: 5 = sites on north and south perimeter, 4 = sites on west perimeter, 1, 2, 3 = sites on interior of study area.
3	Water Quality	Subjective scoring with higher score given if site located adjacent to transmission line and 18-in. min. distribution main to facilitate rapid contents turnover, and is distant from exist. reservoirs.
4	Distance to Distribution Pipes	Score based on distance of site from min. 18-in. or bi-directional min. 12-inch distribution main: 5 = 0 to 1000', 4 = 1000' to 2000', 3 = 3000' to 4000', 2 = 4000' to 5000', 1 = greater than 5000'.
5	Distance to Drainage	Score based on distance of site from drainage discharge point: 5 = 0 to 500', 4 = 500' to 1000', 3 = 1000' to 2000', 2 = 2000' to 3000', 1 = greater than 3000'.
6	Environmental Impacts	Subjective scoring based on observed assessment of local environmental impacts associated with reservoir construction and operation.
7	Total Capital Costs (Const. & Site)[a]	Score is mathematical average of scores given to criteria 4, 5, 8, and score (1 – 5) of dollar value per acre (based on county tax lot records) as follows: 5 = less than $10,000/ac., 4 = $10,000 to $20,000/ac., 3 = $20,000 to $30,000/ac., 2 = $30,000 to $40,000/ac., 1 = greater than $40,000/ac..
8	Distance to Transmission Pipeline	Score based on distance of site from transmission main: 5 = <500' from a PRV, 4 = 500' to 1000' from a PRV, 3 = 0' to 1500', 2 = 1500' to 2000', 1 = greater than 2000'.
9	Zoning/Planning Factors	Score based on site location relative to City limits: 4 = inside City limits, 2 = outside City limits.
10	Utilization of Non-Conforming/ Nuisance Sites	All scores = 3 based on observed site conditions.

EXHIBIT 7-2
Reservoir Siting Selection Criteria Scoring Guidelines
Hillsboro Reservoir Siting Study Technical Memorandum 3

	Criteria	Scoring Guidelines
11	Site Accessibility	Subjective scoring based on site map inspection and field observation of size/type of roadways and physical barriers (e.g., bridges and narrow roadways) to access site.
12	Short-Term Impacts to Community/Neighbors	Subjective scoring based on map inspection and field observation of local area classification, development densities, and assessed impacts to these communities associated with reservoir construction.
13	Partnerships	Subjective scoring with higher score given if site located immediately adjacent service area border of another Water Utility (e.g., Cornelius, Beaverton, or JWC) to facilitate combined or co-location of new facilities.
14	Multi-Use Potential[a]	Score based on site acreage: 5 = greater than 20 acres, 3 = 10 to 20 acres, 1 = less than 10 acres.

[a] Site costs and Multi-Use Potential criteria initially included, but later eliminated from scoring consideration in the matrix evaluation.

A matrix of criteria and scores was generated for each site. For each site, the score for each criterion was multiplied by the weighted score from the pairwise comparison, resulting in a total weighted score for each site and a numerical determination of each site relative to the others. This weighted scoring process and numerical comparison allowed an overall ranking of all sites.

The pairwise analysis of criteria and scoring of sites provides a way to organize and compare complex and voluminous information. Decision makers can be confident in the results to the extent they believe the structure of the model represents the issues that are deemed important, and to which the process weights the criterion appropriately and the performance measures are legitimate. The process and ranking of sites were fair and equitable between the sites for the purposes of determining appropriate reservoir sites.

8.0 Site Screening and Ranking Results

8.1 Six Highest Ranking Sites

Out of the 82 finalized screened sites, six sites were identified by the evaluation process as having the combination of attributes that most closely meet the needs of Hillsboro for locating three new 15-MG potable water storage reservoirs.

Three of the six top-ranked sites were grouped in the southwest region of the study area. This is reasonable to expect since sites located in the same general vicinity that exhibit similar characteristics and performance traits with respect to the selection criteria will receive similar total evaluation scores and ranking.

Of the other top-ranked sites, two were grouped in the northwest region, and one site is located in the southwest region of the study area.

8.2 Other Result Observations

8.2.1 Ranking Sensitivity

The sensitivity of rankings to criteria scoring was considered when determining which six sites were selected to be carried forward for more detailed evaluation. A one point change in scoring of a site for one of the more heavily weighted criteria (e.g., Water Quality or Distance to Drainage) could have altered the relative rankings, potentially changing the top six ranked sites. Based on strict adherence to the scoring guidelines, a close second look at the scores for these highly weighted criteria and their potential impact on overall ratings confirmed the final ranking.

This sensitivity observation emphasizes that the comparison matrix scores and ranks should be used as a guide to the top ranked sites rather than considered as absolute fact.

8.2.2 Relative Region-Wide Location of Top Six Ranked Sites

The reservoir siting study is proposed to culminate in acquisition of three separate sites (possibly multiple parcels) for placement of three future reservoirs. These three sites should be located to best serve the entire service area of the City, especially those areas projected for high growth. These three sites should not be located proximally in the same area of the City, or within the area served by the existing two reservoirs.

At this point the site selection process did not assign criteria to the necessity of providing a division between locations of the three sites. However, due to the result of the ranking process, and hydraulic elimination screening factor, this region-wide aspect is not of concern since the siting selection process has resulted in the six top-ranked sites being located within three distinctly separate regions of the study area.

These three regions, or reservoir siting areas, in which the six top-ranked sites are located, are further discussed in Section 12.0. In selection of the final three sites, locating one of the three new reservoirs in one region and the other two new reservoirs in the second region may not make sense for provision of region-wide service. Therefore, selection of the three final sites should consider region-wide siting to provide adequate service to all potential growth areas of the City.

8.2.3 Identification of Top-Ranked Sites for Further Consideration

The sites proposed for further consideration are listed in Exhibit 8-1. With concurrence of the RSC at the conclusion of the July 25, 2007 workshop, these sites were carried forward to the next step for more detailed evaluation.

EXHIBIT 8-1
Identification of Top-Ranked Six Sites Selected for Further Evaluation
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
262	1S2110001600	11.25 acres[a]	GLC So. Hillsboro, LLC
302	1N324DD00300	8.92 acres[b]	International Church of the Foursquare Gospel
530/531	1N3240001809/ 1N3240001806	11.95 acres[c]	Ray & Arlette Milovanovich
216/216A	1S302A000100/ 1S302A000101	40.65 acres[c]	Edmund & Gertrude Duyck
221	1S302A000402	24.62 acres	Edmund & Gertrude Duyck
222	1S302A000800	21.45 acres	Edmund & Gertrude Duyck

[a] Entire tax lot is 203.36 acres; however, reservoir facilities require acquisition of 11.25 ac for this site.

[b] Entire tax lot is 15.25 acres; however, reservoir facilities require acquisition of 8.92 ac for this site.

[c] Site consists of two separate tax parcels. Both parcels are required for this site.

9.0 Further Evaluation of Six Selected Sites

This section summarizes the elements that were evaluated for each of the six sites. These elements are:

- Property appraisal
- Preliminary title report review and encumbrances
- Geotechnical assessment
- Permitting requirements and environmental issues
- Conceptual layout and conceptual-level cost estimate of facilities

9.1 Property Appraisal

A property appraisal was performed for each of the six sites following the ranking process to establish market value. Each appraisal consisted of the following processes:

- Physical inspection and review of surrounding neighborhoods
- Research of Washington County Zoning Code to ascertain allowable uses
- Availability of utilities
- Interviews with various planners affiliated with Washington County, the City of Hillsboro, and the Metro regional government
- Research and confirmation of comparable transactions through county records, Metroscan, and CoStar comps, as well as other professional resources

Appraisals were conducted in accordance with the Uniform Standards of Professional Practices of the Appraisal Standards Board. The appraisal for each of the six sites is presented in narrative format in a separately bound Summary Appraisal Report.

Market value and date of appraisal for each of the six sites is summarized in Exhibit 9-1. The sites are not listed in order of ranking or appraisal value.

EXHIBIT 9-1
Appraised Market Value of Top-Ranked Six Sites
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Size	Appraised Market Value (Date)
262	11.25 acres	$1,125,000 (9/07)
302	8.92 acres	$805,000 (9/07)
530/531	11.95 acres	$1,100,000 (9/07)
216/216A	40.65 acres	$650,000 (6/08)
221	24.62 acres	$271,000 (6/08)
222	21.45 acres	$260,000 (6/08)

The appraised market value was not used in the ranking of the sites and the appraisal was conducted after ranking the sites. It is emphasized that this appraisal value information was not used as criteria for evaluation and ranking of the sites. Further details regarding removal of site costs from the ranking process are provided in Section 10.2 of this TM-3.

9.1.1 Preliminary Title Report Review and Encumbrances

Preliminary Title Report. A preliminary title report was obtained and reviewed for each of the six sites to:

- Verify all ownership interests
- Identify encumbrances associated with the title of each property

For all six sites, the titles appear to be clear with no ownership discrepancies. All ownerships are in accordance with Exhibit 8-2.

Encumbrances. Encumbrances associated with each site are described below.

Site 262—GLC South Hillsboro, LLC. The larger ownership contains 462.54 acres. Site 262 is defined as an 11.25-acre area within the larger tax parcel. The following encumbrances are of record against the larger parcel. None of these appear to impact the proposed 11.25-acre reservoir site.

- Easement to United States of America (BPA), November 28, 1958, Book 412, page 52—outside of Site 262 area.
- Deed of dedication, August 20, 1973, in Book 941, page 186—not in Site 262 area.
- Guy wire easement, July 12, 1990, as Fee No. 90-36646—not in Site 262 area.

- Sewer easement to Unified Sewerage Agency (Clean Water Services [CWS]), July 6, 1993, as Fee No. 93-053229—outside of Site 262 area.

Site 302—International Church of the Foursquare Gospel. Public utilities easement (PUE), January 25, 1996, Fee 96-080-491 (Westerly Portion)—5-foot PUE along west property line from NW Evergreen Street to approximately 195 feet north.

- JWC water transmission line, January 25, 1999, Fee 99-008615—southerly portion along frontage next to Evergreen Road.

Site 530/531—Milovanovich.

- Ingress and egress easement, June 5, 1973, Book 928, page 391—impacts driveway area only.

Site 216/216A—Duyck.

- Natural gas pipeline easement, 122603, Fee 2003-210263, August 22, 2005, Fee 2005-100619—located outside usable area of site.

Site 221—Duyck.

- No recorded easements were noted on the title.

Site 222—Duyck.

- Electrical lines, April 14, 1960, Book 510, page 481—10-foot PGE easement along north property line.
- Natural gas pipeline, December 26, 2003, Fee 2003-210264—located outside usable area of site.

In conclusion, there appear to be no unreasonable encumbrances associated with any of the six sites that would preclude acquisition by the City for reservoir siting purposes.

9.2 Geotechnical Assessment

A geotechnical assessment was performed for each of the six sites to determine the geologic hazards present at each site, develop recommended mitigation options, and establish feasibility of construction with respect to geotechnical conditions.

The following tasks were performed for each investigation:

- Review geologic and seismic hazard information.
- Perform limited onsite geotechnical exploration.
- Perform limited laboratory soil testing.
- Perform site assessment, including a preliminary evaluation of the settlement, liquefaction, and seismic-induced settlement potential.
- Prepare a separately bound technical memorandum, which includes information from the onsite geotechnical exploration program.

Geotechnical evaluations required to develop a seismic site hazard report or recommendations for preliminary or final design of future facilities were outside the scope of the geotechnical assessment. Additional geotechnical explorations and evaluations should be performed to obtain additional subsurface and groundwater information prior to preliminary or final design of the facilities. Environmental soil sampling to determine the presence of regulated amounts of hazardous materials in the soil was also outside the scope of this evaluation, and should be conducted prior to consideration of property acquisition of any of the six sites.

A brief summary of the key geotechnical conclusions for each of the six sites is presented in the following sections.

9.2.1 Static Settlement Potential

Soil settlement can occur under the weight of a fully loaded 15-MG water storage reservoir; this is referred to as static soil settlement. The reservoir will apply a uniform load to the soil of approximately 2,000 pounds per square foot (psf). Some static settlement will occur immediately, while additional static settlement will occur over time. The following summarizes estimates of static soil settlement based on laboratory analysis for all six sites.

Site 262. Potential for static soil settlement exists at Site 262. The magnitude of the expected settlement is approximately 11 inches if the reservoir foundation is at grade and 9 inches if the reservoir foundation is buried 16 feet below grade.

Site 302. Potential for static soil settlement exists at Site 302. The magnitude of the expected settlement at this site is approximately 9 inches if the reservoir foundation is placed at grade and 7 inches if the reservoir is buried 16 feet below grade.

Site 530/531. Potential for static soil settlement exists at Site 530/531. The magnitude of the expected settlement at these sites is approximately 7 inches if the reservoir foundation is placed at grade and 5 inches if the reservoir is buried 16 feet below grade.

Site 216/216A, 221, 222. Potential for static soil settlement exists at Site 216/216A, Site 221, and Site 222. The magnitude of the expected settlement at these sites is approximately 10 inches if the reservoir foundation is placed at grade and 8 inches if the reservoir is buried 16 feet below grade.

9.2.2 Seismically Induced Settlement Potential

Liquefaction refers to the loss of strength that saturated soil deposits can experience when exposed to the forces of an earthquake. When soil strength decreases because of an earthquake or other seismic event, significant soil settlement beyond static settlement can occur. This is referred to as seismically induced settlement. The following summarizes estimates of seismically induced soil settlement caused by liquefaction based on laboratory analysis for all six sites.

Site 262 and Site 302. Potential for soil liquefaction exists at Site 262 and Site 302. If liquefaction does occur, the magnitude of the resulting seismically induced settlement at the site could range from 4 to 14 inches for the design earthquake (DE) seismic event. Seismically induced settlement could range from 6 to 22 inches at Site 262, and 7 to 28 inches at Site 302, for the maximum credible earthquake (MCE) seismic event.

Site 530/531. Potential for soil liquefaction exists at Site 530/531. If liquefaction does occur, the magnitude of the resulting seismically induced settlement at the site could range from 4 to 16 inches for the DE seismic event. Seismically induced settlement at the site could range from 6 to 26 inches for the MCE seismic event.

Site 216/216A, 221, and 222. Potential for soil liquefaction exists at Sites 216/216A, 221, and 222. If liquefaction does occur, the magnitude of the resulting seismically induced settlement at the sites could range from 3 to 20 inches for the DE seismic event. Seismically induced settlement at the sites could range from 6 to 30 inches for the MCE seismic event.

9.2.3 Site Feasibility

All sites are geotechnically feasible for construction of reservoir facilities. However, because of static settlement and seismically induced settlement potential caused by liquefaction, design of the reservoir foundation at each site will require special ground improvement measures to reduce the potential for static settlement and seismically induced settlement.

9.3 Permitting Requirements and Environmental Issues

Permitting requirements and/or environmental constraints for siting a reservoir facility were evaluated for each of the six sites. The following elements were evaluated for each of the six sites:

- Historical resources
- Zoning (land use) permit
- Significant natural resources
- Cultural resources
- Hazardous materials
- Farmland classification
- Floodplains
- Rare, threatened, and endangered species
- Wetlands
- CWS Sensitive Areas and Vegetated Corridors
- CWS Stormwater Connection Permit
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit
- Oregon Department of Transportation (ODOT) Right-of-Entry Permit
- Union Pacific Railroad (UPRR) Right-of-Entry Permit

Exhibits A-1 through A-6 in Attachment A address the following information for each of the above elements associated with each of the six sites:

- Permit or environmental issue
- Specific site details
- Permit needed (if any)
- Time frame to acquire permit
- Source of information for permit or environmental issue

Permitting requirements and environmental constraints presented in Attachment A are summarized below.

9.3.1 Historical Resources

No historic resources were identified by a State Historic Preservation Office (SHPO) Historic Records Search for any of the sites. However, Site 216/216A supports existing structures that appear to be at least 50 years old. Conducting a historic resources investigation is advised on this site prior to acquisition, as these structures may be eligible for the National Register of Historic Places.

