Parsons Brinckerhoff

400 SW Sixth Avenue
Suite 802
Portland, OR 97204-1628
503-274-8772
Fax: 503-274-1412

July 7, 2010

Peter Spir, Associate Planner
West Linn Planning Department
22500 Salamo Road
West Linn, OR 97068

RE: CUP-10-03 New West Linn Primary School

Dear Peter,

In response to your June 10th letter indicating the above Conditional Use application was incomplete, we made the requested changes. With the exception of the public meeting notices, minutes, and recordings, a fully revised application is provided. I have attached:

- An application form with the necessary signatures;
- Four sets of the revised narrative, revised plan sheets and reduced 11X17-inch versions of the revised plan sheets;
- Four copies of the revised supporting materials and reports; and
- A CD of the entire application including the neighborhood meeting notices and minutes.

The information related to the Community Development Code sections and engineering comments in your letter have been addressed in the following manner:

Planning Issues

32.040(E)(F) Relocated east drainageway must be designed by an engineer.

Response: It has been designed by a civil engineer, and supplemental information is provided in Appendix E of the *Preliminary Stormwater Management Report for New West Linn Primary School*, by Winzler & Kelly.

32.040(H) Provide mitigation plan for relocated east drainageway per 32.070 and 32.080.

Response: The mitigation plan is summarized in a memo from Walker Macy – "New West Linn Primary School-Mitigation Plan." This memo, plus the materials contained in this submittal address all of the relevant CDC criteria.

32.050(A) Wetland consultant shall provide field test data for assessment area E below 12" storm outfall originating at Cheyenne Terrace.

Response: This is provided in a memo from Winzler & Kelly – "assessment Area E Water Resource Area."

32.060(B)(2) Provide slope map showing areas with slopes over 25%.

Response: This is provided on Sheet LU2.01.

60.060(A)(7) Discuss how project relates to the Comprehensive Plan's goals, policies and action measures in the Public Facilities and Services section 7: Schools.

Response: This is included in the application narrative.

32.070(A)(1-3) Provide specific discussion or reference pages in Winzler and Kelly report where information can be found to address this criterion.

Response: This is provided in the memo from Walker Macy – "New West Linn Primary School-Mitigation Plan."

32.070(B)(C) Provide specific details regarding on or off site mitigation for wetland crossings and relocation of east drainageway.

Response: This is provided in the memo from Walker Macy – "New West Linn Primary School-Mitigation Plan" and the plan sheets/supplemental information referenced in the memo.

60.080(B)(5)(a) Show outline of homes and structures on adjacent properties.

Response: This is shown on Sheet LU1.00.

75.060(1)(4) Explain why a 95 foot wide curb cut is the minimum needed in the context of access driveways to other schools in West Linn. Staff is concerned that wider curb cuts encourage higher speed turn movements which in turn create hazard conditions for student and non-student pedestrians and bicyclists.

Response: This is provided in the application narrative.

75.060(6) Shifting east drainageway further east will reduce buffer for homes on east side of school site.

Response: The intent of the variance request to allow a 15-foot buffer in lieu of a 65-foot buffer is that it would apply to both sides of this drainageway/water resource area. The 15-foot buffer on either side of the relocated drainageway is located within the school district property. This 30-foot wide area will be heavily planted as shown on Sheet LU2.05, creating an appropriate environmental buffer for the water resource as well as a visual buffer for the residences to the east. The distance between the proposed school building and the existing homes to the east will be over 250 feet.

55.100(B)(2)(b) What percentage of site is set aside for tree protection?

Response: This information is provided on Sheets LU2.01, LU2.04, and LU2.05.

55.100(B)(2)(i) Architectural standards do apply to public facilities. Staff recognizes schools special functional requirements but that does not waive need to accommodate safe pedestrian and bicycle access and circulation.

Response: This criterion is addressed in the application narrative, and all sidewalks will meet or exceed 4 feet in width.

55.110(B)(3) Provide slope breakdown per code.

Response: This is provided on Sheet LU2.01.

55.110(B)(13) Provide Type I and II lands map and table.

Response: This is provided on Sheet LU2.01.

55.130C)( ) Provide engineer's report regarding run off, detention and treatment.

Response: This is provided in the *Preliminary Stormwater Management Report for New West Linn Primary School*, by Winzler & Kelly.

Other Chapter 55 table requires bicycle parking at 2 per classroom. There are 25 classrooms so 50 spaces are required.

Response: The district has confirmed with city staff that there will be 23 classrooms and 1 special education room for a total of 24 classrooms. 48 bicycle parking spaces are shown on Sheet LU2.03.

Provide evidence of easement allowing south access driveway encroachment onto property to south (tax lot 5500 of assessor's map 21E26AC).

Response: A copy of the recorded easement is now available and included with the application.

Owner or authorized representative of property tax lot 5500 of assessor's map 21E26AC must sign application form.

Response: A new application form is included with the necessary signatures.

Arborist shall tour site with Michael Perkins City Arborist to identify, delineate and map significant trees.

Response: This has been completed, and a report from Teragan & Associates, Inc. provides this information.

Engineering Department

Provide and show access and utility easements for the existing public water line and sanitary sewer line.

Response: The existing sanitary sewer line and easement, which are to be abandoned, and the proposed sanitary sewer line and easement are shown. As discussed with city staff, the play area will be hard surfaced and available for sanitary sewer line access.

DKS Traffic Report

Page 4 – Correct this statement: "The City of West Linn requires level of service D or better for all facilities except principal arterial".

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Page 4 – Table 2 – Correct or justify why PM Peak for All-Way Stop at Rosemont/Salamo Intersection LOS is at C instead of D as indicated in TSP.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 and Rosemont Road-Salamo Road Intersection Traffic Operations memorandum by DKS.

Page 5 – Table 3 – Address same issue as the above comment.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 and Rosemont Road-Salamo Road Intersection Traffic Operations memorandum by DKS.

Page 6 – Add the phrase indicating "road rock base section improvement" under Frontage Improvements Section.

Response: This is shown on Sheet LU1.01

Page 6 – Since both of the proposed driveway width is larger than what the City allows. Provide justification and mitigation as needed.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Page 6 – Add section for Signage Improvement address the reduction of speed around the school site and advance warning signs.

Response: This is provided in a memo from DKS – "New West Linn Primary School Roadway Signing Analysis and Plans."

Page 11 – Correct this statement: "The City of West Linn requires level of service D or better for all facilities except principal arterial".

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Page 11 – Table 5 – Correct or justify why PM Peak for All-Way Stop at Rosemont/Salamo Intersection LOS is at C instead of D as indicated in TSP.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 and Rosemont Road-Salamo Road Intersection Traffic Operations memorandum by DKS.

Page 11 – Discuss why there are more collisions at the intersection of Rosemont and Hidden Springs. Are there any recommendations for improvement at this intersection to reduce the number of collision?

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Page 14 – Although the trip generation for school calculation is based on the number of students, add a statement addressing the trips generated by the 50 faculty staff.

Response: The estimated traffic includes all vehicle trips, including deliveries, staff, buses, and parents in the original and revised *New West Linn Primary School Transportation Impact Study*.

Page 14 – Since both Erickson School and Rosemont Ridge Middle School will have the same hours of operation; add a table showing School Bus Trips generated by Rosemont Ridge Middle School. Address the queuing issue at the intersection of Rosemont and Salamo.

Response: The schools do not operate on the same schedule as explained in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Figure 4 and Figure 5 – Add Bus Trips generated from Rosemont Ridge Middle School into the analysis for AM and Mid Day at intersections that are affected.

Response: This is included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 by DKS.

Page 19 – Table 10 - Correct or justify why PM Peak for All-Way Stop at Rosemont/Salamo Intersection LOS is at C instead of D as indicated in TSP.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 and Rosemont Road-Salamo Road Intersection Traffic Operations memorandum by DKS.

Page 20 – Explain whether new trips generated from the School will trigger the warrant of the signal at the intersection of Rosemont and Salamo.

Response: Included in the revised *New West Linn Primary School Transportation Impact Study*, June 2010 and Rosemont Road-Salamo Road Intersection Traffic Operations memorandum by DKS.

Page 21 – Add Signage Analysis and Recommendations.

Response: This is provided in a memo from DKS – "New West Linn Primary School Roadway Signing Analysis and Plans."

Address speed zone between Erickson School and Rosemont Ridge Middle School. Address congestion issue may occur when speed is being reduced and provide recommendations.

Response: This is provided in a memo from DKS – "New West Linn Primary School Roadway Signing Analysis and Plans."

Street Improvements

Provide off-site improvement plan. Highlight the improvement area. Correct the roadway section indicating rock base improvement in accordance with arterial sub-grade and leveling course street section.

Response: This is shown on Sheet LU1.01

Sidewalk shall be 8' wide unless Planning Department asks for otherwise.

Response: District and city staff agreed that a 6-foot wide sidewalk was appropriate, with the exception of the temporary improvement along the Tax Lot 12600 frontage, where a 4-foot width will be provided. This is shown on Sheet LU1.01.

Civil Engineer shall work with Traffic Engineer providing off-site traffic signage improvement. Provide traffic signage plan.

Response: This is provided in a memo from DKS – "New West Linn Primary School Roadway Signing Analysis and Plans."

Provide connection for sidewalk on Suncrest Drive and Bay Meadows to sidewalk onsite.

Response: This is shown on all of the plan sheets, including Sheets LU1.01 and LU2.02.

Street Lighting

Provide street light study. Provide street lighting plan showing new street lights as needed. Work with PGE to see whether or not this project can become a pilot LED Lighting Project since the main characteristic of this project is sustainability.

Response: A lighting plan for the Rosemont Road frontage is presented on Sheet LU4.03. The potential of a pilot LED project will be investigated in the future.

Storm Drainage Improvements

Provide Storm Drainage Report addressing treatment and detention for both on site and off site facilities. Storm Drainage Report shall address treatment and detention improvement for run-off coming from the existing Hidden Springs Ranch Phase 5 on Cheyenne Terrace.

Response: This information is provided in the *Preliminary Stormwater Management Report for New West Linn Primary School*, by Winzler & Kelly.

Storm Drainage Report shall address all storm water out falls into the water resource areas. Out falls detail shall explain what the construction impact will be inside the water resource areas.

Response: This information is provided in the *Preliminary Stormwater Management Report for New West Linn Primary School*, by Winzler & Kelly.

Dedicate or give easement to the City for the area utilized as treatment and detention facility for storm water run-off from the public road and sidewalk along the project frontage on Rosemont Road.

Response: This is shown on Sheet LU1.04.

Sanitary Sewer Improvements

Provide access to the new sanitary sewer realignment line so that Public Works Crew can be able to access with utility truck for cleaning purposes.

Response: District and city staff agreed that the hard surface on the play area will allow access, and an easement will be provided as a conditional of approval, but not completeness.

No permanent structure shall be placed on top of the sanitary sewer easement.

Response: No permanent structures are proposed.

Existing sanitary sewer line starting where the school makes service connection to the next second manhole shall be private and maintained by the school. Remove the existing recorded easement language for this line at the time of project completion.

Response: This will be done, but is not necessary for completeness.

Water Improvements

Please provide off site water improvement to mitigate the impact that the development imposes on the current deficient water system.

Response: The district and city staff agreed that water SDC money coming from the school building permit can be used with other SDC funds to construct the improvements. City Council authorization is required. This is not necessary for completeness.

Additional fire hydrant may required if spacing between existing fire hydrants does not meet spacing requirement along the project frontage on Rosemont.

Response: Hydrants are shown on Sheet LU1.04.

I trust this revised information will be sufficient to find the application complete. Please contact me if you need anything further.

Sincerely,

Keith S. Liden, AICP

cc: Tim Woodley, WLWV School District
Karina Ruiz, DOWA
Seth Stevens, Winzler & Kelly
Ben Vaughn, Walker Macy

NEW WEST LINN PRIMARY SCHOOL
Conditional Use, Class II Design Review, Water Resource Area and Variance
July 7, 2010

APPLICATION SUMMARY

For Conditional Use, Class II Design Review, Water Resource Area, and Variance approval to construct a 67,000 square foot primary school located on a 15.98-acre site. Variances are requested to: 1) allow two, 95' wide driveways (from curb return to curb return); 2) allow parking spaces that are more than 200 feet from the building entrance; 3) reduce the transition setback for an intermittent drainage from 65 to 15 feet; and 4) allow two wall signs of approximately 38 and 84 square feet and a 32 square foot monument sign at the driveway entrance.

GENERAL INFORMATION

Location

1025 Rosemont Road (2S 1E Section 23 CD, Supplemental 2, Tax Lots 12500, 12700 and 12800, and 2S 1E Section 26 AC, Tax Lot 5500). Its location is shown in Figure 1.

Comprehensive Plan and Zoning Designations

The Comprehensive Plan designation is Low Density.

Consistent with the Comprehensive Plan, the property is zoned Single Family Residential Detached (R10).

Applicant and Owner

Tim Woodley, Director of Operations
West Linn-Wilsonville School District
P. O. Box 35
West Linn, OR 97068
Phone: 503-673-7976
E-mail: woodleyt@wlwv.K12.or.us

Applicant's Representatives

Keith Liden, AICP
Parsons Brinckerhoff
400 S. W. 6th Avenue, Suite 802
Portland, OR 97204
Phone: 503-478-2348
Fax: 503-274-1412
E-mail: liden@pbworld.com

Karina Ruiz, AIA
Dull Olson Weekes Architects
907 S. W. Stark Street
Portland, OR 97205
Phone: 226-6950
Fax: 273-9192
E-mail: KarinaR@dowa.com

Plan Sheets

Cover Sheet	
LU1.00	Existing Conditions Plan
LU1.01	Site Plan
LU1.02	Grading Plan
LU1.03	Erosion Control Plan
LU1.04	Utility Plan
LU2.01	Site Analysis
LU2.02	Landscape Plan – West
LU2.03	Landscape Plan – East
LU2.04	Planting/Irrigation Plan - West
LU2.05	Planting/Irrigation Plan - East
LU3.01	Main Floor Plan
LU3.02	Second Floor Plan
LU3.03	Roof Plan
LU3.04	Exterior Elevations
LU3.05	Covered Play & Signage
LU3.06	Site Sections
LU3.07	Site Sections
LU4.01	Site Plan – Lighting Calculations
LU4.02	Site Plan – Lighting Calculations
LU4.03	Street Lighting Calculations

Supporting Information

- Neighborhood meeting notices and minutes (submitted previously)
- Access Easement – Hidden Springs Ranch Recreation Association/West Linn-Wilsonville School District
- Transportation Impact Study, DKS
- Rosemont Road-Salamo Road Intersection Traffic Operations Memo, DKS
- West Linn Primary School Roadway Signing Analysis and Plans, DKS
- Water Resource Area and Wetland Documents
    - New West Linn Primary School – Mitigation Plan, Walker Macy, 7.1.10
    - Wetland Delineation/Determination Report – WD#09-0240
    - Wetlands Delineation Technical Memo – WD#10-061, Winzler & Kelly, 1.18.10
    - DSL Removal/Fill Permit Application #APP0044165
    - Applicant’s response to comments on the Joint Permit Application (JPA) DSL Permit #44165-RF
    - Preliminary Stormwater Management Report for New West Linn Primary School, Winzler & Kelly, revised 6.17.10
    - Assessment Area E Water Resource Area Memo, Winzler & Kelly, 6.25.10
- Arborist site meeting notes, Walker Macy, April 30, 2010
- Tree Protection Plan and Inventory, Teragan & Associates, 7.7.10
- Site Noise Review, Altermatt Associates, Inc.
- Wind turbine brochure

Figure 1: Aerial Photo

Source: Google

BACKGROUND INFORMATION

Site Description

The site is an undeveloped, 15.98-acre property as shown in Figure 1 and Sheet LU1.00. Trillium Creek runs through the property generally from the southwest to the northeast corner of the site. Wetland and wooded areas are located on both sides of the creek. Open areas are located on either side of this wetland/wooded area near Rosemont Road and the southeastern portion of the site. The property slopes down toward the creek and to the northeast. An intermittent drainage originating from a storm water outfall runs from south to north near the eastern edge of the property. An analysis of the site concluded that 228,660 square feet of the property consists of Type II lands, which lie on both sides of Trillium Creek. The remainder of the site is classified as Type I land (see Sheet LU2.01).

Surrounding Area Description

The zoning designations and current land use of the surrounding area are summarized in Table 1.

Table 1
Land Use Summary

Properties in the Vicinity	***Zone Designation***	***Land Use***
<u>Subject Property</u> 2S 1E 23 CD, TL 12500, 12700 & 12800 (owned by school district) and 2S 1E 26 AC, TL 5500 (access easement).	R10	Vacant
<u>Surrounding Properties</u> North	R7/R10	Single family residences & undeveloped
South	R7	Single family residences
East	R10	Single family residences
West	FU10	Single family residences
	RRFF-5	Acreage homesites & limited agriculture

SCHOOL BUILDING AND RELATED IMPROVEMENTS

New Primary School

The new primary school is proposed to accommodate 500 students and 50 staff in the southeastern portion of the property. It will take advantage of the largest existing open area on the site. The main entrance for students will be on the south side of the building, and the main visitor entrance will be located on the west side. The school will generally operate between the weekday hours of 7:30am to 2:30pm. In addition, school activities and community use will occur during other times of the day and week, but the school will be closed after 10 pm.

The 67,000 square foot school, with 23 classrooms plus 1 special education room, will feature a two-story design in the northern classroom wing with the library, gym, administrative offices, and kindergarten classes on one level on the southern portion of the building. The building footprint will be slightly less than 42,000 square feet. The maximum height of the building is slightly less than the 35-foot maximum of the R-10 Zone. The district currently needs capacity for approximately 350 students with an anticipated future need to accommodate about 500 students. The plans show the complete school, which could accommodate an enrollment of 500. The district will request contractors to bid the construction of a 350- and a 500-student school. Depending upon the bids received, the district will decide whether to fully build the school now, or plan on constructing additional classrooms on the east side of the building at a later date (Sheets LU 3.01 and 3.02). The relationship of the school improvements with surrounding properties is shown on Sheets LU3.05-3.07.

Access

Driveways

Access will be provided by two driveways along Rosemont Road, which will be over 400 feet apart. The northern driveway will serve as the entrance for visitors and parents to drop off and pick up students. In addition, food service deliveries will be made via this driveway. The driveway will cross Trillium Creek and the associated wetland. It is proposed to be 28 feet wide with a 6-foot wide sidewalk on the north side. The 28-foot driveway width is proposed to allow for overflow parking for special events on one side of the driveway and retain minimum 20-foot clearance for emergency vehicles.

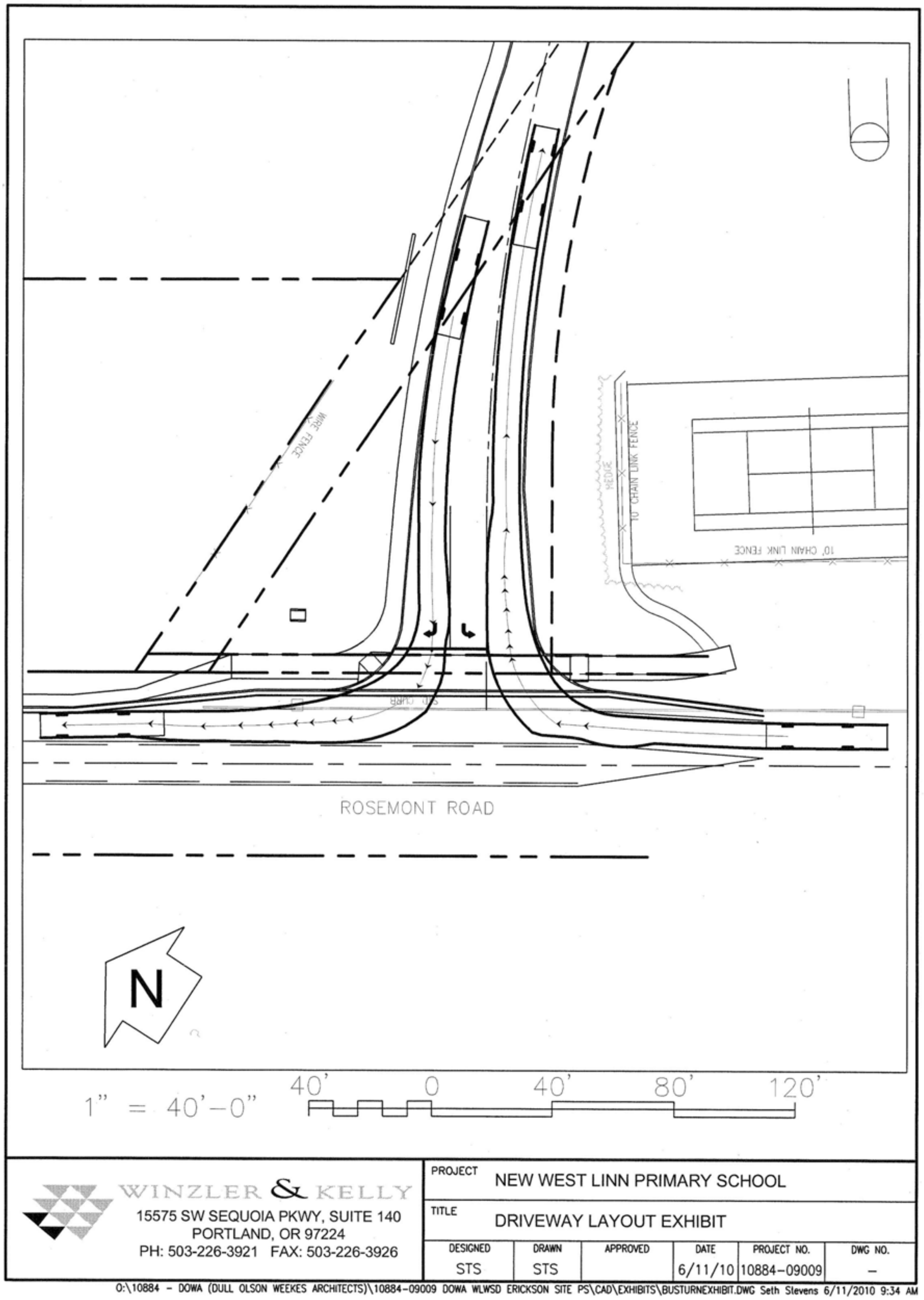
A southern driveway will provide access for school buses, staff vehicles, and service vehicles. It is made possible with an easement acquired from the adjoining property owner of Tax Lot 5500 (copy of recorded easement is attached). Buses will be allowed to enter the site, turn around, and drop off or pick up students along the south side of the school. This driveway will be 24 feet wide with a 10-foot wide sidewalk on the north side. The two-driveway system is designed to separate visitor and parent traffic from buses and service vehicles to allow safe and convenient access for everyone.

There will be a connection between the north and south parking lots to provide internal access for overflow parent parking in the south lot for community and school events (after hours). It will be gated the remainder of the time allowing access as described above.

To facilitate safe and efficient access and egress, both driveways are proposed to include right and left turn exit lanes. Two exit lanes are warranted because schools experience high traffic volumes over very short periods at the beginning and end of the school day and following special events. To accommodate the turning radii of buses and delivery trucks, the driveway widths, measured at Rosemont Road are 95 feet. This width is required for these driveways in order to provide bus access into and out of the site without encroaching into the left turn lane on the site, or the center turn lane in Rosemont Road. The illustration on the following page demonstrates the need for the proposed driveway width based on a bus turning simulation in CAD. Although the normal daily route for bus traffic through the site is anticipated to occur at the southern driveway, both driveways are designed to allow for bus and truck access to provide for operational flexibility for special events or unforeseen conditions.

During the preliminary design phase, alternate driveway configurations (including narrower throat openings) were examined. None of these worked for standard bus turning radii without turning buses encroaching into other lanes or up onto the sidewalk. Safety is an important consideration for maneuvering large buses around corners and experience on other school design projects has resulted in similar driveway widths. For example, the Rosemont Ridge Middle School driveway on Salamo Road was designed to operate in a similar manner, and it has a width of 118 feet. This driveway at Rosemont Ridge Middle School was also designed with a left and right turn lane out of the site in addition to the inbound traffic lane. While there have been improvements done at Rosemont Ridge Middle School to separate the parents and buses, the original driveway width provided there was due to the turning radii of the buses and not to the comingling of parent and bus traffic. As noted above, the 95-foot driveway width proposed for this project requires variance approval.

Figure 2: Bus Turning Radii



Street Frontage Improvements

Half-street improvements are proposed along the Rosemont Road frontage, including curb, planter strip, street lighting, and 6-foot wide sidewalk. Based on the proposed street widening layout and location of the existing right-of-way for Rosemont Road, a 6-footwide public sidewalk cannot be constructed along the frontage of Tax Lot 12600 without encroaching onto that private property with either the sidewalk or associated slope grading. Therefore, a 4-foot wide, curb-tight sidewalk is proposed along the frontage of this property (Sheet LU1.01). Street lights are designed to meet applicable city standards for arterial streets (Sheet LU4.03).

Pedestrians and Bicyclists
Pedestrian and bicycle access to the site will provide several safe and convenient connections with the surrounding neighborhoods. The circulation design also minimizes the need for pedestrians and cyclists to cross driveways. In addition to the sidewalk entrances along the two driveways, three connections will be provided as shown on Sheets LU2.02 and LU2.03 and illustrated below:

- A pathway between the northern driveway sidewalk and Suncrest Drive;
- A pathway in the eastern play area to the existing to a connection with the existing pathway to Santa Anita; and
- A sidewalk link with Bay Meadows Drive.

Emergency Access
Emergency access will be provided via the two driveways plus a third emergency-only access from Bay Meadows Drive. The emergency access along Bay Meadows will be gated with a fire department lock. Once onsite, emergency vehicles can use the existing south roadway and hardscape play area to reach the northeast corner of the building. The northwest corner of the building will be accessible for emergency vehicles through the north lot. As described herein, a connection between the north and south parking lots will further enhance emergency access on the site.

Consistency with the West Linn Transportation System Plan

The *West Linn Transportation System Plan* (TSP) includes a "Local Connectivity Plan" that recommends several local street connections in the city, including one between Bay Meadows Drive and Suncrest Drive. These two streets are shown on the Existing/Future Functional Class map (Figure 8-1) as "Neighborhood Routes", and Figure 8-6 shows the recommended connection between them. Figure 8-4 of the TSP provides example cross sections for Neighborhood Routes.

A street connection is not proposed for the following reasons:

- It would encourage vehicular access to the school via Suncrest Drive and Bay Meadows Drive. These streets were designed for low traffic volumes from additional low density residential development on this site, not a primary school.
- Vehicular traffic to and from the school will be much more effectively handled by Rosemont Road, an arterial street.
- A north-south street connection would complicate and interfere with the driveway connections between the school and the preferred connection to Rosemont Road.
- To ensure the safety of the students, the district must be able to maintain adequate security for the school. Having a public street running through the property would greatly compromise the district's ability to do this.
- Trillium Creek and the associated wetland and wooded areas are sensitive lands which should be avoided to the extent possible. The district must construct one driveway across this sensitive area, but with a minimal amount of disturbance. A public street would potentially create additional environmental impacts.

Although a street connection is not proposed, the district will satisfy the goal of the TSP to provide good pedestrian and bicycle circulation in the neighborhood as discussed above and shown on the site plan. While these access routes will be open to the public, the district will monitor public access during school hours to ensure the safety of all students.

Traffic Impacts

DKS prepared the *New West Linn Primary School Transportation Impact Study* and a supplemental memorandum titled *Rosemont Road-Salamo Road Intersection Traffic Operations*, which are included as part of this application. They analyze the potential traffic impacts associated with the proposed primary school. They evaluate the impacts in the vicinity of the school, including 9 intersections. DKS concludes the following:

- The existing traffic conditions as well as the forecast 2012 conditions without the school will meet the city's LOS (level of service) standards.
- The Rosemont Road-Salamo Road intersection will continue to perform at acceptable levels.
- The addition of the primary school, with 2 driveway access points on Rosemont Road will have only a minor traffic impact, and city LOS standards will be satisfied.
- No off-site traffic capacity improvements are necessary.
- One-half street improvements should be required along the Rosemont Road frontage.
- The location and operation of the proposed driveways are appropriate, including individual right and left turn exit lanes on both driveways.
- The northern site distance for vehicles exiting the southern driveway should be improved by the city and district working with the neighboring property owner to trim or remove some vegetation.

- Appropriate vehicular and pedestrian access and circulation is provided on the school site and to/from the surrounding neighborhoods.

Looking ahead to the creation of school zone speed limits for the new school, DKS provided an analysis and plan for roadway signing in the vicinity of the new school. A copy of this memorandum is attached.

Parking

Three vehicle parking areas are proposed. A 35-space visitor lot will be located immediately west of the main entry plaza, and a second, 25-space visitor lot will be provided near the entrance of the northern driveway. The third 57-space staff parking lot, served by the southern driveway, is located on the south side of the school. Vehicular access will never be available via Bay Meadows Drive. Of the total 117 spaces, 5 are handicapped accessible. With a total floor area of 67,000 square feet and 50 staff, 117 spaces are required. To qualify for LEED certification, the CDC minimum of 117 should not be exceeded.

To accommodate special events, parking will be allowed in all three parking lots. In addition, some of the parent and bus pick-up/drop-off spaces along the curb will be made available during these times. This will yield approximately 35 additional spaces to support these events.

Twenty-four bicycle racks will be provided to hold 48 bikes. Of these, 38 spaces will be covered. This will satisfy the required bicycle parking of 2 spaces per classroom (23 plus 1 special education classroom). The bike parking also meets the CDC requirement of being within 50 feet of a building entrance. The bike parking is shown and noted on Sheet LU2.03.

The CDC requires on-site parking to be within 200 feet of building entrances. This standard is met with the exception of the 25-space lot in the northwest portion of the property. A variance is requested to exceed this maximum distance.

Play Areas and Sports Fields

Play areas are concentrated on the east side of the building. They include a variety of hard and soft surface areas to accommodate the different age groups at the school. The location and arrangement of these areas is shown on Sheet LU2.03. In addition, a multi-use sports field (without lighting) is proposed in the northwest corner of the site (Sheet LU2.02). An asphalt path from the play area leads to a stone council circle in the forest. The council circle is envisioned as an informal gathering area with a circular stone seat wall at the edge of the forest. This asphalt path will be handicapped accessible along its eastern leg. A mulch path will also be provided in the forest as part of the proposed development. Future use of the forest as a part of the school's environmental curriculum is envisioned, and additional structures are not anticipated at this time.

Grading and Erosion Control

Because of the sensitive lands on much of the site, the district has carefully designed the school and the site improvements to minimize any potential impacts to these areas.

Consistent with this approach, the proposed grading is limited to the building site, play areas, driveways, parking, and water detention and treatment. The necessary grading for the building and southern parking lot will create an elevation drop of approximately 10 feet from the adjoining lots to the south. An intermittent and undefined drainage is located along the eastern property boundary. It was created by the installation of a storm drainage outfall from the Cheyenne Terrace properties to the south. This drainage is proposed to be relocated farther east in an open channel that will allow proper storm water treatment as it makes its way to Trillium Creek. The proposed grading and erosion control plans are shown on Sheets LU1.02 and LU1.03.

The CDC requires a setback of 65 feet from such a drainage, and the applicant proposes a 15-foot setback. A variance approval is necessary. It is justified because of the location of other, more valuable natural habitat areas on the site. The proposed re-routing of this water will provide improved storm water treatment and habitat value compared to the existing situation.

On the remainder of the site, a retaining wall varying in height from 1 to 6 feet is proposed along the south property line, east of Bay Meadows Drive to accommodate the grade difference between existing ground and the proposed parking lot elevation. In addition, two, 6-foot retaining walls are proposed at either side of the driveway at the Trillium Creek crossing in order to minimize the amount of grading in the wetland. There will be a substantial amount of cut material generated from the excavation for the building and south parking lot. To reduce the amount of export from the site, a portion of the excess cut material will be used to raise the grade at the northwest corner of the site.

Utilities

Because the site is currently undeveloped, an entire complement of utilities will be extended into the property to serve the school and accessory facilities. Water and gas lines will come from Rosemont Road to the building. An existing sanitary sewer line runs through the property from Bay Meadows Drive to Trillium Creek. This line will be re-routed to go around the eastern side of the school to connect to a manhole for another sanitary sewer line located on the eastern side of the property. The sanitary line from the school will connect with the remaining section of the existing sanitary sewer line on the north side of the building.

A fire water line will be extended from the public main in Rosemont Road onto the site and will loop around the building. Fire hydrants will be located along the fire line, and along Rosemont Road, at a spacing that provides adequate coverage in accordance with local fire code.

A flow test was performed using nearby fire hydrants in order to determine the amount of flow available from the existing 16-inch water main in Rosemont Road. The test showed that over 2,000 gpm of flow is available with a residual pressure of over 75 psi in the water line. This is appropriate to serve the school and surrounding area. However, the city has identified an overall water system capacity limitation in this area of the city. The city is pursuing a plan install the necessary system improvements. As part of the development and building approval process, the district will make a significant water system development charge (SDC) payment to the city, which will represent the school's fair share of the cost for completing these water system improvements.

On-site stormwater detention will be provided by underground chambers, and stormwater treatment will be provided by water quality bioswales. In addition, infrastructure is proposed for harvesting of roof runoff to be reused to flush toilets in the building. Stormwater management is also proposed for the public runoff from Rosemont Road, and includes a pollution control manhole and treatment/detention pond (see attached Preliminary Stormwater Management Report). The bioswales and pond will be vegetated with plants from the Metro's native plant list. On-site topsoil will be stockpiled and used as a growing medium in these facilities. In addition, temporary erosion control measures are also proposed for these facilities until permanent vegetation is established, including jute matting or mulch (Sheets LU1.03 and LU1.04).

Three stormwater outfalls are planned to Trillium Creek. The outfalls will be located downstream of localized treatment and detention systems. The detention systems will be designed in accordance with city criteria to have flow control structures that restrict the discharge from the detention systems to not exceed the peak runoff rates from the tributary areas in an existing condition. The proposed outfall structures at Trillium Creek will consist of a subsurface infiltration trench with multiple overflow risers that will be set at ground level. The outfall structures are designed to distribute the flow and dissipate the energy of the discharge in order to minimize the potential for erosive concentrated flow.

One small wind turbine is proposed on the west side of the school (Sheet LU2.03). It will generate electricity for use on-site. It has a slender cylindrical shape with a height of approximately 40 feet. The noise created by the unit is negligible as noted in the site noise review. A 2-page brochure is included in the application packet. In addition, solar panels are proposed over the south bus entry shelter and the covered play structure. An estimated 7 percent of the building's energy needs will be provided by these panels. A building "dashboard" will be prominently displayed as a tool to inform the students about how sun and wind can provide energy.

Lighting

On-site lighting will be provided for the driveways, parking lots, and building. Play areas and fields will not be illuminated. The lighting is designed to only cast light onto the property and not adjoining properties. The lighting plans (Sheets LU4.01 and LU4.02) indicate the expected light levels and how light will not escape beyond the property boundary. In addition, the parking lots will be lower than the adjoining properties (Sheets LU3.05-3.07), and vehicle headlights will be blocked by the retaining wall, fencing, and landscaping. Street lighting is proposed along the Rosemont Road frontage (Sheet LU4.03).

Water Resource Area and Wetland Protection

Winzler & Kelly and Walker Macy evaluated the water resource areas located on the site and have developed the plans for appropriate mitigation and enhancement related to site development. The relevant materials associated with the water resource areas (WRA) and wetlands are attached as the Water Resource Area and Wetland Documents listed on page 2. The following narrative contains an information summary, and the attached documents should be referenced for additional details.

The site for the proposed New West Linn Primary School contains two water resource areas. The larger of the two runs roughly through the middle of the site, including Trillium Creek and associated wetlands. It will be referred to as the Trillium Creek WRA.

The smaller water resource area lies in the southeast corner of the site, consisting of an undefined drainage created by the Cheyenne Terrace storm drain outfall at the south edge of the site. This area is referred to as the East Drainageway WRA.

Jurisdictional wetlands occur within each WRA. The details of this investigation are presented in a memorandum dated January 18, 2010, a Wetlands/Waters Delineation Report for West Linn-Wilsonville School District Erickson School Site, May 20, 2009, and Assessment Area E Water Resource Area memorandum, June 25, 2010. These documents are provided as supplemental information to this application.

For the Trillium Creek WRA, permanent impacts have been permitted through an Army Corps of Engineers/Department of State Lands Joint Permit Application (JPA) and resulting permit (DSL Permit #44165-RF). The application and permit are attached. Filling the 0.1 acre wetland in the East Drainageway WRA will require a general authorization from the DSL, as indicated in the Winzler & Kelly Memo dated June 25, 2010. This approval from DSL is forthcoming. The remainder of East Drainageway WRA is subject to city requirements. The location of the jurisdictional wetlands is shown on Sheets LU2.02/2.03 and Assessment Area E Water Resource Area memorandum.

The Trillium Creek WRA is generally avoided and development is beyond the buffer and setback areas prescribed in CDC 32. It is necessary to have one driveway crossing over the creek and wetland to provide proper access. A southern driveway serving the southern employee parking lot also needed to be partially within the buffer area. All other development will be a significant distance from the creek and its wetlands, including the school building which will be over 150 feet away (Sheets LU1.01, LU1.03, LU2.04, and LU2.05).

The district proposes to relocate East Drainageway WRA to the east by providing a defined channel lined with appropriate native plants and bordered by trees. This will create a significant improvement over the current overland water flow. The relocation is necessary because of the more significant Trillium Creek corridor and wetlands on the west side of the site. Because of the relatively low environmental and habitat value of the eastern water resource area and 0.1-acre wetland, it was determined that relocating and improving this water drainage was preferred over encroaching into the Trillium Creek wetland on the west side. This analysis is presented in Section (5) Project Impacts and Alternatives in the JPA. The relocation of the East Drainageway WRA is justified because:

- The Trillium Creek WRA represents a high-quality natural resource;
- By comparison, the East Drainageway WRA, which was artificially created by a storm drain outfall, is a low-quality resource;
- The school, featuring a two-story design to minimize its footprint, and parking that does not exceed city standards, will not have sufficient space without utilizing the eastern portion of the site; and
- Retaining the East Drainageway WRA in its current location would necessitate further encroachment into the Trillium Creek WRA and the removal of additional trees.

Because the school facilities are proposed within 15 feet of this water resource area where a 65-foot buffer (50-foot setback plus 15-foot structural setback) is required, a variance is requested to allow a 15-foot buffer along both sides of the relocated drainageway as shown on Sheet LU2.03. The buffer area will be properly landscaped with native plants as shown on Sheet LU2.05.

Trees

A large area of significant trees is located to the south of Trillium Creek along with a smaller grouping located at the top of the hill along Rosemont Road (Sheet LU2.02). On February 9th, 2010 and June 11, 2010 the applicant met with Mike Perkins, the City of West Linn Arborist, and reviewed the proposed removal of trees on site. Based on walking the site, Mr. Perkins was comfortable with the proposed tree removal plan. A summary of the meeting notes from the February 9th meeting is provided as supplemental information in this application.

Some trees will need to be removed to accommodate the proposed improvements on the site. However, every effort has been made to minimize tree removal (Sheets LU2.01, LU2.04, and LU2.05). In addition, a tree protection plan (Teragan & Assoc.) has been developed to further ensure the health of the trees retained on the site.

Potential Noise

Potential noise issues have been studied and evaluated by the district. A Site Noise Review memorandum by Altermatt Associates, Inc. was prepared and presented as part of this application. The study evaluated four primary noise sources: 1) off-site traffic, 2) on-site traffic, 3) playground noise, and 4) site-associated equipment. The memorandum concludes that the city's noise standards will be met if propane buses are used and the mechanical systems have noise screens. The district will be using propane buses which are significantly quieter (and lower emitting), and the units will be surrounded by acoustical screens. Other on-site vehicular traffic, including delivery trucks will not exceed applicable noise standards.

Signs

The district proposes one monument sign and two raised letter building (wall) signs. The monument sign is proposed to be located at the northern driveway entrance. It would have a total height of 6 feet, width of 8 feet, and a backlit reader board section (Sheet LU3.05). The sign area is proposed to be approximately 32 square feet. The CDC allows two freestanding signs for school with a maximum sign area of 24 square feet.

The building elevations show the two proposed building signs (Sheet LU3.04). One sign on the south side would be approximately 38 feet by 1 foot, and the second sign on the north side would be approximately 56 feet by 1.5 feet. The specific sign size will partially depend upon the selected name for the school. A variance is requested for the monument and wall signs. The monument sign will be somewhat larger than the 24 square foot standard, and the wall signs will exceed the total wall sign area of 18 square feet allowed in the CDC.

Refuse and Recycling

This area will be located on the southwestern corner of the building. There will be an enclosed area for a compactor, refuse, and recycling storage. It will be screened as shown in the site and landscape plans (Sheets LU1.01, LU 2.03, and 2.05). The separation and storage of these materials will be consistent with the solid waste hauler and DEQ.

CONDITIONAL USE REVIEW CRITERIA

The relevant review criteria in the City of West Linn Community Development Code (CDC) include the Single Family Residential Detached, R-10 requirements (Chapter 11), Water Resource Area Protection (Chapter 32), Conditional Use evaluation criteria (Chapter 60), Variance Criteria (Chapter 75), Comprehensive Plan goals and policies, and Design Review (Chapter 55). These criteria are addressed below.

Chapter 11 Single Family Residential Detached, R-10

Section 11.060 Conditional Uses

This section lists schools as a conditional use in the R-10 zone. The school building, play area, and parking are located within this zone. Schools are allowed as a conditional use in the R-10 zone.

Section 11.080 Dimensional Requirements, Conditional Uses

This section gives the Planning Commission the authority to determine the appropriate dimensional requirements to satisfy Conditional Use criteria in Chapter 60. The primary school is proposed to cover approximately 6% of the site, which satisfies the maximum building coverage standard of 35%.

The maximum floor area ratio (FAR) allowed in the R-10 zone is 0.45. Based on the site size of 16 acres, a maximum floor area of over 313,000 square feet is allowed. The proposed building floor area of 67,000 square feet is well below this maximum limit.

Chapter 32 Water Resource Area Protection

Section 32.050 Approval Criteria

This section contains a number of requirements relating to the protection of water resources.

A. This section is satisfied because the required information and evaluation is provided as part of this application, including analysis and design by a registered civil engineer.

B. This section calls for maintaining existing natural drainageways. In this case, the district proposes to minimize encroachment into the Trillium Creek WRA and provide appropriate mitigation for these minor encroachments. The district also plans to convert the East Drainageway WRA from an “artificial” drainage, caused by improper disposal of storm drainage onto this property, into an open and defined water channel, which is appropriately constructed and landscaped, to greatly enhance its current condition. The requirements of this section are satisfied because the site plan, grading, and landscaping plans are all intended to minimize any potential detrimental impacts on Trillium Creek and the associated wetlands.

C. The proposed improvement to the southeastern drainage course will enhance the quality of Trillium Creek and wetlands by establishing a defined channel that is bordered by appropriate native vegetation and lined by trees to create a superior natural environment compared to what exists today.

D. The district is committed to protect the water resource areas on the site into the future. It will work with the city staff during final design and permitting to accomplish this.

E. This section describes how the protected water resource area setback and transition areas are determined. In this case, it is 50 feet plus a structural setback of 15 feet. This is proposed along Trillium Creek. A variance is requested to allow a 15-foot setback from both sides of the relocated East Drainageway WRA.

F. The site plan was developed to minimize the overall potential impact upon water resources on the site. However, as shown in the application materials, some encroachment is necessary to provide access to the school. The primary (northern) driveway design features a minimal width, a sidewalk on just one side, and retaining walls at the creek crossing to minimize grading. The route was chosen to follow an existing crossing and to further minimize tree removal, and this approach has satisfied the city arborist.

The location of the valuable resources along Trillium Creek essentially forced the school building, related parking, and playgrounds into the southeastern portion of the property. Part of the school access, parking, and play areas need to be in the area occupied by the East Drainageway WRA. This water resource area was artificially created, has no defined channel, includes a very small wetland, and no trees. Therefore, its relocation and improvement as described in this application is appropriate.

G. The water resource areas shall be protected, as prescribed by the city, during construction.

H. All paved surfaces shall be located a minimum of 15 feet from the edge of the water resource areas, with the exception of the crossings shown on the plan sheets. They will be constructed as required by the city and the applicable federal and state permits.

I. All plans have been developed by experienced civil engineers and environmental scientists with the goal of maintaining and enhancing the water resources on the site. While the East Drainageway WRA will be shifted to the east, it will continue to flow to Trillium Creek as it does today.

J. All erosion control measures prescribed by the city shall be followed at all times.

K. Vegetative improvements are proposed and will be provided following construction. In particular, the East Drainageway WRA will be enhanced to function in a more environmentally appropriate manner than it does presently.

L. The school building will be far beyond the minimum setback distance of 15 feet.

M. Stormwater treatment facilities are not proposed to be located within the water resource areas.

N. This criterion does not apply because there are no existing piped stormwater facilities on the site.

O. This criterion does not apply because the front yard setback can be met, and a reduction is not requested.

P. This criterion is not applicable because all relevant storm drainage channels have been identified.

Section 32.070 Mitigation Plan

This section contains a number of requirements relating to the mitigation of potential adverse impacts on water resource areas.

A. This section is satisfied because the required information and alternative evaluation are provided as part of this application. The encroachments have been held to the absolute minimum, all potential adverse impacts will be mitigated, and the East Drainageway WRA will be greatly enhanced compared to its current condition.

B. The mitigation plan for the site is explained in the plan sheets and the supplemental materials. The work will be accomplished in accordance with city, state, and federal requirements, and appropriate assurances will be made. A copy of the Joint Permit Application is provided as part of the supporting materials.

C. Mitigation for the relocation and enhancement of the East Drainageway WRA is provided, and a revegetation plan, consistent with CDC 32.080, is proposed.

D. All plans for the primary school improvement have been developed by experienced professionals. The analysis of alternatives is presented in the Joint Permit Application and the Winzler & Kelly response to CDC Chapter 32 that are included with the supporting materials.

E. The district will work with the city to provide the appropriate assurances that the water resource areas will be permanently protected.

Section 32.080 Revegetation Plan Requirements

This section contains a number of requirements relating to revegetating water resource areas. These standards were followed when the landscaping and planting plans were developed for this application. The standards are addressed in the Water Resource Area and Wetland Documents that are attached to this application.

Chapter 60 Conditional Uses

Section 60.070 Approval Standards and Conditions

This code section states the applicant must provide evidence substantiating that the proposed use satisfies seven criteria, which are addressed below:

A. The following criteria shall be satisfied.

1. ***The site size and dimensions provide:***

   a. ***Adequate area for the needs of the proposed use.***

      The property has been identified as a future school site for many years, and this was recently annexed in anticipation of this application. The site is appropriate because the school is able to meet the applicable criteria for such a use. The district has found that a site size of 10 to 20 acres accommodates the facilities desired by the community for primary school programs. This has proven to be adequate for a primary school with a capacity of 500 students. As shown on the site plan information, the site can be used efficiently and there is sufficient land area to support a primary school, while protecting valuable natural resources.

   b. ***Adequate area for aesthetic design treatment to mitigate any possible adverse effect from the use on surrounding properties and uses.***

      As shown on the site plan information, the setback distances for buildings, parking, fields, and related facilities from all property lines will provide ample distance and screening from adjoining residential uses. As noted above, transportation facilities, noise control, landscaping, buffering, environmental protection, controlled on-site lighting, and daytime and early evening hours of operation will avoid any adverse impacts on surrounding property owners and residents.

2. ***The characteristics of the site are suitable for the proposed use considering size, shape, location, topography and natural features.***

   The district has found that a site size of 10 to 20 acres in a basically rectangular shape accommodates the facilities desired by the community for school programs. Because of the requirements for a school building and athletic fields, a perfectly flat site would be ideal. However, in West Linn, virtually all potential sites for schools have grades over 5%. As shown in the development plans, the most sensitive areas, steepest slopes, and best stands of trees have been avoided and the portion of the site proposed for development can be appropriately graded to meet the needs of the primary school.

   Care will be taken to mitigate any adverse impacts to the natural resources described in this application.

   As shown on the site plan information, the site can be used efficiently and there is sufficient land area to support a primary school.

   A rationale and evaluation criteria for locating schools was developed jointly by the school district, Clackamas County, and the cities of West Linn and Wilsonville. This is documented in the *West Linn-Wilsonville School District Long Range School Facilities Plan*, which was first adopted by the district in 1996 and most recently updated in 2005. This site is identified as a potential primary school site in the plan.

3. ***The granting of the proposal will provide for a facility that is consistent with the overall needs of the community.***

The needs of the community are best expressed by the community's approval of the bond measure to finance these improvements. The relevant city policies are addressed under criterion 7 below.

4. ***All required public facilities have adequate capacity to serve the proposal.***

Transportation

The report and memorandum submitted by DKS Associates shows that sufficient street capacity is available, and the school will have only a minor impact on the level of service for nearby streets and intersections. All intersections studied will continue to exceed the city's LOS standards. All necessary transportation improvements for vehicular, pedestrian, and bicycle circulation will be made as part of the school construction as described herein.

Water

As described above, water service is adequate to serve the school. To address overall system capacity for this area of the city, the water SDC paid to construct the school may be used by the city to provide the proposed water system improvements.

Sanitary and Storm Sewer

Sanitary and storm sewer service is available as described above. An on-site storm water system will be provided to meet water quality and volume standards as described herein.

5. ***The applicable requirements of the zone are met except as modified by the Conditional Use chapter.***

The applicable requirements of the R-10 zone will be met. The building will cover much less than 35 percent of the site, and it will be well under the 0.45 FAR maximum. The lot is over the 10,000 square feet minimum. No part of the school building will be over the 35 foot allowable height. Setbacks from the building will exceed the 20-foot minimum by a significant margin.

6. ***The supplementary requirements set forth in Chapters 52 to 55, if applicable, are met.***

Chapter 52 - Signs

One monument sign and two building mounted wall signs with raised-letters are proposed. As noted above, a variance is requested regarding the size of the signs.

Chapter 53 - Sidewalk Use

This CDC chapter applies to commercial activities and merchandise display on public sidewalks. It is not applicable to this proposal.

Chapter 54 - Installation and Maintenance of Landscaping

This is addressed in the following section relating to Design Review.

Chapter 55 - Design Review

The Design Review criteria are addressed in the following section.

7. ***The use will comply with the applicable policies of the Comprehensive Plan.***

The relevant city of West Linn goals and policies for schools are found in the city's Comprehensive Plan*.* The relevant goals and policies are addressed below.

Goal 5, Section 2: Natural Resources, the "Natural Environment" section contains three goals and associated policies that are relevant to the request. The goals are:

1. *Encourage and assist in the preservation of permanent natural areas for fish and wildlife habitat in suitable, scientific/ecological areas.*
2. *Protect sensitive environmental features such as steep slopes, wetlands, and riparian lands, including their contributory watersheds.*
3. *Preserve trees in park lands, natural areas, and open space wherever possible.*

The proposed primary school is consistent with the above goals and the supporting policies because:

- The site plan was developed to hold the disturbance of the Trillium Creek wetland and forested areas to an absolute minimum.
- A storm drainage outfall from Cheyenne Terrace created an undefined water course through the property, which will be moved and improved to function as an environmental amenity.
- The location of the school, parking lots, play areas, and driveways were all selected to avoid removal of mature trees.
- Impacts to wetlands and water resource areas shall be mitigated according to federal, state, and city requirements.

Goal 6, Section 1: Air Quality, contains one goal and associated policies that are relevant to the request. The goal is:

Maintain or improve West Linn's air quality.

The proposed primary school is consistent with the above goal and the supporting policies because:

- The district plans to use propane powered buses to reduce air pollution and minimize vehicular noise.
- The pedestrian and bicycle connections through the site and with surrounding neighborhoods will enable the community to travel to the school by non-motorized means.

Goal 6, Section 2: Water Quality, contains one goal and associated policies that are relevant to the request. The goal is:

Maintain or improve West Linn's water resources.

The proposed primary school will satisfy the above goal and the supporting policies because:

- The Trillium Creek corridor and associated wetland will be maintained.

- A storm drainage outfall created an undefined water course through the property that will be moved and designed to improve the current quality of the water coming from this storm drain outfall.
- Appropriate erosion control methods will be employed during construction.

Goal 6, Section 3: Land Resources (Solid Waste Management), contains two goals and associated policies that are relevant to the request. The goals are:

1. *Decrease the amount of solid waste that is discarded and put in a landfill.*
2. *Provide cost-effective solid waste and recycling services to the City's residents, businesses, and public facilities.*

The proposed primary school is consistent with the above goals and the supporting policies because:
- The appropriate recycling facilities will be provided as required by the CDC.
- The waste and recycling facilities will be screened as required by the CDC.

Goal 6, Section 4: Noise Control, contains one goal and associated policies that are relevant to the request. The goal is:

Maintain and promote a quiet and healthful environment for the citizens of West Linn.

The proposed primary school is consistent with the above goal and the supporting policies because:
- The district plans to use propane powered buses to reduce air pollution and minimize vehicular noise.
- Noise coming from school activities will be controlled, and they will also occur primarily during the daytime hours.
- The potential noise from the site will be managed and designed to meet the CDC noise standards.

Goal 7, Areas Subject to Natural Disasters and Hazards, contains one goal and associated policies that are relevant to the request. The goal is:

Protect life and property from flood, earthquake, and other geological hazards, and terrorist threats or attacks.

The proposed primary school is consistent with the above goal and the supporting policies because:
- There are no identified natural hazards on the site.
- The school building will meet the current safety requirements as part of the building permit process.

Goal 8, Parks and Recreation, contains one goal and associated policies that are relevant to the request. The goal is:

6. *Encourage the use of non-city owned community resources (e.g., churches,*

schools, etc.) for recreation uses through cooperative arrangements and joint use agreements.

The proposed primary school is consistent with the above goal and the supporting policies because:

- Like other schools, it will be available for community use and functions.
- The school will have a playground and multi-use field that will contribute to the overall inventory of park and recreation opportunities in the city.

Goal 9, Economic Development, contains one goal and associated policies that are relevant to the request. The goal is:

2. *Encourage the retention and economic viability of existing business and industry.*

The proposed primary school is consistent with the above goal and the supporting policies because:

- The district is committed to providing a quality education for all students and becoming contributing members of the workforce.
- The excellence of the West Linn-Wilsonville School District is well-known, giving the city an advantage in attracting and retaining businesses and employment opportunities.

Goal 11, Public Facilities and Services, contains one goal and associated policies that are relevant to the request. The goal is:

Require that essential public facilities and services (transportation, storm drainage, sewer, and water service) be in place before new development occurs and encourage the provision of other public facilities and services.

The proposed primary school is consistent with the above goal and the supporting policies because:

- Adequate public facilities will be provided as part of the school construction.
- The associated public improvements shall be provided consistent with CDC and city engineering standards.

Goal 11, Public Facilities and Services, Section 7: Schools, contains one goal and associated policies that are relevant to the request. The goal is:

Coordinate with the West Linn-Wilsonville School District and Clackamas County to provide school services and related recreational facilities for West Linn residents.

The proposed primary school is consistent with the above goal and the four supporting policies because:

1. *Encourage the School District to build schools on collectors or arterial streets*

and, where possible, along transit lines.

This is satisfied because the school will have direct access to an arterial street.

2. *Encourage the use of energy-responsive materials and processes in the design of schools where economically feasible.*

   This will be satisfied, because the district is designing the school to incorporate energy efficient design and materials. The new school will offer the latest in energy efficiency related to both increased insulation values and modern heating and cooling equipment.

3. *The City shall participate in the siting of future school facilities, per the currently approved Intergovernmental Agreement with the School District.*

   This school site has been discussed and evaluated by the district and city for many years. It is identified as a potential school site in the *West Linn-Wilsonville School District Long Range School Facilities Plan*.

4. *School design, use, and parking will be responsive to and compatible with surrounding neighborhoods and existing land uses.*

   The district has worked diligently with the surrounding neighborhoods and individual property owners to create a design, which is responsive to their needs. Noise mitigation, visual buffering, and access treatments have all been developed in coordination with the neighbors.

Goal 12, Transportation, contains three goals and associated policies that are relevant to the request. The goals are addressed below:

1. *Provide a transportation system for the city of West Linn that:*
   a. *Provides for maximum mobility while encouraging modes of transportation other than the automobile.*
   b. *Provides for connectivity within and between neighborhood, developments and community centers, using new and existing transportation services that are consistent with Metro's street and walkway spacing standards.*
   c. *Is convenient, safe, and efficient.*
   d. *Maintains the cohesiveness of the city's neighborhoods.*
   e. *I built with consideration of community priorities and affordability.*
   f. *Respects and preserves the natural environment on both a neighborhood and city-wide basis.*

.

This goal and supporting policies are satisfied because access to the school site is integrated with the existing and planned street and pathway system in the area. The Transportation System Plan identified a local street connection between Bay Meadows Drive and Suncrest Drive however, this connection would be disruptive to the neighborhoods because of the volume of traffic related to the school. Such an improvement would also result in greater impacts to the Trillium Creek corridor and wetland. Although a vehicular connection will not be made between the two streets, pedestrian and bicycle access will be provided as envisioned in the TSP. Safe and convenient walking and bicycling routes will be provided to all surrounding neighborhoods. In addition full street improvements will be provided along the Rosemont Road frontage.

2. *Provide a cost-effective balanced transportation system incorporating all modes of transportation (including motor vehicle, bicycle, pedestrian, transit, and other modes).*

   As noted herein, the proposed pedestrian and bicycle network and connections with surrounding neighborhoods will support this policy.

3. *Develop transportation facilities that are accessible to all members of the community and minimize out-of-direction travel.*

   Transportation improvements, along the Rosemont Road frontage and within the site, will be accessible to the public, and direct routes will be provided for pedestrians and cyclists. Although transit is not available in the area, Rosemont Road would be a logical transit route in the future. The on-site sidewalks and frontage improvements will enable future transit stops serving the school.

In addition there are two provisions under transportation that apply directly to schools, and they are addressed below:

Action Measure 5: Designate preferred routes to each school in the city and require that safe paths to school for children be identified for any new residential project.

As shown in the application materials, safe pathways and sidewalks will be provided along the Rosemont Road frontage (including an interim improvement along Tax Lot 12600), sidewalk connections with Bay Meadows Drive and Suncrest Drive, and a pathway connection to the east.

Policy 1 b: Promote a comprehensive cohesive network of pedestrian paths, lanes, and routes that accomplishes the following objectives: b. Provides connections to schools, recreation facilities, community centers, and transit facilities.

As noted above, this system will be provided for the school enabling pedestrians and cyclists to travel to and through the site from all directions.

Goal 13, Energy Conservation, contains two relevant goals and several associated policies that are relevant to the request. The goals are:

1. *Promote energy efficient provision of public facilities and services.*
3. *Promote the use of renewable energy sources.*

The proposed primary school is consistent with the above goals and the supporting policies because:

- The pedestrian and bicycle connections through the site and with surrounding neighborhoods will enable the community to travel to the school by non-motorized means.

- The district is designing the school to incorporate energy efficient design and materials. The new school will offer the latest in energy efficiency related to both increased insulation values and modern heating and cooling equipment.

B. Development review provisions in Chapter 55 shall be satisfied.

These criteria are addressed below.

C. The Planning Commission may impose conditions.

The District understands that the Planning Commission has the authority to impose conditions.

D. Aggregate extraction uses.

This subsection is not relevant because aggregate extraction is not proposed.

Chapter 75 Variances

Variances are being sought for the following:

- A driveway width of approximately 95 feet, where the standard in CDC 48.060 B is a maximum of 36 feet;
- Allowing parking spaces that are farther than 200 feet from the building entrance (CDC 46.070);
- Providing a 15-foot drainageway setback where the CDC requires 65 feet (CDC 32.050); and
- To allow wall signs of approximately 38 and 84 square feet where the CDC requires a maximum total of 18 square feet and a monument sign of approximately 32 square feet where the maximum allowed is 24 square feet (CDC52.210).

These variance requests must be found to comply with the criteria in CDC Chapter 75. The variance criteria are noted below followed by the findings for each of the variance requests noted in the order above.

Chapter 75 requires that a variance will only be approved if it meets six criteria:

1. *Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity, and result from lot size or shape, legally existing prior to the date of this ordinance, topography, or other circumstances over which the applicant has no control.*

   Driveway Width
   A school is unique in that it has relatively significant amounts of traffic for brief periods in the morning and early afternoon. In addition, school buses and delivery trucks are part of the traffic mix. As a result, the driveways have been designed to allow efficient egress from the site with right and left turn lanes, and more gradual curb radii are included to allow for bus and delivery truck turning movements. The 36-foot maximum width standard would mean existing traffic

would need to use only one lane and that buses and trucks will have difficulty making the turns to and from the school.

Parking Spaces
As demonstrated by the site analysis, the challenge for this project is how to provide the school and related facilities while protecting the natural features to the maximum extent possible. This led to the need to provide 25 spaces that are beyond the 200-foot maximum distance standard. This parking could be provided within the 200-foot limit, but only with additional cutting/filling and tree removal. In addition, parking near the sports field in the northwest corner of the site will be beneficial, especially for the public use when the school is closed.

Drainageway Setback
Similar to the parking issue above, the placement of the school was challenged by the location of the valuable natural features on the site. The drainageway, which is the subject of the setback reduction, was artificially created after a storm water outfall was constructed on the south property boundary. Compared to the natural habitat and wetland value of the Trillium Creek area on the west and northern portions of the site, this area is obviously of lesser value. If the 65-foot setback is met, it would mean shifting the school into the Trillium Creek corridor, causing unnecessary environmental harm to this more valuable resource.

Signs
The wall sign size requirements appear to contemplate only displaying the address. The school is a somewhat unique use in residential zones that requires additional sign area to display the school name. This need does not generally apply to other properties and uses in residential zones.

Although the school would be entitled to two freestanding signs, it only needs one to identify the access driveway for the general public. Because of its location along Rosemont Road, a slightly larger size is requested to allow sufficient visibility.

2. *The variance is necessary for the preservation of a property right of the applicant, which is substantially the same as a right possessed by owners of other property in the same zone or vicinity.*

Driveway Width
Commercial and public driveways with two exit lanes are relatively common and appropriate to prevent internal traffic circulation issues on site. Rosemont Ridge Middle School, with similar short peak periods of exiting vehicles, has a similar driveway design featuring a width of 118 feet.

Parking Spaces
Under most circumstances, the 200-foot distance standard is achievable. However, for uses that have significant parking requirements, it can become difficult to satisfy. Requesting this variance is consistent with what other property owners could do when faced with the need to provide extensive parking and protect environmentally valuable resources. In addition, CDC 46.070 B allows commercial and industrial uses with more than 40 required spaces to locate the first 40 spaces within 200 feet and the remainder within 300 feet. The school is

analogous to this situation, and it would meet the 300-foot requirement.

Drainageway Setback
If properly designed as the outset, the storm water outfall would have included a method for conveying the storm water to Trillium Creek. The district will essentially do this now. Creating a defined channel with native plantings will actually correct an existing storm and water quality problem.

Signs
Like many public and non-residential uses, schools have a need to properly identify their location. The proposed wall signs will be very tastefully designed and will have a very understated appearance that is consistent with signs allowed for other similar uses.

The district currently has the ability to have two freestanding signs with a total area of 48 square feet. The district only requests one sign, which will have less total sign area compared to what the CDC allows.

3. *The authorization of the variance will not be materially detrimental to the purposes and standards of this Code, will not be inconsistent with all other regulatory requirements, and will not conflict with the goals and policies of the West Linn Comprehensive Plan.*

Driveway Width
The enlarged driveway width is consistent with all other aspects of the CDC and the Comprehensive Plan. The driveways are appropriately located, and the design will minimize congestion of exiting vehicles as well as accommodate the buses.

Parking Spaces
The school proposal is compliant with all other parking requirements in the CDC. Although people will potentially have to walk a little farther to reach the school, the 25 spaces in question are ideally placed for use of the multi-use play field.

Drainageway Setback
As mentioned above, all other requirements in the CDC will be met. More important, the variance will allow a higher degree of protection of the more important resource on the property – Trillium Creek.

Signs
The purpose of the sign regulations is to ensure that signs are sufficient to identify different land uses in a tasteful way that is not visually obtrusive. While the wall signs are proposed to be larger than allowed, they will be complimentary to the school's design and the surrounding neighborhood.

As noted above the proposed monument sign will feature less sign area than what would be allowed in the CDC.

4. *The variance request is the minimum variance, which would alleviate the exceptional and extraordinary circumstance.*

Driveway Width

To successfully accommodate exiting traffic and bus turning, the proposed width is necessary. It is important to note that the driveway widths on the remainder of the site are consistent with CDC dimensional standards.

Parking Spaces
This is the minimum deviation possible. The design does maximize the amount of parking adjacent to the building. Given the site constraints, it simply isn't practical or desirable to place the remaining 25 spaces near the building.

Drainageway Setback
As mentioned above, this setback variance is largely the result of a trade-off between two resource areas. Something had to give. The setback reduction allows the maximum protection of the more valuable Trillium Creek WRA, but with the proposed new channel and plantings, the East Drainageway WRA will function better than it does today as a water quality amenity. In addition, mitigation will be provided elsewhere on the site to compensate for the reduced setback from the East Drainageway WRA.

Signs
Because of the setback of the school and distance from site entrances, larger wall signs are needed to properly identify the school. The name of the school has not been determined, and the district will try to reduce the sign size from what is requested.

Having one sign, rather than two, with less total area than what is allowed by the CDC meets this criterion.

5. *The exceptional and extraordinary circumstance does not arise from the violation of this ordinance.*

None of the four variance requests are the result of a violation of the CDC.

6. *The variance will not impose physical limitations on other properties or uses in the area, and will not impose physical limitations on future use of neighboring vacant or underdeveloped properties as authorized by the underlying zoning classification.*

Driveway Width
The additional width at the driveway entrances will not adversely affect other properties along Rosemont Road. Sufficient spacing is available and appropriate traffic circulation, both on-site and off-site, will be maintained.

Parking Spaces
The distance between the parking spaces and building entrance does not affect other properties. They will still be more conveniently located compared to on-street parking in adjoining neighborhoods, so people will not be inclined to park off-site to the detriment of the neighbors.

Drainageway Setback
If anything, the creation of a drainage channel and appropriately dealing with upstream storm water mitigates a physical limitation that was imposed on this

property. This variance to reduce the setback does not affect other properties or limit the future use of their properties.

Signs
The wall signs will simply provide proper identification, and they will not adversely affect adjoining properties due to lighting or other visual impacts.

Having one sign with less total area than allowed by the CDC will have less potential impact on surrounding properties.

Chapter 99 Procedures for Decision-Making: Quasi-Judicial

This chapter requires the applicant to contact the affected neighborhood to present the proposed development application. In addition to the required neighborhood meeting, the district held several neighborhood meetings to inform the community about the new school and to solicit input. A packet of all the public involvement and information events is included with this application.

DESIGN REVIEW CRITERIA

The Conditional Use requirements include compliance with Chapter 55 Design Review. Section 55.100 contains the applicable approval standards for a Class II Design Review, which are addressed below.

A. The provisions of the following chapters shall be met:

1. Chapter 33 - Storm Water Quality and Detention

Section 33.040 requires storm water quality and detention facilities to be designed in accordance with City of West Linn Public Works Design Standards. These facilities will be provided as shown on the utility plans and described above.

Section 33.060 requires access for maintenance to facilities. All of the proposed facilities will be located within close proximity to driveways or all-weather surface areas that will allow vehicle access.

7. Chapter 46, Off-Street Parking and Loading

Section 46.090 B. 6. requires "one space for every employee, plus 1 space for each 1,000 square feet of floor area." With a floor area of 67,000 square feet and 50 staff members, a minimum of 117 vehicle spaces are required. This standard is satisfied as shown on the site plan.

Section 46.120 requires a 15-foot wide drive for loading and unloading passengers. This standard is satisfied as shown on the site plan.

Section 46.130 requires one loading space for the school (10,000 - 100,000 sq. ft.). Sufficient loading space is proposed on the south side of the building.

Section 46.140 contains the design standards for parking areas. The proposed parking facilities are designed in a manner that satisfies the design and dimensional standards of this section.

Section 46.150 A. contains a variety of standards pertaining to parking lot design, pavement, pedestrian access, handicapped parking, and grades. The proposed parking facilities are designed in a manner that satisfies the design and dimensional standards of this section.

Section 46.150 B. contains standards for handicapped parking, including 5 handicapped parking spaces for the 117 required parking spaces. This standard is satisfied because 5 handicapped parking spaces are proposed.

10. Chapter 54, Landscaping

Section 54.020 A. is satisfied because all trees on the site were inventoried along with the wetland areas on the site.

Section 54.020 B. is not relevant because although the district will avoid removal of significant trees, it does not want to reduce the proposed parking.

Section 54.020 C. is satisfied because the district will comply with all city tree protection requirements.

Section 54.020 D. is not relevant because there are no heritage trees on the site.

Section 54.020 E. is satisfied because well over 20% of the site will either be landscaped or left in its natural condition; sufficient landscaping is provided around the three parking lots; landscaping around parking areas meets the prescribed dimensional and buffering requirements; street trees are proposed; outdoor storage areas are proposed to be screened; safety will be provided b the open nature of the site and landscaping plan; and irrigation will be provided.

Section 54.020 F. is not relevant because this is not a subdivision.

<u>B. Relationship to the Natural and Physical Environment</u>

Section 55.100 B. 1. and 2. are not relevant because there are no heritage trees on the site. The city arborist visited the site and determined that no significant or heritage trees would be affected by the proposal. .

Section 55.100 B. 3. is satisfied because the school and related improvements are proposed on the southern and western portions of the site to avoid the sensitive lands, steeper slopes, and trees associated with Trillium Creek.

Section 55.100 B. 4. is satisfied because the property is geologically stable.

Section 55.100 B. 5. is satisfied because the school building will provide significant setbacks from surrounding properties. The school building is well separated and buffered from surrounding properties. It is the closest to residential properties to the south. Here, the building setback is approximately 100 feet. A landscaped buffer and fencing is provided along the southern property boundary. In addition, the parking lot and school will be significantly lower than the residences to the south, further reducing potential visual, noise, and lighting impacts.

Section 55.100 B. 6. is met based on the findings below:

a. The school is designed be a student centered place, where students connect with and learn about their built and natural environment. The building is oriented so that most of the classrooms face the woods. Primary colored student sized learning places project into the landscape from each classroom. Rainwater is celebrated in vertical runnels that lead to a cistern or storm water planters. The library is the center of research and inquiry of the school, with tall clerestory windows for daylight, view of the wetlands, and passive ventilation.

b/c. The proposed design is compatible with the natural environment because only a minimum amount of area will be used for the school and related improvements. The proposed two-story school will be complementary to the one- and two-story residences on the adjoining by incorporating a pleasing blend of contemporary architecture and exterior finish materials. Where the setback is the smallest on the south side (100± feet), the elevation of the school varies to create visual interest. The ground floor of the school is approximately 10 to 15 feet lower than adjacent properties to the south. This, along with the proposed fencing and landscape screening, will ensure a compatible outcome.

d. The site size and the school location are sufficient to displace any contrasting architectural styles in the surrounding area.

e. The human scale of the proposed building is represented in the design approach, which features welcoming and distinctive entry and activity areas.

f. The criterion related to windows applies only to commercial and office buildings, not school structures.

g. The windows are in different planes from lower to upper windows to provide visual interest.

h. Climatic concerns are considered in the proposed building designs due to the public use associated with school buildings. The new school will meet all current energy efficiency standards. The district is striving to achieve a LEED certification for the building.

i. The proposed site plan is consistent with the city of West Linn's vision statement to provide safe and attractive pedestrian-friendly site and building environments. The design of the school and its accessible location will improve the current pedestrian-friendly character of the neighborhood by providing new walking and bicycling routes through the site.

j. This CDC criterion applies primarily to sidewalks along commercial street frontages, but it does include a standard that sidewalks must have a minimum of 4 feet clear width. The sidewalks on the site will be a minimum of 6 feet wide, meeting this standard.

Section 55.100 B. 7. relates to Transportation Planning Rule compliance. The provisions of this section are either satisfied or not relevant as described below:

a-c. These subsections are not relevant to this application because it is not a commercial, office, or multi-family residential project.

d/e. Subsections d and e call for safe and convenient pedestrian circulation within parking lots and throughout the site. This circulation system is proposed as shown on the site plan. It is designed to provide excellent connections to the surrounding neighborhoods and to minimize the need to drive to and from the school.

f. This encourages placing buildings as close to the main access street as possible. Because of the location of sensitive lands on the site and an intervening property along Rosemont Road, the school could not be located closer to Rosemont Road.

g. This subsection is not relevant because transit service is not provided in the vicinity, and none is planned.

h. This subsection is not relevant because it is intended to apply adjacent to a main street, such as in the Willamette neighborhood, not along Rosemont Road.

i/j. These subsections are not relevant because the school is not a fire station, etc. and trailhead parking is not proposed.

C. Compatibility Between Adjoining Uses, Buffering and Screening

The provisions of this section are satisfied as described below:

1. The school is located very significant distances from all surrounding properties. Where it is the closest on the south side, excellent buffering is proposed with the lower elevation of the school and parking lot, retaining wall and fence, and landscape buffering along the property boundary.

2. The service area on the southwest side of the building will have screening immediately surrounding it. Plus it will benefit from the perimeter screening mentioned above.

3. The rooftop HVAC systems have been evaluated for potential noise. The visual/noise screens proposed on the roof, these units will not be visible and will generate minimal noise for surrounding residents.

D. Privacy and Noise

The provisions of this section are either satisfied or not relevant as described below:

1/2. These subsections are not relevant because they apply to residential buildings.

3. The potential impacts of noise and on-site lighting were evaluated as described in the application materials. With the noise mitigation and lighting design measures described herein, the school will not create any privacy or noise impacts for the neighbors.

E. Private Outdoor Area

The provisions of this section are not relevant because they apply only to multi-family projects.

F. Shared Outdoor Recreation Area

The provisions of this section are not relevant because they apply only to multi-family projects.

G. Demarcation of Public, Semi-Public and Private Spaces

The controlled access points to the school, the design and location of the outdoor public/play areas are all designed to ensure the safety and security of the students. As shown on the site and landscaping plans, this includes clear demarcation of the outdoor areas intended for school functions.

H. Public Transit

This section is not relevant because no public transit is provided or planned in the vicinity.

I. Public Facilities

The provisions of this section are satisfied as described below:

1. Street and pedestrian/bicycle circulation system improvements, consistent with the City Engineer and DKS *New West Linn Primary School Transportation Impact Study* recommendations will be made as noted in this application.
2. Service areas and parking will be screened according to CDC standards as described in the application.
3. As noted above, the rooftop HVAC system will be screened to minimize visual and noise impacts to surrounding neighbors.

J. Crime Prevention and Safety/Defensible Space

The site and building have been designed to create visible, well lit, and open public areas. The building plan also includes windows and/or entrances to every direction, increasing natural surveillance of the entire site.

K. Provisions for Persons with Disabilities

City code criteria and ADA requirements will be satisfied during the final building and facility design for the addition and remodeling work.

L. Signs

The two proposed monument signs at each driveway entrance and the wall signs will clearly identify the school. Other traffic control and wayfinding signs will be used on the site as appropriate.

M. Utilities

As described above, utility services are available for the school and will be provided.

N. Wireless Communication Facilities

This section is not relevant because no facilities are planned.

O. Refuse and Recycling Standards

As illustrated in the application plans the recycling and refuse area will be located, designed, and screened as required by the CDC. Necessary approval from the waste hauler and other agencies will be obtained as necessary.

CONCLUSION

The proposed school satisfies all of the relevant criteria as demonstrated above.

PRELIMINARY
STORMWATER MANAGEMENT
REPORT FOR

NEW WEST LINN PRIMARY SCHOOL

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR

WINZLER & KELLY

15575 SW Sequoia Parkway, Suite 140
Portland, Oregon 97224

June 2010
(Revised 6/17/2010)

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose of Study

The West Linn Wilsonville School District (WLWSD) is proposing a new primary school in the City of West Linn. A preliminary study was performed to evaluate the impacts of the proposed construction on existing stormwater characteristics, and to analyze the measures proposed to mitigate those impacts. This report presents the information, methods, and results generated from that study.

1.2 Project Location and Site Description

The proposed project is located in Clackamas County, Oregon in the City of West Linn. The site is located at 1025 Rosemont Road.

The site consists of approximately 16 acres of undeveloped land. It encompasses the headwaters of Trillium Creek, which runs through the property generally from the southwest to the northeast corner of the site. A wetland and wooded areas are located on both sides of the creek. Open areas are located in the northwest and southeast areas of the site, on either side of the wetland and wooded areas. The property generally slopes toward the creek and to the northeast.

The FEMA Flood Insurance Rate Maps Numbers 41005C0019D and 41005C0257D (Appendix A) show that the project site is located within Other Areas - Zone X, which is described as "areas determined to be outside the 0.2% annual chance floodplain".

1.3 Project Description

The project consists of the construction of a new 500 student primary school, including approximately 120 new parking areas and a bus loop for approximately 10 busses. Additional on-site improvements include new impervious and pervious play areas and a new grass play field.

Public improvements associated with the project include half street improvements along the project frontage on Rosemont Road that include a center turn lane, traffic lane, bike lane, and sidewalk.

Two on-site stormwater detention facilities are proposed which consist of underground storage chambers and drain rock. On-site stormwater treatment will be provided by water quality bioswales. In addition, infrastructure is proposed for harvesting roof runoff to be reused to flush toilets in the building.

Stormwater management facilities are also proposed for the public runoff from Rosemont Road, and include a pollution control manhole and treatment/detention pond to be located at the northwest corner of the site adjacent to Rosemont Road.

1.4 Methodologies and Assumptions

The methodologies used in conducting the hydrologic and hydraulic analyses were generated from a variety of sources including existing maps, field data, nomographs, charts, computer programs, standards, and reference manuals.

The hydrologic analysis was performed in accordance with City of West Linn Design Standards using the Santa Barbara Urban Hydrograph method with an 24-hour NRCS Type IA synthetic rainfall distribution. The calculations were executed with the computer program Bently PondPack 10.0. This method was used to generate site runoff hydrographs, determine peak flows, and perform pond routing analysis.

1.5 Agency Stormwater Criteria

This project lies within the jurisdiction of the City of West Linn, which has the following policy regarding stormwater management for new construction.

Quantity Control: The City of West Linn Design Standards (Section Two) defines the criteria for stormwater quantity management. Onsite detention is required to provide quantity control for surface runoff to account for the increase in runoff due to land use changes associated with development. It is required that detention facilities be designed to provide storage for up to the 25-year storm event with the safe overflow conveyance of the 100-year storm event. Allowable post-development peak discharge rates for the 2, 5, 10, and 25-year events are limited to that of the pre-development discharge rates.

The 24-hour rainfall depths used in this study were obtained from the City of Portland Stormwater Management Manual and are summarized in Table 1 below.

Design Storm	24-Hour Rainfall
2-Year	2.4"
5-Year	2.9"
10-Year	3.4"
25-Year	3.9”
100-Year	4.4"

Table 1: 24-Hour Rainfall Depths (Source: City of Portland Stormwater Management Manual)

Quality Control: The City of West Linn uses the City of Portland Stormwater Management Manual for stormwater quality criteria, which defines the water quality design storm as a NRCS Type 1A rainfall distribution with 0.83” of rainfall over a 24 hour period.

2.0 EXISTING DRAINAGE CONDITIONS

2.1 Description of Existing Drainage Conditions

The site generally drains from the southwest towards the northeast. The major drainage feature on the site is Trillium Creek. From the west, runoff from a portion of the agricultural land and approximately 1200’ of Rosemont Road drains onto the property. Runoff from the existing residential development to the south, Cheyenne Terrace, is discharged onto the site at two different locations from piped storm drainage systems. It appears that runoff from a small portion of the existing residential development to the east drains onto the site. The north edge of the property is either bordered by Trillium Creek, or runoff drains away from the property onto the adjacent residential development to the north.

2.2 Hydrologic Analysis of Existing Conditions

Hydrologic analyses of portions of the site in the existing condition were performed as part of this study to establish the allowable peak flows out of the proposed detention systems. The calculations are contained in Appendix B. The limits of the areas considered as part of this study are shown on Figure 1. A runoff curve number (CN) of 74 was determined to be appropriate for the pre-developed site based on a Hydrologic Soil Group of C (Appendix A) and a grassland cover type in good hydrologic condition (NRCS TR-55, June 1986, see Appendix B). The runoff hydrographs for the various design storms are shown in Appendix B.

3.0 PROPOSED DRAINAGE CONDITIONS

3.1 Description of Proposed Drainage Conditions

The proposed drainage design includes curbs, drains, and piping to collect and convey the runoff from the impervious areas to the proposed treatment and detention systems. Three onsite underground detention systems are proposed that will consist of arched chambers and crushed stone. The flow out of the detention systems will be controlled by orifice and riser combination outlet structures. The onsite detention systems will discharge to Trillium Creek at three separate locations. The proposed outfall structures consist of a subsurface infiltration trench with multiple overflow ditch inlets that will be set at ground level (Figure 4). The intent of the outfall structures is to distribute the flow and dissipate the energy of the discharge in order to minimize the potential for erosive concentrated flow.

A public detention pond is proposed to treat and detain the runoff associated with the public improvements on Rosemont Road. This pond will detain runoff to current peak discharge rates. The flow out of the detention pond will be controlled by an orifice and riser combination outlet structure. The pond will discharge to the public storm drainage system in Rosemont Road.

A water quality swale is proposed to treat and convey the runoff from the existing residential development to the south that discharges near the southeast corner of the site.

3.2 Hydrologic Analysis of Proposed Conditions

Hydrologic analyses of portions of the site in the proposed condition were performed as part of this study; the calculations are contained in Appendix C. The limits of the areas considered as part of this study are shown on Figure 2. A runoff curve number (CN) of 74 was determined to be appropriate for the landscaped areas based on a Hydrologic Soil Group of C (Appendix A) and a grassland cover type in good hydrologic condition (NRCS TR-55, June 1986, see Appendix B). The runoff hydrographs for the various design storms are shown in Appendix B.

3.3 Stormwater Quality Management

Stormwater treatment is proposed for the majority of the proposed onsite impervious area (Figure 3). Treatment of onsite runoff will be provided by bioswales. The bioswale have been designed in accordance with the City of Portland Stormwater Management Manual using the Presumptive Approach Calculator Ver 1.1 provided by the City of Portland Bureau of Environmental Services (BES). The calculations for the bioswale sizing are included in Appendix D.

Treatment of the runoff from Rosemont Road is proposed to be provided by a pollution control manhole and extended detention combined with water quality plantings in the pond.

4.0 CHEYENNE TERRACE DISCHARGE

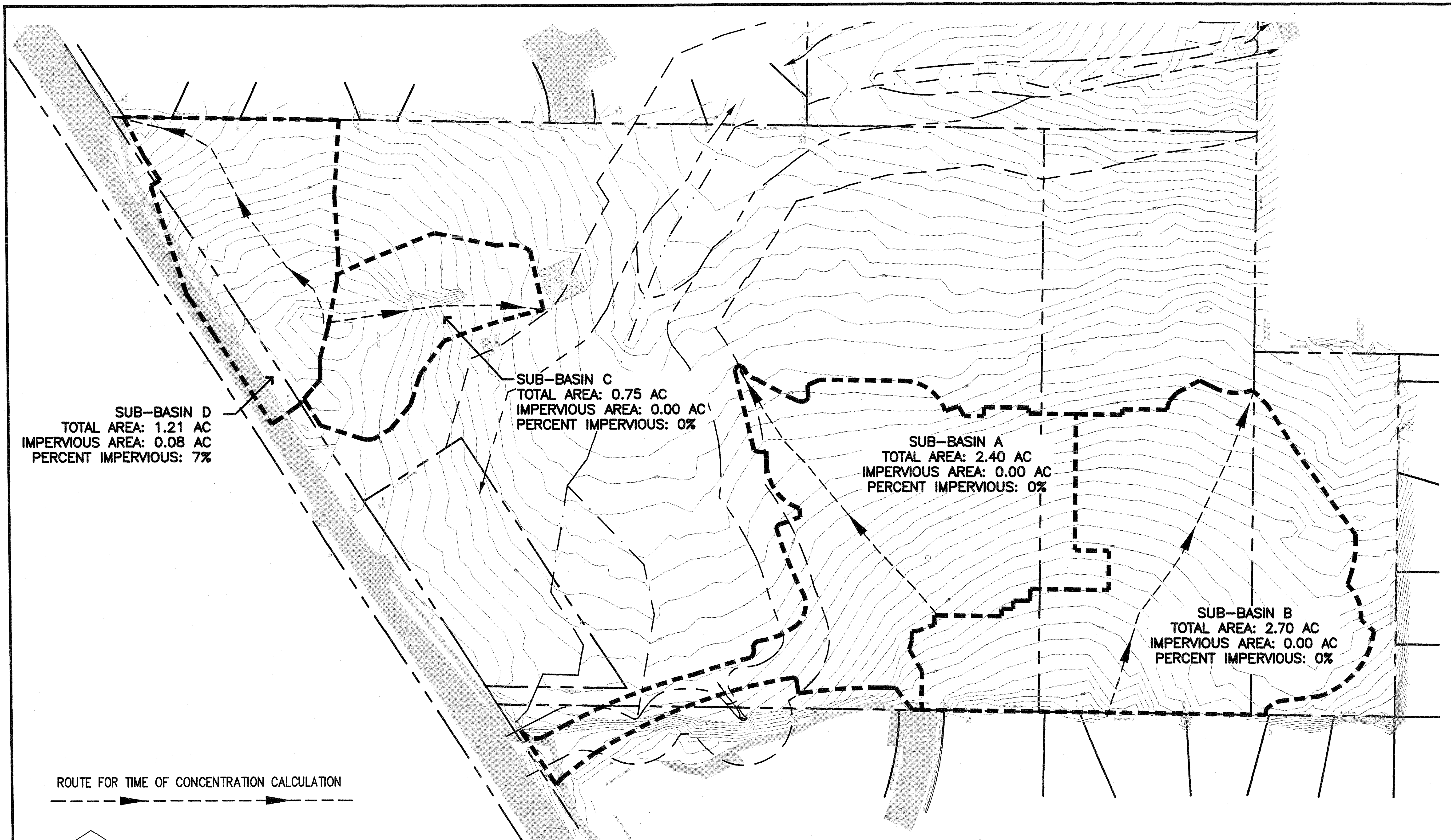
Runoff from the existing sub-division to the south, Cheyenne Terrace, is collected by catch basins in the street and piped to a discharge point near the southeast corner of the new school site property. This runoff flows overland to the north to an existing catch basin that is located along the north property line near the northeast corner of the site. Based on an infiltration test performed by Geocon, the infiltration in the area where the discharge currently flows overland is negligible, so it is assumed that the peak flows that are discharged onto the site are completely conveyed across the site to the existing catch basin.

A swale is proposed to accept and provide treatment and conveyance of the discharge from Cheyenne Terrace. The calculations in Appendix E demonstrate that the travel times from the point of discharge to the existing catch basin to the north for both the existing conditions and the proposed conditions differ by only 0.2 minutes, which is considered negligible with respect to the 24-hour duration of the design storm.

The proposed swale will also provide treatment of the runoff through the use of check dams and water quality plantings. The calculations contained in Appendix E show an expected residence time of over 16 minutes in the proposed swale for the peak flow from the water quality design storm event.

5.0 SUMMARY

The increase in stormwater runoff due to the modifications in land use from the existing condition to the proposed condition will be managed by detention systems and outlet structures that will restrict the peak rate at which runoff from the proposed site will be discharged. In addition, runoff from the majority of the proposed new impervious area will be treated prior to being discharged.

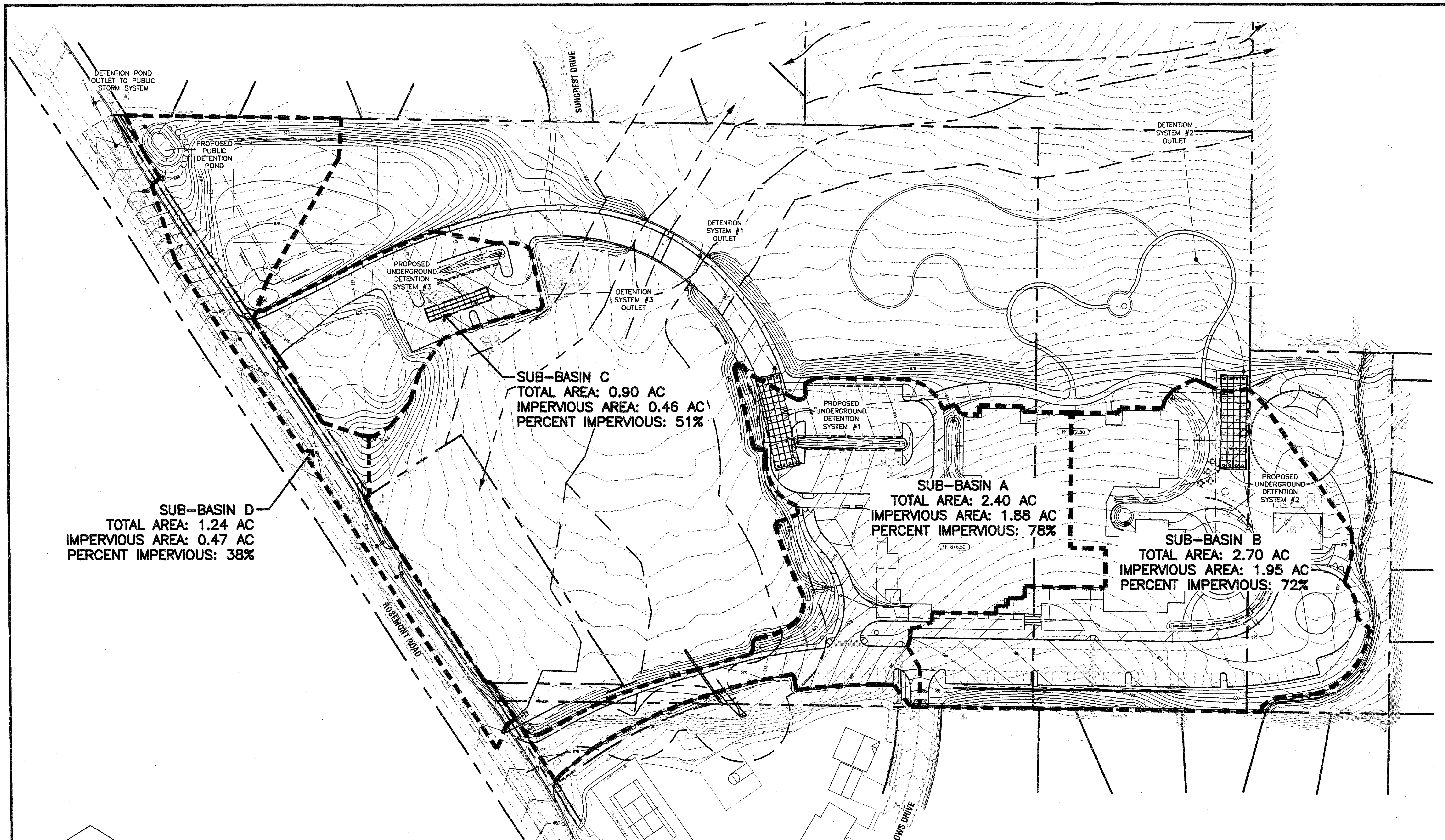


WINZLER & KELLY
CONSULTING ENGINEERS
15575 SW SEQUOIA PARKWAY, SUITE 140, PORTLAND, OR 97224
PH (503) 226-3921 ♦ FAX (503) 226-3926
WWW.W-AND-K.COM

NEW WEST LINN PRIMARY SCHOOL
DRAINAGE MAP
EXISTING CONDITIONS

FIGURE NO.
FIG 1
DATE: 6/2/10
JOB#: 10884-09009

O:\10884 - DOWA (Dull Olson Weekes Architects)\10884-09009 DOWA WLWSD Erickson Site PS\CAD\Exhibits\DrainageMap.dwg 6-02-10 08:59:20 AM sstevens



WINZLER & KELLY
CONSULTING ENGINEERS
15575 SW SEQUOIA PARKWAY, SUITE 140, PORTLAND, OR 97224
PH (503) 226-3921 ♦ FAX (503) 226-3926
WWW.W-AND-K.COM

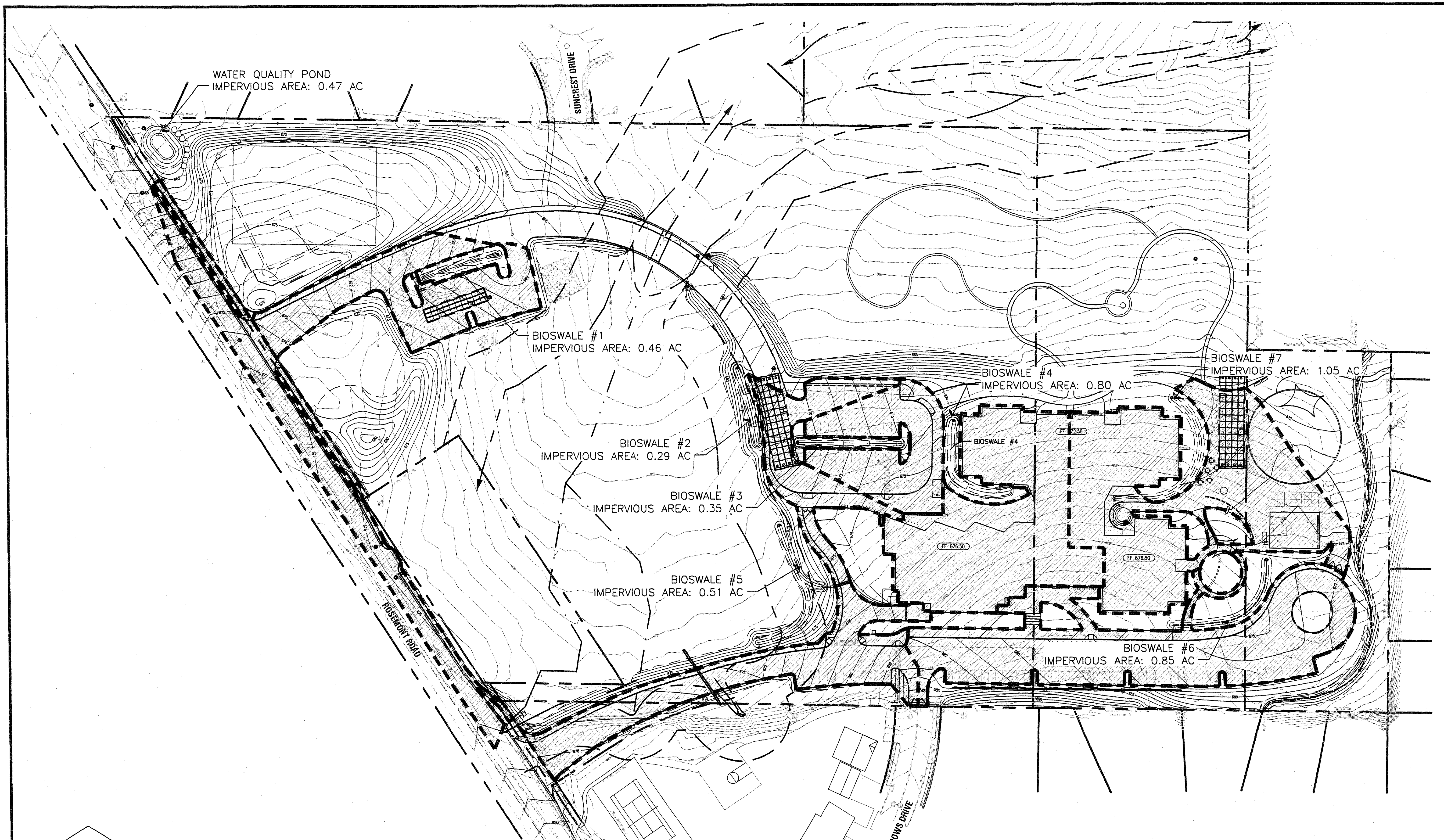
NEW WEST LINN PRIMARY SCHOOL
DRAINAGE MAP

PROPOSED CONDITIONS

FIGURE NO.
FIG 2

DATE: 6/2/10
JOB#: 10884-09009

O:\10884 - DOWA (Dull Olson Weekes Architects)\10884-09009 DOWA WLWSD Erickson Site PS\CAD\Exhibits\DrainageMap.dwg 6-02-10 09:10:31 AM sstevens



N

1" = 100'-0" 100' 0 100' 200' 300'

WINZLER & KELLY
CONSULTING ENGINEERS
15575 SW SEQUOIA PARKWAY, SUITE 140, PORTLAND, OR 97224
PH (503) 226-3921 ♦ FAX (503) 226-3926
WWW.W-AND-K.COM

NEW WEST LINN PRIMARY SCHOOL
DRAINAGE MAP

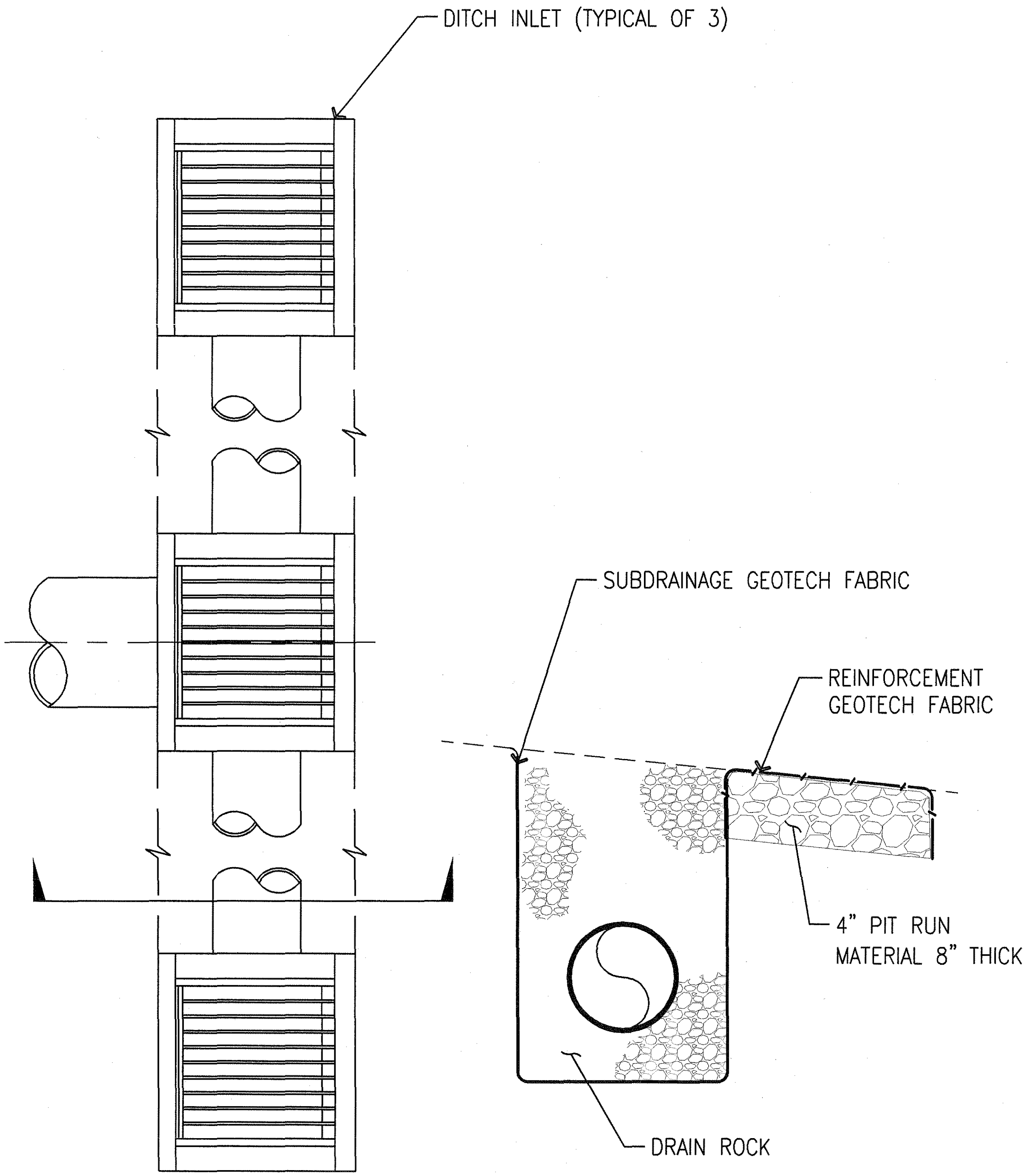
PROPOSED CONDITIONS
TREATMENT AREAS

FIGURE NO.
FIG 3

DATE: 6/2/10

JOB#: 10884-09009

O:\10884 - DOWA (Dull Olson Weekes Architects)\10884-09009 DOWA WLWSD Erickson Site PS\CAD\Exhibits\DrainageMap.dwg 6-02-10 10:58:49 AM sstevens



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT NEW WEST LINN PRIMARY SCHOOL

TITLE STORMWATER OUTFALL STRUCTURE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
STS	STS	–	6/18/10	10884-09009	FIG 4

Appendix A

FEMA Flood Insurance Rate Maps/ NRCS Hydrologic Soil Group Information

MAP SCALE 1" = 500'

250 0 500 1000 FEET

PANEL 0019D

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CLACKAMAS COUNTY, OREGON
AND INCORPORATED AREAS

PANEL 19 OF 1175

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLACKAMAS COUNTY	415588	0019	D
LAKE OSWEGO, CITY OF	410018	0019	D
WEST LINN, CITY OF	410024	0019	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
41005C0019D

EFFECTIVE DATE
JUNE 17, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

39'22.50"

N

MAP SCALE 1" = 500'

250 0 500 1000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0257D

FIRM
FLOOD INSURANCE RATE MAP
CLACKAMAS COUNTY, OREGON
AND INCORPORATED AREAS

PANEL 257 OF 1175

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLACKAMAS COUNTY	415588	0257	D
OREGON CITY, CITY OF	410021	0257	D
WEST LINN, CITY OF	410024	0257	D

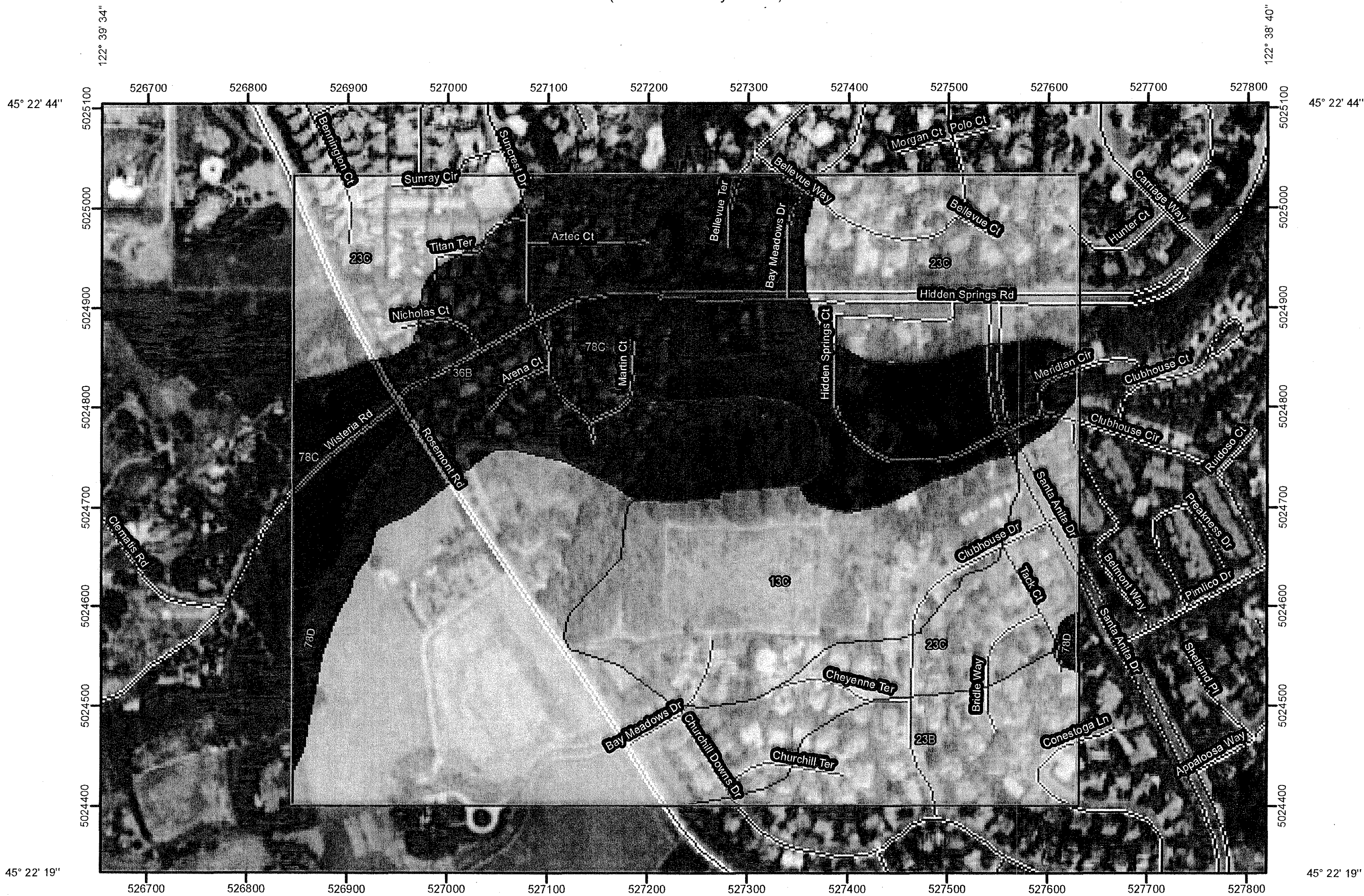
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
41005C0257D

EFFECTIVE DATE
JUNE 17, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Map Scale: 1:5,530 if printed on A size (8.5" x 11") sheet.

N

Meters: 0, 50, 100, 200, 300

Feet: 0, 300, 600, 1,200, 1,800

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Soil Ratings

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Political Features

Cities

Water Features

Oceans

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

MAP INFORMATION

Map Scale: 1:5,530 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

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

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

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 5, Aug 12, 2009

Date(s) aerial images were photographed: 8/3/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Clackamas County Area, Oregon				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
13C	Cascade silt loam, 8 to 15 percent slopes	C	16.5	13.5%
23B	Cornelius silt loam, 3 to 8 percent slopes	C	8.2	6.7%
23C	Cornelius silt loam, 8 to 15 percent slopes	C	54.5	44.4%
36B	Hardscrabble silt loam, 2 to 7 percent slopes	D	17.7	14.5%
78C	Saum silt loam, 8 to 15 percent slopes	B	24.2	19.7%
78D	Saum silt loam, 15 to 30 percent slopes	B	1.5	1.3%
Totals for Area of Interest			**122.6**	**100.0%**

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
1A, 1B----------- Aloha	0-8	15-20	1.35-1.55	0.6-2.0	0.19-0.21	5.6-6.0	Low-----------	0.43	5	2-3
	8-35	18-27	1.40-1.55	0.2-0.6	0.19-0.21	5.6-6.5	Low-----------	0.55		
	35-60	10-25	1.45-1.60	0.2-0.6	0.16-0.21	5.6-6.5	Low-----------	0.55		
2B, 2C, 2D, 2E--- Alspaugh	0-14	27-35	1.00-1.20	0.6-2.0	0.16-0.21	5.6-6.0	Moderate-----	0.24	5	5-7
	14-43	35-45	1.20-1.40	0.2-0.6	0.08-0.16	4.5-5.5	Moderate-----	0.24		
	43-60	35-45	1.10-1.30	0.2-0.6	0.06-0.10	4.5-5.5	Moderate-----	0.10		
3---------------- Amity	0-22	15-25	1.20-1.45	0.6-2.0	0.19-0.21	5.6-6.0	Low-----------	0.32	5	3-5
	22-60	27-35	1.20-1.40	0.2-0.6	0.19-0.21	5.6-6.5	Moderate-----	0.49		
4E, 4F. Andic Cryaquepts										
5D, 5E----------- Aschoff	0-17	7-10	0.85-0.95	0.6-2.0	0.07-0.10	5.1-6.5	Low-----------	0.10	5	7-12
	17-60	10-18	0.85-0.95	0.6-2.0	0.07-0.10	5.6-6.5	Low-----------	0.10		
6F*:										
Aschoff---------	0-17	7-10	0.85-0.95	0.6-2.0	0.07-0.10	5.1-6.5	Low-----------	0.10	5	7-12
	17-60	10-18	0.85-0.95	0.6-2.0	0.07-0.10	5.6-6.5	Low-----------	0.10		
Brightwood------	0-4	10-18	1.00-1.20	2.0-6.0	0.06-0.12	5.6-6.5	Low-----------	0.10	2	4-8
	4-34	10-15	1.00-1.20	2.0-6.0	0.04-0.12	5.6-6.5	Low-----------	0.10		
	34	---	---	---	---	---	-------------	----		
7B--------------- Borges	0-18	27-35	1.20-1.40	0.2-0.6	0.19-0.21	5.1-6.0	Moderate-----	0.32	5	2-4
	18-45	45-60	1.20-1.40	<0.06	0.15-0.17	5.6-6.0	High----------	0.32		
	45-60	27-45	1.30-1.40	0.2-0.6	0.12-0.21	5.6-6.0	Moderate-----	0.32		
8B, 8C, 8D------- Bornstedt	0-8	20-27	1.30-1.50	0.6-2.0	0.15-0.17	5.1-6.0	Low-----------	0.32	5	3-4
	8-33	27-35	1.40-1.60	0.6-2.0	0.13-0.17	5.1-6.0	Low-----------	0.37		
	33-60	40-50	1.30-1.50	0.06-0.2	0.12-0.15	4.5-5.5	Low-----------	0.32		
9B, 9D, 9E------- Bull Run	0-19	12-20	0.70-0.75	0.6-2.0	0.18-0.24	5.1-6.0	Low-----------	0.32	5	6-10
	19-60	12-18	0.70-0.85	0.6-2.0	0.24-0.26	5.1-6.0	Low-----------	0.49		
10C-------------- Bull Run Variant	0-14	10-20	0.70-0.85	0.6-2.0	0.18-0.24	5.1-6.0	Low-----------	0.28	5	6-8
	14-48	10-20	0.75-0.85	0.6-2.0	0.20-0.24	5.1-6.0	Low-----------	0.43		
	48-60	30-45	1.00-1.40	0.2-0.6	0.19-0.21	5.1-6.0	Moderate-----	0.37		
11--------------- Camas	0-17	5-10	1.30-1.50	2.0-6.0	0.07-0.09	5.6-7.3	Low-----------	0.10	2	1-3
	17-60	0-5	1.40-1.60	>20	0.03-0.05	5.6-6.5	Low-----------	0.10		
12A, 12B--------- Canderly	0-7	10-18	1.00-1.20	2.0-6.0	0.11-0.13	5.6-6.5	Low-----------	0.10	5	4-6
	7-46	10-18	1.00-1.20	2.0-6.0	0.11-0.13	5.6-6.5	Low-----------	0.10		
	46-60	5-10	1.10-1.30	2.0-6.0	0.04-0.08	5.6-6.5	Low-----------	0.17		
13B, 13C, 13D, 13E-------------- Cascade	0-11	15-19	1.10-1.20	0.6-2.0	0.17-0.21	5.1-6.0	Low-----------	0.24	5	4-7
	11-21	18-30	1.30-1.40	0.6-2.0	0.17-0.21	5.1-6.0	Low-----------	0.28		
	21-60	17-28	1.40-1.55	0.06-0.2	0.03-0.05	5.1-6.0	Low-----------	0.20		
14C, 14D, 14E---- Cascade	0-24	18-25	1.20-1.30	0.6-2.0	0.17-0.21	5.1-6.0	Low-----------	0.24	5	4-6
	24-32	20-30	1.60-1.85	0.06-0.2	0.03-0.05	5.1-6.0	Low-----------	0.20		
	32-60	27-40	1.20-1.40	0.2-0.6	0.11-0.15	5.1-6.0	Moderate-----	0.10		
15B, 15C, 15D---- Cazadero	0-21	25-40	1.20-1.40	0.6-2.0	0.15-0.17	5.1-6.0	Low-----------	0.24	5	3-4
	21-60	45-60	1.30-1.50	0.2-0.6	0.11-0.13	5.1-6.0	Moderate-----	0.28		
16--------------- Chehalis	0-7	15-25	1.10-1.30	0.6-2.0	0.19-0.21	5.6-6.5	Low-----------	0.32	5	5-10
	7-44	25-35	1.20-1.30	0.6-2.0	0.17-0.21	5.6-7.3	Moderate-----	0.28		
	44-60	15-35	1.10-1.30	0.6-2.0	0.17-0.21	5.6-7.3	Moderate-----	0.28		

See footnote at end of table.

Appendix B

Calculations for Hydrologic Analysis of Existing Conditions

NEW WEST LINN PRIMARY SCHOOL

Hydrologic Summary for Existing Conditions

Hydrologic Soil Group (HSG):	C
Curve Number (CN) Impervious Areas:	98
Curve Number (CN) Open Space Areas:	74

Sub-Basin	Land Use	Area (ac)	Percent Impervious	Composite CN	Time of Concentration, T_c (min)
A	Open Space	2.40	0%	74	19
B	Open Space	2.70	0%	74	19
C	Open Space	0.75	0%	74	14
D	Open Space / Impervious	1.21	7%	76	19

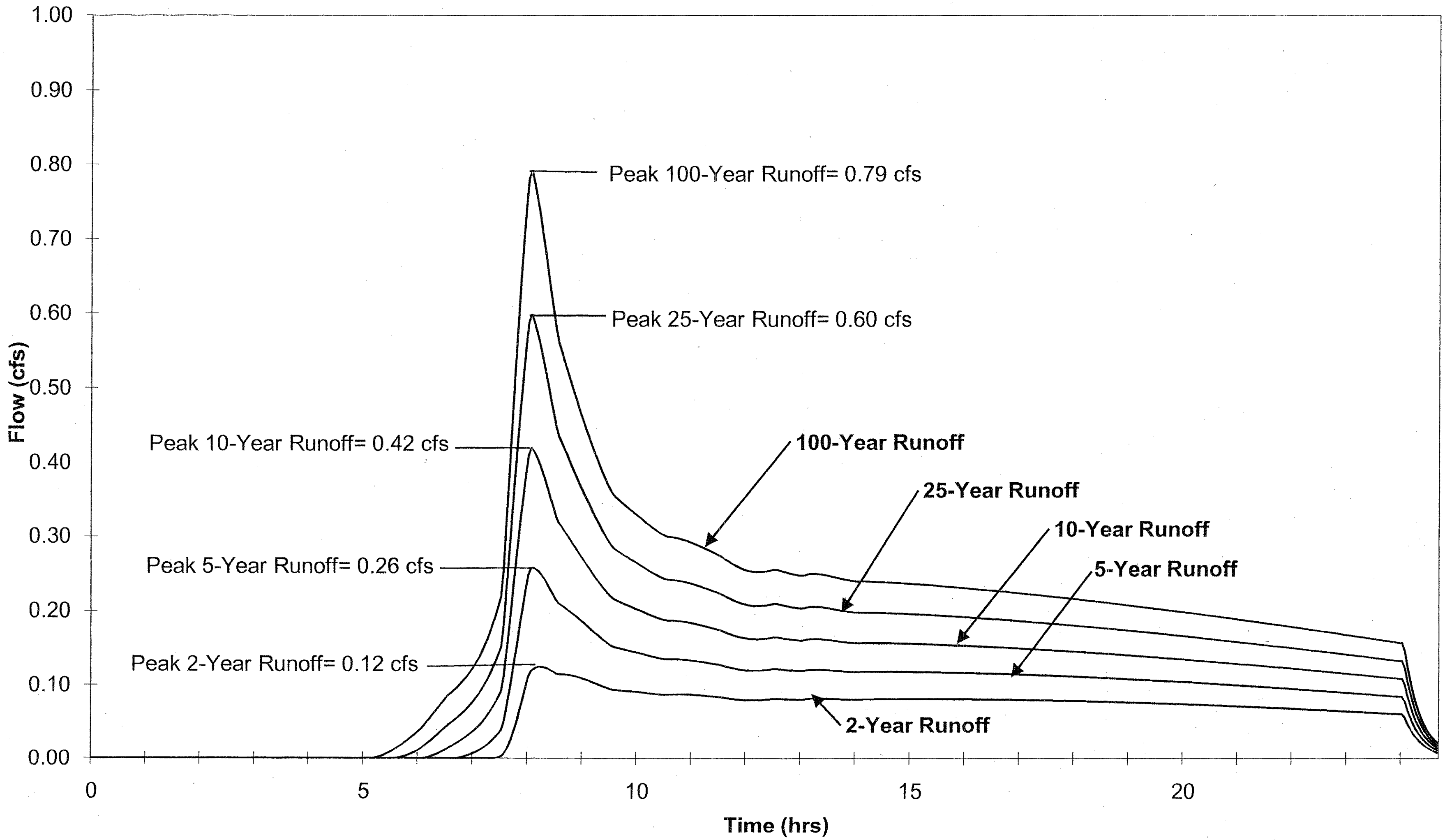
Reference: "Urban Hydrology for Small Watersheds", NRCS Technical Release 55, Second Edition, June 1986

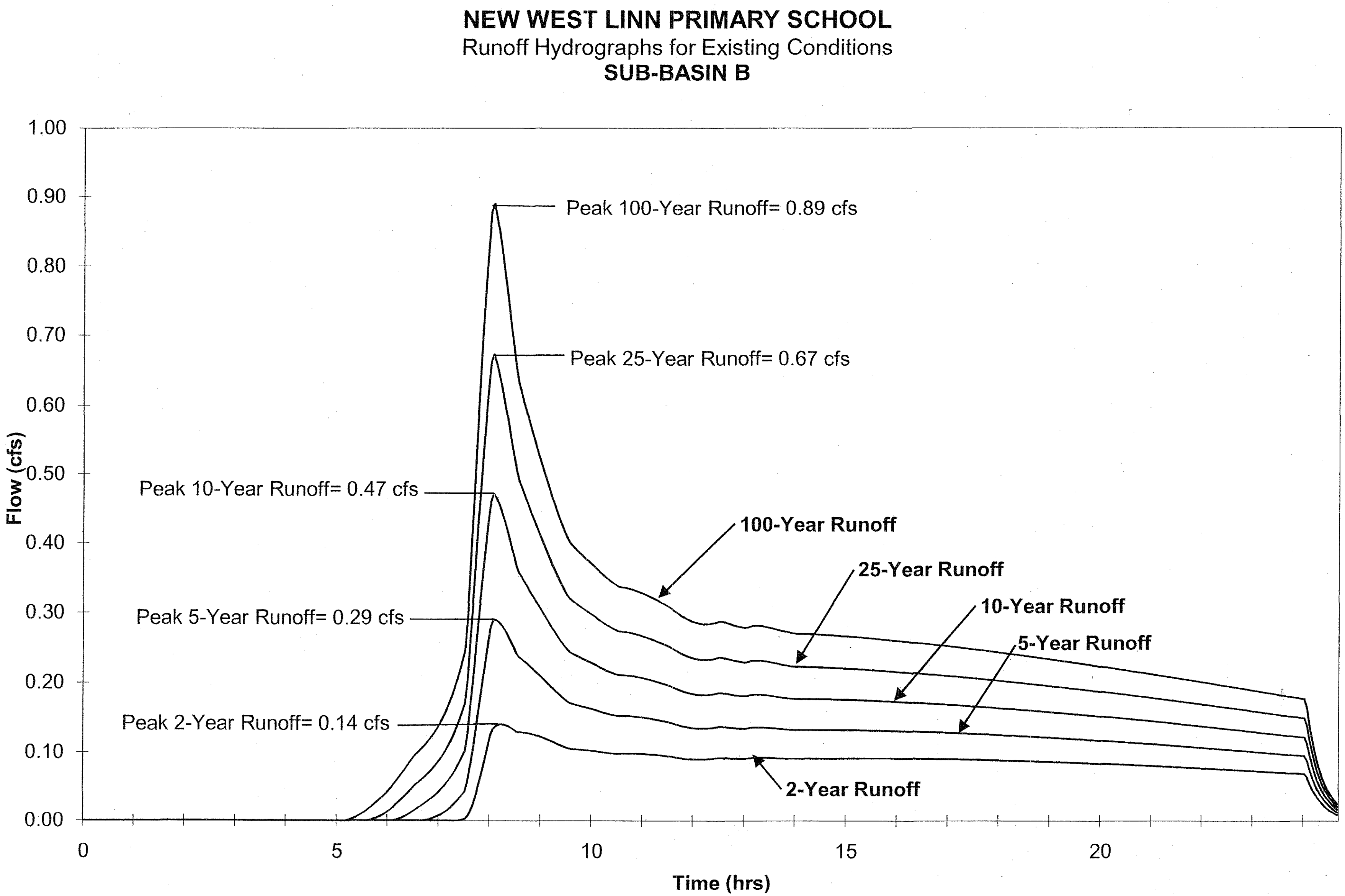
Table 2-2c Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4]	48	65	73
Woods—grass combination (orchard or tree farm). [5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

1 Average runoff condition, and $I_a = 0.2S$.
2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.
3 *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.
4 Actual curve number is less than 30; use CN = 30 for runoff computations.
5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.
6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

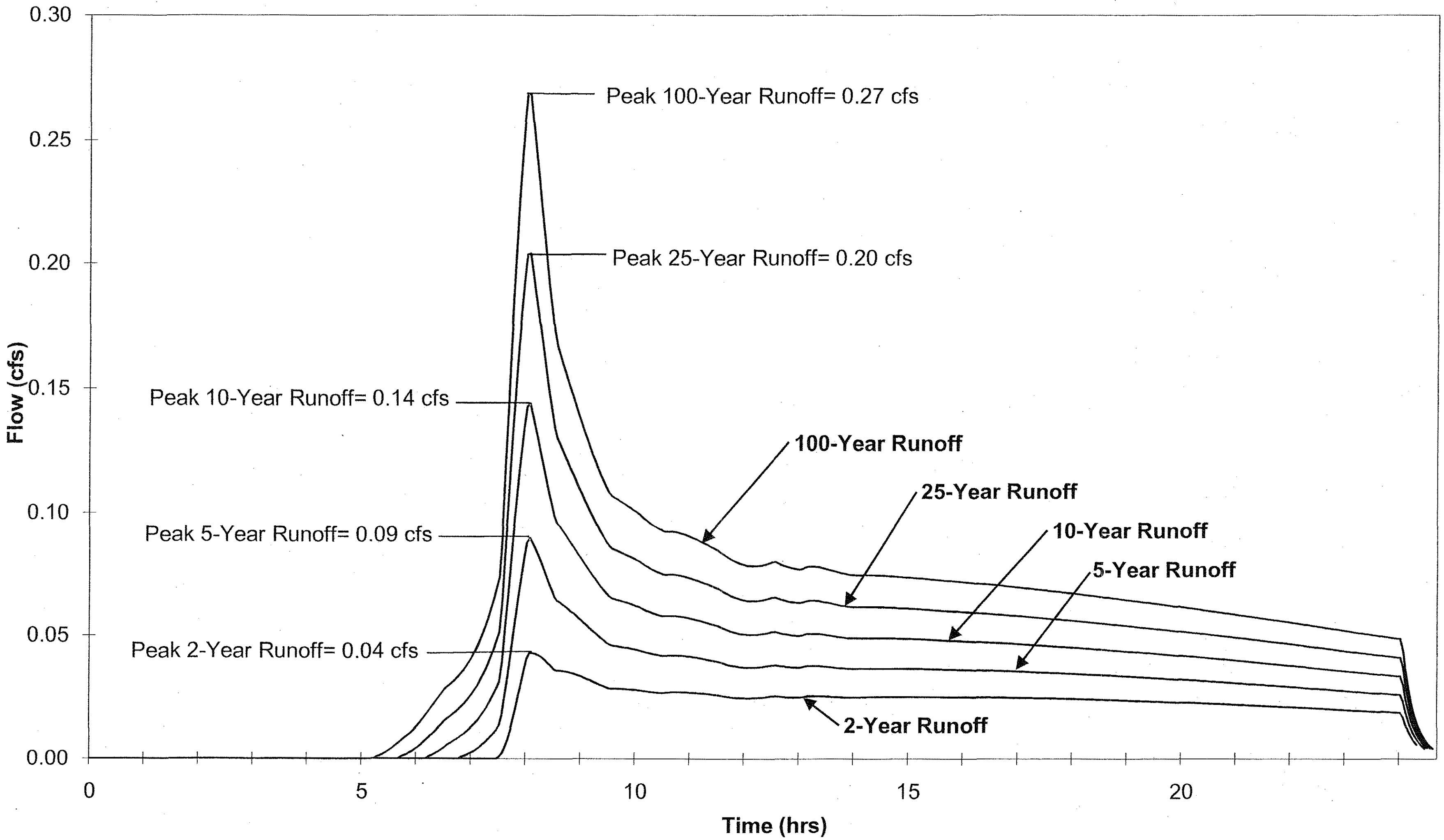
NEW WEST LINN PRIMARY SCHOOL
Runoff Hydrographs for Existing Conditions
SUB-BASIN A



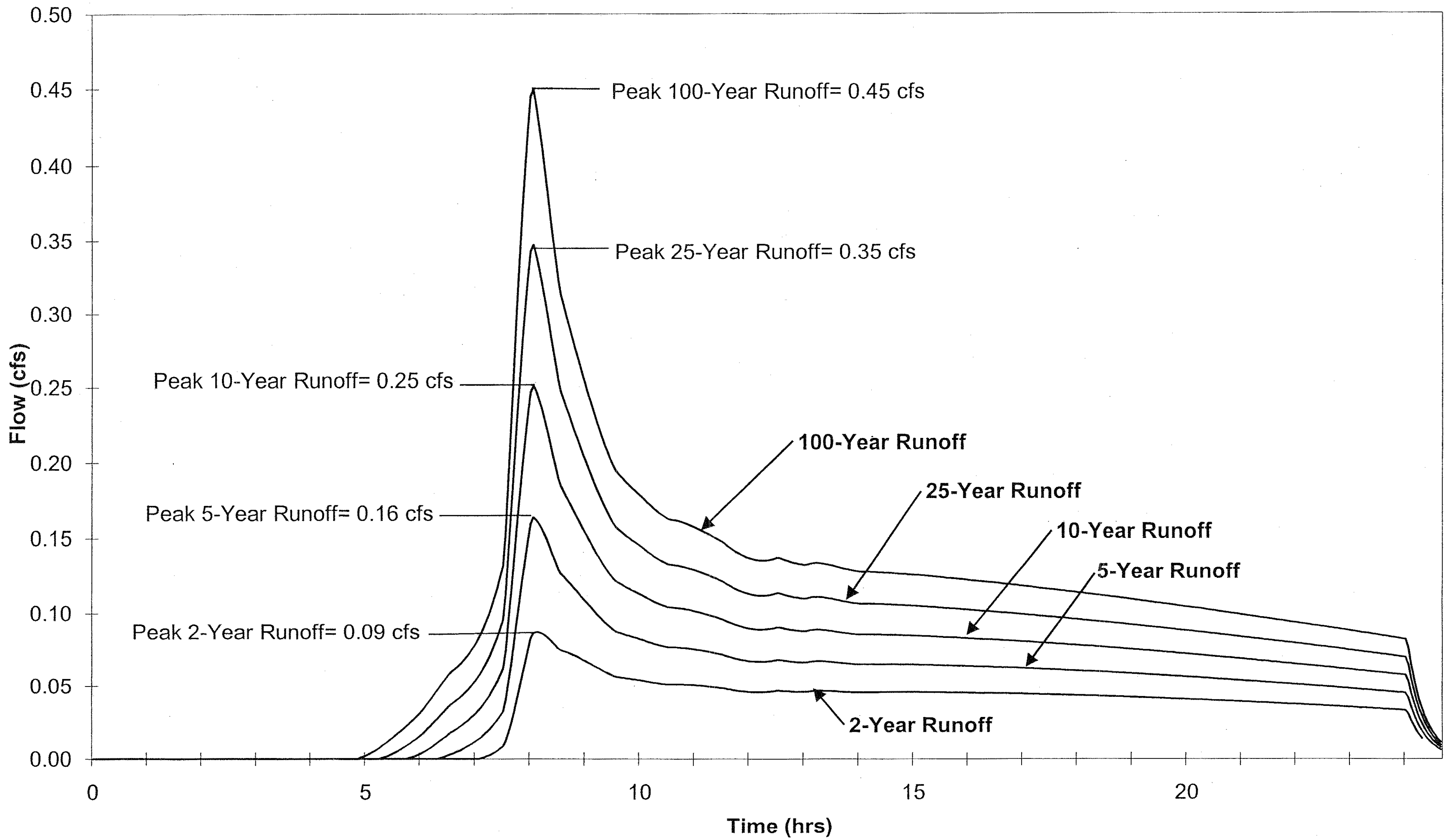


NEW WEST LINN PRIMARY SCHOOL
Runoff Hydrographs for Existing Conditions
SUB-BASIN B
Peak 100-Year Runoff= 0.89 cfs
Peak 25-Year Runoff= 0.67 cfs
Peak 10-Year Runoff= 0.47 cfs
Peak 5-Year Runoff= 0.29 cfs
Peak 2-Year Runoff= 0.14 cfs
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff
Flow (cfs)
Time (hrs)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
5
10
15
20

NEW WEST LINN PRIMARY SCHOOL
Runoff Hydrographs for Existing Conditions
SUB-BASIN C



NEW WEST LINN PRIMARY SCHOOL
Runoff Hydrographs for Existing Conditions
SUB-BASIN D



WINZLER & KELLY

DATE: 5/28/2010
JOB No: 10884-09009
JOB NAME: New West Linn Primary School
CALC BY: STS
SUB-BASIN: A - Existing Conditions

Time of Concentration

The following calculations are based on the procedures presented in the NRCS publication TR-55: *Urban Hydrology for Small Watersheds* (June 1986 edition)

Sheet Flow

$$T_{SF} = \frac{0.007(nL)^{0.8}}{(I_2)^{0.5}s^{0.4}}(60\ \text{min/hr})$$

T_{SF} = Travel Time for Sheet Flow (min)
n = Manning's Roughness Coefficient (From Table 3-1)
I_2 = 2-year, 24-hour rainfall (in)
L = Flow Length (ft) - 300 ft maximum
s = Land Slope (ft/ft)

Parameters

n: 0.15
I_2: 2.4 in
L: 300 ft
s: 0.05 ft/ft

$\boxed{T_{SF} = 19\ \text{min}}$

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n 1/
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses 2/	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: 3/	
Light underbrush	0.40
Dense underbrush	0.80

1 The n values are a composite of information compiled by Engman (1986).
2 Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
3 When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Time of Concentration (Cont)

Shallow Concentrated Flow

$$T_{SCF} = \frac{L}{3600V}\ (60\ \text{min/hr})$$

T_{SCF} = Travel Time for Shallow Concentrated Flow (min)
L = Flow Length (ft)
V = Velocity (ft/s) (From Figure 3-1)

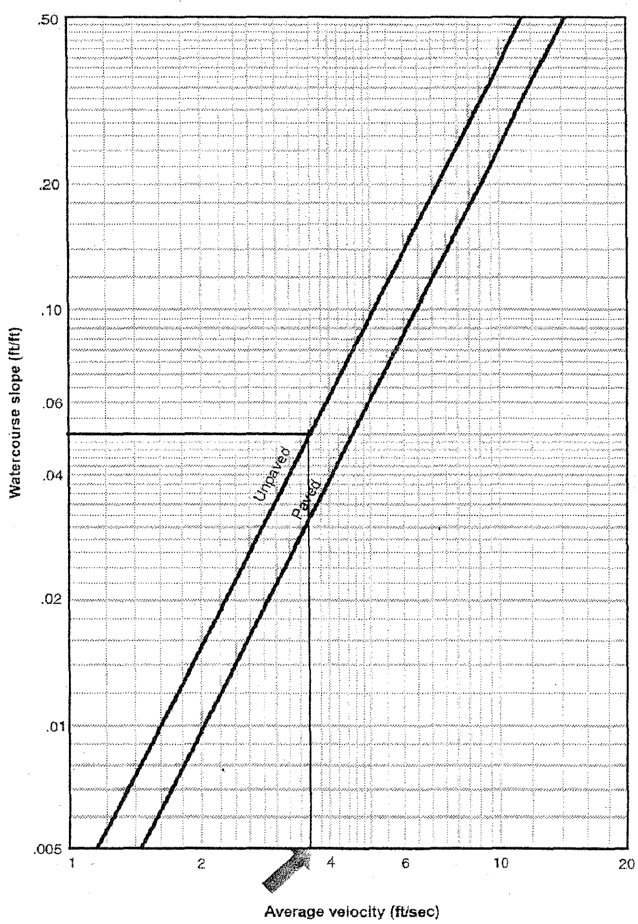
Parameters

L: 50 ft
V: 3.60 ft/s

T_{SCF} = min

Figure 3-1 from TR-55

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow



Total Time of Concentration

$T_C = T_{SF} + T_{SCF}$

T_C = 19 min

WINZLER & KELLY

DATE: 5/28/2010
JOB No: 10884-09009
JOB NAME: New West Linn Primary School
CALC BY: STS
SUB-BASIN: B - Existing Conditions

Time of Concentration

The following calculations are based on the procedures presented in the NRCS publication TR-55: *Urban Hydrology for Small Watersheds* (June 1986 edition)

Sheet Flow

$$T_{SF} = \frac{0.007(nL)^{0.8}}{(I_2)^{0.5}s^{0.4}}\,(60\ \text{min/hr})$$

T_{SF} = Travel Time for Sheet Flow (min)
n = Manning's Roughness Coefficient (From Table 3-1)
I_2 = 2-year, 24-hour rainfall (in)
L = Flow Length (ft) - 300 ft maximum
s = Land Slope (ft/ft)

Parameters

n: 0.15
I_2: 2.4 in
L: 300 ft
s: 0.05 ft/ft

T_{SF} = 19 min

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3]	
Light underbrush	0.40
Dense underbrush	0.80

1 The n values are a composite of information compiled by Engman (1986).
2 Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
3 When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Time of Concentration (Cont)

Shallow Concentrated Flow

$$T_{SCF} = \frac{L}{3600V}(60\ \text{min/hr})$$

T_{SCF} = Travel Time for Shallow Concentrated Flow (min)
L = Flow Length (ft)
V = Velocity (ft/s) (From Figure 3-1)

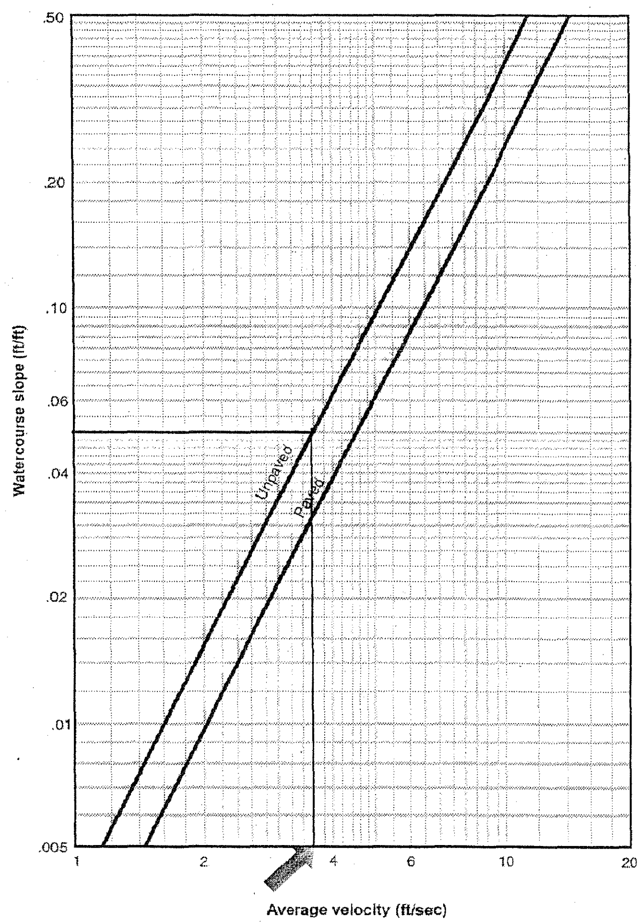
Parameters

L: 100 ft
V: 3.60 ft/s

T_{SCF} = min

Figure 3-1 from TR-55

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow



Total Time of Concentration

$T_C = T_{SF} + T_{SCF}$

T_C = 19 min

WINZLER & KELLY

DATE: 5/28/2010
JOB No: 10884-09009
JOB NAME: New West Linn Primary School
CALC BY: STS
SUB-BASIN: C - Existing Conditions

Time of Concentration

The following calculations are based on the procedures presented in the NRCS publication TR-55: *Urban Hydrology for Small Watersheds* (June 1986 edition)

Sheet Flow

$$T_{SF} = \frac{0.007(nL)^{0.8}}{(I_2)^{0.5}s^{0.4}} \text{ (60 min/hr)}$$

T_{SF} = Travel Time for Sheet Flow (min)
n = Manning's Roughness Coefficient (From Table 3-1)
I_2 = 2-year, 24-hour rainfall (in)
L = Flow Length (ft) - 300 ft maximum
s = Land Slope (ft/ft)

Parameters

n: 0.15
I_2: 2.4 in
L: 240 ft
s: 0.07 ft/ft

$\boxed{T_{SF} = 14 \text{ min}}$

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3]	
Light underbrush	0.40
Dense underbrush	0.80

1 The n values are a composite of information compiled by Engman (1986).
2 Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
3 When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Time of Concentration (Cont)

Shallow Concentrated Flow

$$T_{SCF} = \frac{L}{3600V}(60 \text{ min/hr})$$

T_{SCF} = Travel Time for Shallow Concentrated Flow (min)
L = Flow Length (ft)
V = Velocity (ft/s) (From Figure 3-1)

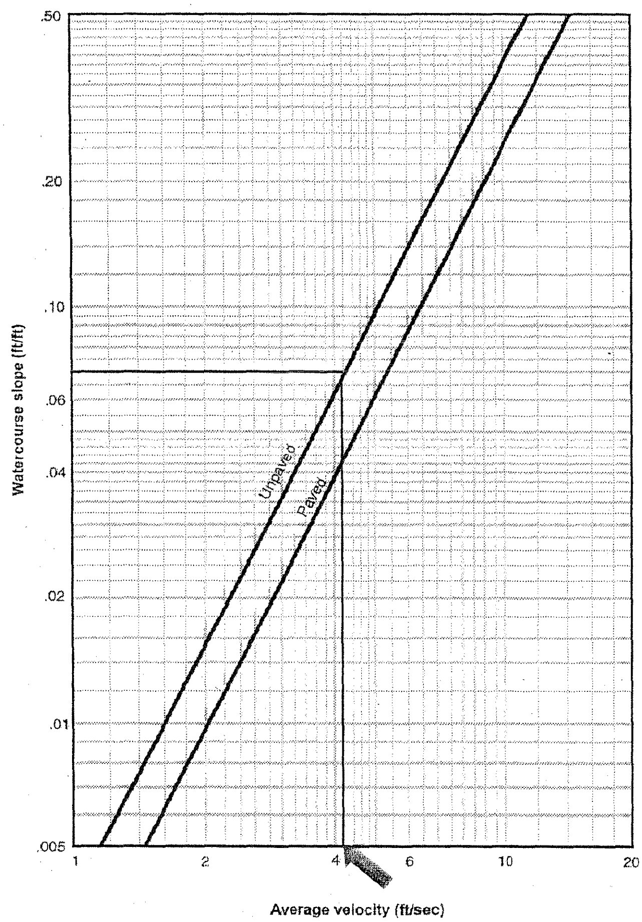
Parameters

L: 0 ft
V: 4.20 ft/s

T_{SCF} = min

Figure 3-1 from TR-55

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow



Total Time of Concentration

$T_C = T_{SF} + T_{SCF}$

T_C = 14 min

WINZLER&KELLY

DATE: 5/28/2010
JOB No: 10884-09009
JOB NAME: New West Linn Primary School
CALC BY: STS
SUB-BASIN: D - Existing Conditions

Time of Concentration

The following calculations are based on the procedures presented in the NRCS publication TR-55: *Urban Hydrology for Small Watersheds* (June 1986 edition)

Sheet Flow

$$T_{SF} = \frac{0.007(nL)^{0.8}}{(I_2)^{0.5}s^{0.4}}\,(60\text{ min/hr})$$

T_{SF} = Travel Time for Sheet Flow (min)
n = Manning's Roughness Coefficient (From Table 3-1)
I_2 = 2-year, 24-hour rainfall (in)
L = Flow Length (ft) - 300 ft maximum
s = Land Slope (ft/ft)

Parameters

n: 0.15
I_2: 2.4 in
L: 300 ft
s: 0.05 ft/ft

$\boxed{T_{SF} = 19\text{ min}}$

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3]	
Light underbrush	0.40
Dense underbrush	0.80

1 The n values are a composite of information compiled by Engman (1986).
2 Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
3 When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Time of Concentration (Cont)

Shallow Concentrated Flow

$$T_{SCF} = \frac{L}{3600V}\ (60\ \text{min/hr})$$

T_{SCF} = Travel Time for Shallow Concentrated Flow (min)
L = Flow Length (ft)
V = Velocity (ft/s) (From Figure 3-1)

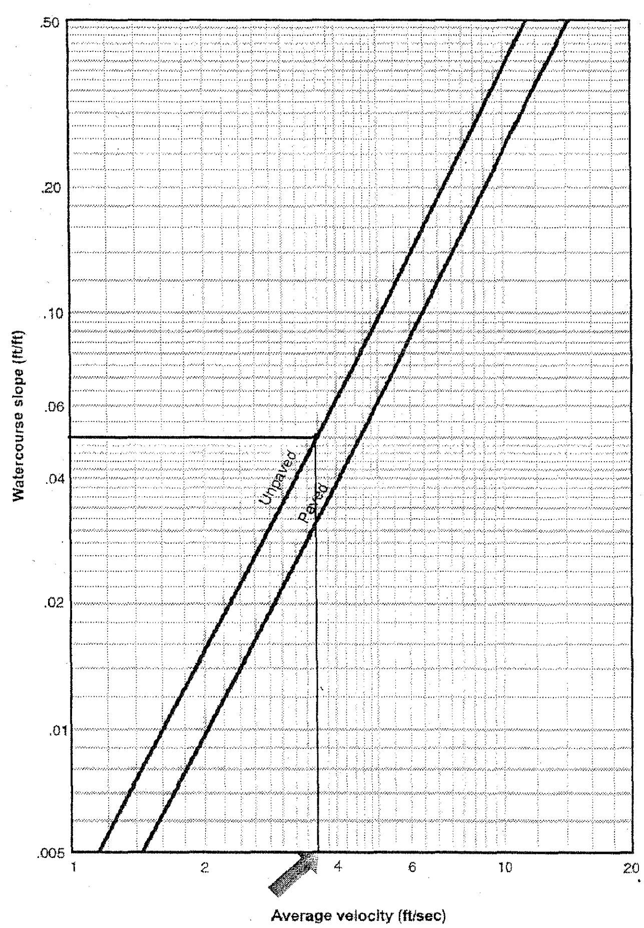
Parameters

L: 50 ft
V: 3.60 ft/s

T_{SCF} = min

Figure 3-1 from TR-55

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow



Total Time of Concentration

$$T_C = T_{SF} + T_{SCF}$$

T_C = 19 min

Appendix C

Calculations for Hydrologic Analysis of Proposed Conditions

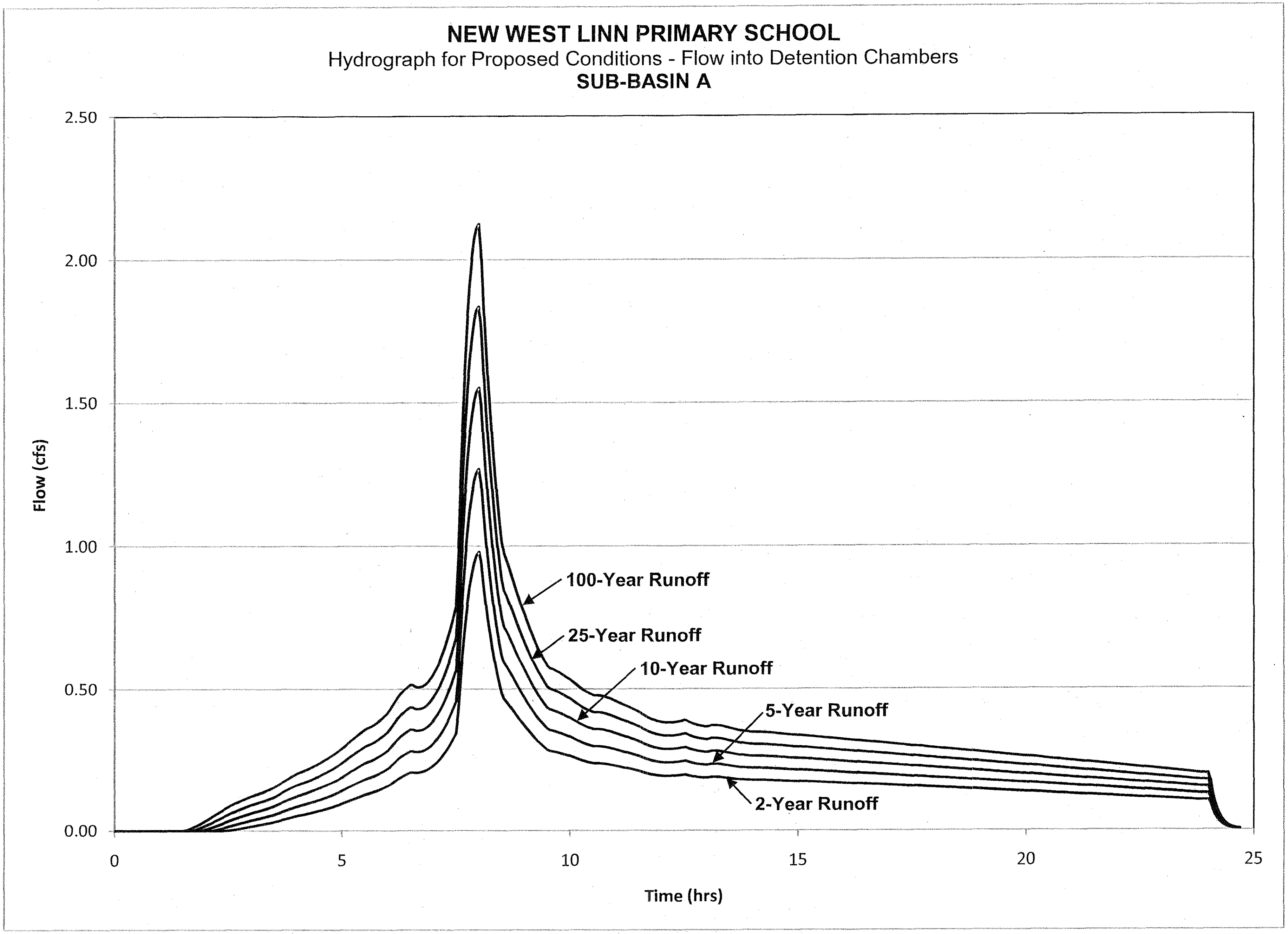
NEW WEST LINN PRIMARY SCHOOL

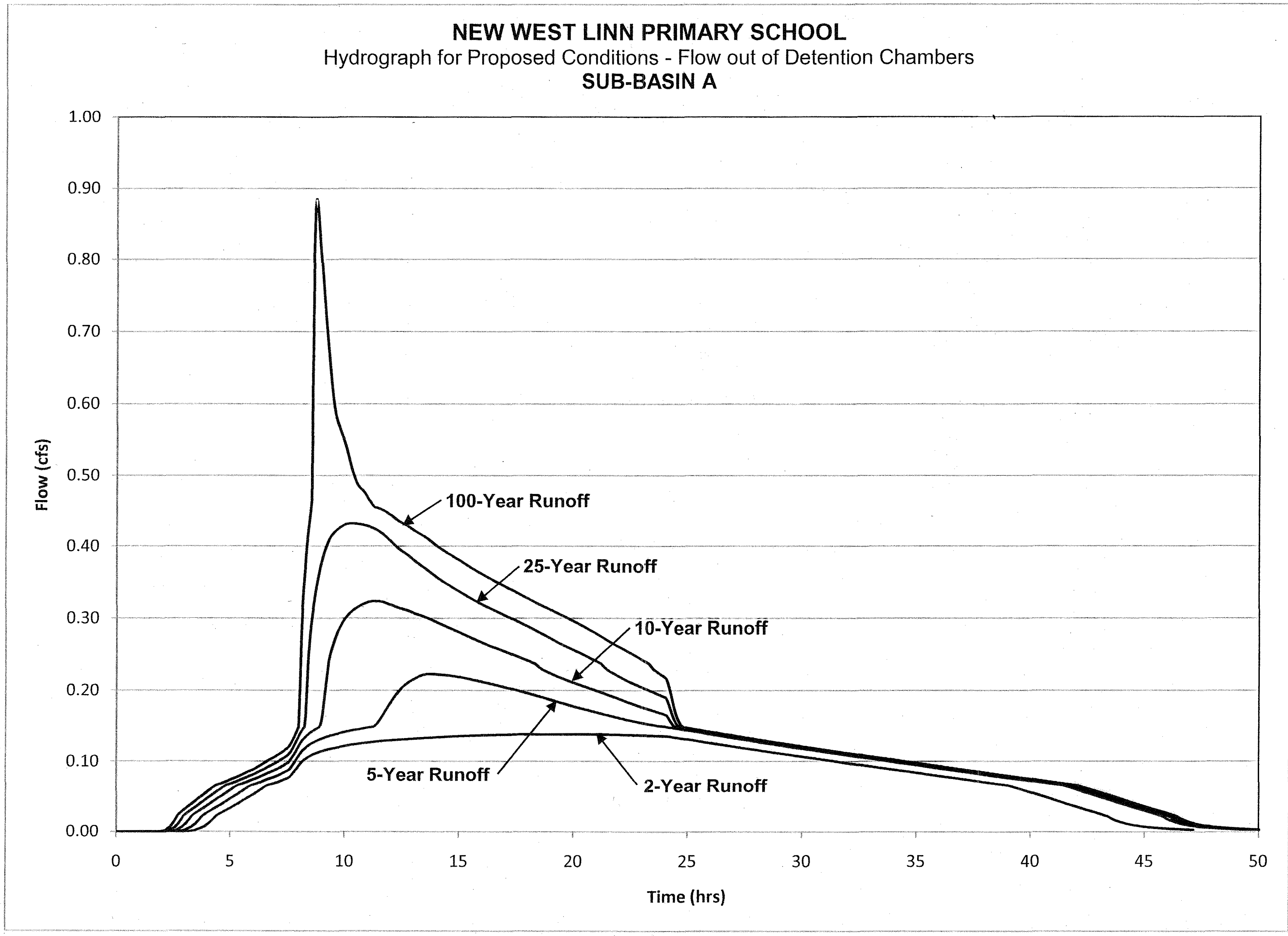
Hydrologic Summary for Proposed Conditions

Hydrologic Soil Group (HSG):	C
Curve Number (CN) Impervious Areas:	98
Curve Number (CN) Open Space Areas:	74

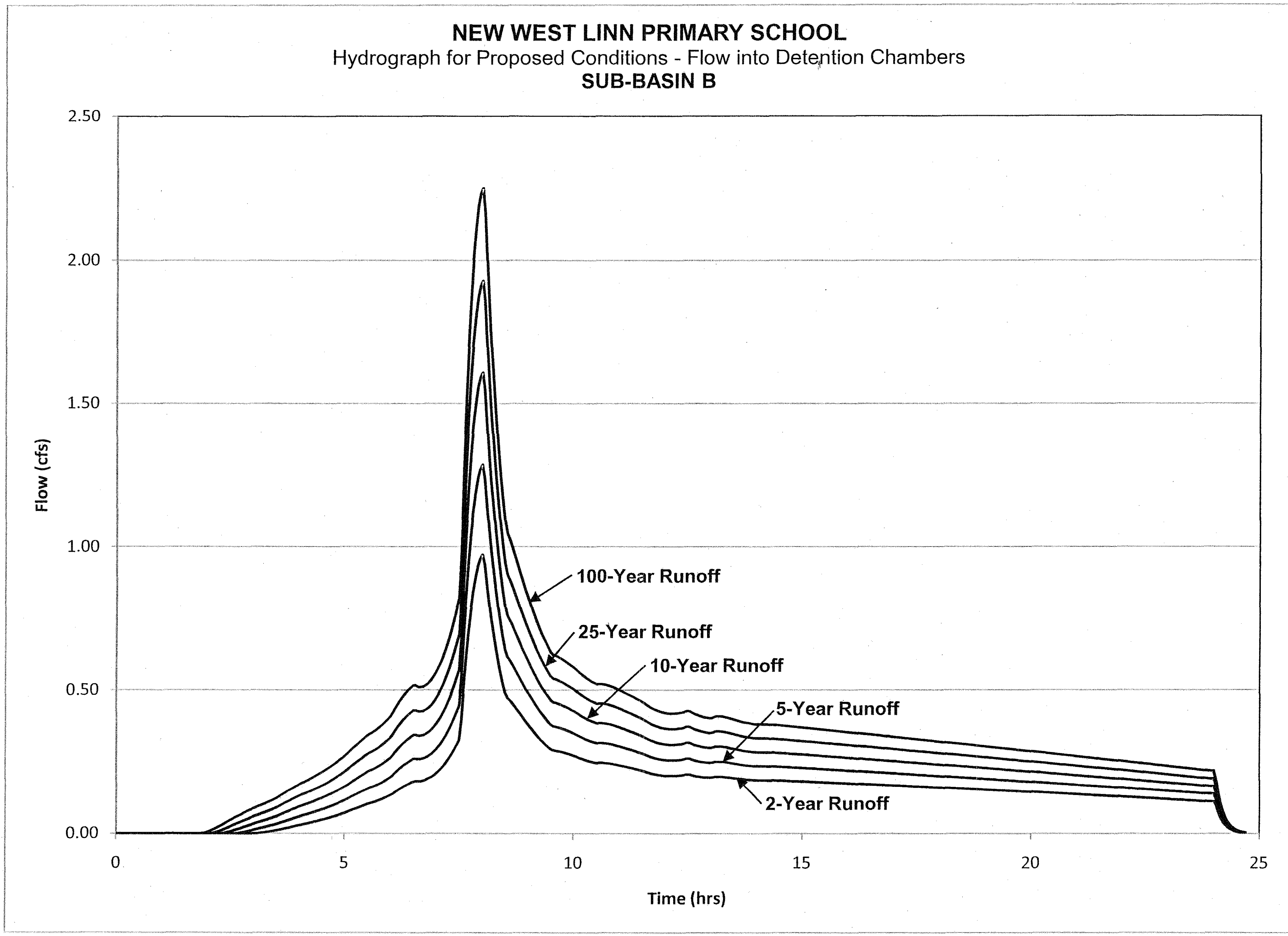
Sub-Basin	Land Use	Area (ac)	Percent Impervious	Composite CN	Time of Concentration, T_c (min)
A	Open Space / Impervious	2.40	78%	93	10
B	Open Space / Impervious	2.70	72%	91	10
C	Open Space / Impervious	0.90	51%	86	10
D	Open Space / Impervious	1.24	38%	83	10
	Total:	**7.24**			

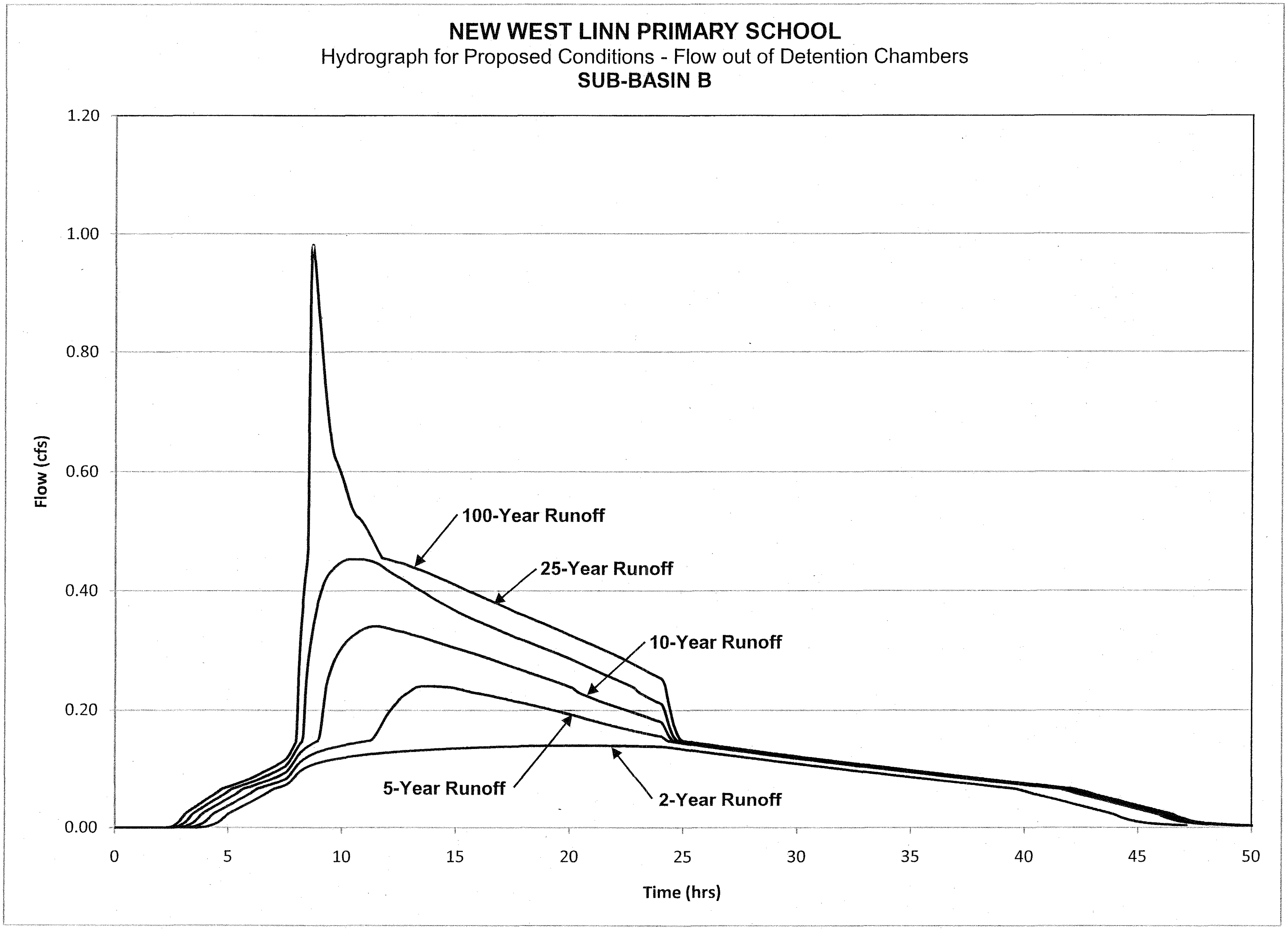
Reference: "Urban Hydrology for Small Watersheds", NRCS Technical Release 55, Second Edition, June 1986

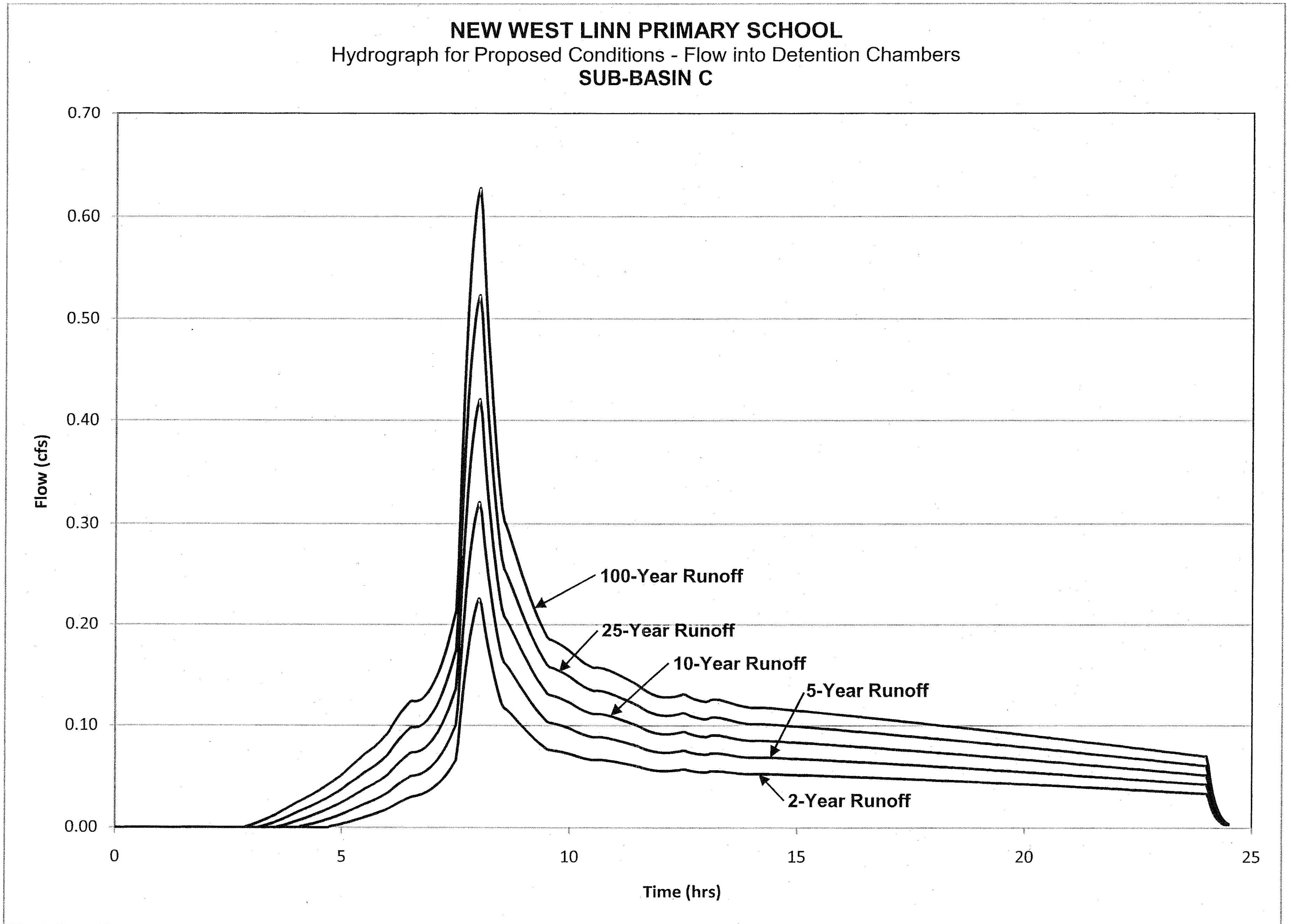

NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow into Detention Chambers
SUB-BASIN A
Flow (cfs)
2.50
2.00
1.50
1.00
0.50
0.00
0
5
10
15
20
25
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff

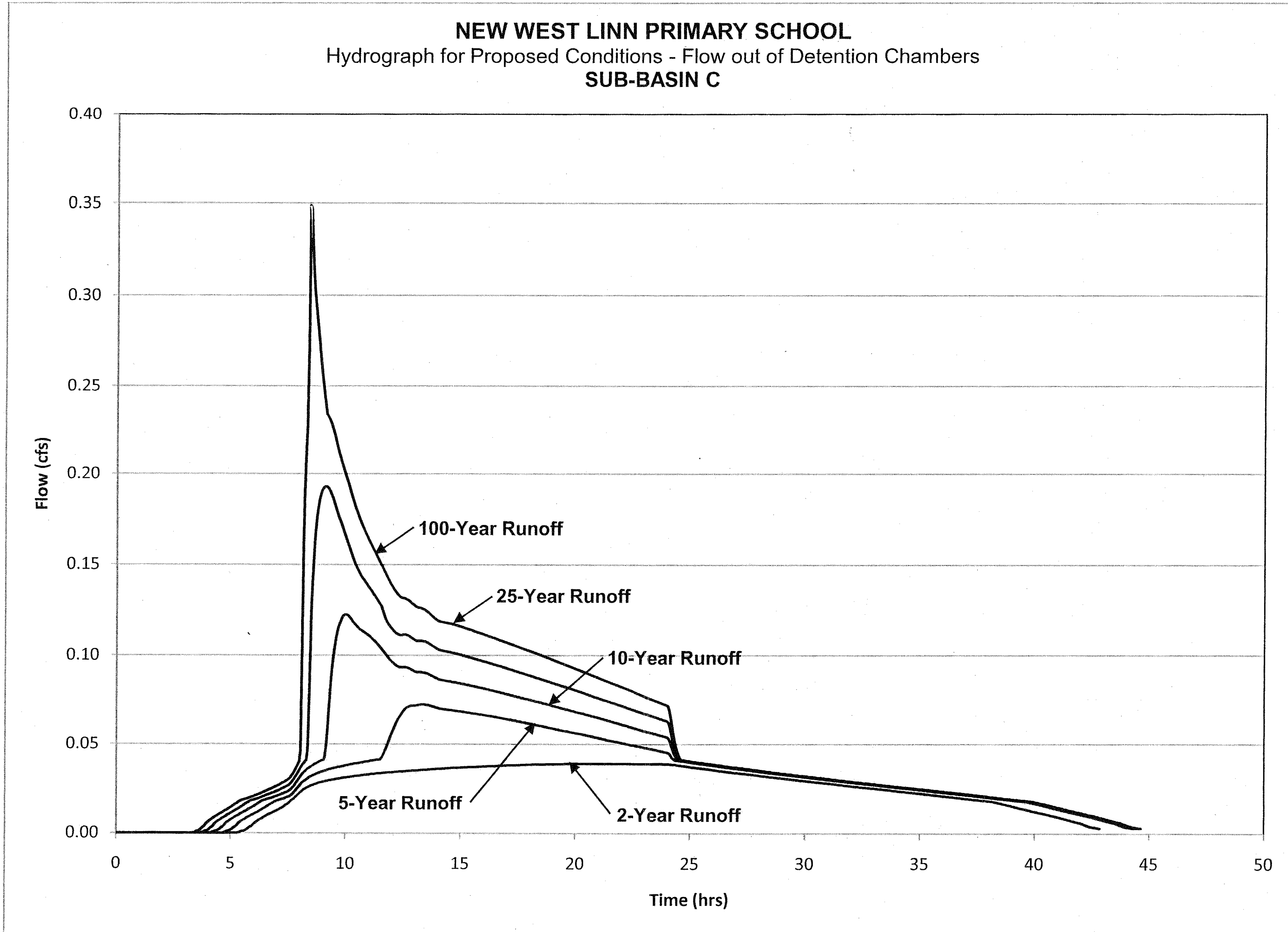


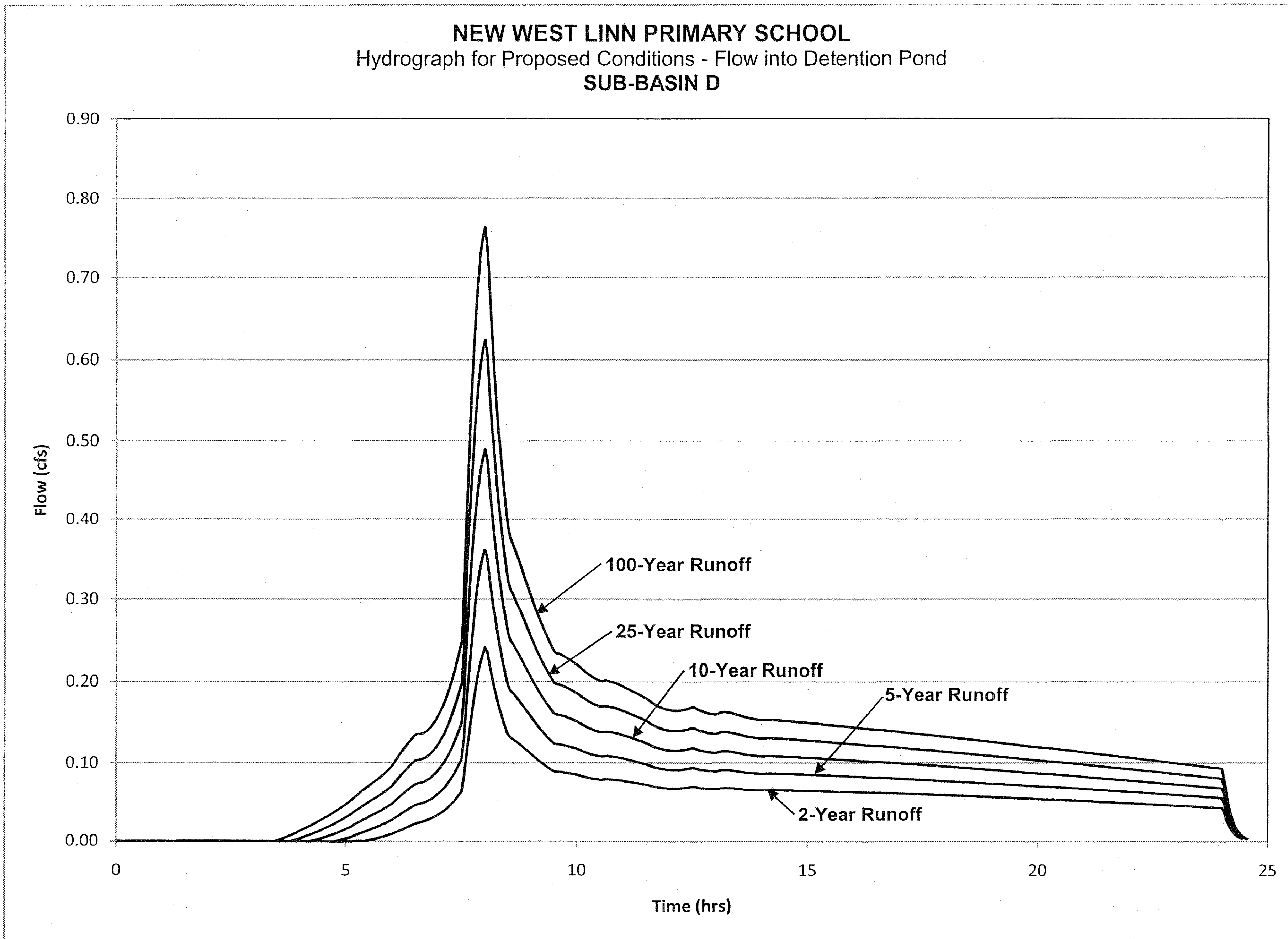
NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow out of Detention Chambers
SUB-BASIN A
Flow (cfs)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
5
10
15
20
25
30
35
40
45
50
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff


NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow into Detention Chambers
SUB-BASIN B
Flow (cfs)
2.50
2.00
1.50
1.00
0.50
0.00
0
5
10
15
20
25
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff

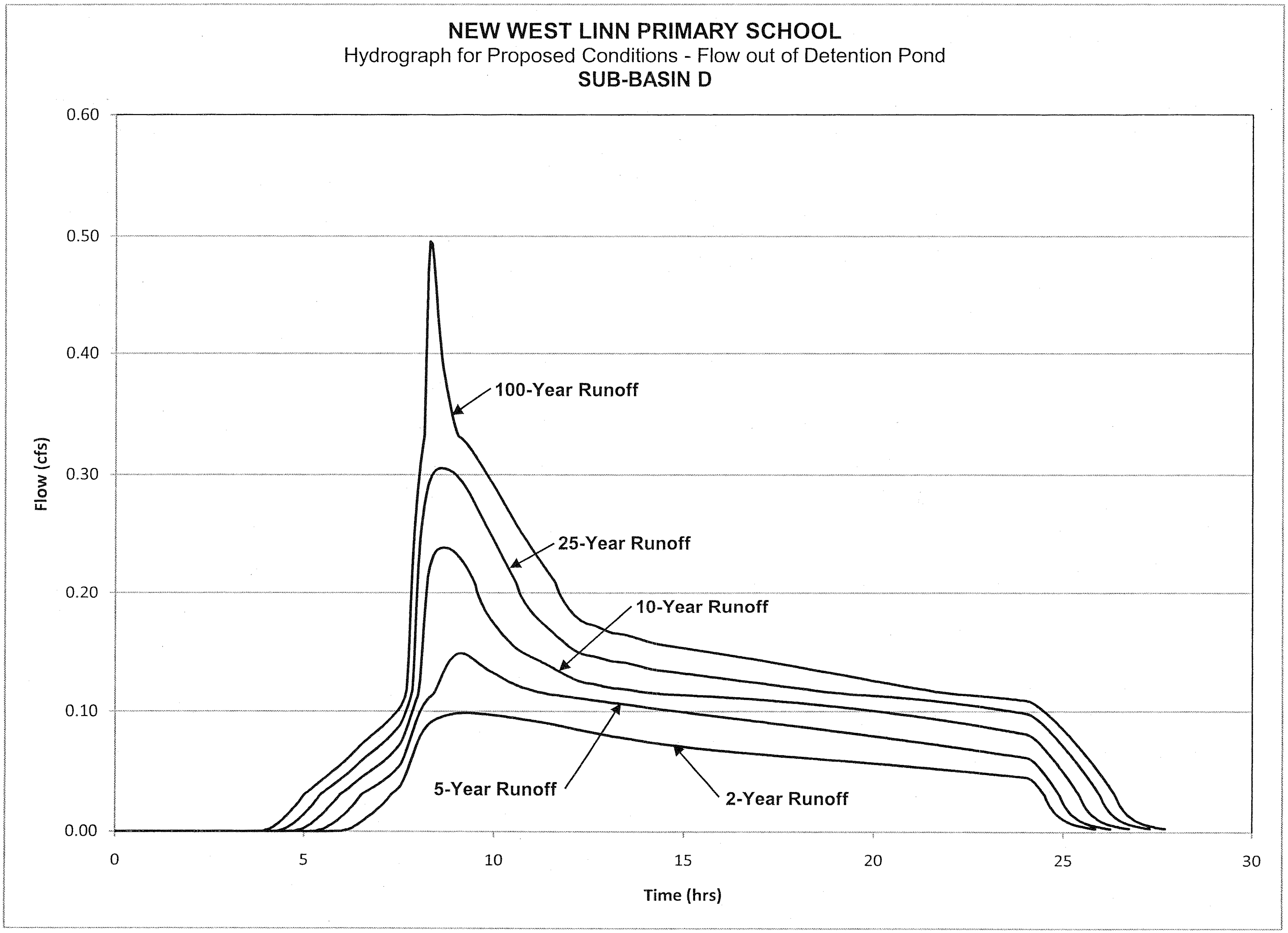

NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow out of Detention Chambers
SUB-BASIN B
Flow (cfs)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
5
10
15
20
25
30
35
40
45
50
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff


NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow into Detention Chambers
SUB-BASIN C
Flow (cfs)
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
5
10
15
20
25
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff


NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow out of Detention Chambers
SUB-BASIN C
Flow (cfs)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
50
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff



NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow into Detention Pond
SUB-BASIN D
Flow (cfs)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
5
10
15
20
25
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff



NEW WEST LINN PRIMARY SCHOOL
Hydrograph for Proposed Conditions - Flow out of Detention Pond
SUB-BASIN D
Flow (cfs)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
5
10
15
20
25
30
Time (hrs)
100-Year Runoff
25-Year Runoff
10-Year Runoff
5-Year Runoff
2-Year Runoff

Appendix D

Water Quality Calculations

Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: Bioswale #1
Date: 06/02/10
Permit Number: [Permit #]
Run Time 6/2/2010 10:28:32 AM

Project Name: New West Linn Primary School
Project Address: Rosemont Road
West Linn, OR
Designer: STS
Company: Winzler & Kelly

Drainage Catchment Information

Catchment ID	Bioswale #1	
	Catchment Area	
Impervious Area	20,000	SF
Impervious Area	0.46	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	10	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2	

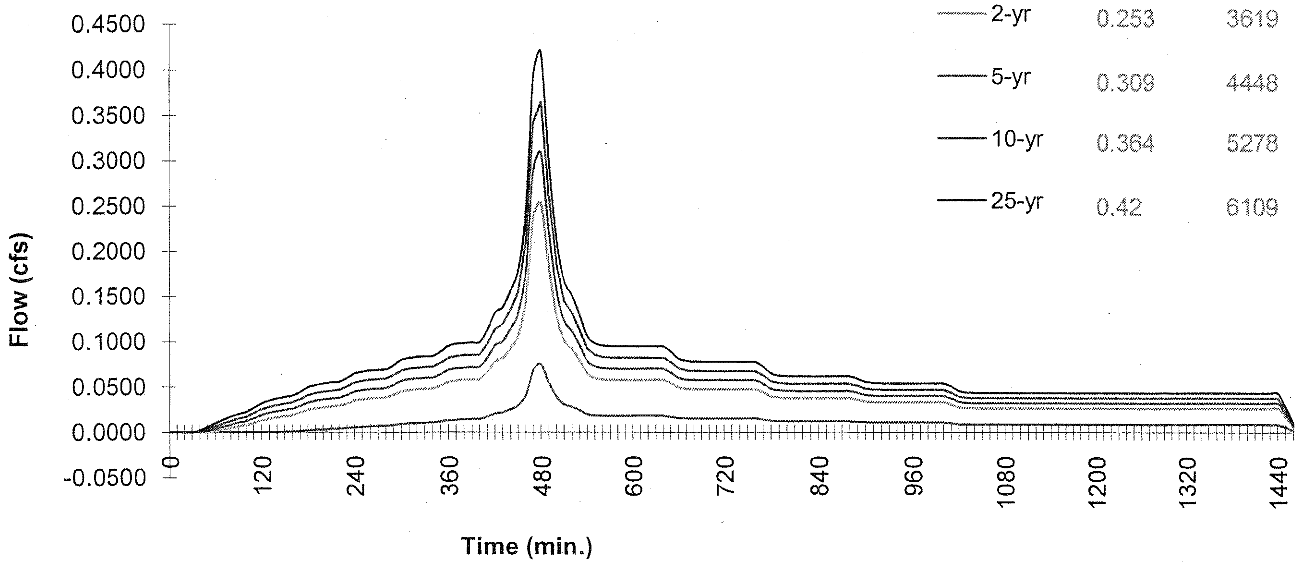
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.075	1045
2-yr	0.253	3619
5-yr	0.309	4448
10-yr	0.364	5278
25-yr	0.42	6109



Printed: 6/2/2010 10:29 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #1

Run Time 6/2/2010 10:28:32 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #1 **Date:** 6/2/2010

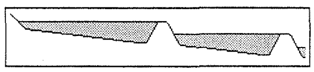
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

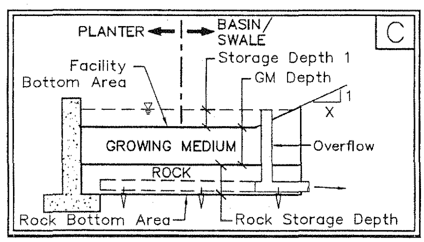
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display…		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 464 sf
Surface Capacity Volume = 214.2 cf

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 214 cf
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.021 cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area = 400 sf
Rock Storage Depth = 12 in
Rock Void Ratio = 0.3
Storage Depth 3 = 6 in

Rock Storage Capacity = 60 cf
Native Design Infiltration Rate = 0.25 in/hr
Infiltration Capacity = 0.002 cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 814 CF

57% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.251	0.307	0.362	0.417

Current data has been exported:

Bioswale #1.xls 6/2/2010 10:28:50 AM

FACILITY FACTS

Total Facility Area Including Freeboard = **1,098 SF**
Sizing Ratio (Total Facility Area / Catchment Area) = **0.055**

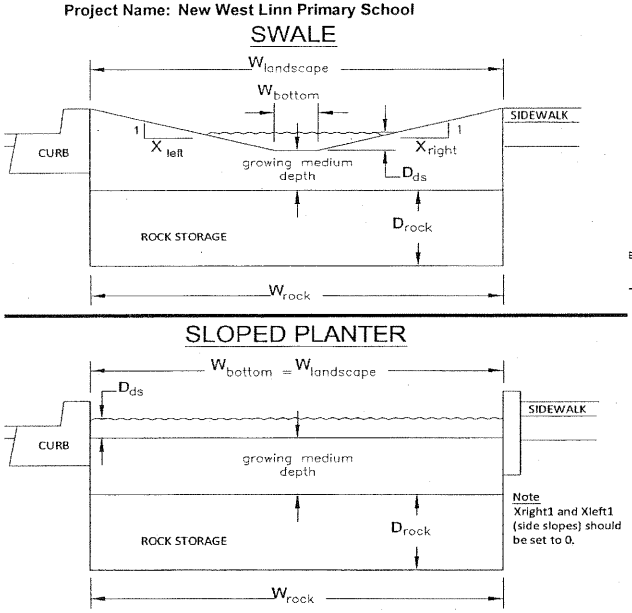
Presumptive Approach Calculator Ver 1.1

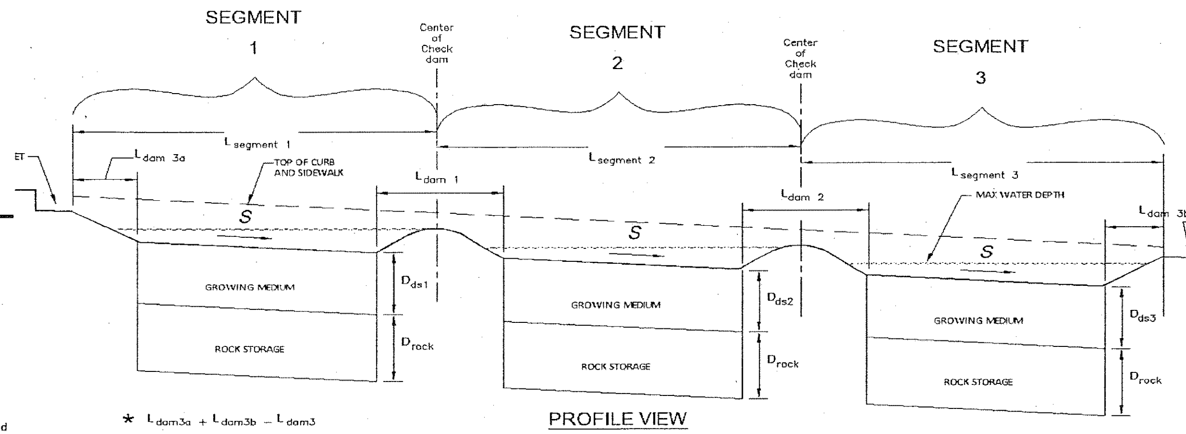
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 6/2/2010 10:28:32 AM

Project Name: New West Linn Primary School **Date: 6/2/2010** **Catchment ID: Bioswale #1**





Data Entry

Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
	Parameters									**Rock Storage Parameters**		
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	18	2	0.035	5	3	3	8	11	5	12	0.3
	2	18	2	0.035	5	3	3	8	11	5		
	3	18	2	0.035	5	3	3	8	11	5		
	4	18	2	0.035	5	3	3	8	11	5		
	5	18	2	0.035	5	3	3	8	11	5		
	6											
	7											
	8											
	9											
	10											

Depth 3 = 6

Error Messages

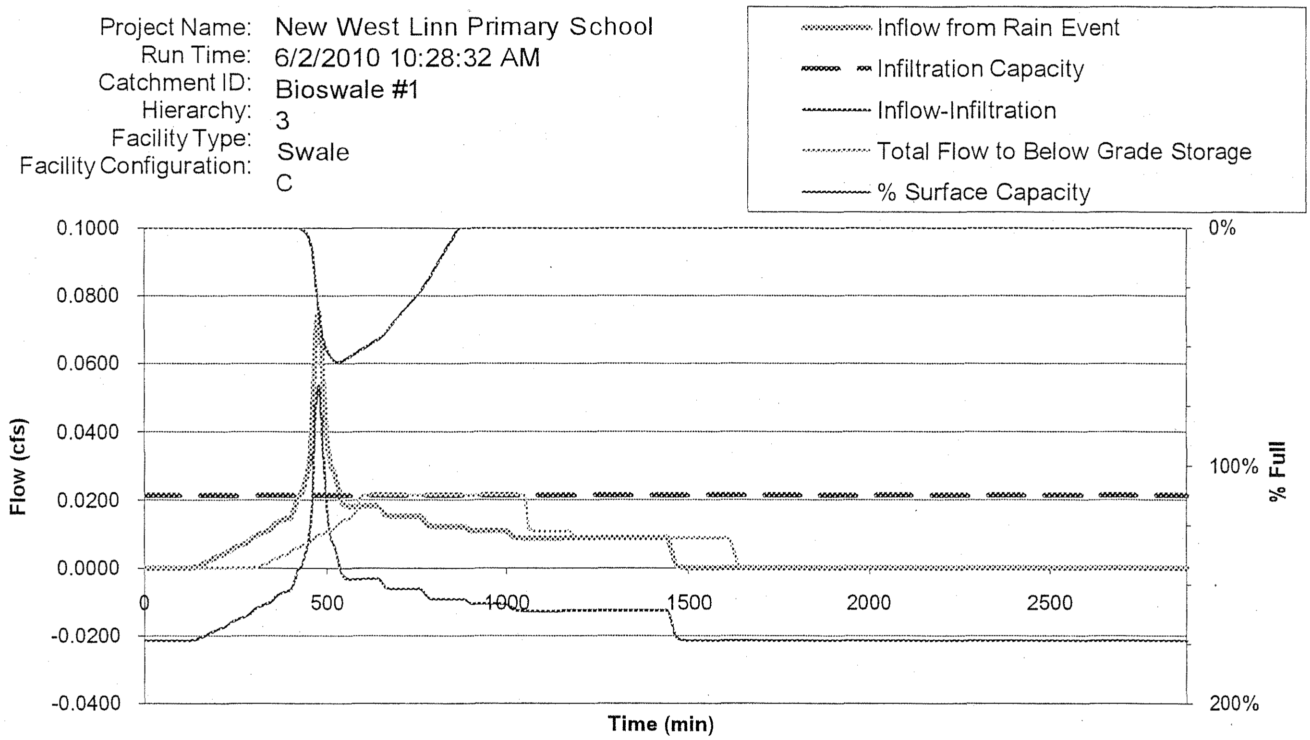
Worksheet Calculations

Presumptive Approach Calculator ver. 1.1

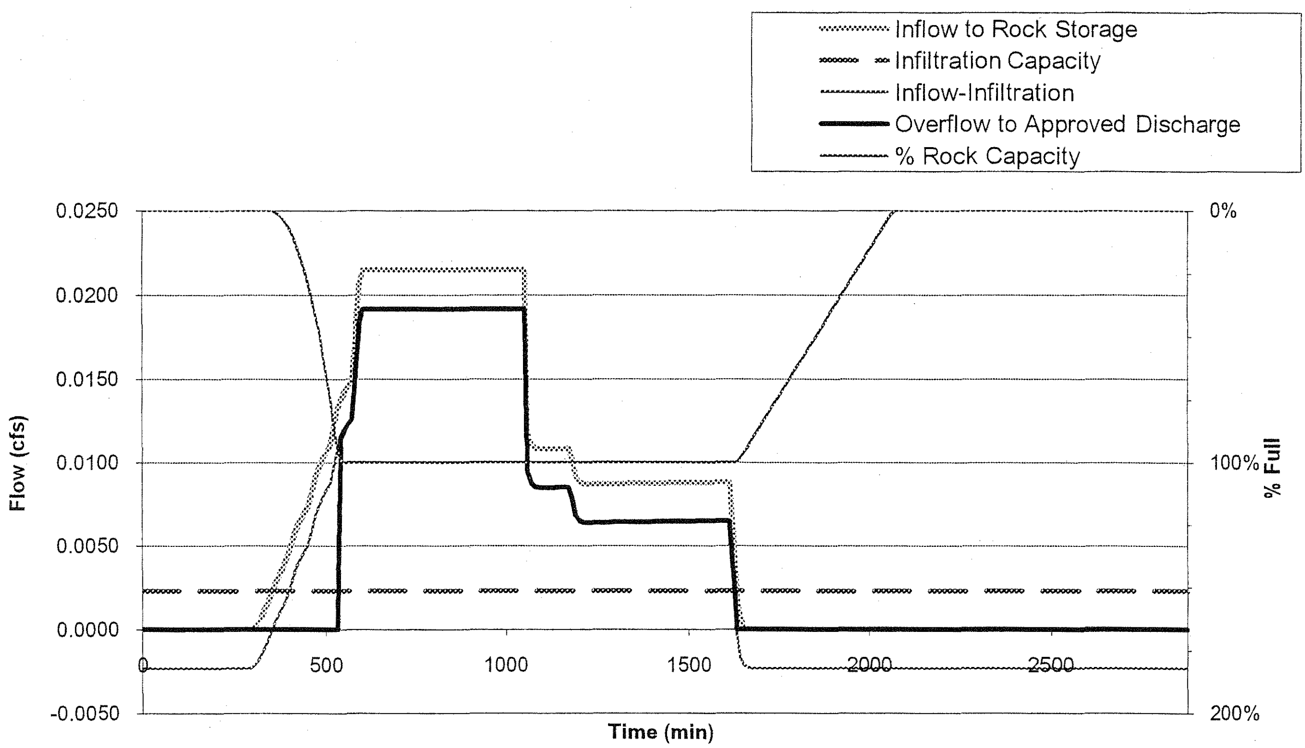
PR Con-C&F

Pollution Reduction Event
Surface Facility Modeling

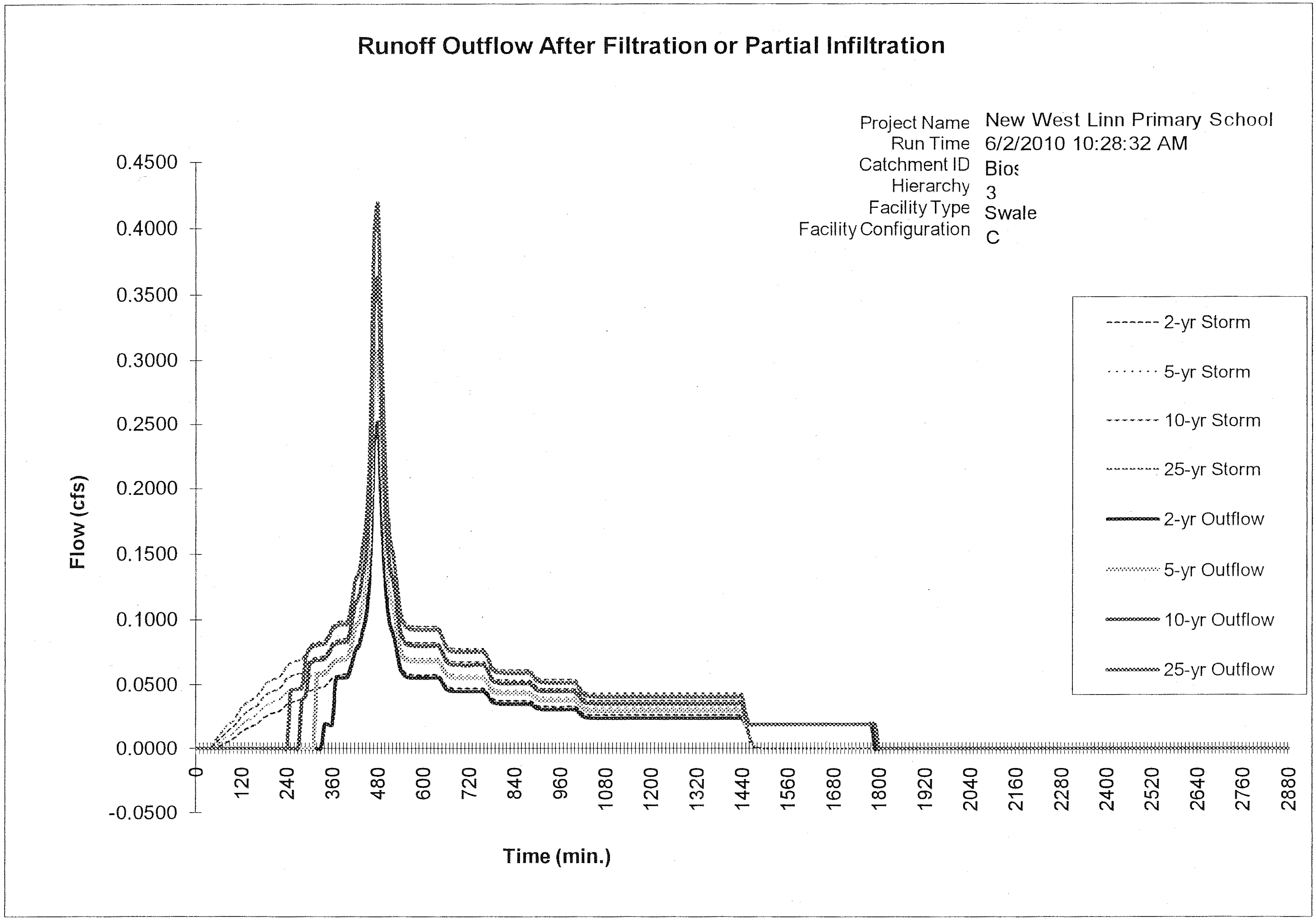
Project Name: New West Linn Primary School
Run Time: 6/2/2010 10:28:32 AM
Catchment ID: Bioswale #1
Hierarchy: 3
Facility Type: Swale
Facility Configuration: C



Pollution Reduction Event
Below Grade Modeling



Printed: 6/2/2010 10:29 AM


Runoff Outflow After Filtration or Partial Infiltration
Project Name New West Linn Primary School
Run Time 6/2/2010 10:28:32 AM
Catchment ID Bios
Hierarchy 3
Facility Type Swale
Facility Configuration C
2-yr Storm
5-yr Storm
10-yr Storm
25-yr Storm
2-yr Outflow
5-yr Outflow
10-yr Outflow
25-yr Outflow
Flow (cfs)
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
-0.0500
0
120
240
360
480
600
720
840
960
1080
1200
1320
1440
1560
1680
1800
1920
2040
2160
2280
2400
2520
2640
2760
2880
Time (min.)

Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: Bioswale #2
Date: 06/02/10
Permit Number: [Permit #]
Run Time 6/2/2010 10:21:53 AM

Project Name: New West Linn Primary School
Project Address: Rosemont Road
West Linn, OR
Designer: STS
Company: Winzler & Kelly

Drainage Catchment Information

Catchment ID	Bioswale #2	
	Catchment Area	
Impervious Area	12,500	SF
Impervious Area	0.29	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	10	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2

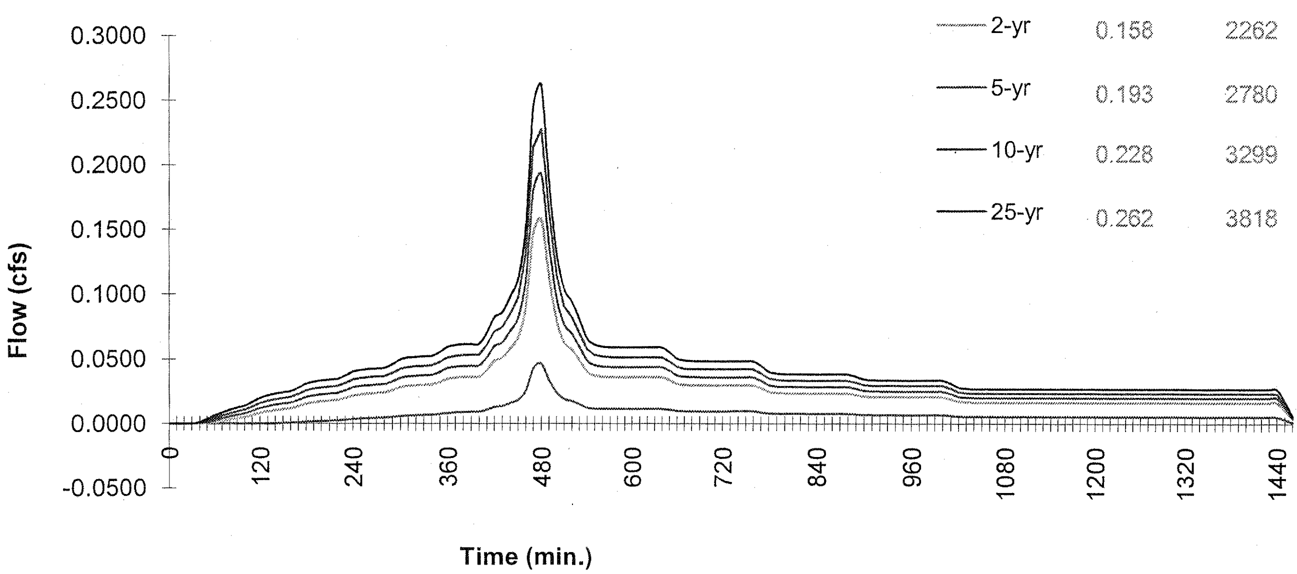
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium :	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.047	653
2-yr	0.158	2262
5-yr	0.193	2780
10-yr	0.228	3299
25-yr	0.262	3818



Printed: 6/2/2010 10:25 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #2

Run Time 6/2/2010 10:21:53 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #2 **Date:** 6/2/2010

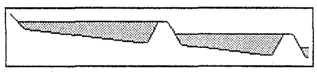
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

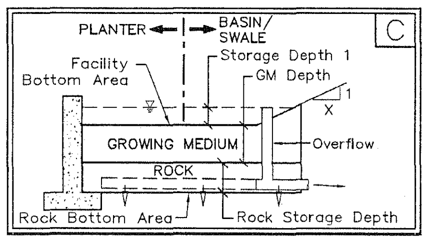
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 425 sf
Surface Capacity Volume = 144.2 cf

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 144 cf
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.020 cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area = 375 sf
Rock Storage Depth = 12 in
Rock Void Ratio = 0.3
Storage Depth 3 = 6 in

Rock Storage Capacity = 56 cf
Native Design Infiltration Rate = 0.25 in/hr
Infiltration Capacity = 0.002 cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 432 CF

31% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.156	0.191	0.226	0.260

FACILITY FACTS

Total Facility Area Including Freeboard = **1,043 SF**
Sizing Ratio (Total Facility Area / Catchment Area) = **0.083**

Presumptive Approach Calculator Ver 1.1

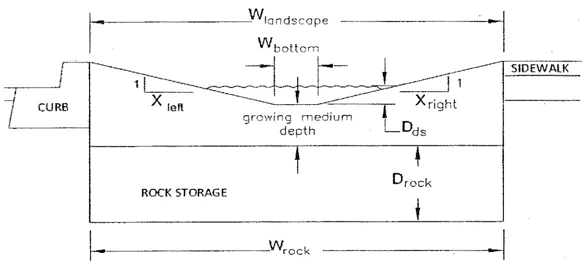
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

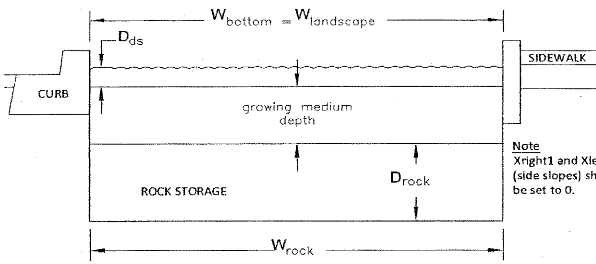
Run Time 6/2/2010 10:21:53 AM

Project Name: New West Linn Primary School **Date: 6/2/2010** **Catchment ID: Bioswale #2**

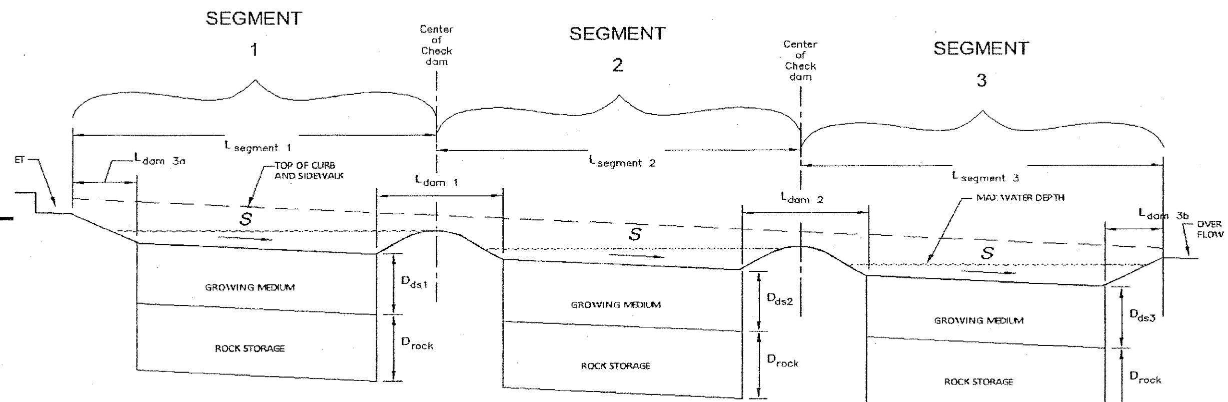
SWALE



SLOPED PLANTER



Note
Xright1 and Xleft1 (side slopes) should be set to 0.