No permits regarding historical resources are anticipated for any of the six sites.

9.3.2 Zoning (Land Use) Permit

All six sites are located in Unincorporated Washington County. All sites are designated by Washington County as either Agricultural and Forestry (AF)-5 District, AF-20 District, or Exclusive Farm Use (EFU) District.

As set forth in Community Development Code (CDC) Article III, Sections 340 (EFU) and 344 (AF-20), public water utilities may be Permitted Uses if they demonstrate that they are necessary for public service. Application findings must demonstrate compliance with Oregon Revised Statute (ORS) 215.275 (utility facilities necessary for public service).

A Type II Development Permit issued by Washington County will be required for each of the six sites. Permit acquisition time is estimated at 6 months.

9.3.3 Significant Natural Resources

The Washington County Comprehensive Plan shows elements on Sites 216/216A, 222, and 262 designated as county significant natural resources. These are:

- Dairy Creek is designated as "Water Areas, Wetlands & Fish and Wildlife Habitat," defined as water areas and wetlands that are also fish and wildlife habitat (Sites 216/ 216A, 222).

- Dairy Creek floodplain is designated as "Water Areas and Wetlands," defined as 100-year floodplains, drainage hazard areas, and ponds, except those already developed (Sites 216/216A, 222).

- The northern headwater tributary of Gordon Creek is designated as "Water Areas, Wetlands & Fish and Wildlife Habitat," defined as water areas and wetlands that are also fish and wildlife habitat (Site 262).

No reservoir facilities are proposed to be placed within the above designated natural resource areas. However, a Washington County Development Permit, per CDC Article IV

(Development Standards), Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources), may nevertheless be required for Sites 216/216A, 222, and 262 to ensure that no encroachment of facilities occurs. Permit acquisition time is estimated at 6 months.

The Washington County Comprehensive Plan does not show any county-designated significant natural resources at Sites 221, 302, and 530/531.

9.3.4 Cultural Resources

No State Historic Preservation Office (SHPO) records of archeological investigations exist for any of the six sites; however, an archeological survey is advised prior to acquisition of any of the sites.

A dig permit for conducting the archeological survey will be required for each of the six sites. Permit acquisition time is estimated at 1 month.

9.3.5 Hazardous Materials

As of the date of this TM-3, Oregon Department of Environmental Quality (DEQ) hazardous materials databases did not reveal any hazardous materials records for any of the six sites:

- Air Contaminant Source Information System (ACSIS) for air quality
- Environmental Cleanup Site Information (ECSI)
- Hazardous Waste Information System (HWIMSy)
- Leaking Underground Storage Tank (LUST)
- Solid Waste Management System (SWMS)
- Source Information System (SIS) for water quality
- Underground Storage Tank (UST) for land quality

However, because agricultural operations on all sites typically use petroleum products, pesticides, and herbicides, site investigation for hazardous wastes is recommended prior to acquisition of any of the sites.

No permits regarding hazardous materials clean-up and removal are anticipated for any of the six sites.

9.3.6 Farmland Classification

Farmland classification identifies U.S. Department of Agriculture National Resource Conservation Service (USDA NRCS) map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. All six sites contain "prime farmland" and "prime farmland if drained," as identified by the USDA NRCS map units.

Because of these farmland classifications, a Washington County Development Permit will be required for each of the six sites. Permit acquisition time is estimated at 6 months.

9.3.7 Floodplains

Federal Emergency Management Agency (FEMA) designated 100-year and 500-year floodplains exist on portions of Sites 216/216A and Site 222. Project improvements could be conducted to avoid disturbance to these floodplain areas.

No permits regarding disturbance of floodplains are anticipated for any of the six sites.

9.3.8 Rare, Threatened, and Endangered Species

A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center (ONHIC) data system yielded no records for any of the six sites. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. Therefore, a special status species survey is recommended on any of the sites prior to construction, and possibly acquisition.

No permits regarding rare, threatened, and endangered species are anticipated for any of the six sites.

9.3.9 Wetlands

National Wetland Inventory maps do not indicate potential wetlands at any of the sites where reservoir and support facility improvements are envisioned. However, it is possible that federal or state wetlands/waters might be encountered when ancillary pipelines to support the reservoir facility are constructed (for example, ditches at the railroad or Tualatin Valley Highway). A wetland delineation is recommended prior to acquisition of any of the sites.

No permits regarding disturbance to wetlands are anticipated for any of the six sites (subject to a site specific wetlands delineation).

9.3.10 CWS Sensitive Areas and Vegetated Corridors

None of the six sites lie within the CWS district boundaries. Therefore, no CWS Sensitive Areas and Vegetated Corridors occur at any of the sites.

No permits regarding the CWS Natural Resources Assessment or Service Provider Letter are required for any of the six sites.

9.3.11 CWS Stormwater Connection Permit

No connections to CWS stormwater systems will occur for any of the six sites.

No CWS Stormwater Connection Permit will be required for any of the six sites.

9.3.12 NPDES Construction Stormwater Discharge Permit

Construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material at all of the sites. Additionally during construction, stormwater could run off any of the sites and into surface waters or conveyance systems leading to surface waters of the state.

An NPDES Construction Stormwater Discharge Permit 1200-C will be required for each of the six sites. Permit acquisition time is estimated at 2 months.

9.3.13 ODOT Right-of-Entry Permit

Pipeline work in the ODOT right-of-way in Baseline Street (Highway 8) will occur for Sites 216/216A, 221, and 222. Work must conform to ODOT general provisions. Insurance Certification and Performance Bond will be required by the construction contractor for an Approach Road, Utility, or Miscellaneous Permit.

An ODOT Right-of-Way Permit will be required for Sites 216/216A, 221, 222, and possibly 262.

9.3.14 UPRR Right-of-Entry Permit

Pipeline crossing under UPRR tracks will be required for Sites 221 and 222. Inlet/outlet pipeline parallel to the UPRR tracks required for Site 262.

A permit will be required for pipeline work in the UPRR right-of-way for Sites 221, 222, and 262. Permit acquisition time is estimated at 3 months.

9.4 Conceptual Level Layout and Cost Estimates

9.4.1 Reservoir Facilities

Reservoir and support facility elements are common to each of the six sites. Reservoir and support facilities and their function are described below:

- 15-MG reservoir: Provides storage of water conveyed from the existing JWC water transmission line.
- Booster pump station: Pumps stored water from the reservoir to a City distribution main; includes a backup power generator.
- Reservoir inlet pipe: Conveys water from an existing or new pressure reducing valve (PRV) at the JWC water transmission line to the reservoir.
- Reservoir outlet pipe: Conveys stored water from the reservoir to the booster pump station and force main, and from the pump station to the connection to the City's distribution system.
- Reservoir overflow and drain pipe: Conveys overflows from and allows drainage of the reservoir to the dechlorination manhole.
- Under drain pipe: Collects and conveys any unintended reservoir leakage to the dechlorination manhole.
- Dechlorination manhole: Serves as a common collection manhole for dechlorination of reservoir contents including overflow, drainage, and under drainage.
- Storm water detention basin: Collects and detains reservoir roof, pump station roof, and site surface storm drainage before discharge to the storm pipe.

- Storm pipe: Conveys storm drainage from the detention basin and dechlorinated reservoir contents to an offsite drainage course (existing drainage ditch or storm drain pipe).
- Sanitary pipe and septic field: Collects, treats, and discharges pump station washdown water and water quality monitoring waste water. No sanitary facilities will be provided in the pump station, and no sanitary wastes will be present.

9.4.2 Conceptual Level Layouts

Storage reservoir facilities were laid out on a conceptual level for each of the six sites. The layouts show the general location of all reservoir and support facility elements described in Section 9.4.1 above.

The layouts demonstrate the feasibility of reservoir facilities placement on each site. With the exception of Site 302, reservoir and support facilities are situated above ground. At the request of the property owner for Site 302, the reservoir is situated below ground, with all other support facilities located above ground.

The outlet pipe for Site 302 and Site 530/531 connects to a 12-inch main in Evergreen Blvd. This smaller distribution main is considered acceptable for these two sites only since this 12-inch main has bi-directional flow (straight runs of several thousand feet both east on Evergreen Blvd. and south on Glencoe Rd.), and is looped throughout the northwest area of the distribution system.

The conceptual level layouts for each site are presented in Attachment B.

9.4.3 Ground Improvement Options and Order-of-Magnitude Cost Estimates

As discussed in Section 9.2.3, special ground improvement measures will be required for the reservoir foundation at each site to reduce the potential for static settlement and seismically induced settlement. This section presents options for ground improvement and order-of-magnitude cost estimates for each option.

Several methods that are commonly used for improving ground conditions to limit static and seismically induced settlement include:

- Vibro-replacement stone columns (stone columns)
- Deep soil mixing
- Deep foundations such as steel piles

There are a number of other mitigation methods, such as dynamic deep compaction, vibro-piers, and slurry walls and pumping. However, these methods are either not appropriate for the soil conditions found at each of the sites, or were not evaluated because of the high costs associated with them.

Stone Columns. Vibro-replacement stone columns is a ground improvement technique that is appropriate for a relatively wide range of soil conditions that include sand, silt, and cohesive, mixed, and layered soil that does not densify well with vibration alone. With this method, columns of dense, crushed stone are constructed in the existing soil to increase bearing capacity, reduce settlement, and mitigate the potential for liquefaction during

seismic events. Ground improvement is possible to a depth of about 80 feet and is not affected by the presence of groundwater.

For the sites evaluated, it is expected that stone columns would be installed beneath the reservoir and booster pump station structures. The stone columns would be spaced at about 20 feet on center, and extend about 25 feet beyond the limits of the reservoir walls, and about 10 feet beyond the limits of the booster pump station outside walls.

For all sites except Site 262, the stone columns would typically extend to depths of 70 to 75 feet to adequately limit total settlements. Required depths for Site 262 would be from 40 to 50 feet.

Order-of-magnitude cost for ground improvement with stone columns is estimated at $4.0 million for all sites except Site 262, for which cost is estimated at $3.0 million.

Deep Soil Mixing. Deep soil mixing is performed by introducing a typical reagent into the ground in slurry form to improve the physical properties of the soil. The most typical reagent is cement; the method is then referred to as cement deep soil mixing (CDSM). CDSM is a soft soil stabilization method which mixes soft soil with cement slurry to produce soil-cement with higher strength and lower compressibility than the native soil.

CDSM is a ground improvement method that can be used to stabilize soil to depths of 100 feet or more. This type of ground improvement would be used beneath the reservoir and booster pump station. The CDSM would extend about 25 feet laterally beyond the outside diameter of the tank foundation slab. CDSM columns are typically 2.5 to 5.0 feet in diameter and are laid out in an interlocking grid-type pattern.

Order-of-magnitude cost for ground improvement with CSDM is estimated at $11.0 million for all sites except Site 262, for which cost is estimated at $7.5 million.

Piles. Piles mitigate the risks of static and seismic settlement primarily by transferring load through potentially liquefiable soils down to stiffer and more competent soils that have less potential for consolidation or liquefaction. If the load cannot be transferred to a relatively firm bearing layer, this technique can offer little benefit. For this reason, it is expected that long piles would be needed for all six sites.

Additional geotechnical explorations and analyses are required to determine the actual type, size, length, and spacing of piles needed to support the reservoir. However, for the purpose of this order-of-magnitude cost estimate, it is assumed that 100 foot-long, 16-inch-diameter pipe piles spaced at 11 feet on center could be used to achieve the required capacity.

An order-of-magnitude cost estimate for this pile foundation system is $4.5 million

9.4.4 Reservoir Facilities Conceptual Level Cost Estimates

Following the ranking process, an estimate of total project costs were prepared for each of the top ranked six sites. These costs were not prepared as a part of the ranking of the sites, and were completed after the ranking process was conducted.

Total project costs of reservoir and support facilities for each site were estimated on a conceptual level. Pump station and piping sizes and capacities were assumed to be similar to the City's Evergreen Reservoir facilities. All estimates include costs for the following:

- Site preparation (logging, clearing, haul roads, etc.)
- Geotechnical ground improvements (assumed stone columns)
- Excavation and backfill
- 15-MG reservoir (post-tension concrete)
- Pump station, building, and telemetry
- Inlet piping (onsite and offsite)
- Outlet piping (onsite and offsite)
- Onsite sanitary/storm/reservoir drainage piping, storm water detention basin, and septic field
- Grading/paving and landscaping
- Construction contingencies (25 percent)
- Engineering, legal, and administrative (20 percent)

Costs are presented in 2008 dollars for purposes of comparison on an equal cost basis and have not been escalated to the time of future construction. Exhibit 9-1 presents conceptual level cost estimates for the total project at each of the sites. The sites are not listed in order of ranking or cost estimate value.

EXHIBIT 9-1
Conceptual Level Project Cost Estimates for Six Sites
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Project Cost Estimate (without Site Costs)
262	$29 million
302	$31 million
530/531	$26 million
216/216A	$25 million
221	$26 million
222	$26 million

The purpose of developing total project costs were to provide the City with an objective understanding of approximate costs associated at each of the top ranked sites. The evaluation to rank the sites did not consider project costs as a basis of ranking.

10.0 Effects of Modification of Evaluation Criteria

As further evaluation of the top-ranked six sites was underway, it was noted that all of the sites are located outside the City limits and outside the Urban Growth Boundary (UGB).

This circumstance, in addition to comments received during the public meeting during the July 17, 2008 presentation, prompted review of the 14 evaluation criteria, as well as implementation of additional evaluation criteria.

10.1 Elimination of Multi-Use Potential Criteria

Criterion number 14 was titled "Multi-Use Potential." This criterion was described as follows:

> "Site offers ability to provide multiple departments within the City of Hillsboro (e.g., parks, sports fields, maintenance buildings, etc.)"

With all of the top-ranked six sites being located outside the City boundary, it became apparent that any of these properties acquired for a reservoir site would not necessarily be useful or able to be permitted for other City purposes. When sites located both in and out of the City boundary were evaluated, a property that could potentially serve these other purposes located within the City limits received a higher score. However, with all of the top-ranked sites being outside the City, an argument could be made that this criterion was no longer applicable.

To test the effects on site ranking associated with removal of the "Multi-Use Potential" criterion, scores associated with it were removed from the scoring matrix. The result of this analysis showed that five of the six sites remained among the top six, and site 221, located in the Southwest portion of the City, dropped out. Site 215, also located in the Southwest portion of the City, moved into the fifth ranked position. Exhibit 7-1 shows the location of site 215. Exhibit 10-1 shows the changes in the top-ranked six sites resulting from elimination of the "Multi-Use Potential" criterion.

EXHIBIT 10-1
Top-ranked Sites Dropped and Added Resulting from Elimination of Multi-Use Potential Criterion
Hillsboro Reservoir Siting Study—Technical Memorandum 3

	Site Identification	Tax Lot No(s).	Size	Owner
Dropped	221	1S302A000402	24.6 acres	Edmund & Gertrude Duyck
Added	215	1S302A000401	7.1 acres	Edmund & Gertrude Duyck

Removal of the "Multi-Use Potential" criterion is reasonable based on the fact that the highest-rated sites are outside the City limits. This criteria modification removed Site 221 from further consideration.

Details about Site 215 were not collected during evaluation of the top-ranked six sites. In the absence of this information and recognizing that two of the top six sites—Sites 216/216A and 222—are in close proximity to Site 215 in the Southwest portion of the City, Site 215 will be reserved for further evaluation in the event one or more fatal flaws is discovered for the other two sites.

10.2 Elimination of Site Cost Criteria

Criteria number 7 was titled "Total Capital Costs (Construction & Site)." This criterion is described in Exhibit 5-1 as follows:

> "Total capital costs for construction of reservoir facilities and supply / distribution / drainage conveyance infrastructure and site property acquisition."

With several of the top-ranked six sites designated as farm zones AF-20 and EFU, siting of a reservoir on any of these sites requires compliance with ORS 215.275. This statutory provision mandates that land acquisition costs shall not be included when considering alternative sites for location of a utility facility that is necessary for public service.