$* \; L_{dam3a} + L_{dam3b} = L_{dam3}$

PROFILE VIEW

Data Entry

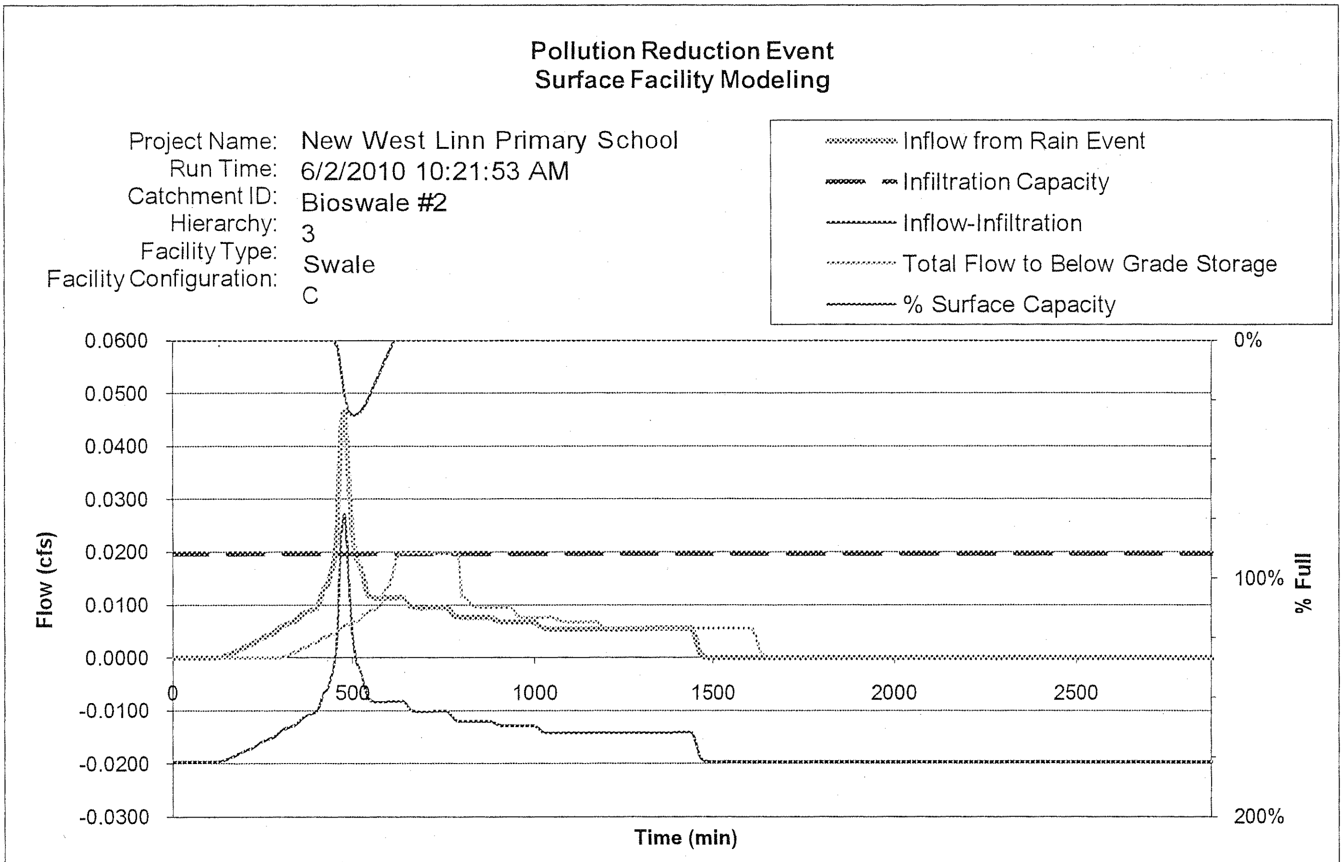
	Parameters									Rock Storage Parameters		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	17	2	0.027	5	3	3	6	11	5	12	0.3
	2	17	2	0.027	5	3	3	6	11	5		
	3	17	2	0.027	5	3	3	6	11	5		
	4	17	2	0.027	5	3	3	6	11	5		
	5	17	2	0.027	5	3	3	6	11	5		
	6											
	7											
	8											
	9											
	10											

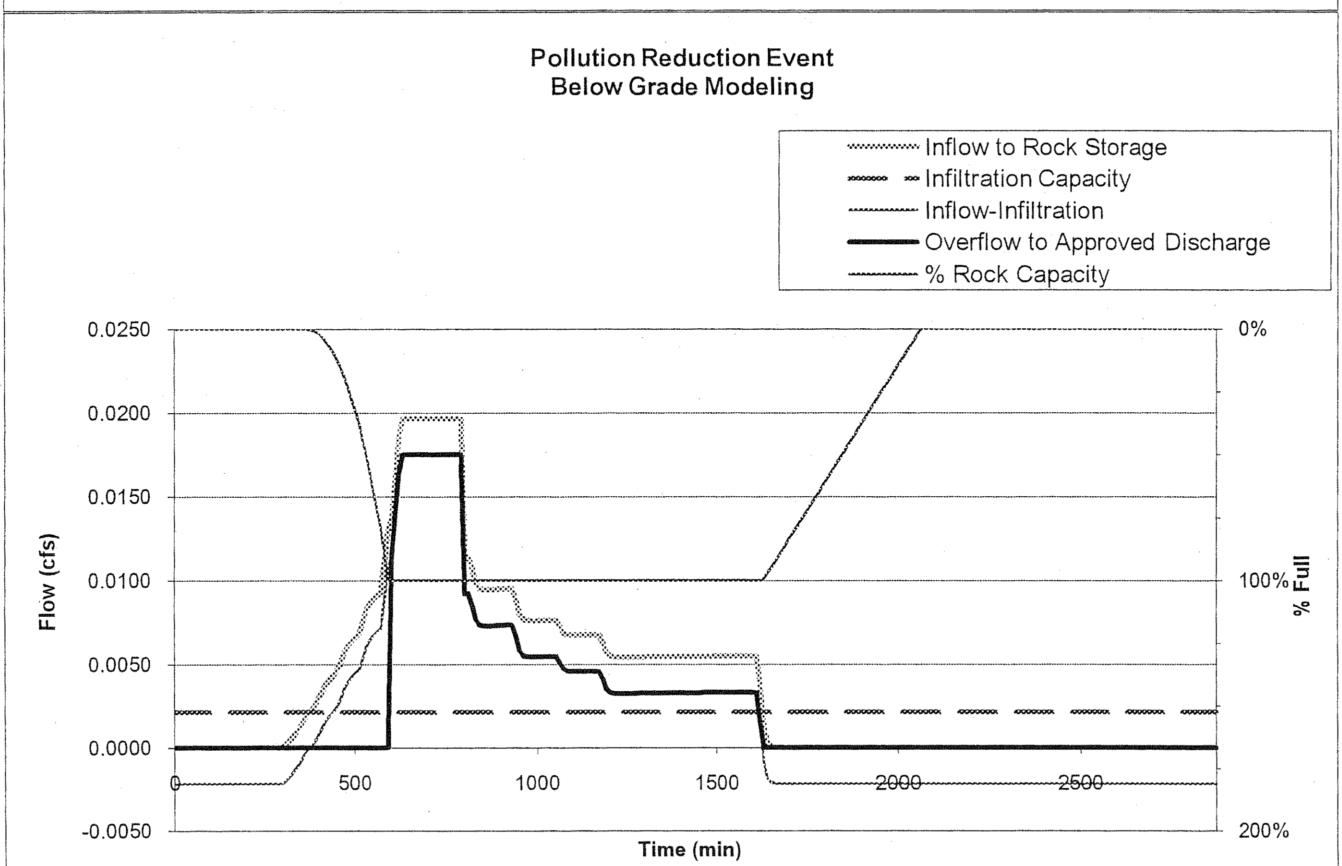
Depth 3 = 6

Error Messages

Worksheet Calculations

Presumptive Approach Calculator ver. 1.1

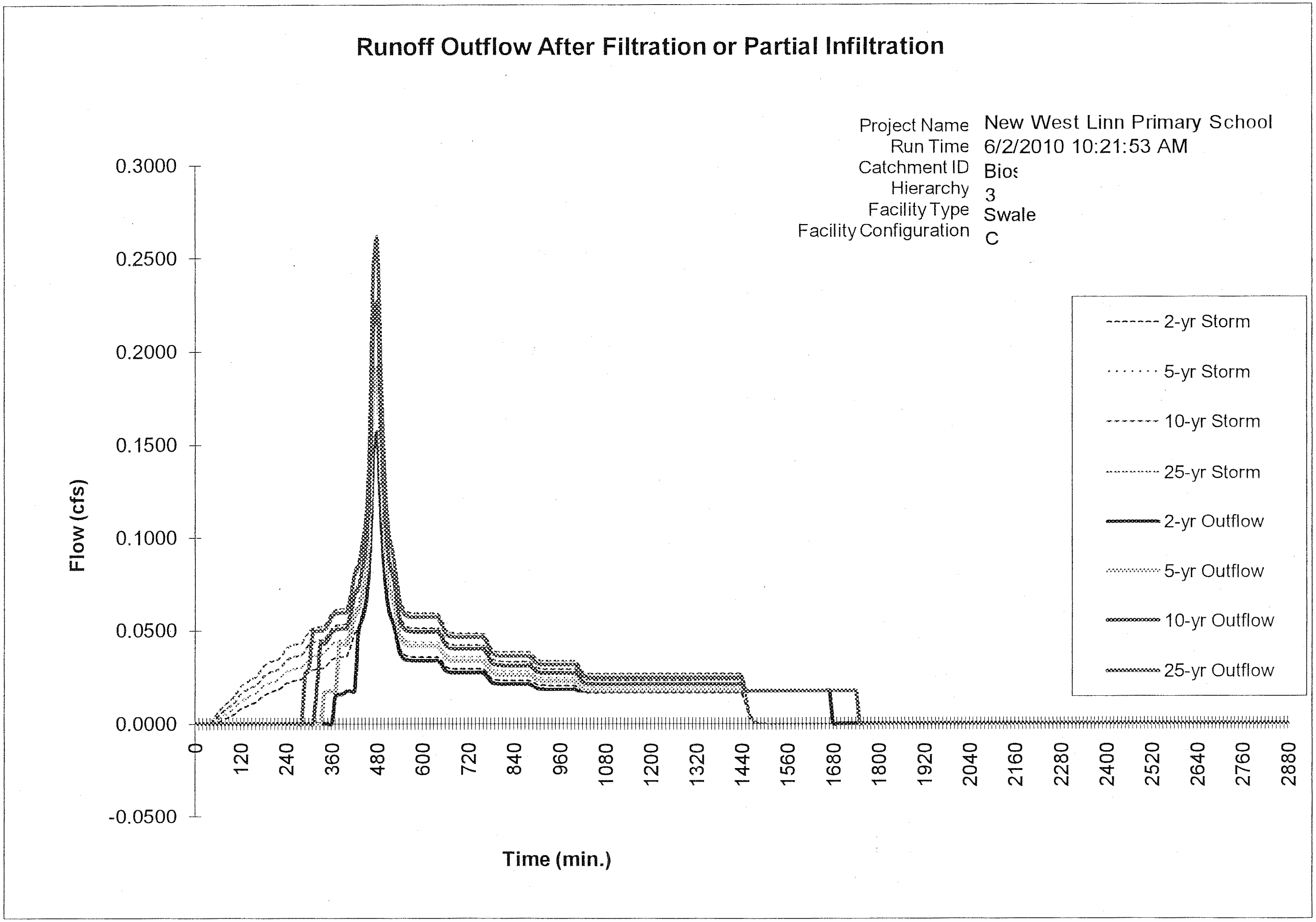




Printed: 6/2/2010 10:25 AM

BES - Presumptive Approach Calculator - Ver 1.0

Output Chart



Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: Bioswale #3

Project Name:	**New West Linn Primary School**	**Date:**	**06/02/10**
Project Address:	**Rosemont Road**	**Permit Number:**	**[Permit #]**
	West Linn, OR	Run Time	6/2/2010 10:39:04 AM
Designer:	**STS**		
Company:	**Winzler & Kelly**		

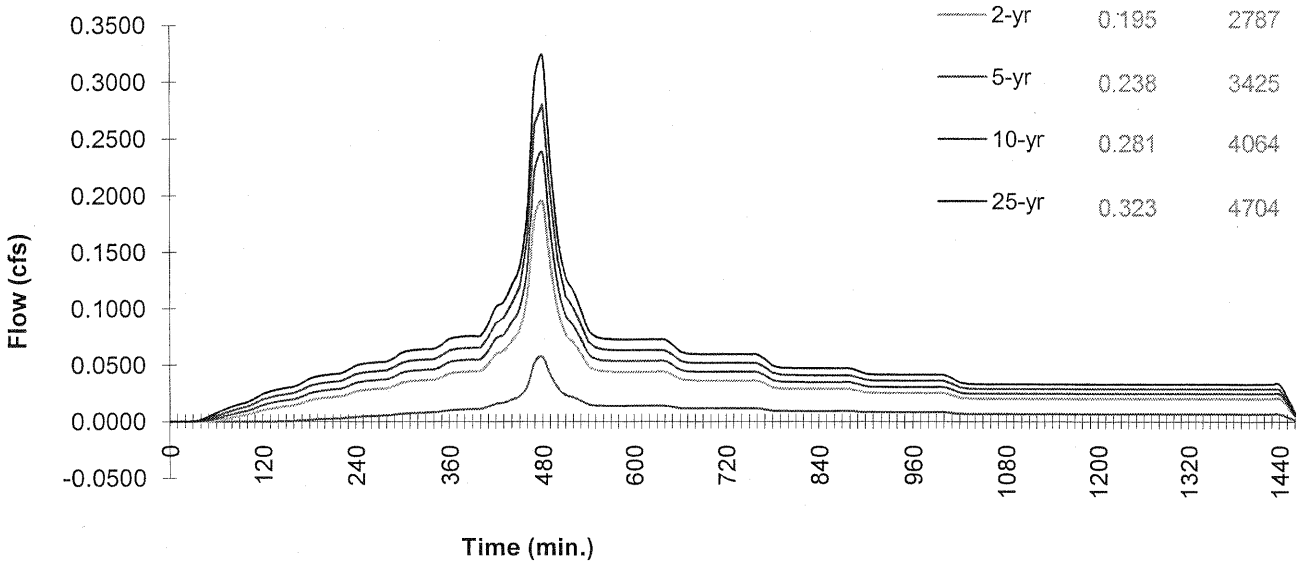
Drainage Catchment Information

Catchment ID	Bioswale #3		
	Catchment Area		
Impervious Area	15,400	SF	
Impervious Area	0.35	ac	
Impervious Area Curve Number, CN_{imp}	98		
Time of Concentration, Tc, minutes	10	min.	
Site Soils & Infiltration Testing Data			
Infiltration Testing Procedure:	Open Pit Falling Head		
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr	
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes		
Correction Factor Component			
CF_{test} (ranges from 1 to 3)	2		
Design Infiltration Rates			
I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium :	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.058	805
2-yr	0.195	2787
5-yr	0.238	3425
10-yr	0.281	4064
25-yr	0.323	4704



Printed: 6/2/2010 10:39 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #3

Run Time 6/2/2010 10:39:04 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #3 **Date:** 6/2/2010

Instructions:

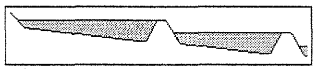
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

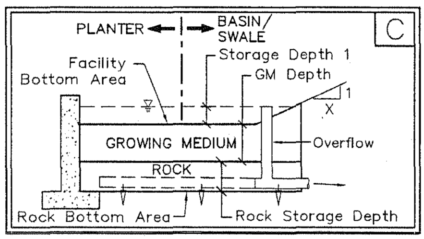
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display… Pollution Reduction as a	RESULTS box below needs to display… 10-yr (aka disposal) as a	Facility configurations allowed
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area =	418	sf
Surface Capacity Volume =	147.7	cf
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	148	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.019	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	540	sf
Rock Storage Depth =	12	in
Rock Void Ratio =	0.3	
Storage Depth 3 =	6	in
Rock Storage Capacity =	81	cf
Native Design Infiltration Rate =	0.25	in/hr
Infiltration Capacity =	0.003	cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 494 CF

52% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.192	0.235	0.278	0.320

Current data has been exported:

Bioswale #3.xls 6/2/2010 10:39:15 AM

FACILITY FACTS

Total Facility Area Including Freeboard = **1,428 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.093**

Presumptive Approach Calculator Ver 1.1

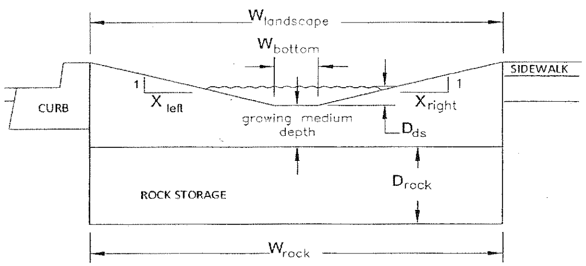
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

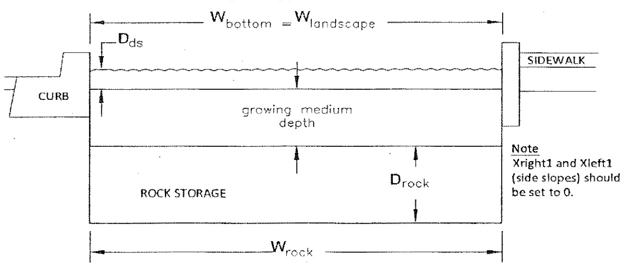
Run Time 6/2/2010 10:30:04 AM

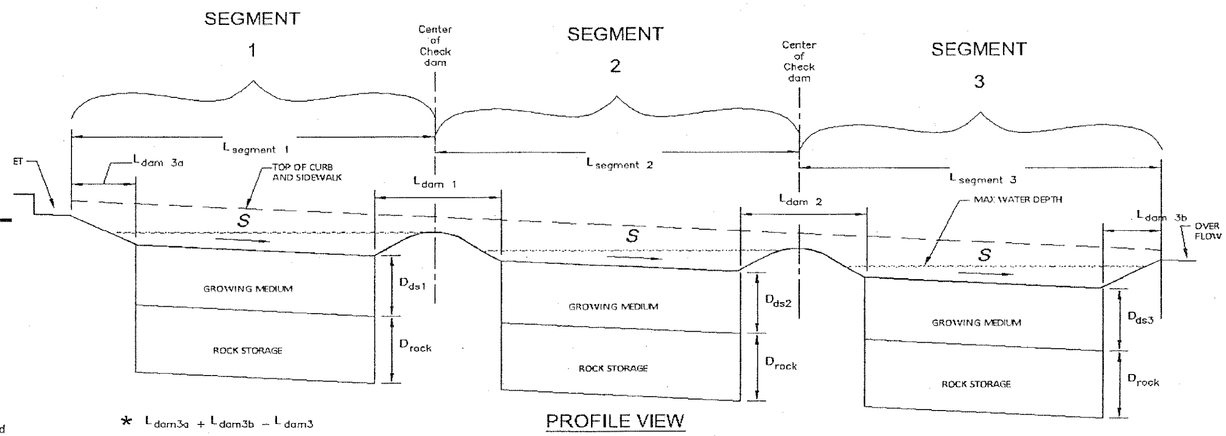
Project Name: New West Linn Primary School **Date:** 6/2/2010 **Catchment ID:** Bioswale #3

SWALE



SLOPED PLANTER





PROFILE VIEW

Data Entry

Parameters										**Rock Storage Parameters**		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	20	2	0.033	5	3	3	6	11	5	12	0.3
	2	20	2	0.033	5	3	3	6	11	5		
	3	20	2	0.033	5	3	3	6	11	5		
	4	20	2	0.033	5	3	3	6	11	5		
	5	20	2	0.033	5	3	3	6	11	5		
	6	20	2	0.033	5	3	3	6	11	5		
	7											
	8											
	9											
	10											

Depth 3 = 6

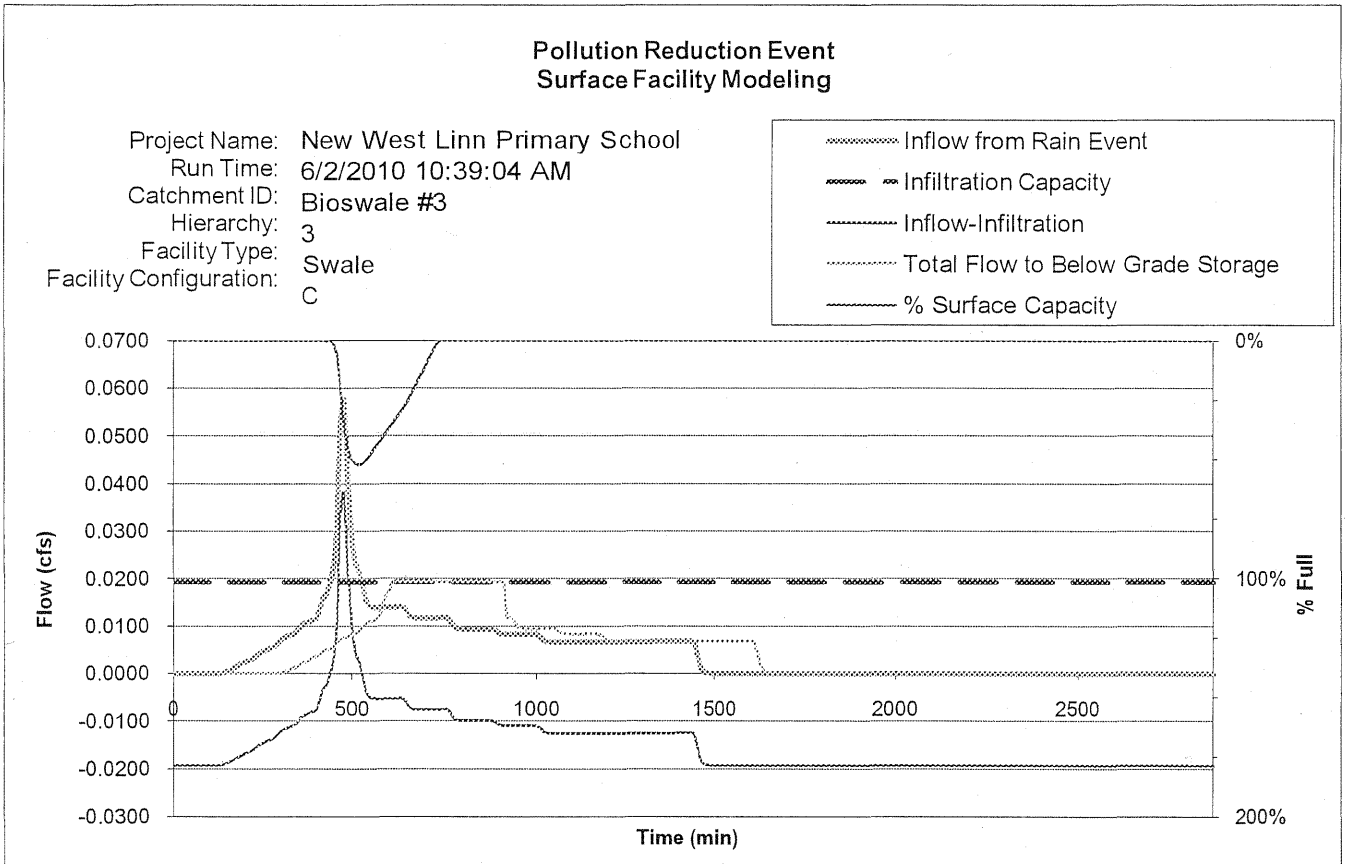
Error Messages

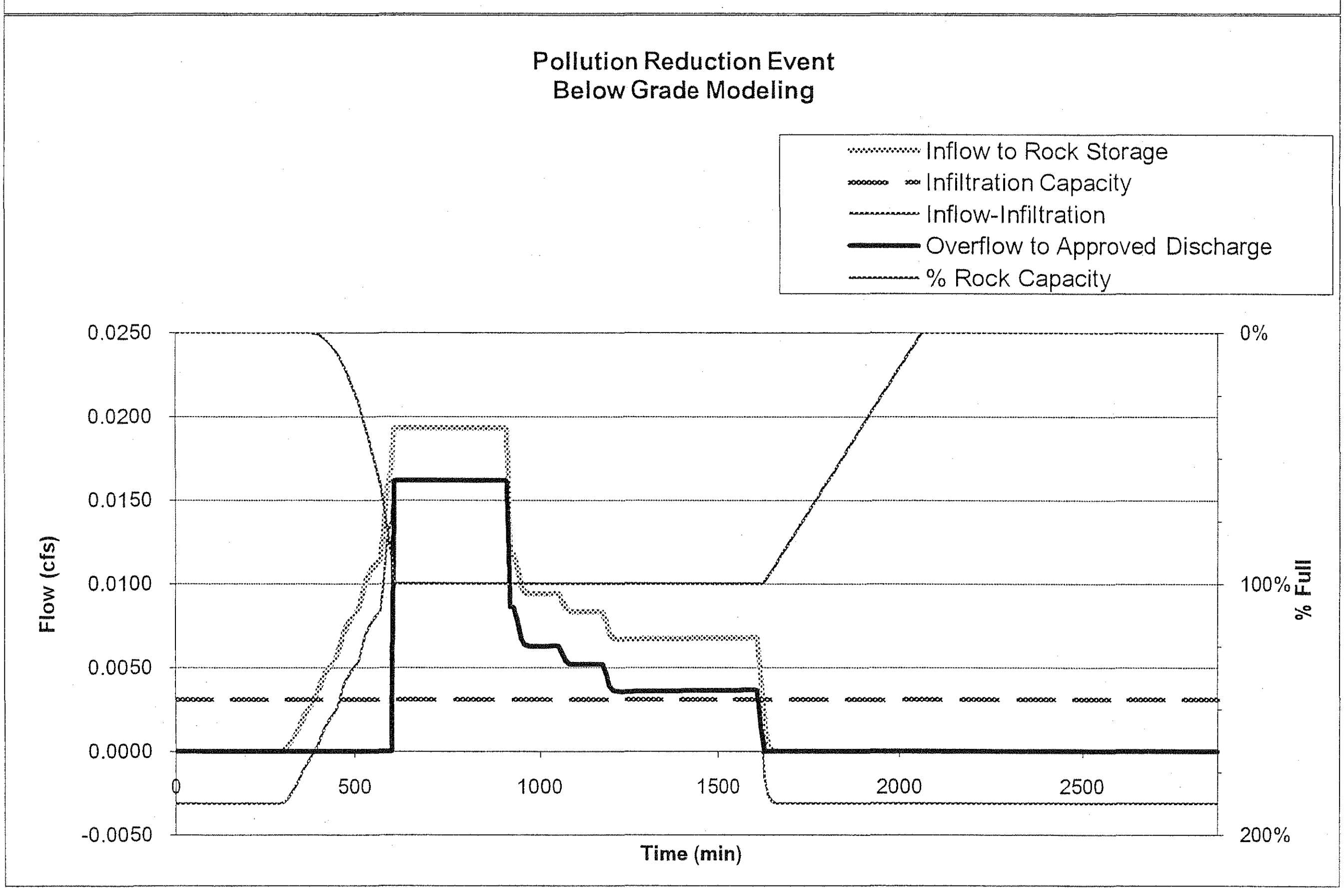
facility segment with warning message not fully utilized. Create shorter facility segments to increase surface storage capacity and infiltration area.

Warning
Warning
Warning
Warning
Warning
Warning

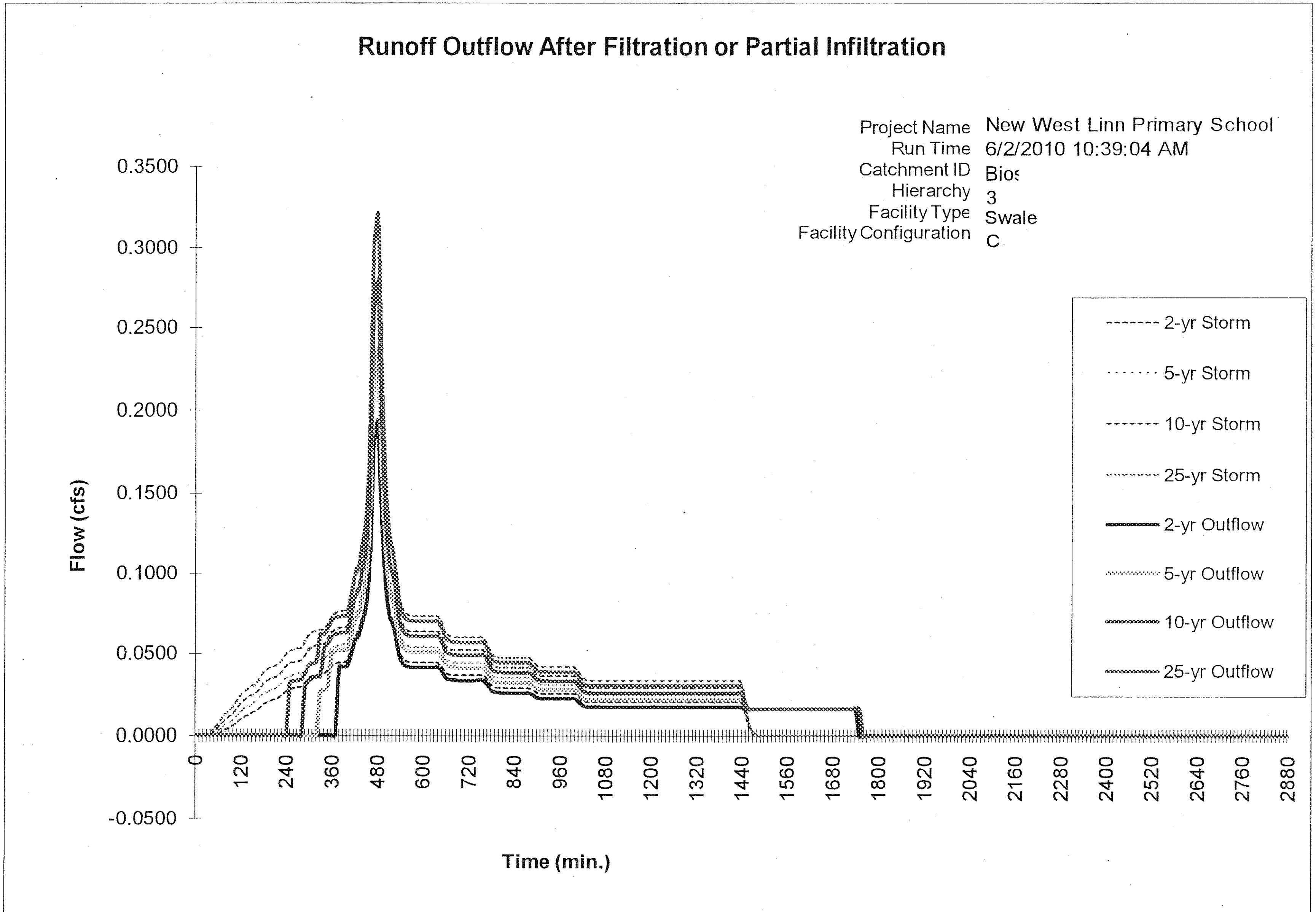
Worksheet Calculations

Presumptive Approach Calculator ver. 1.1





Printed: 6/2/2010 10:39 AM


Runoff Outflow After Filtration or Partial Infiltration
Project Name New West Linn Primary School
Run Time 6/2/2010 10:39:04 AM
Catchment ID Bios
Hierarchy 3
Facility Type Swale
Facility Configuration C
2-yr Storm
5-yr Storm
10-yr Storm
25-yr Storm
2-yr Outflow
5-yr Outflow
10-yr Outflow
25-yr Outflow
Flow (cfs)
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
-0.0500
Time (min.)
0
120
240
360
480
600
720
840
960
1080
1200
1320
1440
1560
1680
1800
1920
2040
2160
2280
2400
2520
2640
2760
2880

Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: Bioswale #4

Project Name:	New West Linn Primary School
Project Address:	Rosemont Road
	West Linn, OR
Designer:	STS
Company:	Winzler & Kelly

Date: 06/02/10
Permit Number: [Permit #]
Run Time 6/2/2010 10:43:38 AM

Drainage Catchment Information

Catchment ID	Bioswale #4	
	Catchment Area	
Impervious Area	34,700	SF
Impervious Area	0.80	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	10	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2

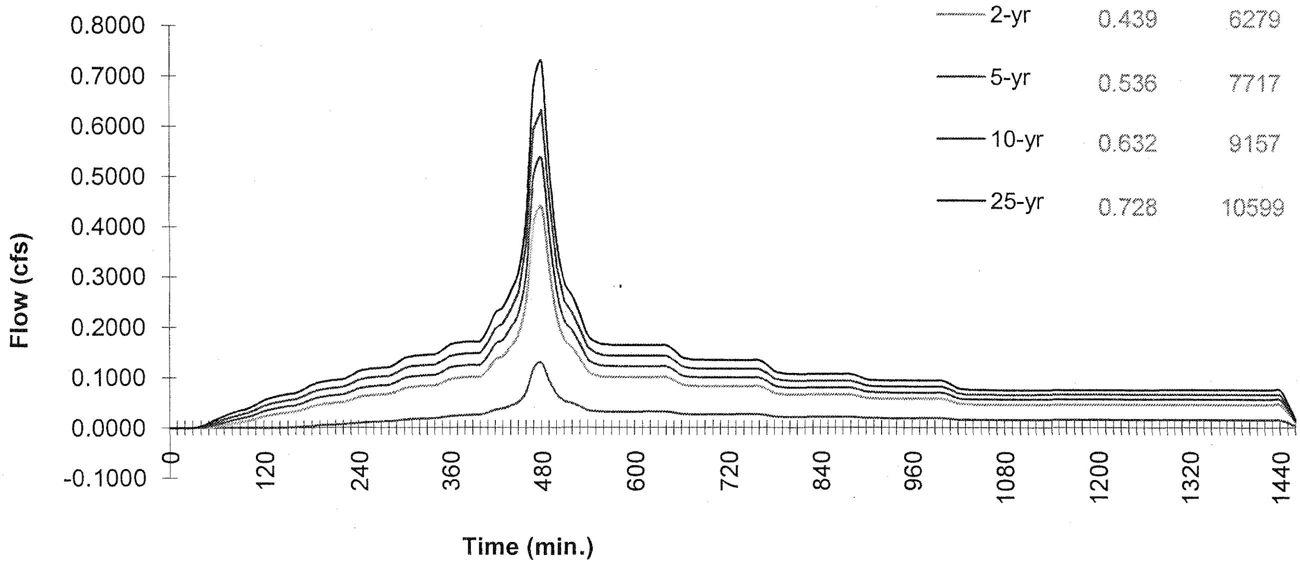
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium :	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.13	1813
2-yr	0.439	6279
5-yr	0.536	7717
10-yr	0.632	9157
25-yr	0.728	10599



Printed: 6/2/2010 10:44 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #4

Run Time 6/2/2010 10:43:38 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #4 **Date:** 6/2/2010

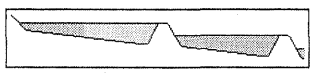
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

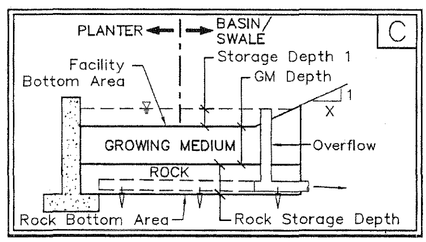
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area =	1,086	sf
Surface Capacity Volume =	411.5	cf
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	412	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.050	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	840	sf
Rock Storage Depth =	12	in
Rock Void Ratio =	0.3	
Storage Depth 3 =	6	in
Rock Storage Capacity =	126	cf
Native Design Infiltration Rate =	0.25	in/hr
Infiltration Capacity =	0.005	cfs

RESULTS

Pollution Reduction: **PASS** — Overflow Volume 1,306 CF — 34% Surf. Cap. Used — Run PAC

100% Rock Cap. Used

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.434	0.531	0.627	0.723

Current data has been exported:

Bioswale #4.xls **6/2/2010 10:43:53 AM**

FACILITY FACTS

Total Facility Area Including Freeboard = **1,824 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.053**

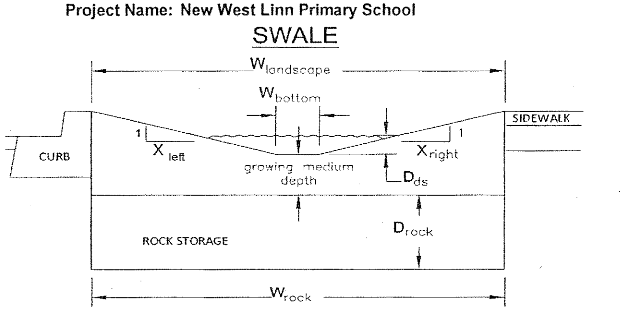
Presumptive Approach Calculator Ver 1.1

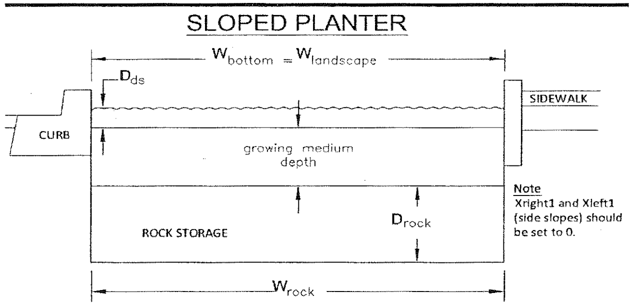
Instructions:

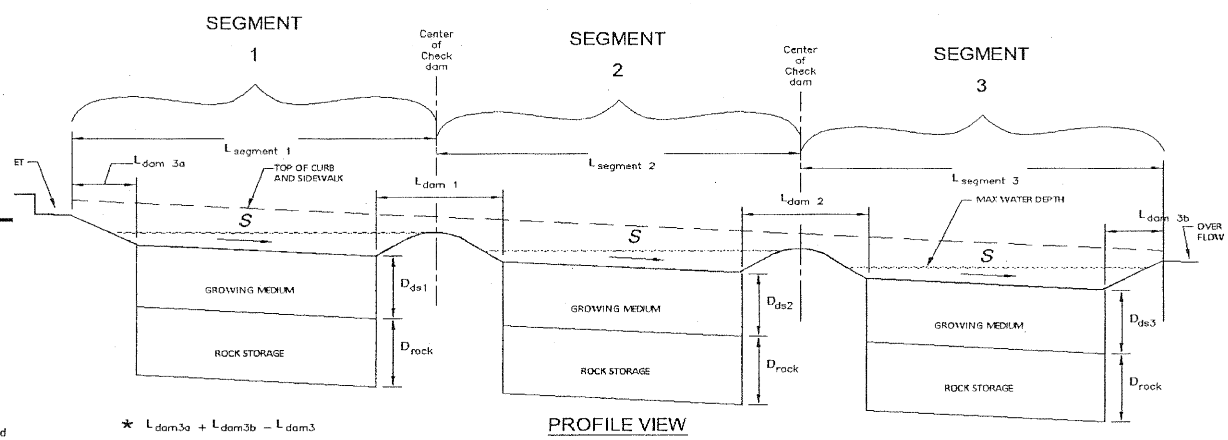
1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 6/2/2010 10:43:38 AM

Project Name: New West Linn Primary School **Date: 6/2/2010** **Catchment ID: Bioswale #4**







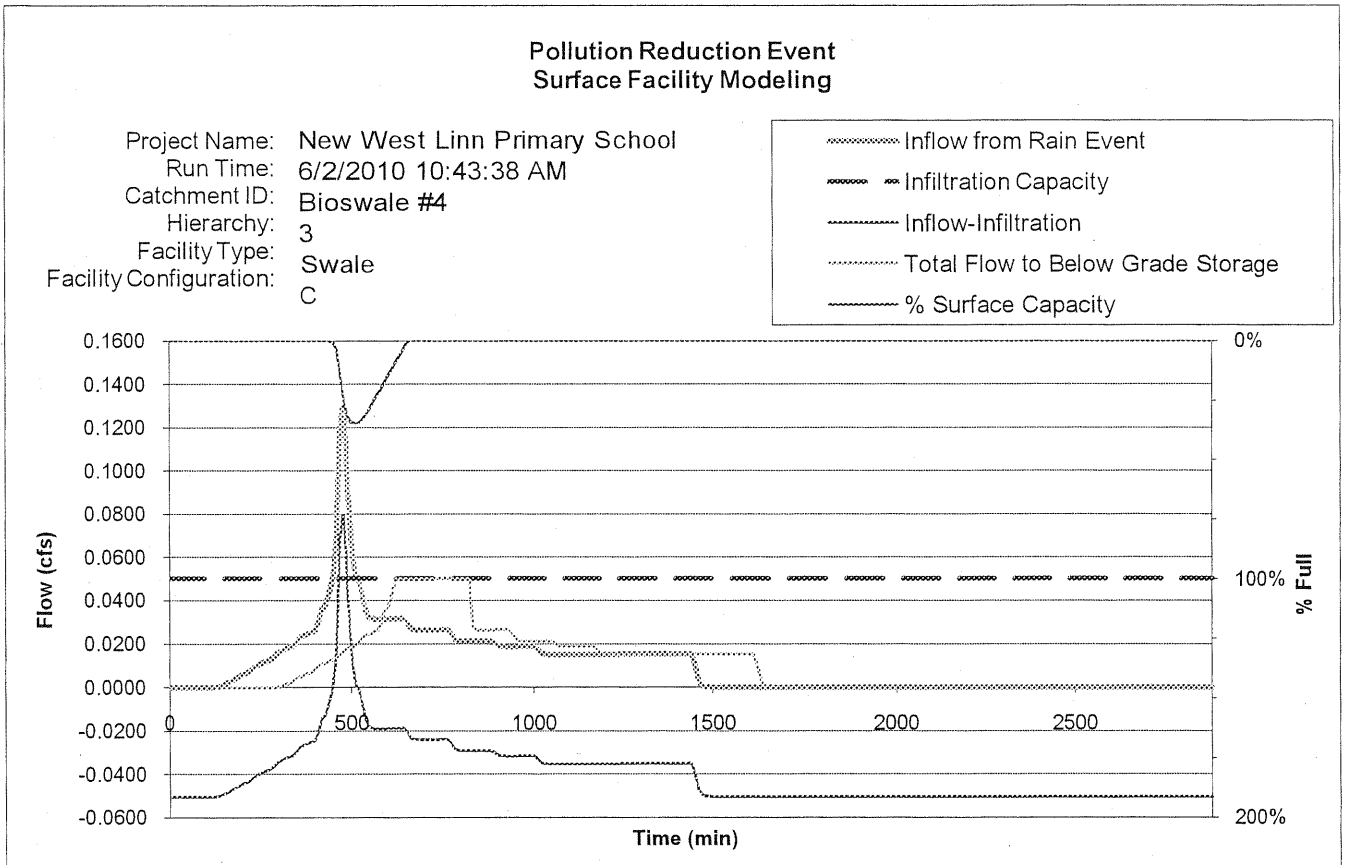
Data Entry

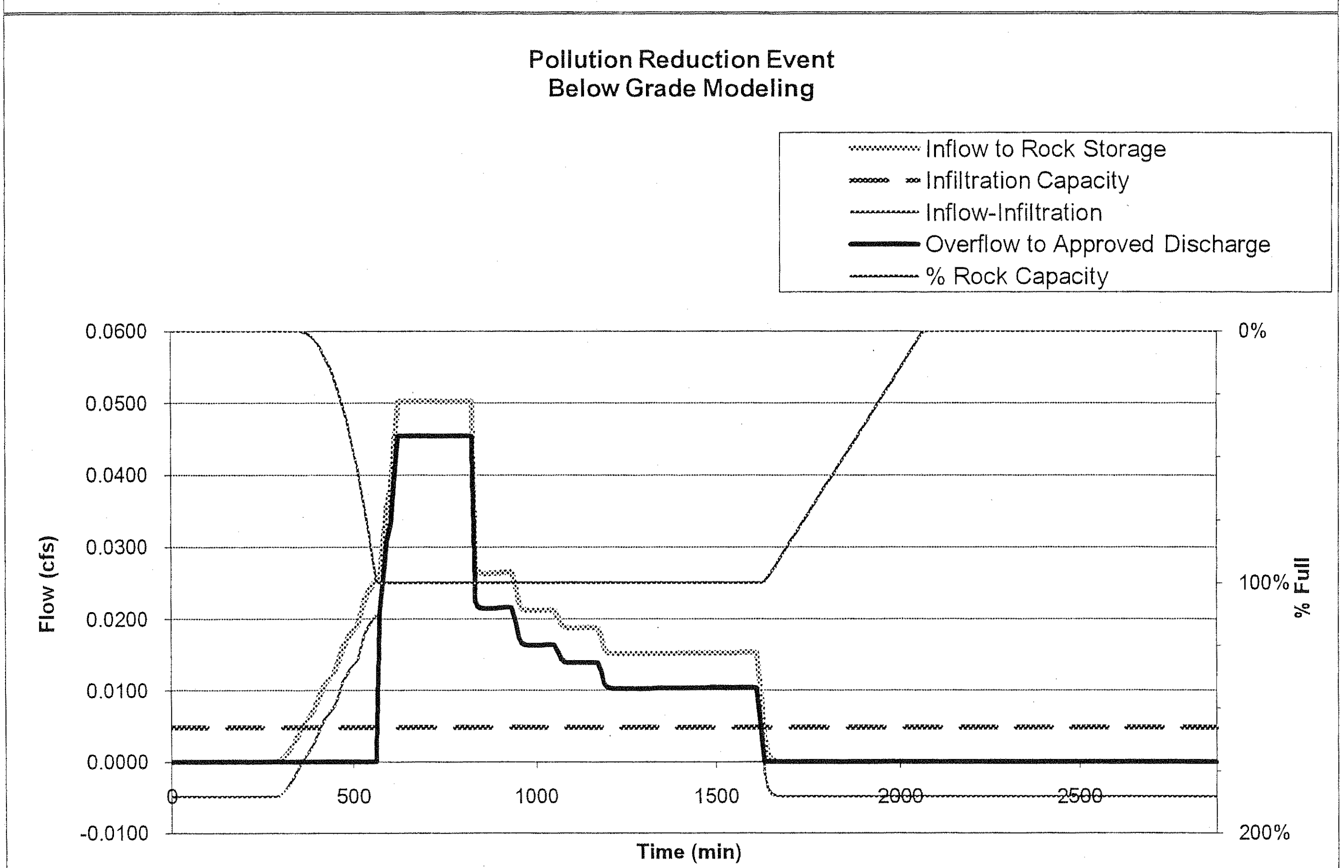
	Parameters									Rock Storage Parameters		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	22	2	0.01	7	3	3	6	13	7	12	0.3
	2	22	2	0.01	7	3	3	6	13	7		
	3	22	2	0.01	7	3	3	6	13	7		
	4	22	2	0.01	7	3	3	6	13	7		
	5	22	2	0.01	7	3	3	6	13	7		
	6	22	2	0.01	7	3	3	6	13	7		
	7											
	8											
	9											
	10											

Error Messages

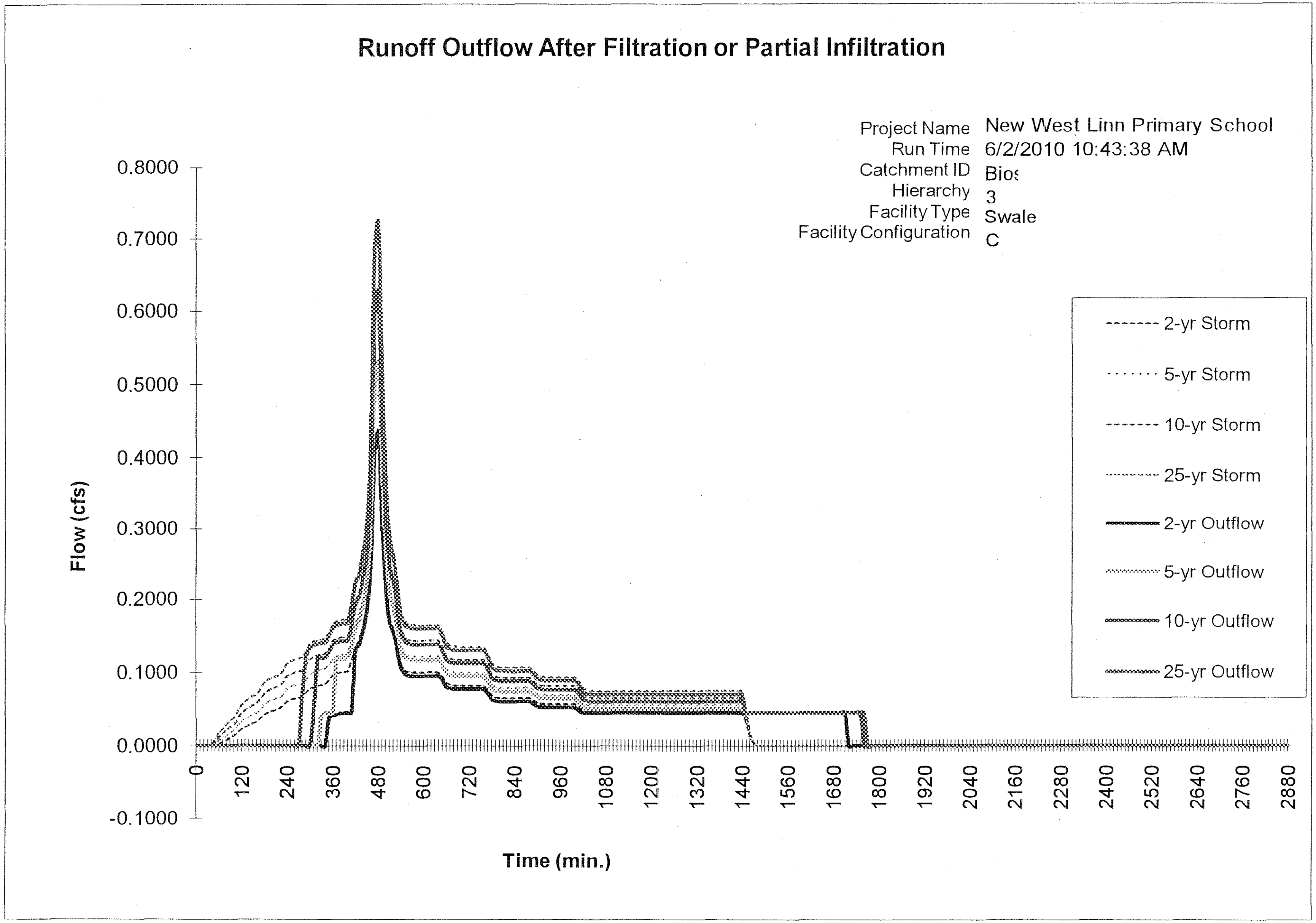
Depth 3 = 6

Worksheet Calculations


Pollution Reduction Event
Surface Facility Modeling
Project Name: New West Linn Primary School
Run Time: 6/2/2010 10:43:38 AM
Catchment ID: Bioswale #4
Hierarchy: 3
Facility Type: Swale
Facility Configuration: C
Inflow from Rain Event
Infiltration Capacity
Inflow-Infiltration
Total Flow to Below Grade Storage
% Surface Capacity
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
-0.0200
-0.0400
-0.0600
0
500
1000
1500
2000
2500
Flow (cfs)
Time (min)
0%
100%
200%
% Full


Pollution Reduction Event
Below Grade Modeling
Inflow to Rock Storage
Infiltration Capacity
Inflow-Infiltration
Overflow to Approved Discharge
% Rock Capacity
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
-0.0100
0
500
1000
1500
2000
2500
Flow (cfs)
Time (min)
0%
100%
200%
% Full

BES - Presumptive Approach Calculator - Ver 1.0



Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: Bioswale #5

Project Name: New West Linn Primary School
Project Address: Rosemont Road
West Linn, OR
Designer: STS
Company: Winzler & Kelly

Date: 06/02/10
Permit Number: [Permit #]
Run Time 6/2/2010 10:48:10 AM

Drainage Catchment Information

Catchment ID	Bioswale #5	
	Catchment Area	
Impervious Area	22,000	SF
Impervious Area	0.51	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	10	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

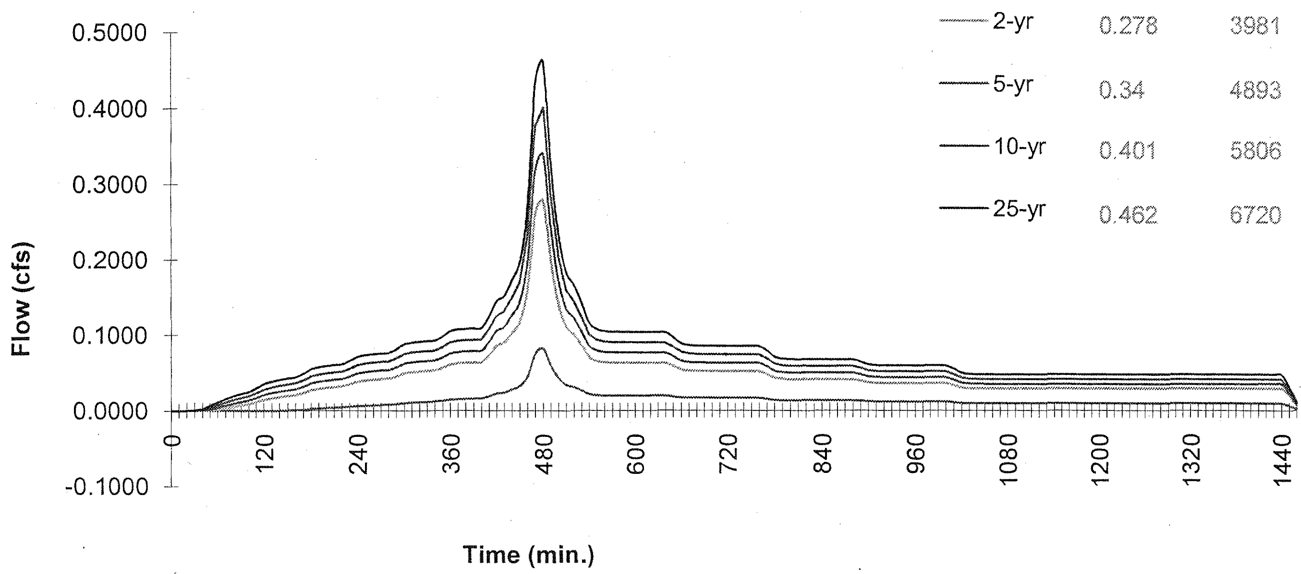
Correction Factor Component

CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium :	2.00	in/hr	

Execute SBUH Calculations



	Peak Rate (cfs)	Volume (cf)
PR	0.082	1150
2-yr	0.278	3981
5-yr	0.34	4893
10-yr	0.401	5806
25-yr	0.462	6720

Printed: 6/2/2010 10:48 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #5

Run Time 6/2/2010 10:48:10 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #5 **Date:** 6/2/2010

Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

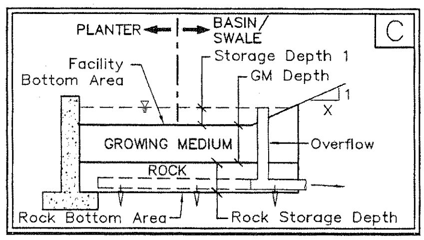
Catchment facility will meet Hierarchy Category: 3

Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display…		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale

Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area =	919	sf
Surface Capacity Volume =	302.4	cf
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	302	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.043	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	760	sf
Rock Storage Depth =	12	in
Rock Void Ratio =	0.3	
Storage Depth 3 =	6	in
Rock Storage Capacity =	114	cf
Native Design Infiltration Rate =	0.25	in/hr
Infiltration Capacity =	0.004	cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 698 CF

19% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.274	0.335	0.396	0.457

Current data has been exported:

Bioswale #5.xls **6/2/2010 10:48:23 AM**

FACILITY FACTS

Total Facility Area Including Freeboard = **1,956 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.089**

Presumptive Approach Calculator Ver 1.1

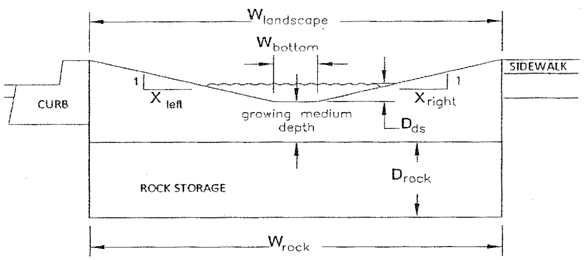
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

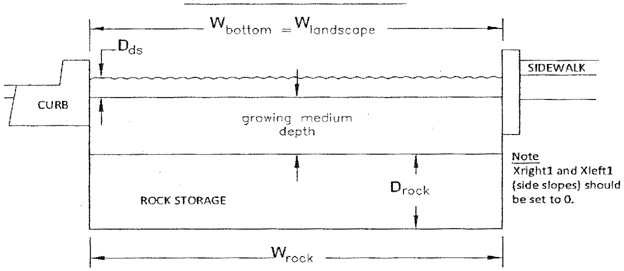
Run Time 6/2/2010 10:48:10 AM

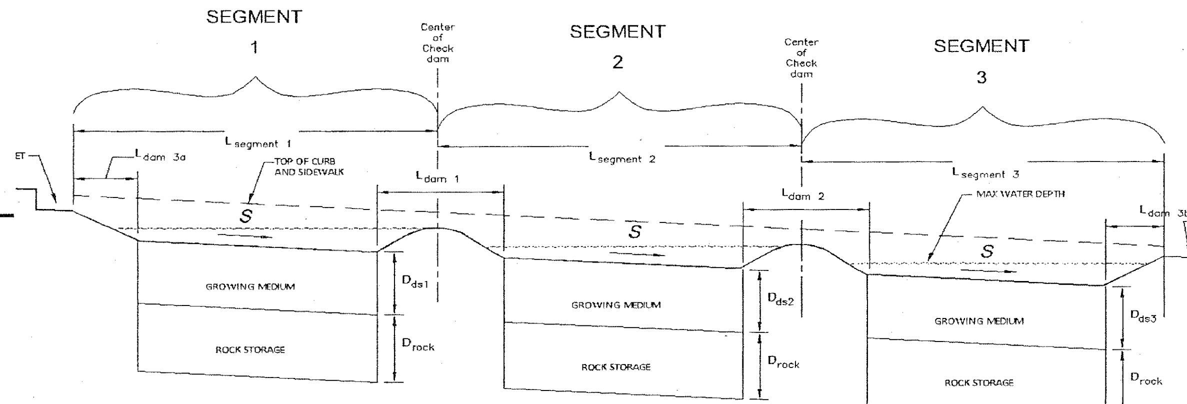
Project Name: New West Linn Primary School **Date: 6/2/2010** **Catchment ID: Bioswale #5**

SWALE



SLOPED PLANTER





PROFILE VIEW

Data Entry

	Parameters									Rock Storage Parameters		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	21	2	0.02	5	3	3	6	11	5	12	0.3
	2	21	2	0.02	5	3	3	6	11	5		
	3	21	2	0.02	5	3	3	6	11	5		
	4	21	2	0.02	5	3	3	6	11	5		
	5	21	2	0.02	5	3	3	6	11	5		
	6	21	2	0.02	5	3	3	6	11	5		
	7	21	2	0.02	5	3	3	6	11	5		
	8	21	2	0.02	5	3	3	6	11	5		
	9											
	10											

Depth 3 = 6

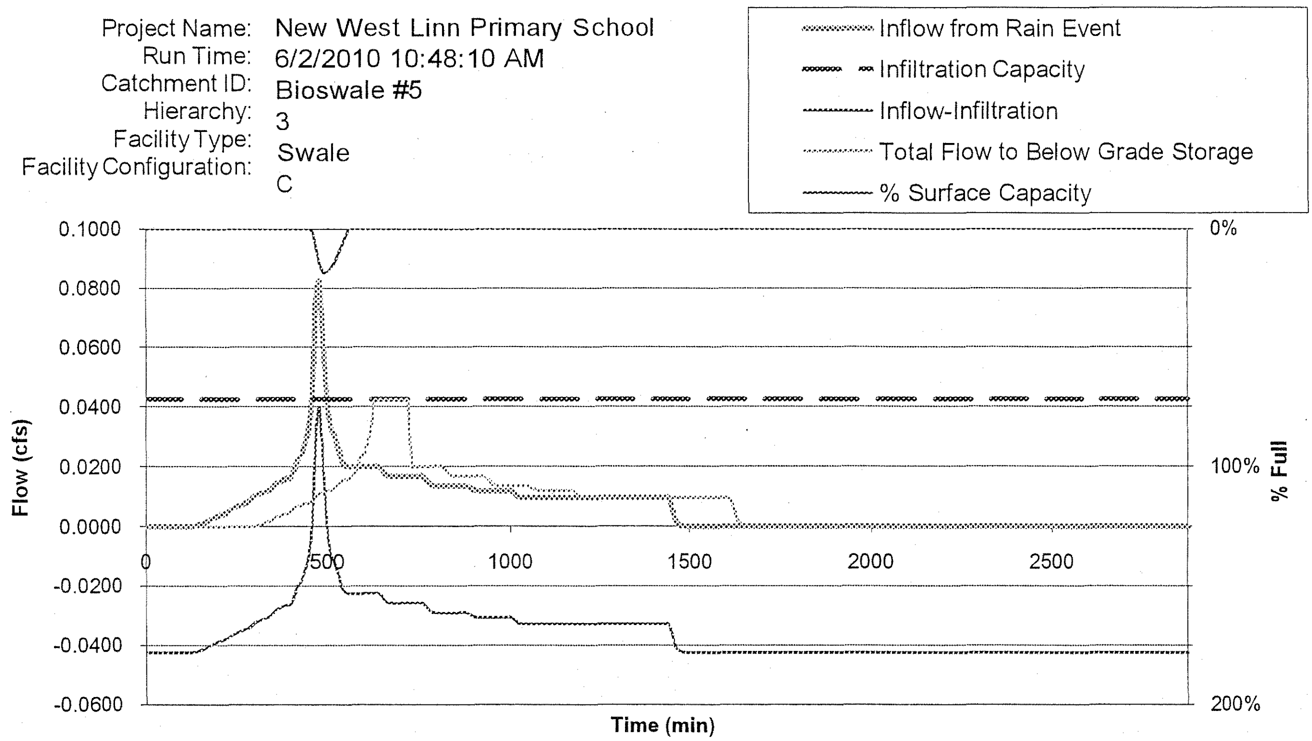
Error Messages

Worksheet Calculations

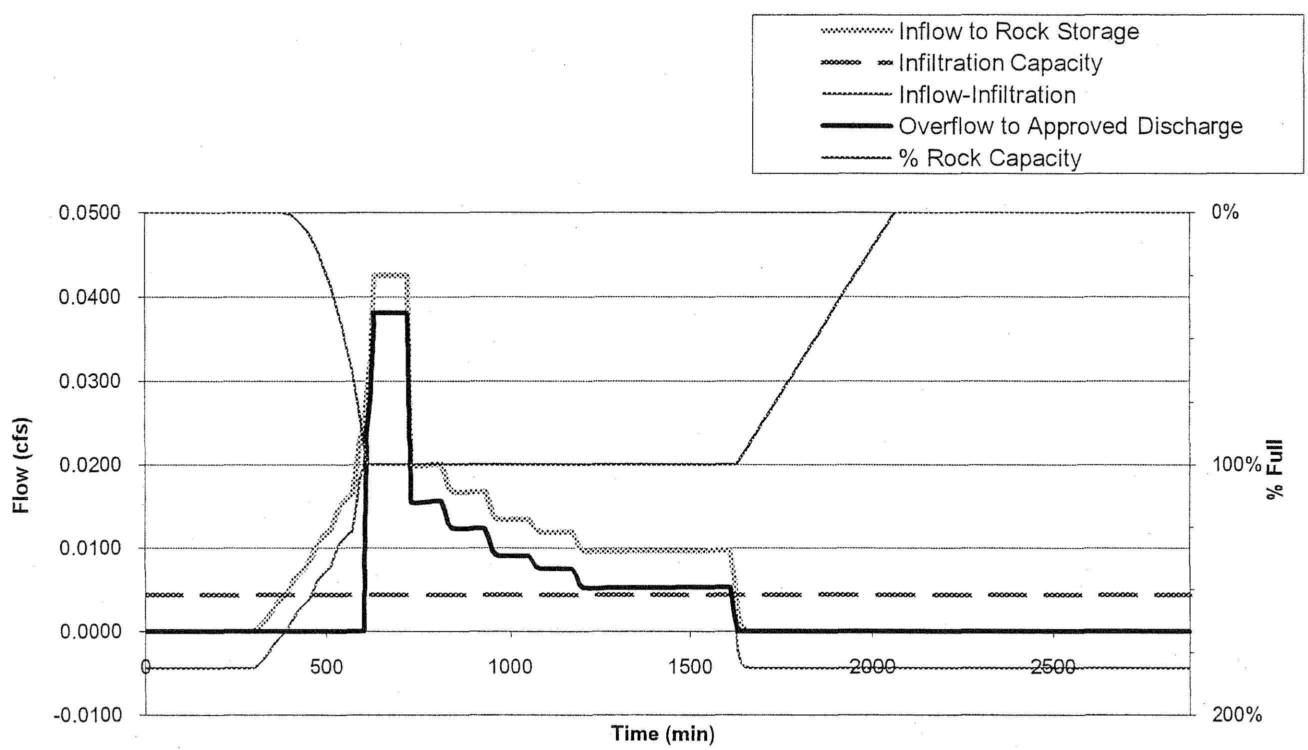
Presumptive Approach Calculator ver. 1.1

Pollution Reduction Event
Surface Facility Modeling

Project Name: New West Linn Primary School
Run Time: 6/2/2010 10:48:10 AM
Catchment ID: Bioswale #5
Hierarchy: 3
Facility Type: Swale
Facility Configuration: C



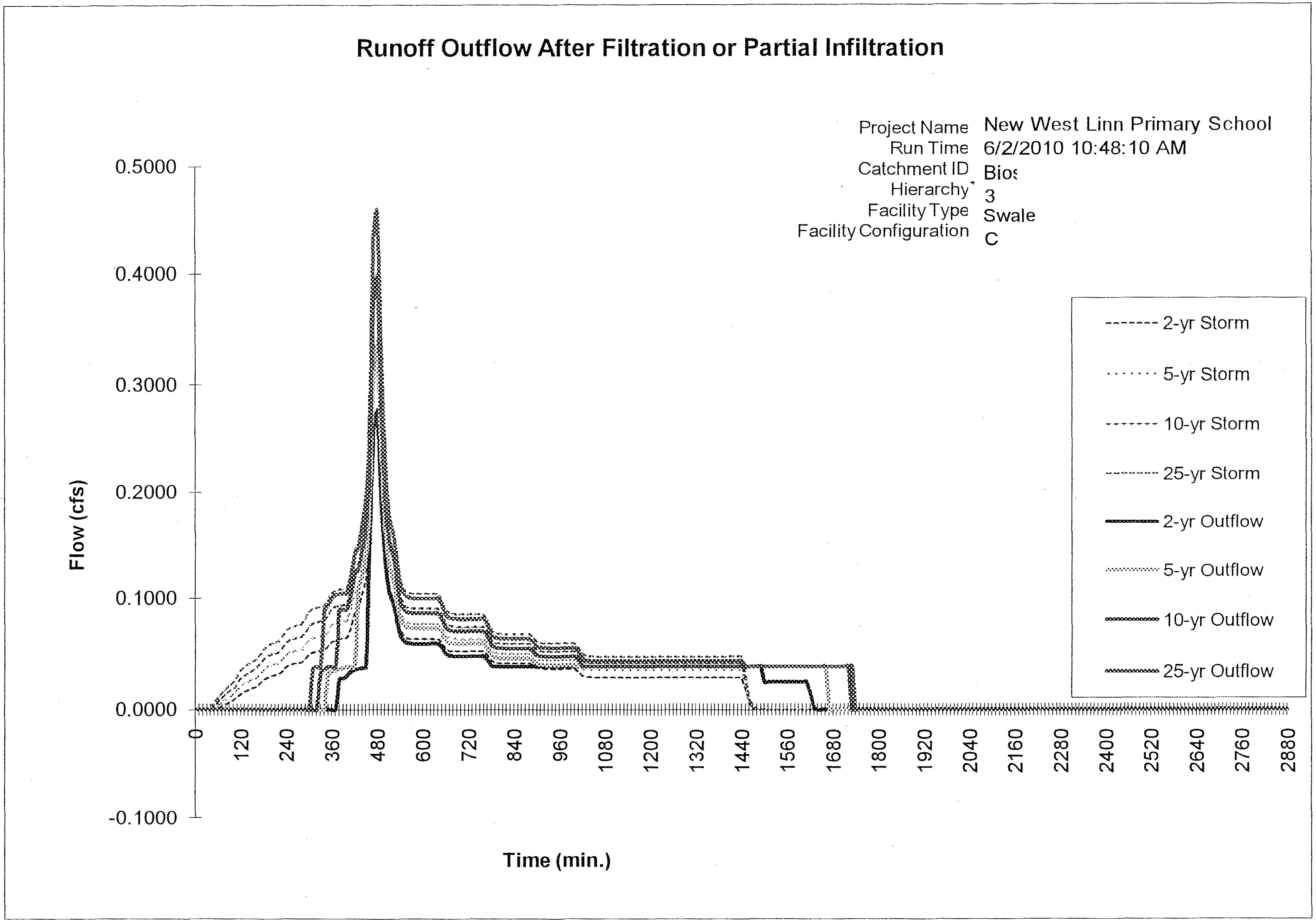
Pollution Reduction Event
Below Grade Modeling



Printed: 6/2/2010 10:49 AM

BES - Presumptive Approach Calculator - Ver 1.0

Output Chart



Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: **Bioswale #6**

Project Name:	**New West Linn Primary School**
Project Address:	**Rosemont Road**
	West Linn, OR
Designer:	**STS**
Company:	**Winzler & Kelly**

Date: **06/02/10**
Permit Number: **[Permit #]**
Run Time 6/18/2010 3:11:51 PM

Drainage Catchment Information

Catchment ID	Bioswale #6	
	Catchment Area	
Impervious Area	37,100	SF
Impervious Area	0.85	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	10	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2

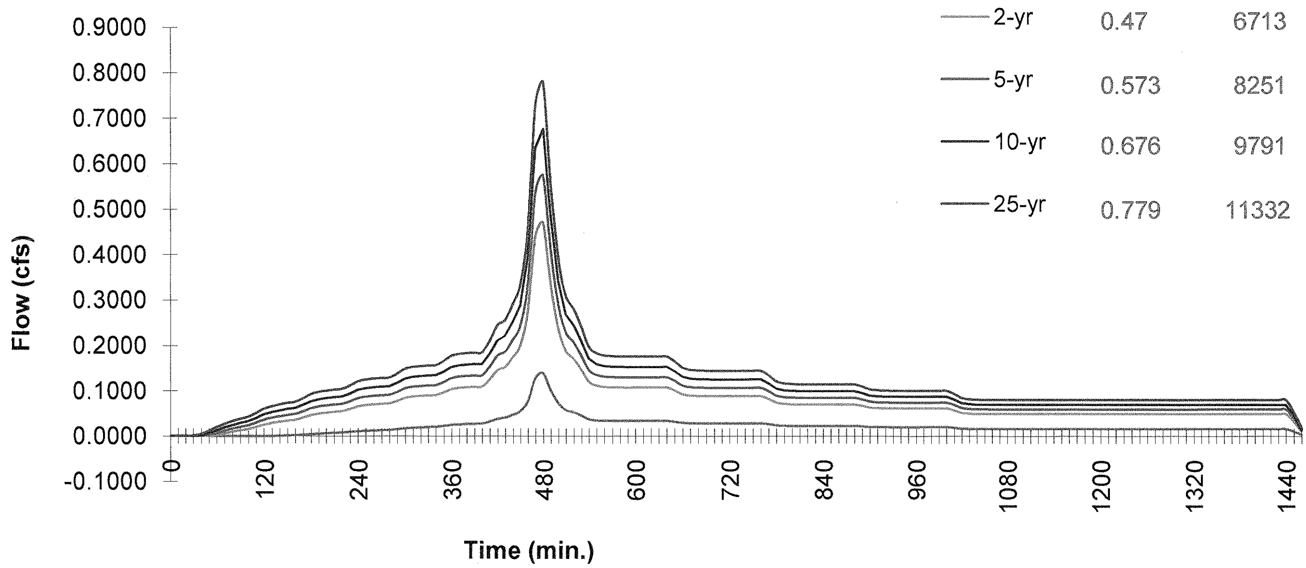
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.139	1939
2-yr	0.47	6713
5-yr	0.573	8251
10-yr	0.676	9791
25-yr	0.779	11332



Printed: 6/18/2010 3:13 PM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #6

Run Time 6/18/2010 3:11:51 PM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #6 **Date:** 6/2/2010

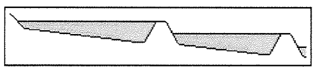
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: **3**

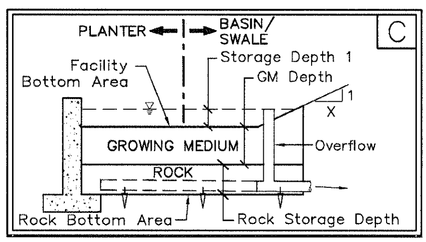
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display…		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area =	845	sf
Surface Capacity Volume =	324.9	cf
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	325	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.039	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	595	sf
Rock Storage Depth =	12	in
Rock Void Ratio =	0.3	
Storage Depth 3 =	6	in
Rock Storage Capacity =	89	cf
Native Design Infiltration Rate =	0.25	in/hr
Infiltration Capacity =	0.003	cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 1,580 CF

71% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.466	0.570	0.673	0.775

Current data has been exported:

Bioswale #6.xls **6/18/2010 3:12:38 PM**

FACILITY FACTS

Total Facility Area Including Freeboard = **1,571 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.042**

Presumptive Approach Calculator Ver 1.1

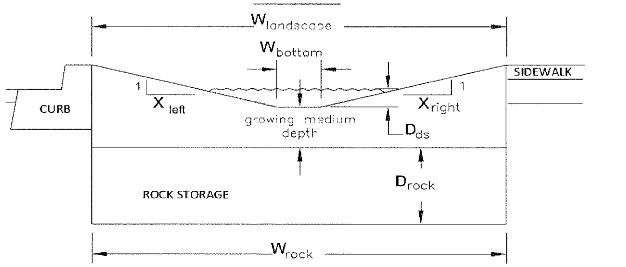
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

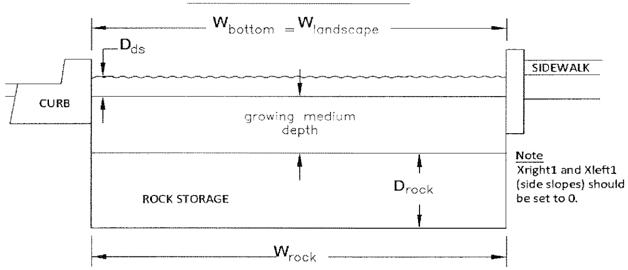
Run Time 6/18/2010 3:11:51 PM

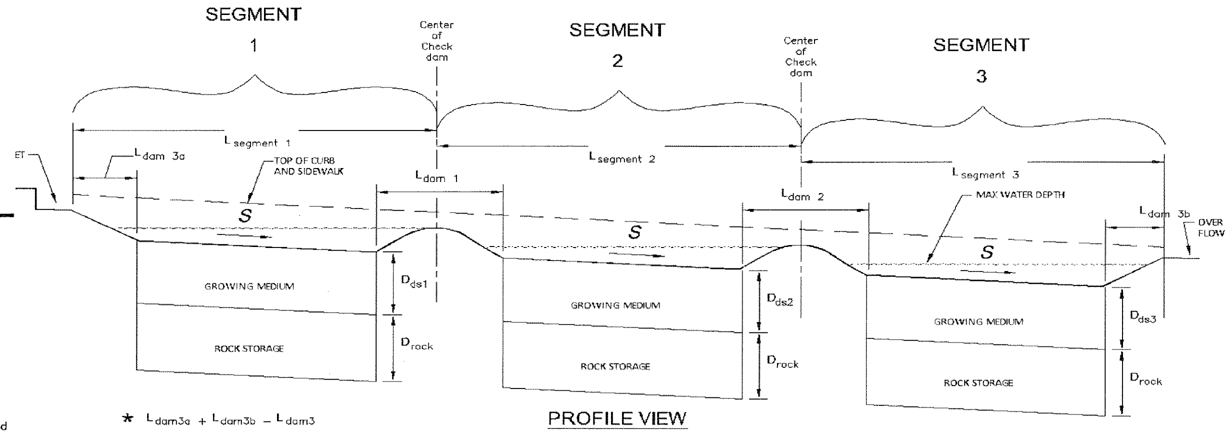
Project Name: New West Linn Primary School **Date:** **6/2/2010** **Catchment ID: Bioswale #6**

SWALE



SLOPED PLANTER





Data Entry

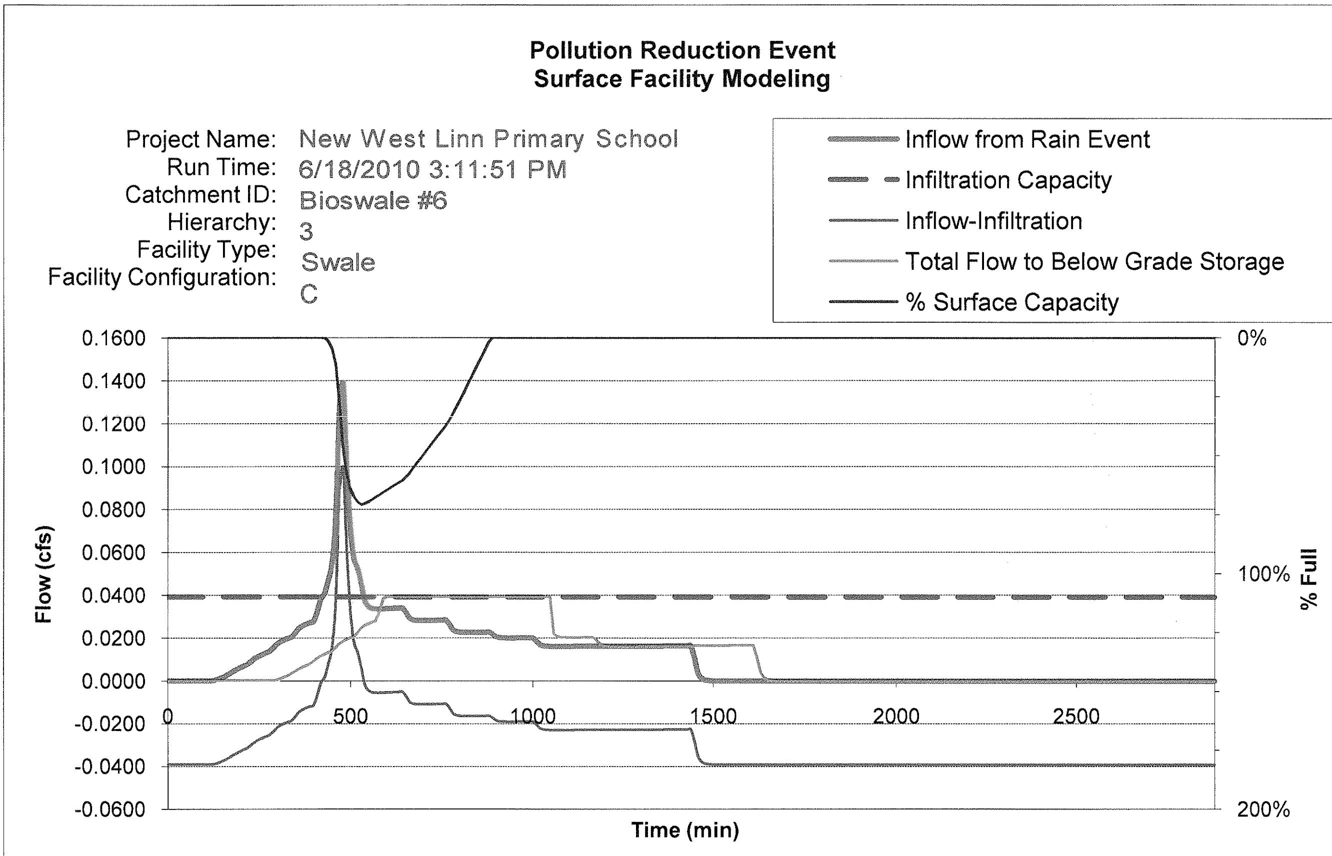
	Parameters									Rock Storage Parameters		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	19	2	0.01	5	3	3	6	11	5	12	0.3
	2	19	2	0.01	5	3	3	6	11	5		
	3	19	2	0.01	5	3	3	6	11	5		
	4	19	2	0.01	5	3	3	6	11	5		
	5	19	2	0.01	5	3	3	6	11	5		
	6	19	2	0.01	5	3	3	6	11	5		
	7	19	2	0.01	5	3	3	6	11	5		
	8											
	9											
	10											

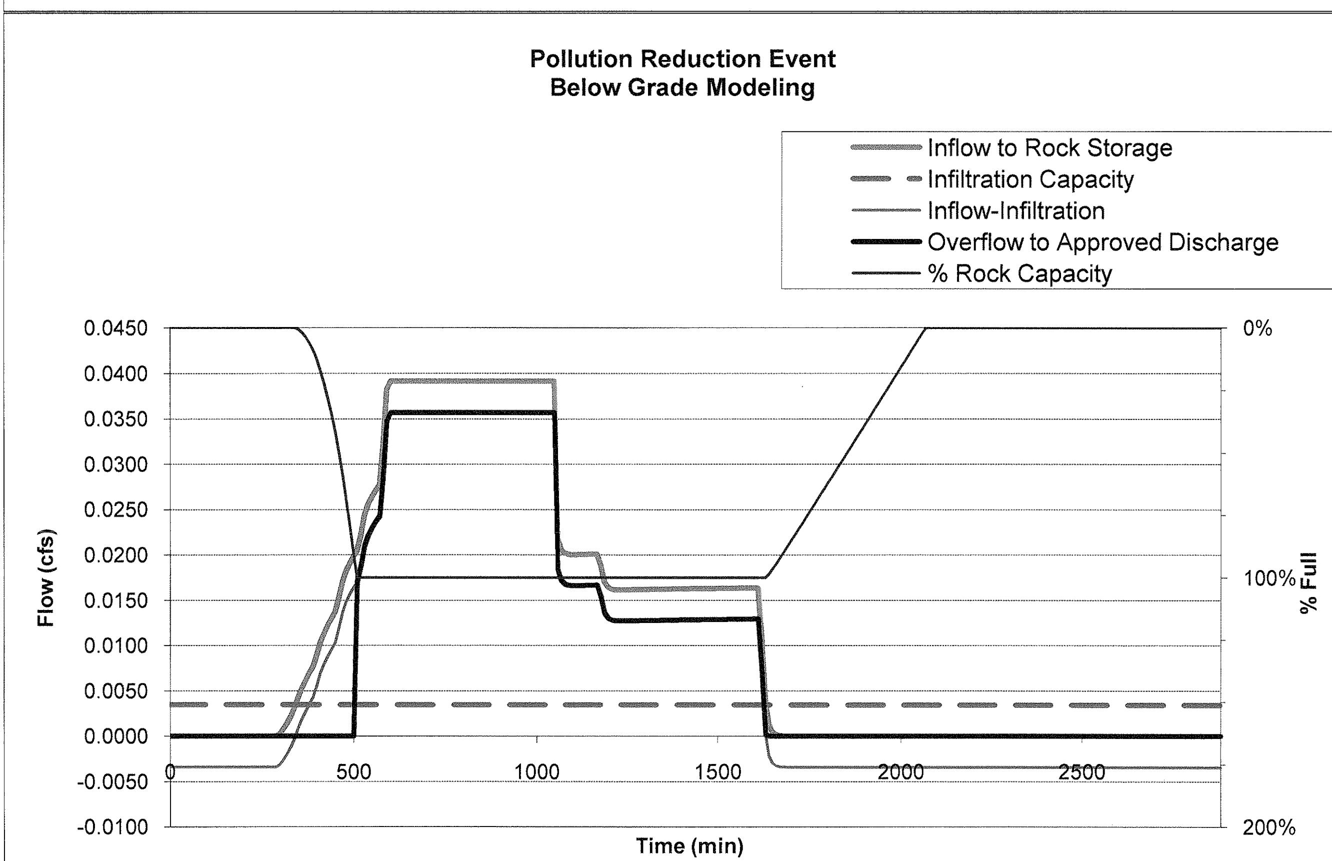
Error Messages

Depth 3 = 6

Worksheet Calculations

Presumptive Approach Calculator ver. 1.1

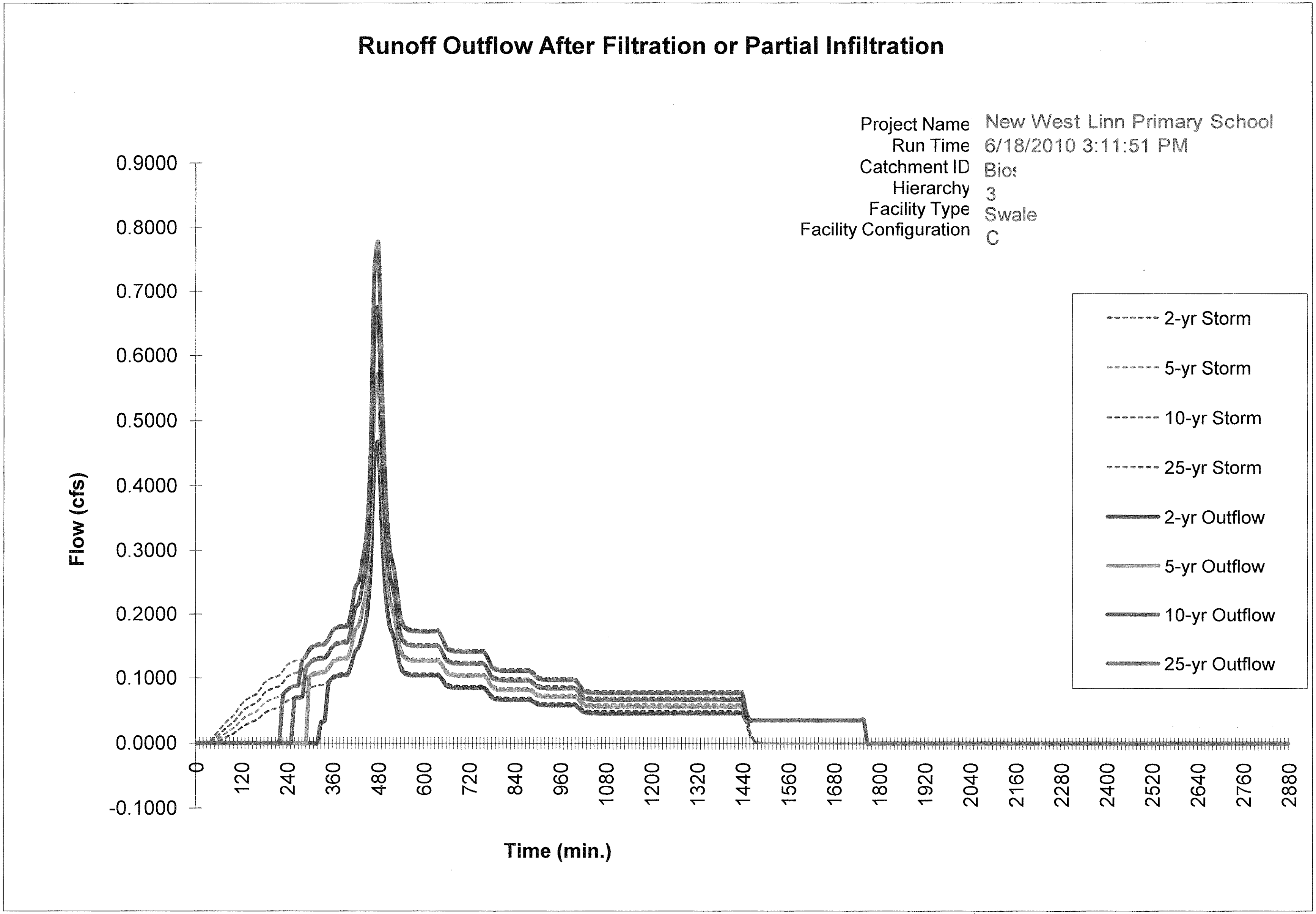




Printed: 6/18/2010 3:13 PM

BES - Presumptive Approach Calculator - Ver 1.0

Output Chart



Presumptive Approach Calculator ver. 1.1

Catchment Data

Catchment ID: **Bioswale #7**
Date: **06/02/10**
Permit Number: **[Permit #]**
Run Time 6/2/2010 10:57:43 AM

Project Name:	**New West Linn Primary School**
Project Address:	**Rosemont Road**
	West Linn, OR
Designer:	**STS**
Company:	**Winzler & Kelly**

Drainage Catchment Information

Catchment ID	Bioswale #7		
	Catchment Area		
Impervious Area	45,700	SF	**Catchment Area Exceeds 1 Acre**
Impervious Area	1.05	ac	
Impervious Area Curve Number, CN_{imp}	98		
Time of Concentration, Tc, minutes	10	min.	

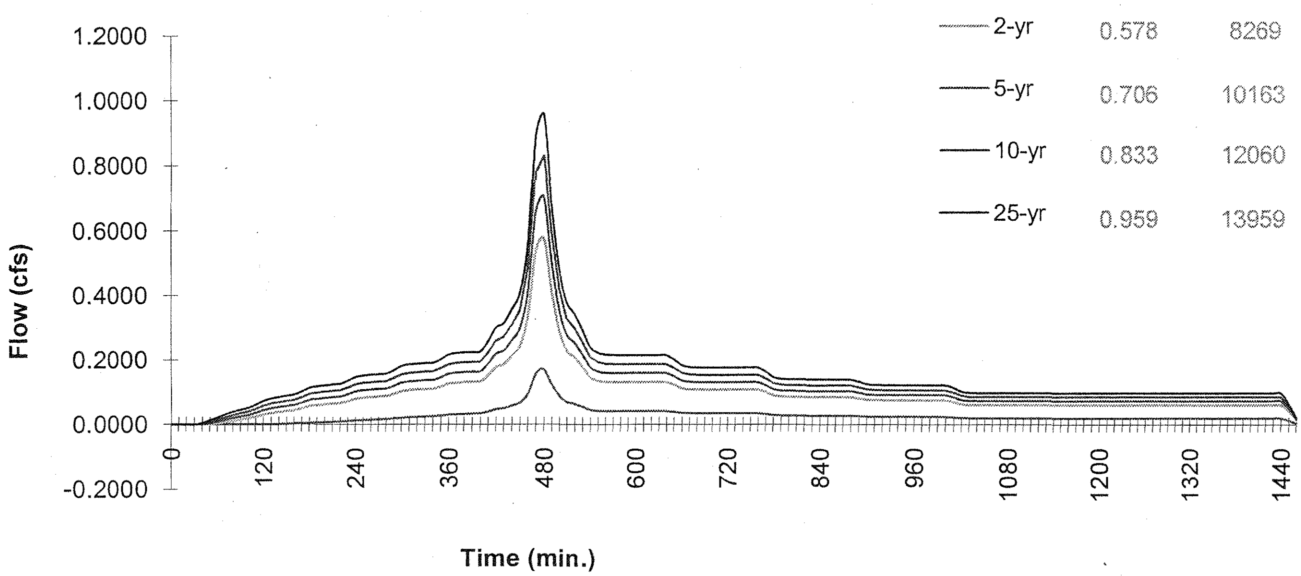
Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head		
Native Soil Field Tested Infiltration Rate (I_{test}):	0.5	in/hr	
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes		
Correction Factor Component			
CF_{test} (ranges from 1 to 3)	2		
Design Infiltration Rates			
I_{dsgn} for Native (I_{test} / CF_{test}):	0.25	in/hr	**Design infiltration rate < 0.5 in/hr**
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH Calculations

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.171	2388
2-yr	0.578	8269
5-yr	0.706	10163
10-yr	0.833	12060
25-yr	0.959	13959



Printed: 6/2/2010 10:58 AM

Presumptive Approach Calculator ver. 1.1

Catchment ID: ioswale #7

Run Time 6/2/2010 10:57:43 AM

Project Name: New West Linn Primary School **Catchment ID:** Bioswale #7 **Date:** 6/2/2010

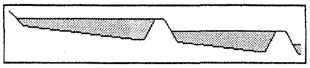
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

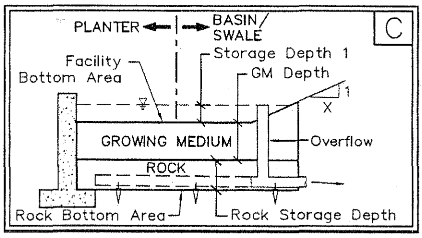
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...		Facility configurations allowed
		Pollution Reduction as a	10-yr (aka disposal) as a	
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A	ALL

Facility Type = Swale



Facility Configuration: C



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area =	1,269	sf
Surface Capacity Volume =	483.4	cf
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	483	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.059	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	900	sf
Rock Storage Depth =	12	in
Rock Void Ratio =	0.3	
Storage Depth 3 =	6	in
Rock Storage Capacity =	135	cf
Native Design Infiltration Rate =	0.25	in/hr
Infiltration Capacity =	0.005	cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 1,851 CF

46% Surf. Cap. Used

100% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.573	0.701	0.828	0.954

Current data has been exported:

Bioswale #7.xls **6/2/2010 10:57:59 AM**

FACILITY FACTS

Total Facility Area Including Freeboard = **2,308 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.051**

Presumptive Approach Calculator Ver 1.1

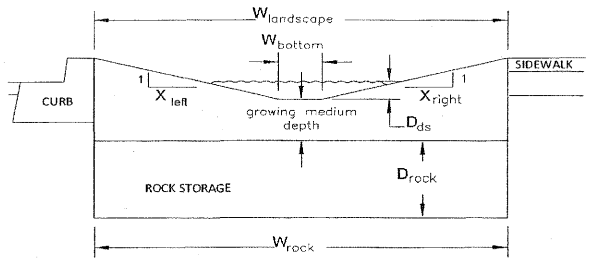
Instructions:

1. Refer to facility graphics and fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

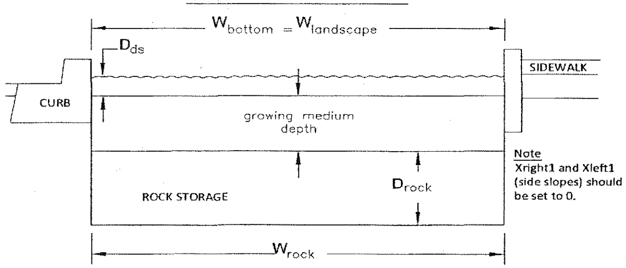
Run Time 6/2/2010 10:57:43 AM

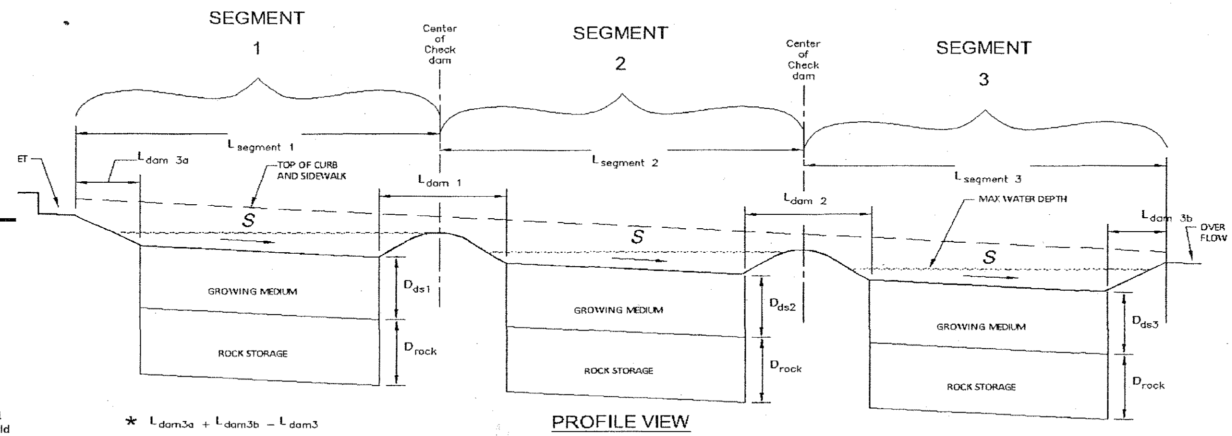
Project Name: New West Linn Primary School **Date:** 6/2/2010 **Catchment ID:** Bioswale #7

SWALE



SLOPED PLANTER





PROFILE VIEW

Data Entry

	Parameters									Rock Storage Parameters		
Variable Description	Facility Segment	Length of facility segment	Downstream Check Dam Length	Longitudinal Facility Slope	Bottom Width	Side Slope Right	Side Slope Left	Downstream Depth	Landscape Width	Rock Storage Width	Rock Storage Depth	Rock Void Ratio
Unit		(ft)	(ft)	(ft/ft)	(ft)			(inches)	(ft)	(ft)	(inches)	
Variable Symbol		$L_{segment}$	L_{dam}	S	W_{bottom}	X_{right}:1	X_{left}:1	D_{ds}	$W_{landscape}$	W_{rock}	D_{rock}	v
	1	20	2	0.01	5	3	3	6	11	5	12	0.3
	2	20	2	0.01	5	3	3	6	11	5		
	3	20	2	0.01	5	3	3	6	11	5		
	4	20	2	0.01	5	3	3	6	11	5		
	5	20	2	0.01	5	3	3	6	11	5		
	6	20	2	0.01	5	3	3	6	11	5		
	7	20	2	0.01	5	3	3	6	11	5		
	8	20	2	0.01	5	3	3	6	11	5		
	9	20	2	0.01	5	3	3	6	11	5		
	10	20	2	0.01	5	3	3	6	11	5		

Depth 3 = 6

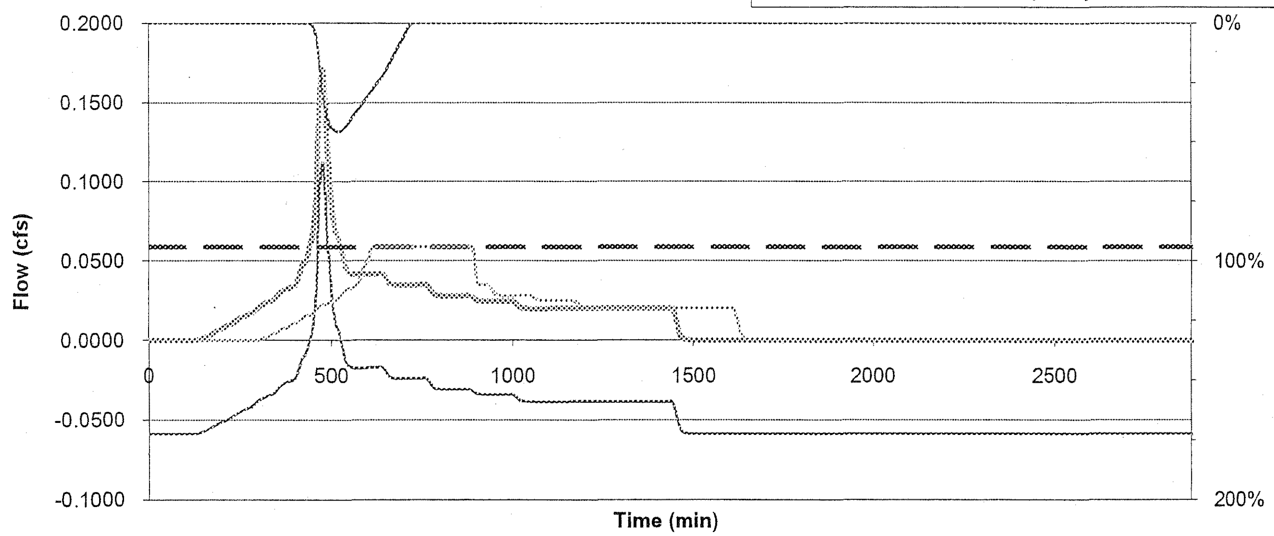
Error Messages

Worksheet Calculations

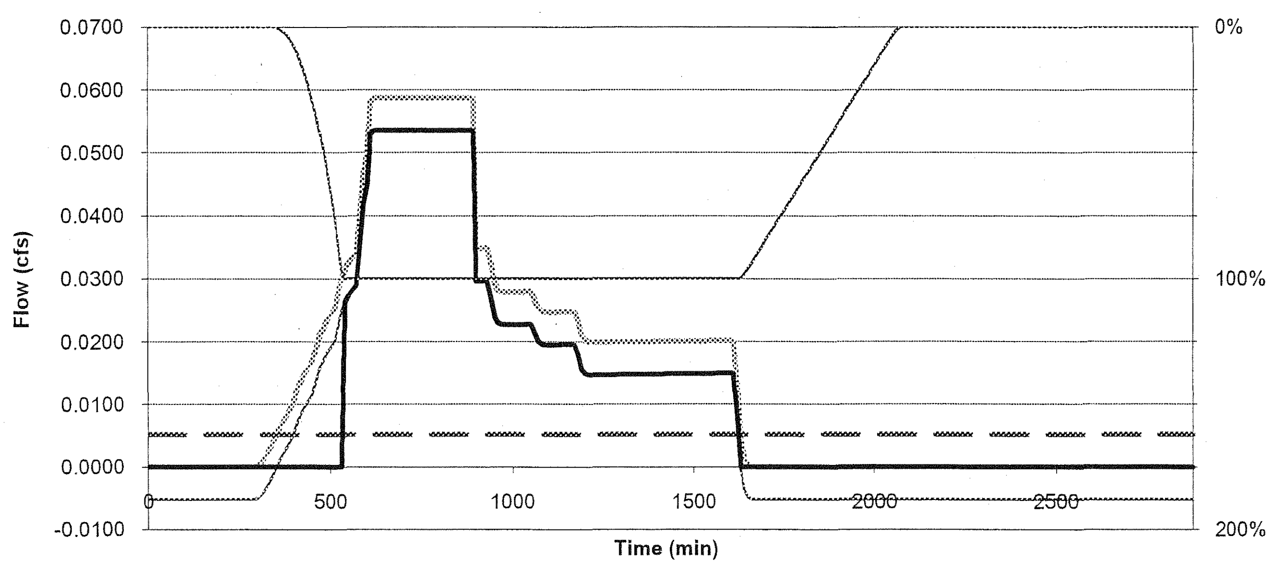
Presumptive Approach Calculator ver. 1.1

Pollution Reduction Event
Surface Facility Modeling

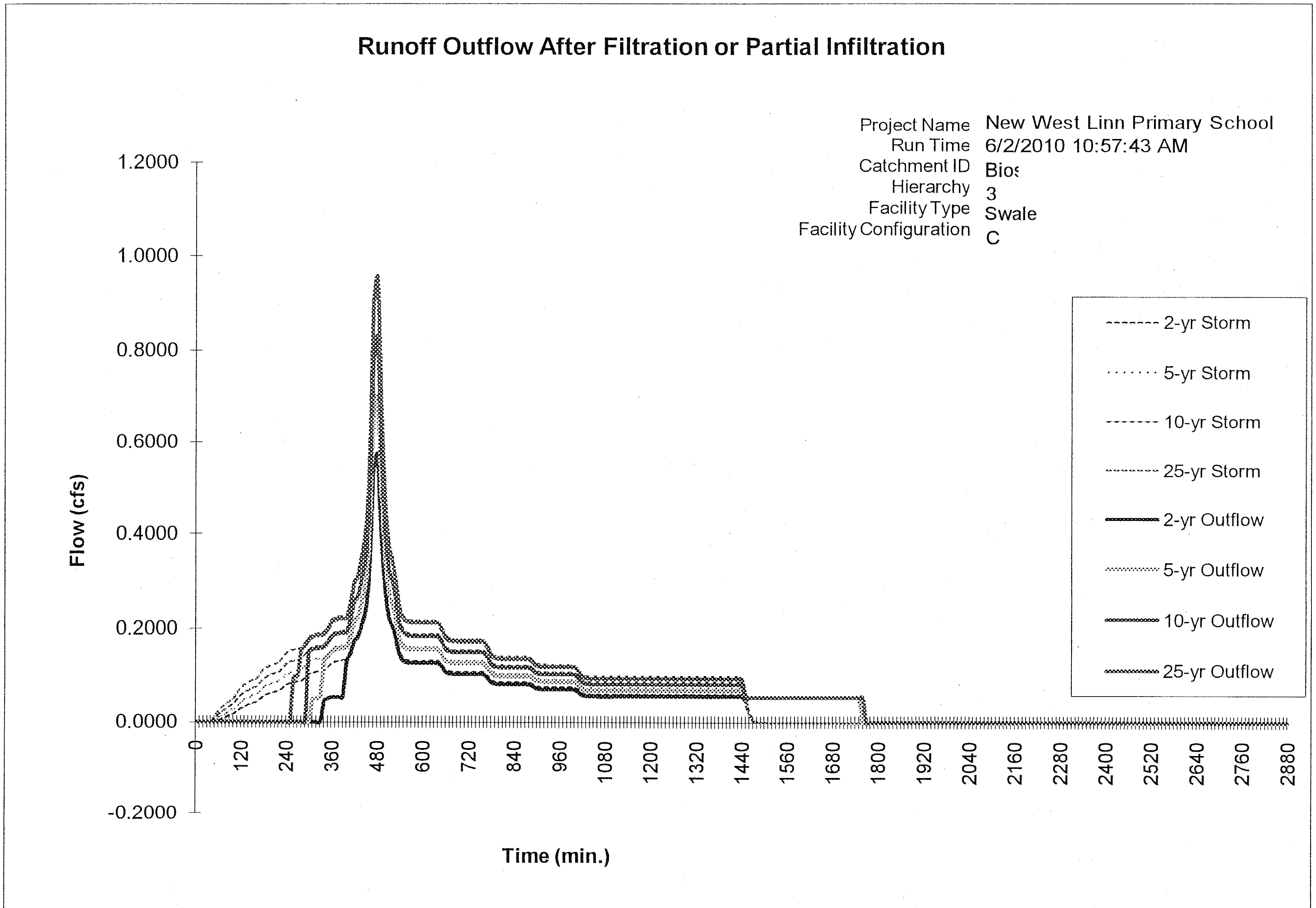
Project Name:	New West Linn Primary School
Run Time:	6/2/2010 10:57:43 AM
Catchment ID:	Bioswale #7
Hierarchy:	3
Facility Type:	Swale
Facility Configuration:	C



Pollution Reduction Event
Below Grade Modeling



BES - Presumptive Approach Calculator - Ver 1.0



WINZLER & KELLY
15575 SW Sequoia Parkway, Suite 140
Portland, OR 97224-7233
(503) 226-3921

By STS Date 6/2/10 Client ______ Sheet No. ____ of ____

Subject PUBLIC POND WATER QUALITY CALCULATION Job No. ______

CRITERIA

DESIGN RAINFALL DEPTH: 0.36"
MINIMUM DETENTION TIME: 48 HOURS
IMPERVIOUS TRIBUTARY AREA: 0.47 ACRES

POND VOLUME

REQUIRED VOLUME: $V_{REQ} = (0.36")(1\,FT/12")(0.47\,ACRES)(43{,}560\,FT^2/AC) = 614\,FT^3$

ALLOWABLE PONDING DEPTH:
INVERT OF ORIFICE #2: 661.75'
BOTTOM OF POND: 660.50'
PONDING DEPTH: 661.75 - 660.50 = 1.25'

TREATMENT VOLUME OF PROPOSED POND: 738 FT^3 (SEE ATTACHED CALCULATION)

PEAK OUTFLOW FROM POND

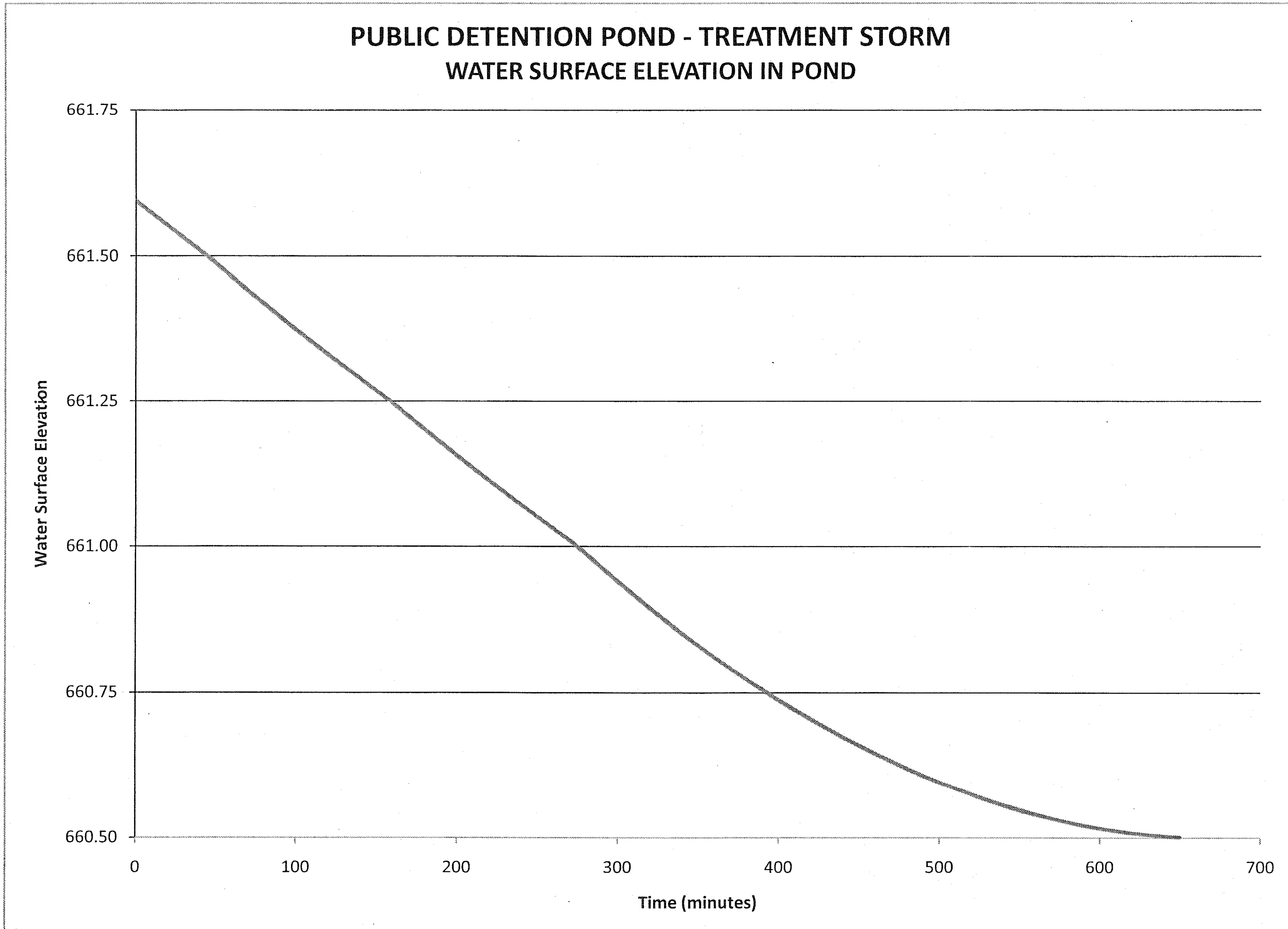
ORIFICE FLOW: $Q = CA\sqrt{2gh}$
1" ORIFICE
$A = \pi\left(\frac{0.5}{12}\right)^2 = 5.45 \times 10^{-3}\ FT^2$

$Q = (0.60)(5.45 \times 10^{-3}\,FT^2)\sqrt{2(32.2\,FT/S^2)(1.25')} = 0.029\ CFS$

DETENTION TIME

650 MIN = 10.8 HRS (SEE ATTACHED CALCULATIONS)

10.8 HRS < 48 HRS ⇐ DUE TO CITY OF WEST LINN MINIMUM ORIFICE SIZE = 1"


PUBLIC DETENTION POND - TREATMENT STORM
WATER SURFACE ELEVATION IN POND
Water Surface Elevation
661.75
661.50
661.25
661.00
660.75
660.50
0
100
200
300
400
500
600
700
Time (minutes)

Public Pond Water Quality Calculations

Elevation	Area (sf)	Volume (cf)
660.5	374	0
661	535	227
661.25	626	372
661.5	723	541
661.75	826	735

Orifice Size (in):	1.00
Orifice Area (sf):	0.00545
Orifice Coefficient:	0.60

Time (min)	Volume of Water (cf)	Water Surface Elevation	Flow out of Pond (cfs)
0	614	661.59	0.03
10	598	661.57	0.03
20	581	661.55	0.03
30	565	661.53	0.03
40	549	661.51	0.03
50	533	661.49	0.03
60	518	661.47	0.03
70	502	661.44	0.03
80	487	661.42	0.03
90	472	661.40	0.02
100	457	661.38	0.02
110	442	661.35	0.02
120	427	661.33	0.02
130	413	661.31	0.02
140	399	661.29	0.02
150	385	661.27	0.02
160	371	661.25	0.02
170	357	661.22	0.02
180	344	661.20	0.02
190	331	661.18	0.02
200	318	661.16	0.02
210	305	661.13	0.02
220	293	661.11	0.02
230	280	661.09	0.02
240	268	661.07	0.02
250	256	661.05	0.02
260	245	661.03	0.02
270	233	661.01	0.02
280	222	660.99	0.02
290	211	660.96	0.02

300	200	660.94	0.02
310	190	660.92	0.02
320	179	660.89	0.02
330	170	660.87	0.02
340	160	660.85	0.02
350	151	660.83	0.02
360	141	660.81	0.01
370	133	660.79	0.01
380	124	660.77	0.01
390	116	660.76	0.01
400	108	660.74	0.01
410	100	660.72	0.01
420	93	660.70	0.01
430	86	660.69	0.01
440	79	660.67	0.01
450	72	660.66	0.01
460	66	660.65	0.01
470	60	660.63	0.01
480	54	660.62	0.01
490	49	660.61	0.01
500	44	660.60	0.01
510	39	660.59	0.01
520	34	660.58	0.01
530	30	660.57	0.01
540	26	660.56	0.01
550	22	660.55	0.01
560	19	660.54	0.01
570	15	660.53	0.00
580	13	660.53	0.00
590	10	660.52	0.00
600	8	660.52	0.00
610	6	660.51	0.00
620	4	660.51	0.00
630	2	660.51	0.00
640	1	660.50	0.00
650	0	660.50	0.00

Appendix E

Calculations for Cheyenne Terrace Subdivision

WINZLER & KELLY

15575 SW Sequoia Parkway, Suite 140
Portland, OR 97224-7233
(503) 226-3921

By STS Date 11/18/09 Client ______ Sheet No. ______ of ______

Subject CHEYENNE TERRACE HYDROLOGIC ANALYSIS Job No. ______

- TRIBUTARY AREA: 3.1 ACRES
- ROAD / SIDEWALK: 0.5 ACRES
- IMPERVIOUS AREA PER LOT: 0.09 ACRES
- # OF LOTS: 12

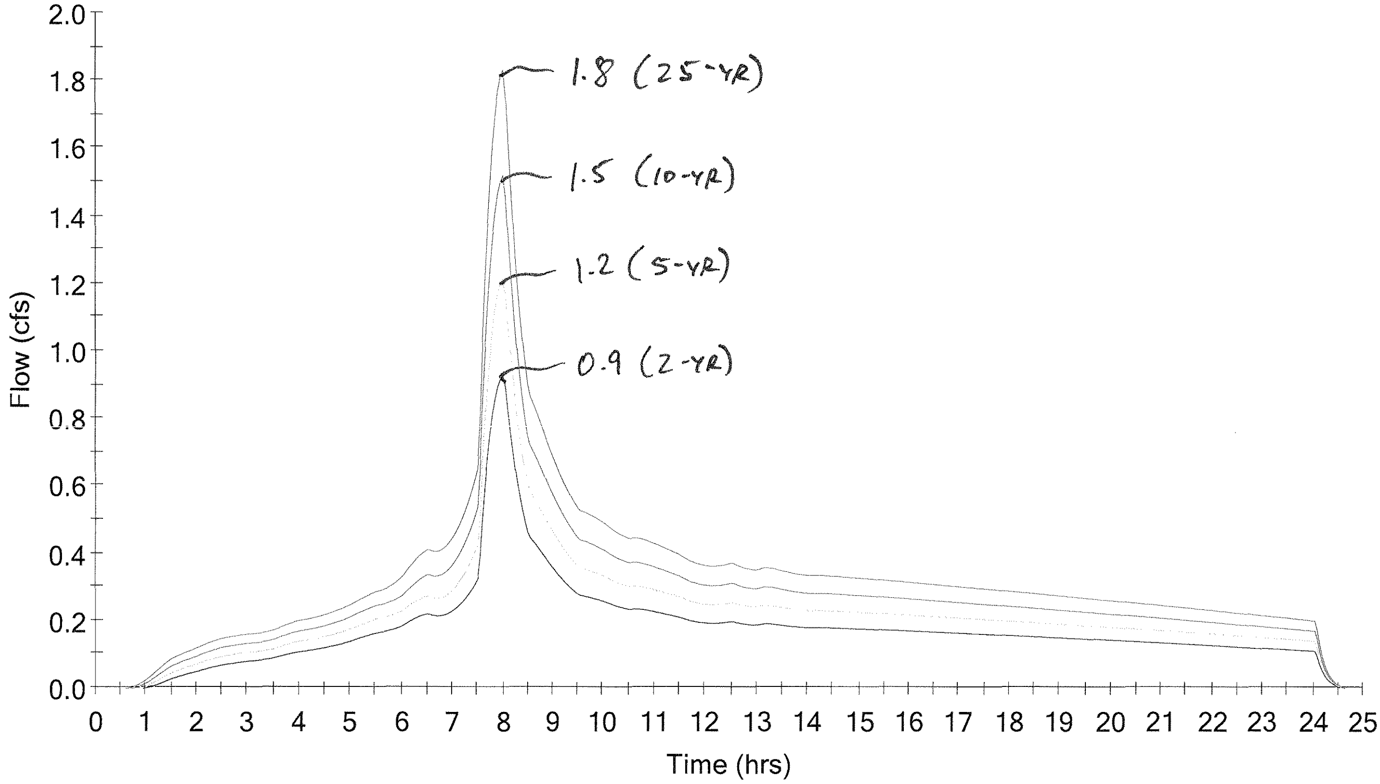
TOTAL IMPERVIOUS AREA: 0.5 ACRES + (12 LOTS)(0.09 ACRES/LOT)
$\approx$ 1.6 ACRES

PERVIOUS AREA: 3.1 − 1.6 = 1.5 ACRES

- TIME OF CONCENTRATION: 10 MIN
- CN FOR LANDSCAPE AREAS: 74 (HSG C, LAWN, GOOD CONDITION)


TRIBUTARY AREA = 3.1 ACRES
IMPERVIOUS: 0.09 AC/ LOT
ROAD/SIDEWALK = 0.5 ACRES

Hydrograph
OUT 25



Cross Section for CheyenneTerraceChannel-25yr-Existing

Project Description

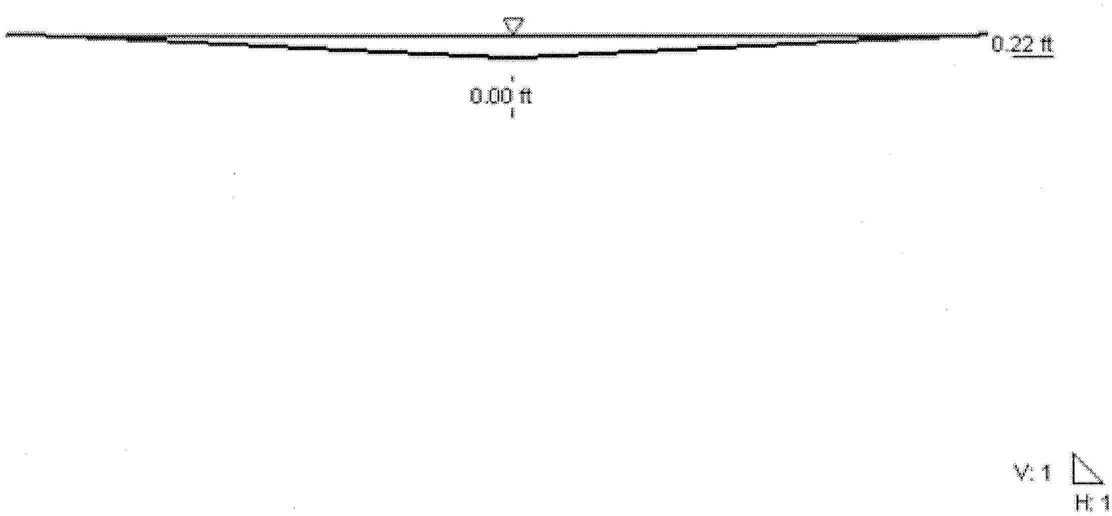
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.05500	ft/ft
Normal Depth	0.22	ft
Left Side Slope	20.00	ft/ft (H:V)
Right Side Slope	20.00	ft/ft (H:V)
Bottom Width	0.00	ft
Discharge	1.80	ft³/s ← PEAK 25-YEAR DISCHARGE

V = 1.8 FT/S

Cross Section Image



Cross Section for CheyenneTerraceChannel-25yr-Proposed

Project Description

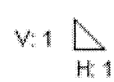
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.04500	ft/ft
Normal Depth	0.22	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	1.80	ft³/s ← PEAK 25-YEAR DISCHARGE

V = 2.3 FT/S

Cross Section Image

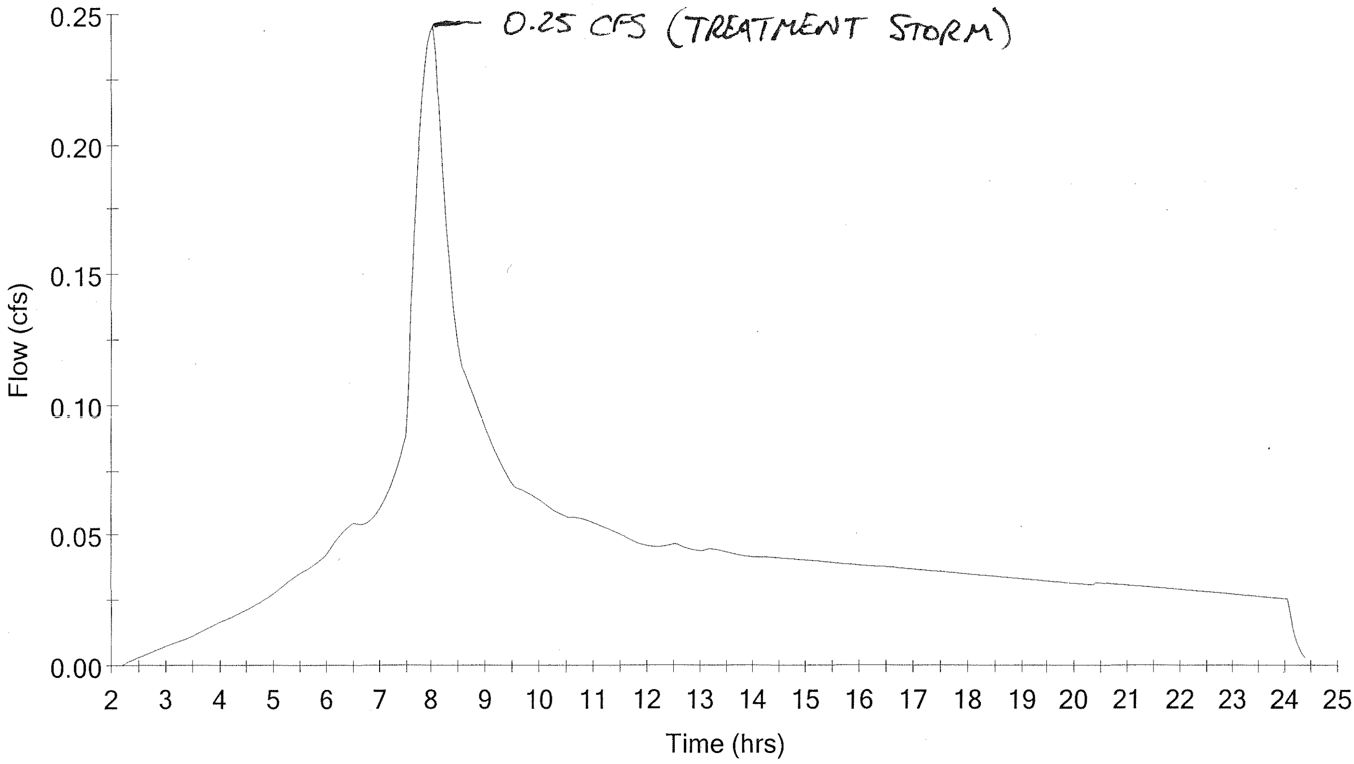


NEW WEST LINN PRIMARY SCHOOL

Travel Time Comparison for East Drainage Swale

	Length (ft)	Slope	Peak 25-yr Velocity (ft/s)	Travel Time (min)
Existing Swale	400	5.5%	1.8	3.7
Proposed Swale	485	4.5%	2.3	3.5

Hydrograph
OUT 1



Cross Section for CheyenneTerraceChannel-Treatment

Project Description

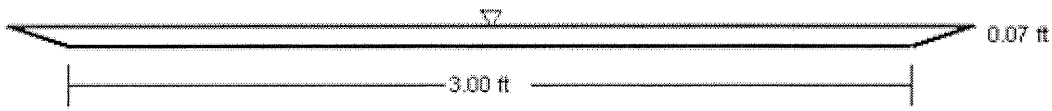
Friction Method	Manning Formula
Solve For	Normal Depth

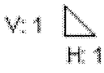
Input Data

Roughness Coefficient	0.045	
Channel Slope	0.04500	ft/ft
Normal Depth	0.07	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	0.25	ft³/s ← PEAK DISCHARGE FROM TREATMENT STORM

V = 1.1 FT/S

Cross Section Image



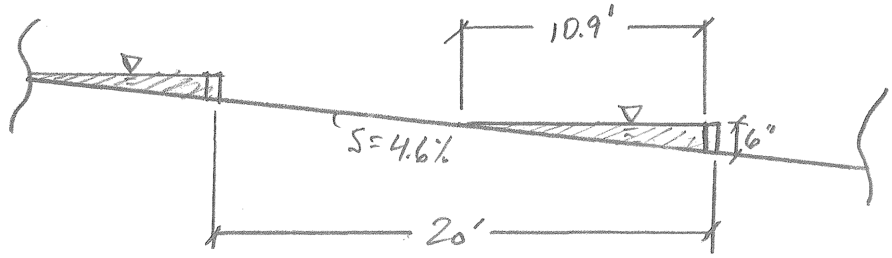


WINZLER & KELLY
15575 SW Sequoia Parkway, Suite 140
Portland, OR 97224-7233
(503) 226-3921

By STS Date 6/17/10 Client ______ Sheet No. ____ of ____

Subject EAST SWALE RESIDENCE TIME CALCULATION Job No. ______

SWALE BOTTOM WIDTH: 3'
AVERAGE SLOPE OF SWALE: 4.6%
CHECK DAM HEIGHT: 6"
CHECK DAM SPACING: 20'
SWALE LENGTH: 480'



LENGTH OF PONDED WATER: $\frac{0.5''}{0.046} = 10.9'$

PONDING VOLUME PER POOL: $(3')(10.9')(0.5')\frac{1}{2} = 8.2\ FT^3$

TOTAL # OF CHECK DAMS/POOLS: $\frac{485'}{20'} =$ 24 CHECK DAMS

TOTAL PONDING VOLUME: $(24)(8.2\ FT^3) = 196\ FT^3$

PEAK TREATMENT STORM DISCHARGE: 0.25 CFS
RESIDENCE TIME IN POOLS: $\frac{196\ FT^3}{0.25\ CFS} \cdot \frac{1\ MIN}{60\ SEC} =$ 13.1 MINUTES

RESIDENCE TIME IN SWALE (NOT IN POOLS): $\frac{[480' - (24)(10.9)]}{1.1\ FT/S} \cdot \frac{1\ MIN}{60\ SEC} = 3.3\ MIN$

TOTAL RESIDENCE TIME IN SWALE: 13.1 MIN + 3.3 MIN = <u>16.4 MIN</u>

WINZLER & KELLY

15575 SW Sequoia Pkwy, Ste. 140
Portland, OR 97224-7233

Date: 06-25-10

MEMORANDUM

Project No.:	11456-09001 Project Name: WLWSD – West Linn Primary School
To:	B. Karina Ruiz, Associate Principal
From:	Nancy Olmsted, Sr. Environmental Scientist
Copies To:	Keith Liden, AICP; M. Wharry, P.E.; Walker-Macy
Subject:	Assessment Area E Water Resource Area

This memorandum has been prepared to address the conditions of the West Linn Wilsonville School District's Primary School Site in the area designated Assessment Area E. It responds to comments received from the City of West Linn in their completeness review June 19, 2010. Item 32.050(A) Wetland consultant shall provide field test data for assessment area E below 12" storm outfall originating at Cheyenne Terrace.

Winzler & Kelly prepared a memorandum January 8, 2010 to address the conditions in the eastern portion of the school property, an area that was identified as a water resource area on the City's data base. This memorandum updates and augments the data from that initial assessment. In March and June 2010 additional observations were made of the sloped area that spans from the storm outfall originating at Cheyenne Terrace downslope to the storm drain in the north side of the property. There were several additional test pits taken near the 12" outfall in the SE corner of the site and along the centerline of the area designated water resource area by the City of West Linn.

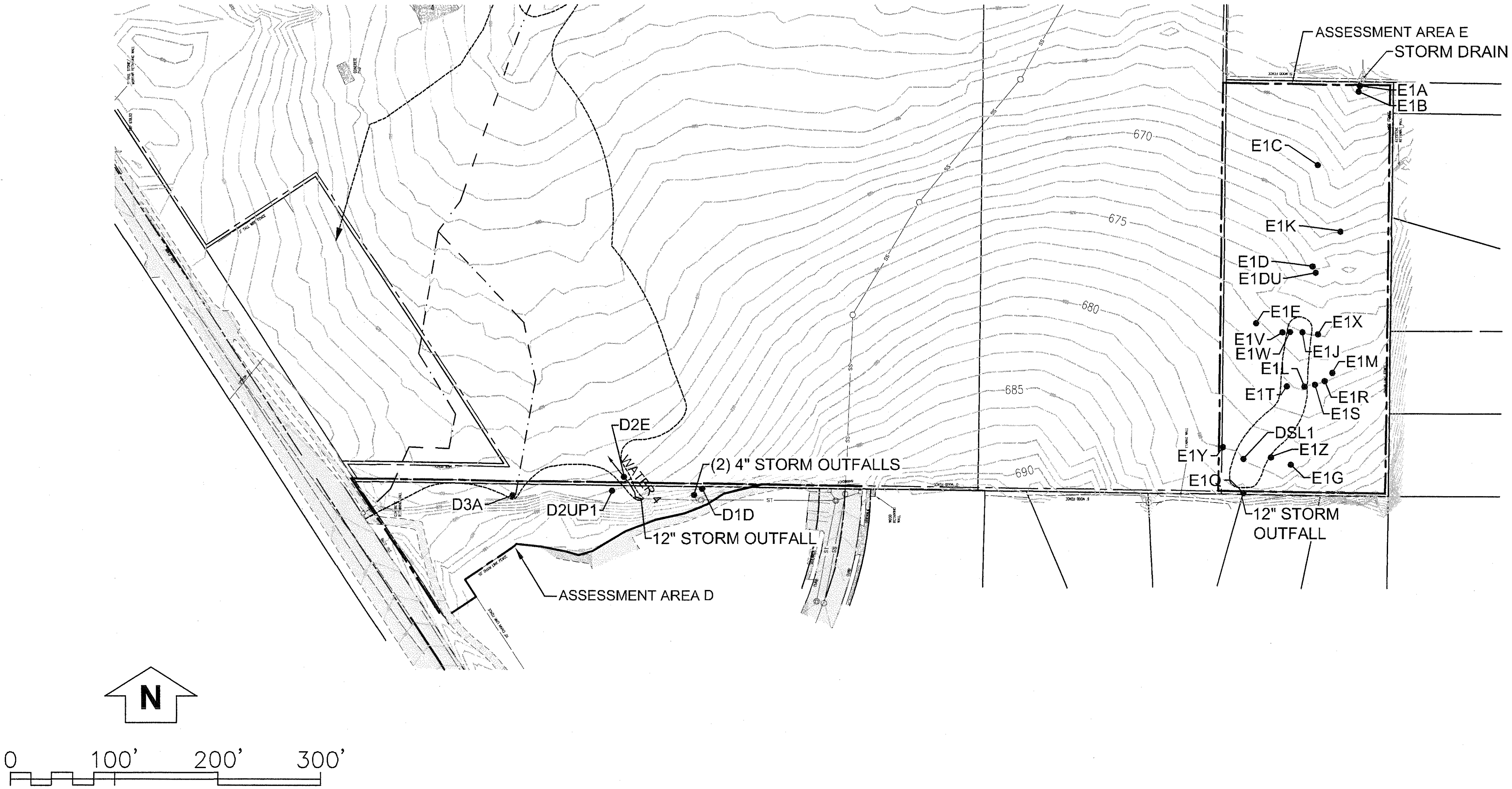
Findings are that no channel exists, there is a high water table (within 8 – 12 inches from the surface) and some surface water ponding during and for a day or so after any precipitation event. However, the residence time of the surface and high water table diminish rapidly when there is no longer any precipitation or discharge of stormwater from the 12-inch outfall from Cheyenne Terrace. Some surface ponding persists longer in highly-compacted wheel ruts approximately 20 feet below the outfall.

The attached map, Figure 6. Additional Sampling for Wetland Delineation Study, and associated data sheets reveal that a linear shaped area between the storm outfall and the center of the assessment area approximately 4,934 square foot (0.1-acre) contains evidence of three parameters that are necessary to qualify as a jurisdictional wetland. These three parameters are: 1) hydrophytic wetland indicator plants; 2) hydric soil characteristics; and 3) evidence of hydrology. Sample pits shown on the figure were reviewed in the field with a representative from Oregon Department of State Lands (DSL), and the center elliptical shaped polygon outlines the boundary of the area that meets the DSL definition of a jurisdictional wetland. The remainder of the area below the Cheyenne Terrace outfall was not found to have the characteristics for a jurisdictional wetland, and it is only subject to City of West Linn requirements. DSL has reviewed this in the field and will provide the West Linn Wilsonville School District a concurrence letter on the jurisdictional wetland boundary for the record.

Since this small wetland is proposed to be filled as a part of the land development process, the DSL and the U.S. Army Corps of Engineers will need to be consulted to obtain permission. If the DSL rules for general authorization under the State or Oregon or a Nationwide Permit under the U.S. Army Corps of Engineers apply, then the permit processes can be approved within 30 days. The District will submit the Joint Removal Fill Permit Application by July 9th and then take necessary steps to conclude these approvals expeditiously.

LEGEND

STUDY AREA BOUNDARY
WETLAND BOUNDARY
WATERS



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	12/14/09	114560900	

TITLE
FIG. 6 ADDITIONAL SAMPLING FOR WETLAND DELINEATION STUDY

O:\11456 – WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 6A WETLAND.DWG Seth Stevens 7/1/2010 3:28 PM

WALKER·MACY

Landscape Architecture Urban Design Planning

MEMORANDUM

To: Karina Ruiz - DOWA

From: Ben Vaughn

Date: April 30, 2010

Project: New West Linn Primary School

Project #: WM 0911

RE: Arborist Meeting Notes
Site Visit February 9, 2010

Meeting Attendees:
Mike Perkins: City of West Linn Arborist
Karina Ruiz: DOWA
Ben Vaughn: Walker Macy, Landscape Architects:

On February 9, 2010 at 10 am, we met with Mr. Perkins at the New West Linn Primary School site. During a walk of the property, we observed the existing trees and the trees that were proposed for removal.

The following is a summary of that discussion and we suggest that this information be forwarded to other team members for their review and comment. If anyone disagrees with these comments, we ask that they contact us immediately.

A. Driveway leading from Rosemont Ridge to main entry of building and Visitor Parking Lot

- We observed the Douglas fir trees along the driveway and to the south of the creek crossing.
  - Removal of these trees is required to make way for the driveway.
  - The City had made prior comments in public meeting related to concerns regarding removing trees at the edge of this stand may have a negative impact on the entire grove of trees. These concerns were discussed based on the

111 SW Oak, Suite 200 Portland, OR 97204
Phone 503-228-3122 Fax 503-273-8878

proposed removal of trees and it was determined that removal as currently proposed would not have an impact on the entire grove of trees.

- We observed the Douglas fir trees along the driveway and northwest of the creek crossing.
  - It was discussed that the removal of the smaller Douglas fir trees encroaching on the oaks was desirable.
  - It was noted that the alignment of the driveway did not have an impact on the Oak trees surrounding the creek.
  - Once the smaller Douglas fir trees were removed the driveway and entry would highlight the oak trees.

B. Douglas fir stand at the end of Suncrest Drive
- Select trees needed to be removed to provide the pedestrian / bike access.
- It was noted by Mr. Perkins that additional trees could be removed to thin out this grove.

C. Stand of Cedars and 7-foot diameter Giant Sequoia tree along Rosemont Road.
- It was discussed that the site development was designed to avoid these trees.
- One of the cedars would be impacted because of the right-of-way improvement required by the City.
- The large Giant Sequoia tree would not be impacted.

D. Walnut trees along Rosemont Road.
- It was discussed that these trees would need to be removed because of the right-of-way improvements.

E. Southern Edge of Douglas fir grove (directly north of proposed school)
- No trees are currently proposed for removal along this edge.
- Discussed the requied 10-foot setback from the Douglas fir trees and the Design Team's desire to field measure from the canopy of the tree to establish this boundry. Mr. Perkins gave us instruction on how to measure the canopy and noted that we could measure this independently without his assistance. Current drawings reflect a 10-foot setback as field measured.
- We discussed the encroachment of the site development on the edge of the Douglas fir tree. Mr. Perkins noted that our proposed development was well outside the impact on the tree zone and that based on the tree type (Douglas fir) that we might be able to develop closer to the trees if needed.

F. Hawthorns in Field where School is Proposed
- These trees were noted as being removed

Teragan & Associates, Inc.

Terrence P. Flanagan Arboricultural Consultants

July 7, 2010

Tim Woodley
West Linn-Wilsonville School District
2755 Borland Rd.
West Linn, OR 97068

Project Title: Erickson Primary School located on Hidden Springs Road, West Linn, OR

Enclosed is the certified arborist report and tree protection plan regarding the development of the land designated for the Erickson Primary School to be located on Hidden Springs Road in the West Linn-Wilsonville School District that complies with the West Linn Municipal Code.

Summary

The majority of the large, significant trees on the site will be retained on the property that will be developed for an elementary school. The school building is to be placed in an area on the property that currently has smaller hawthorn trees. The main drive, parking lot, fields and frontage road improvements will cause approximately 75 trees of the larger trees on the property to have to be removed.

The grove of even aged Douglas firs just south of Suncrest Drive may have a large number of trees removed from it but the suggestion of reducing the planned walkway from two to one and the reconfiguration of playing field to the west may reduce the number of tree removals significantly.

It will be import to evaluate the hazardous condition of both the grove of trees south of Suncrest Drive and the larger grove of Douglas fir trees that is to be utilized as an outdoor classroom. Opportunities to convert some of the hazardous, suppressed and dead trees in these areas to wildlife snags should be seriously considered if they can be retained safely.

As long as the trees in the wetland area west of main drive is not disturbed, the trees should continue to do well. Management of the water flow through the site will have to be managed to ensure that surface and belowground flows are not severely reduced or increased from the current levels.

3145 Westview Circle • Lake Oswego, OR 97034
(503) 697-1975 • Fax (503) 697-1976•E-mail: terry@teragan.com
ISA Board Certified Master Arborist, #PN-0120 BMT
Member, American Society of Consulting Arborists

Assignment

The assignment that you requested I complete is to:

1. Create a tree protection plan for the Erikson School site that meets the requirements of the City of West Linn.
2. Provide a tree risk assessment of the trees that are to be retained on site.
3. Provide a written tree protection plan that references the site plan developed by Walker Macy.

Report Purpose

This report is to certify the trees that are on site, their condition and outline the tree protection steps to protect the trees to be retained on site. This report is written to meet the requirements of the City of West Linn for tree protection on properties that are being developed.

Observations

On June 29, 2010, the tree inventory was completed. A spreadsheet of the trees inventoried can be found in appendix # 3. The inventory lists the tree number, species (common and botanical name), tree DBH, tree condition, tree structural condition, pertinent comments and tree recommendation.

Discussion

The subject property is to be developed for the construction of Erickson Primary School. The numbers in the Tree Inventory Chart correspond to the numbers tagged to the trees and indicated on the survey of the property. The tree location and tree numbering was completed by another vendor. Some of the trees did not have the number tags on them for reasons that are unknown. We re-tagged the trees that had the original tags missing from them.

The tree inventory spreadsheet lists the number of trees larger than 12-inches on the property, plus any Oregon white oak, *(Quercus garryana),* Pacific dogwood *(Cornus nuttallii),* and Pacific madrone *(Arbutus menziesii)* that are greater than 6-inches in diameter.

Areas of Concern

Grove of Douglas Firs

A grove of young aged Douglas firs *(Pseudotsuga menziesii)* located along the northern boundary of the property at the south end of Suncrest Drive shows that at least six Douglas firs are to be removed from the edge of the grove. It would be best to retain these edge trees as they provide a buffer from the force of winds that may impact that corner of the grove. Without these edge trees, the interior trees will be more susceptible to wind throw.

The plans show that two walkways are to extend from the end of the sidewalks on either side of Suncrest through the grove and merging into one walkway south of the grove. It would be highly recommended that only one walkway be constructed through the grove to limit the number of trees that would have to be removed. It will also be important the final route of the walkway through the grove be situated to limit the number of trees that would have to be removed.

There are a number of dead, partially failed and suppressed Douglas firs within the interior of this grove. The removal of these trees will be necessary prior to allowing the public to enter the grove to insure that their safety is not compromised. On site direction by the project arborist may be necessary to indentify suppressed or failed trees.

Trees # 2221 and 2194

The main entrance drive is located between two Oregon white oaks, 28 and 27-inch diameter respectively. Both trees are rated as being in good condition with good structure. Ideally, no construction activity should occur within 28 feet of these trees. The plans show that the drive edge will come within 20 feet of tree # 2221 and 35 feet within tree # 2194. It would be best that the drive be moved to the north but that may end up impacting other trees to the southeast that are planned for retention.

If construction activity is limited to come no closer than 15 feet to tree # 2221, it should be possible to protect the tree from long-term damage as long at a strong tree protection fence is installed and maintained for the duration of the project.

Trees # 2139, 2137, 2135, 2134, 2133, 2132, 2131, 2127, 2129, 2156

The above trees are located on the northeast side of the main entrance drive to the school toward the closest planned front parking lot for the planned building. The grading necessary to install the drive will come too close to these trees and negatively impact them to the point that the trees should be removed or a wall should be installed to remove the need for grading in the vicinity of these trees. The minimum distance that construction activity should be allowed to encroach on these trees is as follows:

Tree Number	Tree Diameter in Inches	Tree Species	Tree Condition	Minimum Tree Protection Radius in Feet
2139	21	Douglas fir	Good with dogleg at 20 feet	11
2137	20	Douglas fir	Poor with broken top	10
2135	24	Douglas fir	Fair with old broken top	12
2134	20	Douglas fir	Poor with broken top	10
2133	27	Douglas fir	Good	14
2132	13	Douglas fir	Poor with a high crown, tree is suppressed	7
2131	29	Douglas fir	Fair, lost top in past	15
2127	37	Douglas fir	Good	19
2129	34	Douglas fir	Good	17
2156	30	Douglas fir	Fair	15

Outdoor Classroom Tree Stand

There is a large stand of Douglas firs located north of where the new school building is to be situated. The plan is to develop an outdoor classroom with paths running through the area. The tree inventory included a basic survey of risk assessment of the trees. When the paths and other aspects of the outdoor classroom are finalized, the tree inventory should be utilized to indentify trees that have too high a risk to leave in an area of high use. In addition, the trees that were too small to be surveyed and inventoried, any tree less than 8 inches in diameter, will also have to be evaluated for their level of risk that they may pose to the users of the area. The project arborist should work with crews to indentify those trees regardless of diameter size that may have too high a risk level to allow them to be retained.

There may be the opportunity to create some wildlife snags from the trees that are too risky to leave at full size or that are suppressed. The project arborist can assist in identifying those trees and provide the management options that will be required for those trees to ensure that they can be safely retained given the level of use the area will have.

Cottonwood on Southeast End of South Property Line
There are a couple of cottonwoods that are located on the south property line toward the property's southeast corner that are being considered for removal. It appears that the trees are on the school property although that should be confirmed. Given the close proximity of the planned parking lot and the necessary grading, the trees should be removed. Cottonwoods do not tolerate construction impacts well; they are weak branched species prone to breakage. These trees would not be good candidates to retain so close to parking areas.

Stand of Native Ashes
There is a stand that consists of mostly native ash trees located in the central area of the west half of the property. This stand will be west of the main entrance drive and the new school. These trees are mostly located within the wetland boundary. Tree protection fencing around the edges of the stand and the wetland area should properly protect this trees well.

The site plans show that there are two areas that are to be utilized for mitigation within this tree stand. The types and level of impacts that the mitigation may have on the trees within the stand will have to be analyze to insure that there will be no impacts to the trees that exist within the stand.

The plan calls for these mitigation areas to have the grade lowered to allow surface soil moisture to be retained for a longer period of the year. The trees within these mitigation areas that are to be retained will have to be protected with tree protection fencing during the construction of the improvements for the mitigation areas. The site plan currently shows tree protection fencing on the plans.

Tree Protection

The tree protection distance from each of the retained tree's center will be set at a distance equal to at least 6-inches for every inch of tree diameter. This will be an adequate distance to protect the trees, as only one side of any of the trees will possibly be impacted by construction activity. As the improvements are constructed on site, there may be some need for review and adjustment of the tree protection measures. Placing improvements within the 6-inch for every inch of tree protection can be accomplished if additional techniques to protect the trees are utilized. Project arborist shall be contacted if such adjustment of the tree protection has to occur.

No storage of any material, parking of extra vehicles for construction, parking of utility or office trailers and even the pedestrian traffic of construction workers should be allowed within the tree protection areas. Please refer to appendix # 1 for additional steps in tree protection.

A consulting arborist should be involved with any adjustment to the tree protection measures outlined above and stated in appendix # 1, Tree Protection Steps.

Certification of Performance

I, Terrence P. Flanagan, Certify:

- That a representative of Teragan and Associates, Inc, has inspected the tree(s) and/or the property referred to in this report, and have the findings have been accurately stated. The extent of the evaluation and appraisal is stated in the attached report;
- That Teragan and Associates, Inc. has no current or prospective interest in the vegetation or the property that is the subject of this report, and Teragan and Associates, Inc. has no personal interest or bias with respect to the parties involved;
- That the analysis, opinions and conclusions stated herein are our own and are based on current industry procedures and facts;
- That Teragan and Associates, Inc. compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events;
- That the analysis, opinions, and conclusions that were developed as part of this report have been prepared according to commonly accepted arboricultural practices;
- That a certified arborist has been utilized to oversee the gathering of data
- I further certify that I am a member of the International Society of Arboriculture, and am a Board Certified Master Arborist

Conclusion

The trees that are to be retained should be far enough away from the planned construction envelope that they should be able to be protected from any damage during the construction of the improvement on the site. The tree protection areas will have to be established prior to any construction on the site. Any changes to the tree protection plan should be reviewed by the project arborist to insure that the retained trees on the site are property protected.

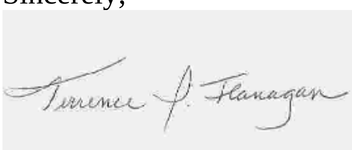
Recommendations

1. Do not remove the Douglas firs on the southwest corner of the grove of Douglas firs south of Suncrest Drive.
2. Remove trees within the above grove that have failed, are dead or suppressed to remove the high-risk trees from the stand and improve the growing conditions for the remaining trees.
3. Consider removing one of the planned walkways from the grove of Douglas firs south of Suncrest Drive.
4. Carefully plan the path of the walkway through the grove of Douglas firs to minimize the removal of any healthy trees from the grove
5. Review and adjust the plan for the construction of the main entrance drive near trees # 2139, 2137, 2135, 2134, 2133, 2132, 2131, 2127, 2129, and 2156 to ensure that these trees are not impacted by the construction of the drive. Suggested that a retaining wall be considered to avoid the need to grade closer to the trees.

6. Contractor to complete a walk through with the project arborist utilizing the tree inventory to indentify any tree with a high-risk potential. The project arborist would also indentify high-risk trees that were below the threshold to be included in the tree inventory in the tree stand where the outdoor classroom is to be developed.
7. Remove the cottonwoods on the south property line toward the southeast property corner.
8. Insure that the mitigation within the natural stand in the wetland area will not impact the health of the existing trees.

Please call if you have any questions or concerns regarding this report.

Sincerely,



Terrence P. Flanagan
ISA Board Certified Master Arborist, #PN-0120 BMT
PNW-ISA Certified Tree Risk Assessor, #PN-0152
Member, American Society of Consulting Arborists

Enclosures: Appendix # 1 – Tree Protection Steps
Appendix # 2 – Assumptions and Limiting Conditions
Appendix # 3 – Inventory of Trees

Appendix # 1

Tree Protection Steps

It is critical that the following steps be taken to ensure that the trees that are to be retained are protected.

Before Construction Begins

1. Notify all contractors of the trees protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection. It can only take one mistake with a misplaced trench or other action to destroy the future of a tree.
    a. Hold a Tree Protection meeting with all contractors to fully explain goals of tree protection.
    b. Have all sub contractors sign memoranda's of understanding regarding the goals of tree protection. Memoranda to include penalty for violating tree protection plan. Penalty to equal appraised value of tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline by the Council of Tree & Landscape Appraisers current edition of the ***Guide for Plant Appraisal***.
    Penalty is to be paid to owner of the property.
2. Fencing
    a. Establish fencing around each tree or grove of trees to be retained.
    b. The fencing is to be put in place before the ground is cleared in order to protect the trees and the soil around the trees from any disturbance at all.
    c. Fencing is to be placed at the edge of the root protection zone. Root protection zones are to be established by the project arborist based on the needs of the site and the tree to be protected.
    d. Fencing is to consist of 6-foot high steel fencing on concrete blocks or 6-foot metal fencing secured to the ground with 8-foot metal posts to prevent it from being moved by contractors, sagging or falling down.
    e. Fencing is to remain in the position that is established by the project arborist and not to be moved without written permission from the project arborist until the end of the project.
3. Signage
    a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THE APPROVED LOCATION OF THIS TREE PROTECTION FENCING.

Please contact the project arborist or owner if alterations to the approved location of the tree protection fencing are necessary.

Teragan & Associates, Inc.
503-803-0017

b. Signage should be place as to be visible from all sides of a tree protection area and spaced every 75 feet.

During Construction

1. Protection Guidelines Within the Root Protection Zone
    a. No traffic shall be allowed within the root protection zone. No vehicle, heavy equipment, or even repeated foot traffic.
    b. No storage of materials including but not limiting to soil, construction material, or waste from the site.
        i. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
    c. Construction trailers are not to be parked / placed within the root protection zone without written clearance from project arborist.
    d. No vehicles shall be allowed to park within the root protection areas.
    e. No activity shall be allowed that will cause soil compaction within the root protection zone.
2. The trees shall be protected from any cutting, skinning or breaking of branches, trunks or roots.
3. Any roots that are to be cut from existing trees that are to be retained, the project consulting arborist shall be notified to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots are to be immediately covered with soil or mulch to prevent them from drying out.
4. No grade change should be allowed within the root protection zone.
5. Any necessary deviation of the root protection zone shall be cleared by the project consulting arborist or project owner.
6. Provide water to trees during the summer months for tree(s) that will have had root system(s) cut back. Such trees will need supplemental water to overcome the loss of ability to absorb necessary moisture during the summer months.
7. Any necessary passage of utilities through the root protection zone shall be by means of tunneling under roots by hand digging or boring under the observation of the project arborist.

After Construction

1. Carefully landscape in the area of the tree. Do not allow trenching within the root protection zone. Carefully plant new plants within the root protection zone. Avoid cutting the roots of the existing trees.
2. Do not plan for irrigation within the root protection zone of existing trees unless it is drip irrigation for a specific planting or cleared in writing by the project arborist.
3. Provide for adequate drainage of the location around the retained trees.
4. Pruning of the trees should be completed as one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch or turf.
5. Provide for inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
6. Trees that are retained may need to be fertilized as called for by project arborist after final inspection.

3145 Westview Circle • Lake Oswego, OR 97034
• (503) 697-1975 • Fax (503) 697-1976•E-mail: terry@teragan.com
ISA Board Certified Master Arborist, #PN-0120 BMT
Member, American Society of Consulting Arborists

Appendix #2
Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The survey provided prepared by Walker Macy Architects was the basis of the information provided in this report. Teragan and Associates, Inc. checked the species identification and tree diameters in the field.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultants' role is only to make recommendations; inaction on the part of those receiving the report is not the responsibility of the consultant.
7. This report is to certify the trees that are on site, their condition, outlining the tree protection steps to protect the trees to be retained on site. This report is written to meet the requirements of the City of West Linn for tree protection on properties that are to be developed for residential or commercial use.

Name:	West Linn/Wilsonville Sch. Dist.						
Location:	Rosemont Rd. & Hidden Springs						
Date:	6/29/2010						
Color key located at end of this document							
NO.	**COMMON NAME**	**BOTANICAL NAME**	**DBH**	**COND.**	**STRUC.**	**COMMENTS**	**HAZARD TREE**
2005	Oregon Ash	*Fraxinux latifolia*	22	Dead			1
2092	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair	Mature.	
2093	Oregon Ash	*Fraxinux latifolia*	22	Fair	Fair	Mature.	
2105	Douglas Fir	*Pseudotsuga menziesii*	26	Good	Good		
2106	Oregon White Oak	*Quercus garryana*	8	Poor	Fair	Thin crown.	
2107	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Broken top at 70' above ground.	
2108	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Terrestial fungal body growing on soil 7' E. #2108. Detailed inspection to determine conclusive identity needed. Broken top at 70' above ground.	
2109	Douglas Fir	*Pseudotsuga menziesii*	22	Fair	Fair		
2110	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair	Burls on trunk at 5' above ground on E. side & at 11' above ground on S. side.	
2111	Douglas Fir	*Pseudotsuga menziesii*	32	Fair	Fair	Broken top at 70' above ground.	
2112	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2113	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Fair		
2114	Douglas Fir	*Pseudotsuga menziesii*	32	Fair	Fair		
2115	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Fair	Damaged limbs at 40' ab ground require prunung.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2116	Oregon White Oak	*Quercus garryana*	21	Fair	Fair	Thinning crown.	
2117	Douglas Fir	*Pseudotsuga menziesii*	22	Poor	poor	Broken top at 40' above ground.	
2118	Douglas Fir	*Pseudotsuga menziesii*	19	Poor	Fair	Broken top.	
2119	Douglas Fir	*Pseudotsuga menziesii*	36	Good	Good		
2120	Douglas Fir	*Pseudotsuga menziesii*	25	Good	Good		
2121	Douglas Fir	*Pseudotsuga menziesii*	31	Good	Good		
2122	Douglas Fir	*Pseudotsuga menziesii*	22	Fair	Fair	Broken top.	
2123	Douglas Fir	*Pseudotsuga menziesii*	15	Dead		Remove.	1
2124	Douglas Fir	*Pseudotsuga menziesii*	41	Good	Good		
2125	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Good	Broken top at 60' above ground.	
2126	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair		
2127	Douglas Fir	*Pseudotsuga menziesii*	37	Good	Good		
2128	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2129	Douglas Fir	*Pseudotsuga menziesii*	34	Good	Good		
2130	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2131	Douglas Fir	*Pseudotsuga menziesii*	29	Fair	Fair	Lost top.	
2132	Douglas Fir	*Pseudotsuga menziesii*	13	Poor	Fair	High crown. Suppressed.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2133	Douglas Fir	*Pseudotsuga menziesii*	27	Good	Good		
2134	Douglas Fir	*Pseudotsuga menziesii*	20	Poor	Fair	Broken top.	
2135	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Old broken top.	
2136	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2137	Douglas Fir	*Pseudotsuga menziesii*	20	Poor	Fair	Broken top.	
2138	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Fair	Broken top.	
2139	Douglas Fir	*Pseudotsuga menziesii*	21	Good	Fair	Dogleg at 20' above ground.	
2140	Douglas Fir	*Pseudotsuga menziesii*	26	Good	Good		
2141	Douglas Fir	*Pseudotsuga menziesii*	21	Fair	Fair		
2142	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Some butt swell.	
2143	Douglas Fir	*Pseudotsuga menziesii*	17	Good	Good		
2144	Douglas Fir	*Pseudotsuga menziesii*	17	Poor	Fair	Broken top.	
2145	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Good		
2146	Douglas Fir	*Pseudotsuga menziesii*	27	Fair	Fair		
2147	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Broken top.	
2148	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Good		
2149	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2150	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2151	Douglas Fir	*Pseudotsuga menziesii*	20	Good	Good		
2152	Douglas Fir	*Pseudotsuga menziesii*	20	Good	Good		
2153	Douglas Fir	*Pseudotsuga menziesii*	23	Fair	Fair	Terrestial fungal body growing on soil fungi on ground at 2' and 6' from trunk face on E. side. More detailed inspection is required to determine conclusive identity.	
2154	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair		
2155	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair		
2156	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair		
2157	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Broken top.	
2158	Douglas Fir	*Pseudotsuga menziesii*	20	Dead		Remove.	1
2159	Douglas Fir	*Pseudotsuga menziesii*	24	Fair			
2160	Douglas Fir	*Pseudotsuga menziesii*	19	Fair	Fair		
2161	Douglas Fir	*Pseudotsuga menziesii*	13	Fair	Fair	Broken top.	
2162	Douglas Fir	*Pseudotsuga menziesii*	24	Dead		Tree has fallen.	1
2163	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair		
2164	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair		
2165	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2166	Douglas Fir	*Pseudotsuga menziesii*	17	Fair	Fair	Broken top. Dogleg at 60' above ground. Leans N.	
2167	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair	Old broken top with new leader. Leans W. 10°. Hanging at 20' above ground.	
2168	Douglas Fir	*Pseudotsuga menziesii*	21	Very Poor	Poor	Broken top with cavity. Hazardous. Remove.	1
2169	Douglas Fir	*Pseudotsuga menziesii*	34	Good	Good		
2170	Douglas Fir	*Pseudotsuga menziesii*	12	Very Poor	Poor	Broken top at 35' above ground.	1
2171	Douglas Fir	*Pseudotsuga menziesii*	20	Fair	Fair	Lost top.	
2172	Douglas Fir	*Pseudotsuga menziesii*	32	Good	Good		
2173	Douglas Fir	*Pseudotsuga menziesii*	42	Good	Good		
2174	Douglas Fir	*Pseudotsuga menziesii*	14	Fair	Fair		
2175	Douglas Fir	*Pseudotsuga menziesii*	34	Good	Good		
2176	Douglas Fir	*Pseudotsuga menziesii*	22	Good	Good		
2177	Douglas Fir	*Pseudotsuga menziesii*	29	Good	Good		
2178	Douglas Fir	*Pseudotsuga menziesii*	26	Good	Good		
2179	Douglas Fir	*Pseudotsuga menziesii*	38	Good	Good		
2180	Douglas Fir	*Pseudotsuga menziesii*	15	Poor	Fair	Broken top.	
2181	Douglas Fir	*Pseudotsuga menziesii*	20	Fair	Fair	Suspect broken top. Slow growth.	
2182	Douglas Fir	*Pseudotsuga menziesii*	13	Dead		Remove	1

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2183	Douglas Fir	*Pseudotsuga menziesii*	34	Good	Good		
2184	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Poor	Broken top.	
2185	Douglas Fir	*Pseudotsuga menziesii*	33	Good	Good		
2186	Douglas Hawthorn	*Crataegus douglasii*	8	Very Poor	Poor	Remove.	1
2187	Common Hawthorn	*Crataegus monogyna*	10	Very Poor	Poor	Severely decayed. Remove.	1
2188	Common Hawthorn	*Crataegus monogyna*	8	Dead		Remove.	1
2189	Oregon Ash	*Fraxinux latifolia*	24	Good	Good		
2190	Oregon White Oak	*Quercus garryana*	22	Good	Good		
2191	Douglas Fir	*Pseudotsuga menziesii*	19	Good	Good		
2192	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Suppressed.	
2193	Douglas Fir	*Pseudotsuga menziesii*	18	Good	Good		
2194	Oregon White Oak	*Quercus garryana*	27	Good	Good		
2195	Oregon White Oak	*Quercus garryana*	27	Good	Good		
2196	Oregon White Oak	*Quercus garryana*	35	Good	Good		
2197	Ponderosa Pine	*Pinus ponderosa*	18	Good	Good		
2198	Oregon White Oak	*Quercus garryana*	16	Good	Good		
2199	Willow	*Salix sp.*	20	Poor	Fair	Cavities. History of large limb failure.	1
2200	Oregon Ash	*Fraxinux latifolia*	13	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2201	Willow	*Salix sp.*	13	Very Poor	Poor	Cavities. Severe decay. Broken leader at 8' above ground.	1
2202	Oregon Ash	*Fraxinux latifolia*	8	Good	Good		
2203	Oregon Ash	*Fraxinux latifolia*	8	Good	Good		
2204	Oregon White Oak	*Quercus garryana*	29	Poor	Poor	2 stems 17, 23. Thin crown. Suspect root disease. Remove.	
2205	Oregon White Oak	*Quercus garryana*	24	Poor	Fair	Thin crown. Suspect root disease. Remove.	
2206	Oregon Ash	*Fraxinux latifolia*	28	Good	Good	Mature.	
2207	Douglas Fir	*Pseudotsuga menziesii*	20	Poor	Poor	Broken top. Sweep in trunk. Leans NE at 25° from vertical. Seam in bark suggests trunk may be cracked. Remove.	
2208	Douglas Fir	*Pseudotsuga menziesii*	33	Fair	Fair		
2209	Douglas Fir	*Pseudotsuga menziesii*	26	Good	Good		
2210	Douglas Fir	*Pseudotsuga menziesii*	13	Poor	Poor	Suppressed. Leans W.	
2211	Douglas Fir	*Pseudotsuga menziesii*	29	Fair	Fair		
2212	Douglas Fir	*Pseudotsuga menziesii*	34	Poor	Fair	Phellinus pini like conks from ground to 40' above ground on W. side.	1
2213	Pacific Madrone	*Arbutus menziesii*	11	Fair	Good	Some blight.	
2214	Douglas Fir	*Pseudotsuga menziesii*	40	Fair	Fair	2 stems at 5' above ground. Old broken tops.	
2215	Oregon White Oak	*Quercus garryana*	22	Poor	Fair	Die back in crown.	
2216	Common Hawthorn	*Crataegus monogyna*	17	Good	Good	Measured at 3' above ground.	
2217	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair	Haiging limb at 40' above ground on N. side.	
2218	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Old broken top at 70' above ground.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2219	Douglas Fir	*Pseudotsuga menziesii*	21	Fair	Fair		
2220	Oregon Ash	*Fraxinux latifolia*	30	Poor	Poor	Over mature. 4"x24" cavity at 6' to 8' up trunk on S. side. Widely scattered 3" diameter limb cavities in crown.	
2221	Oregon White Oak	*Quercus garryana*	28	Good	Good		
2223	Douglas Fir	*Pseudotsuga menziesii*	19	Good	Good		
2224	Douglas Fir	*Pseudotsuga menziesii*	7	Dead			1
2225	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Poor	Broken top. Suppressed.	
2226	Douglas Fir	*Pseudotsuga menziesii*	19	Fair	Fair	2 stems 13,10. Formed at 4' above ground. Leans E. 20° from vertical.	
2226.1	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	Broken top. Suppressed.	
2227	Douglas Fir	*Pseudotsuga menziesii*	14	Good	Fair	Sweep in trunk.	
2228	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Suppressed.	
2229	Douglas Fir	*Pseudotsuga menziesii*	12	Good	Good		
2230	Douglas Fir	*Pseudotsuga menziesii*	12	Good	Good	Higher crown.	
2231	Douglas Fir	*Pseudotsuga menziesii*	9	Very Poor	Fair	Broken top. Conk.	1
2232	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Sweep in trunk. Suppressed.	
2233	Douglas Fir	*Pseudotsuga menziesii*	7	Dead		Leans N. Remove.	1
2233.1	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Fair	Suppressed. 6' W. #2233, 11' N. #2234.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2233.2	Douglas Fir	*Pseudotsuga menziesii*	6	Poor	Fair	Suppressed. 12' W. #2233, 15' N. #2240.	
2234	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair	Dogleg in trunk at 25' above ground.	
2235	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair		
2236	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Fair	Suppressed.	
2236.1	Douglas Fir	*Pseudotsuga menziesii*	6	Poor	Fair	Suppressed. 10' N. #2233, 7' W. #2234.	
2237	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Fair		
2238	Douglas Fir	*Pseudotsuga menziesii*	13	Poor	Poor	Dogleg in trunk at 10' above ground. Conk on S. of dogleg. Leans W. 20° from vertical.	1
2239	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Fair	High crown.	
2240	Douglas Fir	*Pseudotsuga menziesii*	13	Poor	Poor	Broken top. Leans 20° W. from vertical.	
2241	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Poor	Dogleg in trunk at 5' above ground. Leans W. 30°.	
2242	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair		
2243	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair	Somewhat suppressed.	
2244	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Poor	Hogh crown. Dogleg at 40' above ground.	
2245	Douglas Fir	*Pseudotsuga menziesii*	8	Very Poor	Poor	Loaded with Phellinus pini like conks.	1
2246	Douglas Fir	*Pseudotsuga menziesii*	21	Good	Good	Broken limbs at 25' above ground.	
2247	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor	Broken top. Suppressed.	
2248	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair	High crown. Slower growth rate.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2249	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Fair	High crown. Slower growth rate.	
2250	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Fair	Broken top. Suppressed.	
2251	Douglas Fir	*Pseudotsuga menziesii*	8	Dead		Remove.	1
2252	Douglas Fir	*Pseudotsuga menziesii*	18	Good	Good	Broken limb hanging in top on N. side.	
2253	Douglas Fir	*Pseudotsuga menziesii*	8	Dead		Remove.	1
2254	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Fair	Somewhat suppressed.	
2255	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	Broken top. Suppressed.	
2256	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Fair	Broken top. Suppressed.	
2257	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Fair	Broken top. Suppressed.	
2258	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair	Old broken top with new leader.	
2258.1	Douglas Fir	*Pseudotsuga menziesii*	6	Poor	Fair	Suppressed. Remove. 4' S. #2258, 7' W. #2248.	
2259	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Suppressed. Leans N.	
2260	Douglas Fir	*menziesii*	18	Good	Good	Slight dogleg at 25' above ground.	
2260.1	Douglas Fir	*Pseudotsuga menziesii*	6	Dead		Broken off at ground leaning on #2258.1. 9' S. #2260, 9' W. #2257. Hazardous. Remove	1
2261	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair		
2262	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair	High crown. Slower growth rate. Broken top. Dogleg in top.	
2263	Douglas Fir	*Pseudotsuga menziesii*	8	Fair	Poor	Slower growing Leans S.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2264	Douglas Fir	*Pseudotsuga menziesii*	17	Good	Good	Crook in trunk 35' above ground.	
2265	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Poor	Broken top. Leans S.	
2267	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Fair	Sweep in lower trunk. Old broken top with new leader.	
2268	Douglas Fir	*menziesii*	14	Fair	Fair	with new leader.	
2269	Douglas Fir	*Pseudotsuga menziesii*	17	Good	Good	Secondary leader at 35' above ground.	
2270	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Fair	Suppressed.	
2271	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Fair	Dogleg in trunk at 30' above ground. Old broken top with new leader.	
2272	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	High thin crown. Broken top. Suppressed.	
2273	Douglas Fir	*Pseudotsuga menziesii*	12	Very Poor	Poor	Phellinus pini like conks. Dogleg at 10' above ground. Leans S.	1
2274	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Poor	Old broken top at 15' above ground.	
2275	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Poor	Broken top. Suppressed. Leans N.	
2276	Douglas Fir	*Pseudotsuga menziesii*	14	Poor	Poor	Broken top.	
2277	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Suppressed.	
2278	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Poor	Slower growing.	
2279	Douglas Fir	*Pseudotsuga menziesii*	8	Fair	Fair		
2280	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Poor	Dogleg at 20' above ground. Leans S.	
2281	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	Suppressed. High crown.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2282	Douglas Fir	*Pseudotsuga menziesii*	14	Good	Good		
2283	Douglas Fir	*Pseudotsuga menziesii*	16	Very Poor	Fair	Loaded with Phellinus like pini conks. Remove.	1
2284	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Fair	Suppressed.	
2285	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Suppressed. Leans N.	
2286	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Poor	Broken top. Suppressed. Leans N.	
2287	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Fair	Sweep in lower trunk. Probably the result of partial uproot. Trunk has corrected.	
2288	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Fair	High crown. Broken top.	
2289	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Fair	High crown. Slower growing.	
2290	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair	Small broken top.	
2291	Douglas Fir	*Pseudotsuga menziesii*	17	Good	Fair	Dogleg at 40' above ground.	
2292	Douglas Fir	*Pseudotsuga menziesii*	8.5	Poor	Fair	Suppressed.	
2292.1	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	Suppressed. 8' N. #2292, 8' SW #2294.	
2293	Douglas Fir	*Pseudotsuga menziesii*	20	Good	Fair	Dogleg at 40' above ground.	
2294	Douglas Fir	*Pseudotsuga menziesii*	15	Good	Good	New leader set at 40' above ground.	
2295	Douglas Fir	*Pseudotsuga menziesii*	7	Poor	Poor	Suppressed.	
2296	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Fair	Suppressed. Dogleg at 35' above ground.	
2297	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Suppressed.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2298	Douglas Fir	*Pseudotsuga menziesii*	15	Good	Good		
2298.1	Douglas Fir	*Pseudotsuga menziesii*	6	Poor	Poor	Suppressed. 3' E. #2298, 5' S. #2300.	
2299	Douglas Fir	*Pseudotsuga menziesii*	20	Good	Fair	2 leaders with bark inclusion at 15' above ground.	
2300	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Broken top. Suppressed.	
2301	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Suppressed.	
2302	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Suppressed.	
2303	Douglas Fir	*Pseudotsuga menziesii*	18	Good	Good		
2304	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Poor	Broken top. Suppressed.	
2305	Douglas Fir	*Pseudotsuga menziesii*	15	Good	Good		
2306	Douglas Fir	*Pseudotsuga menziesii*	13	Poor	Fair	Broken top.	
2307	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Fair	Dogleg at 40' above ground.	
2308	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Fair	Broken top.	
2309	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair	Sweep in lower trunk. Croked top.	
NOTE: The grove including trees numbered 2223 through 2309 includes many suppressed and dead trees smaller than 6' diameter whic							
2311	Douglas Fir	*Pseudotsuga menziesii*	31	Fair	Fair	Old brokentop with new leader.	
2312	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair	Old brokentop with new leader.	
2313	Douglas Fir	*Pseudotsuga menziesii*	37	Good	Good	Old brokentop with new leader.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2314	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Broken top.	
2315	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Old brokentop with new leader.	
2316	Douglas Fir	*Pseudotsuga menziesii*	21	Fair	Fair	Broken top.	
2317	Douglas Fir	*Pseudotsuga menziesii*	27	Fair	Fair	Broken top.	
2318	Douglas Fir	*Pseudotsuga menziesii*	32	Poor	Fair	Broken top. Thin crown	
2319	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Poor		
2320	Red Alder	*Pseudotsuga menziesii*	14	Poor	Poor	Dead top.	
2321	Red Alder	*Pseudotsuga menziesii*	13	Poor	Poor	Dead top.	
2322	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair		
2323	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair		
2324	Douglas Fir	*Pseudotsuga menziesii*	27	Fair	Fair		
2325	Grand Fir	*Abies grandis*	15	Good	Good		
2326	Douglas Fir	*Pseudotsuga menziesii*	40	Very Poor	Fair	12"x12" cavity from ground on W. side. Tree appears to be hollow. Remove?	1
2327	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair		
2328	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Dogleg at 40' above ground. Old lost top.	
2329	Douglas Fir	*Pseudotsuga menziesii*	36	Very Poor	Fair	12"x48" cavity from ground on S.side. Remove.	1
2330	Red Alder	*Alnus rubra*	22	Very Poor	Good	8"x72" cavity from ground on N. side. Remove.	1
2331	English Holly	*Ilex aquifolium*	10	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2332	Douglas Fir	*Pseudotsuga menziesii*	40	Fair	Good	Old broken with new leader.	
2333	Douglas Fir	*Pseudotsuga menziesii*	34	Fair	Fair	Old broken with new leader.	
2334	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair	Old broken with new leader.	
2335	Douglas Fir	*Pseudotsuga menziesii*	38	Good	Good	2 stems at 9' above ground.	
2336	Douglas Fir	*Pseudotsuga menziesii*	40	Good	Good		
2337	Sweet Cherry	*Prunus avium*	10	Good	Good		
2338	Douglas Fir	*Pseudotsuga menziesii*	15	Poor	Poor	Broken top.	
2339	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Fair	Old broken with new leader.	
2340	Douglas Fir	*Pseudotsuga menziesii*	36	Fair	Fair	Old broken with new leader.	
2341	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Old broken with new leader.	
2342	Douglas Fir	*Pseudotsuga menziesii*	35	Fair	Fair	Old broken with new leader.	
2343	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair		
2344	Red Alder	*Pseudotsuga menziesii*	7	Good	Good		
2345	Douglas Fir	*Pseudotsuga menziesii*	36	Fair	Fair	Unusual butt swell. Needs further inspection.	
2346	Douglas Fir	*Pseudotsuga menziesii*	58	Good	Good	Old broken with new leader.	
2347	Douglas Fir	*Pseudotsuga menziesii*	36	Fair	Fair	Old broken with new leader.	
2348	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Old broken with new leader.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2349	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair		
2350	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Poor	Lost top.	
2351	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Fair		
2352	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair		
2353	Douglas Fir	*Pseudotsuga menziesii*	32	Good	Fair		
2354	Douglas Fir	*Pseudotsuga menziesii*	8	Fair	Fair		
2355	Douglas Fir	*Pseudotsuga menziesii*	10	Good	Fair		
2356	Red Alder	*Alnus rubra*	9	Very Poor	Poor	Dead top. Remove.	1
2357	Red Alder	*Alnus rubra*	10	Dead		Remove.	1
2359	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Lost top.	
2360	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Lost top.	
2361	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair	Lost top.	
2362	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Good	Lost top.	
2363	Douglas Fir	*Pseudotsuga menziesii*	20	Fair	Fair	Doglegs in	
2364	Douglas Fir	*Pseudotsuga menziesii*	23	Fair	Fair	Trunk at 20' above ground.	
2365	Douglas Fir	*Pseudotsuga menziesii*	16	Poor	Poor	Lost top.	
2366	Douglas Fir	*Pseudotsuga menziesii*	15	Poor	Poor	Lost top.	
2367	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair	Lost top.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2368	Douglas Fir	*Pseudotsuga menziesii*	27	Fair	Fair	Lost top.	
2369	Douglas Fir	*Pseudotsuga menziesii*	32	Good	Fair	Lost top.	
2370	Willow	*Salix sp.*	17	Fair	Fair	5 stems 6,7,8,8,8	
2371	Red Alder	*Alnus rubra*	15	Good	Good		
2372	Douglas Fir	*Pseudotsuga menziesii*	38	Good	Fair	Lost top.	
2373	Red Alder	*Alnus rubra*	14	Good	Good		
2374	Red Alder	*Alnus rubra*	18	Good	Good		
2375	Oregon Ash	*Fraxinux latifolia*	8	Good	Good		
2376	Douglas Fir	*Pseudotsuga menziesii*	34	Fair	Fair	Old broken with new leader.	
2377	Oregon Ash	*Fraxinux latifolia*	9	Very Poor	Very Poor	Is a live stem on a fallen Ash.	1
2378	Oregon Ash	*Fraxinux latifolia*	24	Fair	Fair	Over mature.	
2379	Oregon Ash	*Fraxinux latifolia*	28	Very Poor	Very Poor	3 stems 12,20,16. Large cavities in 12" and 20" stems.	1
2380	English Holly	*Ilex aquifolium*	11	Good	Good	2 stems 8,8.	
2381	Common Hawt orn	*Crataegus monogyna*	16	Fair	Fair	Measured at 1' above ground.	
2382	Oregon Ash	*Fraxinux latifolia*	61	Fair	Poor	4 stems 14,30,27,22. 27" stem has 7"x40" cavity on N. side and is hollow. Remove. 14" stem has 6"x15' cavity starting at 30" above ground. Remove.	
2383	Oregon Ash	*Fraxinux latifolia*	25	Fair	Poor	2 stems 15, 20. Over mature.	
2384	Oregon White Oak	*Quercus garryana*	30	Good	Good		
2385	Willow	*Salix sp.*	22	Very Poor	Fair	5"x30" cavity from ground on S. side. Lower bole is hollow.	1
2386	Willow	*Salix sp.*	36	Very Poor	Very Poor	Severe decay in trunk. Trunk is hollow. Remove.	1
2387	Willow	*Salix sp.*	24	Very Poor	Very Poor	Main stem has failed at 6' above ground and is laying on ground.	1
2388	Willow	*Salix sp.*	8	Very Poor	Very Poor	Severe decay.	1

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2389	Willow	*Salix sp.*	18	Very Poor	Very Poor	Severe decay.	1
2390	Willow	*Salix sp.*	11	Very Poor	Very Poor	Severe decay.	1
2391	Willow	*Salix sp.*	23	Very Poor	Very Poor	Severe decay.	1
2392	Willow	*Salix sp.*	16	Very Poor	Very Poor	Severe decay.	1
2393	Willow	*Salix sp.*	30	Very Poor	Very Poor	Severe decay. Uprotted.	1
2394	Douglas Hawthorn	*Crataegus douglasii*	20	Very Poor	Very Poor	6 stems 7,7,7,11,6,7. Severe decay. Remove.	1
2395	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Fair	Lost top.	
2396	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Dogleg at 60' above ground.	
2397	Common Hawthorn	*Crataegus monogyna*	17	Fair	Fair	Measured at 2' above ground.	
2398	Oregon Ash	*Fraxinux latifolia*	8	Poor	Fair	Dead top.	
2399	Willow	*Salix sp.*	23	Very Poor	Poor	2 stems 16, 16. Decayed. Remove.	1
2400	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Lost top.	
2402	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Broken top.	
2403	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair	Broken top.	
2404	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair	Broken top.	
2405	Douglas Fir	*Pseudotsuga menziesii*	30	Fair	Fair	Broken top.	
2406	Douglas Fir	*Pseudotsuga menziesii*	30	Dead		20' tall stub.	1
2407	Douglas Fir	*Pseudotsuga menziesii*	25	Fair	Fair	Broken top.	
2408	Douglas Fir	*Pseudotsuga menziesii*	29	Fair	Fair	Broken top.	
2409	Douglas Fir	*Pseudotsuga menziesii*	17	Fair	Fair	Broken top.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2410	Douglas Fir	*Pseudotsuga menziesii*	37	Fair	Fair	Broken top.	
2411	Douglas Fir	*Pseudotsuga menziesii*	19	Poor	Poor	Broken top.	
2412	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair	Broken top.	
2413	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Poor	Broken top.	
2414	Douglas Fir	*Pseudotsuga menziesii*	22	Fair	Fair	Broken top.	
2415	Douglas Fir	*Pseudotsuga menziesii*	18	Good	Good		
2416	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2417	Douglas Fir	*Pseudotsuga menziesii*	28	Good	Good		
2418	Douglas Fir	*Pseudotsuga menziesii*	12	Dead		Remove.	1
2419	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2420	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Good		
2421	Douglas Fir	*Pseudotsuga menziesii*	23	Good	Good		
2422	Douglas Fir	*Pseudotsuga menziesii*	28	Fair	Fair	Brokentop.	
2423	Douglas Fir	*Pseudotsuga menziesii*	27	Fair	Fair	Brokentop.	
2424	Douglas Fir	*Pseudotsuga menziesii*	40	Fair	Fair	Brokentop.	
2425	Willow	*Salix sp.*	24	Very Poor	Poor	Decay.	1
2426	Oregon Ash	*Fraxinux latifolia*	21	Fair	Poor	2 stems 16,14.	
2427	Willow	*Salix sp.*	11	Fair	Fair		
2428	Willow	*Salix sp.*	24	Very Poor	Very Poor	Decay.	1

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2429	Oregon Ash	*Fraxinux latifolia*	16	Good	Good		
2430	Oregon Ash	*Fraxinux latifolia*	7	Fair	Fair		
2432	Douglas Fir	*Pseudotsuga menziesii*	22	Fair	Fair		
2433	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair		
2434	Douglas Fir	*Pseudotsuga menziesii*	40	Good	Good		
2435	Douglas Fir	*Pseudotsuga menziesii*	20	Good	Good		
2436	Douglas Fir	*Pseudotsuga menziesii*	26	Fair	Fair		
2437	Douglas Fir	*Pseudotsuga menziesii*	10	Dead		Remove.	1
2438	Douglas Fir	*Pseudotsuga menziesii*	19	Fair	Fair		
2439	Douglas Fir	*Pseudotsuga menziesii*	26	Good	Good		
2440	Douglas Fir	*Pseudotsuga menziesii*	17	Fair	Fair		
2441	Douglas Fir	*Pseudotsuga menziesii*	18	Very Poor	Fair	7"x48" cavity from ground on S. side. Remove.	1
2442	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Fair	Suppressed.	
2443	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Fair	Suppressed.	
2444	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair		
2445	Douglas Fir	*Pseudotsuga menziesii*	27	Good	Good		
2446	Douglas Fir	*Pseudotsuga menziesii*	14	Good	Good		
2446.1	Vine Maple	*Acer circinatum*	7	Good	Fair	4' N. #2446.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2447	Douglas Fir	*Pseudotsuga menziesii*	24			Sweep in lower trunk. Leans N.	
2448	Douglas Fir	*Pseudotsuga menziesii*	32	Good	Good		
2449	Douglas Fir	*Pseudotsuga menziesii*	24	Poor	Poor	Broken top at 70' above ground .	
2450	Douglas Fir	*Pseudotsuga menziesii*	14	Poor	Fair	Somewhat suppressed.	
2451	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Good		
2452	Douglas Fir	*Pseudotsuga menziesii*	22	Poor	Poor	Lost top.	
2453	Douglas Fir	*Pseudotsuga menziesii*	31	Good	Good		
2454	Douglas Fir	*Pseudotsuga menziesii*	40	Good	Good		
2455	Douglas Fir	*Pseudotsuga menziesii*	36	Good	Good		
2456	Douglas Fir	*Pseudotsuga menziesii*	16	Fair	Fair		
2457	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Fair		
2458	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor		
2459	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Poor		
2460	Douglas Fir	*Pseudotsuga menziesii*	22	Fair	Fair	Broken top.	
2461	Douglas Fir	*Pseudotsuga menziesii*	21	Fair	Fair	Broken top.	
2462	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair	Broken top.	
2463	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor	Broken top.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2464	Douglas Fir	*Pseudotsuga menziesii*	25	Good	Good		
2465	Douglas Fir	*Pseudotsuga menziesii*	17	Fair	Fair	Broken top.	
2466	Douglas Fir	*Pseudotsuga menziesii*	15	Fair	Fair	Broken top.	
2467	Douglas Fir	*Pseudotsuga menziesii*	23	Fair	Fair	Broken top.	
2468	Douglas Fir	*Pseudotsuga menziesii*	20	Fair	Fair	Broken top.	
2469	Douglas Fir	*Pseudotsuga menziesii*	43	Good	Good		
2470	Douglas Fir	*Pseudotsuga menziesii*	24	Fair	Good		
2471	Douglas Fir	*Pseudotsuga menziesii*	12	Fair	Fair		
2472	Douglas Fir	*Pseudotsuga menziesii*	24	Good	Good		
2473	Douglas Fir	*Pseudotsuga menziesii*	30	Good	Good		
2474	Douglas Fir	*Pseudotsuga menziesii*	36	Fair	Good	Dogleg in top.	
2475	Douglas Fir	*Pseudotsuga menziesii*	18	Fair	Fair		
2476	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor	Suppressed.	
2477	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor	Suppressed.	
2478	Douglas Fir	*Pseudotsuga menziesii*	11	Poor	Poor	Suppressed.	
2479	Douglas Fir	*Pseudotsuga menziesii*	32	Good	Good		
2480	Douglas Fir	*Pseudotsuga menziesii*	27	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
2481	Douglas Fir	*Pseudotsuga menziesii*	8	Poor	Poor	Suppressed.	
2482	Douglas Fir	*Pseudotsuga menziesii*	12	Poor	Poor	Lost top.	
2535	Douglas Fir	*Pseudotsuga menziesii*	37	Fair	Fair	Old broken top.	
2536	Oregon White Oak	*Quercus garryana*	20	Fair	Good		
2537	Oregon Ash	*Fraxinux latifolia*	22/30	Dead		Hazard or habitat?	1
2820	Western Red Cedar	*Thuja plicata*	15/18	Fair	Fair	Leader broken out at 10' above ground in south stem.	
2821	English Walnut	*Juglans regia*	12	Poor	Fair	Thin crown.	
2822	English Walnut	*Juglans regia*	15	Poor	Fair	Thin crown.	
2823	English Walnut	*Juglans regia*	12	Poor	Fair	Thin crown.	
2824	English Walnut	*Juglans regia*	15	Poor	Fair	Thin crown.	
2825	English Walnut	*Juglans regia*	13	Poor	Fair	Thin crown.	
2826	English Walnut	*Juglans regia*	15	Poor	Fair	Thin crown.	
2827	Comon Hawthorn	*Crataegus monogyna*	10	Fair	Fair	5 stems 4,4,4,5,4.	
2890	European White Birch	*Betulus pendula*	16	Very Poor	Fair	Dead top. 3" dia. cavity at 10' above ground on S. side. Remove.	1
2890.1	Japanese Maple	*Acer palmatum*	8	Good	Good	8' N. #2890.	
2891	Deodar Cedar	*Cedrus deodara*	39	Good	Good		
2892	Deodar Cedar	*Cedrus deodara*	34	Good	Good		
2893	Deodar Cedar	*Cedrus deodara*	35	Good	Good		
2894	Port Orford Cedar	*Chamaecyparis lawsoniana*	12	Fair	Poor	2 leaders with bark inclusion at 10' above ground.	
2895	Giant Sequoia	*Sequoiadendron giganteum*	69	Good	Good		
3131	Willow	*Salix sp.*	10	Poor	Poor		
3132	Black Cottonwood	*Populus trichocarpa*	39	Fair	Fair	W. stem has lost top with new leaders. Base of tree has grown and around drain culvert headwall.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
3133	Willow	*Salix sp.*	15	Poor	Fair	Lost top.	
3134	Common Hawthorn	*Crataegus monogyna*	8	Fair	Fair		
3135	Common Hawthorn	*Crataegus monogyna*	12	Fair	Fair		
3682	Douglas Fir	*Pseudotsuga menziesii*	21	Very Poor	Fair	21"x48" cavity from ground on N. side. 8" wide conk st soil line on N. side. Hazardous. Remove.	1
3683	Douglas Fir	*Pseudotsuga menziesii*	17	Fair	Fair	Old broken top with new leader. Leans E.	
3684	Douglas Fir	*Pseudotsuga menziesii*	9	Poor	Fair	Suppressed.	
3685	Douglas Fir	*Pseudotsuga menziesii*	11	Fair	Fair	Limbs from #3684 rub trunk.	
3686	Douglas Fir	*Pseudotsuga menziesii*	13	Fair	Fair		
3687	Douglas Fir	*Pseudotsuga menziesii*	10	Fair	Fair		
3688	Douglas Fir	*Pseudotsuga menziesii*	10	Very Poor	Fair	Many Phellinus pini like conks.	1
3689	Douglas Fir	*Pseudotsuga menziesii*	14	Poor	Poor	Closed wound face from 4' above ground to 9' above ground on N. side. Closed wound face from 3' above ground to 8' above ground on S. side.	
3690	Douglas Fir	*Pseudotsuga menziesii*	9	Fair	Fair		
3691	Douglas Fir	*Pseudotsuga menziesii*	10	Poor	Poor	Old broken top at 20' above ground with new leader.	
3692	Douglas Fir	*Pseudotsuga menziesii*	18	Good	Good		
3693	Oregon Ash	*Pseudotsuga menziesii*	17	Poor	Fair	1"x8' cavity from ground to 8' above ground on N. side.	
3694	Douglas Hawthorn	*Crataegus douglasii*	12	Poor	Poor		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
3721	English Walnut	*Juglans regia*	18	Poor	Fair	Thin crown.	
3722	English Walnut	*Juglans regia*	18	Poor	Fair	Thin crown.	
3723	English Walnut	*Juglans regia*	18	Poor	Fair	Thin crown.	
3724	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
3725	Oregon Ash	*Fraxinux latifolia*	13	Poor	Fair	Thin crown.	
3726	English Holly	*Ilex aquifolium*		Poor	Poor	Dead top.	
3917	Common Hawthorn	*Crataegus monogyna*	14	Fair	Fair	Measured at ground level.	
3918	Common Hawthorn	*Crataegus monogyna*	10	Poor	Poor	2 stems 10,10. Thin crown.	
3919	Common Hawthorn	*Crataegus monogyna*	8	Fair	Fair		
3920	Common Hawthorn	*Crataegus monogyna*	17	Poor	Poor	Measured at ground level.	
3921	Common Hawthorn	*Crataegus monogyna*	7	Fair	Fair		
3922	Common Hawthorn	*Crataegus monogyna*	20	Fair	Fair	Measured at ground level.	
3923	Common Hawthorn	*Crataegus monogyna*	28	Fair	Fair	Measured at ground level.	
3978	Oregon Ash	*Fraxinux latifolia*	5	Fair	Fair		
3979	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
3980	Bigleaf Maple	*Acer macrophyllum*	12	Good	Good		
3981	Bigleaf Maple	*Acer macrophyllum*	12	Fair	Fair		
3982	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair		
3983	Common Hawthorn	*Crataegus monogyna*	10	Poor	Poor	2 stems 6,8. High crown. Die back in crown.	
3984	Oregon Ash	*Fraxinux latifolia*	16	Fair	Fair	3" to 4" diameter dead limbs in crown. Mature.	
3985	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair	Mature. Some die back in canopy.	
3986	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair		
3987	Oregon Ash	*Fraxinux latifolia*	10	Dead			1

Teragan Associates, Inc.
3145 Westview Circle
Lake Oswego, OR 97034
503-697-1975

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
3988	Oregon Ash	*Fraxinux latifolia*	11	Poor	Poor	Thin crown.	
3989	Oregon Ash	*Fraxinux latifolia*	13	Fair	Fair		
3990	Oregon Ash	*Fraxinux latifolia*	19	Poor	Poor	Die back in crown.	
3991	Oregon Ash	*Fraxinux latifolia*	7	Very Poor	Poor	Suppressed.	1
3992	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
3993	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair	5"x36" open wound face from 2' above ground to 5' above ground.	
3994	Oregon Ash	*Fraxinux latifolia*	10	Poor	Poor	Die back in crown.	
3995	Oregon Ash	*Fraxinux latifolia*	13	Poor	Poor	Die back in crown.	
3996	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair		
3997	Oregon Ash	*Fraxinux latifolia*	24	Fair	Fair	Mature. Some widely scattered 3 to 4" diameter dead limbs. Prune dead limbs. Inspect annually for hazard.	
3998	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
3999	Oregon Ash	*Fraxinux latifolia*	7	Fair	Fair		
4000	Oregon Ash	*Fraxinux latifolia*	6	Good	Good		
4001	Oregon White Oak	*Quercus garryana*	40	Good	Good		
4002	Oregon Ash	*Fraxinux latifolia*	54	Very Poor	Very Poor	Trunk has broken off at 20' above ground. Severe decay in trunk. Secondary leader is hazardous. Remove.	1
4003	Oregon Ash	*Fraxinux latifolia*	25	Very Poor	Poor	3 stems 10,14,19. Trunk is split. Hazardous. Remove.	1
4004	Oregon Ash	*Fraxinux latifolia*	34	Poor	Poor	2 stems 15,30. Over mature. Dead and broken limbs in crown.	
4005	Willow	*Salix sp.*	15	Fair	Fair	3 stems 7,8,11	
4006	Oregon Ash	*Fraxinux latifolia*	43	Very Poor	Fair	12"x12' cavity from ground on W. side.	1
4007	Oregon White Oak	*Quercus garryana*	26	Good	Good		
4008	Oregon White Oak	*Quercus garryana*	41	Fair	Fair	4 stems 6,18,18,25. This tree originally had 5 stems. The fifth stem has uprooted and fallen. The 25" stem has an 18"x60" limb cavity at 20' above ground.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4009	Oregon White Oak	*Quercus garryana*	26	Poor	Fair	2 stems 14, 22. Thin crown.	
4010	Bigleaf Maple	*Acer macrophyllum*	40	Poor	Fair	Lower bole appears to be hollow. Some dead 4" to 6" dead limbs in crown. History of larger limb failure.	
4011	Oregon Ash	*Fraxinux latifolia*	24	Fair	Good	1"x60" cavity in E. stem at 25' above ground to 30' above groun.	
4012	Ponderosa Pine	*Pinus ponderosa*	11	Fair	Fair		
4013	Oregon Ash	*Fraxinux latifolia*	18	Good	Fair		
4014	Willow	*Salix sp.*	21	Very Poor	Very Poor	Severe decay. Remove.	1
4015	Willow	*Salix sp.*	18	Fair	Fair	2 stems 7,17.	
4016	Common Hawthorn	*Crataegus monogyna*	7	Fair	Fair		
4017	Douglas Hawthorn	*Crataegus douglasii*	8	Very Poor	Poor	Dead top.	1
4018	Common Hawthorn	*Crataegus monogyna*	13	Fair	Fair	5,7,7,8	
4019	Common Hawthorn	*Crataegus monogyna*	11	Fair	Fair	8,8	
4020	Willow	*Salix sp.*	9	Very Poor	Very Poor	Broken top.	1
4021	Oregon Ash	*Fraxinux latifolia*	6	Poor	Poor	Broken top.	
4022	Oregon Ash	*Fraxinux latifolia*	8	Poor	Poor		
4023	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair		
4024	Oregon Ash	*Fraxinux latifolia*	13	Fair	Fair		
4025	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair		
4026	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4027	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair		
4028	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair		
4029	Oregon Ash	*Fraxinux latifolia*	8	Poor	Fair	Thin crown.	
4030	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4031	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair		
4032	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
4033	Oregon Ash	*Fraxinux latifolia*	13	Fair	Fair	2 stems 9,10	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4034	Oregon Ash	*Fraxinux latifolia*	7	Poor	Poor	Thin crown.	
4035	Oregon Ash	*Fraxinux latifolia*	15	Fair	Fair	History of large limb loss. Inspect annually for hazard.	
4036	Oregon Ash	*Fraxinux latifolia*	27	Fair	Fair	Mature. Inspect annually for hazard.	
4037	Oregon Ash	*Fraxinux latifolia*	24	Fair	Fair	Mature. Some dead limbs. Inspect annually for hazard.	
4038	Oregon Ash	*Fraxinux latifolia*	24	Very Poor	Very Poor	Split trunk. Severe decay. Remove.	1
4040	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair		
4041	Oregon Ash	*Fraxinux latifolia*	10	Poor	Poor	Broken top.	
4042	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair	High crown with some die back. Inspect annually for hazard.	
4043	Oregon Ash	*Fraxinux latifolia*	15	Very Poor	Poor	12"x20' cavity from ground on W. side. Remove.	1
4044	Common Hawthorn	*Crataegus monogyna*	6	Fair	Fair		
4045	Oregon Ash	*Fraxinux latifolia*	10	Poor	Fair	Broken top.	
4046	Oregon Ash	*Fraxinux latifolia*	18	Poor	Fair	High thin crown.	
4047	Oregon Ash	*Fraxinux latifolia*	12	Very Poor	Fair	3"x7' cavity from ground to 7' above ground. Thin crown. Remove.	1
4048	Oregon Ash	*Fraxinux latifolia*	16	Fair	Poor	Dogleg in trunk at 40' above ground. Old broken top.	
4049	Oregon Ash	*Fraxinux latifolia*	13	Poor	Poor	3"x48" cavity from 3' above ground to 7' above ground on S. side. History of larger limb failure. Inspect annualy for hazard.	
4050	Oregon Ash	*Fraxinux latifolia*	27	Fair	Fair	Mature. 48" sap flow from 3' above ground to 7' above ground on N. side.	
4051	Common Hawthorn	*Crataegus monogyna*	10	Fair	Fair		
4052	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair		
4053	Oregon Ash	*Fraxinux latifolia*	21	Very Poor	Poor	Decay column with openings from 2' above ground to 20' above ground on N. side. Hazardous Remove.	1
4054	Douglas Hawthorn	*Crataegus douglasii*	9	Very Poor	Very Poor	Broken top. Severely decayed.	1

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4055	Oregon Ash	*Fraxinux latifolia*	11	Very Poor	Very Poor	8"x48" cavity from 8' above ground to 12' above ground. Remove.	1
4056	Oregon Ash	*Fraxinux latifolia*	26	Very Poor	Very Poor	12"x8' cavity from ground to 8' above ground on N. side. Hazardous. Remove.	1
4057	Oregon Ash	*Fraxinux latifolia*	10	Poor	Fair	Broken top.	
4058	Oregon Ash	*Fraxinux latifolia*	12	Poor	Poor	Broken top.	
4059	Oregon Ash	*Fraxinux latifolia*	18	Poor	Fair	Mature. 5"x36" limb cavity at 25' to 28' above ground on N. side. Inspect annualy for hazard.	
4060	Oregon Ash	*Fraxinux latifolia*	17	Fair	Fair	Mature. History of larger limb failure. Inspect annualy for hazard.	
4067	Oregon Ash	*Fraxinux latifolia*	10	Very Poor	Very Poor	1"x12" cavity from ground on E. side. Broken top with decay.	1
4068	Oregon Ash	*Fraxinux latifolia*	10	Poor	Poor	Dead top.	
4069	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	2 stems 7,10.	
4070	Common Hawthorn	*Crataegus monogyna*	8	Fair	Fair		
4071	Oregon Ash	*Fraxinux latifolia*	26	Fair	Fair	Mature. Inspect annualy for hazard. Remove dead and hanging limbs.	
4072	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair		
4073	Oregon Ash	*Fraxinux latifolia*	12	Fair	Poor	High crown.	
4074	Oregon Ash	*Fraxinux latifolia*	9	Poor	Poor	High thin crown.	
4075	Oregon Ash	*Fraxinux latifolia*	7	Poor	Poor	High thin crown.	
4076	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair	Higher crown. Inspect annualy for hazard.	
4077	Oregon Ash	*Fraxinux latifolia*	27	Fair	Fair	Mature. Inspect annualy for hazard. Remove dead and hanging limbs.	
4078	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair	Mature. Inspect annualy for hazard.	
4079	Oregon Ash	*Fraxinux latifolia*	10	Poor	Poor	2 stems 6,8. High crown. Die back in crown.	
4080	Oregon Ash	*Fraxinux latifolia*	9	Fair	Poor	High crown.	
4081	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair	2 stems 7,12.	
4082	Oregon Ash	*Fraxinux latifolia*	28	Fair	Fair	Mature. Inspect annualy for hazard.	
4083	Oregon Ash	*Fraxinux latifolia*	14	Poor	Fair	Thin crown. Die back in crown.	
4084	Oregon Ash	*Fraxinux latifolia*	12	Poor	Poor	Broken top at 25' above ground.	
4085	Oregon Ash	*Fraxinux latifolia*	7	Poor	Poor	Thin crown.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4086	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	High crown. Some dead wood.	
4087	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair	High crown.	
4088	Oregon Ash	*Fraxinux latifolia*	9	Very Poor	Poor	7"x6' cavity from 10' above ground to 16' above ground. Hazardous Remove.	1
4089	Oregon Ash	*Fraxinux latifolia*	10	Poor	Fair	Thin crown.	
4090	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair	High crown.	
4091	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair	Thinning crown.	
4092	Oregon Ash	*Fraxinux latifolia*	8	Very Poor	Very Poor	Large trunk cavity.	1
4093	Oregon Ash	*Fraxinux latifolia*	8	Very Poor	Very Poor	Die back in crown.	1
4094	Oregon Ash	*Fraxinux latifolia*	9	Fair	Fair	High crown.	
4095	Oregon Ash	*Fraxinux latifolia*	11	Poor	Fair	High thin crown.	
4096	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	Wire fence ingrown into trunk.	
4097	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
4098	Oregon Ash	*Fraxinux latifolia*	13	Fair	Fair		
4099	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	3" diameter limb cavity at 15' above ground on N. side.	
4100	Oregon Ash	*Fraxinux latifolia*	13	Fair	Fair		
4101	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair		
4102	Oregon Ash	*Fraxinux latifolia*	17	Poor	Fair	Thin crown.	
4103	Oregon Ash	*Fraxinux latifolia*	8	Fair	Fair		
4104	Oregon Ash	*Fraxinux latifolia*	7	Fair	Fair		
4105	Oregon Ash	*Fraxinux latifolia*	9	Fair	Fair		
4106	Oregon Ash	*Fraxinux latifolia*	10	Fair	Fair		
4107	Douglas Hawthorn	*Crataegus douglasii*	10	Poor	Poor	Dead top.	
4108	Oregon Ash	*Fraxinux latifolia*	11	Good	Good		
4109	Oregon Ash	*Fraxinux latifolia*	7	Good	Good		
4110	Oregon Ash	*Fraxinux latifolia*	15	Good	Good		
4111	Oregon Ash	*Fraxinux latifolia*	15	Good	Good		
4112	Oregon Ash	*Fraxinux latifolia*	14	Good	Good		
4113	Oregon Ash	*Fraxinux latifolia*	14	Good	Good		
4114	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4115	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4116	Oregon Ash	*Fraxinux latifolia*	18	Fair	Fair		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4117	Common Hawthorn	*Crataegus monogyna*	8	Fair	Fair		
4118	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair	2 stems 8,11.	
4119	Oregon Ash	*Fraxinux latifolia*	9	Very Poor	Poor	Split trunk with large cavity.	1
4120	Willow	*Salix sp.*	8	Very Poor	Very Poor	Severe decay.	1
4121	Douglas Hawthorn	*Crataegus douglasii*	7	Poor	Poor		
4122	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4123	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair		
4124	Oregon Ash	*Fraxinux latifolia*	11	Good	Good		
4125	Oregon White Oak	*Quercus garryana*	14	Good	Good	2 stems 10,10.	
4126	Oregon Ash	*Fraxinux latifolia*	19	Poor	Fair		
4127	Oregon Ash	*Fraxinux latifolia*	20	Good	Good	Thin crown.	
4128	Oregon Ash	*Fraxinux latifolia*	14	Good	Good		
4129	Oregon Ash	*Fraxinux latifolia*	10	Good	Good		
4130	Oregon Ash	*Fraxinux latifolia*	11	Good	Good		
4131	Oregon Ash	*Fraxinux latifolia*	16	Good	Good		
4132	Black Hawthorne	*Crataegus douglasii*	9	Poor			
4133	Oregon Ash	*Fraxinux latifolia*	10	Good	Good		
4134	Oregon Ash	*Fraxinux latifolia*	9	Good	Good		
4135	Oregon Ash	*Fraxinux latifolia*	18	Poor	Fair	Wound seam from 1' above ground to 9' above ground on S. side. 6" limb cavity at 20' above ground on S. side. Broken Hanging limb on W. side.	
4136	Oregon Ash	*Fraxinux latifolia*	16	Poor	Poor		
4137	Common Hawthorne	*Crataegus monogyna*	14	Fair	Poor	4 stems 7,7,7,7	
4138	Oregon Ash	*Fraxinux latifolia*	17	Very Poor	Very Poor		1
4139	Oregon Ash	*Fraxinux latifolia*	15	Very Poor	Very Poor	20"x15' cavity from ground on E. side. Trunk has broken off at 15' above ground.	1
4140	Black Hawthorne	*Crataegus douglasii*	10	Poor	Poor	Dead top.	