To test the effects on site ranking associated with removal of the site acquisition costs (property cost) from the "Total Capital Costs (Construction & Site)" criterion, scores associated with the site acquisition costs were removed from the scoring matrix. The result of this analysis showed that no change resulted in the identification or order of the top-ranked six sites.

10.3 Addition of Regional Reservoir Service Area Criteria

In addition to previously established evaluation criteria and modifications presented above, reevaluation of the six top-ranked sites needs to consider the proposed reservoir location that best serve regional reservoir service areas of the City. Meeting this regional reservoir service criterion provides for the following:

- Optimal hydraulic efficiency for delivery of stored water to the City's distribution system within each separate regional reservoir service area.
- Ensure public health and safety of water quality is maintained by placement of storage facilities in close proximity to all users on the distribution system within each regional reservoir service area.
- Satisfy reservoir storage capacity needs for all regional reservoir service areas of the City, with consideration given to those areas with likely high growth.

The matrix evaluation set forth in Exhibit 6-2 and Section 7.6 did not include this regional reservoir service area criterion. Hence, under that matrix evaluation and site ranking, the possibility existed for the top-ranked sites to be undesirably located within one or two localized regions of the City.

No two of the three reservoir sites ultimately selected should be located proximally adjacent to one another. Reservoirs located within the same regional proximity provides unnecessary duplicate storage to the same reservoir service region , which creates potential water quality and public health problems in other reservoir service regions of the City not served by local reservoir facilities. As well, multiple reservoirs within one reservoir service region would be hydraulically inefficient to serve other regions.

Exhibit 10-1 identifies the approximate boundaries of the existing regional reservoir service areas served by the City's two existing reservoirs. The dashed line indicates the current service area boundaries of service provided by the existing reservoirs. In the future, this existing service boundary will be expanded as more demand is place in the Northeast

quadrant of the City water service area. As demand continues to grow, the City plans to revise the distribution to include the area from the Evergreen Reservoir indicated by the pink line and cross-hatched area on Exhibit 10-1. Locating a reservoir within this future expanded zone would defeat the purpose of maintaining adequate distribution of the reservoirs as outlined in the reasons above.

As further shown on Exhibit 10-1, the approximate boundaries of the three additional reservoir service regions are displayed in conjunction with the top-ranked six sites. The three regional reservoir service areas, yet to be served, are labeled the Southeast, Southwest, and Northwest regions. The distribution of the top-ranked six sites among these three regional areas is as follows:

- Southeast Region: Site 262 (only top-ranked site in this region)
- Southwest Region: site 216/216A , Site 222, and alternate Site 215
- Northwest Region: Site 503 and Site 530/531

11.0 Public Hearing/Re-Evaluation of Site Selection

11.1 Public Hearing Input

The City conducted a public hearing on November 19, 2008 to obtain comments through public testimony regarding the City's process of site identification, evaluation, and selection of the six top-ranked sites, plus alternate Site 215. Public comments that were received, led the City to assess impacts to the site selection process by modifying the criteria for initial site identification for the following three scenarios:

1. As described in Section 7.3, one of the initial site identification criteria utilized a maximum $100,000 assessed building improvement value on all parcels exceeding 5 contiguous acres. Sites classified as public land use were not subject to this maximum assessed building value threshold.

   The $100,000 building value was initially chosen in an effort to reduce the possibility of selecting a site that may displace a family from their home, thereby eliminating home procurement, and relocation.

   The public questioned the degree to which additional potential reservoir sites would have been initially identified if the exclusionary criteria of maximum $100,000 of assessed building improvement value was redefined (i.e., increase the building improvement value as a criteria for initial site identification, replacing the $100,000 threshold with $250,000.)

   Based on this comment, initial site identification, re-evaluation, and top six sites ranking was performed utilizing a maximum $250,000 assessed building improvement value threshold for the above land use classes.

2. Similar to upward adjustment of the assessed building improvement value threshold to $250,000, the public also inquired as to initial site identification if the building improvement value threshold criterion was eliminated altogether. Stated differently, what additional potential reservoir sites would have been initially identified without consideration of assessed building value.

Based on this comment, initial site identification, re-evaluation, and top-ranked six sites ranking was performed without consideration of assessed building improvement value.

3. Independent from comments received at the public hearing, initial site identification, re-evaluation, and top six sites ranking was also performed utilizing a $0 assessed building improvement value for the above land use classes (public land use classification were excluded from this restriction). Setting site building value to zero would ensure that no homes exist on potential sites, and that no families would be displaced in the event of site procurement under this scenario.

The following sections present the re-evaluation and results of the process when subjected to the above three assessed building value threshold scenarios. The study area remained the same under these re-evaluations.

11.2 Site Re-Evaluation – Assessed Building Value Threshold of Maximum $250,000

11.2.1 Initial Site Identification

The GIS and tax record database used for previous initial site identification was queried to identify all parcels with the above land use classifications within the Study Area Boundaries that have both:

- Assessed building value of less than or equal to $250,000
- Land area of over 5 acres either as a singular parcel or combination of adjoining parcels (0.75 acre minimum to 6.0 acre maximum parcel size required for adjoining parcels)

Other screening criteria used previously were applied to initial site identification of these parcels including:

- Sites located in seismically high hazard areas were eliminated from further consideration.
- Sites considered to be "hydraulically influenced" from the existing two reservoirs were eliminated from further consideration.
- Sites located within the 100-year floodplain were eliminated from further consideration.

The above query, utilizing the increased $250,000 assessed building value threshold and minimum 5 acre land area criteria resulted in 12 additional viable sites being added to the previous 82 sites evaluated under the maximum $100,000 assessed building value threshold, for a total of 94 sites evaluated. Of these additional 12 sites, 3 sites were located within the City limits.

11.2.2 Site Matrix Re-Evaluation and Ranking

The additional 12 sites included as a result of the revised assessed building value threshold were evaluated with respect to the previously established matrix criteria set forth in Section 7.6. This evaluation was also performed without consideration of "Multi-Use Potential" and "Site Cost", as these criteria were eliminated as set forth in Sections 10.1 and 10.2.

The 12 sites and their criteria evaluation scores were incorporated into the previous matrix evaluation of the 82 sites. The complete comparison and ranking matrix for all sites, now totaling 94, is provided in Attachment B.

11.2.3 Identification of Top-Ranked Six Sites

Under the re-evaluation of sites when incorporating the revised maximum $250,000 building value threshold, the top six ranked sites are listed in Exhibit 11-1 below.

EXHIBIT 11-1
Identification of Top-Ranked Six Sites – Revised Building Value Threshold of $250,000
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
262	1S2110001600	11.25 acres[a]	GLC So. Hillsboro, LLC
302	1N324DD00300	8.92 acres[b]	International Church of the Foursquare Gospel
530/531	1N3240001809/ 1N3240001806	11.95 acres[c]	Ray & Arlette Milovanovich
216/216A	1S302A000100/ 1S302A000101	40.65 acres[c]	Edmund & Gertrude Duyck
215	1S302A000401	7.13 acres	Edmund & Gertrude Duyck
222	1S302A000800	21.45 acres	Edmund & Gertrude Duyck

[a] Entire tax lot is 203.36 acres; however, reservoir facilities require acquisition of 11.25 ac for this site.

[b] Entire tax lot is 15.25 acres; however, reservoir facilities require acquisition of 8.92 ac for this site.

[c] Site consists of two separate tax parcels. Both parcels are required for this site.

The re-evaluation and ranking of sites with application of the maximum $250,000 assessed building value threshold results in no changes to the top-ranked six sites as determined previously under the maximum building value threshold of $100,000.

11.3 Site Evaluation – Assessed Building Value Threshold Eliminated

11.3.1 Initial Site Identification

The GIS and tax record database used for previous initial site identification was queried to identify all parcels within the Study Area Boundaries that met the following criteria:

- Located outside of high hazard seismic areas, hydraulically influenced, or 100-year flood plain area
- Area of over 5 acres either as a singular parcel or combination of adjoining parcels (0.75 acre minimum, 6.0 acre maximum parcel size required for adjoining parcels)
- Assessed single parcel or cumulative multiple-parcel building value of any amount (unlimited)

The above query utilizing the above criteria resulted in over 400 additional sites which were screened back to 80 viable sites. The screening reviewed every sites or combination of sites for size and configuration adequacy for the facilities to be constructed. These 81 sites were

added to the 94 sites previously evaluated under the maximum $250,000 assessed building value thresholds, for a total of 175 sites evaluated. Of these additional 81 sites evaluated, 71 sites were located within the City limits.

11.3.2 Site Matrix Re-Evaluation and Ranking

The additional 81 sites included as a result of the elimination of building value threshold were evaluated with respect to the previously established matrix criteria set forth in TM-1 and TM-2. This evaluation was performed without consideration of "Multi-Use Potential" and "Site Cost", as these criteria were eliminated in TM-2.

The additional 81 sites and their evaluation scores were incorporated into the previous matrix evaluation of 94 sites set forth in Section 11.2.2 above and Attachment B. The complete comparison and ranking matrix for all sites, now totaling 175, is provided in Attachment C.

11.3.3 Identification of Top-Ranked Six Sites

Under the re-evaluation of sites when incorporating elimination of the assessed building value threshold, the top six ranked sites are listed in Exhibit 11-2 below.

EXHIBIT 11-2
Identification of Top-Ranked Six Sites – Assessed Building Value Threshold Eliminated
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
262	1S2110001600	11.25 acres[a]	GLC So. Hillsboro, LLC
302	1N324DD00300	8.92 acres[b]	International Church of the Foursquare Gospel
849	Multiple Lots	Greater than 6 acres	Multiple owners include: Milovanovich, Holloway, Thurman, Carol, Chalberg, Cornish, Cooper
802	Multiple Lots	Greater than 6 acres	Multiple owners include: Lind, Russell Trust, Boer, Turner Trust, Vangrunsven
530/531	1N3240001809/ 1N3240001806	11.95 acres[c]	Ray & Arlette Milovanovich
758	1S210DB00100	6.1 acres	Realty Income Corporation

[a] Entire tax lot is 203.36 acres; however, reservoir facilities require acquisition of 11.25 ac for this site.

[b] Entire tax lot is 15.25 acres; however, reservoir facilities require acquisition of 8.92 ac for this site.

[c] Site consists of two separate tax parcels. Both parcels are required for this reservoir site.

The re-evaluation and ranking of sites incorporating elimination of assessed building value threshold results in changes of three sites in the six top-ranked sites when compared to the other two scenarios having a maximum building value threshold of $100,000 and $250,000. Five of the top six sites are located outside the City limits.

11.4 Site Evaluation - Building Value Threshold of Zero

11.4.1 Initial Site Identification

Under this scenario, only those sites with land use classifications other than "public" and an assessed building value of $0 were initially identified for evaluation. These sites are a subset of previous initially identified sites with assessed building value of $0-$250,000. Other previous screening criteria were applied in previous initial site identification of these parcels with $0 building value.

11.4.2 Site Matrix Re-Evaluation and Ranking

Only those sites with an assessed building value of $0 for the aforementioned were evaluated with respect to the previously established matrix criteria. The evaluation was performed without consideration of "Multi-Use Potential" and "Site Cost" criteria.

11.4.3 Identification of Top-Ranked Six Sites

Under the re-evaluation of sites when incorporating only the $0 assessed building value threshold (exclusive of sites with "public" land use classifications), the top six ranked sites are shown on Exhibit 11-3 below.

EXHIBIT 11-3
Identification of Top-Ranked Six Sites – Revised Building Value Threshold of $0
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
262	1S2110001600	11.25 acres[a]	GLC So. Hillsboro, LLC
302	1N324DD00300	8.92 acres[b]	International Church of the Foursquare Gospel
530/531	1N3240001809/ 1N3240001806	11.95 acres[c]	Ray & Arlette Milovanovich
215	1S302A000401	7.13 acres	Edmund & Gertrude Duyck
221	1S302A000402	24.62 acres	Edmund & Gertrude Duyck
128	1N2200004501	73.07 acres[d]	Port of Portland

[a] Entire tax lot is 203.36 acres; however, reservoir facilities require acquisition of 11.25 ac for this site.

[b] Entire tax lot is 15.25 acres; however, reservoir facilities require acquisition of 8.92 ac for this site.

[c] Site consists of two separate tax parcels. Both parcels are required for this reservoir site.

[d] Entire tax lot is 73.07 acres; however, reservoir facilities require acquisition of approx. 12 acres for this site.

The re-evaluation and ranking of sites with application of the $0 building value results in changes of two sites in the top-ranked six sites as compared to the other two scenarios having a maximum assessed building value threshold of $100,000 and $250,000. Sites 216/216A and 222 are replaced with Sites 221 and 128.

12.0 Summary

12.1 Conclusions

Based on reviewing the requirements and need for water storage, and the analysis that has been performed to date, it is evident that three general areas of the City require further water storage. The engineering standards for proper system design, combined with the physical features within the study area have determined these three general areas around the City for future water storage needs. As the site selection process has defined, there can be multiple land parcels on which a reservoir could be sited. Although many of the initial top six sites have remained within the top six ranked parcels, as shown in the evaluation process other parcels exist which could be used for development of the reservoir needs. As such, it is prudent to look at each of the three general reservoir service areas, and to rank sites within each of these areas for consideration and negotiation, perhaps not limiting the sites to a total of six.

As recently related in the January 2009 Utilities Commission meeting, it may be wise for the City to consider review of the top-ranked sites within each reservoir service region. Upon confirmation that these top-ranked sites within each reservoir service region have been appropriately ranked, the City should consider if any of the landowners (or multiples of landowners) may consider to negotiate as a willing seller, and proceed to commence discussions with these owners. In the event that none of the landowners are willing sellers, the ranking process still is valid and those top ranked sites may require an elevated negotiation process.

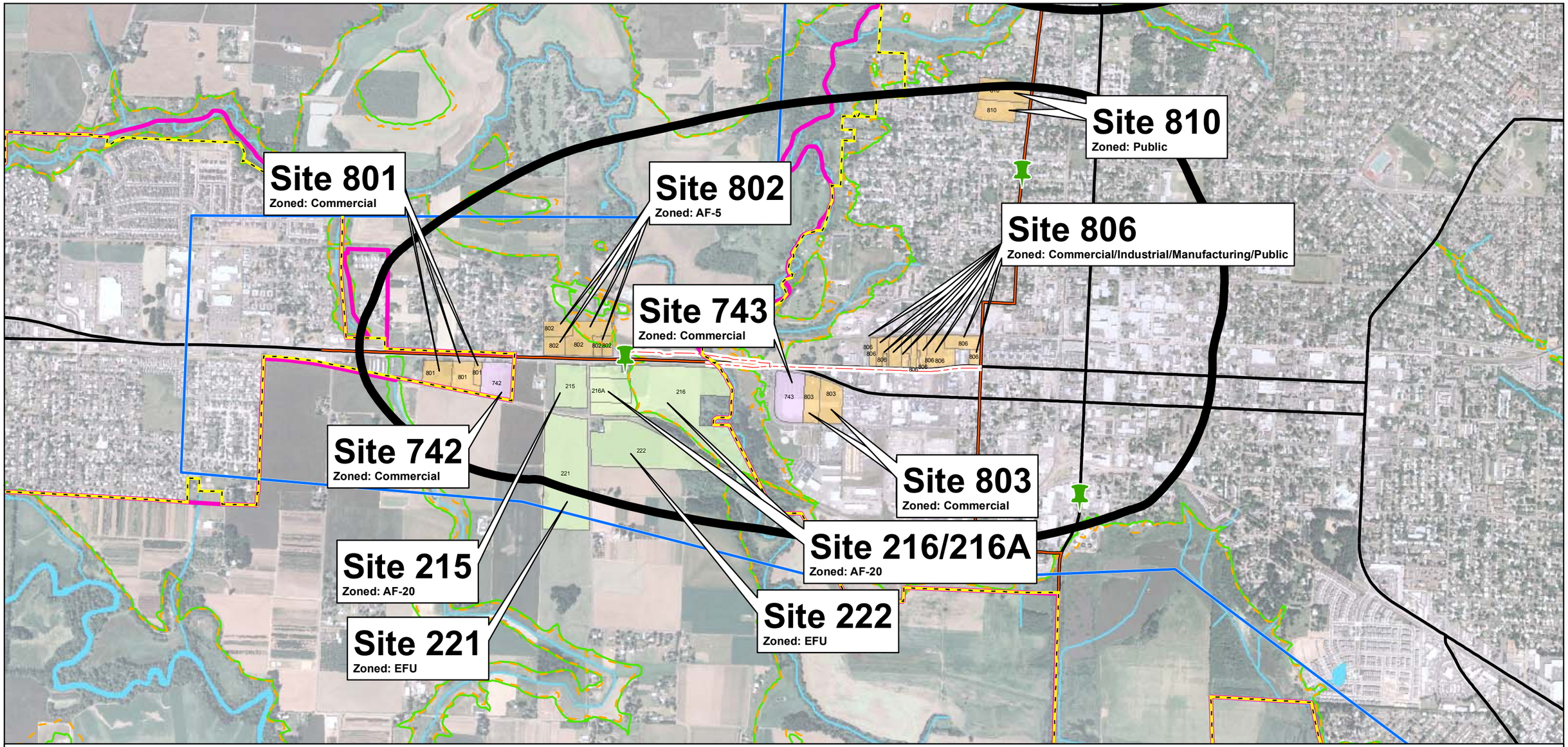
Other factors of site suitability and engineering design will be considered prior to final selection and negotiation with willing sellers including, but not limited to: 1) onsite verification of geotechnical feasibility, 2) local site safety issues associated with reservoir construction, and, 3) operation/maintenance challenges of a fully buried reservoir if full-burial is applicable to a site being considered.