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4140.1	Common Hawthorne	*Crataegus monogyna*	10	Very Poor	Poor	3 stems 4,6,7. Partial uproot.	1
4141	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	10"x48" cavity from 54" above ground to 8' above ground on S. side. Crack on S. side from ground to 54" above ground. Remove.	
4142	Oregon Ash	*Fraxinux latifolia*	29	Fair	Good	4 stems 22,14,7,11. 3" dead hanging limb 20' above ground on main stem. Inspect annualy for hazard.	
4143	Willow	*Salix sp.*	9	Very Poor	Poor	Broken leader, decay.	1
4144	Oregon Ash	*Fraxinux latifolia*	28	Poor	Fair	Over mature. History of large limb failure. Inspect annualy for hazard.	
4144.1	Willow	*Salix sp.*	12	Very Poor	Very Poor	Very large cavity. Broken top. Decay. Remove. 7' S #41.44.	1
4145	Oregon Ash	*Fraxinux latifolia*	8	Very Poor	Poor	Broken top.	1
4146	Oregon Ash	*Fraxinux latifolia*	12	Fair	Fair	3 stems 14,11,10.	
4147	Oregon Ash	*Fraxinux latifolia*	8	Very Poor	Very Poor	Broken top. Limb cavities. Leans E. 25° from vertical. Remove.	1
4148	Oregon Ash	*Fraxinux latifolia*	14	Fair	Fair	Higher crown.	
4149	Oregon Ash	*Fraxinux latifolia*	11	Poor	Fair	Thin crown. 2 leaders at 15' above ground with bark inclusion.	
4150	Oregon Ash	*Fraxinux latifolia*	15	Fair	Fair	Mature. Inspect annualy for hazard.	
4151	Oregon Ash	*Fraxinux latifolia*	11	Very Poor	Poor	Mature. Vertical crack from 25' above ground to 30' above ground. Remove	1
4152	Oregon Ash	*Fraxinux latifolia*	9	Poor	Poor	Thin crown.	
4153	Oregon Ash	*Fraxinux latifolia*	12	Poor	Poor	Thin crown.	
4154	Oregon Ash	*Fraxinux latifolia*	8	Poor	Poor	Thin crown.	
4155	Oregon Ash	*Fraxinux latifolia*	10	Fair	Poor	Leans E. 25° from vertical .	
4156	Oregon Ash	*Fraxinux latifolia*	20	Poor	Fair	3 stems 7,8,17. 5"x72" cavity from 18" above ground to 90" above ground on W. side in 8" stem. Hanging dead limb in main stem.	
4157	Oregon Ash	*Fraxinux latifolia*	7	Poor	Poor	Thin crown.	
4158	Oregon Ash	*Fraxinux latifolia*	15	Fair	Fair	2 stems 8,13.	
4159	Oregon Ash	*Fraxinux latifolia*	9	Fair	Poor	Leans S.	
4160	Oregon Ash	*Fraxinux latifolia*	11	Very Poor	Very Poor	Broken top.	1

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
4161	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair	High crown.	
4162	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair	2 stems 6,9	
4163	Oregon Ash	*Fraxinux latifolia*	9	Fair	Fair	Minor die back in crown.	
4164	Oregon Ash	*Fraxinux latifolia*	12	Very Poor	Poor	Major trunk caviyy. Remove.	1
4165	Oregon Ash	*Fraxinux latifolia*	24	Fair	Fair	Mature. Inspect annually for hazard.	
4166	Oregon Ash	*Fraxinux latifolia*	11	Fair	Fair	2"x8" cavity at 50" above ground on W. side.	
4173	Sweet Cherry	*Prunus avium*	6	Fair	Fair		
4174	Oregon Ash	*Fraxinux latifolia*	7	Fair	Fair		
4175	Common Hawthorn	*Crataegus monogyna*	11	Fair	Fair	2 stems 8,8.	
4176	Oregon Ash	*Fraxinux latifolia*	9	Good	Good		
4284			30			Not found on site plan or on the site.	
4285			8			Not found on site plan or on the site.	
4286			28			Not found on site plan or on the site.	
12538	Oregon White Oak	*Quercus garryana*	32	Fair	Good		
12538.1	Common Hawthorn	*Crataegus monogyna*	14	Fair	Fair	14' W. #12538. Measured at 2' above ground.	
12538.2	Common Hawthorn	*Crataegus monogyna*	8	Fair	Fair	3 stems 7,8,8. 17' NW #12358.	
The following trees are located on the north side of the asphalt pathway in the Southwest corner of the site.							
5001	Japanese Flowering Cherry	*Prunus serrulata*	12	Good	Good		
5002	Deodar Cedar	*Cedrus deodora*	9	Good	Good		
5003	Deodar Cedar	*Cedrus deodora*	13	Good	Good	2 stems 9,9.	
5004	Quaking Aspen	*Populus tremuloides*	3	Good	Good		
5005	Quaking Aspen	*Populus tremuloides*	3	Good	Good		
5006	Douglas Fir	*Populus tremuloides*	16	Good	Good		

NO.	COMMON NAME	BOTANICAL NAME	DBH	COND.	STRUC.	COMMENTS	HAZARD TREE
5007	Red Oak	*Quercus rubra*	9	Good	Good		
5008	Deodar Cedar	*Cedrus deodora*	10	Good	Good		
5009	Quaking Aspen	*Populus tremuloides*	2	Good	Good		
5010	Quaking Aspen	*Populus tremuloides*	2	Good	Good		
5011	Quaking Aspen	*Populus tremuloides*	3	Good	Good		
5012	Quaking Aspen	*Populus tremuloides*	4	Good	Good		
5013	Quaking Aspen	*Populus tremuloides*	5	Good	Good		
5014	Quaking Aspen	*Populus tremuloides*	5	Good	Good		
5015	Quaking Aspen	*Populus tremuloides*	3	Good	Good		
5016	Quaking Aspen	*Populus tremuloides*	3	Good	Good		
This area also includes one 12' tall Douglas Fir in good condition.							
							82
	=invasive						
	=can't locate number on map						
	=hazard tree						
	=poor condition						
	=missing information						

June 25, 2010

Dull Olson Weekes Architects
319 S.W. Washington St., Suite 200
Portland, OR 97204

Attention: Mr. Norm Dull

Re: West Linn-Wilsonville School District
Erickson Elementary School, Site Noise Review — Project 09119

Dear Mr. Dull:

This letter is written, at your request, in review of potential noise levels that might be expected to be generated in conjunction with the referenced project. This review was undertaken in support of the Conditional Use Permit application for the proposed project.

1. Introduction

1.1 The proposed project is an Elementary School for the West Linn-Wilsonville School District. It is to be located on the East side of Rosemont Road between Hidden Springs Road and Bay Meadows Drive in West Linn, Oregon. The project site is zoned Future Urban and the general land use surrounding the project site is Residential.

2. Sound Descriptors

2.1 Human response to sound is a function of the magnitude of a sound, the frequency spectrum of the sound (the pitch of the sound), the duration of the sound and the time when it occurs. It is difficult to describe a sound with a single number because of all these parameters that influence human response.

2.2 The A-weighting function, used in most sound measuring instruments adjusts the indicated overall sound pressure level in much the same manner that the human ear responds to sound at different frequencies. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound with some indication as to the human response to that sound.

 522 SW Fifth Avenue, Suite 1200, Portland, OR 97204 (503) 221-1044 Fax: 221-1445

2.3 The A-weighted sound level alone is not sufficient to describe the noise environment at any given location because environmental sound levels tend to constantly change with time. Therefore, an environmental noise descriptor needs to address the length of time sound is present as well as the level of the sound. One environmental noise descriptor used widely throughout the United States is the "Statistical Sound Level". The statistical sound level is generally given in terms of "the level exceeded a percentage of time during a specified time period, and is read "L_{xx}". For example, the L_{50} would be that level exceeded 50% of the time during a specified time period. Usually, the specified time period is one hour in most regulations and standards.

2.4 Another noise descriptor which addresses time duration of sound is the L_{EQ} which is the energy-equivalent, average sound pressure level for a given time period.

2.5 Subjectively, an increase in sound level of 1 dBA would be judged insignificant, an increase of 3 dBA would be perceptible by most people, and an increase of 10 dBA would generally be judged as twice as loud.

3. West Linn Noise Regulations

3.1 The City of West Linn Noise Code in Chapter 55 of the Community Development Code is defined in terms of statistical noise levels L_{01}, L_{10} and L_{50}. The regulations state that a commercial/industrial source shall not exceed the following maximum allowable statistical noise levels in any one hour during the hours of:

7:00 AM - 10:00 PM	10:00 PM - 7:00 AM
L_{50} - 55 dBA	L_{50} - 50 dBA
L_{10} - 60 dBA	L_{10} - 55 dBA
L_{01} - 75 dBA	L_{01} - 60 dBA

Where L_{50}, L_{10}, and L_{01}, means the level equaled or exceeded 50%, 10%, and 1% of an hour respectively.

3.2 Further, the regulation requires that, on a previously unused commercial/industrial site, site related noise levels, either directly generated or indirectly caused by that site shall not increase the existing ambient statistical noise levels L_{10} or L_{50}, by more than 5 dBA in any one hour. Indirectly caused noise includes that from site-related traffic even when off site.

3.3 Based on the above, four general noise sources were reviewed relative to the Conditional Use Permit application; 1) Off-Site Traffic, 2) On-Site Traffic, 3) Playground Noise, and 4) Site Associated Equipment.

4. Existing Ambient Noise Levels

4.1 In order to evaluate applicability of the "increase in ambient L_{10} and L_{50} level" portion of the West Linn regulations, sound levels were measured in residential areas surrounding the project site. Measurements were made adjacent to the project property line at each of the sites. At each site, noise level measurements were made for 5 minute intervals. The measurements were made between 10 AM and 12 AM on Thursday, February 18, 2010. Measurements were made 5 feet above ground using a sound level meter meeting American National Standards Institute (ANSI) requirements for a Type 2A sound level meter. The sound level meter was field calibrated immediately prior to the measurements.

4.2 The ambient sound levels were measured at four locations which are presented in the table below.

TABLE 1
MEASURED EXISTING AMBIENT SOUND LEVELS
(Average Sound Pressure Level (L_{50}, L_{EQ}, L_{10}) in dBA re 20 micro-Pascal)

	Ambient Sound Levels		
Location	L_{50}	L_{EQ}	L_{10}
Martin Ct. & Suncrest Dr.	45	50	54
SW Corner of Hidden Springs Ct.	49	53	55
East End of Bay Meadows Dr	42	44	45
100' East of Rosemont Road	45	53	58

4.3 Based on the measured existing ambient sound levels, and the West Linn noise code, the following table shows the site specific sound level limits for on-site noise sources to residential property adjacent to the project site.

TABLE 2
MAXIMUM ALLOWABLE 1 HOUR STATISTICAL SOUND LEVELS
(Average Sound Pressure Level (L_{50}, L_{EQ}, L_{10}) in dBA re 20 micro-Pascal)

	7:00 AM to 10:00 PM Sound Level Limits		
Location	L_{50}	L_{10}	L_{01}
North Edge of Project Site	50	59	75
East Edge of Project Site	54	60	75
South Edge of Project Site	47	50	75
West Edge of Project Site	50	60	75

5. Off-Site Traffic Noise

5.1 Off Site Traffic sound levels were estimated using algorithms of the Federal Highway Administration (FHWA) Traffic Noise Prediction Model. Traffic Volumes and speeds were determined based on traffic data provided by DKS Associates, the transportation engineers preparing the Erickson Elementary School Transportation Impact Study. Traffic volumes at various intersections were provided for the 7:00-8:00 AM hour and the 3:00 to 4:00 PM hour. The traffic volumes were provided for existing traffic and future plus project conditions.

5.2 Although the West Linn noise regulations are listed in terms of L_{10} and L_{50}, relative to off-site traffic, the "increase" in these levels is all that is of significance for compliance. Normally, a given L_{EQ} level falls between the L_{50} and L_{10} levels. Increases in L_{50} and L_{10} levels are similar to the increase in L_{EQ} level. Therefore, estimates of the increase in traffic noise level were made based on the L_{EQ} levels.

5.3 Using the determined traffic volumes and speeds, traffic noise levels were estimated for a distance 50 feet from the edge of the roadways for each case. Again, although residences will not typically be located at this distance, it provides a reference from which to estimate the increase or decrease in sound level between the existing and post project conditions.

5.4 The following table lists the estimated changes in traffic noise level due to the project.

TABLE 3
ESTIMATED TRAFFIC SOUND LEVELS
50 Feet from the Road Edge
(Average Sound Pressure Level (L_{EQ}) in dBA re 20 micro-Pascal)

	AM Peak Hour			Afternoon School End Hour		
Roadway	**Existing**	**Post-Project**	**Change**	**Existing**	**Post-Project**	**Change**
Rosemont:						
(E of Carriage Way)	64	66	+2	64	65	+1
(S of Hidden Springs)	62	65	+3	64	66	+2
(N of Bay Meadows)	63	64	+1	64	65	+1
(W of Santa Anita)	64	66	+2	63	64	+1
Hidden Springs:						
(E of Suncrest)	54	57	+3	59	60	+1
(W of Santa Anita)	54	57	+3	57	58	+1
(W of Carriage Way)	59	60	+1	60	61	+1
Santa Anita:						
(S of Hidden Springs)	59	59	0	59	60	+1
(N of Rosemont)	60	60	0	63	63	0
Carriage Way:						
(N of Hidden Springs)	51	54	+3	52	53	+1

5.5 As the table above indicates, the traffic noise levels from all roadways, for both the morning peak and afternoon traffic periods, are not expected to increase more than 3 dBA in all cases and 1 dBA in most cases.

6. On-Site Traffic Noise

6.1 North Site Entrance

6.1.1 Assuming worst case, on-site traffic conditions of the peak morning hour, 225 vehicles are expected to move on or off the site through the North project entrance from Rosemont Road. The estimated worst case L_{EQ} noise level for this traffic, moving at 20 mph, at 100 feet was 47 dBA (L_{EQ}). Based on this data, the L_{50} level for on-site traffic at the North edge of the project site was estimated at 45 dBA and the L_{10} level was estimated at 50 dBA . These levels would meet the West Linn noise level limits for the L_{50} of 50 dBA and the L_{10} of 59 dBA at the nearest residential property for the hours of 7 am to 10 pm, as presented in Table 2. (Based on ambient noise levels at the North end of the project site, see item 4.3).

6.2 South Site Entrance

6.2.1 During the same peak morning hour, 50 automobiles and 10 buses are expected to move on or off the site through the South project entrance off of Rosemont Road. The closest residential property is approximately 75 feet from the vehicle circulation path. The busses and automobiles must meet the West Linn noise level limits for the L_{50} of 47 dBA and the L_{10} of 50 dBA at the nearest residential property for the hours of 7 am to 10 pm, as presented in Table 2. (Based on ambient noise levels at the South end of the project site, see item 4.3).

6.2.2 Based on measured sound levels of propane fuel busses idling and driving, the anticipated sound level of a propane bus measured at a distance of 75 feet would be 49 dBA while driving 10 mph and 42 dBA while idling. Therefore, between 7 am and 10 pm the propane busses could idle continuously without exceeding the West Linn noise limit for L_{50} of 47 dBA. The propane busses could drive on site for a cumulative time period greater than 6 minutes but less than 30 minutes and still meet the West Linn noise level limit for L_{10} of 50 dBA at the nearest residential property.

6.2.3 Based on this analysis, if the planned propane busses are used, the L_{10} limit of 50 dBA and the L_{50} limit of 47 dBA would be met at the nearest residential property, assuming the propane busses do not continuously drive on-site for longer than 29 minutes and occurs between the hours of 7 am and 10 pm. Idling of propane busses would need no restriction to meet the West Linn noise limits.

6.2.4 Delivery trucks will also enter the site through the south entrance. Based on measured sound levels of delivery trucks driving and idling, the anticipated sound level of a delivery truck measured at a distance of 75 feet would be 63 dBA while driving 10 mph and 59 dBA while idling. A single truck arriving at the site, driving to the loading dock and parking with the engine turned off, and then leaving the site would exceed 50 dBA for approximately 2 to 3 minutes. Therefore, between 7 am and 10 pm during any one hour period, a maximum of 2 delivery trucks could arrive at the site without causing the L_{10} of 50 dBA to be exceeded at the residential properties across the south property line. This assumes that all delivery trucks are turned off immediately after parking at the loading dock.

7. Playground Noise

7.1 The playground for the project site is approximately 100 feet from the east property line. Assuming a crowd of approximately 100 children playing and 3 adult supervisors on the playground, noise levels were estimated at 45 dBA for the L_{50} at the east property line, and 53 dBA for the L_{10}. These levels meet the West Linn noise level limits for the L_{50} of 54 dBA and the L_{10} of 60 dBA (Based on ambient noise levels at the East end of the project site, see item 4.3).

7.2 Similarly, the softball diamond near the northwest corner of the project site is approximately 100 feet from the north property line. With a crowd as described above, the estimated sound level would meet the West Linn noise level limits for the L_{50} of 50 dBA and the L_{10} of 59 dBA at the nearest residential property to the north, between the hours of 7 am and 10 pm (Based on ambient noise levels at the North end of the project site, see item 4.3).

8. Site Equipment Noise

8.1 The physical plant noise that might have impact on local residential property includes heating, ventilating and air-conditioning (HVAC) units on the school roof, and the trash compactor, transformer and emergency generator in the equipment yard.

8.2 <u>Roof-top Air-Conditioning Units</u>

8.2.1 A total of eight heating and ventilating units are proposed to be mounted on the roof of the school. The nearest residential building on the closest residential property with the strictest sound level limits is located on the south property line. The mechanical units vary in distance from the south property line, from as close as 175' to as far as 280'. At this stage of design, the final choice for the HVAC unit has not been made. Currently, the mechanical engineers are expecting that seven of the eight units will have air-cooled condensers and "scroll" compressors (AAON RN series & McWuay RPS series).

8.2.2 Based on manufacturer's sound data for these units, and taking into account the horizontal distance and shielding from building elements, the estimated sound level for the residence at the south property line of the project was determined at 46 dBA. The West Linn L_{50} limit for daytime periods at the south property line is 47 dBA. In that the projected sound level is below this limit, it is expected that West Linn standards should be met by the proposed roof-top mechanical equipment. These calculations assume that the mechanical screens for RTU-301, RTU-302, RTU-303 and RTU-307 are equal in height to the units, and that the mechanical screens for the remaining rooftop RTUs are 3 feet taller than the adjacent RTU.

8.3 Emergency Generator

8.3.1 At this time sound data is not available for the tentatively selected emergency generator. When this sound data becomes available the sound levels will be reviewed, and if necessary, mitigation requirements would be implemented to meet the West Linn noise requirements.

8.4 Transformer and Trash Compactor

8.4.1 The anticipated sound levels due to the transformer and trash compactor should be less than the emergency generator and would also be expected to meet the West Linn noise requirements.

8.5 Wind Turbine

8.5.1 A single wind turbine is planned for installation near the southwest corner of the elementary school. The wind turbine would be approximately 120 feet from the nearest residential property to the south. Based on manufacture sound levels, the wind turbine is expected to produce less than 40 dBA at a distance of 60 feet at a wind speed of 15 miles per hour. Operation of the wind turbine should meet the West Linn noise requirements.

9. Conclusion

9.1 Based on the above review, the proposed increases in off-site traffic should meet the West Linn noise codes.

9.2 The proposed on-site bus and automobile circulation areas should meet the West Linn noise codes, assuming that only propane busses are used on-site. Truck deliveries on the project site should also meet the West Linn noise codes, assuming that truck deliveries occur between 7 am and 10 pm and no more than two deliveries occur in any one hour period.

9.3 No installed public address systems are provided or planned for the Athletic Field and Softball Field, therefore no noise impact is anticipated due to this type of source.

9.4 Noise on the playgrounds and athletic fields should meet the West Linn noise code requirements for the daytime hours of 7 AM to 7 PM. However, Crowd noises at school sponsored events are exempt from the West Linn Municipal Code.

9.5 Based on proposed equipment sound data, exterior mechanical equipment for the project site should meet the West Linn noise codes, assuming all mechanical screens for RTU-301, RTU-302, RTU-303, and RTU-307 are equal in height to the rooftop units, and assuming remaining mechanical screens on the southern roof area are 3 feet taller than the rooftop units.

In summary, it is expected that the proposed project will meet all West Linn noise regulations.

Sincerely,
ALTERMATT ASSOCIATES

Kent McKelvie

Kent McKelvie
Staff Engineer

KM:ra

Putting the power of **wind** to work.

There's something blowing in the air. It's called change. Gone are the days of inefficient, impure and unsightly structures as our energy solutions. The concept of affordable energy has officially evolved. Introducing the Windspire® vertical wind turbine. Only 30 feet tall, the Windspire is efficient, powerful and exceptionally designed.

WIND REQUIREMENTS

The Windspire® wind turbine is designed to operate in areas with minimum average wind speeds of at least 10 mph (4.5 m/s), though it works best where average winds are 12 mph (5.4 m/s). A special Windspire for extreme winds is also available for locations subject to unusually high wind events. Wind speeds vary by location, even within a property. Your authorized Windspire Dealer can discuss site guidelines with you in more detail.

Good for the **environment**. Better for you.

Already, Windspire has made a name for itself in a wide range of industries, with installations throughout the country at universities, science centers, resorts, public centers, commercial buildings and residences. Now it's your turn.

Best of all, local rebates up to $4,800 are available per Windspire in many states. Plus, receive an uncapped 30% Federal tax credit or cash refund off the total cost of your complete system, including installation.

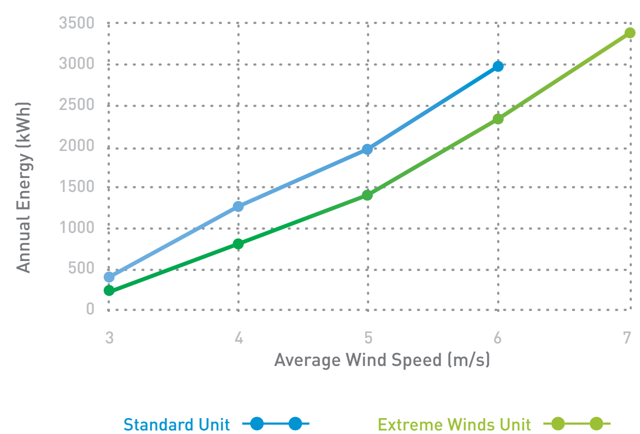
The benefits of **Windspire**® Technology.

The unique monopole vertical-axis design is a result of years of research, patented electronics and structural innovations, plus a creative strategy to turn renewable energy into a design statement. Through our team of local authorized dealers and siting experts, we work closely with every customer to maximize the available wind while remaining true to your vision.

Specifications	Standard Unit	Extreme Winds Unit
Annual Energy Production (AEP)	2000 kWh* at 11.2 mph | 5 m/s avg wind	2000 kWh* at 12.5 mph | 5.7 m/s avg wind
Rated Power	1.2 kW at 24 mph | 10.7 m/s wind	1.2 kW at 26.8 mph | 12 m/s wind
Unit Height	30 ft | 9.1 m (pole extension options)	23 ft | 7.1 m (pole extension options)
Sound Measurement	6 dB above ambient (15 mph wind, 6 ft from base)	6 dB above ambient (15 mph wind, 6 ft from base)
Total Weight	624 lb | 283 kg	567 lb | 257 kg
Min. Wind Required for Power	8.5 mph | 3.8 m/s	8.5 mph | 3.8 m/s
Survival Wind Speed	105 mph | 47 m/s	160 mph | 71.5 m/s
Monopole/Structure Material	Recycled High-Grade Steel	Recycled High-Grade Steel
Standard Warranty	5 years	5 years

AEP is based on the power curve and standard assumptions including a Rayleigh wind distribution and 1400m air density.

Windspire Annual Energy Production



Clean. Simple. **Smart.**

They have the power to harness the wind. They have the power to run silently. They have the power to provide clean, renewable energy. But most of all, they have the power to inspire.

- Clean renewable energy
- Complete wind power system
- Sleek, attractive design
- Cost-effective
- Silent Operation
- Made in the USA from recycled materials
- Low Profile design, only 30 feet tall (standard unit)
- Annual energy 2,000+ kWh/year (standard unit)
- Extreme Wind Unit also available
- Grid-Ready, Plug 'n Produce™
- Integrated inverter
- High efficiency generator
- Wireless performance monitor available
- Independently tested
- UL Certified Inverter

Windspire

Windspire

WindspireEnergy.com

For a site visit and local service, contact your authorized Windspire® dealer:

DEALER INFORMATION HERE
Lorem ipsum delore sit amet un wisi elorem.
800.555.1212 | DealerWebsite.com

Changing the world.
One revolution at a time.

Windspire

1097

Chicago Title Insurance Co.

472094625-45

After Recording Return To:
Robert J. Sullivan, PC
1 SW Columbia Street, Suite 1600
Portland, Oregon 97258

Clackamas County Official Records
Sherry Hall, County Clerk
2010-037258
$92.00
01411265201000372580100107
06/22/2010 02:32:56 PM
D-E Cnt=1 Stn=6 KARLYNWUN
$50.00 $16.00 $16.00 $10.00

EASEMENT

In consideration of $25,000 and the promises contained herein, Hidden Springs Ranch Recreation Association ("Grantor") grants to West Linn-Wilsonville School District ("Grantee"), an easement on the terms and conditions described below:

1. **The Property.** Grantor is the owner in fee simple of the improved real estate described on attached Exhibit A (the "Property"). The legal description of the Easement is described on the attached Exhibit B (the "Easement"). The Grantee's real property on which it intends to build a primary school and to which the Easement attaches is described on the attached Exhibit C ("Grantee's property" or "Grantee's real property"). Grantee agrees to cause a survey of Grantee's real property to be performed and recorded prior to the opening of the primary school, and this Easement will then be re-recorded with the surveyed legal description attached as replacement Exhibit C.

2. **Condition of Easement.** Grantee agrees that the Easement granted by this document is in its "as is" condition.

3. **Encroachment.** Grantee acknowledges that there is a path across the Property that encroaches on Grantee's property approximately five (5) feet just west of Bay Meadows Drive. Grantee agrees to leave the path as built or to restore the path to its current condition if disturbed by Grantee.

4. **Purpose.** The purpose of the Easement is for an access road to the new primary school for use by school staff, school busses, service, emergency, and maintenance vehicles, and for special events, but not for general public access.

5. **Construction.** Grantee intends to build an access road on the Easement and agrees to give Grantor thirty (30) days prior written notice of intent to proceed with construction of any improvements upon the Easement, to install a construction fence prior to any work on the

Easement or the Property and to implement and follow reasonable safety precautions during construction or maintenance.

6. **Signage.** Grantee agrees to post signage prominently on the access road upon the Easement giving notice that the access road is for "School Bus and School Staff Access Only." Grantee agrees to use reasonable efforts so that the access road is not used for general public access.

7. **Improvements.** As additional consideration for the grant of the Easement, the Grantee agrees to undertake the following improvements to that portion of the Property in the immediate area of the Easement and the adjoining tennis court and basketball court, which work will be completed on or before September 1, 2012; however, the Grantee may extend the time to finish the improvements for up to one year by giving Grantor prior written notice of the new completion date:

A. Upgrades/Repairs.

(i) relocate and replace the bench next to the basketball court and install a bench in the tennis court,
(ii) place a garbage can near the tennis/basketball courts and arrange for periodic trash removal,
(iii) replace and/or resurface the tennis and basketball courts,
(iv) remove and decommission the non-operable lights and equipment at the tennis court,
(v) add a wind screen to the northern side of the tennis court,
(vi) replace the existing basketball hoop, pole and backboard, and
(vii) create, replace or repair the paths, including a connection to the new sidewalk on Rosemont Road.

B. Easement Landscaping.

(i) consult and confer with Grantor in the design of the landscaping for the Easement and the Property,
(ii) use/relocate as many of the existing mature trees (e.g. Japanese maples will remain the property of Grantor and will be used in the landscape) as possible in the landscaping,
(iii) after construction of the Easement repair or replace the landscaping, and
(iv) obtain the prior approval of Grantor for final landscaping which provides the buffer between the Grantee's school and the Property.

8. **Alterations on the Easement.** Without giving advance notice to the Grantor, the Grantee may undertake ordinary maintenance of the access road and landscaping located on the Easement or the Property in order to comply with Grantee's school district standards. However, except with the prior consent of Grantor or as otherwise expressly provided herein, Grantee shall

not substantially alter, remodel, or replace the access road or landscaping on the Easement or damage the Property, nor may Grantee perform any acts which would adversely affect the appearance of the Property. The restrictions described above shall include, but shall not be limited to any repairs, renovation, rehabilitation, reconstruction, alterations, expansion or demolition which would adversely affect the appearance or the integrity of the Property.

9. **Maintenance.** Grantee agrees to annually maintain the Easement and that portion of the Property in the immediate area of the Easement by removing/spraying with herbicide the weeds, trimming the trees and shrubs and disposing of the debris each spring. This maintenance includes the immediately adjoining paths and landscaping. Grantee's obligation to clean and maintain the landscaping pending construction of the improvements begins upon execution of this Easement. Notwithstanding the foregoing, the Grantee shall have the right, upon giving not less than ninety (90) days advance written notice to the Grantor, to discontinue maintenance of any portion of the Property not within the Easement after twenty-five (25) years from the date that this Easement is recorded.

10. **Standard for Landscaping, Repairs and Maintenance.** Grantee agrees that all work performed on the Property shall conform to Grantee's school district standards of good workmanship. The Easement area will be landscaped according to Grantee's school district standards, generally as shown on the attached Exhibit D. Grantee will require all contractors performing work on the Easement or the Property carry liability insurance against all losses which identifies Grantor as an additional insured.

11. **Consent Procedure.** The written consent of Grantor, as required by this Easement, may be requested by Grantee by submitting a reasonably detailed written proposal to Grantor. If the proposal is not accepted or rejected within sixty (60) days of its submission, Grantee may proceed with the proposed alteration. If Grantee reasonably believes that an emergency exists and the written proposal specifically states that an emergency exists, the reply period shall be forty-eight (48) hours. If the emergency threatens to damage any portion of the Property or the Easement, any action necessary to prevent such damage may be taken without first obtaining written consent if notice is immediately given to Grantor that the work is being performed. All work performed pursuant to the previous sentence shall be consistent with the character of the Property and the Easement.

12. **Term.** The term of this Easement shall be perpetual. This Easement shall be binding upon Grantee and the Grantor and is transferable by either party only with the advance written consent of the other party, which consent shall not be unreasonably withheld. This Easement terminates automatically in the event that Grantor's property (Exhibit C) ceases for a period of twenty-four (24) consecutive months to be used as a public school, in which event all interest under the Easement reverts to Grantor, without any action by Grantor.

13. **Enforcement**. The parties agree to attempt to resolve any disagreements or disputes regarding this Easement or their obligations hereunder with the minimum expenditure to funds and time. If the parties are unable to resolve any such disagreements or disputes, they agree to submit to binding arbitration by a single arbitrator. If the parties fail to agree upon an arbitrator, the arbitrator will be appointed by the Presiding Judge of Clackamas County Circuit Court. The prevailing party will pay the arbitrator's fee, but parties will be responsible for payment of their own attorney fees. However, if the arbitrator finds that the party not prevailing failed to exercise good faith regarding the disagreement or dispute at issue prior to or during the arbitration, then the prevailing party will be entitled to recover its reasonable attorney fees and costs incurred.

14. **Taxes, Assessments, Liens and Expenses**. Grantor agrees to pay all taxes, if any, imposed upon that portion of the Property included in the Easement. Grantee agrees to pay any assessments, liens and expenses imposed or incurred for the benefit of the Easement.

15. **Notice**. Any notice required or permitted to be given under the terms of this Easement, shall be either hand delivered or certified mailed to Grantor or Grantee at their respective addresses as follows:

GRANTOR:	GRANTEE:
Hidden Springs Ranch Recreation Association Attn: President P O Box 444 West Linn, Oregon 97068	West Linn-Wilsonville School District Attn: Superintendent P O Box 35 West Linn, Oregon 97068

or at such other address designated in writing by Grantor or Grantee from time to time. Except as expressly provided herein to the contrary, any such notice shall be deemed effective when actually received by the addressee or two (2) business days from the date of mailing, whichever first occurs.

16. **Liability**. To the extent permitted by law, Grantee agrees to indemnify and hold Grantor harmless for any liability, damages, or claims that may arise out of Grantee's ownership, operation, or use of the Property or the Easement or Grantee's maintenance activities as described in paragraph 9 hereof. Grantee will carry insurance in accordance with Grantee's school district policies covering the liabilities, damages, or claims mentioned above on the Easement and the Property against all losses which identifies Grantor as an additional insured, but such insurance will cover Grantor only to the limits of the Oregon Tort Claims Act in effect at the time of any loss and will not cover Grantee for its own negligence or other wrongful conduct.

17. Recording. The parties agree that this Easement shall be recorded in the records of Clackamas County.

DATED: 5/28, 2010.

GRANTOR:

Hidden Springs Ranch Recreation Association,

By: Janet M. Freling
Its: Treasurer

STATE OF OREGON)
) ss.
County of Multnomah)

This instrument was acknowledged before me on May 28, 2010 by Janet Freling As the Treasurer of Hidden Springs Ranch Recreation Association

L J Aanderud
Notary Public for Oregon

OFFICIAL SEAL
LINDA J AANDERUD
NOTARY PUBLIC-OREGON
COMMISSION NO. 421266
MY COMMISSION EXPIRES SEPTEMBER 26, 2011

The foregoing Easement is acknowledged and accepted by West Linn-Wilsonville School District this 26th day of May, 2010.

GRANTEE:

West Linn-Wilsonville School District

By: Roger L. Woehl
Its: Superintendent

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me on 5/26, 2010 by Roger Woehl as the Superintendent of West Linn-Wilsonville School District

OFFICIAL SEAL
TARA LYNN DU BOIS
NOTARY PUBLIC - OREGON
COMMISSION NO. 433598
MY COMMISSION EXPIRES OCT. 20, 2012

Notary Public for Oregon
Tara DuBois

EXHIBIT A

LEGAL DESCRIPTION OF GRANTOR'S PROPERTY

That certain property conveyed to Grantor by deed from Hidden Springs Ranch #8, Owners Association, recorded on October 23, 1987, Recorder's No. 87-048492, and described in said deed as follows:

"Tract A, HIDDEN SPRINGS RANCH #8, PHASE 3"

EXHIBIT B
Page 1

LEGAL DESCRIPTION
ACCESS EASEMENT
ERICKSON PROPERTY
WEST LINN WILSONVILLE SCHOOL DISTRICT

JOB NO. 6667
4/21/10 MAR

A TRACT OF LAND LOCATED IN THE NORTHEAST ONE-QUARTER OF SECTION 26, TOWNSHIP 2 SOUTH, RANGE 1 EAST, WILLAMETTE MERIDIAN, CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON, BEING A PORTION OF TRACT "A", "HIDDEN SPRINGS RANCH NO. 8 – PHASE III" PLAT NO. 2728, CLACKAMAS COUNTY PLAT RECORDS, SAID TRACT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF TRACT "A", "HIDDEN SPRINGS RANCH NO. 8 – PHASE III", BEING ON THE NORTHEASTERLY RIGHT-OF-WAY LINE OF ROSEMONT ROAD (COUNTY ROAD NO. 82)(30.00 FEET FROM CENTERLINE); THENCE ALONG THE NORTH LINE THEREOF, S89°12'48"E, 240.43 FEET; THENCE 128.45 FEET ALONG THE ARC OF A 400.00 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 18°23'56" (THE LONG CHORD BEARS S66°14'10"W, 127.90 FEET); THENCE S57°02'12"W, 73.66 FEET TO THE NORTHEASTERLY RIGHT-OF-WAY LINE OF ROSEMONT ROAD (30.00 FEET FROM CENTERLINE); THENCE ALONG SAID RIGHT-OF-WAY LINE, N32°57'48"W, 113.13 FEET TO THE POINT-OF-BEGINNING, CONTAINING 10116 SQUARE FEET, MORE OR LESS.

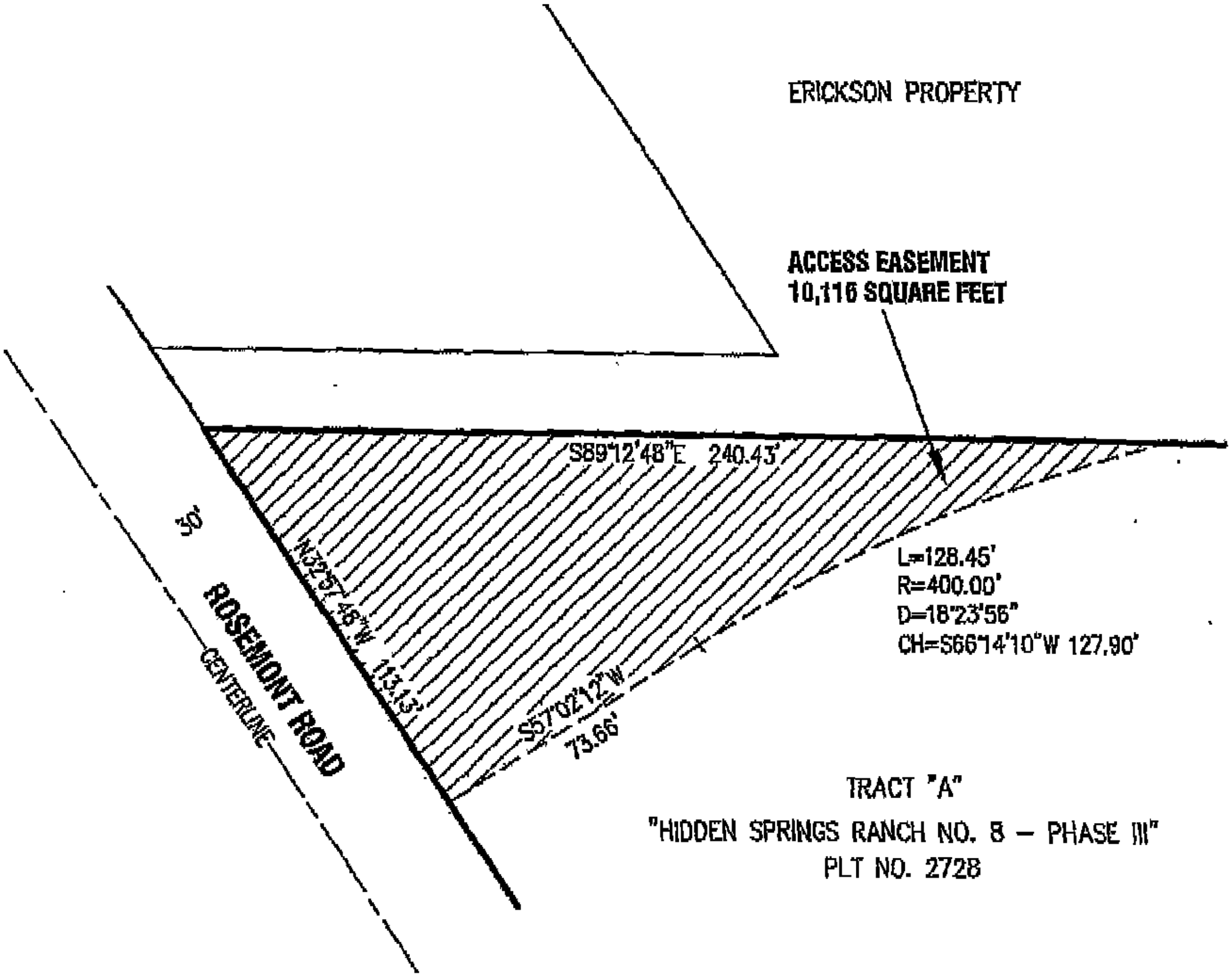
REGISTERED
PROFESSIONAL
LAND SURVEYOR

[signature]

OREGON
JULY 16, 1997
MICHAEL A. RADEMACHER
2303

DATE OF SIGNATURE: 4-21-10
EXPIRES: 12/31/2010

EXHIBIT B
Page 2



REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 16, 1987
MICHAEL A. RADEMACHER
2303

DATE OF SIGNATURE: 4-21-10

EXPIRES: 12/31/2010

Scale: 1" = 40'

6667 Exh.dwg

COMPASS ENGINEERING ENGINEERING SURVEYING PLANNING 4105 S.E. INTERNATIONAL WAY, SUITE 501 MILWAUKIE, OREGON 503.653.9093	**TAX LOT 5500, LOCATED IN THE S.W. 1/4 OF THE N.E. 1/4 OF SECTION 26, T.2S., R.1E., W.M., CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON**

EXHIBIT C

DESCRIPTION OF GRANTEE'S PROPERTY

The Grantee's real property on which it intends to build a primary school and to which the Easement attaches consists of the following: that certain property conveyed to Grantee by deed recorded on December 28, 1989, Recorder's No. 89-058016, and also Parcel II and Parcel III of that certain property conveyed to Grantee on December 28, 1989, Recorder's No. 89-058017.

New West Linn Primary School

Transportation Impact Study

June 2010

Prepared for: West Linn-Wilsonville School District

Prepared by: DKS Associates
TRANSPORTATION SOLUTIONS

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION AND FINDINGS

This report evaluates the transportation impacts of the proposed New West Linn Elementary School located in West Linn, Oregon. The purpose of this report is to identify mitigation measures required to accommodate potential traffic impacts from the proposed project. This chapter provides a summary of the study area, existing transportation conditions, project trip generation and distribution, future transportation conditions, and impacts identified for the proposed project.

Study Area

The study area and the proposed New West Linn Elementary School site are shown in Figure 1. The project site is located on the east side of Rosemont Road, south of Hidden Springs Road and north of Bay Meadows Drive. Based on the preliminary site plan provided by the project sponsor, the project would include two access points onto Rosemont Road.

Based on correspondence with City of West Linn staff[1], nine intersections, as well as the two proposed access points, were selected for the traffic analysis. The study intersections selected for the analysis include:

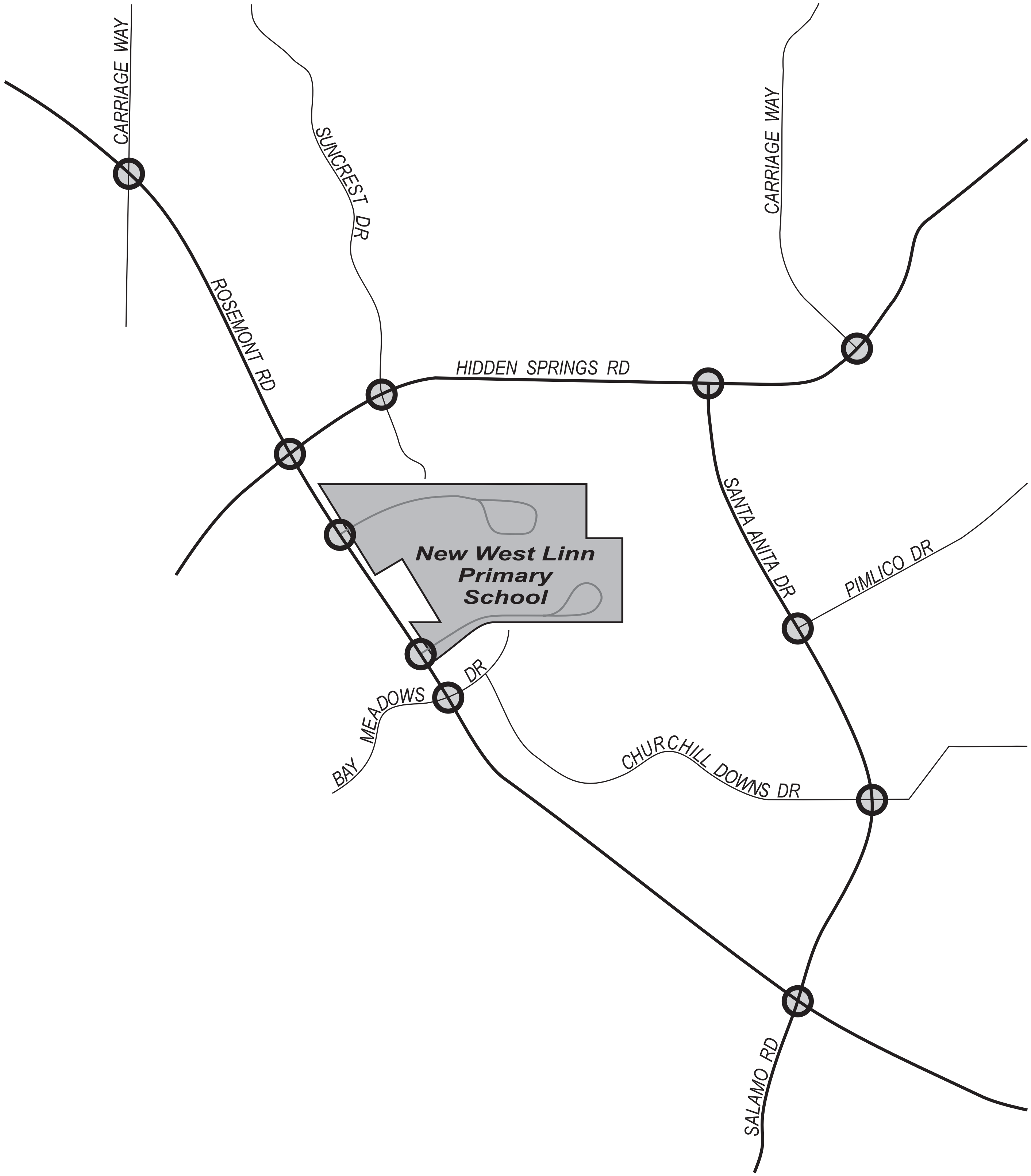
- Rosemont Road/Carriage Way
- Rosemont Road/Hidden Springs Road
- Rosemont Road/North School Access
- Rosemont Road/South Buss Access
- Rosemont Road/Bay Meadows Drive
- Rosemont Road/Salamo Road/Santa Anita Drive
- Hidden Springs Road/Suncrest Drive
- Hidden Springs Road/Santa Anita Dr
- Hidden Springs Road/Carriage Way
- Santa Anita Drive/Horton Rd/Churchill Downs Drive
- Santa Anita Drive/Pimlico Drive

Table 1 provides key characteristics of the study area and the proposed project.

Proposed Project

The proposed project would construct an elementary school (pre-kindergarten to fifth grade) with a maximum capacity for 500 students. The project site has recently been annexed within the City limits. The site will be zoned R-10 (Single-Family Residential Detached) which allows for educational land uses. The proposed school is assumed to be constructed and occupied by the beginning of the 2012 school year (September).

[1] Email correspondence from Norm Dull, Dull Olson Weekes Architects, December 15, 2009.



LEGEND

- Study Intersection

DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

Figure 1

STUDY AREA

Table 1: Study Area and Proposed Project Characteristics

Study Area	
Number of Study Intersections	9 plus 2 site access points
Analysis Periods	AM peak hour (7 to 9 a.m.) Midday peak hour (2 to 4 p.m.) PM peak hour (4 to 6 p.m.)
Nearby Alternative Mode Facilities	
Pedestrian Facilities	Existing sidewalk on the east side of Rosemont Road along the project frontage
Bicycle Facilities	No dedicated bike lane and shoulder bikeways provided near the project site
Public Transit Facilities	No public transit service is provided at the project site. The nearest public transit is TriMet Route 35 on Highway 43 at Hidden Springs Road.
Proposed Project Trips	
AM Peak Hour Trips	280 (154 in/126 out)
Mid-day Peak Hour Trips	140 (63 in/77 out)
PM Peak Hour Trips	75 (37 in/38 out)
Proposed Vehicle Access Points	Two full access points on Rosemont Road North Access for parents and visitors South Access for school buses and employees

Traffic Impact Analysis

To determine the impacts from the proposed project at the study intersections, traffic operating conditions were analyzed at the study intersections during the AM, midday and PM peak hours for the following scenarios:

- 2010 Existing Traffic
- 2012 Background Traffic + Approved Projects
- 2012 Total (Background + Approved + Project) Traffic

The Existing traffic scenario was based on 2010 traffic counts and used as a baseline for comparison to the other two scenarios. The 2012 scenario was selected since the school is anticipated to be constructed and occupied by year 2012. The 2012 Background volumes were estimated by applying a two percent annual growth rate to 2010 traffic counts. The vehicle trips generated by approved projects were added to 2012 background volumes to develop the 2012 Background + Approved project scenario. The 2012 total volumes were estimated by adding project traffic to Background + Approved project traffic volumes.

2009 Existing Operating Conditions

The existing traffic operating conditions at the study intersections were evaluated for the AM, midday and PM peak hours based on the *2000 Highway Capacity Manual* methodology[2] for unsignalized intersections. The City of West Linn requires level of service D or better for all facilities except principal arterials, where level of service E is the minimum. The existing intersection performance is shown in Table 2. All of the study intersections currently meet standards during each of the three analysis periods.

Table 2: 2010 Existing Conditions Intersection Performance

Intersection	AM Peak		Midday Peak		PM Peak	
	LOS	*V/C*	*LOS*	*V/C*	*LOS*	*V/C*
Unsignalized						
Rosemont Rd/ Carriage Way	A/C	0.29	A/B	0.08	A/C	0.17
Rosemont Rd/ Hidden Springs Rd	A/B	0.18	A/B	0.09	A/C	0.15
Rosemont Rd/ Bay Meadows Dr	A/B	0.02	A/B	0.01	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/A	0.02	A/B	0.04	A/B	0.05
Hidden Springs Rd/ Santa Anita Dr	A/B	0.23	A/B	0.15	A/B	0.17
Hidden Springs Rd/ Carriage Way	A/B	0.03	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.06	A/B	0.06	A/B	0.04
Santa Anita Dr/Pimlico Dr	A/B	0.08	A/B	0.10	A/B	0.11
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	B	0.45	B	0.48	C	0.81

Unsignalized intersections:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement
All-Way Stop Controlled intersections:
LOS = Level of Service of crossroads
V/C = Volume-to-Capacity Ratio of Intersection

2012 Traffic Operating Conditions

Intersection operating conditions for the 2012 background (including approved projects) and total traffic scenarios are listed in Table 3. All study intersections are expected to meet applicable City mobility standards under both scenarios (i.e., with or without the proposed project). Therefore, none of the study intersections would require off-site improvements to mitigate impacts from the proposed project traffic.

[2] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

Table 3: 2012 Background and Total Traffic Intersection Performance

Intersection	AM Peak		Midday Peak		PM Peak	
	LOS	*V/C*	*LOS*	*V/C*	*LOS*	*V/C*
Background Traffic Operating Conditions						
Unsignalized						
Rosemont Rd/ Carriage Way	A/D	0.31	A/B	0.08	A/C	0.19
Rosemont Rd/ Hidden Springs	A/B	0.19	A/B	0.09	A/C	0.17
Rosemont Rd/ Bay Meadows Dr	A/B	0.03	A/B	0.01	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/A	0.05	A/B	0.04	A/B	0.05
Hidden Springs Rd/ Santa Anita Dr	A/B	0.24	A/B	0.15	A/B	0.18
Hidden Springs Rd/ Carriage Way	A/B	0.03	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.07	A/B	0.06	A/B	0.04
Santa Anita Dr/Pimlico Dr	A/B	0.08	A/B	0.11	A/B	0.11
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	B	0.48	B	0.51	C	0.87
Total Traffic Operating Conditions						
Unsignalized						
Rosemont Rd/ Carriage Way	A/D	0.33	A/B	0.11	A/C	0.22
Rosemont Rd/ Hidden Springs	A/C	0.21	A/C	0.18	A/C	0.24
Rosemont Rd/ Bay Meadows Dr	A/B	0.04	A/B	0.02	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/B	0.05	A/B	0.04	A/B	0.05
Hidden Springs Rd/ Santa Anita Dr	A/B	0.25	A/B	0.16	A/B	0.18
Hidden Springs Rd/ Carriage Way	A/B	0.04	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.07	A/B	0.07	A/B	0.05
Santa Anita Dr/Pimlico Dr	A/B	0.09	A/B	0.11	A/B	0.11
Rosemont Rd / North Access	A/B	0.14	A/B	0.09	A/B	0.03
Rosemont Rd / South Access	A/B	0.03	A/B	0.02	A/B	0.03
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	B	0.54	C	0.55	D	0.92

Unsignalized intersections:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement
All-Way Stop Controlled intersections:
LOS = Level of Service of crossroads
V/C = Volume-to-Capacity Ratio of Intersection

Project Site Mitigations

The study intersections are forecasted to meet City of West Linn operating standards through the year 2012 with the addition of traffic generated by the proposed project. Therefore, no off-site mitigation measures are identified for the proposed project. However, it is recommended that the following on-site improvements be provided to provide safe internal circulation and access to the site. The following project related measures would typically be required as conditions of approval if the project were approved:

Frontage Improvements

- Frontage improvements (one-half street) should be provided on Rosemont Road based on the City of West Linn standards[3] for an arterial roadway. Based on the cross-section standard, an arterial in an unconstrained environment would provide a three lane roadway with a 14 foot center median/turn lane, 11 foot travel lanes, 6 foot bike lanes, 6 foot planter strips and 6 foot sidewalks. The one-half street improvements on the project frontage of Rosemont Road should include pavement, curb, gutter, landscape strip and sidewalk.

Access Spacing/Driveway Sight Distance

- The site plan shows the proposed north access and south access would be located approximately 570 feet apart (measured centerline to centerline). The proposed spacing between the site access points would meet the City's spacing standard.
- The proposed north access and south access would not meet the City Transportation System Plan's recommended access spacing standards for the adjacent residential driveways on Rosemont Road. Due to the single family nature of the nearby driveways and their expected low traffic volumes, no vehicle conflicts are anticipated with the substandard driveway spacing.
- Sight distance at the south project access is restricted looking to the north when measured 14.4 feet back from the edge of the roadway (as required by AASHTO) due to existing thick vegetation. Some of the shrubs and trees north of the south project access would require trimming and/or removal. These shrubs and trees are located on private property that is not owned by the West Linn-Wilsonville School District. The School District and the City should work with the private property owner to remove some of the vegetation. Prior to occupancy, sight distance at both proposed project access points to Rosemont Road will need to be approved by the City Engineer.

[3] City of West Linn Transportation System Plan, December 2008, Figure 8-2.

CHAPTER 2: EXISTING CONDITIONS

This chapter documents existing study area conditions, including the project site, roadway network, existing traffic volumes, existing traffic operating conditions, collision history, planned improvements, and public transit service. Supporting details such as traffic counts and level of service calculations are provided in the Appendix.

Project Site

The project site being considered for the proposed New West Linn Primary School is undeveloped land located on the east side of Rosemont Road between Hidden Springs Road to the north and Santa Anita Drive/Salamo Road to the south in City of West Linn, Oregon. The site is approximately one-half mile north of Rosemont Road Middle School, which is located in the southwest quadrant of the Rosemont Rd/Santa Anita Dr/Salamo Road intersection. The project site has recently been annexed[4] within the City limits and will be zoned R-10 (Single-Family Residential Detached). The City of West Linn allows the development of schools within R-10 zoned land.[5].

Study Area Roadway Network

The study area roadway network in the vicinity of the project site consists of numerous streets with varying access and mobility functions. To clarify its function, each street has been assigned a functional classification by the City of West Linn.[6] The study area roadway classifications are listed in Table 4 along with other important roadway characteristics.

Table 4: Study Area Roadway Characteristics

Roadway	Functional Classification	Posted Speed (MPH)	# Lanes	On-Street Parking	Side-walks	Bike Lanes
Rosemont Rd	Arterial	25-40	2	No	Partial	No
Hidden Springs Rd	Arterial	25	2	No	Partial	No
Santa Anita Dr	Arterial	25	2	No	Partial	No
Salamo Rd	Arterial	25-40	2	No	Yes	Yes
Pimlico Dr	Collector	25	2	No	Partial	No
Carriage Way	Collector	25	2	No	Yes	No
Horton Rd	Neighborhood Rte	25	2	No	Yes	No
Bay Meadows Dr	Neighborhood Rte	-	2	No	Yes	No
Suncrest Dr	Neighborhood Rte	25	2	No	Yes	No
Churchill Downs Dr	Local Street	25	2	No	Yes	No

[4] www.westlinnoregon.gov/citycouncil/annexation-erickson-site-rosemont-road-and-hidden-springs-road, accessed January 15, 2010.
[5] City of West Linn Community Development Code, Section 11.060.
[6] City of West Linn Transportation System Plan, December 2008, Figure 8-1.

Pedestrian Facilities

Pedestrian counts were conducted at all study intersections during the AM, midday and PM peak periods (two hour count). The highest pedestrian activity observed was at the Rosemont Road/Salamo Road/Santa Anita Drive intersection with over 100 pedestrians during the AM and midday peak periods and over 50 pedestrians during the PM peak period. The study intersections along Santa Anita Drive experience moderate pedestrian activity with an average of 20 pedestrians during each peak period. Observed pedestrian volumes at the Rosemont Road/Carriage Way and Hidden Springs Road/Carriage Way intersections were relatively low, with less than five pedestrians during each peak period.

The current sidewalk on the east side of Rosemont Road near the project site is an asphalt path separated from the roadway. The project frontage improvements would construct standard concrete sidewalks along the project frontage. In general, the remaining roadways in the study area have standard 5-foot concrete sidewalks on both sides of the street.

Bicycle Facilities

Bicycle counts were conducted at all study intersections during the AM, midday and PM peak periods (two hour count). Very little bicycle activity occurred at the study intersections, with three or less bicycle crossings during each of the peak periods. The low bicycle volumes are not surprising given that there are no designated bike lanes in the vicinity of the project site.

Public Transit Service

Tri- County Metropolitan Transportation District of Oregon (TriMet) provides public transportation services in West Linn. There are currently two transit routes that serve the West Linn community.

- Bus Route 35 – Travels along Highway 43 connecting the Oregon City Transit Center and downtown Portland. The route offers 10 to 30 minute headways.
- Bus Route 154 – Travels between the Oregon City Transit Center and the southwest area of West Linn.

Neither of these bus routes provides transit service near the project site. There is no public transit service available for most of the City west of Highway 43. The nearest TriMet service is Bus Route 35 which provides a bus stop on Highway 43 at Hidden Springs Road. There is one park-and-ride lot in West Linn located at Highway 43/Cedaroak Drive intersection for commuters wishing to travel north on Bus Route 35.

Planned Improvement Projects

Based on the information provided by the City staff[7], there is currently no transportation improvement projects planned within the study area that will be constructed by the year 2012. Therefore, no transportation improvement projects were included in the traffic analysis.

Existing Traffic Volumes

Existing traffic volumes[8] were collected at the study intersections during the AM peak period (7:00 a.m. to 9:00 a.m.), midday peak period (2:00 p.m. to 4:00 p.m.), and PM peak period (4:00 p.m. to 6:00 p.m). The traffic data collected also counted the number of pedestrians and bicycles at the study intersections. The AM, midday and PM peak hour traffic volumes used for the analysis are shown in Figure 2. Detailed peak period traffic count data is included in the Appendix.

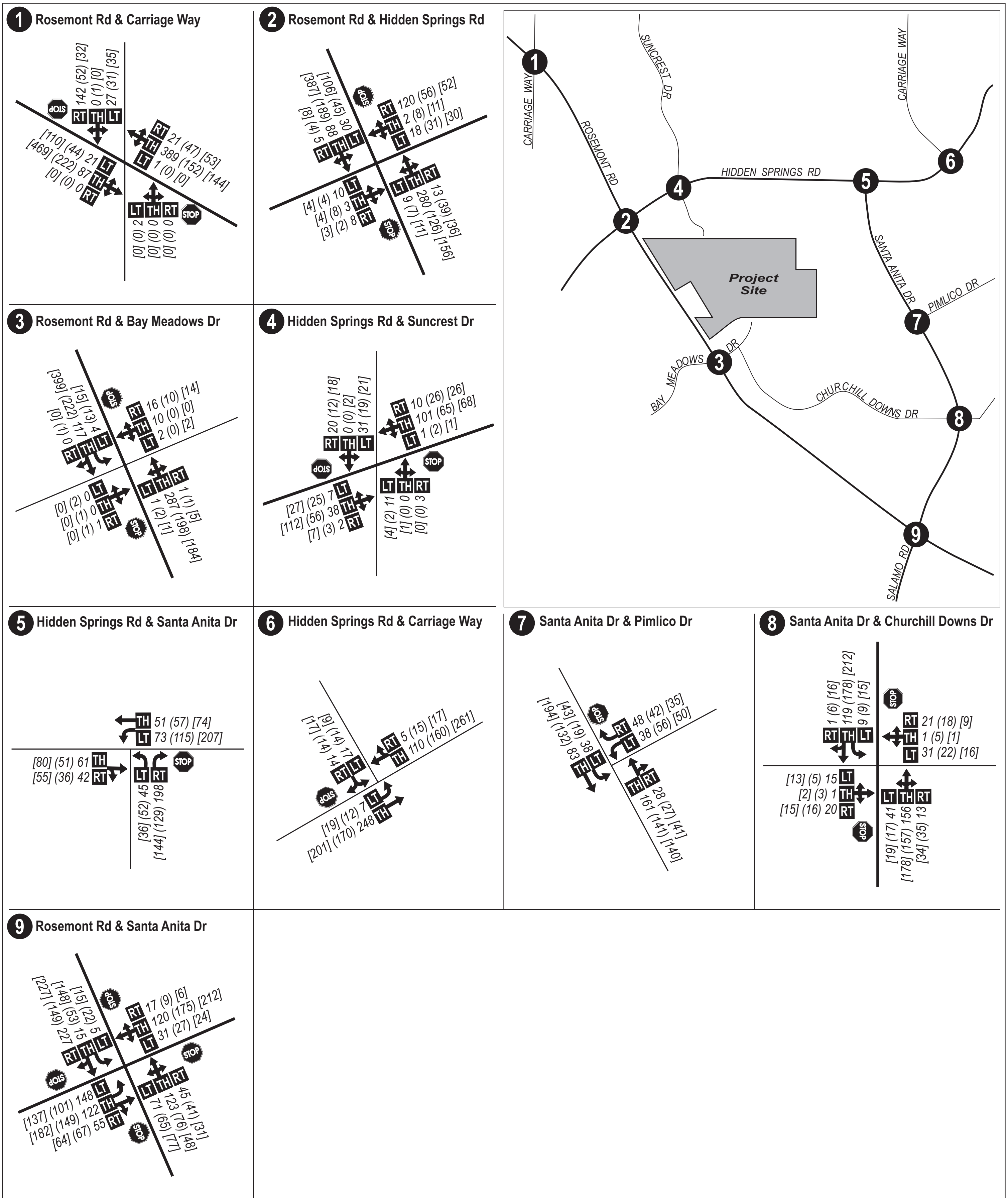
A 24 hour volume and speed survey[9] was conducted on Rosemont Road north of Bay Meadows Drive. The survey found the daily traffic volume on Rosemont Road was 5,111 vehicles (2,487 northbound and 2,624 southbound). The peak hour traffic volumes of the day occurred from 5 to 6 p.m. The speed survey conducted on Rosemont Road found the average 85th percentile speed was 46 miles per hour (44 miles per hour northbound and 48 miles per hour southbound). Vehicle speeds are typically higher for the downhill travel direction. The 85th percentile speed represents the speed at which 85 percent of the vehicles are traveling at or below. The posted speed limit on Rosemont Road near the project site is 40 miles per hour.

Existing Traffic Operating Conditions

Level of service (LOS) ratings and volume-to-capacity (V/C) ratios are commonly used as measures of effectiveness for intersection operation. LOS is similar to a "report card" rating based on the average delay experienced by vehicles at the intersection[10]. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.

A volume-to-capacity (V/C) ratio is a decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or overall intersection. This indicator is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

[7] Email received by City Staff, Tom Soppe on January 20, 2010.
[8] Traffic counts were taken on January 4, 2010, by All Traffic Data.
[9] Traffic counts were taken on January 6, 2010, by All Traffic Data.
[10] A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.



LEGEND

- Study Intersection
- Lane Configuration
- Stop Sign

AM (Midday) [PM] - Peak Hour Traffic Volumes

LT TH RT - Volume Turn Movement
Left•Thru•Right

DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

Figure 2

2010 EXISTING AM/MIDDAY/PM PEAK HOUR TRAFFIC VOLUMES

Level of service, delay and volume to capacity ratios are used as measures of effectiveness for study intersection performance. The City of West Linn requires level of service D or better for all facilities except principal arterials, where level of service E is the minimum. The existing traffic operating conditions at the study intersections were determined for the AM, midday and PM peak hours based on the *2000 Highway Capacity Manual* methodology[11] for unsignalized intersections.

The existing operating conditions at the study intersections are shown in Table 5. Based on recent traffic counts, all of the study intersections meet the City's required standards during each of the three analysis periods. The detailed intersection operation worksheets are attached in the Appendix.

Table 5: 2010 Existing Conditions Intersection Performance

Intersection	AM Peak		Midday Peak		PM Peak	
	LOS	*V/C*	*LOS*	*V/C*	*LOS*	*V/C*
Unsignalized						
Rosemont Rd/ Carriage Way	A/C	0.29	A/B	0.08	A/C	0.17
Rosemont Rd/ Hidden Springs	A/B	0.18	A/B	0.09	A/C	0.15
Rosemont Rd/ Bay Meadows Dr	A/B	0.02	A/B	0.01	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/A	0.02	B/A	0.04	B/A	0.05
Hidden Springs Rd/ Santa Anita Dr	B/A	0.23	B/A	0.15	C/A	0.17
Hidden Springs Rd/ Carriage Way	A/B	0.03	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.06	A/B	0.06	A/B	0.04
Santa Anita Dr/Pimlico Dr	A/B	0.08	A/B	0.10	A/B	0.11
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	B	0.45	B	0.48	C	0.81

Unsignalized intersections:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement
All-Way Stop Controlled intersections:
LOS = Level of Service of crossroads
V/C = Volume-to-Capacity Ratio of Intersection

Collision History

Collision data for the study intersections were obtained for 2006 through 2008 from the ODOT Crash Analysis and Reporting Unit. The collisions are categorized by severity in

Table 6. Between 2006 and 2008 there were 12 total collisions reported at study intersections with no fatalities.

Collision rates were estimated for each of the study intersections. The collision rate was calculated based on the collision data and the estimated daily traffic volumes (factored from the recent PM peak hour traffic counts). A rate greater than or equal to 1.0 collision per million entering vehicles generally indicates a higher than average collision rate and the need for further safety analysis. As listed in

[11] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

Table 6, none of the study intersections have collision rates higher than 1.0. Detailed collision data is attached in the Appendix.

Table 6: Study Intersection Collision Summary (2006 through 2008)

Intersection	Collisions (by Severity)			Total	Collision Rate[b]
	PDO[a]	*Injury*	*Fatal*		
Rosemont Rd/Carriage Way	1	0	0	1	0.11
Rosemont Rd/Hidden Springs Rd	8	0	0	8	0.90
Rosemont Rd/Bay Meadows Dr	1	0	0	1	0.15
Rosemont Rd/Salamo Rd/Santa Anita Dr	1	0	0	1	0.08
Hidden Springs Rd/Suncrest Dr	0	0	0	0	0.00
Hidden Springs Rd/Santa Anita Dr	1	0	0	1	0.15
Hidden Springs Rd/Carriage Way	0	0	0	0	0.00
Santa Anita Dr/Horton Rd	0	0	0	0	0.00
Santa Anita Dr/Pimlico Dr	0	0	0	0	0.00

[a] PDO = Property Damage Only
[b] Collision Rate = average annual collisions per million entering vehicles (MEV); MEV estimates based on PM peak hour traffic count

The Rosemont Road/Hidden Spring Road intersection was found to have the highest number of collisions (eight in three years) and collision rate (0.90 annual collisions per million entering vehicles). Further evaluation did not find a historic trend in the collision data. The collisions at the Rosemont Road/Hidden Spring Road intersection included:

- rear end of a vehicle stopped to turn left
- passing in unsafe conditions and collision with oncoming vehicle
- left turn in front of oncoming traffic
- vehicle backing improperly into roadway
- vehicle loss of control, struck a tree

There are several factors that could be contributing to the number of collisions at the Rosemont Road/Hidden Spring Road intersection. Excessive vehicle speeds, driver behavior and limited available sight distance are the likely issues for safety. A detailed safety analysis of the Rosemont Road/Hidden Spring Road intersection would be required to provide a thorough safety investigation and identify if improvements would be recommended.

CHAPTER 3: IMPACT ANALYSIS

This chapter reviews the impact from the proposed project to the study area transportation system in West Linn. The proposed project site was analyzed for AM peak, midday, and PM peak hour impacts. The impact analysis discusses the proposed project and internal roadway network, project trip generation, trip distribution, future operating conditions of study intersections, turn lane warrant analysis, access spacing, sight distance, parking analysis, and project impacts/mitigations.

Proposed Project

The proposed project would construct a primary school, serving pre-kindergarten to fifth grade, with a maximum capacity for 500 students. The project site has recently been annexed within the City limits. The site will be zoned R-10 (Single-Family Residential Detached) which allows for educational land uses. The proposed school is assumed to be constructed and occupied by the beginning of the 2012 school year (September).

The site plan provided includes two new access points on Rosemont Road. The south project access would be restricted to school bus and school staff use only. The south access would provide a motor vehicle connection to the staff parking lot and the school bus loading/unloading area. The north access would serve general school trips. The north access would provide a motor vehicle connection to the visitor parking area and the parent pick up/drop off area.

The proposed school would operate with hours similar to other primary schools in the West Linn-Wilsonville School District. Typically, classes would start between 7:50 to 8:30 a.m. and release between 2:10 and 2:55 p.m. In comparison, the nearby Rosemont Ridge Middle School starts classes at 9:15 a.m. and releases classes at 3:45 p.m. The primary school and middle school class schedules are staggered purposely to limit off-site traffic impacts. The majority of school related trips (parents, staff and buses) generated by the proposed school are not expected to travel on the local street network at the same time as Rosemont Ridge Middle School trips.

Project Trip Generation

Trip generation is the estimation of project traffic added to nearby roadways. The trip generation estimate for the proposed project was based on data provided by the Institute of Transportation Engineers (ITE) Trip Generation Manual[12] and trip survey data collected[13] at existing primary schools in the Portland Metro area. The primary school trip generation data provided a trip rate per student to estimate the total traffic that would be generated by the project, including trips for students and faculty staff.

Based on an assessment of the available data, the local school survey data was used for the AM peak hour and the ITE data was used for the midday and PM peak hours. The peak hour trip rates for ITE and the local school surveys are summarized in Table 7, with the trip generation rates used in the traffic analysis shown in gray.

[12] *Trip Generation, 8th Edition*, Institute of Transportation Engineers, 2003.
[13] Trip generation survey data collected at three elementary schools in Beaverton area in 2006.

Table 7: Trip Generation Rate Comparison

Data Source	Trip Rate Per Student		
	AM	Midday	PM
Local School Survey	0.56	0.29	0.12
ITE (Land Use Code 520)	0.45	0.28	0.15

Trips rates utilized for the analysis shown in gray

The proposed project would construct a primary school with a maximum enrollment of 500 students. The initial estimated peak hour trips for the proposed school are summarized in Table 8.

Table 8: Initial Proposed Project Trip Generation Summary

Land Use	Students	Peak Hour Trips		
		AM	*Midday*	*PM*
Primary School	500	280 154 in / 126 out	140 63 in / 77 out	75 37 in / 38 out

The proposed project is planned to operate ten school buses daily. For the operational analysis of the site access points, bus trips were treated to be equivalent to two auto trips, based on Highway Capacity Manual methodology[14]. The trip generation estimates shown in Table 8 were adjusted to account for bus trips at the site access points. Table 9 shows the number of new buses expected with the proposed project and the estimated peak hour vehicle trip generation used for the motor vehicle capacity analysis. The proposed project would add 320 vehicle trips in the AM peak hour, 180 in the midday peak hour and 75 in the PM peak hour.

Table 9: Final Proposed Project Trip Generation Summary

	Peak Hour Trips		
	AM	*Midday*	*PM*
School Bus Trips	20 10 in / 10 out	20 10 in / 10 out	0 0 in / 0 out
School Bus Trips Converted to Auto Trips	40 20 in / 20 out	40 20 in / 20 out	0 0 in / 0 out
Initial Trip Generation Estimate	280 154 in / 126 out	140 63 in / 77 out	75 37 in / 38 out
Total New Auto Trips Used for Analysis	320 174 in / 146 out	180 83 in / 97 out	75 37 in / 38 out

*Volumes are factored to equivalent auto volumes (1 bus is equivalent to 2 autos)

[14] Highway Capacity manual, Chapter 16 – Signalized Intersections, Transportation Research Board, 2000

Project Trip Distribution

Trip distribution for the proposed project was estimated based on a conceptual school district boundary map[15], a review of the household density within the school district boundary and Metro's base year (2005) transportation forecast model. The school district boundary for the proposed school was conceptual only, no final school boundary adjustments have been determined. The proposed primary school was assumed to draw students from the area generally bounded by Hidden Springs Road, Rosemont Road, Carriageway, Santa Anita Drive, Pimlico Drive, Horton Road, and Suncrest Drive. Figure 3 illustrates the estimated distribution of project traffic for the proposed primary school on the surrounding street network.

Future Traffic Operating Conditions

Future traffic operating conditions were analyzed at the study intersections to determine if the existing transportation network can support the additional proposed school traffic. If the City of West Linn operating standards cannot be met with the proposed project, mitigations would be required to improve network performance.

Future Analysis Scenarios

Future AM, midday and PM Peak hour traffic operations were analyzed at the study intersections for the following two scenarios:

- 2012 Background Traffic + Approved Projects
- 2012 Total (Background + Approved + Project) Traffic

The 2012 scenario was selected since the school is anticipated to be constructed and occupied by the year 2012. The future 2012 background growth on the study area roadways was based on Metro's transportation forecast model[16]. For future 2012 background volumes, a two percent annual growth was applied to all study area intersections.

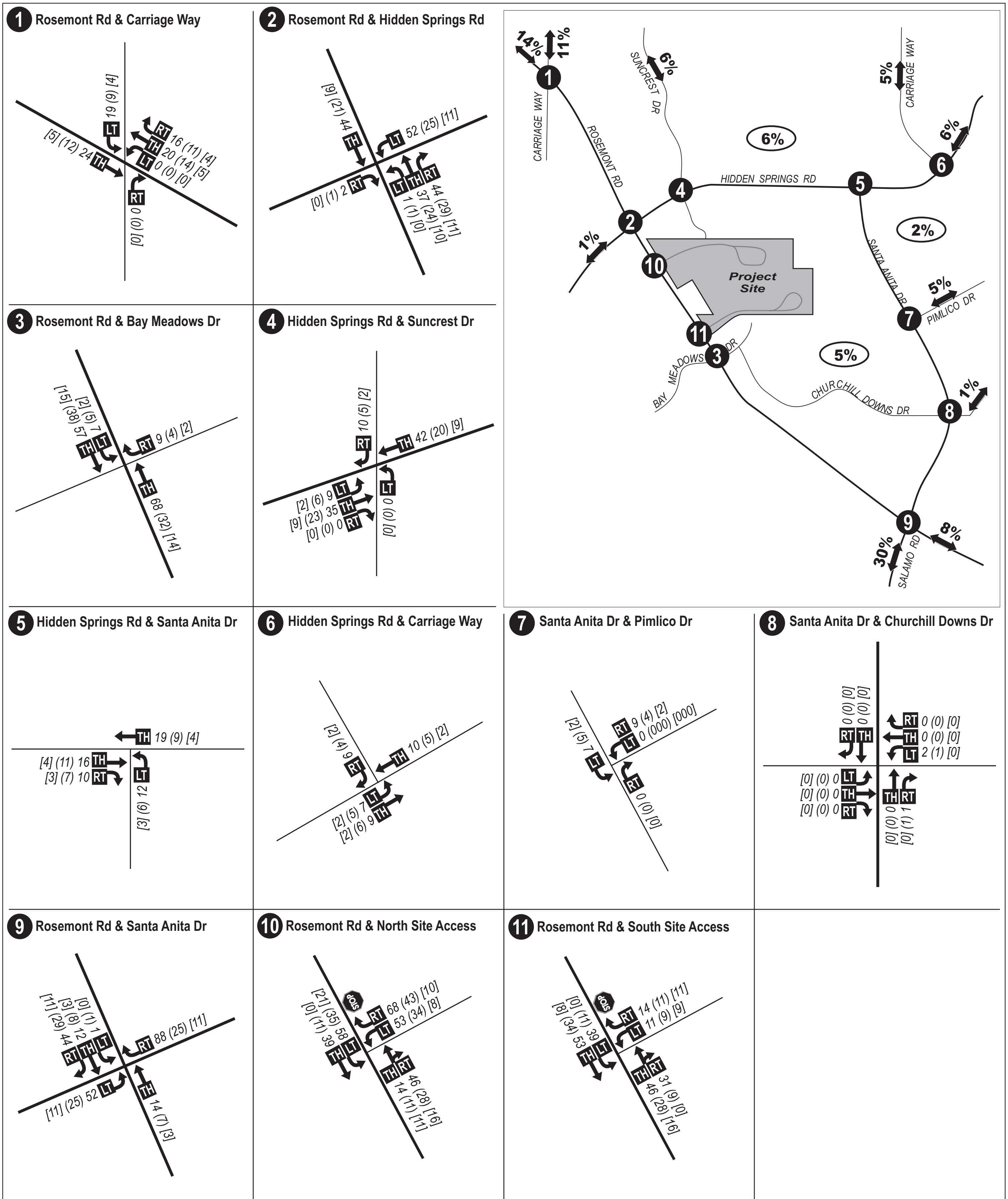
The City of West Linn staff provided approved but not yet constructed projects within the study area[17]. These projects include the Rosemont Crossing subdivision with twenty single family dwellings, and the Suncrest subdivision with six single family dwellings. Additional information regarding the approved projects is attached in the Appendix.

---

15 Based on information provided by Karina Ruiz, January 2010.

16 Annual growth percentage was based on the volume difference between base year 2005 and future 2030 volumes considered at several links within the study area. The determined growth percentage from different links was then averaged to have one growth percentage for all the study intersections.

17 Email sent by City Staff Tom Soppe on January 15, 2010.



LEGEND

X - Study Intersection

← - Lane Configuration

00% ↔ - Trip Distribution Percentage

AM (Midday) [PM] - Peak Hour Traffic Volumes

LT TH RT - Volume Turn Movement
Left•Thru•Right

DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

Figure 3

PROJECT TRIP DISTRIBUTION
PEAK HOUR TRIPS

2012 Background + Approved Projects Traffic Volumes

The 2012 background plus approved projects traffic volumes were developed by combining existing traffic counts with background growth and approved projects trips. The 2012 background plus approved projects traffic volumes during the AM, midday and PM peak hour are shown in Figure 4.

2012 Total (Background + Approved + Project) Traffic Volumes

The 2012 total traffic volumes were developed by combining the 2012 background plus approved projects traffic volumes with the proposed school peak hour project trips. The 2012 total traffic volumes during the AM, midday and PM peak hour are shown in Figure 5.

2012 Background + Approved Projects Traffic Operating Conditions

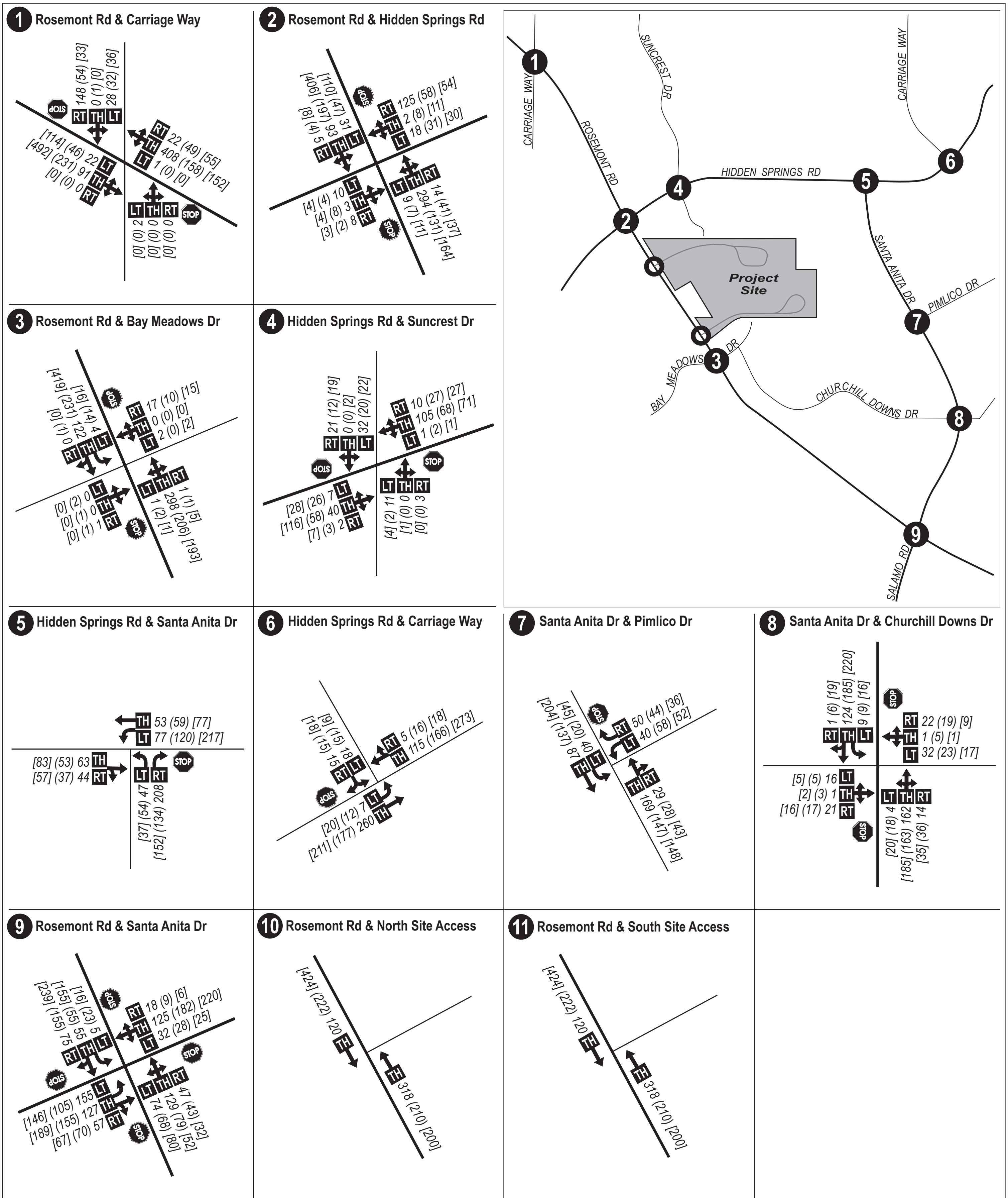
Intersection operating conditions for the 2012 background plus approved projects traffic scenario is listed in Table 10. All the study area intersections are expected to meet applicable City mobility standards. The highest congestion would occur at the Rosemont Road/Salamo Road/Santa Anita Drive intersection during the PM peak hour with LOS C and a volume to capacity ratio of 0.87. During the PM peak hour, the Rosemont Road/Salamo Road/Santa Anita Drive intersection would experience vehicle queues extending up to 125 feet (five cars) in the southbound through lane.

The remaining study intersections would operate with little vehicle delay during the peak hours. Based on the operating conditions, none of the study intersections would require improvements to mitigate impacts from the background traffic and approved projects.

Table 10: 2012 Background + Approved Projects Traffic Intersection Performance

Intersection	AM Peak		Midday Peak		PM Peak	
	LOS	*V/C*	*LOS*	*V/C*	*LOS*	*V/C*
Unsignalized						
Rosemont Rd/ Carriage Way	A/D	0.31	A/B	0.08	A/C	0.19
Rosemont Rd/ Hidden Springs	A/B	0.19	A/B	0.09	A/C	0.17
Rosemont Rd/ Bay Meadows Dr	A/B	0.03	A/B	0.01	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/A	0.05	A/B	0.04	A/B	0.05
Hidden Springs Rd/ Santa Anita Dr	A/B	0.24	A/B	0.15	A/B	0.18
Hidden Springs Rd/ Carriage Way	A/B	0.03	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.07	A/B	0.06	A/B	0.04
Santa Anita Dr/Pimlico Dr	A/B	0.08	A/B	0.11	A/B	0.11
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	B	0.48	B	0.51	C	0.87

Unsignalized intersections:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement
All-Way Stop Controlled intersections:
LOS = Level of Service of crossroads
V/C = Volume-to-Capacity Ratio of Intersection



LEGEND

X - Study Intersection

AM (Midday) [PM] - Peak Hour Traffic Volumes

- Lane Configuration

LT TH RT - Volume Turn Movement
Left•Thru•Right

STOP - Stop Sign

DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

Figure 4

2012 BACKGROUND & APPROVED PROJECTS AM/MIDDAY/PM PEAK HOUR TRAFFIC VOLUMES

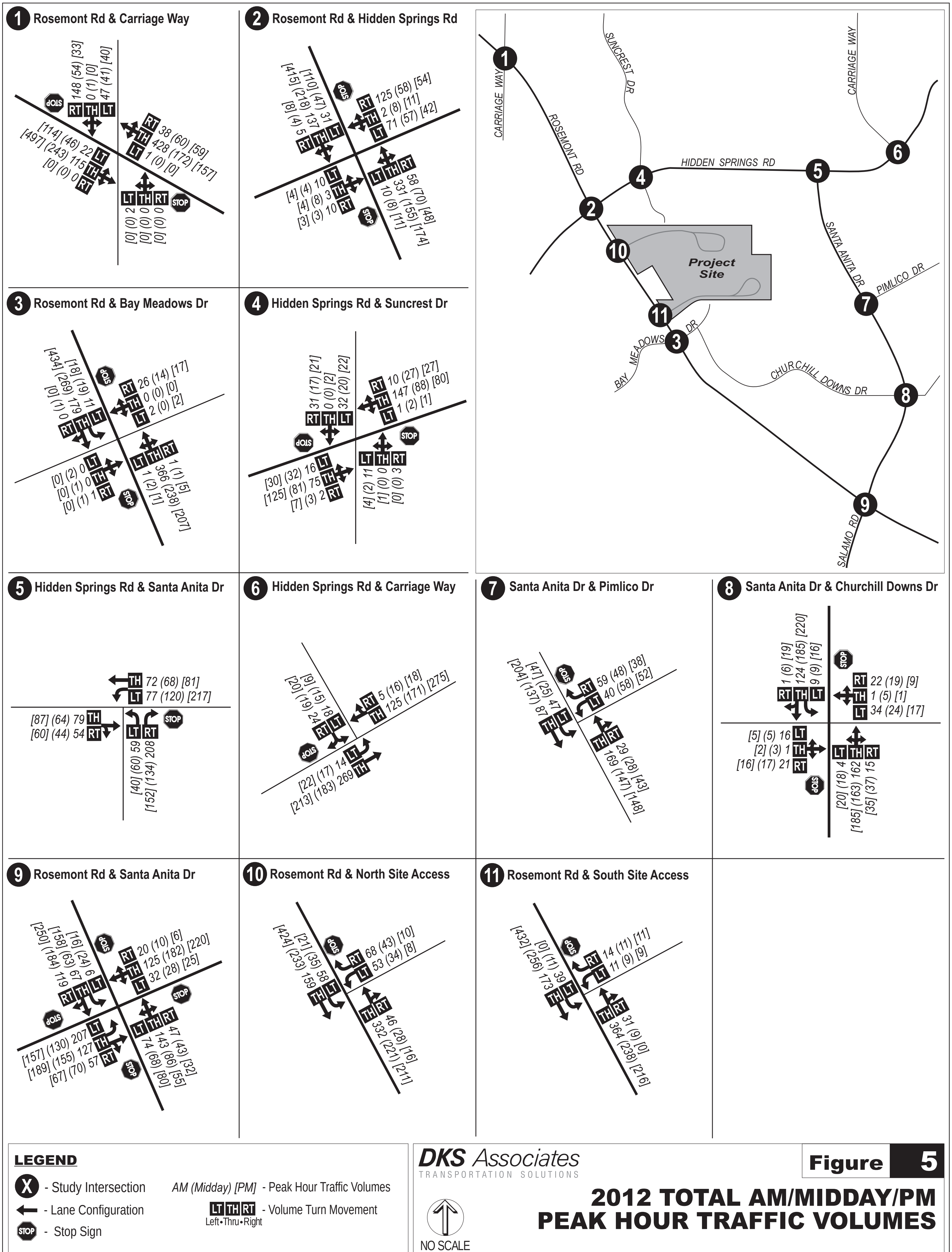


Figure 5

2012 TOTAL AM/MIDDAY/PM PEAK HOUR TRAFFIC VOLUMES

2012 Total Traffic Operating Conditions

The 2012 Total Traffic scenario included the addition of the proposed site access points onto Rosemont Road as study intersections. The planned geometry at each site access point included:

- a center turn lane on Rosemont Road to accommodate a southbound left turn movement into the site
- two exiting lanes at the school driveway at Rosemont Road to provide separate left and right turn lanes

Intersection operating conditions for the 2012 total traffic scenario are listed in Table 11. All the study area intersections would continue to meet City mobility standards with the addition of project traffic. The highest congestion would occur at the Rosemont Road/Salamo Road/Santa Anita Drive intersection during the PM peak hour with LOS D and a volume to capacity ratio of 0.92. During the PM peak hour, the Rosemont Road/Salamo Road/Santa Anita Drive intersection would continue to experience southbound vehicle queues extending up to 125 feet (five cars) in the southbound through lane. The proposed project would have minimal impact on the intersection vehicle queues, adding approximately 14 vehicles to the southbound approach during the PM peak hour.

The remaining study intersections would operate with little vehicle delay during the peak hours. Based on the operating conditions, none of the study intersections would require improvements in order to mitigate impacts from the proposed project traffic.

Table 11: 2012 Total Traffic Intersection Performance

Intersection	AM Peak		Midday Peak		PM Peak	
	LOS	*V/C*	*LOS*	*V/C*	*LOS*	*V/C*
Unsignalized						
Rosemont Rd/ Carriage Way	A/D	0.34	A/B	0.11	A/C	0.22
Rosemont Rd/ Hidden Springs	A/D	0.37	A/C	0.18	A/C	0.24
Rosemont Rd/ Bay Meadows Dr	A/B	0.06	A/B	0.02	A/B	0.02
Hidden Springs Rd/Suncrest Dr	A/B	0.06	A/B	0.04	A/B	0.05
Hidden Springs Rd/ Santa Anita Dr	A/B	0.25	A/B	0.16	A/B	0.18
Hidden Springs Rd/ Carriage Way	A/B	0.04	A/B	0.03	A/B	0.03
Santa Anita Dr/Horton Rd	A/B	0.07	A/B	0.07	A/B	0.05
Santa Anita Dr/Pimlico Dr	A/B	0.10	A/B	0.11	A/B	0.11
Rosemont Rd / North Access	A/B	0.14	A/B	0.09	A/B	0.03
Rosemont Rd / South Access	A/B	0.03	A/B	0.02	A/B	0.03
All-Way Stop Controlled						
Rosemont Rd/Salamo Rd/Santa Anita Dr	C	0.58	C	0.55	D	0.92

Unsignalized intersections:
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement
All-Way Stop Controlled intersections:
LOS = Level of Service of crossroads
V/C = Volume-to-Capacity Ratio of Intersection

Turn Lane Warrant Analysis

A center left turn lane is planned on Rosemont Road along the project frontage. Therefore, a left-turn lane warrant analysis was not evaluated at the proposed access points. A right-turn lane warrant analysis was evaluated at the proposed project accesses for the 2012 Total Traffic scenario utilizing the National Cooperative Highway Research Program (NCHRP) methodologies. The analysis found a right-turn lane would not be warranted at either site access point during any of the peak hours analyzed. The right-turn lane warrant results and associated worksheets are attached in the Appendix.

Although the right turn lane warrant was not met at the site access points at Rosemont Road during the AM, midday or PM peak hour, the addition of a right turn lane would have benefits. Turn lane warrant analyses are based on average hourly traffic demands and do not take into consideration shorter peak demands that typically occur at school sites. The north site access would be expected to experience a 10 to 15 minute peak traffic demand just before classroom hours begin and just after classroom hours end resulting from parents dropping off and picking up students.

The south site access would also likely experience shorter peak traffic demand associated with employees work schedule. The school would also host various after hour events (such as sports, family events and community meetings) that would result in shorter peak traffic demands. The addition of a separate right turn lane at each site access point would allow for traffic to more easily access Rosemont Road and reduce overall vehicle delay.

Traffic Signal Warrant Analysis

A signal warrant analysis was performed for the Rosemont Road/Salamo Road/Santa Anita Drive intersection to determine if 2012 total traffic volumes would be high enough to warrant the installation of a traffic signal. For this analysis, the Manual on Uniform Traffic Control Devices[18] signal Warrant #3 (peak hour warrant) was assessed using the 2012 total traffic PM peak hour volumes. The analysis found the Rosemont Road/Salamo Road/Santa Anita Drive intersection would not warrant the installation of a traffic signal. The major street (eastbound and westbound approaches combined) would have 665 vehicles and the minor street (southbound approach) would have 424 vehicles during the PM peak hour. Based on the major street volume, the threshold to meet the peak hour warrant would be 550 vehicles on the minor street. The traffic signal warrant results are attached in the Appendix.

Access Spacing

There are two proposed site access points onto Rosemont Road. Rosemont Road is classified as an arterial by the City of West Linn. The City access spacing standards[19] require a minimum of 300 feet of spacing between private driveways and 600 feet between public intersections on an arterial. The proposed school access points would serve as private driveways, and require 300 feet of spacing. The site plan shows the proposed north access and south access would be located approximately 570 feet apart (measured centerline to centerline). The proposed spacing between the site access points would meet the City's spacing standard.

[18] Manual on Uniform Traffic Control Devices 2003 Ed., Federal Highway Administration, November 2004.
[19] City of West Linn Transportation System Plan, October 2008, Prepared by DKS Associates.

There are few driveways currently located on Rosemont Road near the project site, as the area to the west is outside the urban growth boundary and vehicle access to the east is generally provided by public streets. There are currently three single family driveways on Rosemont Road between Bay Meadows Drive and Hidden Springs Road (approximate distance of 1,300 feet). Two driveways are located on the east side of Rosemont Road. A single family driveway is located on the west side of Rosemont Road approximately 600 feet north of Bay Meadows Drive and would be located between the two proposed site access points (approximately 275 feet spacing from each site access).

The north access and south access would not meet the City Transportation System Plan's recommended access spacing standards for the adjacent residential driveways on Rosemont Road. Due to the single family nature of the nearby driveways on Rosemont Road and their expected low traffic volumes, no vehicle conflicts are anticipated with the substandard driveway spacing. The available sight distance is maximized at the proposed site access locations. If either site access point were to shift to the north or south, the sight distance may not be adequate. Also, it is preferred that the project site operate with two access points separating bus trips and parent/visitor trips to maximize safety and efficiency.

Sight Distance Evaluation

Preliminary sight distance was measured at the proposed site access points along Rosemont Road. AASHTO requires sight distance to be measured at a point 14.4 feet from the edge of the traveled way with a driver's eye height of 3.5 feet and an object height of 3.5 feet. The speed survey conducted on Rosemont Road found the average 85th percentile speed was 46 miles per hour. Based on AASHTO standards for a 45 mile per hour vehicle speed, the required sight distance for a stopped passenger car to turn left and right from the project access onto Rosemont Road is 500 feet and 430 feet respectively.

Sight distance measurements indicate that the proposed north project access has adequate sight distance in both the north and south direction. Sight distance at the south project access is restricted looking to the north when measured 14.4 feet back from the edge of the roadway (as required) due to existing thick vegetation. Therefore, some of the shrubs and trees north of the south project access would require trimming and/or removal in order to provide adequate sight distance. These shrubs and trees are located on private property that is not owned by the West Linn-Wilsonville School District. The School District and the City should work with the private property owner to remove some of the vegetation and improve the available sight distance. Prior to occupancy, sight distance at both proposed project access points to Rosemont Road will need to be approved by the City Engineer. The detailed sight distance analysis is provided in the Appendix.

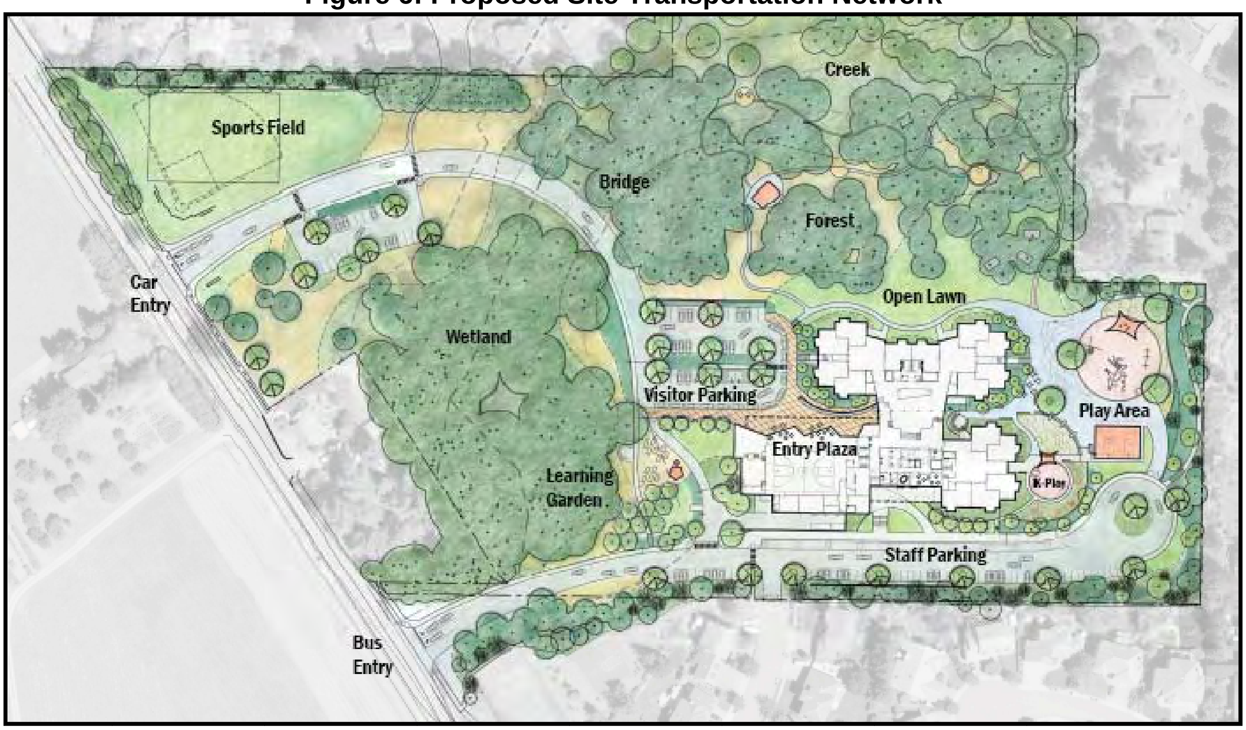
Site Plan Review

The proposed site plan was reviewed for connectivity and accessibility for both auto and non-auto modes including pedestrians and bicycles, both on-site and with the adjacent neighborhoods. The site plan was also evaluated to determine if bus and parent drop off/pick up areas would be sufficient. The findings of the site plan review are summarized below.