To assist with this understanding of this regional area site selection process, the top-ranked sites within each future reservoir service area are shown on Exhibits 12-2, 12-4, and 12-6. These sites were derived from the ranking process and matrix evaluation set forth in Attachment C. Exhibits 12-2, 12-4 and 12-6 show the highest ranked 20 sites within the Southwest (11 sites), Northwest (5 sites), and Southeast (4 sites) regions, respectively, for future reservoirs.

12.1.1 Southwest Regional Area

Exhibit 12-1A describes the eleven top-ranked sites for consideration in the Southwest Regional service area, which are also shown graphically in Exhibit 12-2. A further breakdown of these eleven sites in this region by zoning category is shown in Exhibit 12-1B.

Some of these sites would require multiple parcels with differing landowners. In the cases where multiple landowners are considered for acquisition, the combination of landowners would require them to be abutting each other to make a contiguous parcel. In some instances not all of the adjoining parcels would be needed to obtain the needed area for the facilities.



LEGEND

- Study Area
- Tax Lots - Adjoining (>0.75 Acres and < 6 Acres & Bldg Value >$100,000)
- Tax Lots (>= 5 Acres & Bldg Value > $100,000)
- Tax Lots (>= 5 Acres & Bldg Value <= $100,000)
- JWC Transmission Pipelines
- Water Mains 18" or Greater
- PRVs
- Reservoirs
- City Limits
- Southwest Regional Service Area Boundary
- Rivers and Streams
- Lakes and Ponds
- Floodplain - 100 Year
- Floodplain - 500 Year
- UGB

N

0 1,000 2,000

Feet

EXHIBIT 12-2
Southwest Regional Service Area - Top Ranked Sites
Reservoir Siting Study
City of Hillsboro

CH2MHILL

File Path: \\rosa\proj\hillsbor\355740ResSitingStudy\GIS\MapFiles\200902\TaxLotCriteria_SWRegionTop20_090204.mxd, Date: February 4, 2009 2:54:27 PM

EXHIBIT 12-1A
Southwest Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
802	Multiple Lots	Greater than 6 acres	Multiple owners include: Lind, Russell Trust, Boer, Turner Trust, Vangrunsven
216/216A	1S302A000100/ 1S302A000101	40.65 acres[a]	Edmund & Gertrude Duyck
215	1S302A000401	7.13 acres	Edmund & Gertrude Duyck
810	Multiple Lots	Greater than 6 acres	Hillsboro School District #1J
222	1S302A000800	21.45 acres	Edmund & Gertrude Duyck
806	Multiple Lots	Greater than 6 acres	Multiple owners include: Inukai LLC, Katen Trust, Comm. Action Org., Colonial Plaza LLC,
743	1S301BB00100	6.95 acres	Winco Foods LLC
803	Multiple Lots	Greater than 6 acres	Hillsboro Sun West LLC
801	Multiple Lots	Greater than 6 acres	Multiple owners include: PTI Holdings, Richards Family, Coastal Farm Real Estate Inc.
221	1S302A000402	24.62 acres	Edmund & Gertrude Duyck
742	1S302B000400	5.57 acres	

[a] Site consists of two separate tax parcels. Both parcels are required for this reservoir site.

EXHIBIT 12-1B
Southwest Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated – Zoning Category
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Zoning Category: EFU or AF 20	Zoning Category: AF 5, Commercial, Manufacturing, Public
216/216A [a]	802
215	810
222	806
221	743
	803
	801
	742

[a] Site consists of two separate tax parcels. Both parcels are required for this reservoir site.

12.1.2 Northwest Regional Area

Exhibit 12-3A describes the five top-ranked reservoir sites for consideration in the Northwest Regional Service Area, which are shown graphically in Exhibit 12-4. A further breakdown of these five sites in this region by zoning category is shown in Exhibit 12-3B.

EXHIBIT 12-3A
Northwest Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated
Hillsboro Reservoir Siting Study—Technical Memorandum 3

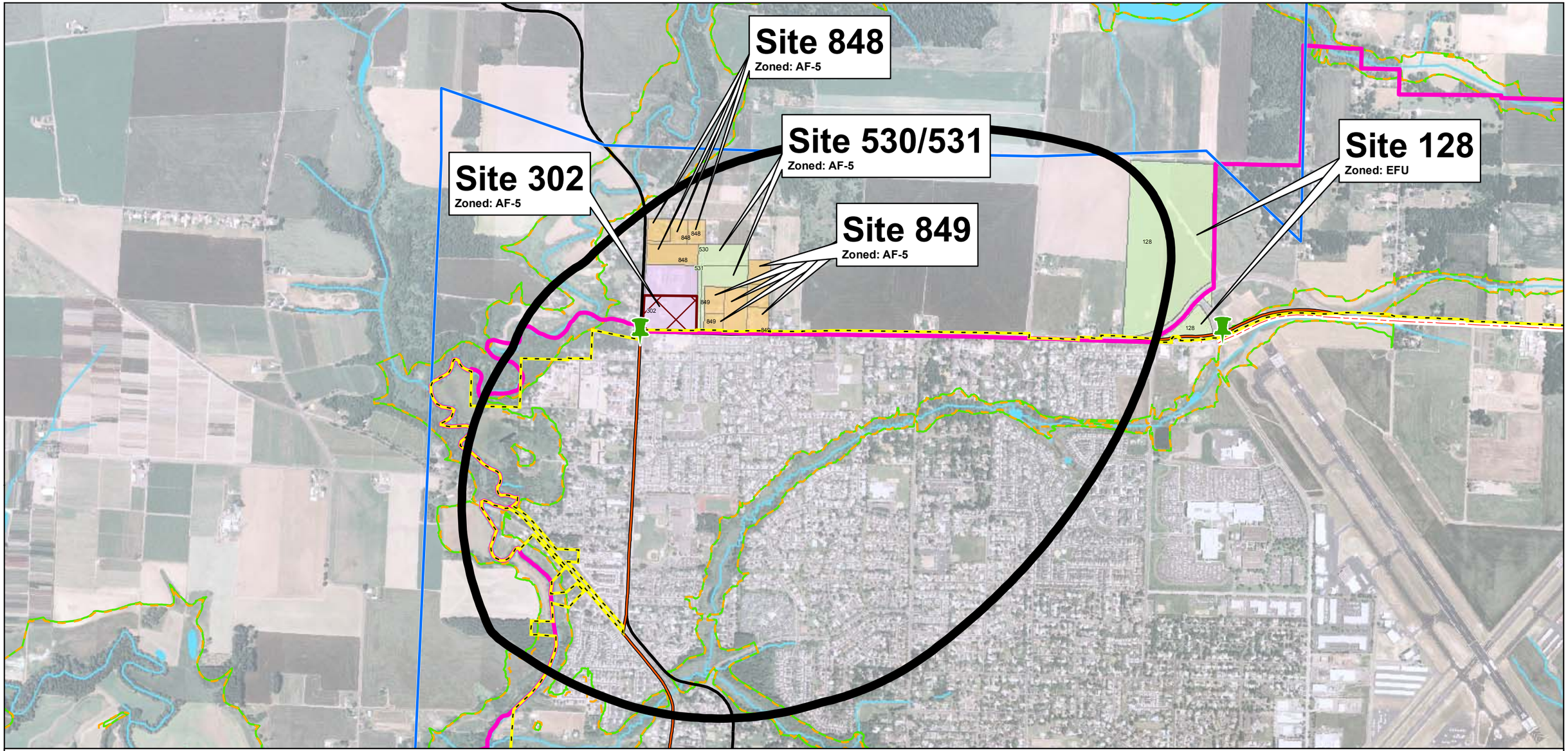
Site Identification	Tax Lot No(s).	Size	Owner
302	1N324DD00300	8.92 acres[a]	International Church of the Foursquare Gospel
849	Multiple Lots	Greater than 6 acres	Multiple owners include: Milovanovich, Holloway, Thurman, Carol, Chalberg, Cornish, Cooper
530/531	1N3240001809/ 1N3240001806	11.95 acres[b]	Ray & Arlette Milovanovich
848	Multiple Lots	Greater than 6 acres	Multiple owners include: Zimmerman, Ott, Rasmussen, Milovanovich
128	1N2200004501	73.07 Acres	Port of Portland

[a] Entire tax lot is 15.25 acres; however, reservoir facilities require acquisition of 8.92 ac for this site.

[b] Site consists of two separate tax parcels. Both parcels are required for this reservoir site.

EXHIBIT 12-3B
Northwest Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated – Zoning Category
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Zoning Category: EFU or AF 20	Zoning Category: AF 5, Commercial, Manufacturing, Public
128	302
	849
	530/531
	848



LEGEND

- Study Area
- Tax Lots - Adjoining (>0.75 Acres and < 6 Acres & Bldg Value >$100,000)
- Tax Lots (>= 5 Acres & Bldg Value > $100,000)
- Tax Lots (>= 5 Acres & Bldg Value <= $100,000)
- JWC Transmission Pipelines
- Water Mains 18" or Greater
- PRVs
- Reservoirs
- City Limits
- Northwest Regional Service Area Boundary
- Rivers and Streams
- Lakes and Ponds
- Floodplain - 100 Year
- Floodplain - 500 Year
- UGB

N

0 1,000 2,000

Feet

EXHIBIT 12-4
Northwest Regional Service Area - Top Ranked Sites
Reservoir Siting Study
City of Hillsboro

CH2MHILL

File Path: \\rosa\proj\hillsbor\355740ResSitingStudy\GIS\MapFiles\200902\TaxLotCriteria_NWRegionTop20_090204.mxd, Date: February 4, 2009 2:25:47 PM

12.1.3 Southeast Regional Area

Exhibit 12-5A describes the four top-ranked reservoir sites for consideration in the Southeast Regional Service Area, which are shown graphically in Exhibit 12-6. A further breakdown of these five sites in this region by zoning category is shown in Exhibit 12-5B.

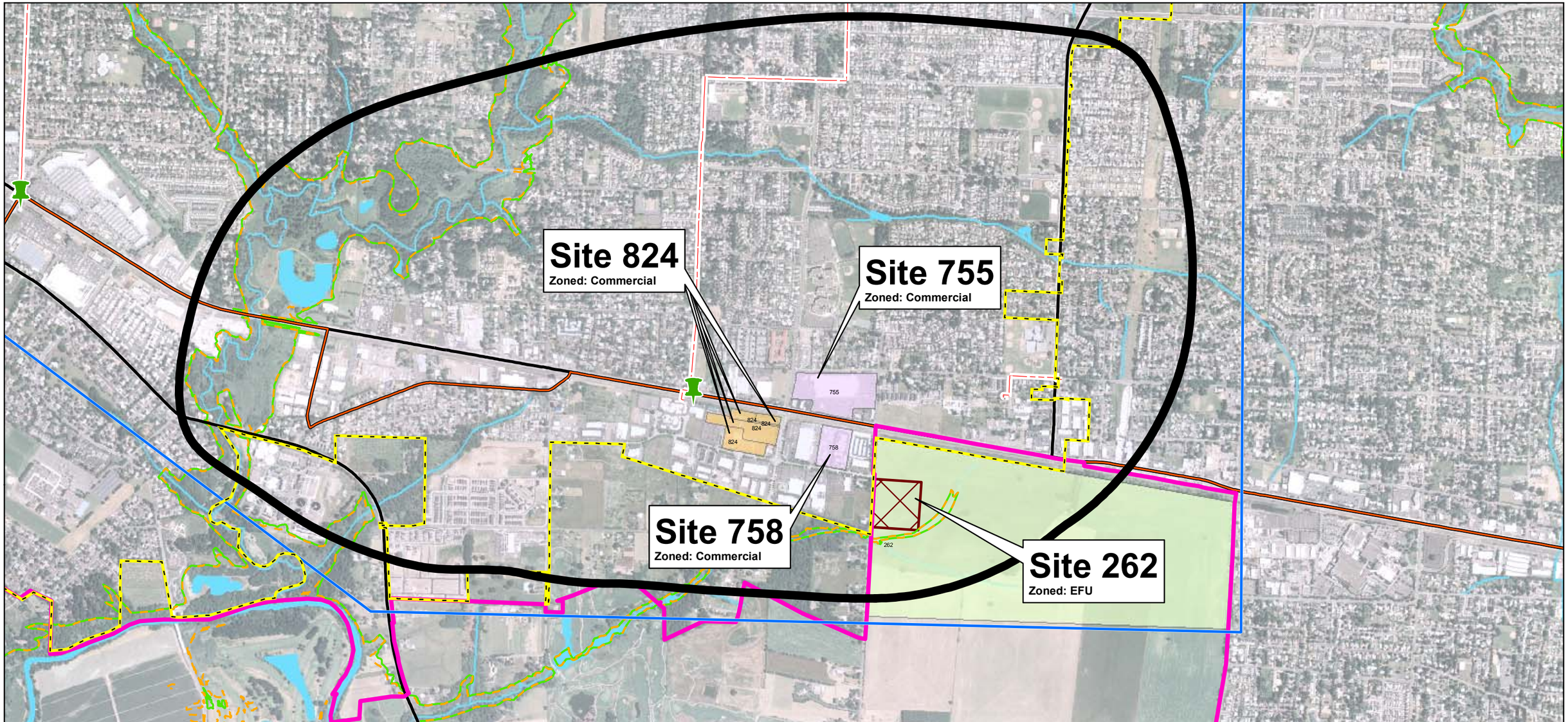
EXHIBIT 12-5A
Southeast Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Site Identification	Tax Lot No(s).	Size	Owner
262	1S2110001600	11.25 acres[a]	GLC So. Hillsboro, LLC
758	1S210DB00100	6.07 acres	Realty Income Corp.
755	1S210AC03700	14.71 acres	Park 219 Business Park LLC
824	Multiple Lots	Greater than 6 acres	Eastgate Theater, Inc.

[a] Entire tax lot is 203.36 acres; however, reservoir facilities require acquisition of 11.25 ac for this site.