- The school's entry plaza and staff entrance would be connected to the planned sidewalks on Rosemont Road by continuous sidewalks along at least one side of the north site access roadway and south site access roadway. The school's secondary entrances (located on the back and sides of the building) and key outdoor uses (such as the play area, learning garden, and open spaces) would be connected by continuous pedestrian facilities.

- The site plan would provide several pedestrian and bicycle connections to the adjacent neighborhood. A path would be provided between the north site access roadway and Suncrest Drive. A path would also be provided between the end of the south site access roadway and Hidden Springs Court.
- The layout of the south site access roadway network would allow for adequate circulation to the staff parking area and the school bus loading/unloading area. The school bus loading/unloading area would provide curb storage for ten buses which should limit impacts to vehicle circulation.
- The layout of the north site access roadway network would provide adequate circulation to the visitor parking area and the parent drop off/pick up area. The parent drop off/pick up area would provide curb storage for 13 parents which should alleviate potential impacts to vehicle circulation.
- A gated emergency vehicle connection would be provided between the south access roadway and Bay Meadows Drive.
- A gated on-site motor vehicle connection would be provided between the north and south internal roadways for use during events to alleviate imbalanced exiting traffic demands at the site access points.

Figure 6: Proposed Site Transportation Network



Source: Dull Olson Weekes Architects and Walker Macy

Parking Analysis

The City of West Linn requires a minimum of one parking space[20] per employee plus one parking space per 1,000 square feet of floor area at a primary school. The proposed school could have up to 50 faculty members and 70,000 square feet of floor area[21]. Based on the City's requirements, the proposed project should provide a minimum of 120 parking spaces. Table 12 summarizes the amount of parking proposed for the school as well as the City's minimum requirements. Based on this analysis, the proposed 120 parking spaces at the primary school would meet the minimum City requirements.

Table 12: Proposed Project Parking Analysis

Development	Size	Parking Supply Code Requirement	Required Parking Supply	Proposed Parking
Primary School	50 employees	One space per employee	50 spaces	50 spaces
	70,000 SF	One space per 1,000 SF	70 spaces	70 spaces
TOTAL			120 spaces	120 spaces

Note: SF – square feet

[20] City of West Linn Community Development Code, Section 46.130
[21] Phone conversation with Karina Ruiz

DKS Associates
TRANSPORTATION SOLUTIONS

MEMORANDUM

TO: Tim Woodley, West Linn Wilsonville School District

FROM: Reah Flisakowski PE, DKS Associates

DATE: June 28, 2010

SUBJECT: Rosemont Road-Salamo Road Intersection Traffic Operations P09031-003

This memorandum provides supplemental analysis for the New West Linn Primary School Transportation Impact Study[1] as requested by the City of West Linn[2]. The transportation study included Rosemont Road/Salamo Road as a study intersection with traffic operating conditions based on existing traffic volumes. The City requested justification as to why the school's transportation study and the West Linn Transportation System Plan (TSP)[3] reported different existing PM peak hour traffic operating conditions for the Rosemont Road/Salamo Road intersection.

To meet the City's request, further review of the Rosemont Road/Salamo Road intersection operations was conducted. The review found the 2006 traffic count data collected for the TSP at the subject intersection was approximately 12 percent higher than 2010 traffic count data collected for the school's transportation study. The PM peak hour traffic volumes and operations for the Rosemont Road/Salamo Road intersection from each study are summarized in Table 1.

Table 1: Rosemont Road/Salamo Road Intersection Performance (PM Peak Hour)

Scenario	School Transportation Study		West Linn Transportation System Plan		Southbound Through-Right Turn Volume	Total Entering Volume
	LOS	V/C	LOS	V/C		
2006 Conditions			E	1.0	453	1,362
2010 Conditions	C	0.81			375	1,171

LOS – Level of Service
V/C – Volume to Capacity Ratio for Critical Movement

At the Rosemont Road/Salamo Road intersection, the southbound shared through-right turn lane is the critical movement during the PM peak hour. The TSP found the subject intersection operated at capacity (v/c of 1.0) in 2006 based on approximately 450 vehicles in a single lane approach. The 2010 southbound shared through-right turn lane volume decreased to 375 vehicles, resulting in improved traffic operations.

---

[1] New West Linn Primary School Transportation Impact Study, DKS Associates, June 2010.

[2] Completeness Review Memorandum, Khoi Le, City of West Linn, June 4, 2010

[3] West Linn Transportation System Plan, DKS Associates, December 2008.

DKS Associates
TRANSPORTATION SOLUTIONS

MEMORANDUM

TO: Tim Woodley, West Linn-Wilsonville School District

FROM: Reah Flisakowski, P.E.
Steven Boice, E.I.T.

DATE: July 2, 2010

SUBJECT: **West Linn Primary School Roadway Signing Analysis and Plans** P9031-003-000

This memorandum summarizes roadway signing recommendations for the proposed West Linn Primary School in West Linn, Oregon. The future school site is located on the east side of Rosemont Road, south of Hidden Springs Road/Wisteria Road and north of Bay Meadows Drive. The following sections present current school zone roadway signing practices, existing roadway conditions near the project frontage, and roadway signing recommendations. Preliminary roadway signing plans are attached illustrating the signing recommendations.

Current School Zone Roadway Signing Practices

Current roadway signing practices for school zones are based on the *Manual on Uniform Traffic Control Devices* (MUTCD)[1] and *Sign Policy and Guidelines* from Oregon Department of Transportation (ODOT)[2].

MUTCD

The MUTCD sets the national standards for traffic control devices along roadways including signing. Traffic control for school areas is covered in Part 7 of the manual. Uniform application of school signage is the best way to provide a safe school zone. Uniformity avoids confusion among road users and promotes consistent behavior. Key elements defined in the MUTCD regarding school signage include:

- School warning signs, any supplemental sign/plaques, and "school" portion of any sign shall have a fluorescent yellow-green background with black legend and border.
- A school sign (S1-1) shall be installed to identify the beginning point of designated school zone.
- Higher fines zone signs (R2-10, R2-6P) shall be installed supplemental to school sign where increased fines are imposed for traffic violations with designated school zone. An end school zone sign (S5-2) shall be installed at end of school zone when higher fines zone signs are used.
- A school speed limit sign (S5-1) shall be installed where a reduced school speed limit zone has been established.
- Reduced speed limit ahead sign shall be followed by a school speed limit sign if used.

---

[1] Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition, U.S. DOT FHWA, December 2009.
[2] *Sign Policy and Guidelines*, ODOT Project Development Branch Traffic Management Section, Chapter 7: School Area Signs.

1400 SW Fifth Avenue
Suite 500
Portland, OR 97201
(503) 243-3500
((503) 243-1934 fax
www.dksassociates.com

ODOT

Oregon law (ORS 111.111) requires the speed limit in any school zone to be 20 miles per hour or less anytime a school speed zone sign is flashing or between 7 a.m. and 5 p.m. on school days. School speed zone signing within the state falls into two categories, which are defined as Condition A (adjacent to school grounds) and Condition B (non-adjacent to school grounds). Key elements defined in the ODOT sign policy regarding school signage include:

- New school warning signs and any supplemental plaques shall have a fluorescent yellow-green background with black legend and border.
- Use of yellow and yellow-green school warning signs along any single school zone approach is prohibited.
- Where school speed limit zones are adjacent to school grounds (Condition A), the school speed limit sign (OS5-4) supplemental rider shall indicate “SCHOOL DAYS/7AM-5PM” or “WHEN FLASHING” depending on whether a flasher is used. The school speed limit sign should be placed 100 to 200 feet from school boundary.
- Where school speed limit zones that are non-adjacent to school grounds (Condition B), the supplemental rider shall indicate “WHEN CHILDREN ARE PRESENT” or “WHEN FLASHING” depending on whether a flasher is used. The school speed limit sign should be placed 100 to 200 feet from school boundary.
- School speed limit zone signs may omit the word “limit”
- Higher fines zone signs (R2-10, R2-6P) may be installed supplemental to school signs where increased fines are imposed for traffic violations with designated school zone. An end school zone sign (S5-2) or speed limit sign (R2-1) shall be installed at the end of a school zone when higher fines zone signs are used.
- No signs, delineators, or any other permanent or temporary traffic control devices should be located in or around the school zone.
- Reduced speed school zone ahead sign (S4-5) may be used where the posted speed is 40 miles per hour or higher.

Existing Conditions

The future primary school site is located on the east side of Rosemont Road, south of Hidden Springs Road/Wisteria Road and north of Bay Meadows Drive. The site is currently undeveloped. Rosemont Road consists of two lanes (one in each direction) and is classified as an arterial roadway[3]. It has a posted speed of 40 miles per hour within the future school zone. An existing asphalt pathway is located on the east side of Rosemont Road with the west side unimproved (no sidewalks).

The average daily traffic along Rosemont Road is approximately 5,110 vehicles (2,490 northbound and 2,620 southbound)[4]. A speed survey conducted on Rosemont Road found the average 85th percentile speed was 46 miles per hour[5] (44 miles per hour northbound and 48 miles per hour southbound).

---

[3] City of West Linn Transportation System Plan, DKS Associated, December 2008, Figure 8-1.
[4] Traffic counts conducted on January 6, 2010, Rosemont Road north of Bay Meadows Drive, All Traffic Data.

Rosemont Ridge Middle School is located approximately 1,800 feet to the south from the proposed primary school on the southwest corner of the Rosemont Road/Santa Anita Drive/Salamo Road intersection. The Rosemont Ridge school zone along Rosemont Road, Santa Anita Drive, and Salamo Road is defined by the use of 20 miles per hour school speed limit zone signs. Higher fees are imposed within the existing school zone. All existing school related signs are yellow and ground mounted. No flashers are currently used within the school zone and there is no school crossing along Rosemont Road.

School Signing Recommendations

The following section summarizes recommended school roadway signing for the proposed primary school for each nearby roadway. Illustration of the recommended signage is provided in the attached preliminary signing plan sheets. School roadway signage was prepared per the MUTCD and ODOT sign policy. These documents provide standards for roadway sign size, retro reflectivity, location, color, lettering, and spacing.

Rosemont Road

The proposed West Linn Primary School has an active frontage with access points on Rosemont Road. School speed zone signing along Rosemont Road should be provided in advance of the school zone per Condition A (adjacent to school grounds) requirements as set forth in the ODOT sign policy. Northbound and southbound approaches should consist of a series of warning signs in advance of the school zone as outlined below.

- School zone sign (S1-1) with ahead rider (W16-9)
- Fines higher sign (R2-6P) with school supplemental sign (S4-3P)
- School speed limit sign (OS5-4) with school days rider (OS4-8)

The end school zone sign (S5-2) should be provided at the end of the school zone in both travel directions. Due to the posted speed, a reduced school speed limit sign (S4-5) should be installed along the southbound school zone approach in advance of the school zone sign.

The school speed limit sign should be located approximately 200 feet in advance of the proposed school boundary and be located north of Bay Meadows Drive and south of Hidden Springs Road for the northbound and southbound approaches respectively. This ensures that turning traffic onto Rosemont Road will see the sign assembly. Signs along Rosemont Road should be spaced 200 feet apart per the posted speed.

It is recommended that the existing southbound speed sign (40 miles per hour) located along Rosemont Road opposite the school site be removed and relocated to the north prior to the proposed school zone signage. It is also recommended the existing northbound speed limit sign (40 miles per hour) located between Santa Anita Drive and Bay Meadows Drive be removed. These two signs would be located between two school zones and direct motorists to accelerate after leaving one school zone only to be directed to slow down for the approaching school zone. Removal of speed signs may require modification to the speed zones along Rosemont Road. Additionally, the adopt a road sign located just in advance of the speed limit sign opposite the school site should be removed and relocated to the south, outside of the school speed zone. The curve sign located in the southbound direction just prior to Bay Meadows Drive should be relocated to the south to provide adequate sign spacing with the end

---

[5] Speed survey conducted on January 6, 2010, Rosemont Road north of Bay Meadows Drive, All Traffic Data

school zone sign. It is recommended that no other non-school related signing be located within the school zone in accordance with the ODOT sign policy.

Hidden Springs Road

School zone sign (S1-1) with arrow rider (W16-6P) and higher fines sign (R2-6P) with school supplemental sign (S4-3P) should be installed along the westbound approach to Rosemont Road. These signs are used to warn drivers turning left onto Rosemont Road that a school zone speed limit sign is ahead. Signs along Bay Meadows Drive should be spaced 100 feet apart per the posted speed.

Wisteria Road

School zone sign (S1-1) with arrow rider (W16-6P) and higher fines sign (R2-6P) with school supplemental sign (S4-3P) should be installed along the eastbound approach to Rosemont Road. These signs are used to warn drivers turning right onto Rosemont Road that a school zone speed limit sign is ahead. Signs along Wisteria Road should be spaced 100 feet apart per the posted speed.

Bay Meadows Drive

School zone sign (S1-1) with arrow rider (W16-6P) and higher fines sign (R2-6P) with school supplemental sign (S4-3P) should be installed along the westbound approach to Rosemont Road. These signs are used to warn drivers turning right onto Rosemont Road that a school zone speed limit sign is ahead. Signs along Bay Meadows Drive should be spaced 100 feet apart per the posted speed.

Primary School Access (North and South)

Stop signs (R2-1) should be provided at the intersection with Rosemont Road for both proposed school accesses.

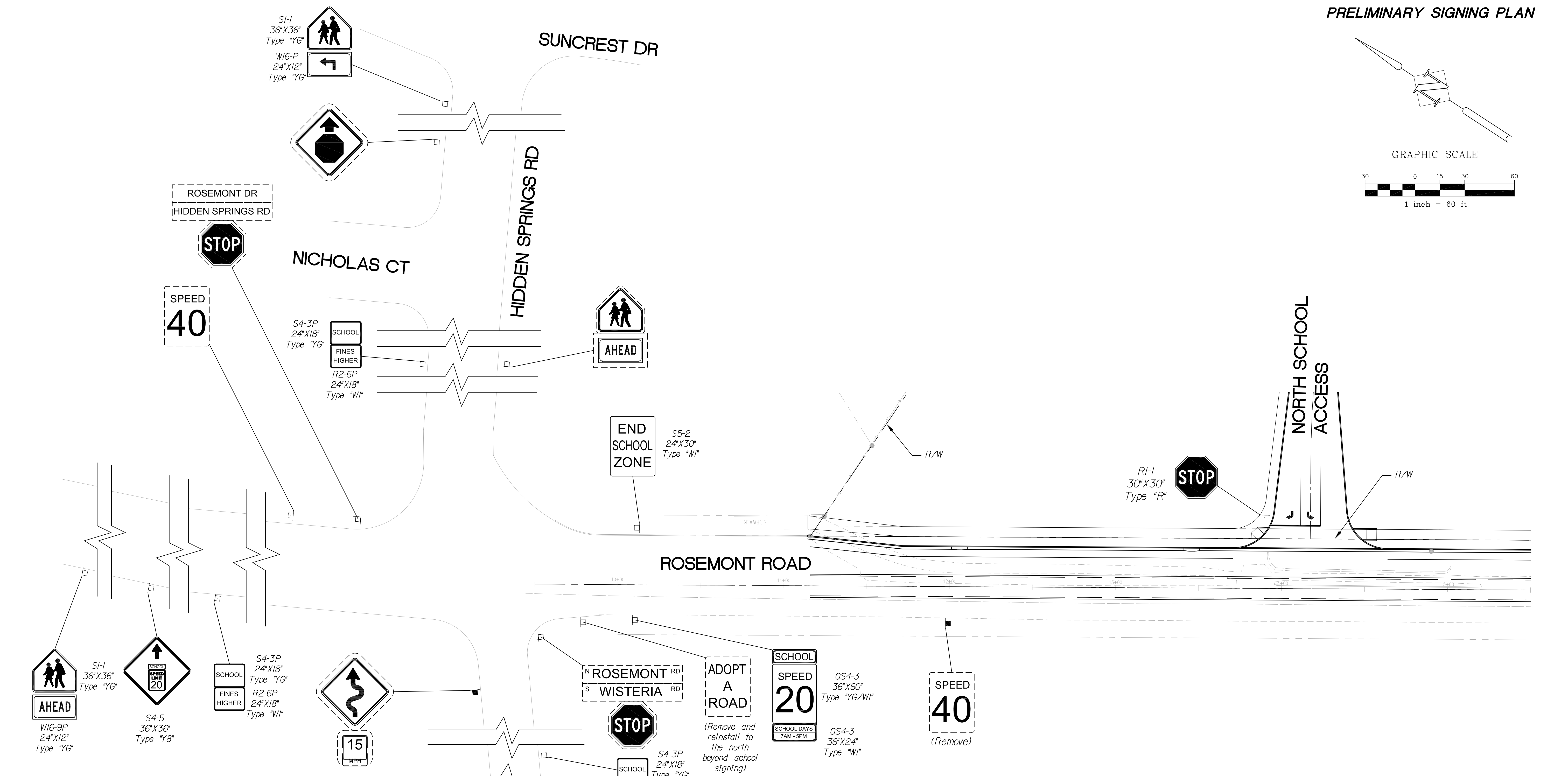
School Flasher and Nearby School Recommendations

It is recommended that flashers not be installed with the school speed zone signing (OS5-4) with the construction of the proposed primary school. This is consistent with existing school speed limit signing at the nearby Rosemont Ridge Middle School. Evaluation of flashers should be conducted after the school opens, taking into account potential development around the school (future school crossing on Rosemont Road and sidewalks), volume, and vehicle speeds within the school zone. A documented speed zone compliance issue would raise the need for a flasher.

The close proximity of Rosemont Ridge Middle School would not impact school signage for the proposed primary school. The two school zones would be located approximately 1,800 feet apart. Spacing on Rosemont Road between the first school zone sign and end of school zone sign would be approximately 1,000 feet in both directions.

Although existing school signs for the Rosemont Ridge Middle School are yellow, proposed signs for the proposed primary school should be fluorescent yellow-green. The use of different colored school signs is acceptable because school zone signing is separate for both school zones.

X:\Projects\2009\P09031-003 (West Linn Erickson Primary School TIS\CAD\09031_SN01.dwg



DKS Associates
TRANSPORTATION SOLUTIONS
1400 SW Fifth Avenue, Suite 500
Portland, Oregon 97201-5502
Telephone: (503) 243-3500
Fax: (503) 243-1934

WEST LINN PRIMARY SCHOOL
ROSEMONT ROAD
CITY OF WEST LINN

Reviewed By - DKS
Designed By - DKS
Drafted By - DKS CAD

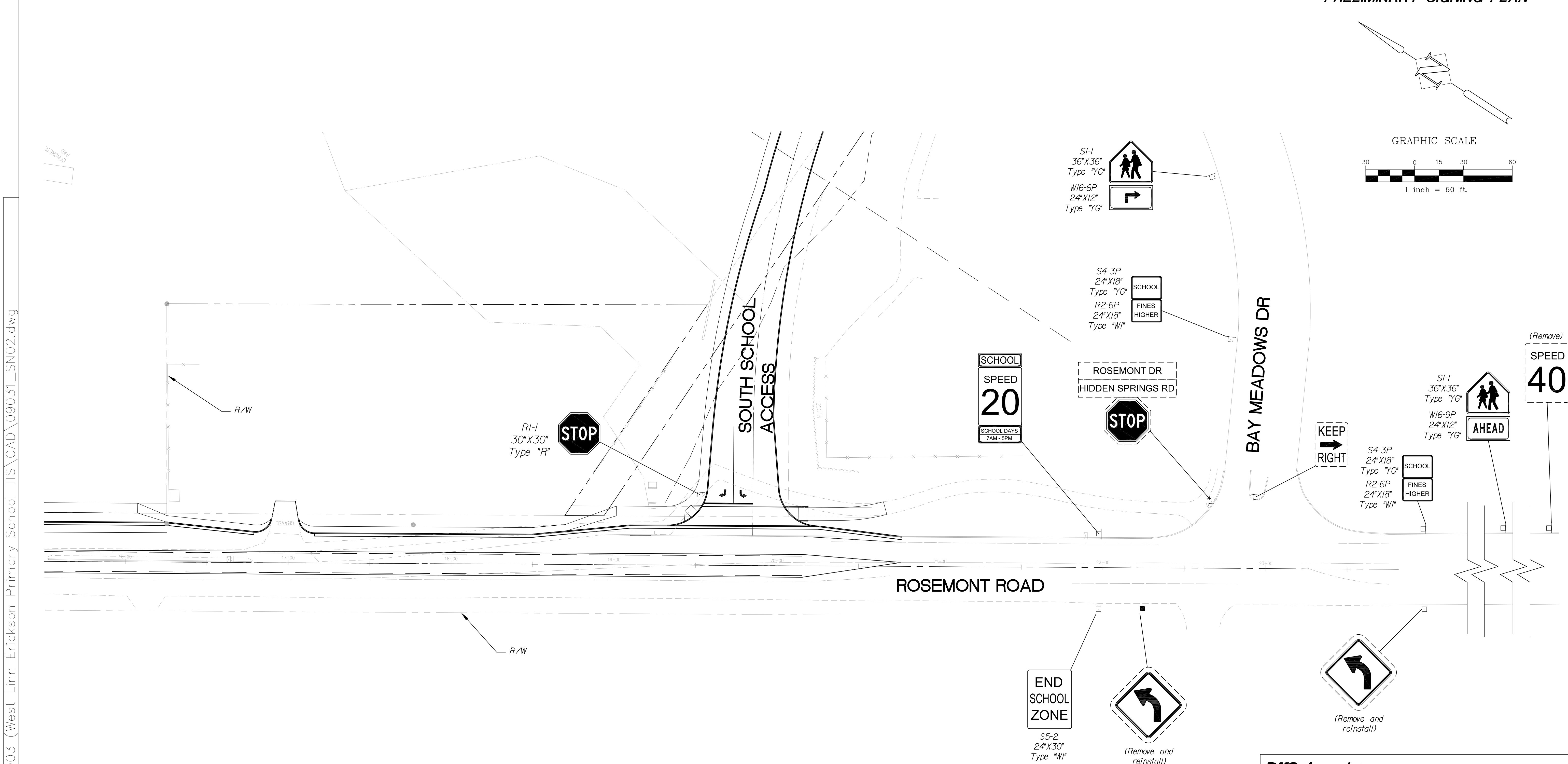
PRELIMINARY SIGNING PLAN

SHEET NO. SN

File No.

X:\Projects\2009\P09031-003 (West Linn Erickson Primary School TIS\CAD\09031_SN02.dwg

PRELIMINARY SIGNING PLAN



L E G E N D

- Steel
- Wood

NOTE:
SIGNS WITH BROKEN BORDER ARE EXISTING SIGNS.

DKS Associates
TRANSPORTATION SOLUTIONS
1400 SW Fifth Avenue, Suite 500
Portland, Oregon 97201-5502
Telephone: (503) 243-3500
Fax: (503) 243-1934

WEST LINN PRIMARY SCHOOL
ROSEMONT ROAD
CITY OF WEST LINN

Reviewed By - DKS
Designed By - DKS
Drafted By - DKS CAD

PRELIMINARY SIGNING PLAN

SHEET NO.
SN-02

File No.

WALKER·MACY

Landscape Architecture Urban Design Planning

MEMORANDUM

To: City of West Linn Planning Department

From: Caitilin Pope-Daum

Cc: Karina Ruiz, DOWA

Date: July 1, 2010

RE: New West Linn Primary School – Mitigation Plan

The site for the proposed New West Linn Primary School contains two water resource areas that have been identified by the West Linn Surface Water Management Plan. (See sheet LU2.01) The larger of the two runs roughly through the middle of the site, and is made up of Trillium Creek and associated wetlands. It will be referred to in this memo as the Trillium Creek WRA. The smaller water resource area lies at the southeast corner of the site, and consists of an undefined groundwater drainage ostensibly linked to a stormwater outfall at the south edge of the site. It also contains a small groundwater fed wetland (0.1 acre), also fed by the stormwater outfall. There is no channel associated with this drainage. In this memo the area will be referred to as the East Drainageway WRA.

Jurisdictional wetlands occur within each WRA. For the Trillium Creek WRA, permanent impacts have been permitted through an Army Corps of Engineers/Department of State Lands Joint Permit Application (see attached DSL Removal/Fill Permit Application). The resulting permit, DSL Permit #44165-RF is attached. Filling of the 0.1-acre wetland in the East Drainageway WRA will require a general authorization from the DSL, as indicated in the Winzler & Kelly Memo dated 6/25/2010. This approval from DSL is forthcoming.

There are a number of supporting documents which provide greater detail about proposed mitigation measures, and are referenced in this memo. They include:

- Wetland Delineation/Determination Report – WD#09-0240
- Wetlands Delineation Technical Memo by W&K, 1.18.10 – WD#10-061
- DSL Removal/Fill Permit Application #APP0044165
- Applicant's response to comments on the JPA
- DSL Permit #44165-RF
- Stormwater Report by Winzler & Kelly dated June 2010 (revised 6/17/2010)
- Assessment Area E Water Resource Area Memo by Winzler & Kelly dated June 25, 2010
- Erosion Control Plan (LU1.03)

- Planting/Irrigation Plans (LU2.04 and LU2.05)

The following is a summary of the mitigation and revegation plan for impacts to Water Resource Areas, as required by CDC sections 32.070 and 32.080.

<u>Trillium Creek WRA</u>

The larger water resource area is a riparian corridor made up of Trillium Creek and its associated wetlands. The Creek and the wetlands all fall under Army Corps/Department of State Lands jurisdiction.

Mitigation, pursuant with CDC section 32.070:

A. The alternatives analysis for impacts to the Trillium Creek WRA is contained within the DSL Removal/Fill Permit Application Section 5. Wetland impacts were avoided to the maximum extent.
B. Required information for the mitigation plan:
    1. Adverse impacts to the Trillium Creek WRA consist of road crossings required to access the school site. A more detailed description is contained in the DSL Removal/Fill Permit Application.
    2. An explanation of how adverse impacts are avoided/mitigated is included in the DSL Permit Application. Impacts to the 50' buffer that are not included in the DSL permit will be mitigated for with 1:1 revegetation, as described below.
    3. Ultimately, the District will be responsible for all mitigation. Before commencing work in this area, the District will work with the City to identify all other parties responsible for work on the development site.
    4. Refer to sheets LU2.04 and LU2.05 (or DSL Permit) for location of mitigation activities.
    5. Initial clearing of the invasive species on the site will be done in advance of the site grading. The remainder of the mitigation plan will be implemented concurrently with the grading of the project and phased to avoid damage to mitigation areas.
    6. The District will provide the necessary bonding requirements. These will be coordinated with the City and other jurisdictions as necessary.
    7. A Joint Permit Application has been submitted and approved. See attached DSL permit #44165-RF. The compensatory mitigation plan is contained in the Permit in its entirety
C. Within the Trillium Creek WRA, there will be permanent disturbance to the 50' buffer at the road crossings. This area will be mitigated for on a 1:1 ratio, and revegetated according to the requirements of CDC section 32.080. See sheet LU2.05 for location of these mitigation areas, and calculation of "Trillium Buffer Mitigation."
D. The wetland mitigation program is being overseen by Nancy Olmsted, a Certified Wetland Delineator and Wetland Scientist with Winzler & Kelly. The mitigation is occurring on site.
E. The JPA and the City of West Linn require a 5-year monitoring program of the mitigation area. The District will contract with a Certified Wetland Specialist to

conduct this monitoring program and work with the City to come to an agreement on long term protection of this area.

Revegetation, pursuant with CDC section 32.080:
Within the Trillium Creek WRA there will be revegetation along the roadways to repair construction related disturbance, and revegetation to meet mitigation requirements for permanent disturbance to both of the water resource areas. (See sheets LU2.04 and LU2.05) These areas will be revegetated to meet the standards of CDC section 32.050. All plants used for required revegetation will be found on the Metro native plant list.

A. Revegetation within the WRA will receive temporary irrigation from June 15 through October 15 for three years following planting.
B. All invasive non-native and noxious vegetation will be removed prior to planting.
C. Replacement trees will be at least one-half inch caliper, and shrubs at least one-gallon container.
D. Trees will be planted from 8 and 12 feet on-center. Shrubs will be planted between 4 and 5 feet on-center, clustered in single species groups of no more than 4 plants.
E. Shrubs will consist of at least two different species, and where 10 or more trees are planted, no more than 50% of the trees will be of the same species.
F. The School District will provide documentation that 80 percent survival of plants has been achieved after three years, and will provide annual reports to the Planning Director on the status of the revegetation plan during the three year period.

<u>East Drainageway WRA</u>
The second, smaller water resource area is an undefined groundwater drainage, ostensibly linking a stormwater outfall to a storm drain at the southeast corner of the site. In the middle of this area is a small, isolated, groundwater-fed wetland (0.1 acre) fed by the stormwater outfall. The wetland falls under the jurisdiction of the DSL, and proposed filling of this wetland will be permitted under a general authorization granted by the Oregon Department of State Lands per the Winzler & Kelly memo dated 6/25/2010.

Mitigation, pursuant with CDC section 32.070:

A. The alternatives analysis in Section 5 of the DSL Removal/Fill Permit Application also pertains to the East Drainageway WRA. Based on this analysis, the decision was made to develop the area included in the East Drainageway WRA because it represents a lower quality water resource than the Trillium Creek WRA. For further discussion of development decisions relating to the East Drainageway WRA, refer to the narrative discussion of the variance requested under CDC section 32.090.
B. Required information for the mitigation plan:
    1. Impacts - The East Drainageway WRA will be re-aligned to accommodate the proposed school playground. In place of the current undefined drainage, the water from the stormwater outfall will be directed through a defined channel, planted with native vegetation. Under the provisions of CDC 32.090, the setback for this drainage area has been reduced to 15 feet. See sheet LU2.05 for location of re-aligned drainageway and setback and typical planting. See the Stormwater Report by Winzler & Kelly for a complete description of this channel.

2. As mitigation, pursuant with CDC section 32.090(C)2, an area equal to the area lost through the reduced transition/setback will be revegetated to meet the standards of CDC 32.050 and 32.080. This revegetation will occur adjacent to the existing wetlands of the Trillium Creek WRA. See sheets LU2.04 and LU2.05 for the location of these mitigation areas and associated area calculations.
3. Ultimately, the District will be responsible for all mitigation. Before commencing work in this area, the District will work with the City to identify all other parties responsible for work on the development site.
4. Refer to sheets LU2.04 and LU2.05 for location of mitigation activities.
5. The initial clearing of the invasive species on the site will be done in advance of the site grading. The remainder of the mitigation plan will be implemented concurrently with the grading of the project and phased to avoid damage to mitigation areas.
6. The District will provide the necessary bonding requirements. These will be coordinated with the City and other jurisdictions, as necessary.
7. In the East Drainageway WRA, there are no impacts to wetlands greater than 0.10 acres, and no Joint Permit Application is required.

C. Permanent disturbance to the WRAs that is not wetlands will be mitigated through the creation of a mitigation area equal in size to the area being disturbed. See sheets LU2.04 and LU2.05 for location of mitigation areas, and calculations of "Drainageway Mitigation."
   1. The mitigation areas occur on-site. They are located adjacent to existing wetland or DSL mitigation areas. The existing understory on these sites is dominated by Himalayan blackberry and English ivy, and thus does not meet the standard set forth in CDC section 32.050(K).

D. The wetland mitigation program is being overseen by Nancy Olmsted, a Certified Wetland Delineator and Wetland Scientist with Winzler & Kelly. The mitigation is occurring on site.

E. The JPA and the City of West Linn require a 5-year monitoring programming of the mitigation area. The District will contract with a Certified Wetland Specialist to conduct this monitoring program and work with the City to come to an agreement on long term protection of this area.

Revegetation, pursuant with CDC section 32.080:
Within the re-aligned drainageway of the East Drainage WRA, as well as within the designated drainageway mitigation areas, all revegetation will be done to bring the area to the standards of CDC section 32.050. At maturity, there will be a minimum of 50% canopy cover. All plants used for required revegetation will be found on the Metro native plant list.

A description of planting in the re-aligned drainageway can be found in the Stormwater Report by Winzler & Kelly. The outer edges of this Water resource area will be part of the required screening planting at the property line. The shrubs and trees in this screening planting will meet the same standards that have been described for the rest of the revegetation areas. Plant sizes and densities will be increased as necessary to meet screening requirements.

A. Revegetation within the WRA and mitigation areas will receive temporary irrigation from June 15 through October 15 for three years following planting.
B. All invasive non-native and noxious vegetation will be removed prior to planting.
C. Replacement trees will be at least one-half inch caliper, and shrubs at least one-gallon container.
D. Trees will be planted from 8 and 12 feet on-center. Shrubs will be planted between 4 and 5 feet on-center, clustered in single species groups of no more than 4 plants.
E. Shrubs will consist of at least two different species, and where 10 or more trees are planted, no more than 50% of the trees will be of the same species.
F. The School District will provide documentation that 80 percent survival of plants has been achieved after three years, and will provide annual reports to the Planning Director on the status of the revegetation plan during the three year period.

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

This form must be included with any wetland delineation report submitted to the Department of State Lands for review and approval. A wetland delineation report submittal is not "complete" unless the fully completed and signed report cover form and the required fee are submitted. Attach the form to the front of an unbound report and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**

Mail a copy of the completed form with payment of the required report review fee to: **Oregon Department of State Lands, P.O. Box 4395, Unit 18, Portland, OR 97208-4395.**

For new credit card payment option, see DSL web site.

☐ Applicant ☒ Owner Name, Firm and Address: **West Linn-Wilsonville School District 3TJ** **PO Box 35** **West Linn, Oregon 97068** **Attn: Tim Woodley**	Business phone # **(503) 673-7976** Mobile phone # (optional) FAX # E-mail: **Woodleyt@wlwv.k12.or.us**
☐ Authorized Legal Agent, Name and Address:	Business phone # FAX # Mobile phone # E-mail:

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Tim K. Woodley Signature: [signature]

Date: 5.28.09 Special instructions regarding site access:

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: **Erickson Primary School Site**	Latitude: **45°22'30.37"** Longitude: **122°39'04.96"**
Proposed Use: **Elementary School (K-12)**	Tax Map # **21 E 23 CD Supplemental 2**
Project Street Address (or other descriptive location): **1025 Rosemont Rd**	Township **T2S** Range **R1E** Section **23, 26** QQ **SESW** Tax Lot (s) **12301, 12500, 12700, 12800**
City: **West Linn** County: **Clackamas**	Waterway: **Trillium Creek** River Mile: **N/A** NWI Quad(s): **Lake Oswego & Oregon City**

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: **Nancy Olmsted, Winzler & Kelly** **15575 SW Sequoia Parkway #140** **Portland, OR 97224**	Phone # **503-226-3921** Mobile phone # **503-701-9987** FAX # **503-226-3926** E-mail: **nancyolmsted@w-and-k.com**

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.

Consultant Signature: Nancy Olmsted Date: 5-28-09

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No | Study Area size: **19.5 ac** | Total Wetland Acreage: **2.92 ac**

Check Box Below if Applicable: **Fees:**

☐ R-F permit application submitted	☒ Fee payment submitted **$ 364**
☐ Mitigation bank site	☐ Fee ($100) for resubmittal of rejected report
☐ Wetland restoration/enhancement project (not mitigation)	Name of Payor:
☐ Industrial Land Certification Program Site	

Other Information:

	Y	N	
Has previous delineation/application been made on parcel?	☒	☐	If known, previous DSL # **WD # 93-0131**
Does LWI, if any, show wetland or waters on parcel?	☒	☐	

For Office Use Only

DSL Reviewer: ______	Fee Paid Date: ___/___/___	DSL WD # ______
Date Delineation Received: ___/___/___	DSL Project # ______	DSL Site # ______
Scanned: ☐ Final Scan: ☐	DSL WN # ______	DSL App. # ______

Form Effective January 1, 2008

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name: Erickson Site PS	Evaluator Attended ☐ Orientation ☐ Field Training
Address: 1025 Rosemont Road	Date: 2/27/09
Waterway Name: Trillium Creek	Coordinates at downstream end (ddd.mm.ss): Lat. 45.22"35 N; Long. 122.38'__ W
Reach Boundaries: Headwaters in W. Hidden Springs Ct	

Precipitation w/in 48 hours (cm)	Channel Gradient (%)	Channel Width (m)
0.2	2%	0.5

Observed Hydrology:

"Dry Channel": ☐ Water Absent ☐ No surface flow but at least one pool present

"Wet Channel": ☒ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☒ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☒ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☒ 1	☐ 2	☐ 3
	4. Erosional Features	☐ 0	☐ 0.5	☒ 1	☐ 1.5
	5. Depositional Features	☐ 0	☐ 1	☒ 2	☐ 3
	☐ Check this box if >50% of the streambed consists of exposed bedrock				
	6. Sinuosity	☐ 0	☐ 1	☒ 2	☒ 3
	7. Headcuts And Grade Controls	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:	9			
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☐ 0	☒ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☐ 0	☐ 1	☒ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☒ 0
	11. Debris Piles And Wrack Lines	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☒ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:	3			
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5 ☒ FACW 0.75	☐ OBL 1.5	☐ SAV 2	☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☒ 3	☐ 2	☐ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☒ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Fiocculent	☐ 0	☒ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☐ 0	☒ 1	☐ 2	☐ 3
	18. Amphibians	☐ 0	☒ 0.5	☐ 1	☐ 1.5
	19. Fish	☒ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☒ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:	6.75			
	★ TOTAL SCORE:	18.75			

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Note: Scoring scale is reversed for indicators marked with ▼.

Flow Duration (select only one)

- **Ephemeral** ☐ Total Score < 13
- **Intermittent** ☒ Total Score ≥ 13 **or** Single Indicator
- **Perennial** ☐ Total Score ≥ 25

Notes (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: ____________________________

Describe and Explain any Indicators of Questionable Applicability:

In center portion of the study area. Creek channel is ill defined and contains feeder channels from underground seeps of springs.

Other Notes (sketch of site, description of photos, depth of observed groundwater, etc.)

Refer to wetland delineation report maps, figures and photographs.

Wetlands/Waters Delineation Report for

West Linn Wilsonville School District Erickson School Site

May 20, 2009

Prepared by
Nancy Olmsted

WINZLER & KELLY

Winzler & Kelly
15575 SW Sequoia Parkway #140
Portland, OR 97224

TABLE OF CONTENTS

This wetland report is being submitted for review conducted in accordance with Oregon Administrative Rules (OAR) 141-090 implemented by the Oregon Department of State Lands.

A. Site Description, Landscape Setting

OAR141-090-0035 (7)(a)

The project site and wetland study area is located in West Linn, roughly between Hidden Springs Road and Bay Meadows Drive, southwest quarter section of Section 23, Township 2 South, and Range 1 East, W. M. The study area boundary is dictated by the parcel boundaries to the south and east, and by Rosemont Rd. to the west, and Hidden Spring Rd. to the north. Rosemont Rd. is the west edge boundary, and the residential streets of Hidden Springs Court and Clubhouse Drive are the eastern limits, and Cheyenne Terrace and Bay Meadows Drive to the south. See Appendix A, Figure 1.

The Erickson School site lies in the upper reaches of the Trillium Creek, a tributary that flows east under Santa Anita Drive, to the middle Willamette River at about river mile 24, below the Willamette's confluence with the Clackamas River. The project site drains from southwest to northeast diagonally. There is an elevation change from south to north, in that the lands slope toward the creek channel. There are numerous swales throughout the wooded area that demonstrate overland flow, again along the diagonal gradient from southwest to northeast of the study parcel. Seeps are prevalent in the central portion of the site. The seeps create a dense swampy area that is much broader than the Trillium Creek channel. The entire vicinity is in Clackamas County, which historically has been used for agriculture and larger farms. Lands on the west of Rosemont Road have been used for agriculture and are cultivated for grass. The lands surrounding the site are used for the Hidden Springs Ranch No. 4 Tract F to the east, the Arena Park subdivision to the north, and the Hidden Springs Ranch No 8 – Phase III subdivision to the south. The homesteads for three residences occur within the study area. One of the structures has been razed; however, the flat slab foundation is still intact. In recent years, the grasses and blackberries have encroached to where the school district has had to maintain it with mowing to exclude the blackberry from future intrusion.

B. Site Alterations Current and Past Land Use

OAR141-090-0035 (7)(c)

Soils, hydrology, and vegetation in the study area have been altered by those using the land for their homestead, or residents that currently live outside of the study area boundary. The property owners have diverted surface water away from their properties and onto the study area. The exact timing and purpose for the alteration is not immediately apparent, but where it can be determined, it is noted below.

B.1 Soils

Soils were found to be fairly undisturbed and true to the soil survey. There may be some disturbance to soils in the vicinity of the existing buildings, or in the open grassy field, but no major soil disturbance has occurred as any recent development took place on the perimeter and beyond the study area.

B.2 Hydrology

The hydrology of the site has been altered in a number of locations, and for an indeterminate period of time. On-site alterations have occurred on the main channel by placing a log to dam up the middle of the creek (Photo 1). The wetland headwaters has been driven through by vehicles enough that there is no distinct appearance of a wetland; rather it looks like pockets of surface water that refuse to drain.

Photo 1 Hydrology alteration – open water pond formed by log across creek channel

Trillium Creek channel has been diverted into a pipe by the adjacent property owner north of the project site (Photo 2).

Photo 2 Hydrology alteration – Trillium Creek diversion by resident north of study area

This effectively drains the main channel and discharges the creek outside of the private resident's property line on the central portion of the Erickson School site.

At the southwestern side of the study area, impervious surfaces, streets, and rooftops directly discharge runoff through a series of pipes and culverts to the grassy area of the study area (Photo 3).

Photo 3 Hydrology alteration – Storm water drain pipe from Bay Meadows Drive subdivision

This creates an artificially ponded area that does not infiltrate quickly in the grassy swale, and it raises the water table in some of the upland areas surrounding the discharge point (Photo 4).

B.3 Vegetation

Plant communities that exist on the project site include: deciduous broadleaf woodland; grass dominated fallow field; and conifer forest upland. There were no observed factors that altered the community types on the site except the seasonal practice of mowing the edge of the forest to attempt to minimize the blackberry species proliferation.

Photo 4 Hydrology alteration – Wet area formed by storm drainage discharging directly to project study area

Deciduous broadleaf woodland

These communities are dominated by Western crabapple (*Malus fusca),* red alder (*Alnus rubra*), hazelnut (*Corylus cornuta),* Oregon ash (*Fraxinus latifolia),* and the invasive shrub, Himalayan blackberry (*Rubus discolor)*. The understory, while not dense, contains perennial woody shrubs and saplings that include an occasional Indian plum (*Oemeleria cerasiformis*), trailing blackberry (*Rubus ursinus)* and annual grasses (*Agrostis stolonifera),* sedges (*Carex deweyana),* ferns (*Blechnum spicant*) and forbs (Photos 5 and 6). Most of the forbs were still in the bud or underground during the time of the field work (February 27 and March 3, 2009), and all of the grasses were recumbent and culms were senescent. The current condition of this community in the transition zone between the broadleaf plants and mature trees is a thicket of blackberry canes, which creates an "edge effect" around the perimeter of the deciduous woodland as it transitions to upland grassland. This effect is partially the result of the maintenance mowing that has been done each year by the property owner. Mowing will not permanently remove the blackberry and actually enhances sunlight which stimulates plant growth.

Photo 5 Vegetation – Deciduous broadleaf woodland community

Photo 6 Vegetation – Deciduous Riparian forest

Grassland

A variety of grasses dominate the upland community which is a fallow hay field, relatively flat on both the north and south sides of the parcel as shown on Figure 5 Aerial Map, Appendix A.. The grasses are associated with Black hawthorn (*Crataegus douglasii)* in a few clusters within the open field (Photo 7). Grasses were old dry culms thus not distinguishable from the field survey (February 27 and March 3, 2009) Based upon a previous delineation (DEA 1993), the grasses are most likely wild oat (*Avena sativa)*, common velvetgrass (*Holcus lanatus*), spreading bentgrass (*Agrostis stolonifera)* and common timothy (*Phleum pratense)* interspersed with trailing herbs such as bedstraw (*Galium triflorum).* The grass community along the southwest quadrant of the study area is dramatically altered by continual runoff from properties to the south of the parcel line (refer to section B.2 Hydrology above).

Photo 7 Vegetation – Grassland

Conifer Forest

Douglas fir (*Pseudostuga menzeisii)* dominates the coniferous forest in the center of the study area and the stand has an 80 percent canopy cover (Photo 8). The stand of conifers contains several mature Oregon white oak (*Quercus garryana).* The understory is Himalayan blackberry along the perimeter. The interior of the tree stand is typical of dense conifer with a limited shrub layer, and conifer duff groundcover, forbs and bryophytes. There are a few invasive species in the understory, blackberry, common thistle (*Cirsium vulgare)*, holly (*Ilex aquifolium),* and ivy (*Hedera helix).* The conifer forest is intact with second growth 15 – 24 inch dbh elements. The interface between conifer forest and grassland is generally a thicket of blackberry. Attempt to control the blackberry by cutting or mowing has not eliminated the plant, but may actually have caused it to become more vigorous.

Rosemont Road to the west and Arena Park Subdivision to the north have allowed man to use some of the study area for dumping lawn clippings and woody debris. The core of the study area contains a swampy area where the deciduous trees have either died as snags or have toppled and created moss covered logs that cross the creek.

Photo 8 Vegetation – Conifer forest community

C. Precipitation Data and Analysis

C.1 Climate and Growing Season

The study area climate is typical of the mid-Willamette River Valley region. Average annual temperature is 45 to 55^{o}F (7 to 13 ^{o}C) and average annual rainfall is 45 in. (1,145 mm) across much of the lowlands of the Willamette Valley. The growing season had begun on the project site as there was bud burst on woody plants and emergence of herbaceous plants from the ground. The monitoring site indicates that 50 percent of the time the air temperature is 28 ^{o}F or higher between February 17 and December 4 each year. The field work was conducted February 27 and March 3 2009 which falls within this definition of growing season.

C.2 Precipitation and NRCS WETS table Summary

OAR 141-090-0035(7)(i)

Daily precipitation records were obtained from the Oregon Climate Center for the closest precipitation monitoring station to the study area, as shown in Table 1. The Normal Precipitation was evaluated using the WETS station at Oregon City, OR6334.

Table 1 Monthly Summary of Normal and Recorded Precipitation

Table 1. Summary of Normal and Recorded Precipitation between December 2008 and January 2009 and February 2009 Portland, Oregon				
Category	***December 2008***	***January 2009***	***February 2009***	***Total Water Year to Date***
Recorded Precipitation	(2.70 in.)	(4.50 in.)	(1.36 in.)	(8.56 in.)
Precipitation Average	(0.09 in.)	(0.16 in.)	(0.05 in.)	(0.30 in.)
Monthly Normal ***30% Chance More Than*** ***30% Chance Less Than***	(8.72 in.) (5.01 in.)	(7.99 in.) (4.36 in.)	(6.54 in.) (3.86 in)	(49.50 in.) (38.21 in.)

Note: Precipitation data obtained from the WETS station recorded at Oregon City, OR (OR6334) Oregon, Latitude: 4521 Longitude: 12236

Table 2 Daily Summary of Normal and Recorded Precipitation

Table 2. Summary of Normal and Recorded Precipitation between February 11 2009 and March 2, 2009 Portland, Oregon														
Days Before	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Total
Actual precip.	trace	0	0	0.02	0.01	0.01	0.32	0.34	0.1	0.1	0	trace	0.04	0.14	1.08

Note: Precipitation data obtained from the Oregon Climate Center and was recorded at Portland Airport, PDX Stn, Latitude: 4535 Longitude: 12236

C.3 Wetland Hydrology and Analysis

The actual measured precipitation at the Oregon City station appears to be lower in the three months prior to March 2009 than total average rainfall in previous years (Table 1). However, few large precipitation events occurred on the days prior and during the site visits, so the surface water observed reflects above average conditions for the time of the assessment.

At the time of the delineations, February 27, 2009 and March 3, 2009, weather conditions were clear and cool, and overcast, light rain, and cool, respectively. The second day of the fieldwork, there had been 0.14 to 0.27 inches precipitation within the previous 24 hours. This fact could actually result in a false positive indicator for hydrology in some of the test plots and soil pits. Rain totals for Portland at the nearest WETS station were relatively higher for the previous week and between 0.01 and 0.18 inches each day for the week prior to that as shown in Table 2. Total rainfall at the gauge for March 2009 (partial month) was measured at 2.15 inches, a departure of 0.10 inches (105%) an average rainfall year. In the months prior to the field investigation, precipitation was variable and generally lower than average. Forty three percent (43%) of average rainfall occurred in February, only eighty-nine percent (89%) fell in January, and December saw a total of forty-seven (47%) percent of normal precipitation compared to historical average rainfall totals in the area.

D. Field Methods (site specific methods for field investigation)

OAR141-090-0030, OAR141-090-0035 (7)(d-e), (g-h), (16)(a-b), (f), (d) or (g), (17), & (19-20)

This section describes the site specific methods that were employed to determine the wetland status of the study area.

- Site visit date(s): February 27, 2009 and March 3, 2009.
- Use of 1987 Corps Manual and 2008 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region.
- Off-site data collection and observations used include aerial photographs, Google Earth, Goals 5 Mapping from the County, the West Linn Local Wetland Inventory, National Wetland Inventory, and Clackamas County soils survey. These were all collected and reviewed prior to the field work
- First observation of the study area was there is a dense overstory across much of the study area and the trees are second growth approximately 70 – 150 feet in height which makes aerial photography interpretation of wetlands difficult. The creek was not continuous; therefore, it was not an indicator of potential wetlands. Also, the tree stands were encroached upon by invasive blackberry vines that have formed a dense ring around the vegetated areas of the study area. Since it is an old homestead, there are patches of the study area that have been mowed or controlled by pasturing or growing hay. The wetland areas were therefore examined more closely in the lower elevations which traverse from west to east across the entire study area. The adjacent properties were examined to determine the potential for the creek to be unencumbered and have a rather well developed riparian zone free of invasive plant species.
- Fifteen sample plots were selected based upon the functional areas within the project site: wetland headwaters to the creek, areas that were described in the Local Wetland Inventory, ordinary high water of the creek, edges of the vegetative cover conifer to deciduous transition, grassy areas that were hummocky to determine if hydric soils or high water table existing in the disturbed grass lands.

- Paired plots were located at several key areas around the study area to assist in locating the upland/ wetland boundary. For some vegetation communities, a single soil pit was dug to determine soil characteristics, and to confirm that there was no subsurface hydrology.
- A sample plot that best represents the characteristics of each of the wetlands and adjacent non-wetland areas was selected and photographed.
- There were several plots taken in the seep area in the center of the study area to determine the extent of saturation throughout the portion of the site that had no defined channel. The site alterations from recent subdivision development were noted. These factors were each noted in the field notes, on data sheets, and in photographs. For purposes of the delineation, the hydrological disturbances were considered "normal circumstances".
- The field characteristics that were observed on site to indicate the ordinary high water mark (OHWM) was the top of bank on either side of the narrow channel, flagged and surveyed in interpolated between flags.
- The wetland areas that appeared in the Local Wetland Inventory were not observed in the exact locations during the field investigation. Many of the dominant plant species were not forested wetlands species, but rather, were upland conifer forest plants typical of the Pacific Northwest Willamette Valley plant association. After careful examination of the entire study area, it became apparent that the springs and seeps arising from the geology of the specific site have formed a swampy area that may increase or decrease in size from year to year. Moreover, areas where the hydrology is being enhanced by the continuous flooding of the southern part of the study area from manmade nonpoint and point surface water runoff discharges from adjacent properties was documented.

D.1 Soils

Soils at each representative wetland sample point were typically inspected to a depth of 40 to 50 cm (16 to 20 in) to determine the presence or absence of hydric soils (wetland conditions). Soil hue, value, and chroma were determined using Munsell Soil Color Charts (Munsell Color Services 1998 with supplemental information about soil features from the Corps Supplemental Manual April 2008.

At each sample location for each soil horizon, the moist soil color, texture, and presence of redoximorphic features was noted. Most of the soil was saturated so it was taken from the field and allowed to oxidize if it was reduced. Changes in soil matrix color were noted and distinct or prominent iron redox concentrations were described.

The entire horizon of the study area was observed to determine if there appeared to be areas that were not native soil, but may have been used for fill or extraction of material. The study area was examined for problematic soils as described in Part 5 Difficult Wetland Situations, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps of Engineers April 2008). No problematic soils were found.

D.2 Hydrology

Hydrology was evaluated in various ways throughout the study area. First the creek was located by examining the flow, channel shape and ordinary high water mark at the east end of the study area as the creek flows off the property and through a culvert under the road that demarks the eastern boundary of the study area. Surface hydrology was then noted and photographed in a range of sample points across the study area. Places where the surface ponding was obviously linked to a manmade feature, it was noted. Hydrology was also determined from test pits, noting saturation in the top 12 inches or a high water table. Where the pit did not fill up with water within 30 minutes, soil was returned to the pit and the surface level was returned to it's original state. Some test pits did not hold their shape as the entire soil was unsolidified muck. Secondary indicators were used where primary features were not evident (i.e., geomorphic factors, drainage patterns, water stained leaves).

D.3 Vegetation

The vegetation was identified and determined the various indicators using the USDA Natural Resources Conservation Service 2008 PLANTS Database, Wetland Plants of the Pacific Northwest (Cooke 1997), and Pacific Northwest Flora (Hitchcock & Cronquist 1973). The methods used were as described in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Corps of Engineers April 2008). Dominance was typically the way the hydrophytic plant status was assessed, although some of the plants within the quadrants were upland plants. Notes were taken of the measures that may have altered the plant species mix, such as mowing, clearing, and/or agricultural field that is routinely plowed/seeded. Also, there were many plants still in the bud or seed, and/or died back from previous years (i.e. grasses).

At each sample point, the percent cover for each dominant species in the plot area was visually estimated and recorded. The average sample point has a 1.5-m (5-ft) radius for herbs, saplings, and shrubs, and a 9-m (30-ft) radius for trees and woody vines. In most case plant coverage was less than 100% as the trees and shrubs are open canopy and spaced fairly well apart. However in a few cases when percent coverage per strata was greater than 100 percent, the percentages were normalized prior to determining the dominant species.

E. Description of All Wetlands & Other Non-Wetland Waters

OAR141-090-0035 (2), (7)(b), & (17)

Based on the available references maps and results of the field delineation, the wetland area within the proposed study area (19.5 acres) is approximately 2.92 acres or 15 percent (%) of the project site. Of the 2.92 acres of wetlands, the following types are present: deciduous woodland wetlands (Wetland A - 1.86 acres) and forested seep wetland (Wetland B - 1.04 acres). Approximately 959 lineal feet of Water 1 Trillium Creek is also within the study area with Wetland C as 0.02 acres of riverine wetlands located below the ordinary high water mark (OHWM) on the eastern 475 feet of the creek channel, where the OHWM is apparent. Two other water features are ditches that occur in the study area: Water 2 is a 256 lineal foot stormwater conveyance (0.006 acres based upon a mean width of 1 foot) and Water 3 is a 326.8 lineal foot drainage ditch (0.008 acres based upon mean width of 1 foot) which originates under the Rosemont Road and conveys surface water at precipitation events. This ditch was not flowing on the field observation days, i.e., February 27th, March 3rd and April 14th.

E.1 Wetlands

Wetland A (1.86 aces) is a deciduous forested wetland that serves as the headwaters where the surface waters begin to gather to form the first order stream that eventually has enough flow and velocity to form a distinct channel. The palustrine forested broadleaved deciduous wetland is irregular in size and approximately 1.86 acres (Cowardin 1976). It is a depressional open feature that has a high water table and saturation within the top 12 inches of the surface. The wetland reflects severe and recurrent disturbance by the presence of invasive blackberry thickets, holly, English ivy and other forbs typical of the urban areas within the Willamette Valley. In addition to the disturbance to the native flora, the wetland has been flooded by at least two, maybe three, manmade inflow from adjacent and surrounding slope, i.e Rosemont Road, Bay Meadows Drive and impervious surfaces of that subdivision, and residence on Tax Lot 12600. These regular additions to surface runoff create an artificially induced hydrological regime super saturated soils and higher water table. The boundaries of Wetland A were determined by a discrete vegetation line and soil test pits in north, south, east, west portions of the vegetated area. Observations of vegetation change and change in soil texture and color to a depth of 50 cm was key to establishing the edge of wetland since the hydrology was present at most of the observation points. Please refer to Appendix B: Data Forms and Appendix C: Ground Level Photographs for more detail about Wetland A.

Wetland B (1.04 acres) is a naturally occurring deciduous and shrub/scrub wetland with some emergent vegetation that is fed from underground springs, that can be observed under the groundcover and leaf litter. The springs form narrow ill-defined channels that flow toward the creek channel, creating a swamp in the center of the study area. The wetland is a depressional open system according to the hydrogeomorphic (HGM) classification of wetlands, and it is primarily a palustrine forested deciduous system (PFO1), with some dead snags or downed trees in the internal swampy areas near the creek channel (PFO5).

Field characteristics, vegetation demarcation, soil type, and hydrology were used in determining the wetland/upland boundary. Slope and topography were also an indication of edge of the wetland. The areas directly north and south of the Wetland B were noticeably higher elevation and did not qualify as wetland soils or vegetation.

A single anomaly was discovered in the portion of Wetland B that extends offsite where the creek channel and surrounding wetland were diverted into the study area effectively draining the residential property (Tax Lot 11000 on Martin Court) onto a the north central portion of Wetland B. This artificially alters the hydrology of the project site. The boundary of wetland B was determined by a change in vegetation and soil test pits in north, south, east, and west portions of the vegetated area. Observations of vegetation change and change in soil texture and color (matrix 7.5 YR with no redoximorphic features) to a depth of 50 cm was key to establishing the edge of upland since the hydrology was present at most of the observation points. Please refer to Appendix B: Data Forms and Appendix C: Ground Level Photographs for more detail about Wetland B.

Wetland C (0.02 acres) is a 1 – 2.5 foot wide channel with a 1 foot depth on average, and the area between OHWM for approximately 479 feet of the channel that extends from the seep area of Wetland B to the east parcel boundary of the project site and study area. It is a riverine slope HGM classification, and a riverine intermittent unconsolidated bottom wetland with mud substrate (R4UB3), deciduous shrubs, annual forbs and grasses, or sedges throughout. The main features of this wetland are deciduous riparian vegetation with FACW or OBL indicators and thick saturated soils with hydric characteristics. The boundaries of Wetland C were determined by a topographic line and soil test pits in north and south portions of the vegetated corridor of the creek. Observations of a distinct change in vegetation and change in soil texture and color to a depth of 50 cm and the lack of hydrologic features water stained leaves or saturation was key to establishing the edge of upland conifer forest. Approximately 959 lineal feet of Water 1 Trillium Creek is also within the study area with Wetland C as 0.02 acres of riverine wetlands located below the ordinary high water mark (OHWM) on the eastern 475 feet of the creek channel, where the OHWM is apparent. Please refer to Section E. 2 below for more detail on waters of the study area. Also, refer to Appendix B: Data Forms and Appendix C: Ground Level Photographs for more detail about Wetland C.

Table 3 Wetlands Delineated within Project

Wetland	Dominant Cowardin Class	Acres Within Study Area	Sample Plot(s) (names)	Basis for Potential DSL Jurisdiction	HGM Classification
A	PFOE Palustrine Forested; Seasonally Flooded/Saturated	1.86	A1, A2, A3, A4	Vegetation indicators and soil texture	Depressional Open
B	PFOY Palustrine Forested; Saturated Seminpermanent Seasonal	1.04	B1, B2, B3, B4 B5	Hydrophytic vegetation, super saturated soil and redoxomorphic features in the soil	Depressional Open
C	R4UB3 Riverine, Intermittent Unconsolidated Bottom Mud	0.02	C1, C2, C3 and TC1, TC2, TC3, TC4, TC5	Open water flowing; surface has water and drift marks	Riverine Slope

E.1.1 Wetland A Deciduous Forested Wetlands

Wetland A was determined to qualify as a wetland because of dominance of facultative wet species (e.g. crabapple, red alder, Oregon ash, small-fruited bulrush) and one prevalent obligate species (False hellebore). These plants were common in the center of the wetland area.. The entire perimeter of the wetland, however, was a dense thicket of Himalayan blackberry which is considered a prohibited plant species within the City of Portland's Plant List (Bureau of Planning 1998). This dense homogeneous coverage made it difficult to determine the true plant dominance other than blackberry at several of the sample points. Soil sampled from 8 inches in the pit had a low chroma (10YR 4/1). It was determined that this was a reduced matrix when this sample was exposed to air and the color changed to 10YR 2/1, and common distinct redox concentrations (7.5YR 5/6) were evident. After 5 minutes, free water level was observed to raise to within 4 inches of the surface of the pit. A distinct sulfur odor was associated with the soil pit A4. Boundaries of Wetland A were also compared with the size and shape of the plot mapped within the Local Wetland Inventory. They generally conformed to the LWI line; based primarily on the mature deciduous tree vegetation signature. Soils at the sample plots conformed to the characteristics of the mapped soil series phase.

E.1.2 Wetland B Forested Seep/Springs Wetland

Wetland B was determined to qualify as a wetland because of dominance of one prevalent obligate species (False hellebore), soft rush (*Juncus effuses),* creeping buttercup *(Ranunculus repens)*. Snags and downed mature trees demonstrate that the site may have been drier in previous years. The extreme saturation that occurs in Wetland B is from groundwater seeps and springs. Soil sampled from top 5 inches in the pit had a low chroma (10YR 4/1) and distinct redox concentrations abundance 15% (7.5YR 5/6). The hydrology was the most obvious feature as there were numerous small channels that flowed toward the rather ill formed Trillium Creek. Other places springs erupted from subsurface and others there was no surface expression but the soil was mucky and saturated to depth of 50 cm. . Boundaries of Wetland B were also compared with the size and shape of the plot mapped within the Local Wetland Inventory. They generally conformed to the LWI line; based primarily on the mature deciduous tree vegetation signature. Soils at the sample plots conformed to the characteristics of the mapped soil series phase.

E.1.3 Wetland C Riverine Intermittent System

Wetland C was determined to qualify as a wetland because of dominance of facultative wet species typical of the Willamette Valley bottomland riparian vegetation communities (e.g. Oregon ash, blue Elderberry, red alder, Western Crabapple), and forbs such as creeping buttercup (*Ranunculus repens*) prevalent obligate species (False hellebore). Soil sampled from 8 inches in the pit had a low chroma (10YR 4/1). Boundaries of Wetland C were also compared with the size and shape of the plot mapped within the Local Wetland Inventory. The actual wetland boundary is along the creek and does not extend south into the conifer forest area nor does it extend up the slope to the north of the creek channel. Therefore, the mapped area of Wetland C is narrower and farther south than the plot shown on the LWI. Please refer to the LWI figure that also includes the delineated boundary.The vegetation change is less distinct than in Wetlan B or A; therefore, soil color, moisture, texture, was used as the distinguishing factor for wetland/upland boundary. Several soil samples were taken in the conifer forest that were distinctly lighter in color and had no redox features (soil pit UP-2). Soils at the sample plots conformed to the characteristics of the mapped soil series phase.

E.2 Waters of the State/U.S.

Water 1, Trillium Creek, a Water of the State, extends off-site. At the Tax Lot 11000 parcel line just north of the study area boundary, it flows under a fence onto an adjacent parcel not within the study area. A portion of the channel extends off site in the northwest portion of the study area as it flows into a private residence below the fence line, then is diverted to a pipe and discharged off the property back into the Erickson School site property. At the eastern edge of the study area, the creek (Water 1) flows through a culvert under the Hiddens Springs Court toward Santa Anita, where it daylights into a free flowing channel that has been well maintained as a creek and riparian zone within a deciduous broadleaf woodland. This was confirmed by field evidence from walking the stream, and documented in photographs as shown in Appendix C. The Oregon Sreamflow Duration Field Assessment Method Interim Version March 2009 was used to determine the status of Trillium Creek. Please refer to the form at the front of this report. Trillium Creek is not a fish bearing stream. The National Marine Fisheries Service and the Oregon Natural Heritage Information Center were consulted on the presence of threatened or endangered fish, wildlife and plant species. No fish were listed in the project study area; the species lists are included in Appendix D.

Two other water features area ditches that occur in the study area: Water 2 is a 256 lineal foot stormwater conveyance (0.006 acres based upon a mean width of 1 foot) and Water 3 is a 326.8 lineal foot drainage ditch (0.008 acres based upon mean width of 1 foot) which originates under the Rosemont Road and conveys surface water at precipitation events. This ditch was not flowing on the field observation days, i.e., February 27th, March 3rd and April 14th.

Table 4 Water-Resources Identified Within the Project

Water No.	Type	Width of stream at OHW	OHW field features	Receiving water body	Basis for Potential DSL Jurisdiction
1	Trillium Creek, Intermittent	1 – 3 feet wide 959 feet long, channel ill-defined in seep areas	Change in vegetation to mud substrate	Flows into Willamette River	Intermittent stream (no fish observed in waterway; located one stream order above fish bearing stream)
2	Stormwater Conveyance to Trillium Creek	Approx.1.0 foot wide, 256 feet long 0.006 acres	Grass vegetation line	Flows into Trillium Creek, an intermittent waterway	Intermittent (seasonal and controlled by local precipitation)
3	Ditch under Rosemont Road from box culvert	Approx. 0.5 feet wide, 326.8 feet long; 0.008 acres	Understory vegetation line	Flows into Trillium Creek, an intermittent waterway	Intermittent (seasonal and controlled by local precipitation)

F. Deviation from LWI or NWI

OAR141-090-0035 (16)(e)

The wetlands which occur in the study area appear on the West Linn Local Wetland Inventory (LWI) map, but do not appear on the National Wetland Inventory (NWI). The nearest wetlands shown on the NWI are the Willamette River, riverine and mapped as (R1UVB). Although the LWI is more accurate to showing the forested wetland and the creek running through the site, there are a few discrepancies between the delineated boundary and the LWI boundary.

The discrepancies occur because the method for preparing the LWI is coarse grained and does not take into account terrain and type of vegetation. The discrepancies found are not significantly different from the LWI. In general, the floodplain wetlands near the creek are narrower and farther north than shown on the LWI map because the channel is well formed, approximately 24 inches wide and up to 20 inches deep between Wetland B and the east parcel boundary. The channel is distinct and was flowing at 3–7 cfs for most of the corridor. Because of this defined flow, there were no off channel wetlands along this portion of the creek and the vegetation and soils suggested that the community around the channel was riparian habitat and not wetland. Another location that was determined to be different from the LWI is in a highly disturbed portion of the study area, the southern quadrant of the study area near the Rosemont Road. The hydrology is artificially increased in this area because of the drainage from developed properties to the south of the parcel line between Rosemont Road and Bay Meadows Drive.

G. Mapping Method

(Including mapping precision estimate) OAR141-090-0035 (7)(f), (11), (12), (13), (18), & (22)

Sample plots and soil test pits were identified on the ground with stakes, wetland boundaries by flagging, and key features for the wetland map were professionally surveyed one day after field sampling and flagging was completed. On a field visit with the design team approximately two weeks after the land survey was conducted, it was discovered that the the stakes were individually pulled up and stock piled by outside parties.

H. Additional Information

The Oregon Sreamflow Duration Field Assessment Method was used to determine the status of Trillium Creek. The test for streamflow duration was conducted part of this study and Trillium Creek was determined to be intermittent as demonstrated in the Oregon Streamflow Duration Assessment shown at the front of this report. Trillium Creek is not a fish bearing stream. The National Marine Fisheries Service and the Oregon Natural Heritage Information Center were consulted on the presence of threatened or endangered fish, wildlife and plant species. No fish were listed in the project study area; the species lists are included in Appendix D. The stormwater conveyance and other small waterway are definitely artificially created waters but may meet the definition of wetlands as defined in OAR141-090-0015(9-12)

Table 13. Characteristics of Water Resources Identified within Study Area

Water	Type	Receiving water body	More than 10 foot channel width?	Fish Presence	Contiguous with wetlands? (Wetland Name)	Jurisdictional by DSL?
Trillium Creek	Tributary stream	Willamette River	No	No[1]	Yes (Wetlands A and B)	Yes
Unnamed Ditch 1	Stormwater Conveyance	Trillium Creek	No	No[2]	Yes (Wetland A)	Yes
Unnamed Ditch 2	Ditch under Rosemont Road	Trillium Creek	No	No[2]	Yes	Yes

I. Results and Conclusions

OAR141-090-0035 (7)(j) *The results and conclusions of the investigation.*

Site investigations revealed 2.88 acres of wetland and 0.03 acres of water features within the study area. The main water is Trillium Creek, a first order tributary to the Willamette River, and a single channel that is fed by a variety of sources from offsite and underground springs. Two artificially fed channels occur to the west and the south of the headwaters of Trillium Creek, which have been called out as separate water features since they may not qualify as jurisdictional – Water 2 Stormwater Conveyance and Water 3 Ditch under the Rosemont Road. There are three wetlands or special aquatic sites that are potentially jurisdictional, totaling 2.88 acres. These wetlands are contiguous, but were labeled and measured separately for ease of discussion and because they are different in terms of values and functions for the ecosystem.

After careful examination of the entire study area, it became apparent that the springs and seeps arising from the geology of the specific site have formed a swampy area that may increase or decrease in size from year to year. Moreover, areas where the hydrology is being enhanced by the continuous flooding of the southern part of the study area from manmade nonpoint and point surface water runoff discharges from adjacent properties was documented.

Table 5 Project Summary of Wetland Types &Acres

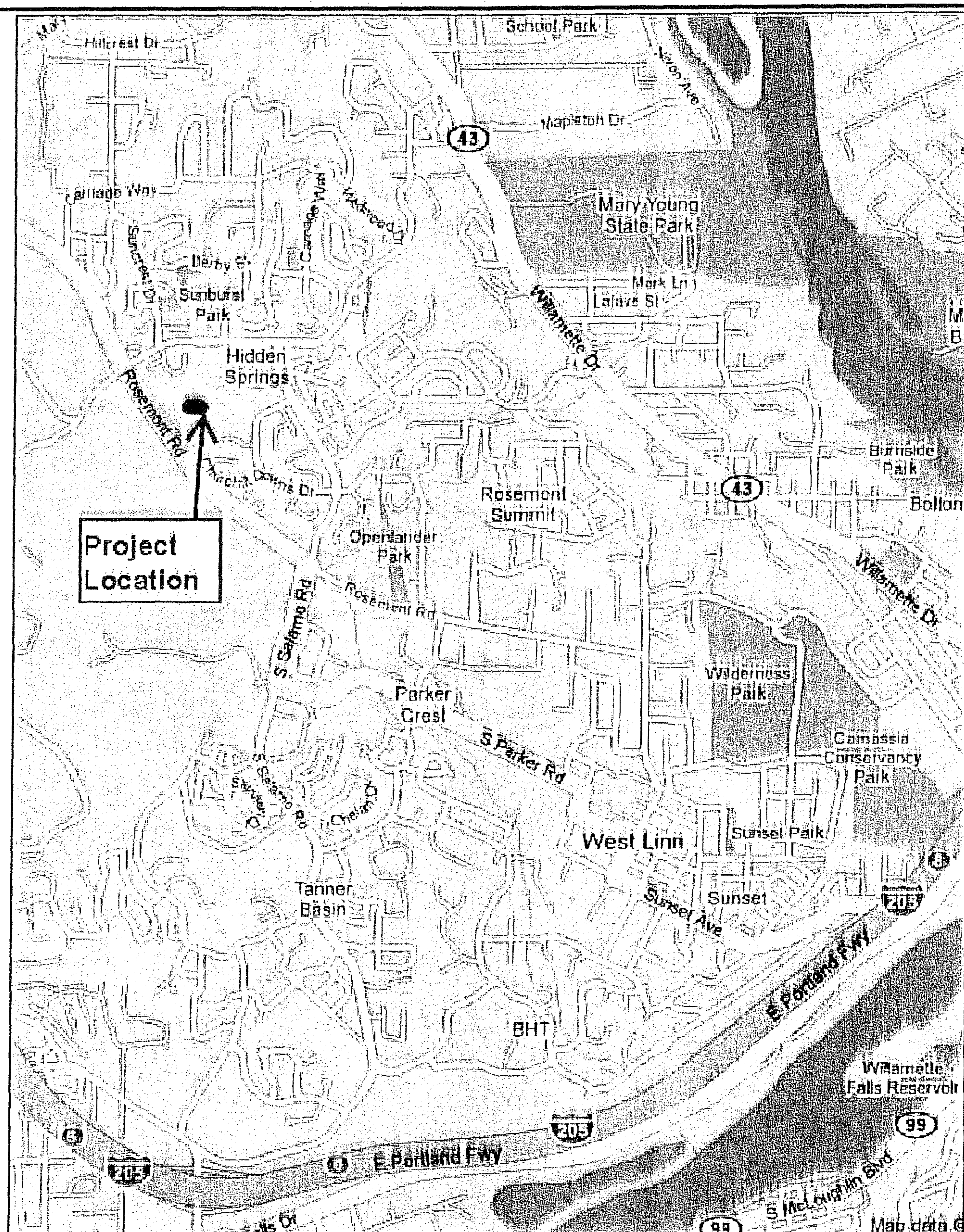
Table 5. Project Summary Wetland and Water Types & Acres	
Resource Type	***Area (acres)***
Water 1 Trillium Creek channel	0.02
Water 2 Stormwater Conveyance	0.006
Water 3 Ditch under Rosemont Rd	0.008
Wetland A Deciduous Woodland Headwaters	1.86
Wetland B Deciduous Seep Woodland	1.04
Wetland C Riverine slope overflow	0.02
Total	**2.95**

J. Disclaimer Statement

OAR141-090-0035 (7)(k)

This report documents the investigation, best professional judgment, and conclusions of the investigators. It should be considered a Preliminary Jurisdictional Determination and used at your own risk until it has been approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

Appendix A. Maps



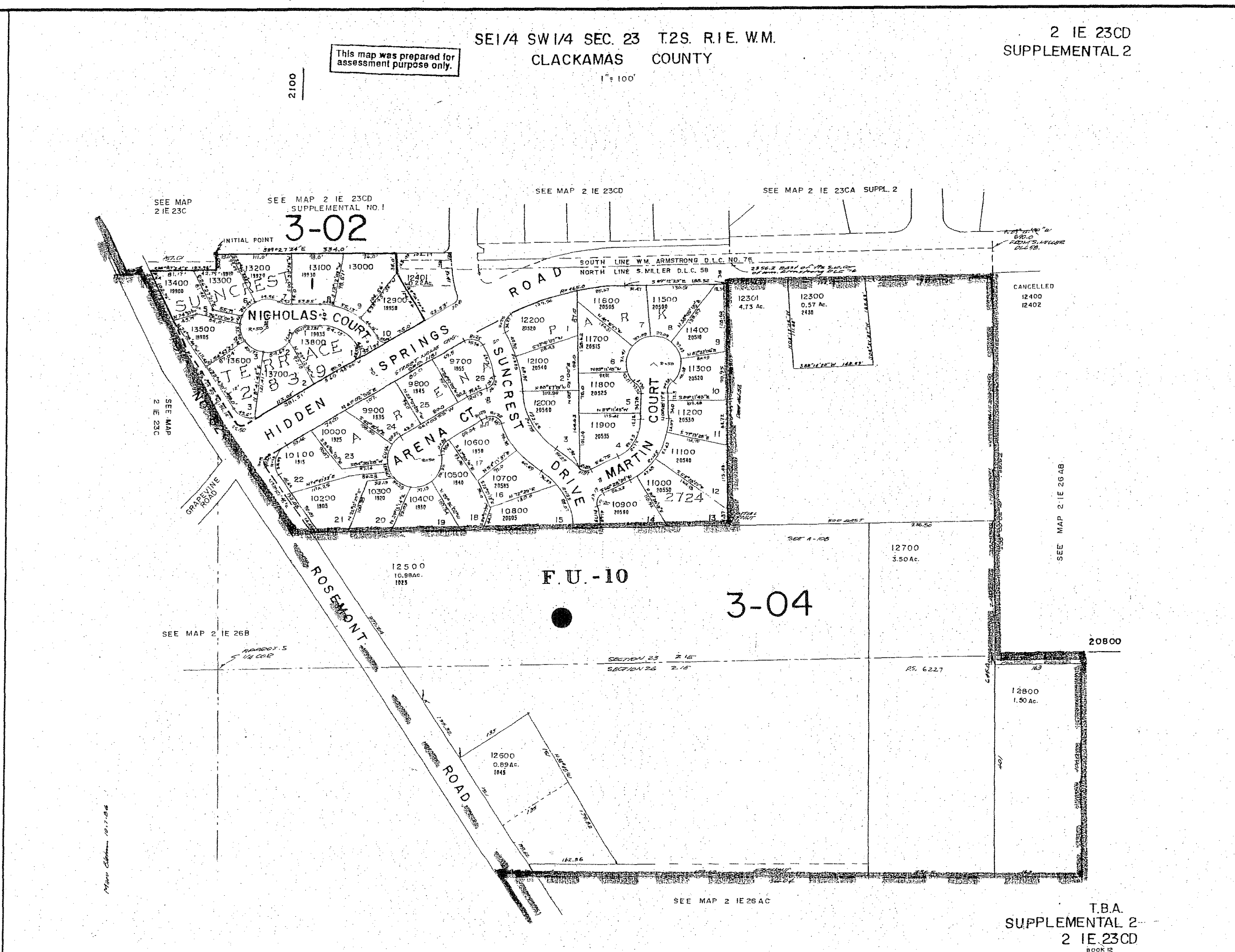
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 1
LOCATION MAP

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09-001 WLWSD ERICKSON WETLANDS\CAD\FIG 1 LOCATION MAPS.DWG Keith Tolle 5/19/2009 1:52 PM

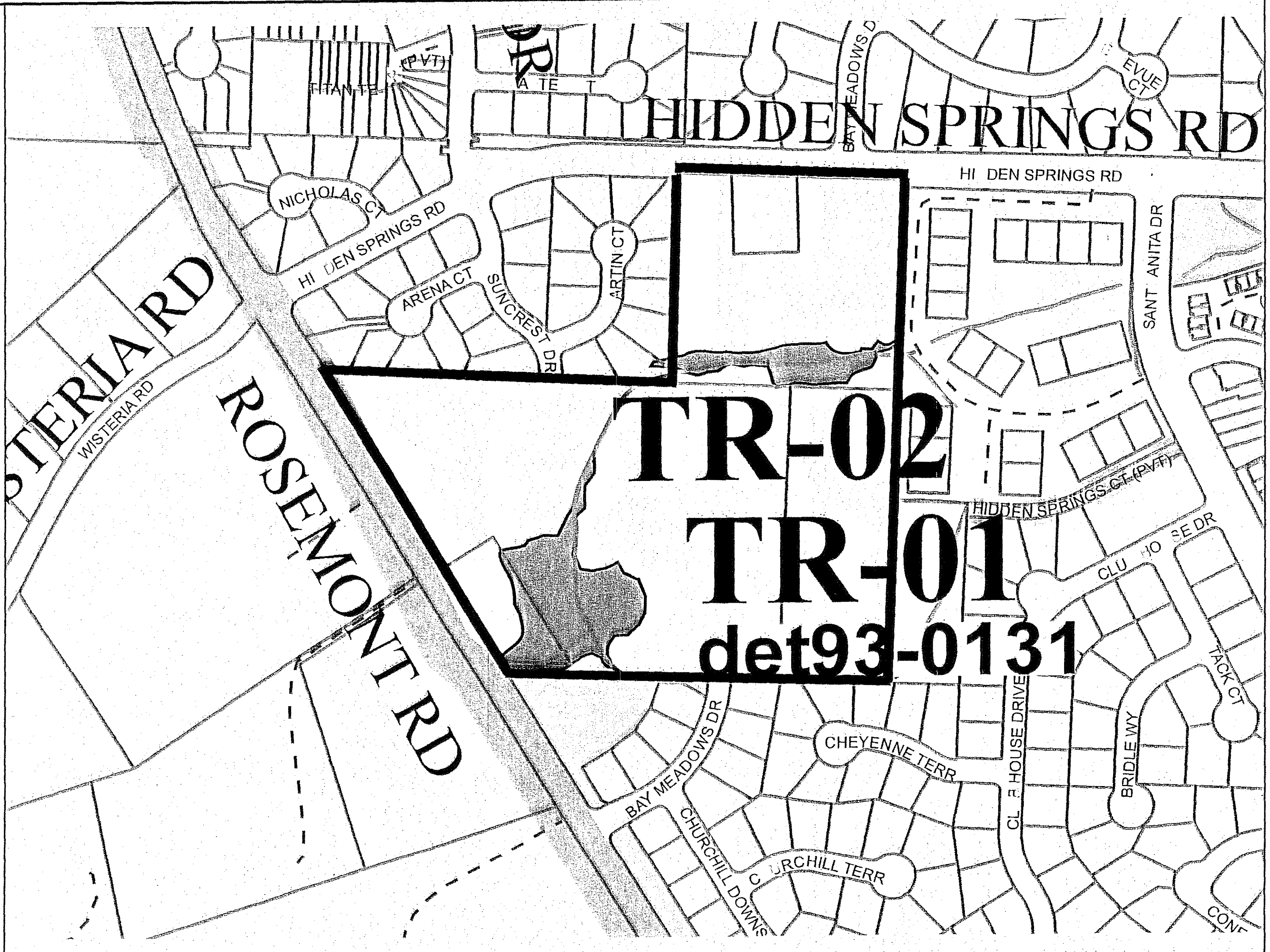


WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 2
TAX MAP

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

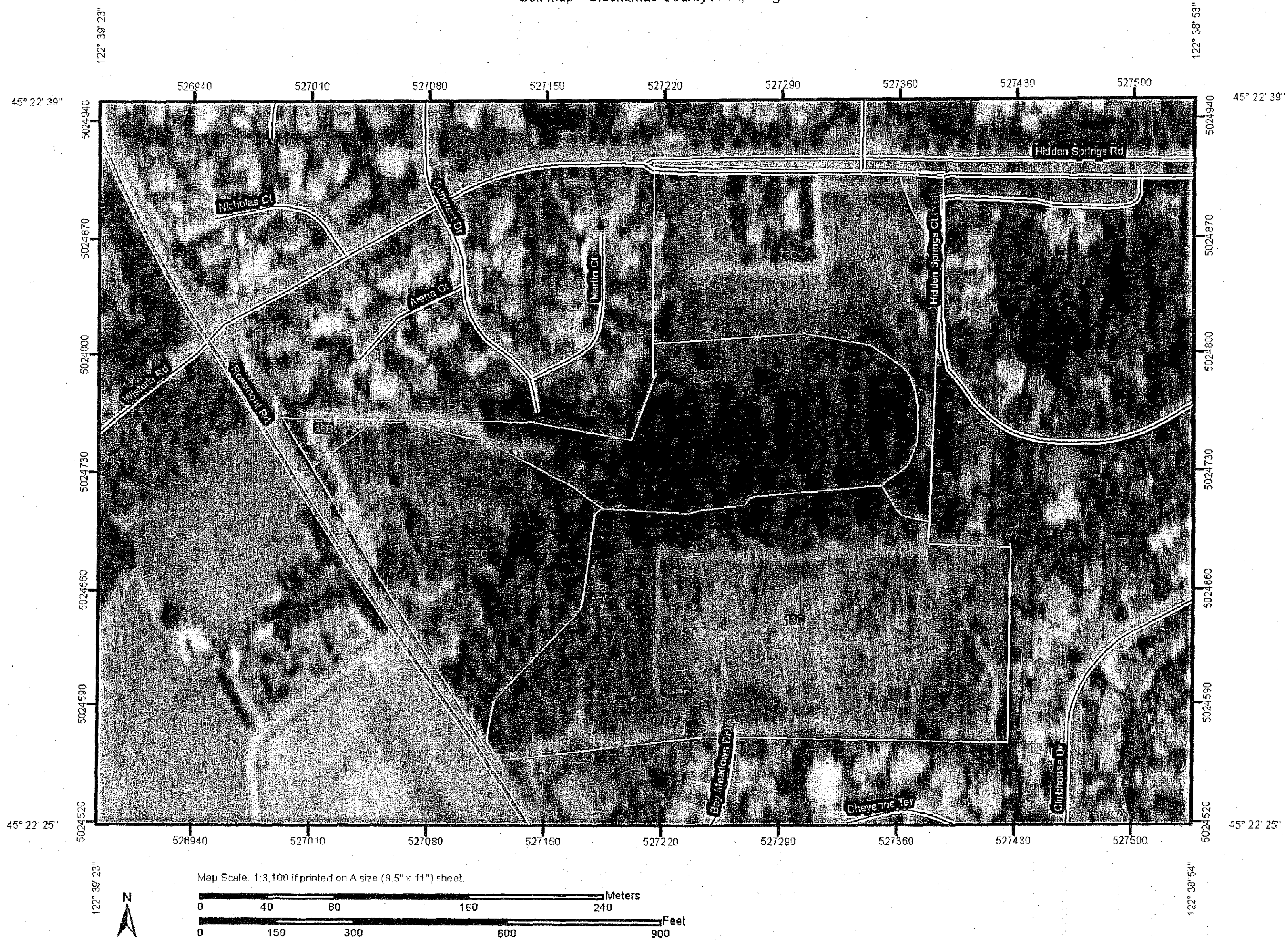
PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 3
LWI MAP

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09-001 WLWSD ERICKSON WETLANDS\CAD\FIG 3 LWI MAP.DWG Keith Tolle 5/19/2009 1:52 PM

Soil Map—Clackamas County Area, Oregon



USDA Natural Resources Conservation Service

Web Soil Survey 2.1
National Cooperative Soil Survey

3/17/2009
Page 1 of 3

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 4
SOILS MAP PAGE 1

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

O:\11456 – WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09-001 WLWSD ERICKSON WETLANDS\CAD\FIG 4 SOILS MAP PAGE 1.DWG Keith Tolle 5/19/2009 1:55 PM

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,100 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

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

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

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 4, Dec 22, 2006

Date(s) aerial images were photographed: 8/3/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 4
SOILS MAP PAGE 2

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

Map Unit Legend

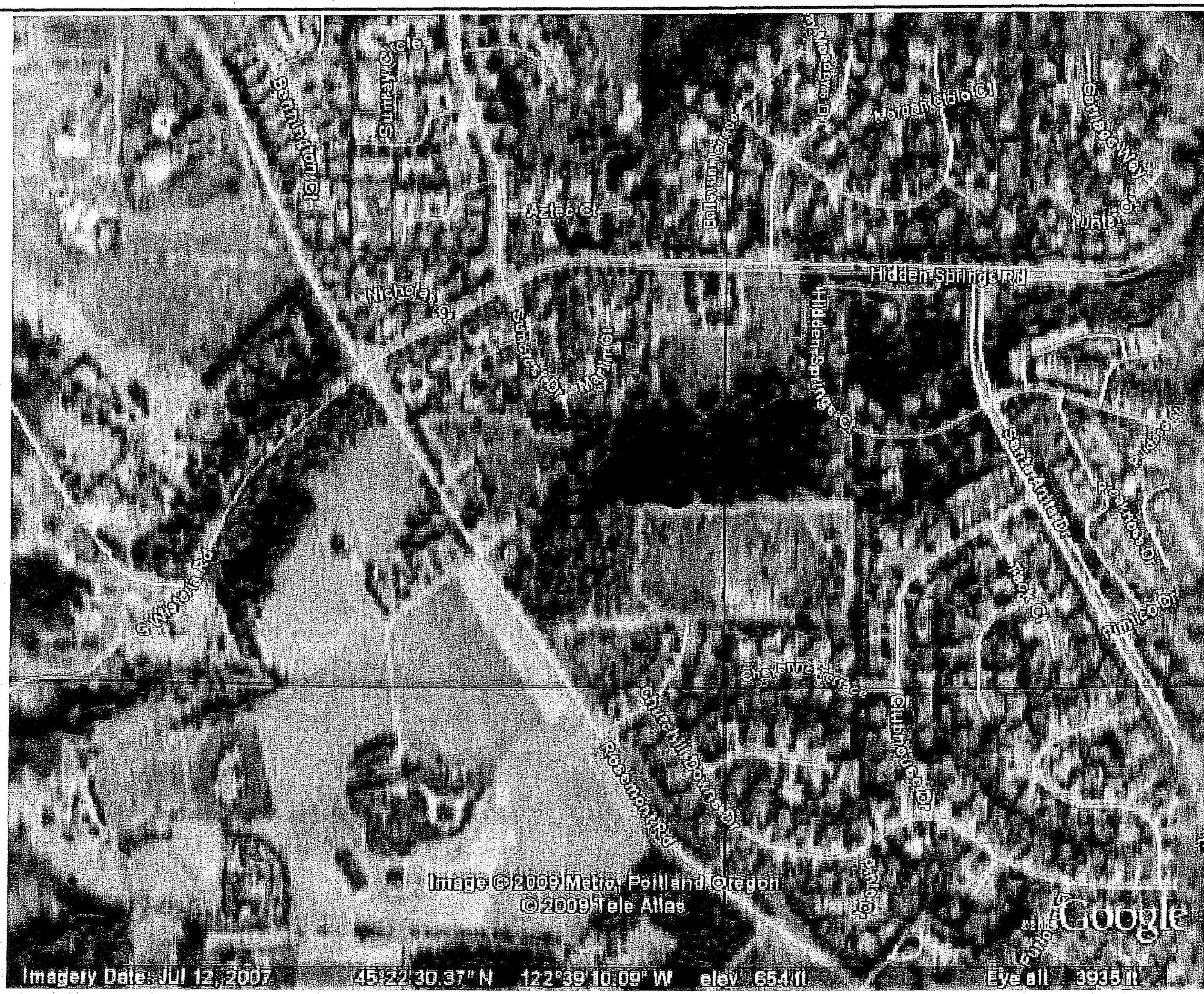
Clackamas County Area, Oregon (OR610)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
13C	Cascade silt loam, 8 to 15 percent slopes	9.5	40.9%
23C	Cornelius silt loam, 8 to 15 percent slopes	4.5	19.6%
36B	Hardscrabble silt loam, 2 to 7 percent slopes	4.6	19.9%
78C	Saum silt loam, 8 to 15 percent slopes	4.6	19.7%
Totals for Area of Interest		**23.2**	**100.0%**

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 4
SOILS MAP PAGE 3

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	



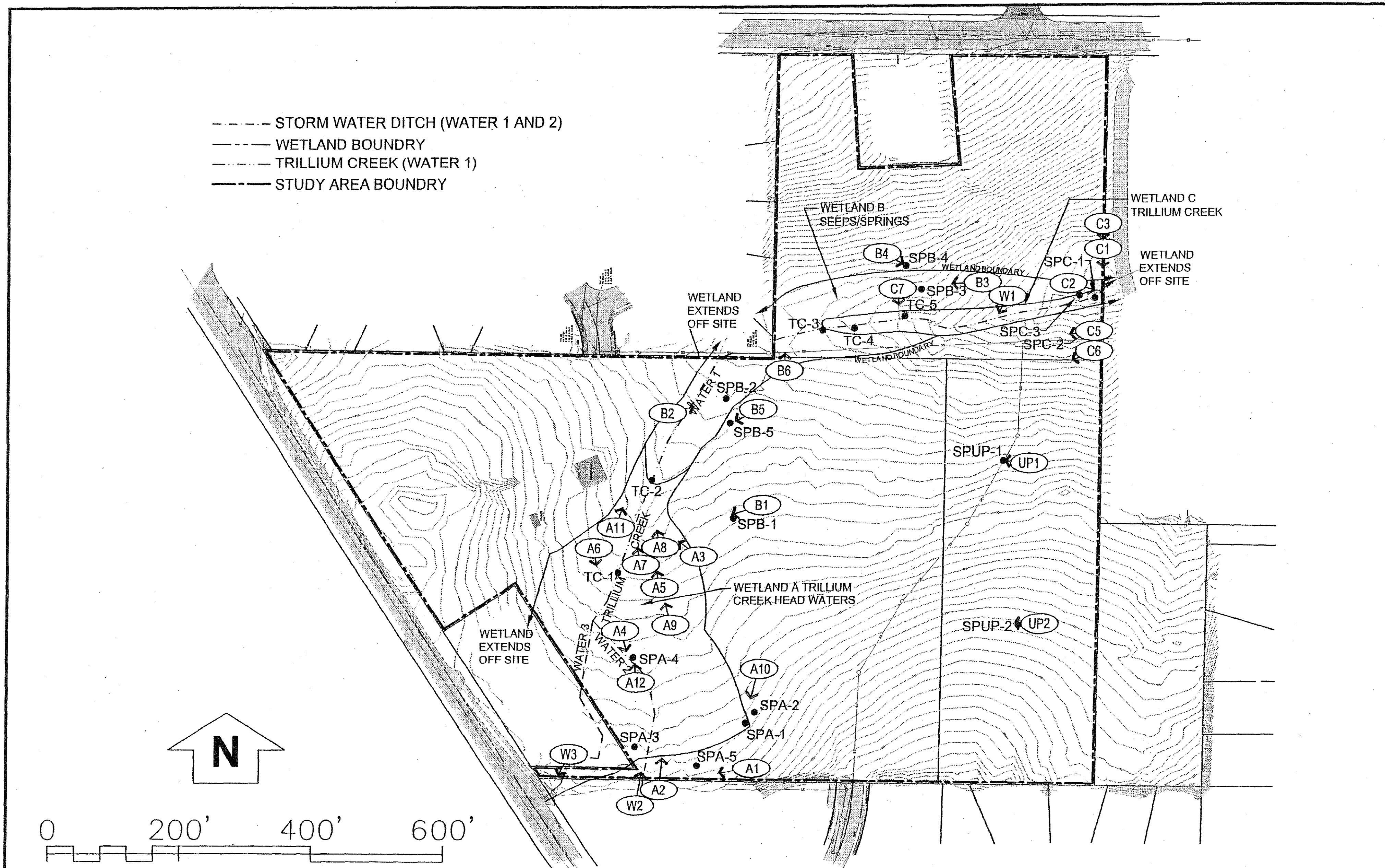
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 5
ARIAL PHOTO

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09-001 WLWSD ERICKSON WETLANDS\CAD\FIG 5 ARIAL PHOTO.DWG Keith Tolle 5/19/2009 2:26 PM



WINZLER & KELLY

15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 6
WETLAND DELINEATION MAP

Appendix B. Wetland Field Data Forms

Erickson Wetlands

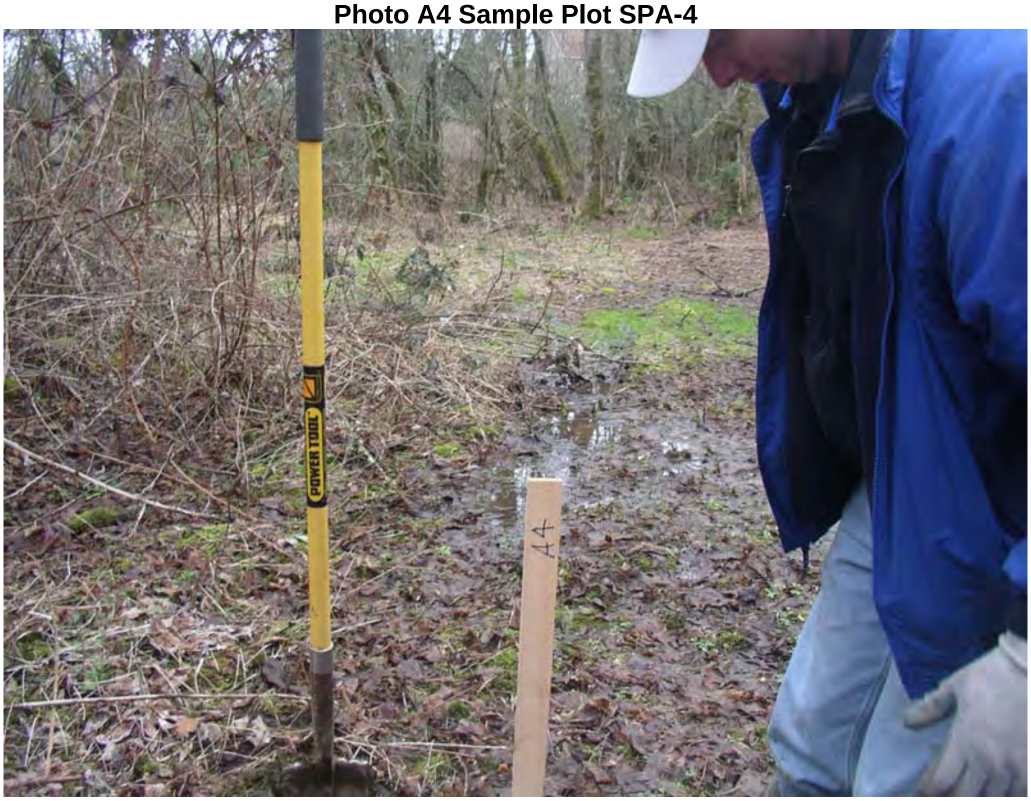
Photo A1 Southern Edge of Wetland A

Photo A2 Wetland A Sample Plot A-1 Wetland Perimeter Lined by Himalayan Blackberry

Erickson Wetlands

Photo A3 Wetland A and B Transition Area

Photo A4 Sample Plot SPA-4



Erickson Wetlands

Photo A5 Looking North from SP TC-1

Photo A6 Headwaters Wetland of Trillium Creek Near TC-1 Looking Toward SPA-4

Erickson Wetlands

Photo A7 Looking West From Sample Plot TC-1 Behind Private Occupied Property

Photo A8 Moss and Algae in Standing Water

Erickson Wetlands

Photo A9 Wetland A Trillium Creek Headwaters

Photo A11 Obligate Wetland Plant False Hellebore (Veratrum californica)

Erickson Wetlands

Photo A12 Wetland A Groundwater Recharge in Headwaters Area at SP A-4

Photo B1 Sample Plot SP B-1

Erickson Wetlands

Photo B3a Sample Plot SP B-3 Inundation Within 5 Inches of Surface

Photo B3b Sample Plot SP B-3 Looking West

Erickson Wetlands

Photo B4 Sample Plot SP B-4 Looking East Soil Pit B-4 Looking North

Photo B5 Sample Plot SP B-5 Conifer Forest

Erickson Wetlands

Photo B6 Wetland B Vegetation

Photo C1 Staking for Sample Plots SP C-1 Foreground and SPC-2 Midground

Erickson Wetlands

Photo C2 Sample Plot SP C-2 Vegetation

Photo C3 Gleyed Soils at SP C-1

Erickson Wetlands

Photo C4 Catkins on Deciduous Tree

Photo C5 Sample Plot SPC-2 Upland Soil Pit

Erickson Wetlands

Photo C6 Sample plot SP C-2 Non-Hydric Soils

Photo C7 - Upland Terminus of Wetland C at TC-5

Erickson Wetlands

Photo UP1 Sample Plot SP UP-2 Lower Strata

Photo UP2 Sample Plot SP UP-2 in Grassy Field

Erickson Wetlands

Photo W1 Water 1 -Ordinary High Water Elevation Trilium Creek Februrary 2009

Photo W2 - Hidden Springs Stormwater Conveyance

Erickson Wetlands

Photo W3 Culvert Under Rosemont Rd Feeds Stormwater Ditch Water 3

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: - -2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: A1

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): flat field Local relief (concave, convex, none): none Slope (%): ____

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ____

Soil Map Unit Name: Cascade silt loam NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

hydric characteristics are present but weak – blackberry has been "managed" by mowing may allows it too dominate the edges of the forested wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10x10)			
1. none			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5x5)			
1. RUDI	100	✓	FACU
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1. none			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

disturbance in vegetation may have eliminated competitors to blackberry

SOIL

Sampling Point: A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	90	7.5YR 2/3	10	C	PL	SL	low chromas
5-10	10YR 4/3	80	7.5YR 3/3	20	C	PL		low chromas
10-15	10YR 4/4	80					CL	muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): 0

Water Table Present? Yes X No ____ Depth (inches): 8 in

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6 in

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

plot is a wetland due to hydric soil characteristics, presence of water table within 8 inches of surface while vegetation has been altered by mowing

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: - -2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: A-2

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): ____ Slope (%): ____

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ____

Soil Map Unit Name: Cascade silt loam NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10X10)	Absolute % Cover	Dominant Species?	Indicator Status
1. CRDO	15	✓	FACU
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. none			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. grasses	100	✓	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. none			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR3/4		—				SL	no mottles
5-10	10YR3/4		—				SL	
10-18	10YR4/4		—				SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) (**except MLRA 1**)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: NA
Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) (**LRR A**)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) (**LRR A**)
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): 0
Water Table Present? Yes ____ No X Depth (inches): >12in
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): >12in

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
plot is not a wetland

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 3-3-2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: A-3

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): ____

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ____

Soil Map Unit Name: Cascade silt loam NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 X10)			
1. ALRU	35	✓	FACW
2.			
3.			
4.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5X5)			
1. none			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5X5)			
1. RUUR		✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. HEHE	75	✓	NI
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: A-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/4	100	—				SL	
5-10	10YR 3/4	100	—				SL	
10-18	10YR 2/2	80	7.5YR 3/4	20	C	M	SL	extremely wet soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: NA
Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 0
Water Table Present? Yes X No ___ Depth (inches): 8
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 8

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Plot has strong hydrologic and hydric soil characteristics and 50% dominance of FACW plants

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: - -2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: A-4

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): ____

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ____

Soil Map Unit Name: Cornelius silt loam 8-15% slopes NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. ALRU	75	✓	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. none			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. moss			
2. VECA	15	✓	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 25%			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: A-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					SL	sulfidic odor
5-10	10YR 4/3						SL	
10-18	10YR 4/4	80	10YR 5/6	20	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ______

Remarks:

Strong odor of H_2S

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 0.5

Water Table Present? Yes X No ____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

algae covered area with surface moisture water stained leaves

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 4-14-2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: A-5

Investigator(s): NO, MS Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): low gradient slope Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present?	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	______ = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1. none			
2.			
3.			
4.			
5.			
	______ = Total Cover		
Herb Stratum (Plot size: 5X5)			
1. grass	100	✓	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	______ = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	______ = Total Cover		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

SOIL

Sampling Point: A-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					SL	uniform color & texture
6-12	10YR 3/3	100	None				SL	to depth
12-18	7.5YR 4/3	100	None				SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) (**except MLRA 1**)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NONE

Depth (inches): ______

Hydric Soil Present? Yes ____ No X

Remarks:

no apparent surface hydrology no redox concentrations or depletions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
X Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) (**LRR A**)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) (**LRR A**)
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______
Water Table Present? Yes ____ No ____ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6 inches

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SAMPLE POINT HAS SOME RESIDUAL HYDROLOGY IN THAT IT IS POORLY DRAINED HOWEVER SOILS HAVE NO HYDRIC CHARACTERISTICS AND VEGETATION IS UPLAND GRASS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 3-3 ~~4-14~~-2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: ~~A5~~ B-1

Investigator(s): NO, MS Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): low gradient slope Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______

Soil Map Unit Name: CORNELIUS SILT LOAM NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland?	Yes ____ No ____
Hydric Soil Present?	Yes ____	No ____		
Wetland Hydrology Present?	Yes ____	No ____		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. PSME	50	✓	FACU
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. RUDI	50	✓	FACU
2. ILAQ	2		UPL
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: B-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________________

Depth (inches): ____________________

Hydric Soil Present? Yes ______ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): ____________

Water Table Present? Yes _____ No _____ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 3-3 2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: B-2

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______

Soil Map Unit Name: Hardscrabble silt loam 2-7% slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. none			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5X5)			
1. RARE	30	✓	FACW
2. VECA	50	✓	OBL
3. RuCR	10		FACW
4. PO Licorice fern	10		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
Limited vegetation except for Annual hydrophytic herbs

SOIL

Sampling Point: B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2	80	7.5YR 3/4	20	C	M	L	consistent matrix w/redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) **(except MLRA 1)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: NA
Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) **(LRR A)**
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) **(LRR A)**
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): 0
Water Table Present? Yes X No ____ Depth (inches): 4 in
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): <4 in

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
plot is in a seep area with minimal vegetation but strong hydric soil features and hydrologic characteristics high water table

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 3-3-2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: B-3

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slope Slope (%): 8

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______

Soil Map Unit Name: Hardscrabble silt loam 2-7% slope NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	**Is the Sampled Area within a Wetland?**	**Yes** X **No** ______
Hydric Soil Present?	Yes X No ______		
Wetland Hydrology Present?	Yes X No ______		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. none			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 X 5)			
1. FEFE	90	✓	FACW
2. MOSS			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum moss 50%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals:	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

Limited plant cover dominated by leaf litter and dry grass culms. Moss cover prevalent in wet moist surface

SOIL

Sampling Point: 13-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100	—				muck	consistent muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): ______

Hydric Soil Present? Yes X No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): 0

Water Table Present? Yes X No ______ Depth (inches): 4 in

Saturation Present? (includes capillary fringe) Yes X No ______ Depth (inches): 3 in

Wetland Hydrology Present? Yes X No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

plot is within a site that has hydric soil, hydrology high water table within 4 inches of surface and the vegetation is not growing on the plot,

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 3-3-2009
Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: B-4
Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): ______ Slope (%): 12
Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______
Soil Map Unit Name: SAUM SILT LOAM 8-15% slope NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. CRDO	1	✓	FAC
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5x5)			
1. RUDI	10	✓	FACU
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. grass	95	✓	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

grassy plot

SOIL

Sampling Point: B-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	100	—				SL	dry crumbly
5-10	10YR	100	—				L	
10-18	10YR	100	—				L	dry crumbly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks:

Soil is bright colored with no redox features and dry crumbly

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No X Depth (inches): >18in

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >18in

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PLOT IS DRY EVEN AT DEPTH

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: - -2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: B-5

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slope Slope (%): 8

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ______

Soil Map Unit Name: Cascade silt loam 8-15% slope NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present?	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. PSME	25	✓	FACU
2. ALRU	10	✓	FACU
3.			
4.			
	______ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5X5)			
1. RUDI	30	✓	FACU
2.			
3.			
4.			
5.			
	______ = Total Cover		
Herb Stratum (Plot size: ______)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	______ = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1. none			
2.			
	______ = Total Cover		
% Bare Ground in Herb Stratum 15			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

SOIL

Sampling Point: B-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4							ORG	deep duff layer
4-15	10YR 4/5	100					L	dry crumbly
15-20	10YR 4/5	100					L	mineral soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks:

soil is light colored matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 0

Water Table Present? Yes ___ No X Depth (inches): >20 in

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >20 in

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

plot is central to and reference for upland conifer forest on gentle slope no redox in soils no hydrology facultative up plts.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 2-27-2009

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: C-1

Investigator(s): NO, JT Section, Township, Range: T12N R5E Sec

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): ____ Slope (%): ____

Subregion (LRR): 4 Lat: 45°22.8 Long: 122°39.4 Datum: ____

Soil Map Unit Name: Hard scrabble silt loam 2-7% slope NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. QUGA	10	✓	UPL
2. Snags			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. RUDI	30	✓	FACU
2.			
3.			
4.			
5.			
	31 = Total Cover		
Herb Stratum (Plot size: 5 X 5)			
1. GRASS	25		UPL
2. MOSS	35	✓	FACW
3. GEMO	5		UPL
4. URDI	50	✓	FAC
5. POL fern	1		
6.			
7.			
8.			
9.			
10.			
11.			
	91 = Total Cover		
Woody Vine Stratum (Plot size: 5 X 5)			
1. HEHE	20		NI
2.			
	20 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Moss indicates hydrophytic vegetation supported at this plot

Appendix D. Additional Tables and Information

(if any, e.g. hydrology monitoring data, or information for Corps jurisdiction) OAR141-090-0035(4)

D.1 Soil Survey

Soils Survey

Clackamas County soils survey shows the following soils in the study area (Figure 5, Appendix A):

Table 2: Soil Series in the Study Area

Symbol/Number	Soil Series	Location	Hydric
78C	Saum silt loam, 8 to 15 percent slopes	Covers upland sloped area near Erickson home (adjacent to Hidden Springs Road).	No- ? (Well drained)
36B	Hardscrabble silt loam, 2 to 7 percent slopes	Lowland area in central portion of site.	Yes
23C	Cornelius silt loam, 8 to 15 percent slopes	Sloping area east of N. Rosemont Rd.	No (well drained)
13C	Cascade silt loam, 8 to 15 percent slopes	Covers southern portion of site.	Yes

Source: NRCS Soil Survey of Clackamas County, Oregon

D.2 Vegetation

There are three major plant associations/communities or habitats on site. Predominantly the study area is a grassy field with flat to rolling terrain. Trillium Creek runs diagonally from southwest to northeast across the entire study area and it is in a lower elevation channel to which all the surrounding lands drain. The conifer forest is mature second or third growth that is on the south side of the creek channel and how they relate to other site conditions such as topography, streams/creeks/water features, or other site features.