EXHIBIT 12-5B
Southwest Regional Area
Identification of Top-Ranked Sites – Assessed Building Value Threshold Eliminated – Zoning Category
Hillsboro Reservoir Siting Study—Technical Memorandum 3

Zoning Category: EFU or AF 20	Zoning Category: AF 5, Commercial, Manufacturing, Public
262	758
	755
	824



LEGEND

- Study Area
- Tax Lots - Adjoining (>0.75 Acres and < 6 Acres & Bldg Value >$100,000)
- Tax Lots (>= 5 Acres & Bldg Value > $100,000)
- Tax Lots (>= 5 Acres & Bldg Value <= $100,000)
- JWC Transmission Pipelines
- Water Mains 18" or Greater
- PRVs
- Reservoirs
- City Limits
- Southeast Regional Service Area Boundary
- Rivers and Streams
- Lakes and Ponds
- Floodplain - 100 Year
- Floodplain - 500 Year
- UGB

N

0 1,000 2,000
Feet

EXHIBIT 12-6
Southeast Regional Service Area - Top Ranked Sites
Reservoir Siting Study
City of Hillsboro

CH2MHILL

File Path: \\rosa\proj\hillsbor\355740ResSitingStudy\GIS\MapFiles\200902\TaxLotCriteria_SERegionTop20_090204.mxd, Date: February 4, 2009 2:50:44 PM

ATTACHMENT A

Permit Requirements/Environmental Issues—Initial Six Sites

Exhibit A-1

Site 262 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S2110001600

SW 229th Ave and SW Tualatin Valley Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources were identified by SHPO search at the tax lot or within 2 miles	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Site is located in Unincorporated Washington County. Washington County designated the site as EFU District (Exclusive Farm Use). The purpose of the Exclusive Farm Use District is to preserve and maintain agricultural lands for farm use. Public water utilities may be Permitted Uses if they are necessary for public service. A facility is necessary if it must be situated in an agricultural district in order for the service to be provided. Application findings must demonstrate compliance with ORS 215.275 (Utility facilities necessary for public service). If they comply, they are exempt from the CDC standard that the project not cause a significant change in accepted farm practices or significantly increase the cost of accepted farm practices on surrounding lands. There is potential that water conveyance pipelines would extend into the City of Hillsboro, subject to City permitting.	Type II Development Permit per CDC Article III (Land Use Districts) Section 340 (EFU District (Exclusive Farm Use))	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan shows one element on Site 262 designated as a county Significant Natural Resource: the northern headwater tributary of Gordon Creek is designated as "Water Areas, Wetlands & Fish and Wildlife Habitat." These are water areas and wetlands that are also fish and wildlife habitat.	Development Permit per CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archeological Resources	No SHPO records of archeological investigations exist for Site 262. Four investigations within 2 miles of the property were negative for cultural material. Some historic remnants were found in test pits along Willow Creek, approximately 2 miles northeast. Historic properties have been located along Baseline Road, west of Hillsboro. Archeological survey is advised prior to Site acquisition.	Possibly need an archeological dig permit from SHPO	30 days for Dig Permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the subject property. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides to protect crops. Pesticides and herbicides are often odorless and invisible, thus, these chemicals could be present in soil. Hazardous materials might be associated with the railroad. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. The property contains Prime farmland, Prime farmland if drained, and Farmland of statewide importance. The northwestern quadrant of the property is mostly composed of "Prime farmland if drained." The drainage swale contains "Farmland of statewide importance." The eastern portion of the quadrant, around the Reed homestead, is "Prime farmland."	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The property is composed of soil that is Partially Hydric or All Hydric. The portion that is All Hydric is located along the drainage swales.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplains	There are no FEMA-designated 100-year or 500-year floodplains on Site 262, although the headwaters of Gordon Creek are shown as arcing through the northwestern quadrant. The Site is designated as Zone C, which are areas of minimal flooding.	No land use permit required.	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0481 B
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for the property. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24

Exhibit A-1

Site 262 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S2110001600

SW 229th Ave and SW Tualatin Valley Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Wetlands	Examination of the National Wetland Inventory map was negative for potential wetlands occurrence at Site 262. However, it is possible that wetlands exist in association with the historical headwater tributaries of Gordon Creek. There is high probability that wetlands can be avoided via careful siting. It is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at the railroad and Tualatin Valley Highway). Recommend wetland delineation prior to Site acquisition or construction.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDI Fish and Wildlife Service National Wetland Inventory
Other Waters	The USGS 7.5' quadrangle map shows that Gordon Creek arcs into the northwest quadrant of the property as an intermittent stream. A branch swale to the south is not shown as a stream, but topographic contours suggest that an intermittent stream may be present.	Federal and state Wetland Removal/Fill permits if waters will be disturbed.	6 months	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>
Habitat	(1) The headwaters of Gordon Creek extend into the northwestern quadrant of Site 262 as two tributaries; (2) the tributaries are bordered by herbaceous riparian areas, and the entry road to the Reed estate is lined with trees; (3) wetlands are present along the northern tributary of Gordon Creek and along the lowest reach of the southern tributary; (4) flooding occurred during the 1996 flood along the northern tributary to Gordon Creek, and the tributary may lie in a 100-year floodplain; (5) no steep slopes are present on the Site.	Federal and state Wetland Removal/Fill permits if waters will be disturbed.	6 months	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is at the northern and western boundaries (generally, south side of railroad ROW and east side of 229th Avenue ROW) of Site 262. Therefore, no CWS Sensitive Areas and Vegetated Corridors at the Site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 3406 and 3407 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	N/A	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	Yes from DEQ; possibly yes from CWS for connection to existing water conveyance pipeline inn District.	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed two well records at Site 262: WASH54010, and WASH 66256. Both have been abandoned.	No	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right-of-Way	Permit required for pipeline work in ODOT right-of-way. Work must conform to ODOT General Provisions. Insurance Certification and Performance Bond Required for Approach Road, Utility, or Miscellaneous Permit.	ODOT Right-of-Way Permit to Occupy or Perform Operations upon a State Highway	1 month	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Pipeline work may approach railroad right-of-way. Permit required for pipeline work in Union Pacific Railroad right-of-way. Work must conform to railroad specifications.	Application for Contractor Occupancy on Railroad Property	1 month	

Exhibit A-2

Site 302 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1N324DD00300

Northeast corner of Glencoe Road and Evergreen Boulevard

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources identified on tax lot; historic resources within 1 mile include: Manning-Kamna Farm located at 29375 Evergreen Rd, Hillsboro, Oregon; Single Dwelling House located at Jackson Rd (no address in data base), Hillsboro, Oregon; Sarah Patterson House located at 1670 NW Jackson School Rd, Hillsboro, Oregon	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Washington County designated the site as AF-5 District (Agriculture and Forestry). The purpose of the District is to promote agricultural uses on small parcels in the rural area, while recognizing the need to retain the character and economic viability of agricultural lands, as well as recognizing that existing parcelization and diverse ownerships and uses exist within the farm area. Public water utilities appear to be Permitted Uses in the District. There is potential that water conveyance pipelines would extend into the City of Hillsboro, subject to City permitting.	Type II Development Permit per CDC Article III (Land Use Districts) Section 348 (AF-5 District)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan does not show any county-designated Significant Natural Resources on Site 302.	No need to consider CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources) in Development Permit.	N/A	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archeological Resources	No SHPO records of archeological investigations exist for Site 302. Four investigations have been performed within 2 miles of the property. In 1996, CH2M Hill conducted a pedestrian survey of the location running along the northern boundary of proposed Sites 302 and 530/531; no historic or prehistoric sites were located. Along Rock Creek, approximately 1 mile north of proposed Sites 302 and 530/531, an archaeological site consisting of prehistoric lithics and historic materials was identified. Also, historic properties have been located along Baseline Road, west of Hillsboro. Archeological survey is advised prior to Site acquisition.	Possibly need an archeological dig permit from SHPO	30 days for Dig Permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the subject property. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides to protect crops. Pesticides and herbicides are often odorless and invisible, thus, these chemicals could be present in soil. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. The property contains "Prime farmland," "Prime farmland if drained," and "Farmland of statewide importance" in roughly similar proportions. Site is developed.	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The property is composed of soil that is Partially Hydric or All Hydric. The portion that is All Hydric underlies the area with woody vegetation in the southwestern quadrant, and the existing church facilities.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplains	There are no FEMA-designated 100-year or 500-year floodplains on Site 302, and no streams. The Site is designated as Zone C, which are areas of minimal flooding.	No land use permit required.	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0336 B

Exhibit A-2

Site 302 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1N324DD00300

Northeast corner of Glencoe Road and Evergreen Boulevard

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for the property. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly Site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24
Wetlands	Examination of the National Wetland Inventory map was negative for potential wetlands occurrence at Site 302. It is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at Evergreen Road, woody vegetation at southwest quadrant). Recommend wetland delineation prior to Site acquisition or construction.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDI Fish and Wildlife Service National Wetland Inventory
Other Waters	The USGS 7.5' quadrangle map shows no perennial or intermittent streams on the property.	No	N/A	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>
Habitat	(1) Site 302 is without natural vegetation, except for a small area at the northwestern border of the property with herbaceous vegetation; (2) no wetlands or waters are present; (3) no evidence of flooding occurred during the 1996 flood; (4) no steep slopes are present on the Site.	No permit	N/A	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is at the southern boundary (north side of Evergreen Road ROW) of Site 302. Therefore, no CWS Sensitive Areas and Vegetated Corridors at the Site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 2698 and 2699 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	N/A	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	Yes from DEQ; possibly yes from CWS for connection to existing water conveyance pipeline inn District.	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed four well records at the property: WASH_56356; WASH_65571; WASH_66254; and WASH_66255. All have been abandoned.	No	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right-of-Way	State highway ROW is not located in the Site 302 vicinity.	No	N/A	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Railroad ROW is not located in the Site 302 vicinity.	No	N/A	

Exhibit A-3

Site 530/531 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1N3240001809 & 1N3240001806

¼ mile east and north of intersection of Glencoe Road and Evergreen Boulevard.

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources identified on Site 53-0/531. Historic resources within 1 mile include: Manning-Kamna Farm located at 29375 Evergreen Rd, Hillsboro, Oregon; Single Dwelling House located at Jackson Rd (no address in data base), Hillsboro, Oregon; Sarah Patterson House located at 1670 NW Jackson School Rd, Hillsboro, Oregon	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Washington County designated the site as AF-5 District (Agriculture and Forestry). The purpose of the District is to promote agricultural uses on small parcels in the rural area, while recognizing the need to retain the character and economic viability of agricultural lands, as well as recognizing that existing parcelization and diverse ownerships and uses exist within the farm area. Public water utilities appear to be Permitted Uses in the District. There is potential that water conveyance pipelines would extend into City of Hillsboro, subject to city permitting.	Type II Development Permit per CDC Article III (Land Use Districts) Section 348 (AF-5 District)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan does not show any county-designated Significant Natural Resources on Site 530/531.	No need to consider CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources) in Development Permit.	N/A	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archaeological Investigations	No SHPO records of archeological investigations exist for Site 530/531. Four investigations have been performed within 2 miles of the property. In 1996, CH2M Hill conducted a pedestrian survey of the location running along the northern boundary of proposed Sites 302 and 530/531; no historic or prehistoric sites were located. Along Rock Creek, approximately 1 mile north of proposed Sites 302 and 530/531, an archaeological site consisting of prehistoric lithics and historic materials was identified. Also, historic properties have been located along Baseline Road, west of Hillsboro. Archeological survey is advised prior to construction.	Possibly need an archeological dig permit from SHPO	30 days for Dig Permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the subject property. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides to protect crops. Pesticides and herbicides are often odorless and invisible, thus, these chemicals could be present in soil. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited t food, feed, fiber, forage, and oilseed crops. The property contains "Prime farmland" and "Prime farmland if drained." Most of the property is Prime farmland if drained. Site size is small for agriculture.	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The property is composed entirely of soil that is Partially Hydric.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplain	There are no FEMA-designated 100-year or 500-year floodplains on Site 530/531, and no streams. The Site is designated as Zone C, which are areas of minimal flooding.	No land use permit required.	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0336 B
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for the property. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly Site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24

Exhibit A-3

Site 530/531 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1N3240001809 & 1N3240001806

¼ mile east and north of intersection of Glencoe Road and Evergreen Boulevard.

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Wetlands	Examination of the National Wetland Inventory map was negative for potential wetlands occurrence at Site 530/531. I is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at Evergreen Road). Recommend wetland delineation prior to Site acquisition or construction.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDI Fish and Wildlife Service National Wetland Inventory
Other Waters	The USGS 7.5' quadrangle map shows no perennial or intermittent streams on the property.	No	N/A	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>
Habitat	(1) Site 530/531 is without natural vegetation, except for a small area at the northwestern border with herbaceous vegetation; (2) no wetlands or waters are present; (3) no evidence of flooding occurred during the 1996 flood; (4) no steep slopes are present at the Site.	No	N/A	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is at the southern site boundary (north side of Evergreen Road ROW). Therefore, no CWS Sensitive Areas and Vegetated Corridors at the site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 2698 and 2699 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	N/A	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	1200-C Permit (from DEQ). Possibly yes from CWS for connection to existing storm drain pipeline in District.	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed no well records for Site 530/531.	No	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right-of-Way	State highway ROW is not located in the Site 530/531 vicinity.	No	N/A	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Railroad ROW is not located in the Site 530/531 vicinity.	No	N/A	

Exhibit A-4

Site 216/216A - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000100 & 1S302A000101

Two parcels adjoining Baseline Road (Tualatin Valley Highway), just east of 33rd Street

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources were identified by SHPO search at the tax lot or within 2 miles of Site 216/216A. However, the site supports existing structures that appear to be at least 50 years old. Historic resources investigation is advised prior to property acquisition due to uncertainty of eligibility for National Register of Historic Places.	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Site 216/216A is located in Unincorporated Washington County. Washington County designated the site as AF-20 District (Agriculture and Forestry). The purpose of the District is to allow EFU uses and parcels, recognizing that some EFU uses are marginal. Public water utilities may be Permitted Uses if they demonstrate they are necessary for public service. A facility is necessary if it must be situated in an agricultural district in order for the service to be provided. Application findings must demonstrate compliance with ORS 215.275 (Utility facilities necessary for public service). If they comply, they are exempt from the CDC standard that the project not cause a significant change in accepted farm practices or significantly increase the cost of accepted farm practices on surrounding lands.	Type II Development Permit per CDC Article III (Land Use Districts) Section 344 (AF-20 District)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan shows two elements on Site 216/216A designated as county Significant Natural Resources: (1) Dairy Creek is designated as "Water Areas, Wetlands & Fish and Wildlife Habitat." These are water areas and wetlands that are also fish and wildlife habitat; (2) the Dairy Creek floodplain is designated as "Water Areas and Wetlands." These are 100-year flood plains, drainage hazard areas, and ponds, except those already developed.	Development Permit per CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archaeological Investigations	No SHPO records of archeological investigations exist for Site 216/216A. Four investigations have been performed within 2 miles of the property and no historic or prehistoric sites were located. Archeological survey is advised prior to Site acquisition due to uncertainty.	Possibly need an archeological dig permit from SHPO	30 days for dig permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the Site. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides. These chemicals are often odorless and invisible, thus, could be present in soil. Hazardous materials might be associated with the railroad bordering the south boundary of the Site. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. Property 216A is almost entirely "Prime Farmland." Property 216 is composed of "Prime Farmland" at the western side, "Prime farmland if drained" at the west-central part, "Prime farmland if protected from flooding or not frequently flooded during the growing season" at the central and eastern parts, and "Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season" at the east-central part.	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The Site is composed of soil that is Partially Hydric or All Hydric. The portion that is All Hydric is located at the east-central part.	No (subject to confirmation of negative wetlands delineation on western portion of site)	N/A	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplains	On the western third of the property, there are no FEMA-designated 100-year or 500-year floodplains, and no streams. It is designated as Zone C, which is an area of minimal flooding. The eastern two-thirds is Zone A floodplain along Dairy Creek, which indicates 100-year floodplain. The margin of the Zone A floodplain is a narrow band designated as Zone B, which is between the 100-year and 500-year floodplains.	No (project will avoid disturbance to floodplain Zones B and C)	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0319 B
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for Site 216/216A. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly Site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24

Exhibit A-4

Site 216/216A - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000100 & 1S302A000101

Two parcels adjoining Baseline Road (Tualatin Valley Highway), just east of 33rd Street

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Wetlands	Examination of the National Wetland Inventory (NWI) map shows a fairly small palustrine emergent wetland at the southeastern part of the site, between Dairy Creek and the railroad tracks. The NWI was negative for potential wetlands occurrence at the central and western parts of the site. It is possible that additional wetlands exist in association with the Dairy Creek floodplain or hydric soils. It is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at the Tualatin Valley Highway). Recommend wetland delineation prior to Site acquisition.	No (subject to confirmation of negative wetlands delineation on western portion of site)	N/A	USDI Fish and Wildlife Service National Wetland Inventory
Other Waters	The USGS 7.5' quadrangle map shows no perennial or intermittent streams on the property, except for Dairy Creek at the eastern boundary.	No	N/A	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>
Habitat	(1) Dairy Creek is bordered by riparian forest vegetation, fringed by herbaceous vegetation, a shrub community extends along the railroad tracks; (2) Dairy Creek borders the east side of the Site, wetlands are present in the Dairy Creek floodplain, and a small wetland exists between the railroad tracks and Dairy Creek; (3) flooding occurred over the eastern two-thirds of the site during the 1996 flood, and that area may lie in a 100-year floodplain; and (4) no steep slopes are present at the property.	No	N/A	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is at the eastern boundary of Site 216/216A (more or less the Hillsboro city limits). Therefore, no CWS Sensitive Areas and Vegetated Corridors occur at the Site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 3196 and 3197 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	N/A	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	1200-C Permit (from DEQ)	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed no well records for site 216/216A.	N/A	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right-of-Way	Permit required for pipeline work in ODOT right-of-way. Work must conform to ODOT General Provisions. Insurance Certification and Performance Bond Required for Approach Road, Utility, or Miscellaneous Permit.	ODOT Right-of-Way Permit to Occupy or Perform Operations upon a State Highway	1 month	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Union Pacific Railroad ROW located in the Site 216/216A vicinity, but not approached by project.	No	N/A	

Exhibit A-5

Site 221 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000402

West of 331st Street and about 1,000 feet south of Baseline Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources identified on tax lot or within 2 miles. No structures observed.	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Site is located in Unincorporated Washington County. Washington County designated the site as EFU District (Exclusive Farm Use). The purpose of the Exclusive Farm Use District is to preserve and maintain agricultural lands for farm use. Public water utilities may be Permitted Uses if they are necessary for public service. A facility is necessary if it must be situated in an agricultural district in order for the service to be provided. Application findings must demonstrate compliance with ORS 215.275 (Utility facilities necessary for public service). If they comply, they are exempt from the CDC standard that the project not cause a significant change in accepted farm practices or significantly increase the cost of accepted farm practices on surrounding lands.	Type II Development Permit per CDC Article III (Land Use Districts) Section 340 (EFU District (Exclusive Farm Use))	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan does not show any county-designated Significant Natural Resources on Site 221.	No need to consider CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources) in Development Permit.	N/A	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archaeological Investigations	No SHPO records of archeological investigations exist for Site 221. Four investigations have been performed within 2 miles of the property; no historic or prehistoric sites were located. Archeological survey is advised prior to Site acquisition due to uncertainty.	Possibly need an archeological dig permit from SHPO	30 days for Dig Permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the subject property. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides to protect crops. Pesticides and herbicides are often odorless and invisible, thus, these chemicals could be present in soil. Hazardous materials might be associated with the railroad. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. The property is almost entirely "Prime farmland if drained," with small areas of "Prime Farmland" along the railroad tracks and midway along the western boundary.	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The property is composed entirely of soil that is Partially Hydric.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplains	There are no FEMA-designated 100-year or 500-year floodplains on Site 221, and no streams. The Site is designated as Zone C, which are areas of minimal flooding.	No land use permit required.	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0319 B
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for Site 221. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly Site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24
Wetlands	Examination of the National Wetland Inventory map was negative for potential wetlands occurrence at Site 221. It is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at the railroad or Tualatin Valley Highway). Recommend wetland delineation prior to Site acquisition or construction.	No (subject to confirmation of negative wetlands delineation)	N/A	USDI Fish and Wildlife Service National Wetland Inventory
Other Waters	The USGS 7.5' quadrangle map shows no perennial or intermittent streams on the property.	No	N/A	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>

Exhibit A-5

Site 221 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000402

West of 331st Street and about 1,000 feet south of Baseline Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Habitat	(1) the southwestern part of the Site is covered by herbaceous vegetation; (2) no wetlands or waters are shown on the Site; (3) no flooding occurred at the Site during the 1996 flood; and (4) no steep slopes are present on the Site.	No	N/A	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is more or less the Hillsboro city limits. Therefore, no CWS Sensitive Areas and Vegetated Corridors occur at the Site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 3196 and 3197 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	1 month	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	1200-C Permit (from DEQ)	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed no well records for Site 221.	No	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right-of-Way	Permit required for pipeline work in ODOT right-of-way. Work must conform to ODOT General Provisions. Insurance Certification and Performance Bond Required for Approach Road, Utility, or Miscellaneous Permit.	ODOT Right-of-Way Permit to Occupy or Perform Operations upon a State Highway	3 months	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Permit required for pipeline work in Union Pacific Railroad right-of-way. Work must conform to railroad specifications.	Application for Contractor Occupancy on Railroad Property	3 months	

Exhibit A-6

Site 222 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000800

East of 331st Street and about 1,000 feet south of Baseline Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Historic Resources	No historic resources identified on tax lot or within 2 miles. No structures observed.	No	N/A	State Historic Preservation Office (SHPO) Historic Records Search
Zoning	Site is located in Unincorporated Washington County. Washington County designated the site as EFU District (Exclusive Farm Use). The purpose of the Exclusive Farm Use District is to preserve and maintain agricultural lands for farm use. Public water utilities may be Permitted Uses if they are necessary for public service. A facility is necessary if it must be situated in an agricultural district in order for the service to be provided. Application findings must demonstrate compliance with ORS 215.275 (Utility facilities necessary for public service). If they comply, they are exempt from the CDC standard that the project not cause a significant change in accepted farm practices or significantly increase the cost of accepted farm practices on surrounding lands.	Type II Development Permit per CDC Article III (Land Use Districts) Section 340 (EFU District (Exclusive Farm Use))	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Land Use Districts Map
Significant Natural Resources	Washington County Comprehensive Plan shows two elements on Site 222 designated as county Significant Natural Resources: (1) Dairy Creek is designated as "Water Areas, Wetlands & Fish and Wildlife Habitat." These are water areas and wetlands that are also fish and wildlife habitat; (2) the Dairy Creek floodplain is designated as "Water Areas and Wetlands." These are 100-year flood plains, drainage hazard areas, and ponds, except those already developed.	Development Permit per CDC Article IV (Development Standards) Section 421 (Flood Plain and Drainage Hazard Area Development) and Section 422 (Significant Natural Resources)	6 months	Washington County Comprehensive Plan, Volume III, Rural/Natural Resource, Plan Element, January 2005, Significant Natural Resources Map
Archaeological Investigations	No SHPO records of archeological investigations exist for Site 222. Four investigations have been performed within 2 miles of the property; no historic or prehistoric sites were located. Archeological survey is advised prior to Site acquisition due to uncertainty.	Possibly need an archeological dig permit from SHPO	30 days for Dig Permit	SHPO Historic Records Search
Hazardous Materials	Review of DEQ hazardous materials databases, including ACSIS in Air Quality, ECSI, HWIMSY, LUST, SWMS, UST in Land Quality, and SIS in Water Quality, did not reveal any hazardous materials records for the subject property. Agricultural operations typically use petroleum products to operate farm equipment, and pesticides and herbicides to protect crops. Pesticides and herbicides are often odorless and invisible, thus, these chemicals could be present in soil. Hazardous materials might be associated with the railroad. Recommend Site Investigation prior to property acquisition.	No	N/A	DEQ's Location Improvement Tool
Farmland Classification	Farmland classification identifies USDA NRCS map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. The western third of the property is "Prime farmland if drained"; the eastern two-thirds is "Prime Farmland," except for a small area of "Farmland of statewide importance" at the eastern boundary.	Washington County Development Permit	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Hydric Soil	Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and might indicate the presence of wetlands. The property is almost entirely composed of soil that is Partially Hydric, except for a small area of soil that is All Hydric at the far eastern end near Dairy Creek.	Federal and state Wetland Removal/Fill permits if wetlands will be disturbed.	6 months	USDA NRCS Custom Soil Resource Report for Washington County, Oregon; Hydric Rating by Map Unit
Floodplains	Except for the far eastern side, there are no FEMA-designated 100-year or 500-year floodplains on Site 222, and no streams. Most of the Site is designated as Zone C, which is an area of minimal flooding. The floodplain along Dairy Creek is designated Zone A, which indicates 100-year floodplain. The margin of the Zone A floodplain is a narrow band designated Zone B, which is between the 100-year and 500-year floodplains.	No (project will avoid disturbance to floodplain Zones B and C)	N/A	Flood Insurance rate Map for Washington County, Oregon (Unincorporated Areas), Community-Panel Number 410238 0319 B
Rare, Threatened, and Endangered Species	A search for rare, threatened, and endangered plant and animal species using the Oregon Natural Heritage Information Center data system yielded no records for the property. Lack of rare element information does not mean that there are no significant elements present, only that ONHIC does not have information for them. A special status species survey is advised prior to construction, and possibly Site acquisition, due to uncertainty of presence.	No (subject to negative special status species survey)	N/A	Search of the Oregon Natural Heritage Information Center data system; April 25, 2008; for records within two miles of T1S, R2W, Sections 10&11; T1S, R3W, Sections 1&2; T1N, R2W, Section 19; and T1N, R3W, Section 24
Wetlands	Examination of the National Wetland Inventory map was negative for potential wetlands occurrence at Site 222. It is possible that additional wetlands exist in association with the Dairy Creek floodplain. It is possible that federal or state wetlands/waters might be encountered for construction of ancillary pipelines to support the reservoir facility (e.g., ditches at the railroad and Tualatin Valley Highway). Recommend wetland delineation prior to Site acquisition or construction.	No (subject to confirmation of negative wetlands delineation)	N/A	USDI Fish and Wildlife Service National Wetland Inventory

Exhibit A-6

Site 222 - Permit Requirements / Environmental Issues Assessment

Tax Lot: 1S302A000800

East of 331st Street and about 1,000 feet south of Baseline Road

Permit / Environmental Issue	Specific Site Details	Permit Needed?	Time-frame	Source
Other Waters	The USGS 7.5' quadrangle map shows no perennial or intermittent streams on the property, except for Dairy Creek at the eastern boundary.	No	N/A	USGS 7.5' topographic quadrangle map obtained from <<http://terraserver-usa.com/>>
Habitat	(1) Dairy Creek is bordered by riparian forest vegetation, fringed by herbaceous vegetation, a shrub community extends along the railroad tracks; (2) Dairy Creek borders the east end of the Site, but no wetlands are shown in the Dairy Creek floodplain, and no other wetlands are shown elsewhere; (3) flooding occurred at the far eastern end of the Site during the 1996 flood, and that area may lie in a 100-year floodplain; and (4) no steep slopes are present on the Site.	No	N/A	Metro Habitat Tool <<http://www.oregonmetro.gov/>>
CWS Sensitive Areas and Vegetated Corridors	Clean Water Services (CWS) District boundary is at the easternmost end of the boundary (along the railroad ROW) of Site 222. Therefore, no CWS Sensitive Areas and Vegetated Corridors occur at the Site.	No. Requirement for CWS Natural Resources Assessment or Service Provider Letter is not anticipated.	N/A	CWS Sanitary Maps 3196 and 3197 <<http://www.cleanwaterservices.org/content/MapsAndData/Permit/Sanitary%20PDFs/>>
CWS Stormwater Connection Permit	Clean Water Services (CWS) District must approve connections to District stormwater systems. No connection to District stormwater system is anticipated for the Site.	No	N/A	CWS Resolution & Order 07-20 (04-17-07).pdf
NPDES Construction Stormwater Discharge Permit 1200-C	Permit required if construction will disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material, and if stormwater could run off the site during construction and into surface waters or conveyance systems leading to surface waters of the state. DEQ is lead agency; CWS is lead agency within its District boundary. Requires preparation of an Erosion and Sedimentation Control Plan.	Yes from DEQ	1 month	DEQ Construction Stormwater Permit Guidance, 1200-C NPDES General Permit, July 2007
Wells	Well log query revealed no well records for Site 222.	No	N/A	Oregon Water Resources Department <<http://apps2.wrd.state.or.us/apps/gw/well_log/>>
ODOT Right of Entry	Permit required for pipeline work in ODOT right-of-way. Work must conform to ODOT General Provisions. Insurance Certification and Performance Bond Required for Approach Road, Utility, or Miscellaneous Permit.	ODOT Right-of-Way Permit to Occupy or Perform Operations upon a State Highway	1 month	ODOT permit website <<http://www.oregon.gov/ODOT/Permits.shtml>>
Union Pacific Railroad Right-of-Entry	Permit required for pipeline work in Union Pacific Railroad right-of-way. Work must conform to railroad specifications.	Application for Contractor Occupancy on Railroad Property	1 month	

ATTACHMENT B

Initial Criteria Score and Ranking Matrix of Sites—$250K Assessed Building Value Threshold

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential and Site Cost Criteria Eliminated. Assessed Bldg. Value = $250K Max.

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No. ($0 to $250K Assessed Bldg. Value)	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
	Pair Wise Score		50	35	64	38	47	45	42	40	38	26	29	37	23					
262	1S2110001600	203.4	3	5	5	3	5	5	4	4.5	2	3	5	5	5				2173	1
302	1N324DD00300	17.0	3	5	5	5	4	4	5	5	2	3	5	5	3				2152	2
530 / 531	1N3240001809 / 1N3240001806	11.8	3	5	5	5	3	4	4	4	2	3	5	5	3				2037	3
216 / 216A	1S302A000100 / 1S302A000101	40.7	2	4	3	5	5	4	5	4.5	2	3	5	5	5				2019	4
215	1S302A000401	7.1	4	4	3	5	4	4	4	3.5	2	3	5	5	5				2004	5
222	1S302A000800	21.5	4	4	3	5	5	4	4	2	2	3	5	5	5				1984	6
767	1N2190000500	17.1	3	5	4	5	4	4	4	3	2	3	5	5	2				1957	7
221	1S302A000402	24.6	4	4	3	5	4	4	4	2	2	3	5	5	5				1923	8
254	1S210DC00100	6.6	3	5	3	4	5	3	4	4	2	3	5	3	5				1906	9
128	1N2200004501	73.1	3	4	3	5	3	4	4	5	2	3	5	5	2				1905	10
125	1N220AB00500	8.2	3	4	3	5	3	4	4	5	2	3	5	5	2				1904.7	11
635	1S3010002800	9.7	3	2	3	4	4	4	4	3	4	3	5	5	5				1881	12
636	1S3010002700	17.0	3	2	3	4	4	4	4	3	4	3	5	5	5				1880.7	13
224	1S302A000900	18.8	4	4	3	4	5	4	3	1	2	3	5	5	5				1878	14
360	1N3360005400	8.2	1	4	3	5	5	3	4	3	4	3	5	5	3				1873	15
217	1S302B000802	2.7	4	4	3	5	4	4	3	1	2	3	5	5	5				1869	16
282	1S2140002600	198.6	3	5	3	3	5	5	3	1	2	3	5	5	5				1856	17
330	1N325DA00100	19.8	3	4	3	5	5	4	4	3	4	3	4	2	2				1854.7	18
329	1N325AD12800	19.9	3	4	3	5	5	4	4	3	4	3	4	2	2				1854.3	19
127	1N2200004500	106.1	3	4	3	5	3	4	4	4	2	3	5	5	2				1851	20
219	1S302B000501	37.0	4	4	3	5	5	4	4	1	2	3	2	5	5				1843	21
399	1S3010002500	5.5	4	4	3	5	2	3	3	3	4	3	4	4	5				1820	22
784	1S302D000100	57.7	4	4	3	4	4	4	3	1	2	3	5	5	5				1817	23

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential and Site Cost Criteria Eliminated. Assessed Bldg. Value = $250K Max.