Grass Community
A variety of grasses dominate the upland community, which is relatively flat on both the north and south sides of the parcel as shown on Figure 5 Aerial Map. The grasses are associated with Black hawthorn (*Crataegus davidsonii*) in a few clusters within the open field. Grasses were old dry culms, thus not distinguishable from the field survey (February 27 and March 3, 2009) Based upon a previous delineation (DEA 1993), the grasses are most likely wild oat (*Avena sativa*), common velvetgrass (*Holcus lanatus*), spreading bentgrass (*Agrostis stolonifera*) and common timothy

(*Phleum pratense*) interspersed with trailing herbs such as bedstraw (*Galium triflorum*).

Deciduous broadleaf woodland

These communities are dominated by red alder (*Alnus rubra*), hazelnut (*Corylus cornuta*), Oregon ash (*Fraxinus latifolia*), and Himalayan blackberry (*Rubus discolor*). The understory, while not dense, contains perennial woody shrubs and saplings, which include an occasional Indian plum (*Oemeleria cerasiformis*), trailing blackberry (*Rubus ursinus*) and annual grasses (*Elymus glauca*), ferns (*Blechnum spicant*) and forbs.

Conifer Forest

Douglas fir (*Pseudostuga menzeisii)* dominates the coniferous forest in the center of the study area and the stand has an 80 percent canopy cover. The stand of conifers contains several mature Oregon white oak (*Quercus garryana).* The understory is Himalayan blackberry along the perimeter. The interior of the tree stand is typical of dense conifer, with a limited shrub layer and conifer duff groundcover, forbs and bryophytes. There are a few invasive species in the understory with the blackberry Canadian thistle (*Cirsium vulgare)*, devil's club (*Oplopanax horridus)* holly (*Ilex aquifolium)* and ivy (*Hedera helix).*

The conifer forest is intact with second growth 15 – 24 inch dbh elements.

Tables 7,8,9,10 Dominant Vegetation within Plant Communities Tables

Table _7_. Dominant Vegetation within the Grass Community

Common name	*Scientific name*	*Indicator status*
Hawthorn	*Crataegus douglasii*	FAC
Timothy	*Phleum pratense*	FAC
Dock	*Rumex crispus*	FACW
Wild oats	*Avena sativa*	UPL
Creeping Bentgrass	*Agrostis stolonifera*	FAC
Crane's bill	*Geranium dissectum*	UPL
holly	*Ilex aquifolium*	UPL
Velvetgrass	*Holcus lanatus*	FAC

Table 8_. Dominant Vegetation within the Emergent Seep Wetland Community

Common name	*Scientific name*	*Indicator status*
Stinging Nettle	*Urtica dioica*	FAC+
Dewey's sedge	*Carex deweyana*	FAC+
Soft rush	*Juncus effusus*	FACW
False Hellebore	*Veratrum californica*	OBL

Table _9_. Dominant Vegetation within the Deciduous Forested Wetland Community		
Common name	***Scientific name***	***Indicator status***
Oregon ash	*Fraxinus latifolia*	FACW
Red alder	*Alnus rubra*	FACW
Himalayan blackberry	*Rubus discolor*	FACU-
Trailing blackberry	*Rubus urticus*	FACU
Western Crabapple	*Malus fusca*	FACW
Buttercup	*Ranunculus repens*	FACW

Table _10_. Dominant Vegetation within the Conifer Forest Upland Community		
Common name	***Scientific name***	***Indicator status***
Douglas fir	*Pseudostuga menziesii*	FACU
Oregon white oak	*Quercus garryanna*	UPL
English ivy	*Hedera helix*	NI
Sword Fern	*Polystichum munitum*	FACU

D.3 Hydrology

A NRCS WETS tables is attached for the monitoring site near Oregon City, Oregon. Long-time resident of the project area indicated that his property is flooded at least on half of each year. There is no need to irrigate on the pasture the west side of Rosemont Road.

Appendix E. Agency Correspondence Regarding Sensitive Species

WINZLER & KELLY

April 27, 2009

Barry Thom
NOAA's National Maritime Fisheries Service
7600 Sand Point Way NE
Seattle, WA 98115-0070

Re: **Sensitive Species List for Project Area**

Dear Barry,

Winzler & Kelly has been contracted by West Linn Wilsonville School District (WLWSD) to conduct the wetland inventory study for the Erikson School project located in West Linn.

The project site and wetland study area is located in West Linn, roughly between Hidden Springs Road and Bay Meadows Drive, southwest quarter section of Section 23, Township 2 South, and Range 1 East, W. M. The study area boundary is dictated by the parcel boundaries to the south and east, and by Rosemont Rd. to the west, and Hidden Spring Rd. to the north. Rosemont Rd. is the west edge boundary, and the residential streets of Hidden Springs Court and Clubhouse Drive are the eastern limits, and Cheyenne Terrace and Bay Meadows Drive to the south.

I am requesting a list of special status species for this area and extending 1.0 mile from this area.

Thank you for your assistance.

Sincerely,
WINZLER & KELLY

Nancy Olmsted
Senior Scientist

encl: **Site Maps**

15575 SW Sequoia Pkwy, Ste 140, Portland, OR 97224
P(503) 226-3921, F(503) 226-3926
pdo@w-and-k.com

Jodi Cullen

From: Ben Meyer [Ben.Meyer@noaa.gov]
Sent: Monday, May 04, 2009 3:25 PM
To: Jodi Cullen
Subject: Species List Request for the Erikson School Project in West Linn, Oregon

Ms. Cullen

The National Marine Fisheries Service (NMFS) has received your April 27, 2009 request for a list of endangered species under NMFS jurisdiction that may be within a 1 mile radius of the proposed Erikson School project in West Linn, Oregon. Based on our review, NMFS has determined that there are no species under NMFS jurisdiction that would occur within the 1 mile area around the project site. If you have any further questions, feel free to contact me at 503.230.5425.

Ben Meyer
Chief, Willamette Habitat Branch
Oregon State Habitat Office

WINZLER & KELLY

April 27, 2009

Oregon Fish & Wildlife Office
2600 SE 98th Ave, Suite 100
Portland, OR 97266

Re: **Sensitive Species List for Project Area**

Hello,

Winzler & Kelly has been contracted by West Linn Wilsonville School District (WLWSD) to conduct the wetland inventory study for the Erikson School project located in West Linn.

The project site and wetland study area is located in West Linn, roughly between Hidden Springs Road and Bay Meadows Drive, southwest quarter section of Section 23, Township 2 South, and Range 1 East, W. M. The study area boundary is dictated by the parcel boundaries to the south and east, and by Rosemont Rd. to the west, and Hidden Spring Rd. to the north. Rosemont Rd. is the west edge boundary, and the residential streets of Hidden Springs Court and Clubhouse Drive are the eastern limits, and Cheyenne Terrace and Bay Meadows Drive to the south.

I am requesting a list of special status species for this area and extending 1.0 mile from this area.

Thank you for your assistance.

Sincerely,
WINZLER & KELLY

Nancy Olmsted

Nancy Olmsted
Senior Scientist

encl: **Site Maps**

15575 SW Sequoia Pkwy, Ste 140, Portland, OR 97224
P(503) 226-3921, F(503) 226-3926
pdo@w-and-k.com

WINZLER & KELLY

April 27, 2009

Cliff Alton
Oregon National Heritage Interpretive Center
1322 SE Morrison Street
Portland, OR 97214

Re: **Sensitive Species List for Project Area**

Dear Cliff,

Winzler & Kelly has been contracted by West Linn Wilsonville School District (WLWSD) to conduct the wetland inventory study for the Erikson School project located in West Linn.

The project site and wetland study area is located in West Linn, roughly between Hidden Springs Road and Bay Meadows Drive, southwest quarter section of Section 23, Township 2 South, and Range 1 East, W. M. The study area boundary is dictated by the parcel boundaries to the south and east, and by Rosemont Rd. to the west, and Hidden Spring Rd. to the north. Rosemont Rd. is the west edge boundary, and the residential streets of Hidden Springs Court and Clubhouse Drive are the eastern limits, and Cheyenne Terrace and Bay Meadows Drive to the south.

I am requesting a list of special status species for this area and extending 1.0 mile from this area.

Thank you for your assistance.

Sincerely,
WINZLER & KELLY

Nancy Olmsted
Senior Scientist

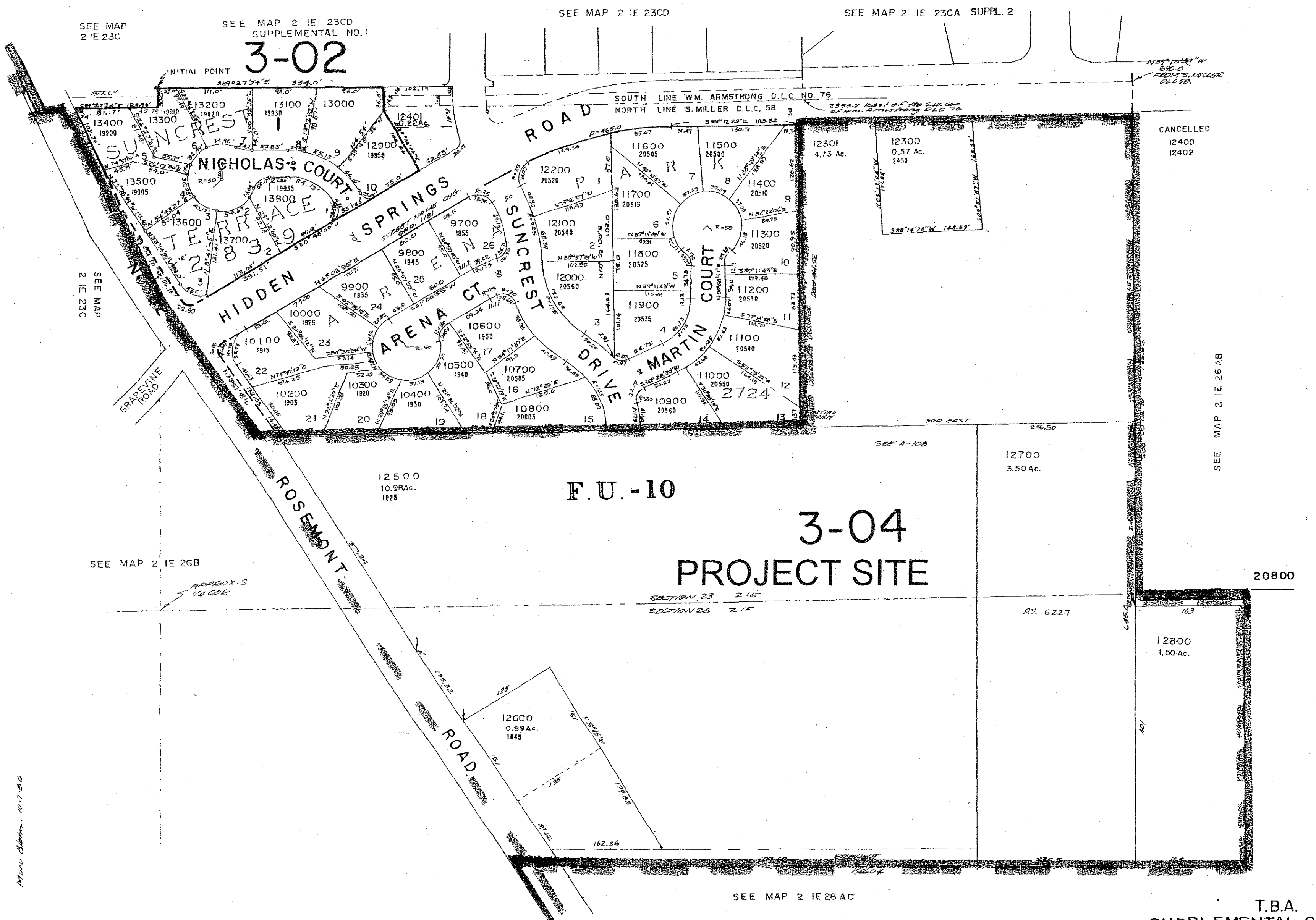
encl: **Site Maps**

15575 SW Sequoia Pkwy, Ste 140, Portland, OR 97224
P(503) 226-3921, F(503) 226-3926
pdo@w-and-k.com

SE1/4 SW1/4 SEC. 23 T.2S. R.1E. W.M.
CLACKAMAS COUNTY
1" = 100'

2 1E 23CD
SUPPLEMENTAL 2

This map was prepared for assessment purpose only.



T.B.A.
SUPPLEMENTAL 2
2 1E 23CD
BOOK 12


1025 Rosemont Rd, West Linn, OR 97068
Image © 2009 Metro, Portland Oregon
© 2009 Tele Atlas
Google
Imagery Date: Jul 12, 2007
45°22'30.37" N 122°39'10.09" W elev 654 ft
Eye alt 4006 ft

WINZLER & KELLY

April 27, 2009

Cliff Alton
Oregon National Heritage Interpretive Center
1322 SE Morrison Street
Portland, OR 97214

Re: **Sensitive Species List for Project Area**

Dear Cliff,

Winzler & Kelly has been contracted by West Linn Wilsonville School District (WLWSD) to conduct the wetland inventory study for the Erikson School project located in West Linn.

The project site and wetland study area is located in West Linn, roughly between Hidden Springs Road and Bay Meadows Drive, southwest quarter section of Section 23, Township 2 South, and Range 1 East, W. M. The study area boundary is dictated by the parcel boundaries to the south and east, and by Rosemont Rd. to the west, and Hidden Spring Rd. to the north. Rosemont Rd. is the west edge boundary, and the residential streets of Hidden Springs Court and Clubhouse Drive are the eastern limits, and Cheyenne Terrace and Bay Meadows Drive to the south.

I am requesting a list of proposed, threatened, and endangered species for this area and extending 1.0 mile from this area.

Thank you for your assistance.

Winzler & Kelly

Nancy Olmsted
Senior Scientist

Sincerely,
WINZLER & KELLY

________________________Name
________________________Title

encl: **Site Map**

15575 SW Sequoia Pkwy, Ste 140, Portland, OR 97224
P(503) 226-3921, F(503) 226-3926
pdo@w-and-k.com

OREGON NATURAL HERITAGE INFORMATION CENTER

OSU
Oregon State University

Institute for Natural Resources
1322 SE Morrison Street
Portland, Oregon 97214-2423
503.731.3070
http://oregonstate.edu/ornhic

Friday, May 01, 2009

Nancy Olmsted
Winzler & Kelly
15575 SW Sequoia Pkwy, Ste 140
Portland, OR 97224

Dear Ms. Olmsted:

Thank you for requesting information from the Oregon Natural Heritage Information Center (ORNHIC). We have conducted a data system search for rare, threatened and endangered plant and animal records for your Erikson School Wetland Study Project at West Linn, T 02S R 01E Sec 23, wm.

Eight (8) records total were noted within a one-mile radius of your project site and are included on the enclosed computer printouts.

Please remember that the lack of rare element information from a given area does not mean that there are no significant elements there, only that there is no information known to us from the site. To assure that there are no important elements present, you should inventory the site, at the appropriate season.

This data is confidential and for the specific purposes of your project and is **not to be distributed**. Please also note that as our database is continually updated, the data in this report should be considered current for one year from the date it was generated and should not be cited after **May 2010**.

Please forward the included invoice to the appropriate party in your organization.

If you need additional information or have any questions, please do not hesitate to contact me.

Sincerely,

Lindsey Koepke
Assistant Information Manager
lindsey.koepke@oregonstate.edu
503.731.3070 x104

encl.: **invoice (H-050109-LAK1)**
computer printouts and data key

Scientific Name: ***Acipenser medirostris*** EO NUM: 1
Common Name: **Green sturgeon** EO ID: 19198

Federal Status: SOC GRANK: G3 NHP List: 4 Category: Vertebrate Animal
State Status: SRANK: S3 HP Track: N ELCODE: AFCAA01030

Confirmed: First Obs: Last Obs: EO Rank:

Directions: COLUMBIA RIVER AND ESTUARY, UPSTREAM TO BONNEVILLE DAM. WILLAMETTE RIVER BELOW WILLAMETTE FALLS.

County Name	Ecoregion	Owner Name/Type
Clatsop	CR	STATE
Columbia	WC	
Multnomah	WV	

Watershed
1708000105 - COLUMBIA GORGE TRIBUTARIES W.
1708000106 - GORDON CREEK/LOWER SANDY RIVER
1708000302 - BEAVER CREEK
1708000303 - PLYMPTON CREEK
1708000601 - YOUNGS BAY TRIBUTARIES
1708000602 - BIG CREEK / GNAT CREEK
1709000704 - ABERNATHEY CREEK
1709001201 - JOHNSON CREEK
1709001202 - SCAPPOOSE CREEK/MULTNOMAH CHANNEL

Town-Range	Sec	Note	QuadCode	QuadName
008N010W			45121-E8	Tanner Butte
008N009W			45121-F8	Bonneville Dam
008N008W			45122-C5	Oregon City
009N008W			45122-D5	Gladstone
009N007W			45122-D6	Lake Oswego
008N006W			45122-E1	Multnomah Falls
009N006W			45122-E2	Bridal Veil
			45122-E3	Washougal
			45122-E4	Camas
			45122-E5	Mount Tabor
			45122-E6	Portland
			45122-E7	Linnton
			45122-F6	Vancouver
			45122-F7	Sauvie Island
			45122-G7	Saint Helens
			45122-H7	Deer Island
			46122-A7	Kalama
			46122-A8	Rainier
			46122-B8	Kelso
			46123-B1	Coal Creek
			46123-B2	Oak Point
			46123-B3	Nassa Point
			46123-B4	Cathlamet
			46123-B6	Cathlamet Bay
			46123-B7	Astoria
			46123-B8	Warrenton
			46123-C4	Skamokawa
			46123-C5	Grays River
			46123-C6	Rosburg
			46124-B1	Clatsop Spit

Managed Area Name

Source Feature [Uncertainty Type (Distance)] Use Class

19198 Line [Linear (8 m)]
38085 Line [Linear (8 m)]

Annual Observations

Feature ID Date Source Observation data

Occurence Data

EO Type: YEAR-ROUND - fish Minimum Elev.(m):

EO Data: NO COLLECTION INFORMATION AVAILABLE. GREEN STURGEON ADULTS ARE ABUNDANT AND THE NUMBERS ARE STABLE IN THE LOWER COLUMBIA RIVER. THEY ARE RARELY FOUND IN THE COLUMBIA RIVER FROM PUGET ISLAND (RM40) UPSTREAM TO BONNEVILLE DAM AND TO WILLAMETTE FALLS IN THE WILLAMETTE RIVER. (1995 ODFW BIENNIAL REPORT ON THE STATUS OF WILD FISH IN OREGON)

EO Comments:
Protection:
Management:
General: GREEN STURGEON NOT ABUNDANT IN ANY PACIFIC COAST ESTUARY. LITTLE IS KNOWN ABOUT ITS LIFE HISTORY. THIS SPECIES MORE MARINE ORIENTED.THAN WHITE STURGEON AND SPENDS LIMITED AMOUNT OF TIME IN FRESHWATER (EXCEPT PERHAPS EARLY JUVENILES AND SPAWNING ADULTS). B91NOA01ORUS.

Scientific Name: ***Anodonta oregonensis*** EO NUM: 14
Common Name: **Oregon floater (mussel)** EO ID: 30363

Federal Status: GRANK: G5Q NHP List: 4 Category: Invertebrate Animal
State Status: SRANK: S3 HP Track: N ELCODE: IMBIV04110
Confirmed: First Obs: 1997-07-01 Last Obs: 1997-07-01 EO Rank: E - Verified extant (viability not assessed)
Directions: Mary S. Young State Park

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas	WV	OPRD	1709001201 - JOHNSON CREEK

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
002S001E	24		45122-D5	Gladstone	MARY S. YOUNG STATE RECREATION AREA

Source Feature [Uncertainty Type (Distance)] Use Class
51188 Point [Areal - Estimated (50 m)]

Annual Observations

Feature ID Date Source Observation data

Occurence Data
EO Type:
Minimum Elev.(m):
EO Data:
EO Comments:
Protection:
Management:
General: 2008 freshwater mollusk shapefile from ODFW, collector: Smith, Al

---

Scientific Name: ***Delphinium leucophaeum*** EO NUM: 15
Common Name: **White rock larkspur** EO ID: 21995

Federal Status: SOC GRANK: G2 NHP List: 1 Category: Vascular Plant
State Status: LE SRANK: S2 HP Track: Y ELCODE: PDRAN0B182
Confirmed: Y First Obs: 1977 Last Obs: 1977- EO Rank: Not ranked
Directions: OREGON CITY, BETWEEN ROAD AND WILLAMETTE RIVER AT POINT OVERLOOKING JOHN MCGLOUGHLIN'S BUST

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas	WV		1709000704 - ABERNATHEY CREEK
			1709001005 - LOWER TUALATIN RIVER
			1709001106 - ROARING RIVER
			1709001201 - JOHNSON CREEK

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
002S002E	29		45122-C5	Oregon City	WILLAMETTE RIVER GREENWAY
002S001E	35		45122-C6	Canby	
002S002E	34		45122-D5	Gladstone	
003S001E	01		45122-D6	Lake Oswego	
003S002E	05				
003S001E	11				
003S002E	07				
003S002E	08				
002S001E	25				
003S001E	13				
003S002E	17				
002S001E	23				
002S002E	19				
002S002E	31				
002S002E	20				
002S001E	24				

003S002E	18
003S002E	09
003S001E	12
003S002E	04
003S002E	06
003S001E	02
002S002E	33
002S002E	32
002S001E	36
002S002E	28
002S002E	30
002S001E	26
002S002E	21

Source Feature [Uncertainty Type (Distance)] Use Class
21995 Point [Areal - Estimated (4000 m)]

Annual Observations
• 1977 - PRESENT

Feature ID Date Source Observation data

Occurence Data
EO Type:
Minimum Elev.(m): 91
EO Data: SIGHTED BY LEO SIMM 1977
EO Comments: CLIFF
Protection:
Management:
General: FROM 1980 USFWS ENDANGERED SPECIES STATUS REPORT BY DARR, DEBBIE

Scientific Name: ***Oncorhynchus kisutch pop. 1*** EO NUM: 37
Common Name: **Coho salmon (Lower Columbia River ESU)** EO ID: 3164

Federal Status: LT GRANK: G4T2Q NHP List: 1 Category: Vertebrate Animal
State Status: LE SRANK: S2 HP Track: Y ELCODE: AFCHA02031
Confirmed: First Obs: 2001-pre Last Obs: 2009 EO Rank: E - Verified extant (viability not assessed)
Directions: SCAPPOOSE BAY, MULTNOMAH CHANNEL, WILLAMETTE RIVER

County Name	Ecoregion	Owner Name/Type
Clackamas	WV	
Columbia		
Multnomah		

Watershed
1708000302 - BEAVER CREEK
1709001201 - JOHNSON CREEK
1709001202 - SCAPPOOSE CREEK/MULTNOMAH CHANNEL

Town-Range	Sec	Note	QuadCode	QuadName
002S001E	14		45122-C5	Oregon City
002S001E	10		45122-D5	Gladstone
002S001E	03		45122-D6	Lake Oswego
001S001E	35		45122-E6	Portland
001S001E	27		45122-E7	Linnton
004N001W	10		45122-F6	Vancouver
001S001E	10		45122-F7	Sauvie Island
001N001E	34		45122-F8	Dixie Mountain
001N001E	28		45122-G7	Saint Helens
001N001E	20		45122-G8	Chapman
001N001E	17		45122-H7	Deer Island
001N001E	18			
001N001W	12			
001N001E	06			
001N001W	02			
002N001E	31			
004N001W	08			
002N001W	34			
002N001W	25			
002N001W	28			
002N001W	23			
002N001W	21			
002N001W	20			

Managed Area Name

002N001W	14
002N001W	18
002N002W	12
002N001W	04
005N001W	34
003N001W	35
003N001W	33
003N002W	36
003N001W	28
003N001W	30
003N002W	25
003N001W	22
003N001W	20
003N001W	15
003N001W	17
003N001W	10
003N002W	12
003N001W	04
003N002W	02
004N001W	33
004N001W	31
004N001W	27
004N001W	29
004N001W	21
004N001W	16
002S002E	19
002S001E	13
004N001W	17
002S001E	24
002S002E	30
004N001W	20
004N001W	30
004N001W	28
004N002W	36
004N001W	34
003N002W	01
003N001W	03
003N001W	09
003N002W	14
003N002W	13
003N001W	16
003N001W	19
003N001W	21
003N001W	23
003N001W	29
003N001W	27
003N001W	31
003N001W	34
002N002W	01
002N001W	06
002N001W	03
002N001W	07
002N001W	17
002N001W	13
004N001W	03
002N001W	22
002N001W	24
002N001W	27
002N001E	30
002N001W	35
002N001W	36
002N001E	32
001N001E	05
001N001W	11

001N001W	13
004N001W	09
001N001E	19
001N001E	21
001N001E	27
001S001E	03
001S001E	15
001S001E	22
001S001E	26
001S001E	36
002S001E	02
002S001E	11

Source Feature [Uncertainty Type (Distance)] Use Class — Annual Observations

Data currently not available.

Feature ID — Date — Source Observation data

Occurence Data

EO Type: REARING & MIGRATION - fish — Minimum Elev.(m):

EO Data: 2009: Classified as rearing by ODFW. Undocumented fish observations. 2001: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE.

EO Comments: Rearing & migration use.

Protection:

Management:

General: Distribution information used in this EOR was derived from ODFW geographic resources data produced and distributed in 1999. Unless specific data exists in the data field, the information presented in this EOR represents the "best professional judgement" by ODFW's district fisheries biologist; the presence of coho in described areas should be considered undocumented but as having a potential of being present. EOR was updated using ODFW geographic resources data produced and distributed in 2004. Updated with 2009 ODFW data.

Scientific Name: ***Oncorhynchus mykiss pop. 27*** — EO NUM: 1

Common Name: **Steelhead (Lower Columbia River ESU, winter run)** — EO ID: 851

Federal Status: LT — GRANK: G5T2Q — NHP List: 1 — Category: Vertebrate Animal

State Status: SC — SRANK: S2 — HP Track: Y — ELCODE: AFCHA02132

Confirmed: — First Obs: 1999-PRE — Last Obs: 1999-PRE — EO Rank:

Directions: SCAPPOOSE BAY, MULTNOMAH CHANNEL, WILLAMETTE RIVER

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas			17090012 - Lower Willamette
Columbia			
Multnomah			

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
			45122-C5	Oregon City	
			45122-D5	Gladstone	
			45122-D6	Lake Oswego	
			45122-E6	Portland	
			45122-E7	Linnton	
			45122-F7	Sauvie Island	
			45122-G7	Saint Helens	

Source Feature [Uncertainty Type (Distance)] Use Class — Annual Observations

Data currently not available.

Feature ID — Date — Source Observation data

Occurence Data

EO Type: REARING & MIGRATION - fish — Minimum Elev.(m):

EO Data: WINTER RUN: ODFW DISTRIBUTIION MAPS USED TO CREATE THE 1:24,000 COVERAGE

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF STEELHEAD IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus tshawytscha pop. 21*** EO NUM: 6
Common Name: **Chinook salmon (Lower Columbia River ESU, spring run)** EO ID: 3132

Federal Status: LT GRANK: G5T2Q NHP List: 1 Category: Vertebrate Animal
State Status: SC SRANK: S2 HP Track: Y ELCODE: AFCHA0205W
Confirmed: First Obs: 1999-PRE Last Obs: 2009 EO Rank: E - Verified extant (viability not assessed)
Directions: SCAPPOOSE BAY, MULTNOMAH CHANNEL, WILLAMETTE RIVER

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas			17090012 - Lower Willamette
Columbia			
Multnomah			

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
			45122-C5	Oregon City	
			45122-D5	Gladstone	
			45122-D6	Lake Oswego	
			45122-E6	Portland	
			45122-E7	Linnton	
			45122-F7	Sauvie Island	
			45122-G7	Saint Helens	

Source Feature [Uncertainty Type (Distance)] Use Class Annual Observations
Data currently not available.

Feature ID Date Source Observation data

Occurence Data
EO Type: REARING & MIGRATION - fish Minimum Elev.(m):
EO Data: SPRING RUN; ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHINOOK IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus tshawytscha pop. 22*** EO NUM: 6
Common Name: **Chinook salmon (Lower Columbia River ESU, fall run)** EO ID: 778

Federal Status: LT GRANK: G5T2Q NHP List: 1 Category: Vertebrate Animal
State Status: SC SRANK: S2 HP Track: Y ELCODE: AFCHA0205Y
Confirmed: First Obs: 1999-PRE Last Obs: 2009 EO Rank: E - Verified extant (viability not assessed)
Directions: SCAPPOOSE BAY & TRIBUTARIES, WILLAMETTE RIVER & TRIBUTARIES

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas	WV		1709000704 - ABERNATHEY CREEK
Columbia			1709001201 - JOHNSON CREEK
Multnomah			1709001202 - SCAPPOOSE CREEK/MULTNOMAH CHANNEL

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
001S001E	10		45122-C5	Oregon City	
004N001W	16		45122-D5	Gladstone	
001S001E	27		45122-D6	Lake Oswego	
001S001E	35		45122-E6	Portland	
002S001E	02		45122-E7	Linnton	
002S001E	14		45122-F7	Sauvie Island	
002S001E	24		45122-G7	Saint Helens	

002S002E	19
002S002E	31
004N001W	15
002S001E	13
002S002E	30
002S001E	11
001S001E	36
001S001E	26
001S001E	22
001S001E	15
001S001E	03
001N001E	27
001N001E	21
001N001E	19
004N001W	17
001N001W	12
001N001E	06
001N001W	02
002N001W	36
002N001W	34
002N001W	25
002N001W	28
002N001W	23
002N001W	21
002N001W	14
004N001W	09
002N001W	07
002N001W	03
002N001W	06
003N001W	35
003N001W	33
003N001W	31
003N001W	27
003N001W	29
003N002W	25
003N001W	22
003N001W	19
003N001W	16
003N001W	10
003N001W	03
003N002W	01
004N001W	34
004N001W	31
004N001W	27
004N001W	29
004N001W	21
004N001W	20
004N001W	30
004N001W	28
004N002W	36
004N001W	33
003N001W	04
003N001W	09
003N001W	17
003N001W	15
003N001W	20
003N001W	21
003N001W	23
003N001W	30
003N001W	28
003N002W	36
003N001W	34
002N002W	01
002N001W	04

002N002W	12
002N001W	18
002N001W	17
002N001W	20
002N001W	22
002N001W	24
002N001W	27
004N001W	10
002N001W	35
002N001E	31
001N001E	05
001N001W	11
001N001W	13
001N001E	18
001N001E	20
001N001E	28
001N001E	34

Source Feature [Uncertainty Type (Distance)] Use Class — Annual Observations

Data currently not available.

Feature ID — Date — Source Observation data

Occurence Data

EO Type: REARING & MIGRATION - fish — Minimum Elev.(m):

EO Data: 2009: Classified as rearing by ODFW. Undocumented fish observation. FALL RUN; ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHINOOK IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT. Updated with 2009 ODFW 1:24,000 coverage.

Scientific Name: ***Oncorhynchus tshawytscha pop. 23*** — EO NUM: 91

Common Name: **Chinook salmon (Upper Willamette River ESU, spring run)** — EO ID: 31243

Federal Status: LT — GRANK: G5T2Q — NHP List: 1 — Category: Vertebrate Animal

State Status: SC — SRANK: S2 — HP Track: Y — ELCODE: AFCHA02052

Confirmed: — First Obs: 2009-pre — Last Obs: 2009 — EO Rank: E - Verified extant (viability not assessed)

Directions: From the mouth of the Willamette River to confluence with the Clackamas River.

County Name	Ecoregion	Owner Name/Type	Watershed
Clackamas	WV		1709001201 - JOHNSON CREEK
Multnomah			1709001202 - SCAPPOOSE CREEK/MULTNOMAH CHANNEL

Town-Range	Sec	Note	QuadCode	QuadName	Managed Area Name
002N001W	22		45122-C5	Oregon City	
001N001E	28		45122-D5	Gladstone	
002N001W	13		45122-D6	Lake Oswego	
002N001W	14		45122-E6	Portland	
001N001E	19		45122-E7	Linnton	
001N001E	18		45122-F7	Sauvie Island	
001N001W	13				
002S002E	30				
001N001W	12				
001N001E	20				
001N001E	21				
001N001W	11				
001N001E	27				
001N001E	34				
001S001E	03				
002S001E	13				

002S001E	14
001N001W	02
002S001E	02
002N001W	35
001S001E	35
001S001E	26
002S001E	11
002N001W	34
001S001E	27
002S001E	24
002S002E	19
001S001E	22
002N001W	27
001S001E	15
001S001E	10
002N001W	23

Source Feature [Uncertainty Type (Distance)] Use Class   Annual Observations

Data currently not available.

Feature ID   Date   Source Observation data

Occurence Data

EO Type: Minimum Elev.(m):

EO Data: 2009: Classified as rearing by ODFW.

EO Comments:

Protection:

Management:

General: Distribution information used in this EOR was derived from ODFW 1:24,000 scale geographic resources data produced and distributed in 2009. Use type was determined by ODFW and other natural resources agency field staff based on survey data, supporting documentation, and the best professional judgement of the field biologists. Unless otherwise noted, the presence of chinook in described areas should be considered undocumented but as having a potential of being present.

8 records total

Key to Oregon Natural Heritage Information Center Data

Field Name	Description
Scientific Name	The scientific name of the species.
Common Name	The common name of the species.
Category	Value that indicates the broad biological category for each species.
ELCODE	Unique NatureServe code for identifying this element. 1st and 2nd byte (PD=Plant dict, PM=Plant monocot, PG=Plant gymnosperm, PP=Plant pteridophyte, AA=amphibian, AB=bird, AF=fish, AM=mammal, AR=reptile, I=invertebrate. 3rd-5th byte (family abbreviation). 6th-7th (genus code). 8th-9th (species). 10th (tie breaker).
Federal Status	US Fish and Wildlife Service or NOAA Fisheries status. **LE**=listed endangered, **LT**=listed threatened, **PE** or **PT**=proposed endangered or threatened, **C**=candidate for listing with enough information available for listing, **SOC** or **SC**=species of concern, **PS:***xx*=partial status for species.
State Status	For animals, Oregon Department of Fish and Wildlife status; **LE**=listed endangered, **PE**=proposed endangered, **PT**=proposed threatened, **SC** or **C**=sensitive-critical, **SV** or **V**=sensitive-vulnerable, **SP** or **P**=sensitive-peripheral, **SU** or **U**=sensitive-undetermined status. For plants, Oregon Department of Agriculture status; **LE**=listed endangered, **LT**=listed threatened, **C**=candidate.
GRANK/SRANK	ORNHIC participates in an international system for ranking rare, threatened and endangered species throughout the world. The system was developed by The Nature Conservancy and is now maintained by NatureServe in cooperation with Heritage Programs or Conservation Data Centers (CDCs) in all 50 states, in 4 Canadian provinces, and in 13 Latin American countries. The ranking is a 1-5 scale, primarily based on the number of known occurrences, but also including threats, sensitivity, area occupied, and other biological factors. In this book, the ranks occupy two lines. The top line is the Global Rank and begins with a "G". If the taxon has a trinomial (a subspecies, variety or recognized race), this is followed by a "T" rank indicator. A "Q" at the end of this line indicates the taxon has taxonomic questions. The second line is the State Rank and begins with the letter "S". The ranks are summarized as follows: **1** = Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences; **2** = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences; **3** = Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences; **4** = Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences; **5** = Demonstrably widespread, abundant, and secure; **H** = Historical Occurrence, formerly part of the native biota with the implied expectation that it may be rediscovered; **X** = Presumed extirpated or extinct; **U** = Unknown rank; **?** = Not yet ranked, or assigned rank is uncertain.
NHP list	All rare species in Oregon are assigned a list number of 1, 2, 3 or 4, where **1**=threatened or endangered throughout range, **2**=threatened or endangered in Oregon but more common elsewhere, **3**=Review List (more information is needed), **4**=Watch List (currently stable). A null value indicates the species is not currently on our rare species list.
HP Track	We currently obtain and computerize locational information for only those elements marked with **Y**(es). Those species marked with **N**(o) or **W**(atch) have incomplete data as we do not actively track them at this time.
EO NUM	The number of the Element Occurrence (EO) for this species. An element occurrence is an area of land or water where the species is or was known to occur and has conservation value. EOs are the main tracking unit for Heritage Programs.
EO ID	Unique identifier for the Element Occurrence (EO). Unique for each occurrence in the database.
First_obs	First reported sighting date for this occurrence in the form YYYY-MM-DD.
Last_obs	Last reported sighting date, usually in the form YYYY-MM-DD.

Key to Oregon Natural Heritage Information Center Data

Field Name	Description
Confirmed	Indication of whether taxonomic identification of the Element represented by this occurrence has been confirmed by a reliable individual. Blank=unknown, assumed to be correctly identified. Y=Yes, confident identification. ?=identification questions.
EO Rank	ORNHIC's determination of the viability of the occurrence.
Directions	Site name and/or directions to site.
County	County name(s) in which EO is mapped.
Ecoregion	Physiographic Province in which EO is mapped: **CR**=Coast Range, **WV**=Willamette Valley, **KM**=Klamath Mountains, **WC**=West slope and crest of the Cascades, **EC**=East slope of the Cascades, **BM**=Ochoco, Blue and Wallowa Mts., **BR**=Basin and Range, **CB**=Columbia Basin, **SP**=Snake River Plains.
Town-Range, Sec, and Note	United States rectangular land survey (also known as the Public Land Survey System) legal township, range, and section descriptions in which the EO is mapped. Township first (4 bytes), range second (4 bytes). For example: 004S029E = Township 4S, Range 29E. All locations are with reference to the Willamette Meridian. Fractional ranges or townships are indicated in the Note field.
Quadcode	USGS code for the USGS topographic quadrangle map(s) where the record is mapped.
Quadname	Name of the USGS topographic quadrangle map(s) where the record is mapped.
Watershed	Watershed(s), identified according to the U.S. Geological Survey (USGS) Hydrologic Unit Map 10-digit code, within which the Element Occurrence is located.
Owner Name/Type	Federal, State, Private, etc.
Managed Area Name	BLM District, USFS Forest, Private Preserve
Annual Observation	Summary of yearly observation.
Source Feature	A Source Feature is the initial translation of a discrete unit of observation data as a spatial feature. Creation of a Source Feature requires an interpretive process. The likely location and extent of an observation is determined through consideration of the amount and direction of any variability between the recorded and actual locations of the observation data. In most cases, the Source Feature is delineated to encompass locational uncertainty. A Source Feature can be a point, line, or polygon. The type of Source Feature developed depends on both the preceding conceptual feature type and the locational uncertainty associated with the feature.
Feature ID	Unique identifier for source feature.
Obs Date	Date of source feature observation.
Source Observation Data	Observations specific to the source feature.

Key to Oregon Natural Heritage Information Center Data

Field Name	Description
Uncertainty Type (Distance)	The recorded location of an observation of an Element may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. This inaccuracy is characterized as locational uncertainty, and is assessed for Source Feature(s) based on the uncertainty associated with the underlying information on the location of the observation. Four categories of locational uncertainty have been identified, as follows: Negligible uncertainty is less than or equal to 6.25 meters in any dimension. Source Features with negligible uncertainty are based on a comprehensive field survey with high quality mapping and a high degree of certainty. Linear uncertainty is greater than 6.25 meters, and varies along an axis (e.g., a path, stream, ridgeline). The true location of an observation with linear uncertainty may be visualized as effectively sliding along a line that delineates the uncertainty. Areal delimited uncertainty is greater than 6.25 meters, and varies in more than one dimension. The true location of an observation can be visualized as floating within an area with a boundary that can be specifically delimited. Boundaries can be defined using roads, bodies of water, etc. Areal estimated uncertainty is greater than 6.25 meters, and varies in more than one dimension. A boundary cannot be specifically delimited based on the observation information, i.e., the actual extent is unknown. The true location of the observation can be visualized as floating within an area for which boundaries cannot be specifically delimited. Source Features with areal estimated uncertainty require that the user specify an estimated uncertainty distance to be used for buffering the feature to incorporate the locational uncertainty.
Use Class	How the source feature is used by migratory species (e.g. breeding, maternity colony, hibernaculum).
EO Type	For animals, type of occurrence, e.g. roost, nest, spawning.
EO Data	Summary of species and population biology for the EO – may include number observed, number of sites, reproduction data, assessment of viability, etc.
EO Comments	Habitat information, e.g. aspect, slope, soils, associated species, community type.
Minimum Elevation	Minimum elevation of the area covered by the range of the taxon, in meters. Negative numbers or blank=not determined.
Protection	Comments on protectibility and threats.
Management	Comments on how the site is managed.
General	Miscellaneous comments.

Appendix F. Literature Citations and References

City of Portland, Bureau of Planning. 1998. Portland Plant List. Adopted by Portland City Council – November 13, 1991 Effective – December 13, 1991, Ordinance No. 154838, as amended:

Cooke, Sarah Spear. 1997. A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon. Seattle Audubon Society, Seattle, Washington.

Cowardin, L.M., Carter, V., Golet, F.C., and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Washington, D.C: Government Printing Office.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U. S. Army Engineer Waterways Experiment Station, Vicksburg, MS. (http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf)

Guard, Jennifer. 1995. Wetland Plants of Oregon and Washington. Lone Pine Publishing, Redmond, Washington.

Hitchcock, C. Leo, and Arthur Cronquist. 1973.Flora of the Pacific Northwest. University of Washington Press, Seattle, Washington.

Munsell Color Services. 2000. Munsell Soil Color Charts. Gretag Macbeth, New Windsor, New York.

National Oceanic and Atmospheric Administration The National Weather Service Portland Weather Forecast Office
http://www.weather.gov/climate/index.php?wfo=pqr

Oregon Administrative Rules (OAR) 141-090, 2007, Implemented by the Oregon Department of State Lands, Salem Oregon
http://arcweb.sos.state.or.us/rules/OARS_100/OAR_141/141_090.html

Oregon Climate Service, **Oregon State University Corvallis, Oregon**
http://www.ocs.oregonstate.edu/index.html

Oregon Department of State Lands, Portland District Corps of Engineers, U.S. Environmental Protection Agency, Region 10, January, 2005, **Wetland Delineation Report Guidance,**.
https://www.nwp.usace.army.mil/op/g/docs/documents/Wetland%20Delineation%20Guide.pdf

Oregon Department of State Lands, 2008, Wetland Delineation Checklist, *Wetland forms and publications site* Salem, Oregon
http://www.oregon.gov/DSL/PERMITS/docs/wetland_delin_rpt_chklist.pdf

Oregon Department of State Lands, 2008, Wetland Delineation Report Cover Form *Wetland forms and publications site*, Salem, Oregon
http://www.oregon.gov/DSL/PERMITS/docs/wetland_delin_rpt_cover.doc
http://www.oregon.gov/DSL/PERMITS/docs/wetland_delin_rpt_cover.pdf

Oregon Department of State Lands, 2008, Wetland Determination Data Form, *Wetland forms and publications site* Salem, Oregon
http://www.oregon.gov/DSL/PERMITS/docs/wetland_data_form.doc
http://www.oregon.gov/DSL/PERMITS/docs/wetland_data_formfill.doc
http://www.oregon.gov/DSL/PERMITS/docs/wetland_data_form.pdf

U.S. Army Corps of Engineers, 1987 Wetlands Delineation Manual:
http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf

U.S. Army Corps of Engineers. 2005. Technical standard for water-table monitoring of potential wetland sites. Technical Note ERDC TN-WRAP-05-02. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
(http://el.erdc.usace.army.mil/wrap/pdf/tnwrap05-2.pdf)

U.S. Army Corps of Engineers. 2008. CWA Guidance to Implement the U.S. Supreme Court Decision for the Rapanos and Carabell Cases
http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/cwa_guide.htm

U.S. Army Corps of Engineers. 2006,. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi
http://www.usace.army.mil/cw/cecwo/reg/inte_aridwest_sup.pdf

U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region, EDRC/EL TR 08-13 U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi
http://www.usace.army.mil/cw/cecwo/reg/west_mt_supp_peer_rev_4-9-2007.pdf

USDA Natural Resources Conservation Service.1995. WETS Table Documentation National Water and Climate Center, Portland, Oregon
http://www.wcc.nrcs.usda.gov/climate/foguide.html#taps
Oregon WETS tables by County
http://www.wwc.nrcs.usda.gov/cgibin/getwetco.pl?state=or
Oregon WETS tables ftp by NRCS County Number
ftp://ftp.wcc.nrcs.usda.gov/support/climate/wetlands/or/

USDA Natural Resources Conservation Service. 1997. Hydrology Tools for Wetland Determination. Chapter 19, Engineering Field Handbook, U. S. Department of Agriculture, NRCS, Fort Worth, TX.
(http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/tech_refs/eng_Hbk/wet.html)

USDA Natural Resources Conservation Service Oregon Hydric Soils List
http://www.or.nrcs.usda.gov/technical/soil/hydric.html

USDA Natural Resources Conservation Service. 1999. Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. Agricultural Handbook 436, Washington, DC.
(http://soils.usda.gov/technical/classification/taxonomy/)

USDA Natural Resources Conservation Service. 2008. The PLANTS Database, National Plant Data Center, Baton Rouge, LA 70874-4490 USA PLANTS.
http://plants.usda.gov/wetland.html

USDA Natural Resources Conservation Service, *Official Soil Series Descriptions, Soil Survey Division*
http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi

USDA Natural Resources Conservation Service Source: Soil Survey of Clackamas County, Oregon (Author, date).
http://www.or.nrcs.usda.gov/pnw_soil/or_data.html

USDA Natural Resources Conservation Service. Web Soil Survey, Soil Survey Staff Available online at http://websoilsurvey.nrcs.usda.gov/ accessed [month/day/year]

USDA Natural Resources Conservation Service. 2002. Field book for describing and sampling soils, Version 2.0. P. J. Schoeneberger, D. A. Wysocki, E. C. Benham, and W. D. Broderson (eds.). National Soil Survey Center, Lincoln, NE.
(http://soils.usda.gov/technical/fieldbook/)

USDA Natural Resources Conservation Service. 2006. Field Indicators of Hydric Soils in the United States, Version 6.0. G. W. Hurt and L. M. Vasilas, eds., USDA NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.
(http://soils.usda.gov/use/hydric/)

USDI Fish and Wildlife Service, National Wetlands Inventory, Wetlands Geodatabase
http://wetlandsfws.er.usgs.gov/index.html

US Environmental Protection Agency, Oregon Operations Office Region 10, Office of Wetlands, Oceans and Watersheds, U.S. Army Corps of Engineers. March 2009. The Oregon Streamflow Duration Field Assessment Method Interim Version

Appendix G. Report Checklist

Oregon Department of State Lands
Wetland Determination/Delineation Report Requirements Checklist
(This form summarizes requirements and is not meant to replace the rules, OAR 141-090-0005 to 0055).

Report Name: WLWSD Erickson School Site City/County: West Linn / Clackamas
Consultant firm/Contact: Winzler & Kelly / NANCY OLMSTED Firm's Project No.: 11456-09001
Department WD #: ____________ Department Reviewer: ____________
Other Department File #: ____________ Phone: (503) 986-5_____ Date: ____________
Date ☐ Mailed ☐ Faxed ☐ E-mailed to: Consultant _____ Applicant/Agent _____

☐ Report does not conform to many requirements (OAR 141-090-0005 to 0055) and cannot be approved. . Please note the WD file number above if/when the report is revised and resubmitted. A complete new report and $100 fee is required for resubmittal of a rejected report.

Items marked with an ☒ indicate that information provided within the report ***does not*** *meet requirements, is not clear, or appears to be incorrect.*

Technical Requirements:

☐ Work conducted according to 1987 *Corps of Engineers Wetland Delineation Manual* including regional supplements and applicable guidance, and any supporting technical or guidance documents issued by the Department.

Comments:

Cover Form ☑ **Correct form and fully completed**
Report Format ☑ **Report conforms to the report format provided by the Department**
Comments:

Text Order and Required Sections:

A) Landscape Setting and Land Use

☑ Detailed description of the study area, its landscape setting, and previous and current land uses

Comments:

B) Site Alterations

☑ Description, approx. year, and analysis of any site alterations that likely affected the presence, location or boundaries of any waters of the state in the study area

Comments:

C) Precipitation Data and Analysis

☑ Precipitation on the day of AND approximately 1- 2 weeks before the date(s) of the field investigation(s)
☑ Percent of normal precipitation for the water year to date AND monthly percent of normal precipitation using appropriate NRCS WETS table for each of the 3 months preceding the field investigation

Comments:

D) Methods

☑ Date(s) of the field investigation
☑ Site-specific methods for conducting the field investigation, selection of sample plot locations, determination of boundaries
☑ Data include a sample plot that best represents each wetland and best represents adjacent non-wetland(s)
☑ Paired sample plots located close enough to either side of the wetland boundary to substantiate boundary location
☑ Data are provided for all mapped hydric soil units
☐ If the study area does not contain wetlands, at least one sample plot was placed in each of the lowest topographic areas or other locations most likely to contain wetlands to document site conditions.
☐ Field investigation of farmed site conducted in early growing season. If field work done at other time, appropriate method and requirements applied.
☐ If other waters are present, methodology described for determination of OHWL or HMT.

Comments:

E) Description of All Wetlands and Other Non-Wetland Waters

☐ Wetland and other water characteristics and boundaries including whether they extend offsite

Comments:

F) Deviation from LWI or NWI

☑ If any deviation, wetland determination data and explanation provided

Comments:

G) Mapping Method

☑ Methodology described including mapping precision estimate

Comments:

H) Additional Information

☑ Documentation of fish presence or absence in a stream or ditch, using published maps or reports or information from an authoritative source (e.g., ODFW)

☑ Data sufficient to determine whether or not an identified water area is artificially created entirely from upland and/or the purpose for which it was created

☐ Hydrology monitoring data, including spring hydrology data for farmed sites

☐ Additional aerial photographs (e.g. historical aerials used as basis of jurisdictional determination)

☐ Data or other information on pre-disturbance conditions

Comments:

I) ☑ Results and Conclusions

Comments:

J) ☐ Required Disclaimer

Appendices Requirements:

A) Figures:

☑ Location map showing the precise study area location

☑ Tax lot map showing the entire parcel(s)

☑ LWI map, if available, or NWI map(s), including map name(s) showing the study area

☑ County soil survey map showing the study area location/boundaries and a legend with all soil series mapped in the study area and hydric status

☑ Aerial photograph(s)-at least 1 recent photo labeled with month/year or at least 3 early growing season aerials for farmed sites

☐ Wetland map(s) comprising the wetland determination and/or delineation including:

- ☑ The boundaries of the entire parcel(s) subject to investigation; or if only a portion of the parcel(s) investigated, the study area boundary in relation to the parcel boundaries
- ☑ Existing structures, areas of fill, water diversions, or other major alterations
- ☑ All water features and their boundaries
- ☑ Numbered sample plots corresponding to data forms
- ☑ North arrow, scale bar,& legend
- ☑ Ground level photograph location and direction of view
- ☑ Wetland map(s) scale suitable for the study area size and for legibility
- ☐ Mapping method and precision statement

Comments:

B) Data Forms:

☑ Data forms from the appropriate regional Manual supplement, or provided by the Department

☑ Data form fully and correctly completed for each sample plot

☑ Data collected supports indicator selected and determination made

☑ Name(s) of field investigator(s)

☑ Standard NRCS soils terminology

☑ Soil profile description matches hydric soil indicator(s) selected, if any

☑ Latin botanical name for all plant species listed

☑ Wetland indicator status for all plant species listed and correct

☑ Correct method applied to determine dominant plant species

Comments:

C) ☑ Ground Level Color Photographs submitted and with captions

Comments:

WINZLER & KELLY
15575 SW Sequoia Pkwy, Ste. 140
Portland, OR 97224-7233

Date: 1/18/10

MEMORANDUM

Project No.: 10884-09009 Project Name: WLWSD Erickson Wetlands

To: Tim Woodley, District Supervisor

From: Nancy Olmsted, Sr. Environmental Scientist

Copies To:

A. Introduction

The West Linn Wilsonville School District is proposing to build a new primary school facility on property they own in West Linn at 1025 NE Rosemont Road (T2S R1E Sec 23, 26 Tax Lots 12301, 12500, 12700 and 12800). A narrow strip of land on Tax Lot 5500 and 3100 to the south of the parcels owned by the District would be necessary to support adequate entry road for egress and ingress to the bus area and teachers' parking lot. This memorandum provides results of an investigation of the potential for wetlands and waters of the State along this corridor.

In addition, the City of West Linn has a "water resource area" on the eastern portion of the property (Tax Lot 12800) that ostensibly extends north/south across the field between a storm drain pipe in the south and an offsite storm drain inlet at the north side outside the parcel line (Clackamas County Ordinance No. 1545; Chapter 32. 000 Water Resource Protection). The exact nature of the water resource area was not clear from the County's map, whether it be a storm ditch, a jurisdictional feature or a channel of sorts. Therefore, the school district directed Winzler & Kelly to investigate these two areas to confirm the status of hydrology, vegetation and soils along the area proposed for the access road (Assessment Area D) or within the area designated "water resource area" (Assessment Area E).

For purposes of study and for reference, these study areas are labeled Assessment Area D and E, respectively (Appendix A – Figures 5 & 6), and wetlands A, B and C were identified and mapped in the May 20, 2009 Wetland Delineation Report prepared by Winzler & Kelly.

B. Site Alterations Current and Past Land Use

Soils, hydrology, and vegetation in the study area have been altered by those using the land for their homestead, or residents that currently live outside of the study area boundary. The southern half of Assessment Area D is private property with a tennis court and half-basketball court. Stormwater is being diverted away from the residential subdivisions to the south onto both Assessment areas D and E.

B.1 Soils

Soils were found to be fairly undisturbed and true to the soil survey map units characteristics. There may be some compaction of soils by vehicles that traverse both assessment areas, as well as possible cut/fill in the vicinity of the existing buildings (Photos 1 and 2).

B.2 Hydrology

The hydrology has been altered by residential and public storm drains daylighting directly into Assessment Area D (Photo 1) and immediately above and below Assessment Area E. Surface water ponding occurs in wheel ruts left by vehicular traffic that do not readily drain (Photos 1 and 2).

Photo 1. Assessment Area D looking east - Hydrology, soil and vegetation alterations from seasonal mowing and discharges from stormwater outfall pipes.

Photo 2. Assessment Area E looking east - Hydrology, soil and vegetation alterations on the edges from seasonal mowing.

B.3 Vegetation

The main observed factor that altered the plant community types is the seasonal practice of mowing the edge of the forest to attempt to minimize invasive blackberry proliferation, which has resulted in quackgrass (*Agropyron repens*) dominating Assessment Area D (Photo 1). There is a relatively less disturbed deciduous plant community in the central core of Assessment Area E dominated by Western crabapple (*Malus fusca),* Nootka rose (*Rosa nutkana*) and trailing blackberry (*Rubus ursinus*) (Photo 3).

Photo 3. Assessment Area E - Representative vegetation in the center of study area.

C. Precipitation Data and Analysis

C.1 Climate and Growing Season

The study area climate is typical of the mid-Willamette River Valley region. Average annual temperature is 45 to 55^{o}F (7 to 13 ^{o}C) and average annual rainfall is 45 in. (115 cm). Site visits to the study area occurred on December 3, 2009 and January 5, 2010, outside of the growing season (April – July). Grass florets and culms had died back and deciduous trees were leafless.

C.2 Precipitation Table Summary

Daily precipitation records in Tables 1 and 2 were obtained from NOAA's National Weather Service website *(http://www.weather.gov)*.

Table 1 Precipitation on the December 3, 2009 site visit and the preceding two weeks and compared to normal precipitation for those dates.

Days Before	Date		Actual Precip (in.)	Normal Precip (in.)	Departure from Normal (in.)
0	December	3	0	0.2	-0.2
1	December	2	0	0.2	-0.2
2	December	1	0	0.2	-0.2
3	November	30	0.01	0.2	-0.19
4	November	29	0	0.2	-0.2
5	November	28	0	0.2	-0.2
6	November	27	0.22	0.2	0.02
7	November	26	0.86	0.2	0.66
8	November	25	0	0.2	-0.2
9	November	24	T	0.2	-0.2
10	November	23	0	0.2	-0.2
11	November	22	0.23	0.2	0.03
12	November	21	0.31	0.2	0.11
13	November	20	0.33	0.2	0.13
14	November	19	0.2	0.2	0

Table 2 Precipitation on the January 5, 2010 site visit and the preceding two weeks and compared to normal precipitation for those dates.

Days Before	Date		Actual Precip (in.)	Normal Precip (in.)	Departure from Normal (in.)
0	January	5	0.28	0.17	0.11
1	January	4	0.41	0.17	0.25
2	January	3	0	0.17	-0.17
3	January	2	T	0.17	-0.17
4	January	1	0.65	0.17	0.48
5	December	31	0.85	0.17	0.68
6	December	30	0.05	0.17	-0.12
7	December	29	0.16	0.17	-0.01
8	December	28	0	0.17	-0.17
9	December	27	T	0.17	-0.17
10	December	26	0	0.18	-0.18
11	December	25	0	0.18	-0.18
12	December	24	0	0.18	-0.18
13	December	23	0	0.18	-0.18
14	December	22	T	0.18	-0.18

C.3 Wetland Hydrology and Analysis

December sampling took place after slightly drier than average conditions, whereas substantial rainfall had fallen prior to the January field investigation.

At the time of the site visit on December 3, 2009 weather conditions were cloudy, damp and cool. In the days prior to the December 3, 2009 site visit, there was no measurable precipitation, which was lower than average rainfall in previous years (Table 1).

At the time of the January 5, 2010 site visit, weather conditions were rainy (0.28 inches) and cool—0.11 inches higher than average. On the day prior to the January 5, 2010 site visit, the actual measured precipitation was 0.41 inches (Table 2), higher than average rainfall in previous years. Thus, the surface and ground water observed during this site visit reflect above average precipitation conditions on the site. This was evident in the actively discharging stormwater outfalls and ponding in Assessment Areas D and E, as well as the high groundwater levels observed in Assessment Area E.

D. Field Methods (site specific methods for field investigation)

This section describes the site specific methods that were employed to determine the wetland status of the study area.

- Site visit date(s): December 3, 2009 and January 5, 2010.
- Use of 1987 Corps Manual and 2008 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region.
- In Assessment Area D, four sample plots were performed: One below the 4” storm outfall pipes (D1D), one paired plot below the 12” cement storm outfall pipe (D2E and D2UP1) to determine the upland/wetland boundary, and one from the bank of the apparently artificially ponded depression (D3A).
- In Assessment Area E, four sample plots were selected based on the apparent low elevation locations in the concave topographic swale (E1J, E1K, E1L and E1M).
- At each sample plot (excluding E1M) a photo of the soil profile was taken. Other photos were taken to document observable site alterations, or surface or ground fed hydrology.
- Areas where the hydrology is being enhanced by the continuous flooding of the southern part of the study area from manmade nonpoint and point surface water runoff discharges from adjacent properties was documented.

D.1 Soils

Soils at each representative wetland sample point were typically inspected to a depth of 40 to 50 cm (16 to 20 in) to determine the presence or absence of hydric soils (wetland conditions). Soil hue, value, and chroma were determined using Munsell Soil Color Charts.

D.2 Hydrology

Hydrology was evaluated in various ways throughout the study area. Surface hydrology was noted at stormwater outfall pipes. Hydrology was also determined from test pits, noting saturation or a high water table within the top 12 inches.

D.3 Vegetation

The vegetation was identified and determined the various indicators as described in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Corps of Engineers April 2008).

At each sample plot, the absolute percent cover for each dominant species in the plot area was visually estimated and recorded. The average sample plot has a 1-m radius for herbs, 3-m radius for saplings and shrubs, and a 5-m radius for trees and woody vines.

E. Description of All Wetlands & Other Non-Wetland Waters

Assessment Area D has significantly disturbed vegetation, dominated by grasses that are seasonally mowed. Storm drains discharge into the area and supply hydrology that flows through the area into Wetland “A” (Trillium Creek headwaters).

Assessment Area E is involves a slight concave topographic swale and is characterized by a high water table in the lowest portions of the swale. The area receives stormwater from a partially blocked 12” outfall pipe that discharges into the area, ponds, and percolates into the ground. The perimeter of Assessment Area E is disturbed, dominated by grasses that are seasonally mowed.

E.1 Wetlands

Two small portions of Assessment Area D (Water 4 at D2 (Photo 4) and closed depressional area at D3 (Photo 5)) were determined to be extensions of the Wetland “A” headwaters of Trillium Creek (Wetland “A” is identified in the Wetlands/Waters Delineation Report for West Linn Wilsonville School District Erickson School Site). Hydrology mainly enters the area via stormwater outfall pipes at two separate points. One discharge area includes two 4” PVC outfall pipes, discharging stormwater from the adjacent residential subdivision. The second outfall is a 12” cement pipe, discharging stormwater, which creates a 6” – 1’ wide channel.

Photo 4. Flow path of surface water in Assessment Area D (Water 4) from the 12" storm outfall pipe.

Photo 5. Assessment Area D - Closed depressional area at D3 (orange flag).

Vegetation in Assessment Area D is dominated (70-95%) by facultative quackgrass (*Agropyron repens*), which is seasonally mowed to prevent encroachment of invasive Himalayan blackberry. Soil pits were dug below both discharge pipes (D1D and D2E), ten feet outside of the discharge area (D2UP1), as well as into the bank of a nearby ponded artificial depression (D3A). Indicators of hydric soil were observed in D2E, directly within the channel below the 12” outfall pipe, as well as in D3A, in the bank of an apparently artificial depression. The boundary of Wetland “A” (headwaters of Trillium Creek) was extended to include the channel up to the 12” outfall pipe as well as the depressional area.

Assessment Area E is characterized by high groundwater flowing through the lowest parts of the concave swale. A 12” outfall pipe discharges stormwater immediately above the area and an inlet pipe is located immediately below the area. The very slight concave topography runs through the area, essentially between the two storm pipes. The inner core of the area is dominated by a mix of facultative wet, facultative, and facultative upland plant species: Oregon crabapple (*Malus fusca*), Hawthorn (*Crataegus spp*.), Nootka rose (*Rosa nutkana*), trailing blackberry (*Rubus ursinus*) and Himalayan blackberry (*Rubus discolor*). Surface water was observed in wheel ruts, but the main source of hydrology is groundwater flow through the area, likely perched on a shallow restrictive layer. Soil pits within the central, low points of the swale showed a shallow water table within 12’ of the surface. Soil pits outside of the lowest points of the swale showed the water table deeper than 12”.

F. Deviation from LWI or NWI

Neither of these assessment areas appear as a wetland or water feature on either the National Wetland Inventory or the West Linn Local Wetland Inventory.

G. Mapping Method

Please refer to the Wetlands/Waters Delineation Report for West Linn Wilsonville School District Erickson School Site.

H. Additional Information

The soil series in both Assessment Areas are listed as 13C – Cascade silt loam by the Natural Resources Conservation Service. These soils are listed as having a fragipan restrictive layer at 20-30 inches and a water table at about 18-30 inches.

The January 5th site visit was after and during a rain event, which influenced the surface water observed in Assessment Area D and shallow (< 12”) groundwater observed within sample plots in Assessment Area E. It should also be noted that there was a lack of observable flowing surface water in the “water resource area” of Assessment Area E during either the December 3, 2009 or the January 5, 2010 site visits.

I. Results and Conclusions

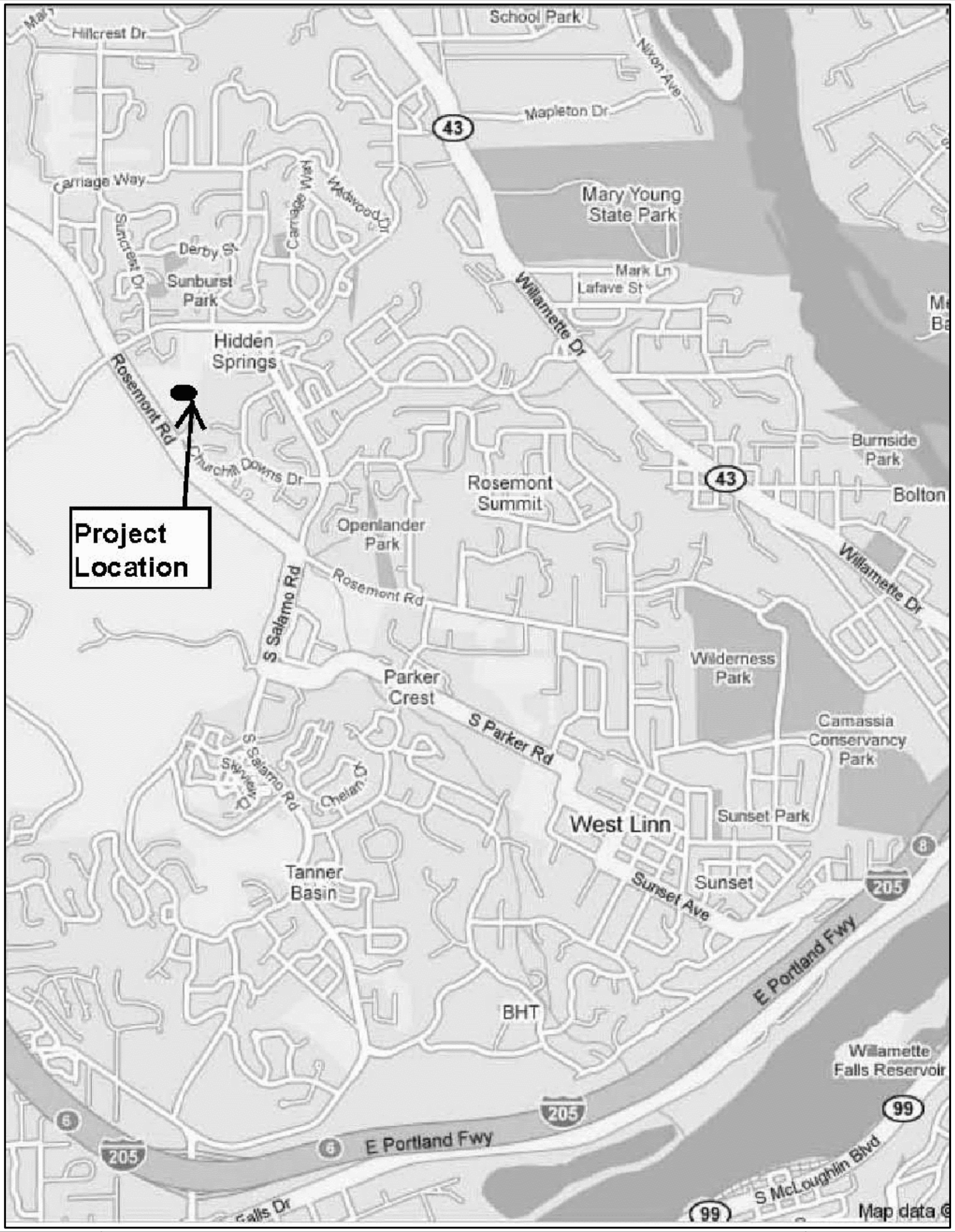
In Assessment Area D, two small areas were determined to be an extension of the Trillium Creek headwaters wetland: the flow channel at D2 (Water 4) extending up to the 12” outfall pipe and tiny, depressional closed wetland area near sample point D3.

No wetlands were determined to be present in Assessment Area E, but stormwater discharges and a shallow restrictive layer in the soil result in the water table within 12 inches from the ground surface in the lowest portion of the concave topography of the area.

Table 5 Project Summary of Wetland Types & Acres

Resource Type	*Length (feet)*	*Area (acres)*
Water 4	~60.0	~0.005
Wetland – depressional closed system1	N/A	~0.005
Total	**~60.0**	**~0.010**

Appendix A. Maps



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 1
LOCATION MAP

O:\11456 – WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 1 LOCATION MAPS.DWG Keith Tolle 1/19/2010 11:32 AM

WINZLER & KELLY

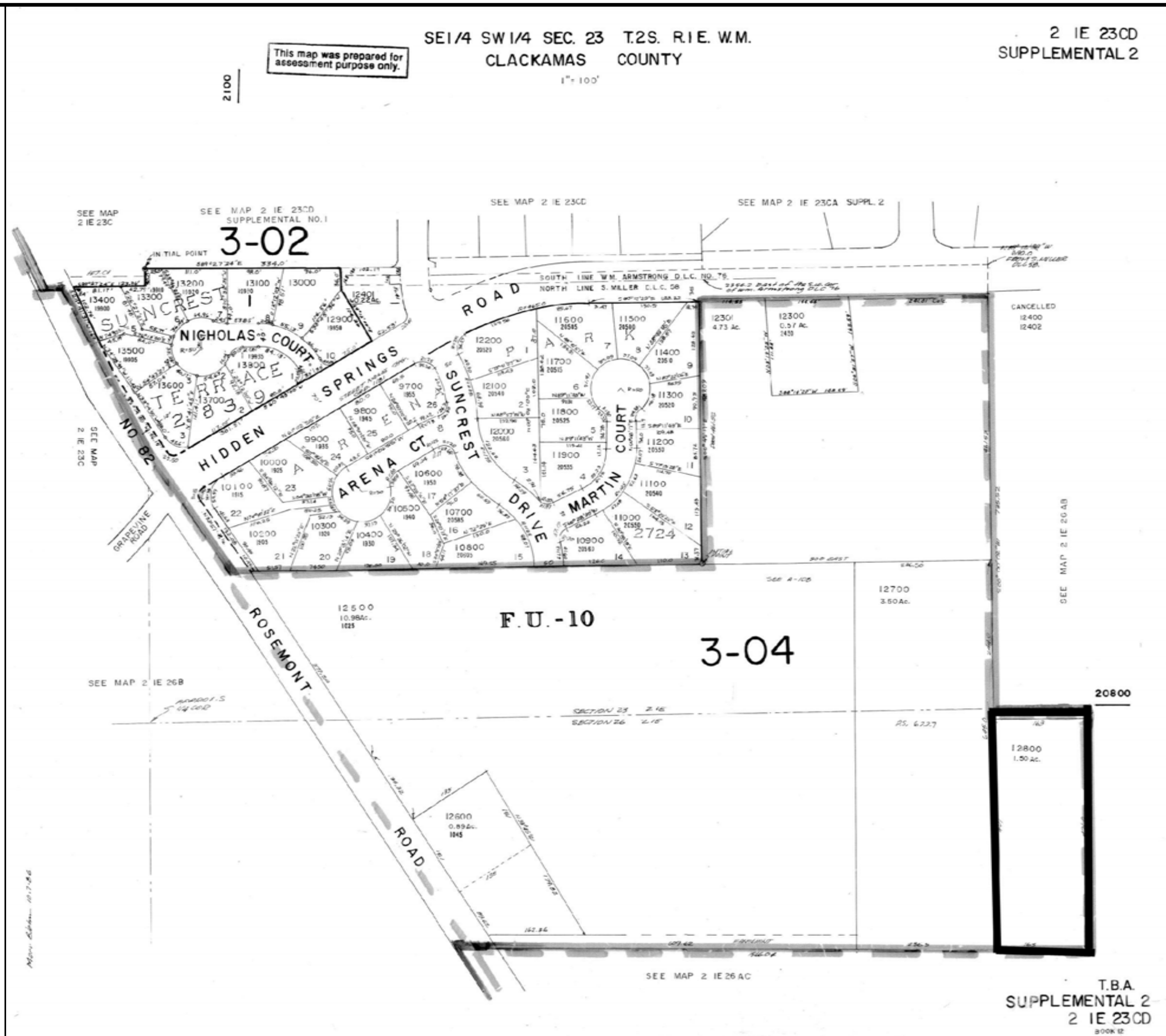
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	114560900	

TITLE
FIGURE 2
TAX MAP - LOTS 5500,3100 AND 3000
ASSESMENT AREA D

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 2 TAX MAP AREA D.DWG Keith Tolle 1/4/2010 4:31 PM



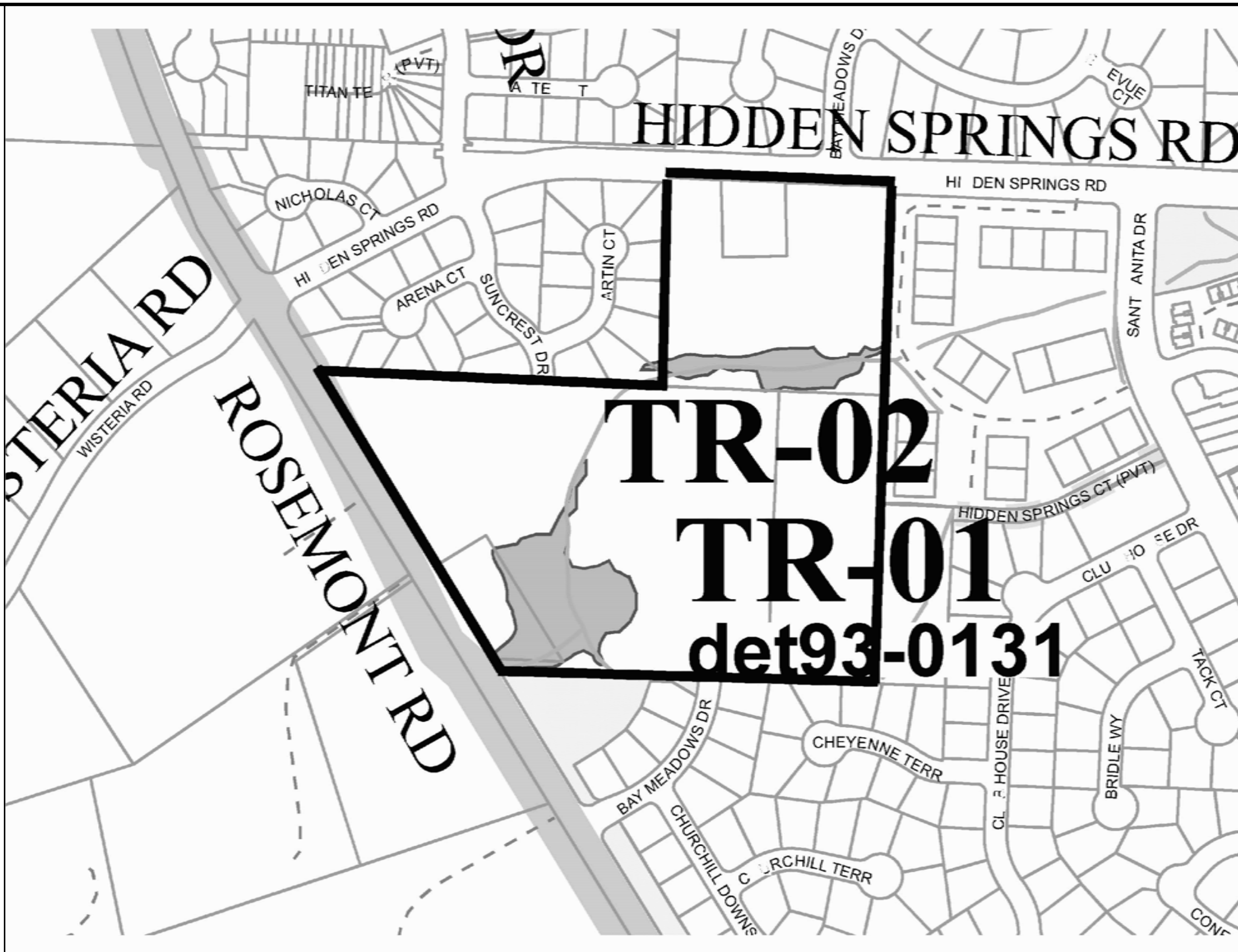
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	114560900	

TITLE
FIGURE 2
TAX MAP - LOT 12800
ASSESMENT AREA E

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 2 TAX MAP AREA E.DWG Keith Tolle 1/4/2010 4:31 PM



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT						TITLE
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT ERICKSON SCHOOL SITE						FIGURE 3 LWI MAP
DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.	
	KPT	NO	04/09/09	1145609001		

O:\11456 – WLWSD (WEST LINN–WILSONVILLE SCHOOL DISTRICT)\11456–09001 WLWSD ERICKSON WETLANDS\CAD\FIG 3 LWI MAP.DWG Keith Tolle 1/19/2010 11:33 AM

Soil Map—Clackamas County Area, Oregon
(Assessment Area D)

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/19/2010
Page 1 of 3

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 4
SOILS MAP ASSESSMENT AREA D

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

O:\11456 – WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 4 SOILS MAP ASSESSMENT AREA D.DWG Keith Tolle 1/19/2010 11:42 AM

Soil Map—Clackamas County Area, Oregon
(Assessment Area E)

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/19/2010
Page 1 of 3

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIGURE 4
SOILS MAP ASSESSMENT AREA E

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

N

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

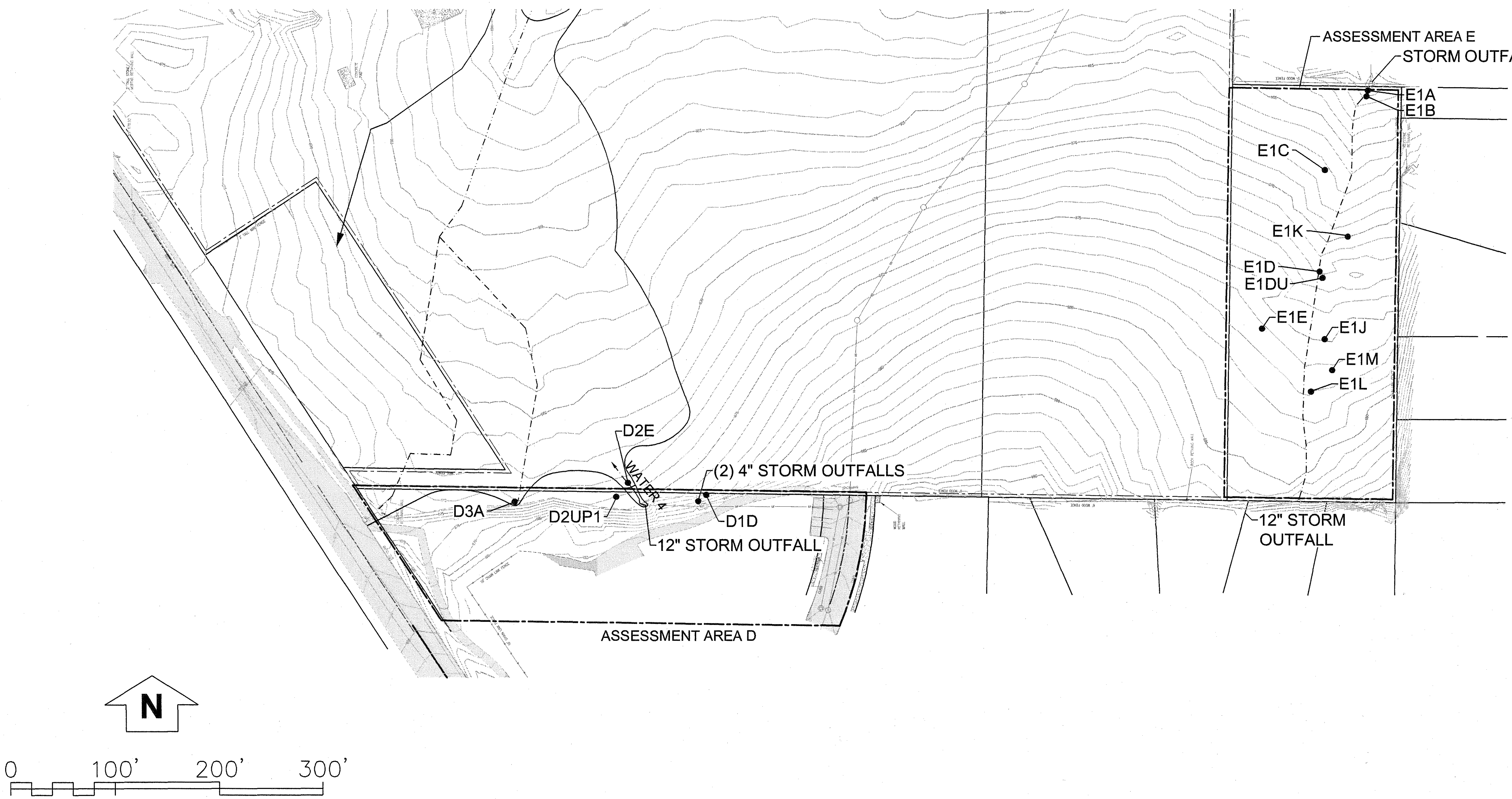
PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 5
AERIAL PHOTO

LEGEND

—·— STUDY AREA BOUNDARY



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

TITLE
FIG. 6 ADDITIONAL SAMPLING FOR WETLAND DELINEATION STUDY

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	12/14/09	1145609001	

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 6A WETLAND.DWG Dick George 1/12/2010 10:49 AM

Appendix B. Wetland Field Data Forms

Assessment Area D

SP D1D

SP D2E

SP D2UP1

SP D3A

Assessment Area E

SP E1J

SP E1K

SP E1L

SP E1M

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: D10

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 5

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 26.75" N Long: -122° 39' 47" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ___, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ✓, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 3m)			
1. N/A			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m)			
1. Agropyron repens	95	Y	FAC
2. Phalaris arundinacea	5		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: 3m)			
1. N/A			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:
mowed grasses in & around plot

SOIL

Sampling Point: D1 D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	99	5YR 5/6	<1	C	M	Cl Lo	
8-18	10YR 3/3	90	5YR 4/6	10	C	M	Cl Lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1"

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Residential ~~sto~~ downspout pvc outfall pipe

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: D2E

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): 1

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 26.65" N Long: -122° 39' 09.52" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ___, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ✓, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? Yes ✓ No ___

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m)			
1. N/A			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 3m)			
1. Rubus discolor	5	N	
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m)			
1. ~~Grass~~	~~100~~	~~Y~~	
2. Agropyron repens	30	Y	FAC
3. Polygonum bistordoides	10		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: 3m)			
1. N/A			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

Mowed grasses in + around sample plot.

SOIL

Sampling Point: D2E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					SaClLo	
6-18	10YR 4/1	90	5YR 4/6	10	C	M	SaCl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ___

Remarks:

Trash wrapper pulled out ~ 6" in soil = fill?
W/in water 4

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1"

Water Table Present? Yes ___ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12" Cement stormwater outfall pipe.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: D2 Upl

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 1

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 26.61" N Long: -122° 34' 09.54" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ✓, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks:
10' from D2E; outside stormwater flows.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3m)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m)			
1. ~~Grass~~	~~100~~		
2. Agropyron repens	95	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 3m)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:
Mowed grasses in + around plot.

SOIL

Sampling Point: D2 Upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/2	>99	5YR 4/6	<1	C	M	SiCl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____
Water Table Present? Yes ____ No ✓ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: D3A

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 1

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 26.53" N Long: -122° 39' 10.73" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ✓, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m)			
1. N/A			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 3m)			
1. N/A			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m)			
1. ~~Grass~~	~~[illegible]~~		
2. Phalaris arundinacea	5		FACW
3. Agropyron repens	70	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: 3m)			
1. N/A			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
mowed grass in & around sample plot.

SOIL

Sampling Point: D3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	85	7.5YR 4/6	15	C	M	Cl Lo	
6-18	10 YR 3/2	95	7.5YR 4/6	5	C	M	Cl Lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 6"

Water Table Present? Yes ____ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Antecedent and current rainfall resulting in depressional ponding surface water. Unclear if ponding persists into the growing season of sufficient duration.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: E1J

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 28.12" N Long: -122° 39' 00.16" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ✓	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m)			
1. Malus fusca	80	Y	FACW
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 3m)			
1. Rosa nutkana	50	Y	FAC
2. Rubus discolor	5		FACU
3. Rubus ursinus	30	Y	FACU
4. Crataegus monogyna	5		FACU
5.			
	90 = Total Cover		
Herb Stratum (Plot size: 1m)			
1. moss			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: 3m)			
1. N/A			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: E1J

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/2	100					ClLo	
11-18	10YR 5/2	95	10YR 5/4	5	C	M	Cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ✓ No ___ Depth (inches): 13

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: E1K

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 3

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 29.29" N Long: -122° 38'59.94" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m)			
1. Malus fusca	35	Y	FACW
2.			
3.			
4.			
= Total Cover	35		
Sapling/Shrub Stratum (Plot size: 3m)			
1. N/A			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m)			
1. ~~Grass~~	~~100~~		
2. Holcus lanatus	30	Y	FAC
3. Hypericum perforatum	5		NOL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: 3m)			
1. N/A			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: E1K

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					ClLo	
5-12	10YR 3/3	100					ClLo	
12-20	10YR 3/6	98	10YR 4/6	2	C	M	SaClLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ✓ No ______ Depth (inches): 2"

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): 1"

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: E1L

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 2

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45°22' 27.59" N Long: -122° 39' 00.35" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Malus fusca	85	Y	FACW
2. ~~Corylus cornuta~~			
3.			
4.			
= Total Cover	85		

Sapling/Shrub Stratum (Plot size: 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Crataegus monogyna	20	Y	FACU
2. Rubus discolor (armeniacus)	20	Y	FACU
3. Corylus cornuta	40	Y	FACU
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			

Woody Vine Stratum (Plot size: 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ~~8~~ 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: E1L

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					SiClLo	
12-18	10YR 5/2	80	10YR 5/6	20	C	M	SaCl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Poor light conditions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ✓ No ___ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 3"

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Erickson Site PS City/County: West Linn/Clackamas Sampling Date: 1/5/2010

Applicant/Owner: West Linn Wilsonville School District State: OR Sampling Point: E1M

Investigator(s): BF, NO Section, Township, Range: Sec 26 T2S R1E

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): 2

Subregion (LRR): 4 A Northwest Forests and Coast Lat: 45° 22' 27.63" Long: -122° 39' 02.09" W Datum: W.M.

Soil Map Unit Name: 13C - Cascade Silt Loam; 8 – 15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m)			
1. Malus fusca	50	Y	FACW
2. Crataegus monogyna	25	Y	FACU
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. Crataegus monogyna	10		
2. Rubus discolor (armeniacus)	20	Y	FACU
3. Rubus ursinus	20	Y	FACU
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. ~~Hedera helix~~			
2. Symphoricarpos albus	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: 3m)			
1. Hedera helix	30		NOL
2.			
	30	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: E1M

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/1	100					SiClLo	
11-20	10YR 4/2	95	10YR 4/6	5	C	M	SaCl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

Poor light conditions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) **(LRR A)**
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) **(LRR A)**
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______
Water Table Present? Yes ✓ No ___ Depth (inches): 14
Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C. Ground Level Color Photographs

Assessment Area D

Photo D1 - Soil Profile at Sample Plot D1D

Photo D2 - Sample Plot D1D

Photo D3 - Source of Hydrology for D1 Plots - Storm Water Outfall Pipes

Photo D4 - Soil Profile at Sample Plot D2E

Photo D5 - Hydrology at Plot D2E - Source is a Cement Stormwater Outfall Pipe

Photo D6 - Soil Profile at Plot D2UP1 - 10 Feet From Surface Hydrology of D2

Photo D7 - Soil Pit at D2UP1

Photo D8 - Soil Profile at Plot D3A

Photo D9 - Stormwater Outfall Pipe Above Tennis Court

Assessment Area E

Photo E1 - Slight Concave Topography at the Upper (Southern) End of Assessment Area E

Photo E2 - Soil Profile at Plot E1J

Photo E3 - Sample Plot E1J

Photo E4 - Soil Pit and Profile at Plot E1K - Initial Groundwater Level

Photo E5 - Sample Plot E1K - Groundwater Level at ~30 Minutes

Photo E6 - Sample Plot E1K - Final Groundwater Level

Photo E7 - Soil Profile at Plot E1L

Photo D1 - Soil Profile at Sample Plot D1D

Photo D2 - Sample Plot D1D

Photo D3 - Source of Hydrology for D1 Plots - Storm Water Outfall Pipes

Photo D4 - Soil Profile at Sample Plot D2E

Photo D5 - Hydrology at Plot D2E - Source is a Cement Stormwater Outfall Pipe

Photo D6 - Soil Profile at Plot D2UP1 - 10 Feet Away From Surface Hydrology of D2

Photo D7 - Soil Pit at D2UP1

Photo D8 - Soil Profile at Plot D3A

Photo D9 - Stormwater Outfall Pipe Above Tennis Court From Tax Lot 3400

Photo E1 - Slight Concave Topography at the Upper (Southern) End of Assessment Area E . Photo is Looking East

Photo E2 - Soil Profile at Plot E1J

Photo E3 - Sample Plot E1J

Photo E4 - Soil Pit and Profile at Plot E1K - Initial Groundwater Level

Photo E5 - Sample Plot E1K - Groundwater Level at ~30 Minutes

Photo E6 - Sample Plot E1K - Final Groundwater Level

Photo E7 - Soil Profile at Plot E1L

US Army Corps
Of Engineers (Portland District)

Joint Permit Application Form

DATE STAMP

AGENCIES WILL ASSIGN NUMBERS

Corps Action ID Number   Oregon Department of State Lands No

SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY

US Army Corps of Engineers:		DSL - West of the Cascades:		DSL - East of the Cascades:		Send DSL Application Fees to:
District Engineer ATTN: CENWP-OD-GPPO Box 2946 Portland, OR 97208-2946 503-808-4373	AND	State of Oregon Department of State Lands 775 Summer Street, Suite 100 Salem, OR 97301-1279 503-986-5200	OR	State of Oregon Department of State Lands 1645 NE Forbes Road, Suite 112 Bend, Oregon 97701 541-388-6112	AND	State of Oregon Department of State Lands PO Box 4395, Unit 18 Portland, OR 97208-4395 **(Attach a copy of the first page of the application)**

(1) APPLICANT INFORMATION

Applicant Name and Address	West Linn-Wilsonville School District 3Jt PO Box 35 West Linn, OR 97068 Attn: Tim Woodley	Business Phone # Home Phone # Fax # Email	503-763-7996 woodleyt@wlwv.k12.or.us
Authorized Agent Name and Address Check one Consultant ☒ Contractor ☐	Nancy Olmsted, Winzler & Kelly 15575 SW Sequoia Parkway #140 Portland, OR 97224	Business Phone # Home Phone # Fax # Email	503-226-3921 503-701-9987 503-226-3926 nancyolmsted@w-and-k.com
Property Owner Name and Address If different from above[1]	West Linn-Wilsonville School District 3TJ same as above	Business Phone # Home Phone # Fax # Email	

(2) PROJECT LOCATION

Street, Road or Other Descriptive Location		Legal Description (attach *tax lot map**)			
		Township	Range	Section	Quarter/Quarter
1025 Rosemont Rd. West Linn, OR 97068		T25	R1E	23,26	SE/SW
In or near (City or Town)	County	Tax Map #		Tax Lot #[2]	
West Linn	Clackamas	21 E 23 CD Supplemental 2		TL 5500, 12301, 12500, 12700, 12800	
Wetland/Waterway (pick one)	River Mile (if known)	*Latitude (in DD.DDDD format)*		*Longitude (in DD.DDDD format)*	
Trillium Creek Wetland	headwaters	45.375545		-122.65225	
Directions to the site	From Portland, I5 south to I205 north exit Stafford, turn north (left) 2nd traffic circle turn east (right) on Rosemont Rd 2.3 miles on left; between Hidden Springs Rd and BayMeadows Dr.				

[1] If applicant is not the property owner, permission to conduct the work must be attached.
[2] Attach a copy of all tax maps with the project area highlighted.

- *Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.*

(3) PROPOSED PROJECT INFORMATION

Type: Fill ☒ Excavation (removal) ☒ In-Water Structure ☒ Maintain/Repair an Existing Structure ☐

Brief Description: Construction of a primary school with two access roads and parking areas

Fill

Riprap ☒ Rock ☒ Gravel ☒ Organics ☐ Sand ☐ Silt ☐ Clay ☐ Other: ☐

Wetlands	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	1,480 - base rock and structural crushed rock
	1,480								
	Impact Area in Acres	Dimensions (feet)							
	0.22	L'	A: 150 B: 70	W'	14 38	H'	4 7		
Waters below OHW	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	N/A
	N/A	N/A							
	Impact Area in Acres	Dimensions (feet)							
	N/A	L'		W'		H'			

Removal

Wetlands	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	176
	172.5	3.5							
	Impact Area in Acres	Dimensions (feet)							
	0.22	L'	A: 150 B: 80	W'	25 40	H'	0.5 0.5		
Waters below OHW	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	N/A
	N/A								
	Impact Area in Acres	Dimensions (feet)							
	N/A	L'		W'		H'			

Total acres of construction related ground disturbance (If 1 acre or more a 1200-C permit may be required from DEQ) 0.22

Is the disposal area upland? Yes ☒ No ☐ Impervious surface created? 0<1 acre ☒ 0>1 acre? ☐

	Yes	No	If yes, please explain in the project description (in block 4)
Are you aware of any state or federally listed species on the project site?	X		
Are you aware of any Cultural/Historic Resources on the project site?		X	
Is the project site within a national Wild & Scenic River?		X	
*Is the project site within a State Scenic State Scenic Waterway?**		X	

(4) PROPOSED PROJECT PURPOSE AND DESCRIPTION

Purpose and Need:

*Provide a description of the public, social, economic, or environmental benefits of the project along with any supporting formal actions of a public body (e.g. city or county government), as appropriate.**

* *Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.*

The purpose of the project is to build a new primary school at 1025 Rosemont Rd., including a two-story building, play areas and two access roads for parents, busses and teachers. The new school is needed to accommodate the growth in student enrollment within the West Linn Wilsonville School District, which has experienced a steady increase in enrollment over the last 20 years. The site was identified and purchased in 1988-89 to be used as a future school site based on specific criteria by the District Long Range Planning Committee. The Long Range School Facilities Plan was updated in 2006 to evaluate future school facility needs, and student enrollment data indicates a need for a primary school in West Linn by 2012. A voter-approved school bond measure was passed allowing the District to, in part, build new schools as student enrollment exceeds capacity.