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No. ($0 to $250K Assessed Bldg. Value)	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
220	1S302A000600	55.7	4	4	3	5	4	4	3	1	2	3	3	5	5				1811	**24**
210	1S303A000100	41.1	4	4	3	5	3	4	3	1	2	3	5	5	5				1808	**25**
102	1N2190000300	50.2	3	4	4	5	2	4	3	3	2	3	5	5	2				1800	**26**
106	1N2190000400	9.1	3	4	4	5	2	4	3	3	2	3	5	5	2				1799.7	**27**
103	1N2190000302	59.8	3	4	4	5	2	4	3	3	2	3	5	5	2				1799.3	**28**
104	1N2190000303	29.8	3	4	4	5	2	4	3	3	2	3	5	5	2				1799	**29**
105	1N2190000304	28.2	3	4	4	5	2	4	3	3	2	3	5	5	2				1799	**30**
769	1N2200004400	10.3	3	4	3	5	3	4	4	3	2	3	5	5	2				1797	**31**
619	1N235DB00600	11.3	3	1	3	5	4	4	4	2	4	3	4	4	5				1778	**32**
656	1S202BA00200	0.1	3	1	3	5	3	5	3	1	4	3	5	5	5				1774	**33**
654	1S202BA00100	2.8	3	1	3	5	3	5	3	1	4	3	5	5	5				1773.7	**34**
659	1S202BA00300	5.0	3	1	3	5	3	5	3	1	4	3	5	5	5				1773.4	**35**
657	1S202AB10800	1.2	3	1	3	5	3	5	3	1	4	3	5	5	5				1773.1	**36**
655	1S202AB10700	2.7	3	1	3	5	3	5	3	1	4	3	5	5	5				1772.8	**37**
658	1S202AB00200	8.0	3	1	3	5	3	5	3	1	4	3	5	5	5				1772.6	**38**
229	1S3010001301	35.8	4	4	3	4	4	4	3	1	2	3	3	5	5				1759	**39**
765	1N2190000501	6.6	3	5	4	4	2	4	3	2	2	3	5	5	3				1752	**40**
651	1S203CB12500	6.8	3	1	3	5	5	3	4	3	4	3	4	2	4				1751	**41**
139	1N3240000400	109.1	3	4	3	3	4	4	4	4	2	3	4	4	2				1742	**42**
218	1S302B000600	16.6	3	4	3	5	5	4	3	0	2	3	2	5	5				1739	**43**
321	1N2280001551	12.2	3	1	3	5	2	5	3	3	4	3	5	5	1				1729	**44**
320	1N228BB00400	6.5	3	1	3	5	2	5	3	3	4	3	5	5	1				1728.7	**45**
101	Site 15	91.2	3	4	3	4	3	3	4	4	2	3	5	4	2				1717	**46**
140	1N3240000802	19.7	3	4	3	4	3	3	4	4	2	3	5	4	2				1716.7	**47**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential and Site Cost Criteria Eliminated. Assessed Bldg. Value = $250K Max.

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No. ($0 to $250K Assessed Bldg. Value)	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
683	1S210DC00300	5.0	4	5	3	5	3	3	3	2	2	3	4	2	5				1712	**48**
332	1N230BA01000	15.3	3	5	3	4	4	4	3	1	4	3	4	3	2				1706	**49**
488	1N2210002600	42.1	3	1	3	5	3	5	3	1	4	3	5	5	2				1705	**50**
490	1N2210002700	39.5	3	1	3	5	3	5	3	1	4	3	5	5	2				1704.7	**51**
223	1S302B001300	14.6	4	4	3	4	3	4	2	0	2	3	5	5	5				1702	**52**
187	1N335C000201	5.3	2	4	3	4	4	4	4	4	2	3	2	4	2				1686	**53**
529	1N3240001805	5.0	3	1	3	5	2	4	4	4	2	3	5	5	2				1685	**54**
168	1N228BB00300	9.4	3	1	3	5	2	4	3	3	4	3	5	5	1				1684	**55**
172	1N325C000200	88.3	4	4	3	5	5	4	3	0	2	3	2	4	2				1683	**56**
171	1N325B000100	25.6	3	4	3	5	5	3	3	0	4	3	2	4	2				1664	**57**
35	1N2170000812	9.2	3	4	3	2	5	3	4	4	2	3	2	4	2				1648	**58**
186	1N335C000100	23.7	2	4	3	4	4	3	4	4	2	3	2	4	2				1641	**59**
253	1S210CB00700	10.3	4	5	3	5	2	3	3	1	2	3	5	3	4				1640	**60**
252	1S210BC14100	6.3	3	1	3	5	2	4	3	3	4	3	1	5	4				1637	**61**
188	1N335C000200	7.6	2	4	3	4	4	4	4	3	2	3	2	4	2				1632	**62**
195	1N336AB08203	7.0	2	4	3	3	5	2	4	5	2	3	2	3	2				1622	**63**
323	1N228BC00300	9.8	3	1	3	5	2	5	3	1	4	3	5	5	1				1621	**64**
189	1N335C000400	17.8	3	4	3	4	3	2	3	3	2	3	5	4	2				1618	**65**
785	1S209AB02100	5.9	3	4	3	2	3	3	3	4	4	3	5	2	2				1615	**66**
572	1N335C000600	3.9	3	1	3	5	2	4	4	4	2	3	5	3	2				1611	**67**
341	1N229CA00100	8.6	3	1	3	5	2	5	3	2	4	3	5	3	1				1601	**68**
440	1S209DB06800	11.2	2	1	3	5	5	2	4	2	2	3	5	3	4				1592	**69**
259	1S209CA00100	10.9	3	1	3	5	4	3	4	2	2	3	5	2	4				1589	**70**
780	1N235DB00400	6.1	3	3	2	2	5	3	3	1	5	3	5	4	2				1588	**71**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential and Site Cost Criteria Eliminated. Assessed Bldg. Value = $250K Max.

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No. ($0 to $250K Assessed Bldg. Value)	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank	
771	1N325C000400	56.7	3	5	3	3	4	3	3	1	2	3	3	5	2				1578	**72**	
576	1N3360002100	0.2	2	1	3	3	5	3	3	2	4	3	5	3	2				1563	**73**	
674	1S210CB01200	5.0	3	4	3	5	2	3	3	1	2	3	5	3	4				1555	**74**	
675	1S210CB01300	5.0	3	4	3	5	2	3	3	1	2	3	5	3	4				1554.7	**75**	
116	1N2210001504	25.0	3	5	3	2	4	3	2	1	2	3	4	4	2				1518	**76**	
146	1N3230000200	107.3	3	4	3	2	4	4	2	1	2	3	2	5	2				1507	**77**	
203	1N234DA02400	6.1	3	1	3	1	5	4	2	1	4	3	5	3	1				1477	**78**	
69	1N2150000990	16.3	3	5	3	1	3	3	2	1	2	3	4	4	2				1405	**79**	
114	1N2210001602	20.1	3	3	3	1	4	3	2	1	2	3	4	4	2				1396	**80**	
115	1N2210001600	29.1	3	3	3	1	4	3	2	1	2	3	4	4	2				1395.7	**81**	
70	1N2150000300	29.2	3	4	1	1	5	3	2	1	2	3	5	4	2				1393	**82**	
61	1N2160000100	51.5	3	4	1	1	5	4	2	1	2	3	3	4	2				1380	**83**	
179	1N226AA00100	5.2	1	1	3	5	1	1	2	1	4	3	5	5	5				1372	**84**	
67	1N2160000700	40.0	3	1	3	2	3	3	2	2	2	3	4	4	2				1371	**85**	
763	1N2090001201	15.3	3	4	1	1	5	3	2	1	2	3	4	4	2				1364	**86**	
74	1N2150000600	51.2	3	4	1	1	5	3	2	1	2	3	3	4	2				1335	**87**	
62	1N2160000102	49.7	3	4	1	1	3	3	2	1	2	3	3	4	2				1213	**88**	
415	1S203B000705	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	**89**	Site 415 too narrow - CAN'T USE.
532	1N219CC00500	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	**90**	Site 532 too narrow, CAN'T USE.
726	1N230CD00800	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0				0	**91**	Site 726 too narrow - CAN'T USE
764	1N2170000802	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0				0	**92**	Site 702 too narrow - CAN'T USE

ATTACHMENT C

Revised Criteria Score and Ranking Matrix of Sites—Assessed Bldg. Value Threshold Eliminated

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
	Pair Wise Score		50	35	64	38	47	45	42	40	38	26	29	37	23	~~32~~				
262	1S2110001600	203.36	3	5	5	3	5	5	4	4	2	3	5	5	5				2146	**1**
302	1N324DD00300	17.00	3	5	5	5	4	4	5	5	2	3	5	5	3				2145.9	**2**
849	Multipe Lots	G.T. 6.0	3	5	5	5	5	4	5	4	2	3	5	2	3				2048	**3**
802	Multipe Lots	G.T. 6.0	4	4	5	5	3	4	4	5	2	3	5	2	5				2041	**4**
530 / 531	1N3240001809 / 1N3240001806	11.75	3	5	5	5	3	4	4	4	2	3	5	5	3				2037	**5**
758	1S210DB00100	6.07	3	5	5	4	4	3	5	4	4	3	5	2	5				2033	**6**
216 / 216A	1S302A000100 / 1S302A000101	40.65	2	4	3	5	5	4	5	5	2	3	5	5	5				2019	**7**
215	1S302A000401	7.13	4	4	3	5	4	4	4	4	2	3	5	5	5				2004	**8**
755	1S210AC03700	14.71	3	5	5	4	3	3	5	4	4	3	5	2	5				1986	**9**
810	Multipe Lots	G.T. 6.0	4	4	4	4	4	4	4	4	4	3	5	2	4				1985	**10**
222	1S302A000800	21.45	4	4	3	5	5	4	4	2	2	3	5	5	5				1984	**11**
824	Multipe Lots	G.T. 6.0	3	5	5	5	2	3	4	4	4	3	5	3	4				1956	**12**
806	Multipe Lots	G.T. 6.0	4	4	4	5	3	4	4	3	4	3	5	2	5				1945	**13**
743	1S301BB00100	6.95	4	4	3	5	4	4	4	3	4	3	5	2	5				1942	**14**
803	Multipe Lots	G.T. 6.0	4	4	3	5	4	4	4	3	4	3	5	2	5				1941.6	**15**
848	Multipe Lots	G.T. 6.0	3	5	4	4	5	4	4	4	2	3	5	2	3				1932	**16**
801	Multipe Lots	G.T. 6.0	4	4	3	5	5	4	4	3	2	3	5	2	5				1927	**17**
221	1S302A000402	24.62	4	4	3	5	4	4	4	2	2	3	5	5	5				1923	**18**
742	1S302B000400	5.57	4	4	3	5	3	4	4	3	2	3	5	5	5				1916	**19**
128	1N2200004501	73.07	3	4	3	5	3	4	4	5	2	3	5	5	2				1905	**20**
125	1N220AB00500	8.19	3	4	3	5	3	4	4	5	2	3	5	5	2				1905	**21**
767	1N2190000500	17.1	3	5	4	5	3	4	4	3	2	3	5	5	2				1896	**22**
636	1S3010002700	17.03	3	4	3	4	3	4	3	3	4	3	5	5	5				1890	**23**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
804	Multipe Lots	G.T. 6.0	4	4	3	4	4	4	4	3	4	3	5	2	5				1889.6	**24**
654	1S202BA00100	0.13	3	1	3	5	4	5	4	2	4	3	5	5	5				1889	**25**
805	Multipe Lots	G.T. 6.0	4	4	4	5	2	4	3	3	4	3	5	2	5				1884	**26**
744	1S301BA00600	6.55	4	4	3	5	3	4	4	3	4	3	5	2	5				1881	**27**
224	1S302A000900	18.8	4	4	3	4	5	4	3	1	2	3	5	5	5				1878	**28**
821	Multipe Lots	G.T. 6.0	3	5	5	5	1	3	4	5	4	3	5	1	4				1875	**29**
820	Multipe Lots	G.T. 6.0	3	5	5	5	1	3	4	5	4	3	5	1	4				1873	**30**
360	1N3360005400	8.2	1	4	3	5	5	3	4	3	4	3	5	5	3				1873	**31**
217	1S302B000802	2.71	4	4	3	5	4	4	3	1	2	3	5	5	5				1869	**32**
738	1N334DC04600	8.44	3	4	4	5	2	3	3	3	4	3	5	4	5				1863	**33**
769	1N2200004400	10.3	3	4	4	5	3	4	4	3	2	3	5	5	2				1860.7	**34**
399	1S3010002500	5.45	4	4	3	4	3	3	3	3	4	3	5	4	5				1858	**35**
819	Multipe Lots	G.T. 6.0	3	5	5	5	1	3	3	4	4	3	5	2	4				1857.6	**36**
747	1S3010001000	14.77	4	4	3	5	2	4	3	3	4	3	5	3	5				1857	**37**
282	1S2140002600	198.63	3	5	3	3	5	5	3	1	2	3	5	5	5				1856	**38**
330	1N325DA00100	19.82	3	4	3	5	5	4	4	3	4	3	4	2	2				1855	**39**
329	1N325AD12800	19.92	3	4	3	5	5	4	4	3	4	3	4	2	2				1854	**40**
127	1N2200004500	106.05	3	4	3	5	3	4	4	4	2	3	5	5	2				1851	**41**
800	Multipe Lots	G.T. 6.0	3	4	4	5	3	3	4	3	4	3	5	2	5				1850	**42**
219	1S302B000501	36.95	4	4	3	5	5	4	4	1	2	3	2	5	5				1843	**43**
635	1S3010002800	9.71	3	4	3	4	2	4	3	3	4	3	5	5	5				1828	**44**
822	Multipe Lots	G.T. 6.0	3	5	5	5	1	3	3	4	4	3	5	1	4				1821	**45**
746	1S301AB01300	5.88	4	4	3	5	2	4	3	3	4	3	5	2	5				1820	**46**
220	1S302A000600	55.71	4	4	3	5	4	4	3	1	2	3	3	5	5				1811	**47**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
210	1S303A000100	41.09	4	4	3	5	3	4	3	1	2	3	5	5	5				1808	**48**
748	1S3010000903	10.33	4	4	3	4	2	4	3	3	4	3	5	3	5				1802	**49**
102	1N2190000300	50.2	3	4	4	5	2	4	3	3	2	3	5	5	2				1800	**50**
106	1N2190000400	9.09	3	4	4	5	2	4	3	3	2	3	5	5	2				1800	**51**
103	1N2190000302	59.81	3	4	4	5	2	4	3	3	2	3	5	5	2				1799	**52**
104	1N2190000303	29.81	3	4	4	5	2	4	3	3	2	3	5	5	2				1799	**53**
655	1S202AB10700	2.66	3	1	3	5	4	3	4	2	4	3	5	5	5				1799	**54**
105	1N2190000304	28.15	3	4	4	5	2	4	3	3	2	3	5	5	2				1799	**55**
784	1S302D000100	57.7	4	4	3	3	4	4	3	2	2	3	5	5	4				1796	**56**
656	1S202BA00200	0.09	3	1	3	5	3	5	3	1	4	3	5	5	5				1774	**57**
657	1S202AB10800	1.19	3	1	3	5	3	5	3	1	4	3	5	5	5				1774	**58**
658	1S202AB00200	8.01	3	1	3	5	3	5	3	1	4	3	5	5	5				1773	**59**
659	1S202BA00300	4.98	3	1	3	5	3	5	3	1	4	3	5	5	5				1773	**60**
229	1S3010001301	35.79	4	4	3	4	4	4	3	1	2	3	3	5	5				1759	**61**
749	1S3010000901	6.86	4	4	3	3	2	4	3	3	4	3	5	3	5				1752	**62**
651	1S203CB12500	6.79	3	1	3	5	5	3	4	3	4	3	4	2	4				1751	**63**
734	1N334DC04400	6.46	3	4	3	4	2	3	3	3	4	3	5	4	5				1747	**64**
139	1N3240000400	109.14	3	4	3	3	4	4	4	4	2	3	4	4	2				1742	**65**
811	Multipe Lots	G.T. 6.0	3	4	3	5	5	3	4	2	4	3	4	1	3				1741.6	**66**
218	1S302B000600	16.62	3	4	3	5	5	4	3	0	2	3	2	5	5				1739	**67**
172	1N325C000200	88.27	4	4	3	4	5	4	4	2	2	3	2	4	2				1739	**68**
321	1N2280001551	12.15	3	1	3	5	2	5	3	3	4	3	5	5	1				1729	**69**
320	1N228BB00400	6.54	3	1	3	5	2	5	3	3	4	3	5	5	1				1729	**70**
807	Multipe Lots	G.T. 6.0	3	4	3	3	3	4	3	3	4	3	5	2	5				1727	**71**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
101	Site 15	91.18	3	4	3	4	3	3	4	4	2	3	5	4	2				1717	**72**
683	1S210DC00300	5	4	5	3	5	3	3	3	2	2	3	4	2	5				1712	**73**
332	1N230BA01000	15.28	3	5	3	4	4	4	3	1	4	3	4	3	2				1706	**74**
223	1S302B001300	14.62	4	4	3	4	3	4	2	0	2	3	5	5	5				1702	**75**
765	1N2190000501	6.6	3	5	3	4	3	3	3	3	2	3	4	4	3				1692	**76**
187	1N335C000201	5.29	2	4	3	4	4	4	4	4	2	3	2	4	2				1686	**77**
168	1N228BB00300	9.38	3	1	3	5	2	4	3	3	4	3	5	5	1				1684	**78**
808	Multipe Lots	G.T. 6.0	3	4	3	3	2	4	3	3	4	3	5	2	5				1666	**79**
35	1N2170000812	9.24	3	4	3	2	5	3	4	4	2	3	2	4	2				1648	**80**
186	1N335C000100	23.73	2	4	3	4	4	3	4	4	2	3	2	4	2				1641	**81**
253	1S210CB00700	10.32	4	5	3	5	2	3	3	1	2	3	5	3	4				1640	**82**
252	1S210BC14100	6.3	3	1	3	5	2	4	3	3	4	3	1	5	4				1637	**83**
188	1N335C000200	7.64	2	4	3	4	4	4	4	3	2	3	2	4	2				1632	**84**
323	1N228BC00300	9.83	3	1	3	5	2	5	3	1	4	3	5	5	1				1621	**85**
189	1N335C000400	17.83	3	4	3	4	3	2	3	3	2	3	5	4	2				1618	**86**
785	1S209AB02100	5.9	3	4	3	2	3	3	3	4	4	3	5	2	2				1615	**87**
572	1N335C000600	3.89	3	1	3	5	2	4	4	4	2	3	5	3	2				1611	**88**
809	Multipe Lots	G.T. 6.0	3	4	3	3	1	4	2	3	4	3	5	2	5				1605	**89**
341	1N229CA00100	8.59	3	1	3	5	2	5	3	2	4	3	5	3	1				1601	**90**
440	1S209DB06800	11.19	2	1	3	5	5	2	4	2	2	3	5	3	4				1592	**91**
259	1S209CA00100	10.87	3	1	3	5	4	3	4	2	2	3	5	2	4				1589	**92**
619	1N235DB00600	11.33	3	3	3	1	4	4	2	1	4	3	5	3	4				1555	**93**
674	1S210CB01200	5	3	4	3	5	2	3	3	1	2	3	5	3	4				1554.8	**94**
833	Multipe Lots	G.T. 6.0	3	3	3	1	4	4	2	1	4	3	5	3	4				1554.5	**95**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
675	1S210CB01300	5	3	4	3	5	2	3	3	1	2	3	5	3	4				1554	**96**
842	Multipe Lots	G.T. 6.0	3	3	3	5	4	2	3	1	4	3	5	1	2				1553	**97**
140	1N3240000802	19.69	3	4	3	4	3	3	3	1	2	3	4	4	3				1549	**98**
847	Multipe Lots	G.T. 6.0	3	1	3	5	4	2	3	1	4	3	5	3	1				1534	**99**
116	1N2210001504	25	3	5	3	2	4	3	2	1	2	3	4	4	2				1518	**100**
816	Multipe Lots	G.T. 6.0	3	4	3	1	3	3	2	3	4	3	5	2	2				1509	**101**
771	1N325C000400	56.7	4	4	2	3	4	4	3	1	2	3	2	4	2				1508	**102**
146	1N3230000200	107.31	3	4	3	2	4	4	2	1	2	3	2	5	2				1507	**103**
838	Multipe Lots	G.T. 6.0	3	1	3	5	4	2	3	1	4	3	5	2	1				1497	**104**
834	Multipe Lots	G.T. 6.0	3	1	2	4	5	3	3	1	4	3	5	2	1				1487	**105**
837	Multipe Lots	G.T. 6.0	3	1	3	5	3	3	3	1	4	3	5	2	1				1481	**106**
203	1N234DA02400	6.07	3	1	3	1	5	4	2	1	4	3	5	3	1				1477	**107**
850	Multipe Lots	G.T. 6.0	3	3	3	2	5	3	3	1	2	3	4	3	2				1472	**108**
851	Multipe Lots	G.T. 6.0	3	3	3	2	5	3	3	1	2	3	4	3	2				1471.8	**109**
179	1N226AA00100	5.19	3	1	3	1	5	3	2	1	4	3	4	4	2				1463	**110**
856	Multipe Lots	G.T. 6.0	3	1	3	1	5	3	2	1	4	3	4	4	2				1462.8	**111**
701	1N2170001800	7.25	3	3	3	1	5	3	2	1	2	3	4	4	2				1457	**112**
700	1N2160000800	15.10	3	3	3	1	5	3	2	1	2	3	4	4	2				1456	**113**
841	Multipe Lots	G.T. 6.0	3	3	2	4	4	2	3	1	4	3	5	1	2				1437	**114**
839	Multipe Lots	G.T. 6.0	3	3	2	2	5	2	3	1	4	3	5	2	2				1431	**115**
752	1S202BC00800	6.27	3	4	1	1	5	3	2	1	4	3	5	2	3				1418	**116**
852	Multipe Lots	G.T. 6.0	3	2	3	5	1	3	2	1	4	3	5	2	2				1416	**117**
832	Multipe Lots	G.T. 6.0	3	3	1	2	5	3	3	1	4	3	5	2	2				1412	**118**
780	1N235DB00400	6.1	3	3	1	2	5	3	3	1	4	3	5	2	2				1411.8	**119**
763	1N2090001201	15.3	3	4	1	1	5	4	2	1	2	3	4	4	2				1409	**120**
69	1N2150000990	16.28	3	5	3	1	3	3	2	1	2	3	4	4	2				1405	**121**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank
114	1N2210001602	20.06	3	3	3	1	4	3	2	1	2	3	4	4	2				1396	**122**
115	1N2210001600	29.06	3	3	3	1	4	3	2	1	2	3	4	4	2				1396	**123**
725	1N3360002800	17.62	2	4	2	2	5	3	3	1	2	3	2	4	3				1395	**124**
70	1N2150000300	29.21	3	4	1	1	5	3	2	1	2	3	5	4	2				1393	**125**
836	Multipe Lots	G.T. 6.0	3	1	2	3	5	2	3	1	4	3	5	2	1				1390	**126**
853	Multipe Lots	G.T. 6.0	3	2	2	1	5	3	2	1	4	3	5	2	2				1389	**127**
828	Multipe Lots	G.T. 6.0	3	4	1	1	5	3	2	1	4	3	5	1	3				1381	**128**
61	1N2160000100	51.48	3	4	1	1	5	4	2	1	2	3	3	4	2				1380	**129**
67	1N2160000700	39.98	3	1	3	2	3	3	2	2	2	3	4	4	2				1371	**130**
722	1N226CD00500	7.28	2	2	3	5	1	3	2	1	4	3	5	2	2				1367	**131**
723	1N226CC09900	9.26	2	2	3	5	1	3	2	1	4	3	5	2	2				1366	**132**
724	1N226CD00400	9.45	2	2	3	5	1	3	2	1	4	3	5	2	2				1366	**133**
719	1N229DA00200	8.01	3	1	3	5	1	3	2	1	4	3	5	2	1				1359	**134**
727	1N2320002700	11.76	3	1	3	5	1	3	2	1	4	3	5	2	1				1358.5	**135**
753	1S202CA13900	11.29	3	4	1	1	4	3	2	1	4	3	5	2	3				1357	**136**
812	Multipe Lots	G.T. 6.0	3	4	1	1	5	3	2	1	4	3	4	1	3				1352	**137**
751	1S202AD00301	8.24	3	4	1	1	5	3	2	1	2	3	5	2	3				1342	**138**
825	Multipe Lots	G.T. 6.0	3	5	1	1	3	3	2	1	4	3	5	1	5				1340	**139**
74	1N2150000600	51.2	3	4	1	1	5	3	2	1	2	3	3	4	2				1335	**140**
732	1N2350003400	54.46	3	2	1	1	5	3	2	1	4	3	5	2	2				1325	**141**
730	1N235AD00101	13.39	3	2	1	1	5	3	2	1	4	3	5	2	2				1324	**142**
826	Multipe Lots	G.T. 6.0	3	5	1	1	4	3	2	1	2	3	5	2	3				1316	**143**
740	1N235DC00101	17.89	3	3	1	1	5	3	2	1	2	3	5	2	2				1284	**144**
827	Multipe Lots	G.T. 6.0	3	4	1	1	5	2	2	1	2	3	4	2	3				1268	**145**
854	Multipe Lots	G.T. 6.0	3	2	2	2	2	3	2	1	4	3	5	2	2				1258	**146**
735	1N235DA00700	24.72	3	2	1	2	3	3	2	1	4	3	5	2	2				1255	**147**

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank	
814	Multipe Lots	G.T. 6.0	3	4	1	1	5	3	2	1	2	3	4	1	2				1253	**148**	
831	Multipe Lots	G.T. 6.0	3	3	1	1	5	3	2	1	2	3	5	1	2				1247	**149**	
715	1N226AC00301	8.92	2	2	2	1	3	3	2	1	4	3	5	2	2				1217	**150**	
720	1N226DB00300	9.92	2	2	2	1	3	3	2	1	4	3	5	2	2				1216	**151**	
710	1N226AD00600	5.29	2	2	2	1	3	3	2	1	4	3	5	2	2				1216	**152**	
62	1N2160000102	49.71	3	4	1	1	3	3	2	1	2	3	3	4	2				1213	**153**	
708	1N226AB00600	5.91	2	2	2	1	2	3	1	1	4	3	5	2	2				1156	**154**	
712	1N226AC00100	5.08	2	2	2	1	2	3	1	1	4	3	5	2	2				1155	**155**	
711	1N226AC00500	7.15	2	2	2	1	2	3	1	1	4	3	5	2	2				1155	**156**	
813	Multipe Lots	G.T. 6.0	3	3	1	1	2	3	1	1	4	3	3	1	2				1082	**157**	
844	Multipe Lots	G.T. 6.0	3	1	1	1	1	2	1	1	4	3	5	1	1				941	**158**	
845	Multipe Lots	G.T. 6.0	3	1	1	1	1	2	1	1	4	3	5	1	1				940.8	**159**	
846	Multipe Lots	G.T. 6.0	3	1	1	1	1	2	1	1	4	3	5	1	1				940.5	**160**	
254	1S210DC00100	6.57	0	0	0	0	0	0	0	0	0	0	0	0	9E-04				0	**161**	Site 254 too narrow, not usable.
415	1S203B000705	5.01	0	0	0	0	0	0	0	0	0	0	0	0	8E-04				0	**162**	Site 415 too narrow, not usable.
532	1N219CC00500	5.04	0	0	0	0	0	0	0	0	0	0	0	0	7E-04				0	**163**	Site 532 too narrow, not usable (made part of multiple lots 849)
703	1N2190000703	5.15	0	0	0	0	0	0	0	0	0	0	0	0	6E-04				0	**164**	Site 703 configuration not usable.
713	1N229DA00500	6.68	0	0	0	0	0	0	0	0	0	0	0	0	4E-04				0	**165**	Site 713 configuration not usable.
716	1N229DB00500	6.25	0	0	0	0	0	0	0	0	0	0	0	0	3E-04				0	**166**	Site 716 too narrow, not usable.
726	1N230CD00800	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	**168**	Site 726 too narrow - CAN'T USE

Hillsboro Reservoir Siting Study
Revised Site Ranking - Multi-Use Potential, Site Cost, and Assessed Bldg. Value Criteria Eliminated

Score Definition: 5 = very favorable; 4 = favorable; 3 = neutral; 2 = less desirable; 1 = undesirable

Map ID No.	Tax Lot No.	Parcel Size (ac.)	Geotech	Serves Growth Potential	Water Quality	Distance to Distribution Pipes	Distance to Drainage	Environmental Impacts	Total Capital Costs (Const. & Site)	Distance to Transmission Pipeline	Zoning / Planning Factors	Utilization of Non-Conforming/Nuisance Sites	Accessible Site	Short Term Impacts to Community/Neighbors	Partnerships	~~Multi-Use Potential~~	~~Price Per Acre~~	~~Site Cost Score~~	Total Score	Rank	
728	1N3360003000	11.14	0	0	0	0	0	0	0	0	0	0	0	0	3E-04				0	**167**	Site 728 too narrow, not usable.
750	1S3010001501	5.90	0	0	0	0	0	0	0	0	0	0	0	0	2E-04				0	**168**	Site 750 too narrow, not usable (part of multiple lot 807)
754	1S209BA00401	5.07	0	0	0	0	0	0	0	0	0	0	0	0	1E-04				0	**170**	Site 754 too narrow, not usable.
764	1N2170000802	5.5	0	0	0	0	0	0	0	0	0	0	0	0	9E-05				0	**171**	Site 764 too narrow, not usable.
768	1N3240000804	5.2	0	0	0	0	0	0	0	0	0	0	0	0	8E-05				0	**172**	Site 768 too narrow, not usable.
775	1N235BC09100	5.1	0	0	0	0	0	0	0	0	0	0	0	0	7E-05				0	**173**	Site 775 configuration not usable.
823	Multipe Lots	G.T. 6.0	0	0	0	0	0	0	0	0	0	0	0	0	6E-05				0	**174**	Site 823 configuration not usable.
835	Multipe Lots	G.T. 6.0	0	0	0	0	0	0	0	0	0	0	0	0	5E-05				0	**175**	Site 835 configuration not usable.

Exhibit 7-1
(oversize in sleeve)

Expanded Future
Service Area of
Existing Reservoirs

0.92
ACRES

11.23
ACRES

Sunset Hwy

Shute Sunset Ramp

Cornelius Pass Road Ramp

Glencoe Rd

1st Ave

10th Ave

Cornelius Pass Rd

Amberwood Dr

Cornell Rd

Adair St

Baseline Rd

Baseline St

Oak St

Hillsboro Hwy

Tualatin Valley Hwy

River Rd

Exhibit 7-1
Potential Reservoir Sites

LEGEND

- Study Area
- Portion of Taxlot Selected for Site
- Tax Lots (>= 5 Acres & Bldg Value <= $100,000)
- Tax Lots (>= 5 Acres & Bldg Value > $100,000)
- Tax Lots - Adjoining (>0.75 Acres and < 6 Acres & Bldg Value > $100,000)
- Tax Lots Hydraulically Constrained
- Tax Lots in Earthquake Zone
- Tax Lots in Floodplain
- JWC Transmission Pipelines
- Water Mains 18" or Greater
- Expanded Future Service Area of Existing Reservoirs
- Approximate Region Served by Existing Reservoirs
- PRVs
- Reservoirs
- City Limits
- Rivers and Streams
- Lakes and Ponds
- Floodplain - 100 Year
- Floodplain - 500 Year
- UGB

N

0 1,000 2,000
Feet

CH2MHILL

File Path: \\oaksrvgis\hillsboro\355740\ResSting\Study\GIS\MapFiles\20090929\PotentialReservoirSites_090204.mxd, Date: February 4, 2009 1:07:38 PM