Inquiries into rare, threatened or endangered plant and animal species revealed eight species within a one-mile radius of the project site (site is ~1.3mi straight line from Willamette River), although a fish passage barrier prevents these species at the project site itself: Green sturgeon (Acipenser medirostris), Oregon floater (Anodonta oregonesis, mussel), White rock larkspur (Delphinium leucophaeum), Coho salmon (Oncorhynchus kisutch pop.1), Steelhead (Oncorhynchus mykiss pop.27), Chinook salmon (Oncorhynchus tshawytscha pop.21, spring run), Chinook salmon (Oncorhynchus tshawytscha pop.22, fall run), Chinook salmon (Oncorhynchus tshawytscha pop.23, spring run).

Project Description:

Please describe in detail the proposed removal and fill activities, including the following information:

- Volumes and acreages of all fill and removal activities in waterway or wetland separately
- Permanent and temporary impacts
- Types of materials (e.g., gravel, silt, clay, etc.)
- How the project will be accomplished (i.e., describe construction methods, equipment, site access)
- *Describe any changes that the project may make to the hydraulic and hydrologic characteristics (e.g., general direction of stream and surface water flow, estimated winter and summer flow volumes.) of the waters of the state, and an explanation of measures taken to avoid or minimize any adverse effects of those changes.*
- Is any of the work already complete? Yes ☐ No ☒ If yes, please describe the completed work.

In addition, for fish habitat or wetland restoration or enhancement activities, complete the information requested in supplemental Fish Habitat or Wetland Restoration and Enhancement form.

Project Drawings

State the number of project drawing sheets included with this application:

A complete application must include a location map, site plan, cross-section drawings and recent aerial photo as follows and as applicable to the project:

- **Location map** (must be legible with street names)
  - Site plan including:
  - Entire project site and activity areas
  - Existing and proposed contours
  - Location of ordinary high water, wetland boundaries or other jurisdictional boundaries
  - Identification of temporary and permanent impact areas within waterways or wetlands
  - Map scale or dimensions and north arrow
  - Location of staging areas
  - Location of construction access
  - Location of cross section(s), as applicable
  - Location of mitigation area, if applicable
- **Cross section drawing**(s) including:
  - Existing and proposed elevations
  - Identification of temporary and permanent impact areas within waterways or wetlands
  - Ordinary high water and/or wetland boundary or other jurisdictional boundaries
  - Map scale or dimensions
- **Recent Aerial photo** (1:200, or if not available for your site, the highest resolution available)

Will any construction debris, runoff, etc., enter a wetland or waterway? Yes ☐ No ☒

If yes, describe the type of discharge and show the discharge location on the site plan.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

Project Description:

The project involves building a new primary school, play areas, two access roads from Rosemont Road, parking areas, stormwater planters and bioswales and landscaping. The two new access roads from Rosemont Road will be the only public vehicular access into the site. Bay Meadows Drive will have restricted access—a locked fire gate will make it accessible only to emergency vehicles. Pedestrian walkways will be extended to Bay Meadows Drive to the south, Suncrest Drive to the north and Hidden Springs Court to the east.

• Volumes and acreages of all fill and removal activities in waterway or wetland separately:

o Wetland fill due to access roads, including rock and pavement - 1,480 cy; 0.22 ac

o Wetland removal due to topsoil stripping for access roads - 176 cy; 0.22 ac

• Permanent and Temporary Impacts:

o All impacts will occur during grading and construction of the access roads. Permanent impacts will be incurred along the southern access road, where 0.15 ac will be filled with 830 cy of rock. The northern access road will be filled only partially (0.07 ac) with 650 cy of rock, leaving the main wetland flow path open (0.005 ac temporary impact); a pre-cast open-bottom culvert and vertical retaining wall will be placed over the wetland, with 4-6' of the wetland left open under the culvert.

• Types of materials (gravel, silt, clay, etc):

o Fill materials for the two access roads will consist of base rock (up to 3/4" aggregate) and structural fill (unconsolidated crushed rock up to 3" diameter and possibly mixed with native soil). Asphalt will be the top layer of the access roads. A cement 4-6' open-bottom culvert will be placed into/over the wetland. Removal material are loam and silt loam topsoil determined from sample plots.

• How the project will be accomplished (construction methods, equipment, site access):

o Construction access into the site will initially be along the existing southestern grass access road, Bay Meadows drive, Suncrest Drive and the new proposed northern access road. Construction will begin with earth-moving equipment stripping the top 6" of soil off the school building site, parking lots and access roads and mounding it in one or several upland locations on-site, to be used later for bioswales and landscaping needs. Rough-grading via earth movers will down-cut the upslope (southern) portion of the school building area and push soil around to level the area as well as rough-grading the access roads. Any excess soil will be trucked out. Trenching for utilities will occur under the southern access road.

o A pre-cast open-bottom culvert (4-6' opening) will be used for the northern wetland crossing and a more typical 12" culvert will be placed under the southern access road. Base rock (unconsolidated aggregate up to ¾") will then be laid along the access roads, building sites and parking lots. The school buildings will be built. Both access roads will be built-up with structural fill (3:1 slope shoulders) consisting of unconsolidated crushed rock up to 3" and possibly mixed with some native soil. The access road over the northern wetland crossing (open-bottom culvert) will be built up with a vertical retaining wall. Rock fill will come from a local quarry. Asphalting the access roads and parking lots, and final landscaping will conclude construction of the site.

o The Hidden Springs Ranch Recreation Association (HSRRA), which owns the adjacent southeastern property (tax lot 5500) with tennis and basketball court, will be allowing an easement on their property for the West Linn Wilsonville School District and will allow the southern access road to cross the corner of their property. Easement agreements are pending, and a recent confirmation letter from the Association is attached.

• Describe any changes that the project may make to the hydraulic and hydrologic characteristics of waters of the state and an explanation of measures taken to avoid or minimize any adverse effects of those changes:

o The current source of hydrology into the wetland largely originates from a 12" cement outfall pipe and at least two 4" outfall pipes that discharge stormwater from the adjacent subdivision, as well as some runoff from Rosemont Rd. The storm outfall pipes discharge onto the site at the south-southwest corner and flows north as it begins to spread and sheet flow with seep discharges through the site for about 750' where it then turns east, narrows and ultimately channelizes as Trillium creek and continues off-site.

o Hydrology is not expected to be significantly altered at either of the two access roads. The southern access road will cross the top of the wetland where the existing storm outfall pipe discharges into the wetland. Stormwater from this outfall pipe will immediately continue through a culvert to discharge into the wetland. The northern access road is an unavoidable impact that bisects the wetland, and the open-bottom culvert will constrict any surface flows to 4-6' at this location. This location was chosen to put the road, in part, because it is one of the narrowest portions of the wetland, and the arching, open-bottom culvert was selected to provide the largest allowable opening that still maintains structural integrity at reasonable cost.

o The upland portions of the site will be cut, leveled and built upon creating impervious surfaces that can decrease groundwater recharge and increase flashy runoff. To minimize these impacts, several long bioswales (using City of Portland schematics) will collect runoff from the parking areas; roof downspouts will discharge into stormwater planters. Any overflow events will enter an underground detention pipe before discharging into the wetland. At the southeastern corner of the site, an existing storm outfall pipe that discharges onto the property will be conveyed through a meandering bioswale along the eastern edge of the site where it will link to an existing storm intake pipe immediately off-site.

• In addition, for fish habitat or wetland restoration or enhancement activities, complete the information requested in supplemental Fish Habitat or Wetland Restoration and Enhancement form.

o N/A

Estimated project start date:	3/29/2011	Estimated project completion date:	6/29/2012

• ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(5) PROJECT IMPACTS AND ALTERNATIVES

Alternatives Analysis:

Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterway or wetland. (Include alternative design(s) with less impact and reasons why the alternative(s) were not chosen. Reference OAR 141-085-0565 (1) through (6) for more information).*

Please see attached.

Measures to Minimize Impacts

Describe what measures you will use (before and after construction) to minimize impacts to the waterway or wetland. These may include but are not limited to the following:

- *For projects with ground disturbance include an erosion control plan or description of other best management practices (BMP's) as appropriate. (For more information on erosion control practices see DEQ's Oregon Sediment and Erosion Control Manual)*
- *For work in waterways where fish or flowing water are likely to be present, discuss how the work area will be isolated from the flowing water.*
- *If native migratory fish are present (or were historically present) and you are installing, replacing or abandoning a culvert or other potential obstruction to fish passage, complete and attach a statement of how the Fish Passage Requirements, set by the Oregon Department of Fish and Wildlife will be met.*

The entire site was designed using the wetland boundary as a base map, and the buildings and roads were placed outside of the wetland as much as possible to minimize impacts.

Sediment fences will be erected on down slopes to catch any erosion during grading and construction. Unvegetated banks will be covered with compost blankets and berms and check dams placed in swales to minimize erosion.

Other best management practices will be used to minimize long-term runoff impacts created by the access roads, parking areas and building impervious surfaces, including vegetated swales, infiltration planter boxes and an underground detention pipe.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(5) PROJECT IMPACTS AND ALTERNATIVES

Alternatives Analysis

- The District owns two alternative properties approximately one mile east of the Erickson site that were considered for the new primary school—Oppenlander and Parker Rd. Both sites, however, are in direct conflict with the neighboring Sunset Primary School attendance area. This would cause significant attendance boundary issues that would be in direct conflict with the District goal of having schools serve the neighborhoods that surround them. In addition, the 10-acre Oppenlander Field site is established as an athletic sports venue that serves community/city youth sports, and is also an extension of West Linn High School athletics. Numerous community surveys conclude there is little support for converting these highly valued fields into a public school building site. Regarding the 6-acre Parker Road site, it is too small in size, and a public road that cuts through a corner makes it less than desirable for a primary school.

- Several alternative site designs were considered and are shown in Figures 1-6 below. The site needs adequate vehicular access for ingress/egress of parents, teachers and busses, sufficient parking areas and building footprint area. The proposed final site design is the one with the least wetland impacts of all designs considered. Figures 1-6 show different configurations for access roads, parking areas and buildings; various iterations of these configurations were considered. An access road from Bay Meadows Drive could have bypassed the impacts caused by the southern access road, but was ultimately not viable due to voiced opposition about high traffic volumes through the adjacent neighborhood.

Figure 1. Erickson Primary School alternative site design A.

Figure 1 shows alternative site design A. The access road from Hidden Springs Road was determined to be too steep for icy winter conditions.

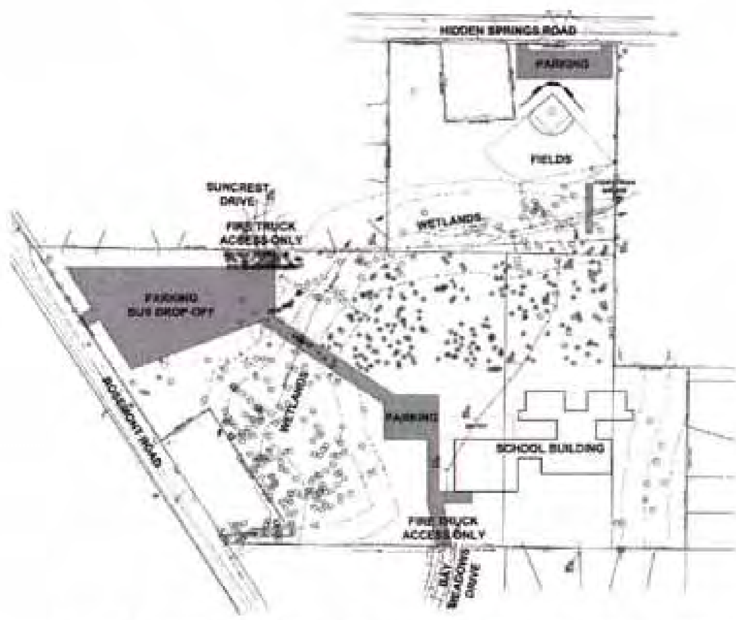


Figure 2. Erickson Primary School alternative site design B

Figure 2 shows alternative site design B. A single access road would have created unacceptable traffic congestion from vehicular ingress/egress of parents, staff and buses.

Figure 3. Erickson Primary School alternative site design C.

Figure 3 shows alternative site design C. Dispersed building placements would have caused additional wetland impacts.

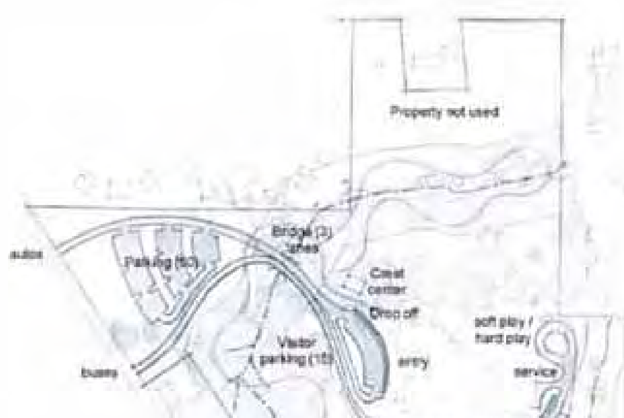


Figure 4. Erickson Primary School alternative site design D.

Figure 4 shows alternative site design D with a three lane crossing over the wetland. Having additional lanes (more than 2) at this wetland location would not have reduced wetland impacts and would have cleared more of the intact forest community.

Figure 5. Erickson Primary School alternative site design E.

Figure 5 shows site design E. The access road from Hidden Springs Road was determined to be too steep for icy winter conditions.

Figure 6. Erickson Primary School alternative site design F.

Figure 6 shows site design F. The access road from Hidden Springs Road was determined to be too steep for icy winter conditions.

Description of resources in project area

Ocean ☐ Estuary ☐ River ☐ Lake ☐ Stream ☒ Freshwater Wetland ☒

Describe the existing **physical and biological characteristics** of the wetland/waterway site by area and type of resource

(Use separate sheets and photos, if necessary).

For wetlands, include, as applicable:

- *Cowardin and Hydrogeomorphic(HGM) wetland class(s)**
- *Dominant plant species by layer (herb, shrub, tree)**
- Whether the wetland is freshwater or tidal
- *Assessment of the functional attributes of the wetland to be impacted**
- Identify any vernal pools, bogs, fens, mature forested wetland, seasonal mudflats, or native wet prairies in or near the project area.)

For waterways, include a description of, as applicable:

- *Channel and bank conditions**
- *Type and condition of riparian vegetation**
- *Channel morphology (i.e., structure and shape)**
- *Stream substrate**
- Fish and wildlife (type, abundance, period of use, significance of site)
- *General hydrological conditions (e.g. stream flow, seasonal fluctuations)**

The wetlands on-site are contiguous and begin from the south/southwest as Wetland A (1.86 acres) - a deciduous woodland sloped headwaters with several tree species and an understory of mostly Himalayan blackberry and English ivy. This wetland tapers and continues north as Wetland B (1.04 acres) - a forested seep wetland with deciduous woodland trees, shrub scrub (blackberry) and some emergent vegetation and turns east to form the upper slopes of the channel of Wetland C. Wetland C (0.02 acres) is a 1.0-2.5' wide waterway, up to 1' deep with riparian vegetation typical of the lower Willamette valley; Wetland C waterway continues off-site to the east as Trillium Creek.

Cowardin and HGM wetland classes:

Wetland A - Seasonally-flooded palustrine forested wetland; Slope wetland

Wetland B - Seasonally-flooded palustrine forested; Slope wetland

Wetland C - Intermittent riverine unconsolidated bottom with mud substrate (R4UB3); Riverine wetland.

Trillium Creek, 1-2.5' wide and 959' long; channel ill-defined in seep areas of Wetland A and B; OHW changes from vegetation (Wetland A and B) to mud substrate (Wetland C) where some down-cutting of the bank occurs about 100' before flowing off-site. Trillium Creek is not fish bearing; weak presence of macroinvertebrates and amphibians.

Dominant plant species:

- Trees: Fraxinus latifolia, Alnus rubra, Cornus stolonifera, Quercus garryana; Shrubs: Rubus discolor (armeniacus), Rubus ursinus, Rosa nutkana; Herbs: Ranunculus repens, Carex deweyana, Oenanthe sarmentosa, Veratrum californicum, Hedera helix

Wetlands are Freshwater.

Main sources of hydrology are stormwater discharges from at least two outfall pipes (12" and 4") and runoff from Rosemont Rd.

Assessment of the functional attributes of wetland to be impacted:

- Some hydrologic functions (e.g. water temperature, timing) may be impacted from reduced groundwater recharge due to impervious access roads, parking areas and buildings. Bioswales, infiltration planters and mitigation plan will restore these functions.

Describe the existing ***navigation, fishing and recreational*** *use of the waterway or wetland.**

N/A. The site is used by some neighbors to walk their dogs, however, the overgrown blackberry bramble prevents much access into the wetland area itself.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

Site Restoration/Rehabilitation

- *For temporary disturbance of soils and/or vegetation in waterways, wetlands or riparian areas, please discuss how you will restore the site after construction including any monitoring, if necessary**

Temporary disturbance only affects 200 sqft. of wetland, and the topsoil that is initially stripped from the site will be used in final landscaping and bioswale areas (excess soil will be disposed of off-site). Please see the attached Compensatory Wetland Mitigation plan for permanent impacts.

In addition, part of the school curriculum is expected to include environmental stewardship in the form of on-going habitat restoration—removing the blackberry and ivy and planting native vegetation, which is expected to improve habitat beyond existing conditions.

Mitigation

*Describe the reasonably expected adverse effects of the development of this project and how the effects will be mitigated.**

- *For permanent impact to wetlands, complete and attach a Compensatory Wetland Mitigation (CWM) Plan. (See OAR 141-085-0705 for plan requirements)**
- *For permanent impact to waters other than wetlands, complete and attach a Compensatory Mitigation (CM) plan (See OAR 141-085-0765 for plan requirements)**
- *For permanent impact to estuarine wetlands, you must submit a CWM plan.**

Avoidance – Measures taken to avoid wetland impacts began early in the site plan stage. The wetland was delineated and the wetland and 50' wetland buffer became the base map over which the entire site was designed. Impacts from the two access roads were, however, unavoidable, and were designed to minimize those impacts.

Mitigation bank – Research revealed that no mitigation banks exist within the West Linn service area where the Erickson site is located.

Restoration on-site/off-site – The option to mitigate for 0.22 ac on-site will be accomplished in the form of wetland enhancement of at least 0.66 ac (3:1 ratio).

Mitigation Location Information (Fill out only when mitigation is proposed or required)

Proposed mitigation (Check all that apply):
- ☒ *Onsite Mitigation*
- ☐ *Offsite Mitigation*
- ☐ *Mitigation Bank*
- ☐ *Payment to Provide*

Type of mitigation:
- ☒ *Wetland Mitigation*
- ☐ *Mitigation for impacts to other waters*
- ☐ *Mitigation for impacts to navigation, fishing, or recreation*

Street, Road or Other Descriptive Location	*Legal Description (attach tax lot map*)*			
	Quarter/Quarter	*Section*	*Township*	*Range*
1025 Rosemont Rd. West Linn, OR 97068	SE/SW	23,26	T25	R1E

In or near (City or Town)	*County*	*Tax Map #*	*Tax Lot #*[3]
West Linn	Clackamas	21 E 23 CD Supplemental 2	TL 12301, 12500, 12700, 12800
Wetland/Waterway (pick one)	*River Mile (if known)*	*Latitude (in DD.DDDD format)*	*Longitude (in DD.DDDD format)*
Trillium Creek Wetland	headwaters	45.375545	-122.65225
Name of waterway/watershed/HUC		*Name of mitigation bank (if applicable)*	
HUC4 - 17090012 Lower Willamette		N/A	

[3] Attach a copy of all tax maps with the project area highlighted.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(6) ADDITIONAL INFORMATION

Adjoining Property Owners and Their Address and Phone Numbers *(if more than 5, attach printed labels*)*

Mailing labels area attached.

Has the proposed activity or any related activity received the attention of the Corps of Engineers or the Department of State Lands in the past, e.g., wetland delineation, violation, permit, lease request, etc.?

Yes ☒ No ☐

If yes, what identification number(s) were assigned by the respective agencies:

Corps #		State of Oregon #	WD #93-0131

Has a wetland delineation been completed for this site? *Yes* ☒ *No* ☐

*If yes by whom?**	*Nancy Olmsted, Winzler & Kelly*

Has the wetland delineation been approved by DSL or the COE? *Yes* ☒ *No* ☐

If yes, attach a concurrence letter. *

Please see attached concurrence letter for the 2009 delineation WD #09-0240.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(7) CITY/COUNTY PLANNING DEPARTMENT AFFIDAVIT
*(TO BE COMPLETED BY LOCAL PLANNING OFFICIAL) **

I have reviewed the project outlined in this application and have determined that:

- ☐ This project is not regulated by the comprehensive plan and land use regulations.
- ☐ This project is consistent with the comprehensive plan and land use regulations.
- ☒ This project will be consistent with the comprehensive plan and land use regulations when the following local approval(s) are obtained.
- ☒ Conditional Use Approval
- ☒ Development Permit – Design Review
- ☒ Other- Water Resource Area "WRA" permit. Potentially several variances.

This project is not consistent with the comprehensive plan. Consistency requires a

- ☐ Plan Amendment
- ☐ Zone Change
- ☐ Other

An application has ☐ has not ☒ been filed for local approvals checked above.

Local planning official name (print)	Signature	Title	City / County	Date
Chris Kerr	[signature]	Senior Planner	City of West Linn	2/18/10

Comments:

We have been meeting with the District + their representatives + have had a pre-application meeting with them discussing the necessary permits.

(8) *COASTAL ZONE CERTIFICATION **

If the proposed activity described in your permit application is within the Oregon coastal zone, the following certification is required before your application can be processed. A public notice will be issued with the certification statement, which will be forwarded to the Oregon Department of Land Conservation and Development for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program, contact the department at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050.

CERTIFICATION STATEMENT

I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.

Print /Type Name	Title
Applicant Signature	Date

- *Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.*

(9) SIGNATURES FOR JOINT APPLICATION

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or Dept. of State Lands staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I herby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. *I understand that payment of the required state processing fee does not guarantee permit issuance. The fee for the state application must accompany the application for completeness.*

Amount enclosed	$ 768.00

Print /Type Name	Title	Print /Type Name	Title
Tim K. Woodley	Director of operations		
Applicant Signature	Date 2.17.2010	**Authorized Agent Signature**	Date
Tim K. Woodley			

Landowner signatures: *For projects and /or mitigation work proposed on land not owned by the applicant, including state-owned submerged and submersible lands, please provide signatures below. A signature by the Department of State Lands for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for authorization to conduct removal/fill activities on such lands. This signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied.*

Print /Type Name	Title	Print /Type Name	Title
Tim K. Woodley	Director of operations		
Property Owner Signature	Date 2.17.2010	***Mitigation Property Owner Signature***	Date
Tim K. Woodley		On-site	

- *Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.*

Attachment A
Mailing Labels for Adjacent Property Owners

DEATON CHRISTIAN & MICHELLE (or Current Resident)
1905 ARENA CT
WEST LINN, OR 97068

DEMARS GUY V TRUSTEE (or Current Resident)
20540 MARTIN CT
WEST LINN, OR 97068

EDMONDSON GARY R & KATHY (or Current Resident)
1853 CHURCHILL TER
WEST LINN, OR 97068

WELCH KENNETH V & BOBBIE D (or Current Resident)
2128 CLUB HOUSE DRIVE
WEST LINN, OR 97068

WELL, JOHN L & MARY E (or Current Resident)
19900 NICHOLAS CT
WEST LINN, OR 97068

WEST LINN-WLS SCH DIST #3J (or Current Resident)
1025 ROSEMONT RD
WEST LINN, OR 97068

WALDROFF MICHAEL F &KIMBER L (or Current Resident)
20510 MARTIN CT
WEST LINN, OR 97068

WANG JIE & WEI LI (or Current Resident)
1915 AREANA CT
WEST LINN, OR 97068

WAY SCOTT P & ROBIN (or Current Resident)
2140 HIDDENT SPRINGS CT
WEST LINN, OR 97068

RUFFNER MICHAEL E & LYNDALEA(or Current Resident)
19995 SUNCREST DR
WEST LINN, OR 97068

SABO SAMMUEL R CO-TRUSTEE (or Current Resident)
2179 HIDDEN SPRINGS CT
WEST LINN, 97068

SANDVOLD MARY E(or Current Resident)
2150 HIDDEN SPRINGS CT
WEST LINN, OR 97068

PYEATT TRACY M & KAREN R (or Current Resident)
2168 CLUB HOUSE DR
WEST LINN, OR 97068

RASHAD ABDEL RAZZAK M (or Current Resident)
2151 CLUB HOUSE DR
WEST LINN, OR 97068

RINNAN RONALD L & LINDA (or Current Resident)
19915 NICHOLAS CT
WEST LINN, OR 97068

MILLER VERNA H TRUSTEE (or Current Resident)
2171 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MITCHELL JAMES L & ELISA A (or Current Resident)
2107 CLUB HOUSE CT
WEST LINN, OR 97068

MITCHELL MICHAEL K & KAREN J (or Current Resident)
2110 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MERCADO-ROMERO FOYLAN & HELEN (or Current Resident)
1800 BAY MEADOWS DRIVE
WEST LINN, OR 97068

MERRILL ROBERT N & RENATE R (or Current Resident)
6142 CHURCHILL DOWNS DR
WEST LINN, OR 97068

METCALF ROY E JR TRUSTEE (or Current Resident)
2455 BELLEVUE TER
WEST LINN, OR 97068

KESTEK RAYMOND & BEVERLY (or Current Resident)
1010 S ROSEMONT RD
WEST LINN, OR 97068

KIDD TONI (or Current Resident)
1935 ARENA CT
WEST LINN, OR 97068

KLAVIK KRISTINE (or Current Resident)
1854 CHURCHILL TER
WEST LINN, OR 97068

KAMATH DENISE A & SEAN (or Current Resident)
19830 SUNCREST DR
WEST LINN, OR 97068

KELLER PRISCILLA (or Current Resident)
1045 S ROSEMONT RD
WEST LINN, OR 97068

KESTEK JEFFREY & DONNA MARIE (or Current Resident)
1026 S ROSEMONT RD
WEST LINN, OR 97068

ALLISON JAMES G & CYNTHIA N(or Current Resident)
19865 BELLEVUE WAY
WEST LINN, OR 97068

ANDERSEN MARTIN E & BRENDA R(or Current Resident)
19920 NICHOLAS CT
WEST LINN, OR 97068

BAKER ROBERT C & DONNA L(or Current Resident)
1925 AZTEC CT
WEST LINN, OR 97068

BALLOU AUSTIN G(or Current Resident)
20500 MARTIN CT
WEST LINN, OR 97068

BARR THEODORE G JR & LIZ A(or Current Resident)
19905 NICHOLAS CT
WEST LINN, OR 97068

BAXTER JUSTIN M(or Current Resident)
1810 BAY MEADOWS DR
WEST LINN, OR 97068

BOCCIOLATT LORI LEE(or Current Resident)
2132 BRIDLE WAY
WEST LINN, OR 97068

BOHM MICHAEL A & BONNIE(or Current Resident)
1930 AZTEC CT
WEST LINN, OR 97068

BORNE TRINA S(or Current Resident)
20520 MARTIN CT
WEST LINN, OR 97068

BOYER DOUGLAS B & HEATHER A(or Current Resident)
1922 AZTEC CT
WEST LINN, OR 97068

BRACCO MERRY(or Current Resident)
2106 BRIDLE WAY
WEST LINN, OR 97068

BRANT WILLIAM D & ZANDRA(or Current Resident)
1924 AZTEC CT
WEST LINN, OR 97068

BRICK JAMES D & LYN I(or Current Resident)
2001 BAY MEADOWS DR
WEST LINN, OR 97068

BROOKSBY W ALAN(or Current Resident)
2168 HIDDEN SPRINGS CT
WEST LINN, OR 97068

BUSHNELL DAVID F & KRISTIN J(or Current Resident)
2780 MORGAN CT
WEST LINN, OR 97068

CARSON ANTHONY V & MARY JO(or Current Resident)
20530 MARTIN CT
WEST LINN, OR 97068

CASTAGNOLA DENNIS A & JOLENE A(or Current Resident)
6137 CHEYENNE TER
WEST LINN, OR 97068

CAUDELL W DOUGLAS & ROSEMARY L(or Current Resident)
1852 CHURCHILL TER
WEST LINN, OR 97068

CHESLEY RAY M & LISA M(or Current Resident)
1835 BAY MEADOWS DR
WEST LINN, OR 97068

CHRISTIE GEORGE W(or Current Resident)
19875 BELLEVUE WAY
WEST LINN, OR 97068

CHURCH SCOTT J & JUDY E(or Current Resident)
20550 MARTIN CT
WEST LINN, OR 97068

CLARK DEAN A & ANNE R(or Current Resident)
2415 BELLEVUE TER
WEST LINN, OR 97068

CRAIG THOMAS R & CYNTHIA M(or Current Resident)
2191 HIDDEN SPRINGS CT
WEST LINN, OR 97068

CRESALIA MARTIN F & SHARON P(or Current Resident)
6133 CHEYENNE TER
WEST LINN, OR 97068

DAHLIN THOMAS C & KAREN L(or Current Resident)
19925 NICHOLAS CT
WEST LINN, OR 97068

DALGAARD PETER B & SHIRLEY J(or Current Resident)
2186 HIDDEN SPRINGS CT
WEST LINN, OR 97068

DANIELSON RUSSELL & TERRY L(or Current Resident)
1926 AZTEC CT
WEST LINN, OR 97068

SCHLEEF DANIEL & TARA(or Current Resident)
1925 ARENA CT
WEST LINN, OR 97068

SCHROEDER KIMBERLY J TRUSTEE(or Current Resident)
2460 BELLEVUE TER
WEST LINN, OR 97068

SCHULZ HARVEY R & PATRICIA ANN(or Current Resident)
20520 SUNCREST DR
WEST LINN, OR 97068

SEDLENIEK GUNNAR TRUSTEE(or Current Resident)
6132 CHEYENNE TER
WEST LINN, OR 97068

SEXTON BRUCE H & JAMIE M(or Current Resident)
19935 NICHOLAS CT
WEST LINN, OR 97068

SHEARER WILLIAM R TRUST(or Current Resident)
2450 BELLEVUE TER
WEST LINN, OR 97068

SHIMIZU HARUO & MIDORI(or Current Resident)
2120 HIDDEN SPRINGS CT
WEST LINN, OR 97068

SKATES MICHAEL L & LOLA K(or Current Resident)
2475 BELLEVUE TER
WEST LINN, OR 97068

SMITH JAMES P & NANCY G(or Current Resident)
20525 MARTIN CT
WEST LINN, OR 97068

SMITH NEIL M & ROBERTA J(or Current Resident)
2440 BELLEVUE TER
WEST LINN, OR 97068

SOLLOM STEVE D & DARNELL A(or Current Resident)
2108 CLUB HOUSE DR
WEST LINN, OR 97068

STOHR SCOTT R & MARY R(or Current Resident)
19950 NICHOLAS CT
WEST LINN, OR 97068

STROBECK STEPHEN E & CAROLANN(or Current Resident)
2121 CLUB HOUSE DR
WEST LINN, OR 97068

TAIT DAVID B & JAN C(or Current Resident)
20560 SUNCREST DR
WEST LINN, OR 97068

TALAVS JAMES C & JACEY L(or Current Resident)
6140 CHEYENNE TER
WEST LINN, OR 97068

TAPELLA DANNY L & LINDA L(or Current Resident)
20515 MARTIN CT
WEST LINN, OR 97068

TAYLOR PATRICK A & E(or Current Resident)
20605 SUNCREST DR
WEST LINN, OR 97068

TURNER J PAUL TRUSTEE(or Current Resident)
2177 HIDDEN SPRINGS CT
WEST LINN, OR 97068

UTLEY ROBERT C & ELIZABETH M(or Current Resident)
20505 MARTIN CT
WEST LINN, OR 97068

VEDDER DAVID R(or Current Resident)
2445 BELLEVUE TER
WEST LINN, OR 97068

VELEY CHRISTOPHER W TRUSTEE(or Current Resident)
6138 CHEYENNE TER
WEST LINN, OR 97068

VERONA MICHAEL R & DANIELLE J(or Current Resident)
1929 AZTEC CT
WEST LINN, OR 97068

WAKEFIELD ROBERT J & SUSAN K(or Current Resident)
6131 CHEYENNE TER
WEST LINN, OR 97068

WALCZYK JOSEPH G(or Current Resident)
2111 CLUB HOUSE DR
WEST LINN, OR 97068

WALDROFF MICHAEL E & KIMBER L(or

WANG JIE & WEI L(or Current

WAY SCOTT R & ROBIN A(or Current

MULLEN MICHAEL JOHN(or Current Resident)
19910 NICHOLAS CT
WEST LINN, OR 97068

MURRIETA DAVID(or Current Resident)
2175 HIDDEN SPRINGS CT
WEST LINN, OR 97068

NELSON THOMAS E JR & ANN D(or Current Resident)
1856 CHURCHILL TER
WEST LINN, OR 97068

NEWRONES SCOTT & NADINE(or Current Resident)
6134 CHEYENNE TER
WEST LINN, OR 97068

NEWTON THOMAS C & CHERYL(or Current Resident)
6147 CHURCHILL DOWNS DR
WEST LINN, OR 97068

NOKES CANDISE C(or Current Resident)
19930 NICHOLAS CT
WEST LINN, OR 97068

NOLAN JOSEPH W(or Current Resident)
2176 HIDDEN SPRINGS CT
WEST LINN, OR 97068

NORMAN EUGENE MICHAEL TRSTE(or Current Resident)
19860 BELLEVUE WAY
WEST LINN, OR 97068

OLSON MARC W & GINA M(or Current Resident)
20755 S WISTERIA RD
WEST LINN, OR 97068

OMARA EDWIN J & PATRICIA G(or Current Resident)
19885 BELLEVUE WAY
WEST LINN, OR 97068

OWENS PAUL G & JETTE L(or Current Resident)
2160 HIDDEN SPRINGS CT
WEST LINN, OR 97068

PAK THOMAS T TRUSTEE(or Current Resident)
2059 BAY MEADOWS DR
WEST LINN, OR 97068

PARKER DAVID S & ROBIN M(or Current Resident)
2118 CLUB HOUSE DR
WEST LINN, OR 97068

PASCHAL JASON S & SYLVIA M(or Current Resident)
1861 CHURCHILL TER
WEST LINN, OR 97068

PATTERSON LARRY D & CAROL A(or Current Resident)
20681 S WISTERIA RD
WEST LINN, OR 97068

PETERSON WILLIAM J & APRIL W(or Current Resident)
1930 ARENA CT
WEST LINN, OR 97068

PHIPPS MAURICE T & VIRGINIA R(or Current Resident)
1857 CHURCHILL TER
WEST LINN, OR 97068

PHIPPS THOMAS A & MOLLY L(or Current Resident)
1860 CHURCHILL TER
WEST LINN, OR 97068

PITASSI DOUGLAS D & KAREN M(or Current Resident)
1098 S ROSEMONT RD
WEST LINN, OR 97068

POCHE NATHALIE(or Current Resident)
6139 CHEYENNE TER
WEST LINN, OR 97068

PORTER JAMES R & ETHEL L(or Current Resident)
1955 ARENA CT
WEST LINN, OR 97068

PORTILLO CAROL J(or Current Resident)
1932 AZTEC CT
WEST LINN, OR 97068

PRENTICE WILLIAM H & CAREN M(or Current Resident)
2180 HIDDEN SPRINGS CT
WEST LINN, OR 97068

PRETTYMAN MICHAEL D JR & ANNE C(or Current Resident)
1920 ARENA CT
WEST LINN, OR 97068

PYEATT TRACY M & KAREN R(or

RASHAD ABDEL RAZZAK M(or Current

RINNAN RONALD L & LINDA L(or

KRAFT RICHARD D & KAY L(or Current Resident)
2148 CLUB HOUSE DR
WEST LINN, OR 97068

KUBOTA ATSUSHI & M J(or Current Resident)
2130 HIDDEN SPRINGS CT
WEST LINN, OR 97068

LACOUR WILLIAM DOUGLAS & ANN(or Current Resident)
6146 CHURCHILL DOWNS DR
WEST LINN, OR 97068

LAMONT JOHN W TRUSTEE(or Current Resident)
1923 AZTEC CT
WEST LINN, OR 97068

LANG KEVIN W & KAY C(or Current Resident)
2480 BELLEVUE TER
WEST LINN, OR 97068

LEEDING DOUGLAS H(or Current Resident)
19886 BELLEVUE WAY
WEST LINN, OR 97068

LEWIS JOHN J & JANE M(or Current Resident)
1830 BAY MEADOWS DR
WEST LINN, OR 97068

LOBEL STEPHEN Z & GAY P(or Current Resident)
2178 CLUB HOUSE DR
WEST LINN, OR 97068

LOVE DONALD J & TERESA C(or Current Resident)
2156 BRIDLE WAY
WEST LINN, OR 97068

LUCAS JEFFREY A & JEANNE M(or Current Resident)
2158 HIDDEN SPRINGS CT
WEST LINN, OR 97068

LUCIBELLO VINCENT J & SUSAN E(or Current Resident)
1921 AZTEC CT
WEST LINN, OR 97068

LUTES YORICK & G L(or Current Resident)
2104 CLUB HOUSE DR
WEST LINN, OR 97068

LYNDE MELISSA J(or Current Resident)
2189 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MACKEN JANICE V(or Current Resident)
1927 AZTEC CT
WEST LINN, OR 97068

MACVICAR THOMAS A & LESLIE D(or Current Resident)
1940 ARENA CT
WEST LINN, OR 97068

MAIDEN JOEL D & HOLLY M(or Current Resident)
20701 S WISTERIA RD
WEST LINN, OR 97068

MANLEY JANICE F(or Current Resident)
2178 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MANTHEY MARK & WENDI S(or Current Resident)
20540 SUNCREST DR
WEST LINN, OR 97068

MARTIN JOEL H & VICKY(or Current Resident)
19870 BELLEVUE WAY
WEST LINN, OR 97068

MATERN MICHAEL & CATHERINE J(or Current Resident)
1928 AZTEC CT
WEST LINN, OR 97068

MAYS ELIZABETH R & LAWRENCE(or Current Resident)
2178 BRIDLE WAY
WEST LINN, OR 97068

MCALISTER BRUCE C(or Current Resident)
2181 CLUB HOUSE DR
WEST LINN, OR 97068

MCMILLAN MICHAEL THOMAS(or Current Resident)
2173 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MCNULTY STEPHEN M(or Current Resident)
2770 MORGAN CT
WEST LINN, OR 97068

ELGIN KATHERINE E(or Current
Resident)
6136 CHEYENNE TER
WEST LINN, OR 97068

ERICKSON PALMER J CO-TRSTEE(or
Current Resident)
20800 S HIDDEN SPRINGS RD
WEST LINN, OR 97068

FAIRCHILD GARY D & ALISON M(or
Current Resident)
6144 CHURCHILL DOWNS DR
WEST LINN, OR 97068

FELLMAN MATT L & KRYSTA(or Current
Resident)
2138 CLUB HOUSE DR
WEST LINN, OR 97068

FELTZ JOSEPH E & JEANNE M(or
Current Resident)
6145 CHURCHILL DOWNS DR
WEST LINN, OR 97068

FINKLEA EDWARD A & ERIN K(or
Current Resident)
2112 BRIDLE WAY
WEST LINN, OR 97068

FLETCHER ALAN J & DEBRA L(or Current
Resident)
1851 CHURCHILL TER
WEST LINN, OR 97068

GABLER GREGORY S & MAUREEN L(or
Current Resident)
20560 MARTIN CT
WEST LINN, OR 97068

GATES KATHLEEN A TRUSTEE(or
Current Resident)
20585 SUNCREST DR
WEST LINN, OR 97068

GROSS RICHARD MICHAEL(or Current
Resident)
1845 BAY MEADOWS DR
WEST LINN, OR 97068

GUERINS KENNETH T & CHRISTINA B(or
Current Resident)
2109 CLUB HOUSE DR
WEST LINN, OR 97068

HACKETT DAVID III & LOUISE J(or
Current Resident)
2110 CLUB HOUSE DR
WEST LINN, OR 97068

HALE LLOYD D & SANDRA(or Current
Resident)
19905 BELLEVUE WAY
WEST LINN, OR 97068

HANKERSON NEIL R(or Current
Resident)
19880 BELLEVUE WAY
WEST LINN, OR 97068

HAWKINS DARRELL G & SARAH C(or
Current Resident)
1945 ARENA CT
WEST LINN, OR 97068

HEPBURN RODGER & CASEY(or Current
Resident)
6135 CHEYENNE TER
WEST LINN, OR 97068

HIATT THOMAS H & SANDRA L(or
Current Resident)
20535 MARTIN CT
WEST LINN, OR 97068

HICKS REBECCA ANN(or Current
Resident)
1859 CHURCHILL TER
WEST LINN, OR 97068

HITESMAN GARY A & ELIZABETH M(or
Current Resident)
2188 CLUB HOUSE DR
WEST LINN, OR 97068

HUGHES SUSAN M(or Current Resident)
1950 ARENA CT
WEST LINN, OR 97068

HUNT RICHARD A & JOY LINN(or
Current Resident)
2470 BELLEVUE TER
WEST LINN, OR 97068

HWANG CHANG IK(or Current
Resident)
6148 CHURCHILL DOWNS DR
WEST LINN, OR 97068

JOLLEY JOHN L JR & GENOVEVA(or
Current Resident)
2131 CLUB HOUSE DR
WEST LINN, OR 97068

JONES TIMOTHY A & JUDY A(or Current
Resident)
6280 TACK CT
WEST LINN, OR 97068

KAMATH DENISE A & SEAN(or Current

KELLER PRISCILLA(or Current Resident)

KESTEK JEFFREY & DONNA MARIE(or

WILLIAMSON J JR&J(or Current Resident)
1858 CHURCHILL TER
WEST LINN, OR 97068

WINKLE MELVIN T TRUSTEE(or Current Resident)
2171 CLUB HOUSE DR
WEST LINN, OR 97068

WISCHMEYER W THOMAS & JACQUELINE(or Current Resident)
1825 BAY MEADOWS DR
WEST LINN, OR 97068

Attachment B
Oregon Department of State Lands Wetland Delineation Concurrence Letter (November 3, 2009)

Oregon
Theodore R. Kulongoski, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregonstatelands.us

November 3, 2009

Tim Woodley
West Linn-Wilsonville School District 3TJ
PO Box 35
West Linn, OR 97068

Re: Wetland Delineation Report for the Proposed Erickson Primary School Site, Clackamas County; T 2S R 1E S 23CD Supplemental 2, Tax Lots 12301, 12500 and 12700; WD #09-0240; City of West Linn Local Wetlands Inventory, Wetlands TR-01 and TR-02

Dear Mr. Woodley:

The Department of State Lands has reviewed the wetland delineation report prepared by Winzler & Kelly for the site referenced above. Based upon the information presented in the report, a site visit on July 8, 2009, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in revised Figure 6 of the report. Please replace all copies of the preliminary wetland map with this final Department-approved map. Within the study area, three wetlands (totaling approximately 2.92 acres) and a segment of Trillium Creek (Waters 1, 2 & 3) were identified. The wetlands and the creek are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high water line (OHWL) of a waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at (503) 986-5232 if you have any questions.

Sincerely,

Pete

Peter Ryan, PWS
Wetland Specialist

Approved by Janet C. Morlan
Janet C. Morlan, PWS
Wetlands Program Manager

Enclosures

ec: Nancy Olmsted, Winzler & Kelly
City of West Linn Planning Department (Map enclosed for updating LWI)
Charlie Hanner, Corps of Engineers
Anita Huffman, DSL

WD # 09-0240

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

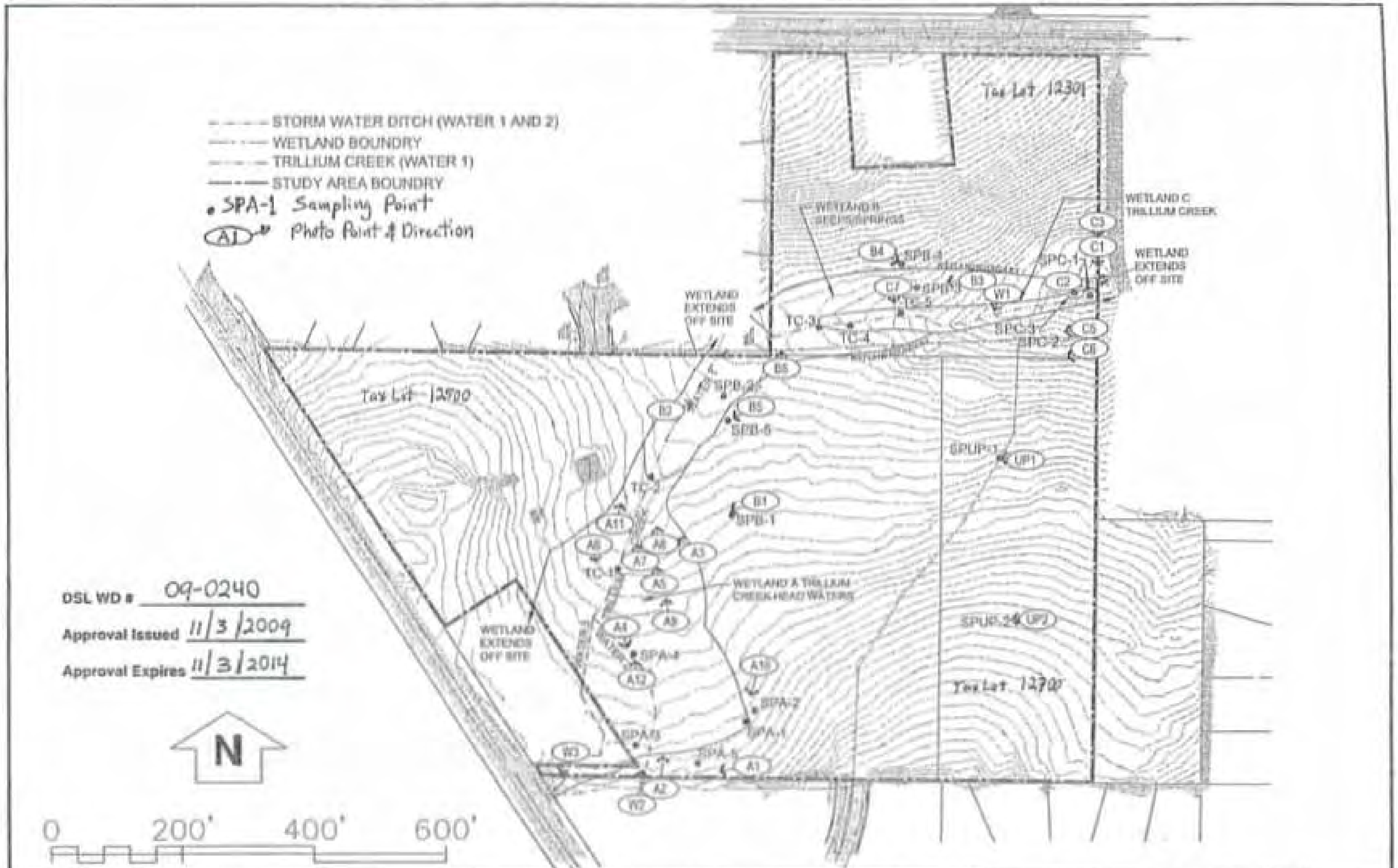
PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 1
LOCATION MAP

O:\11456 – WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09-001 WLWSD ERICKSON WETLANDS\CAD\FIG 1 LOCATION MAPS.DWG Keith Tallo 5/19/2009 1:52 PM

Reuse of Documents: This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of Winzler & Kelly and shall not be reused in whole or in part for any other project without Winzler & Kelly's written authorization. © 2006 Winzler & Kelly



WINZLER & KELLY 15575 SW SEQUOIA PKWY, SUITE 140 PORTLAND, OR 97224 PH: 503-226-3921 FAX: 503-226-3926	PROJECT WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT ERICKSON SCHOOL SITE	TITLE FIGURE 6 WETLAND DELINEATION MAP

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

Attachment C
Hidden Springs Ranch Recreation Association Easement Agreement

Hidden Springs Ranch Recreation Association
P. O. Box 444
West Linn, Oregon 97068

Army Corps of Engineers
Oregon Division of State Lands
c/o Tim Woodley
West Linn-Wilsonville School District
P.O. Box 35
West Linn, Oregon 97068

RE: Army Corps of Engineers/Oregon Division of State Lands
File Number ~~WD#2009-042.~~

WD# 09-0240

Dear Mr. Woodley:

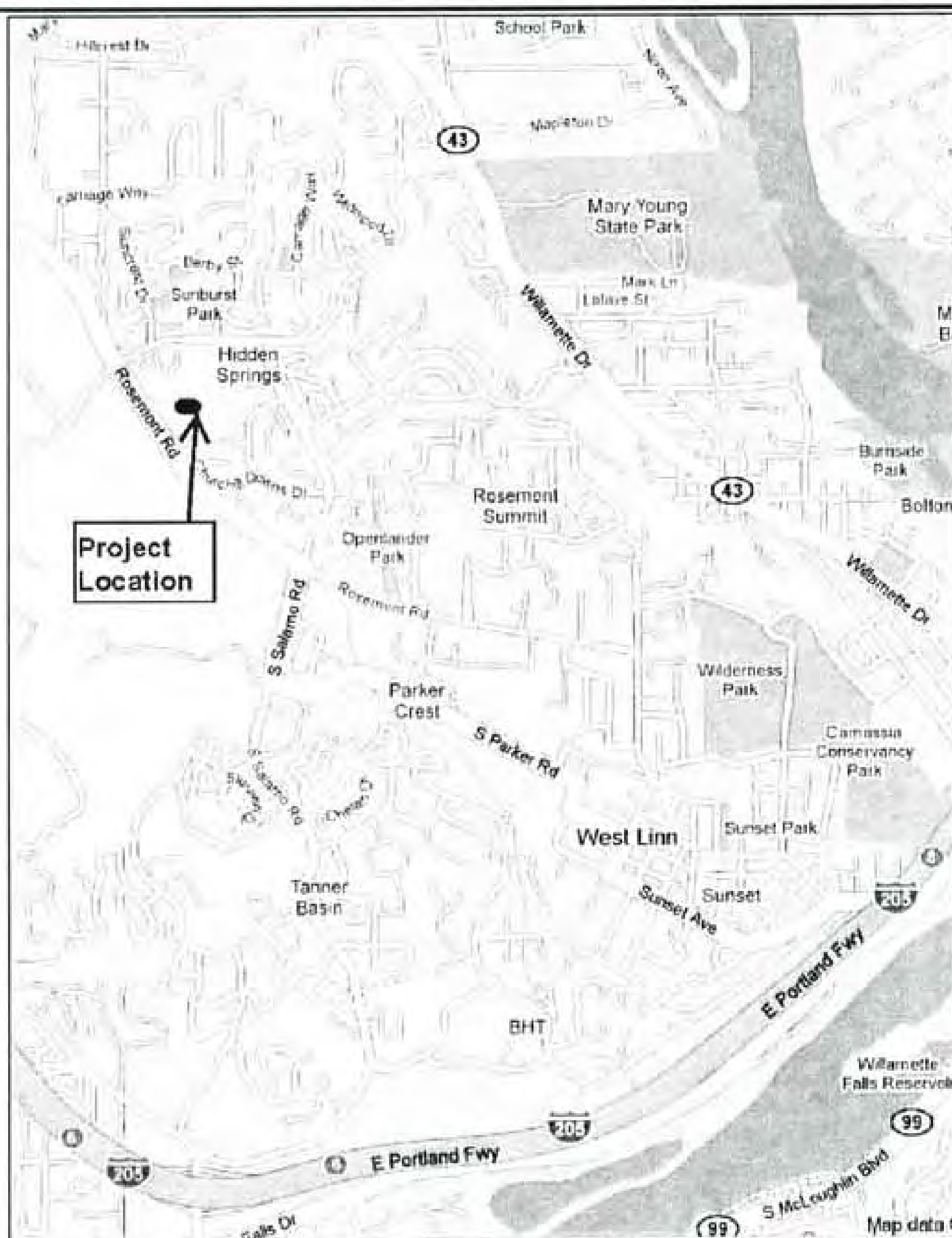
This will confirm that the Hidden Springs Ranch Recreation Association ("Association") and the West Linn-Wilsonville School District ("District") have been in discussions regarding the District's request for an easement over certain improved real estate owned by the Association, in connection with the District's plan to construct the new primary school identified in the captioned file number. The Association is confident that the terms and conditions of a final easement agreement will be successfully negotiated, and that the requested easement will be granted. The easement is currently drafted and discussions are ongoing. We anticipate the agreement will be finalized for execution, delivery and recording in the very near future. The Association supports this worthwhile community project. Please contact us with any questions.

Very truly yours,

Hidden Springs Ranch Recreation Association

By: (John Allen)
Its: Vice President
Date: February 15, 2010

Attachment D
Project Drawings



WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT
ERICKSON SCHOOL SITE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT	NO	04/09/09	1145609001	

TITLE
FIGURE 1
LOCATION MAP

O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\FIG 1 LOCATION MAPS.DWG Keith Tolle 2/12/2010 3:36 PM

15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT

WEST LINN-WILSONVILLE SCHOOL DISTRICT 3JT

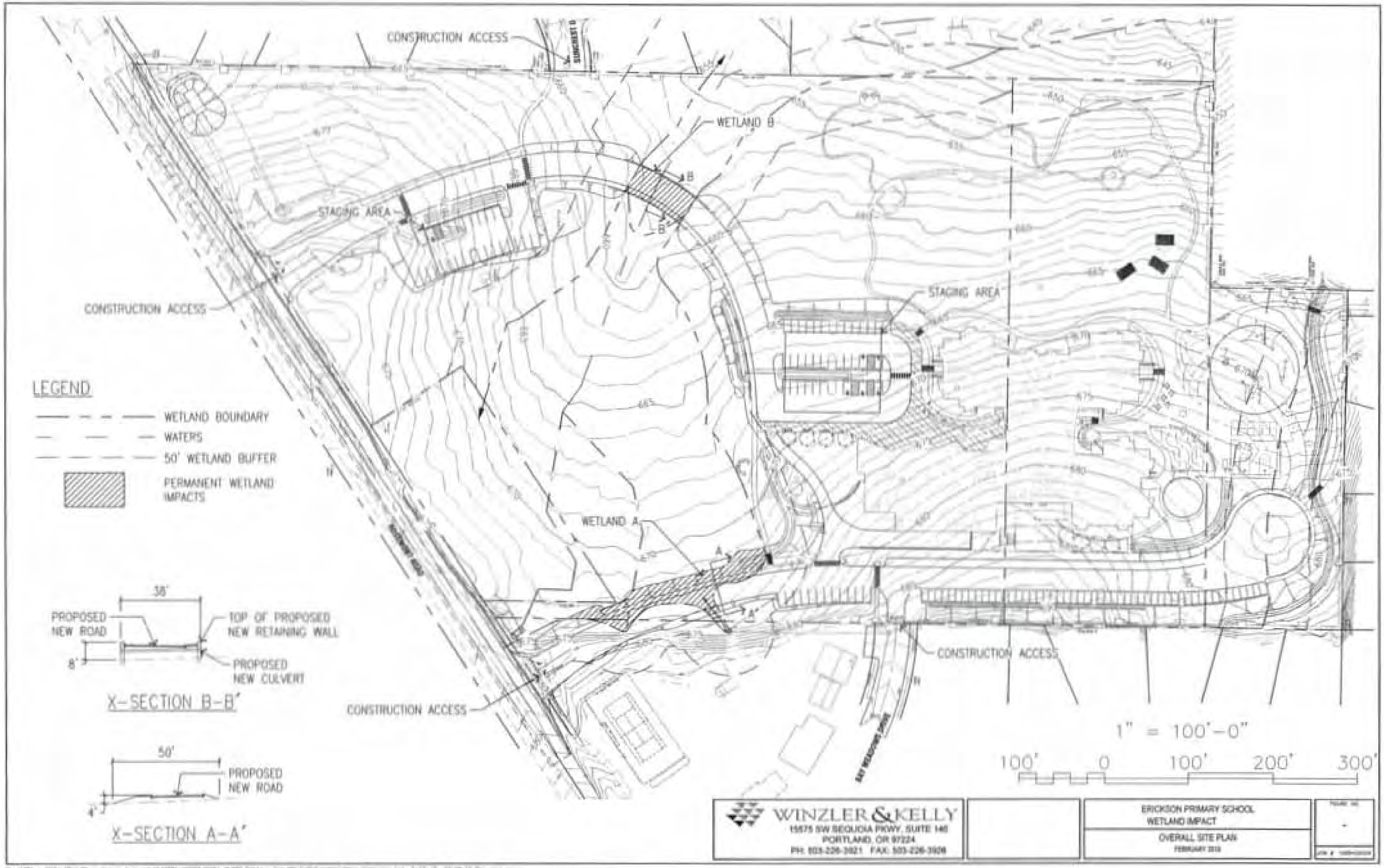
ERICKSON SCHOOL SITE

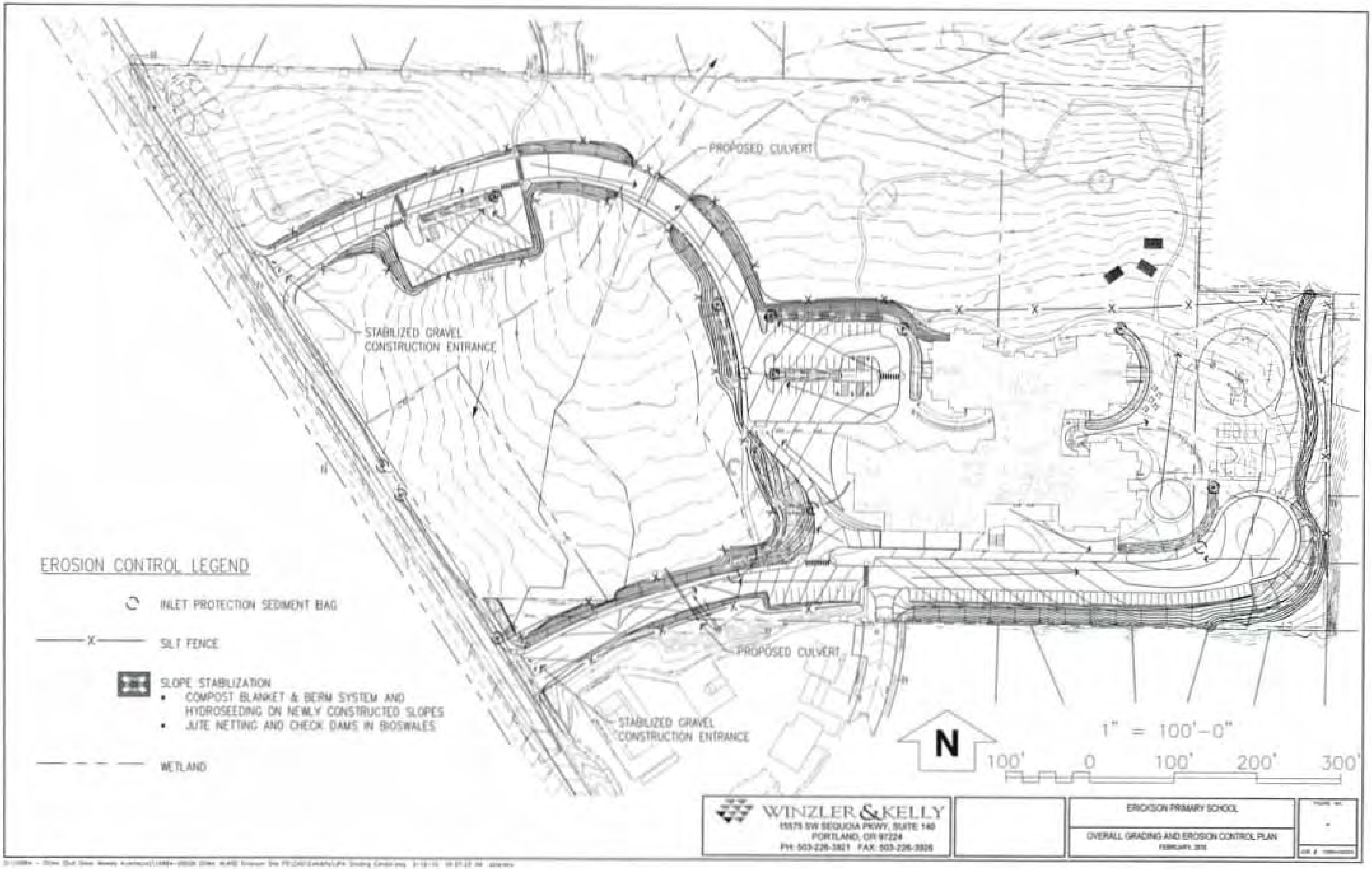
DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
	KPT		04/09/09	1145609001	

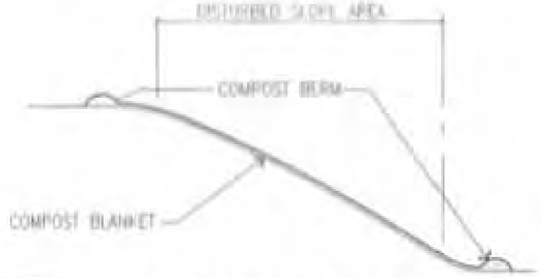
TITLE

AERIAL PHOTO

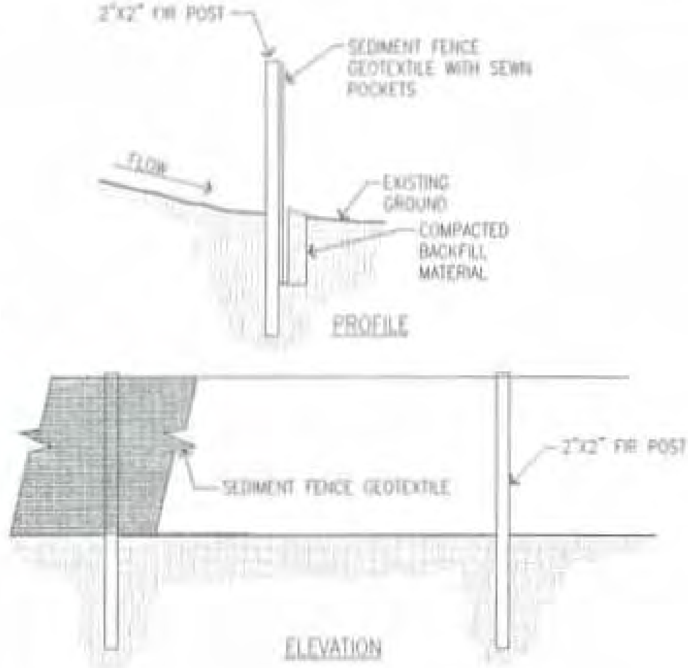
O:\11456 - WLWSD (WEST LINN-WILSONVILLE SCHOOL DISTRICT)\11456-09001 WLWSD ERICKSON WETLANDS\CAD\ARIAL PHOTO.DWG Keith Tolle 2/16/2010 8:27 AM


CONSTRUCTION ACCESS
WETLAND B
STAGING AREA
CONSTRUCTION ACCESS
STAGING AREA
LEGEND
WETLAND BOUNDARY
WATERS
50' WETLAND BUFFER
PERMANENT WETLAND IMPACTS
WETLAND A
38'
PROPOSED NEW ROAD
TOP OF PROPOSED NEW RETAINING WALL
8'
PROPOSED NEW CULVERT
X-SECTION B-B'
CONSTRUCTION ACCESS
CONSTRUCTION ACCESS
50'
PROPOSED NEW ROAD
4'
X-SECTION A-A'
1" = 100'-0"
100' 0 100' 200' 300'
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3928
ERICKSON PRIMARY SCHOOL
WETLAND IMPACT
OVERALL SITE PLAN
FEBRUARY 2010

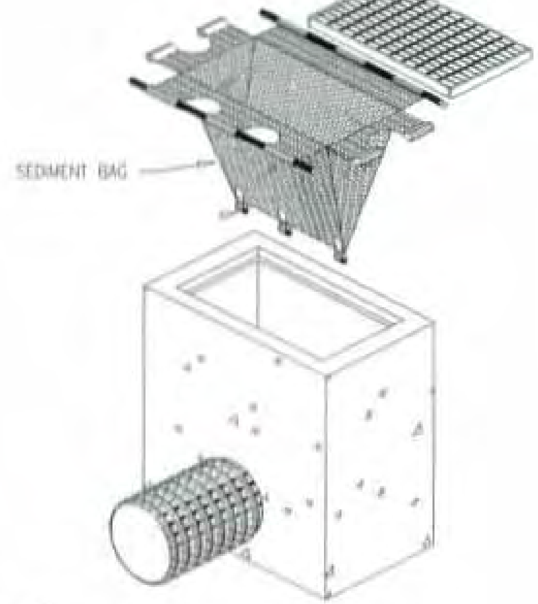

PROPOSED CULVERT
STABILIZED GRAVEL
CONSTRUCTION ENTRANCE
EROSION CONTROL LEGEND
INLET PROTECTION SEDIMENT BAG
SILT FENCE
SLOPE STABILIZATION
• COMPOST BLANKET & BERM SYSTEM AND HYDROSEEDING ON NEWLY CONSTRUCTED SLOPES
• JUTE NETTING AND CHECK DAMS IN BIOSWALES
WETLAND
PROPOSED CULVERT
STABILIZED GRAVEL
CONSTRUCTION ENTRANCE
N
1" = 100'-0"
100' 0 100' 200' 300'
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926
ERICKSON PRIMARY SCHOOL
OVERALL GRADING AND EROSION CONTROL PLAN
FEBRUARY 2010



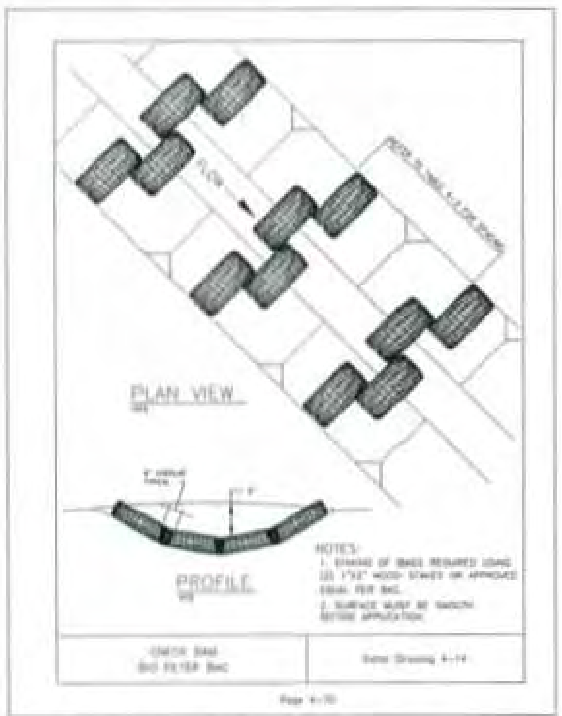
1 COMPOST BLANKET & BERM
SCALE: NONE



2 SILT FENCE DETAIL
SCALE: NONE



3 INLET PROTECTION
SCALE: NONE



4 CHECK DAM DETAIL
SCALE: NONE

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

ERICKSON PRIMARY SCHOOL

EROSION CONTROL DETAILS
FEBRUARY 2010

Attachment E
Compensatory Mitigation Plan

COMPENSATORY MITIGATION PLAN

ERICKSON PS SITE

February 12, 2010

CONTENTS

SECTION 1 – CWM Plan Overview

This Compensatory Wetland Mitigation (CWM) plan was conceived and developed to meet several ecological goals and objectives:

- To improve flood storage capacity
- To maintain high quality water and adequate flow throughout wetland system
- To increase species diversity
- To improve educational values

Mitigation Concept

The basic concept to mitigation after minimizing impact through project design is to offset wetland and waters impacts through a series of actions that establishes some new wetland and enhances wetland hydrologic and species diversity functions across the entire site. The two primary elements are:

- To establish additional slope forested wetlands in the buffer areas around the Trillium Creek headwater wetlands, and
- To enhance wetland functions and values across the entire wetland and in the riverine complex.

Table 1. Impact and CWM Acreages and Mitigation Ratios

Impact Site				CWM Site					
Wetland ID	Impact HGM Class/ Subclass	Impact Cowardin System/ Class	Acres Impacted	Mitigation Method	Mitig. Acres	Mitig. HGM Class/Subclass	Mitig. Cowardin System/ Class	Mitig. Ratio	Credits Gained
A	Slope (SH)	PFO	0.15						
B	Slope (SH)	PFO	0.07						
C	Riverine (RI)	RFO (R4UB3)	N/A						
1				Enhancement/ Creation	0.291	Slope	PFO	3:1	0.097
2				Enhancement/ Creation	0.206	Slope	PSS	3:1	0.069
3				Enhancement	0.165	Riverine	RFO	3:1	0.055
Total			**0.22**		**0.652**				**0.221**

Summary of Net Gains and Losses of Functions and Values

Table 1 illustrates the impact to wetlands by HGM types and wetlands A, B, and C relate to the Wetland Delineation that was conducted by Winzler & Kelly in 2009. The Oregon Wetland Rapid Assessment Protocol (ORWAP) was used to examine the function and values of the existing conditions on these three wetland areas. The ORWAP was applied on a wetland assessment area that was comprised of all three, i.e., Wetland A, B and C. The scores (Table 2) shows that functions relative to hydrology and species diversity were depressed under the current situation. The proposed compensation of improving the connection to the floodplain, creating a pond with shallow benches for amphibian and turtle breeding and rearing habitat, removing non-native invasive plant masses and replacing them with a variety of native wetland plant species that provide food, cover, and thermoregulation for the wildlife.

SECTION 2 – CWM Site Information

Site Owner:

West Linn-Wilsonville School District
PO Box 35
West Linn, OR 97068
Attn: Tim Woodley
(503) 673-7976

Township T2S Range R1E Section 23,26; ¼ ¼ SESW
Taxlots 5500, 12301, 12500, 12700

Lat: 45.374150 Long: -122.651249

Physical Address (CWM is on-site):
1025 Rosemont Rd.
West Linn, OR 97068

SECTION 3 – How the CWM Addresses the Principal Objectives

The proposed Erickson Primary School is a sustainable design where the facilities for the management of stormwater and surface water runoff becomes an integral part of the school grounds and supports the school yard aesthetic as well as the teaching curriculum. The principal objectives of the mitigation measures are to:

- offset the loss of water storage function,
- maintain or improve water quality,
- improve wildlife and amphibian habitat,
- replace dense invasive plant association with a sustainable native plant community,
- increase plant species diversity and primary production function, and
- increase educational and recreational values.

Development of the access roads to the primary school would permanently affect 3,050 sf (0.07 ac) of palustrine forested wetland (Wetland B) and 6,534 sf (0.15 ac) of degraded palustrine emergent area at the upper end of the forested Wetland A that is artificially fed by storm drains from the adjoining subdivision upslope of the project site.

Offset the Loss of Water Storage Function

Non-native plants have encroached upon the forested wetland creating an effective boundary along the perimeter of Wetland A and B. The root masses of these blackberry vines and the girdling effect of the English ivy vines and rhizomes evapotranspire water and/or block the edges of the wetland from storing water in the upper reaches of the forested wetland complex. The project itself will add 1,480 cy of additional fill into Wetlands A and B that will also eliminate that 0.22 acre area from storing water during any precipitation event.

This mitigation proposed offsets the loss of water storage function by creating two swale-like features on the northwest and southeastern sides of the Wetland A. The ground elevation will be dropped approximately1- 2 feet and gently sloped toward the northeast of the project site. These linear features, designated as Mitigation 1 and 2, will extend the active flood water storage area of Wetland A by 0.52 acres.

Water storage function will be increased in the Mitigation 3 area as the channel will be reconnected to the southern flood plain through diverting water from the channel into shallow ponds that would provide longer residence time for rainwater and attenuate the flow in the main channel during the wetter season.

Maintain or Improve Water Quality

Storm water currently flows onto the project site from impervious surfaces in the surrounding residential subdivisions via storm drains (see Site Alterations of Hydrology in Wetland Delineation Report, Winzler & Kelly April 2009). Although, no water quality testing was conducted on these water sources, it could be assumed that the quality of the untreated storm water being discharged through PVC pipes may not be as high as the precipitation or the water within the Trillium Creek.

The proposed development would result in new impervious surfaces for parking, sidewalks, access roads and roof of the school campus. Per the City of West Linn's design standards, allowable post-development peak discharge rates for the 2, 5, 10 and 25-year events are limited to that of the pre-development discharge rates. The City of West Linn relies on City of Portland Stormwater Management Manual for stormwater quality criteria, which defines the water quality design storm as a NRCS Type 1A rainfall distribution with 0.83" of rainfall over a 24-hour period. As such the civil site design for the Erickson School will include both flow control and mechanisms to improve water quality.

Any new impervious surfaces that would be created by the new school would have site specific storm water collection and conveyance systems including bioswales that will treat the surface water runoff and underground detention facility controlled by an orifice and riser combination outlet structure contained within a manhole. The detention slows down the flow and the heavier materials settle out, then any hydrocarbons and metals will be bio-accumulated by the plants or soil in the bioswales. Once the surface water is detained and filtered through a bioswale, it will be discharged to the Trillium Creek drainage. The quality of the discharge water will be higher than that coming onto the site from the surrounding properties, south, west and north; thus, there will be uplift to water quality function.

The mitigation areas that will be developed under this plan should provide some uplift to the wetland and creek water quality by increasing the flow through time as storm water hits the site.

Improve Wildlife and Amphibian Habitat

Mitigation area 3 is also designed to meet the objective of improving wildlife and amphibian habitat by creating two medium-sized ponds. Small to medium-sized ponds (~30-50 ft across water surface and up to two feet deep) will help attract Willamette valley amphibians, including one or more of the following Species of Concern: Coastal tailed frog (*Ascaphus truei),* Oregon slender salamander (*Batrachoseps wrighti,* Northern red-legged frog (*Rana aurora aurora)*, Cascades frog (*Rana cascadae)* as well as Northern Pacific pond turtle (*Actinemys marmorata armorata).*

Standing water is expected to persist in the ponds for most of the year due to high groundwater levels at the site. Water depths in the ponds are expected to be six inches to two feet in spring. Placement of large decaying logs will create egg deposition sites for salamanders. Ephemeral water, water-covered rocks and a pond shelf will create favorable habitat, including basking areas. Further, since Trillium creek is not fish bearing, tadpole survivorship will be increased. A dense mix of plant species will create cover for terrestrial movement, as well as create habitat for other wildlife species.

Replace Dense Invasive Plant Association with a Sustainable Native Plant Community

Dense thickets of Himalayan blackberry exist along all parts of the plant community and primarily along the wetland's perimeter. Himalayan blackberry is aggressive and invasive according to the Oregon Natural Heritage Information Center. Removal of this species from the site and long term prevention of its reestablishment will allow a native plant community to become the ecological successional community.

Increase Plant Species Diversity and Primary Production Function

A key objective in this plan is to improve the diversity and primary productivity of plants across the entire site. The plants selected for the wetland mitigation areas will complement the site's plant communities and enhance the shrub layer with species that can tolerate partial shade and moisture. Please see the figure Exhibit B for the Mitigation plan plant list.

Increase Educational and Recreational Values

West Linn Wilsonville School District has a mission to increase the awareness of their students regarding the ecology of a wetland, what are watershed ecosystems, what are the benefits of healthy watersheds for individuals and society as a whole. Erickson PS site wetland mitigation will provide an enhanced experience for the students and the Hidden Springs community.

SECTION 4 – Existing Site Conditions

Wetland delineation: WD # 09-240

Cowardin and HGM classes of on-site wetlands:

- Wetland A – PFO Seasonally-flooded palustrine broad-leaved deciduous forested; Slope headwaters wetland
- Wetland B – PFO Seasonally-flooded palustrine broad-leaved deciduous forested; Slope valley wetland
- Wetland C – RFO Intermittent riverine unconsolidated bottom with mud substrate (R4UB3); Riverine impounding wetland.

Existing hydrology:

- Wetland A – surface hydrology is from two stormwater discharges onto the site: outfall pipes from the adjacent subdivision, and runoff from Rosemont Rd. Flows are intermittent and contingent on local precipitation; channels are approximately 0.5 ft. to 1.0ft. wide, 0.5 inches deep, and approximately 250 ft. to 330 ft. long, respectively. Where surface water isn't present, sample plots in Wetland A showed a water table at eight inches and saturation at 6 to 8 inches.
- Wetlands B and C – surface hydrology continues from Wetland A and ultimately becomes a 1-3 ft. defined channel, up to 1 ft. deep; but also shows groundwater expression in several seeps. Where surface water isn't present, sample plots in Wetlands B and C showed the water table at 3-4 inches and saturation at 0-4 inches below ground surface.
- All mitigation areas are adjacent to and abut the existing wetlands on-site and are within the 50' wetland buffer. The mitigation areas will effectively enlarge the existing wetlands on-site. Mitigation areas 1 and 2 abut both sides of Wetland A. Mitigation Area 3 abuts the southern edge of Wetland C.

Plant communities:

- Existing vegetation in Mitigation Area 1 includes Douglas-fir (*Pseudotsuga menziesii*), a few Big-leaf maple (*Acer macrophyllum*) and Oregon white oak (*Quercus garryana*) and one Ponderosa pine (*Pinus ponderosa*). There is a very dense understory of Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*).
- Existing vegetation in Mitigation Area 2 includes the seasonally mowed areas, which are dominated by Quackgrass (*Agropyron repens*), Common velvetgrass (*Holcus lanatus*), Himalayan blackberry and a few medium-sized Hawthorn (*Crataegus douglasii*) trees and Holly (*Ilex aquilinus*).
- Existing vegetation in Mitigation Area 3 includes Douglas fir; Indian plum (*Oemleria cerasiformis*), and Sword fern (*Polystichum munitum*). Himalayan blackberry and English ivy are prevalent in the understory.

There are no known site constraints or limitations. Unchecked growth of Himalayan blackberry and English ivy has led to habitat degradation in the form of reduced biodiversity in the wetlands and the adjacent uplands over the entire site. Stormwater discharges from the adjacent residential subdivision has led to hydrological degradation in the form of flashy, erosive flows seen in the down-cutting of Trillium Creek at the northeast end of the site.

- For habitat degradation, enhancement of the site will increase biodiversity and habitat for fauna in all three mitigation areas by removing the blackberry and ivy and planting a collection of native tree, shrub and herb vegetation. Further, in Mitigation Area 3, backwater ponding and hummocky features will create favorable habitat for attracting amphibians and turtles.
- For hydrologic degradation, grading will increase the flood storage capacity in all three mitigation areas, and will delay and store the stormwater discharges that will continue to flow into the site. Creating flood storage will alleviate any storm events that may overflow the project's stormwater swales and/or detention pipe.

SECTION 5 – Functions and Values Assessment

The existing project site was evaluated using the Oregon Rapid Wetland Assessment Protocol (2009) (Table 2). The existing jurisdictional waters and wetlands included an incised main channel, limitations on flood storage, and a forested wetland that has been degraded by invasive non-native plant species and by vehicular traffic crossing through the wetland site.

The predicted post-treatment state for Mitigation Sites 1 and 2 would be ecosystem uplift by the additional of 0.5 acres of flood storage along the perimeter of the existing palustrine forested wetland (slope) wetland. For Mitigation Site 3, approximately 0.2 acres of new off-channel habitat backwater channel and shallow pond will be provided that will also attenuate the down cutting in the main channel Trillium Creek. In addition, the proposed grading and resultant hydrologic changes will increase breeding and rearing functional elements for amphibians. Lastly, plant species diversity will be increased and food and cover plants will improve habitat resources for birds and small mammals throughout the year. The educational and recreational value of the site will be greatly improved as it is maintained for curricular purposes once the school is operating. The mitigation plan will enhance and create a sustainable wetland and headwaters of Trillium Creek, a tributary to the Willamette River and significant wetland feature of Clackamas County, Oregon.

Table 2 ORWAP score sheet for existing conditions of Erickson PS site.

ORWAP SCORES SHEET	version 2.0.1	
Site Name:	Erickson PS Site	
Investigator Name:	N. Olmsted	
Date of Field Assessment:	12/28/2009	
Latitude (decimal degrees):	45.38	Longitude (decimal degrees): -122.65225

Note: It is normal for some cells below to have non-zero values even when no data have been entered.

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function	(click on cells in this column to see definitions of the wetland functions)
Water Storage & Delay (WS)	2.77	2.17	
Sediment Retention & Stabilization (SR)	5.85	2.09	
Phosphorus Retention (PR)	4.38	3.54	
Nitrate Removal & Retention (NR)	3.08	4.33	
Thermoregulation (T)	6.94	5.00	
Carbon Sequestration (CS)	2.76		
Organic Matter Export (OE)	6.03		
Aquatic Invertebrate Habitat (INV)	5.81	4.62	
Anadromous Fish Habitat (FA)	0.00	3.74	
Non-anadromous Fish Habitat (FR)	2.84	6.67	
Amphibian & Reptile Habitat (AM)	2.95	4.00	
Waterbird Feeding Habitat (WBF)	3.74	0.67	
Waterbird Nesting Habitat (WBN)	0.00	0.50	
Songbird, Raptor, & Mammal Habitat (SBM)	4.62	3.33	
Pollinator Habitat (POL)	4.86	5.00	
Native Plant Diversity (PD)	2.69	5.80	

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	2.77	2.17	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	6.94	5.00	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.76		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	2.84	6.67	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.03	4.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	4.86	5.80	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.90	(click on this cell to see this attribute defined)
Provisioning Services (PS)		0.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES			
Wetland Ecological Condition		3.72	(click on this cell to see this attribute defined)
Wetland Stressors		7.00	(click on this cell to see this attribute defined)
Wetland Sensitivity		3.86	(click on this cell to see this attribute defined)

HGM Class - Relative Probabilities	
Estuarine	0.00
Riverine	10.00
Slope	4.31
Flat	0.00
Depressional	0.00
Lacustrine	0.00

SECTION 6 – Maps, Drawings and Construction Specifications

The exhibits and cross-sections included at the back of this plan show the location of the proposed mitigation and the proposed contours and plantings by location and wetland indicator that are required to achieve the principal mitigation objectives.

SECTION 7 – Monitoring Plan

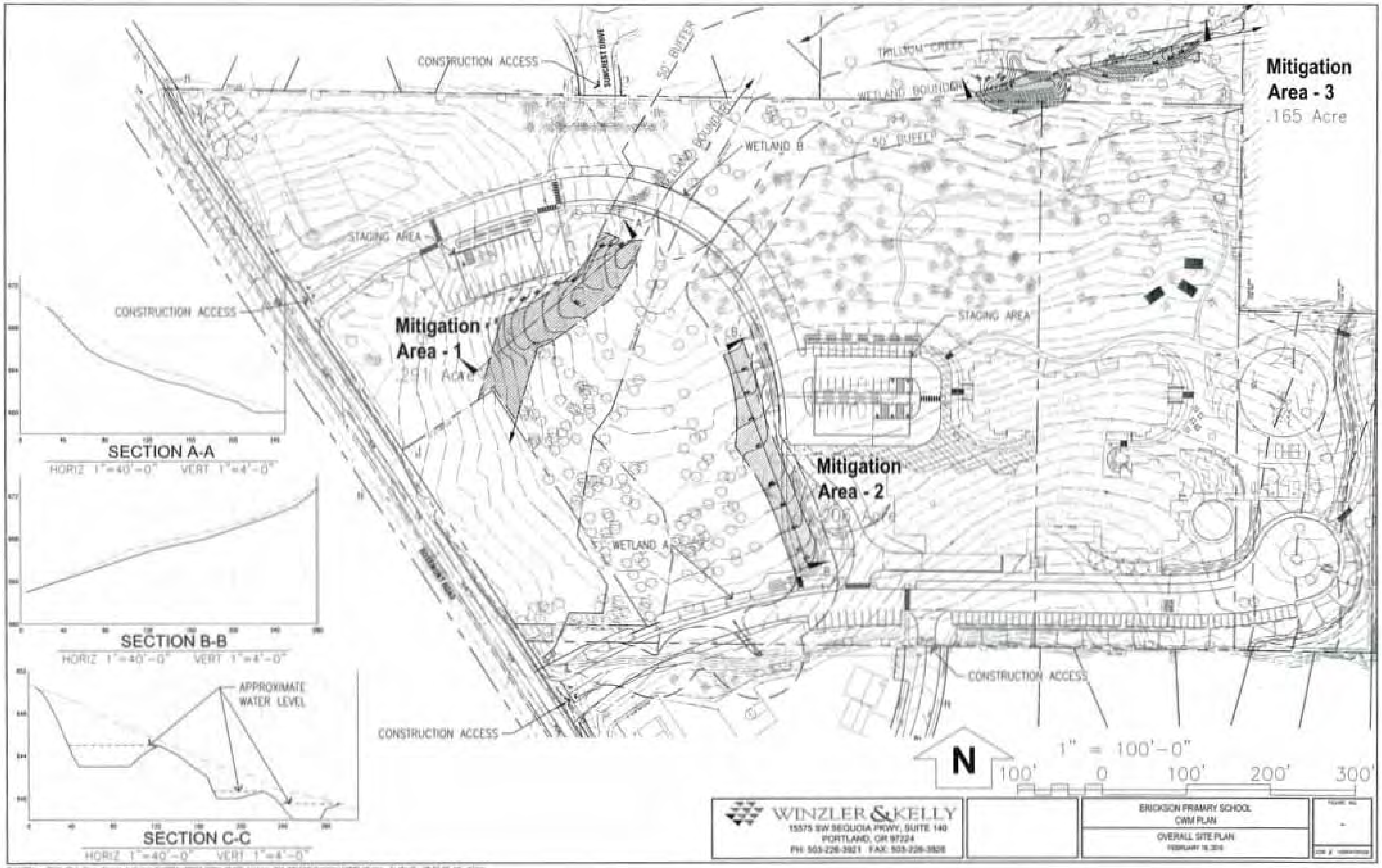
The Oregon routine monitoring guidance be used to meet the monitoring requirements for up to five years after installation of the mitigation features.

The area of wetland impact and the compensatory mitigation proposed are within the same tax lots owned by the West Linn Wilsonville School District; thus mitigation monitoring would not have to include performance based observations for targeted functions. Key features that will be measured during the monitoring period are vegetation, water level fluctuations and duration, open water interspersion, vegetation species % cover, native/non-native mix, and amphibian habitat (i.e., side slopes on open ponds, availability of cover and basking areas near a shallow ponded water source).

SECTION 8 – Long Term Protection and Financial Security Instrument

The CWM site is owned and will be operated by the West Linn Wilsonville School District (WLWSD) for the foreseeable future and as long as the site is under their ownership. As the CWM site owner, the WLWSD has responsibility to ensure the site is not used for purposes other than a wetland. The long-term protection is part of the provision of the school district's overall responsibilities for the proposed Erickson School property.

Pursuant to Section (2) Exceptions under OAR 141-085-0700, the WLWSD respectfully requests a waiver from a separate financial security instrument requirement for the CWM since the potential impact is near the threshold for this and the school district, as property owner will have financial security requirements for the entire site development.


CONSTRUCTION ACCESS
SUNCREST DRIVE
50' BUFFER
TRILLIUM CREEK
WETLAND BOUNDARY
Mitigation
Area - 3
.165 Acre
WETLAND B
STAGING AREA
CONSTRUCTION ACCESS
Mitigation
Area - 1
.291 Acre
STAGING AREA
Mitigation
Area - 2
WETLAND A
CONSTRUCTION ACCESS
SECTION A-A
HORIZ 1"=40'-0" VERT 1"=4'-0"
SECTION B-B
HORIZ 1"=40'-0" VERT 1"=4'-0"
APPROXIMATE
WATER LEVEL
SECTION C-C
HORIZ 1"=40'-0" VERT 1"=4'-0"
N
1" = 100'-0"
100' 0 100' 200' 300'
WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926
ERICKSON PRIMARY SCHOOL
CWM PLAN
OVERALL SITE PLAN

MITIGATION AREA 1

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	GROUPING
TREES				
RED ALDER	ALNUS RUBRA	FAC	10' O.C.	3-5 PLANTS
OREGON ASH	FRAXINUS LATIFOLIA	FACW	10' O.C.	3-5 PLANTS
CASCARA	RHAMNUS PURSHIANA	FAC	10' O.C.	3-5 PLANTS
SHRUBS				
RED OSIER DOGWOOD	CORNUS SERICEA SP. SERICEA	FACW	5' O.C.	3-9 PLANTS
VINE MAPLE	ACER CIRCINATUM	FAC	5' O.C.	3-9 PLANTS
NOOTKA ROSE	ROSA NUTKANA	FAC	5' O.C.	3-9 PLANTS
SALMONBERRY	RUBUS SPECTABILIS	FAC	5' O.C.	3-9 PLANTS
UNDERSTORY				
RED COLUMBINE	AQUILEGIA FORMOSA	FAC	18" O.C.	5-15 PLANTS
WESTERN BUTTERCUP	RANUNCULUS OCCIDENTALIS	FAC	18" O.C.	20-30 PLANTS
LADY FERN	ATHYRIUM FILIX-FEMINA	FAC	4' O.C.	5-15 PLANTS
FALSE HELLEBORE	VERATRUM CALIFORNICUM	FACW	2' O.C.	5-15 PLANTS
SKUNK CABBAGE	LYSICHITON AMERICANUM	OBL	2' O.C.	3-7 PLANTS
SMALL-FRUITED BULRUSH	SCIRPUS MICROCARPUS	OBL	18"O.C.	20-30 PLANTS
SLOUGH SEDGE	CAREX OBNUPTA	OBL	18"O.C.	20-30 PLANTS
SOFT RUSH	JUNCUS EFFUSUS	FACW	18"O.C.	20-30 PLANTS

MITIGATION AREA 2

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	GROUPING
TREES				
RED ALDER	ALNUS RUBRA	FAC	15' O.C.	3-6 PLANTS
WESTERN CRABAPPLE	MALUS FUSCA	FACW	15' O.C.	3-4 PLANTS
SHRUBS				
RED OSIER DOGWOOD	CORNUS SERICEA SP. SERICEA	FACW	5' O.C.	3-9 PLANTS
VINE MAPLE	ACER CIRCINATUM	FAC	5' O.C.	3-9 PLANTS
NOOTKA ROSE	ROSA NUTKANA	FAC	5' O.C.	3-9 PLANTS
SALMONBERRY	RUBUS SPECTABILIS	FAC	5' O.C.	3-9 PLANTS
WESTERN SPIREA	SPIRAEA DOUGLASII	FACW	5' O.C.	3-9 PLANTS
UNDERSTORY				
LADY FERN	ATHYRIUM FILIX-FEMINA	FAC	4' O.C.	5-15 PLANTS
FALSE HELLEBORE	VERATRUM CALIFORNICUM	FACW	2' O.C.	5-15 PLANTS
WESTERN BUTTERCUP	RANUNCULUS OCCIDENTALIS	FAC	18"O.C.	20-30 PLANTS
SLOUGH SEDGE	CAREX OBNUPTA	OBL	18"O.C.	20-30 PLANTS
SMALL-FRUITED BULRUSH	SCIRPUS MICROCARPUS	OBL	18"O.C.	20-30 PLANTS
SOFT RUSH	JUNCUS EFFUSUS	FACW	18"O.C.	20-30 PLANTS

MITIGATION AREA 3

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	GROUPING
TREES				
RED ALDER	ALNUS RUBRA	FAC	10' O.C.	1-2 PLANTS
OREGON ASH	FRAXINUS LATIFOLIA	FACW	10' O.C.	1-3 PLANTS
WESTERN CRABAPPLE	MALUS FUSCA	FACW	10' O.C.	1-3 PLANTS
SHRUBS				
DEVIL'S CLUB	OPLOPANAX HORRIDUS	FAC	5' O.C.	3-5 PLANTS
PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS	FACW	5' O.C.	3-5 PLANTS
SALMONBERRY	RUBUS SPECTABILIS	FAC	5' O.C.	3-5 PLANTS
UNDERSTORY				
LADY FERN	ATHYRIUM FILIX-FEMINA	FAC	4' O.C.	5-15 PLANTS
DEER FERN	BLECHNUM SPICANT	FAC	2' O.C.	10-20 PLANTS
PIGGYBACK PLANT	TOLMIEA MENZIESII	FAC	2' O.C.	10-30 PLANTS
EMERGENTS				
SKUNK CABBAGE	LYSICHITON AMERICANUM	OBL	2'O.C.	5-15 PLANTS
FALSE HELLEBORE	VERATRUM CALIFORNICUM	FACW	2'O.C.	5-15 PLANTS
SOFT RUSH	JUNCUS EFFUSUS	FACW	18"O.C.	20-30 PLANTS
SLOUGH SEDGE	CAREX OBNUPTA	OBL	18"O.C.	20-30 PLANTS

WALKER·MACY

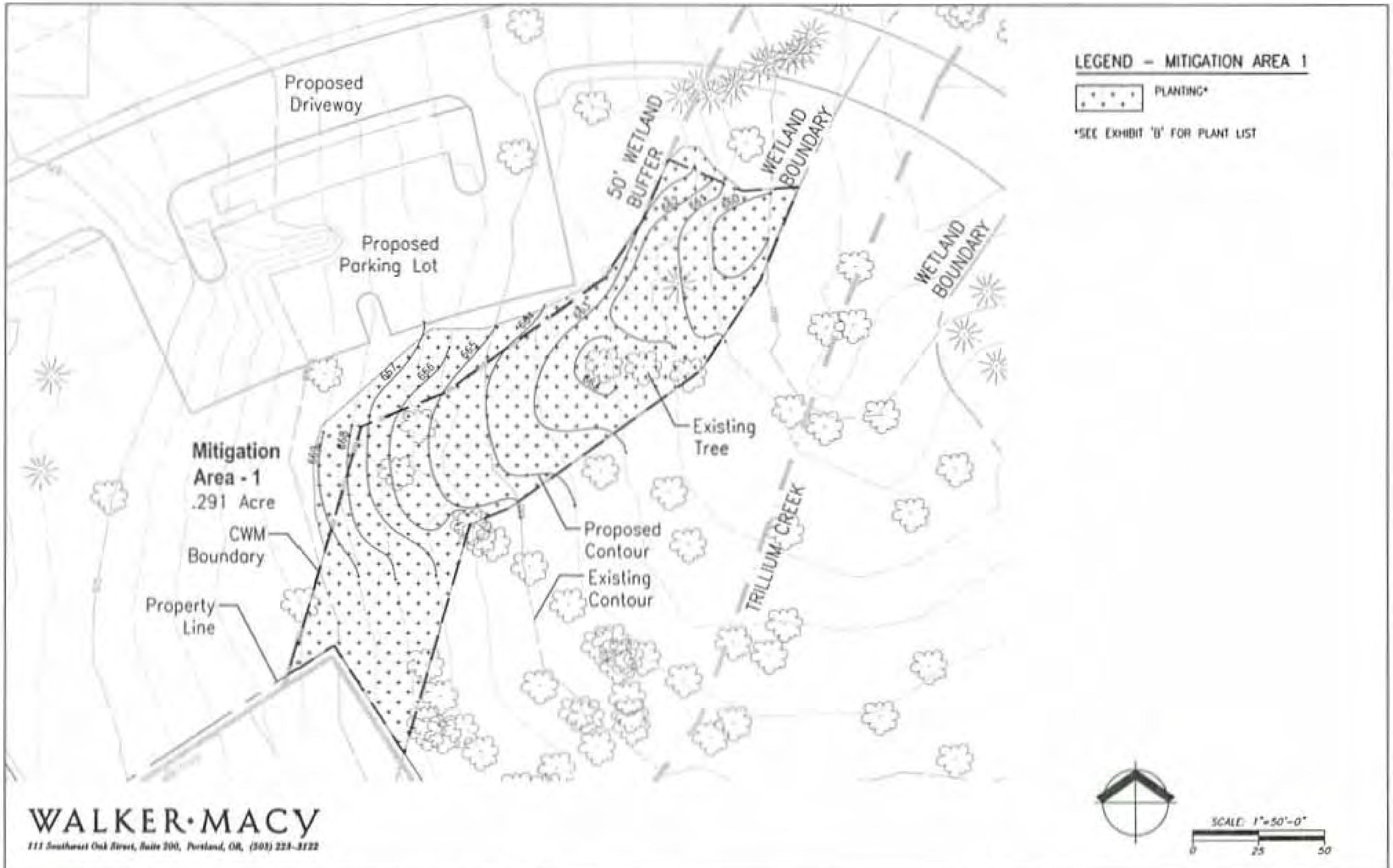
111 Southwest Oak Street, Suite 200, Portland, OR, (503) 228-3122

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
Erickson Primary School
West Linn - Wilsonville School District

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
-	-	-	02.16.10	WM0911	-

TITLE
Mitigation Plan - Plant List
Exhibit B



WALKER·MACY

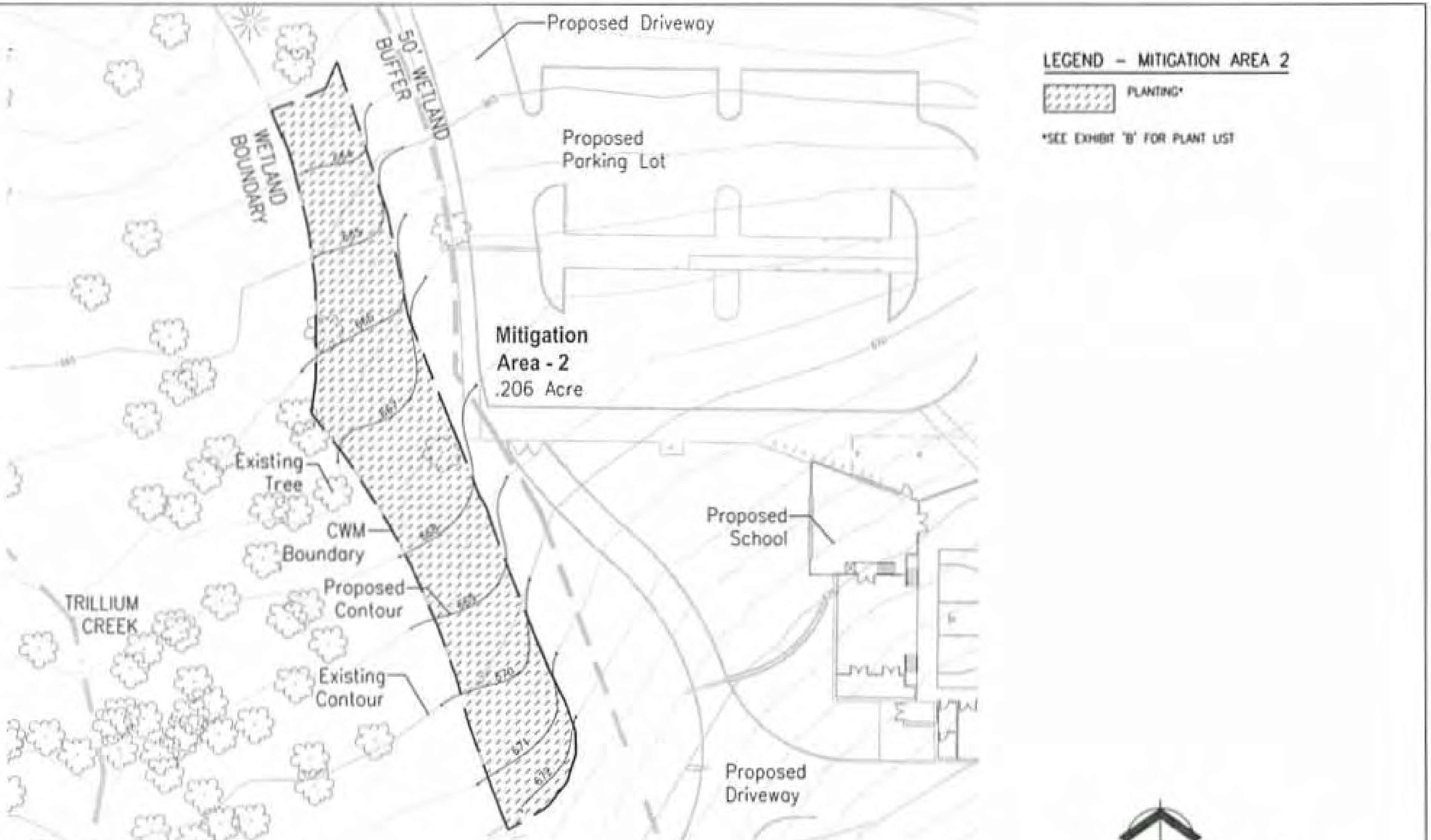
111 Southwest Oak Street, Suite 200, Portland, OR, (503) 228-3122

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
Erickson Primary School
West Linn - Wilsonville School District

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
–	–	–	02.16.10	WM0911	–

TITLE
Mitigation Plan - Area 1
Exhibit C



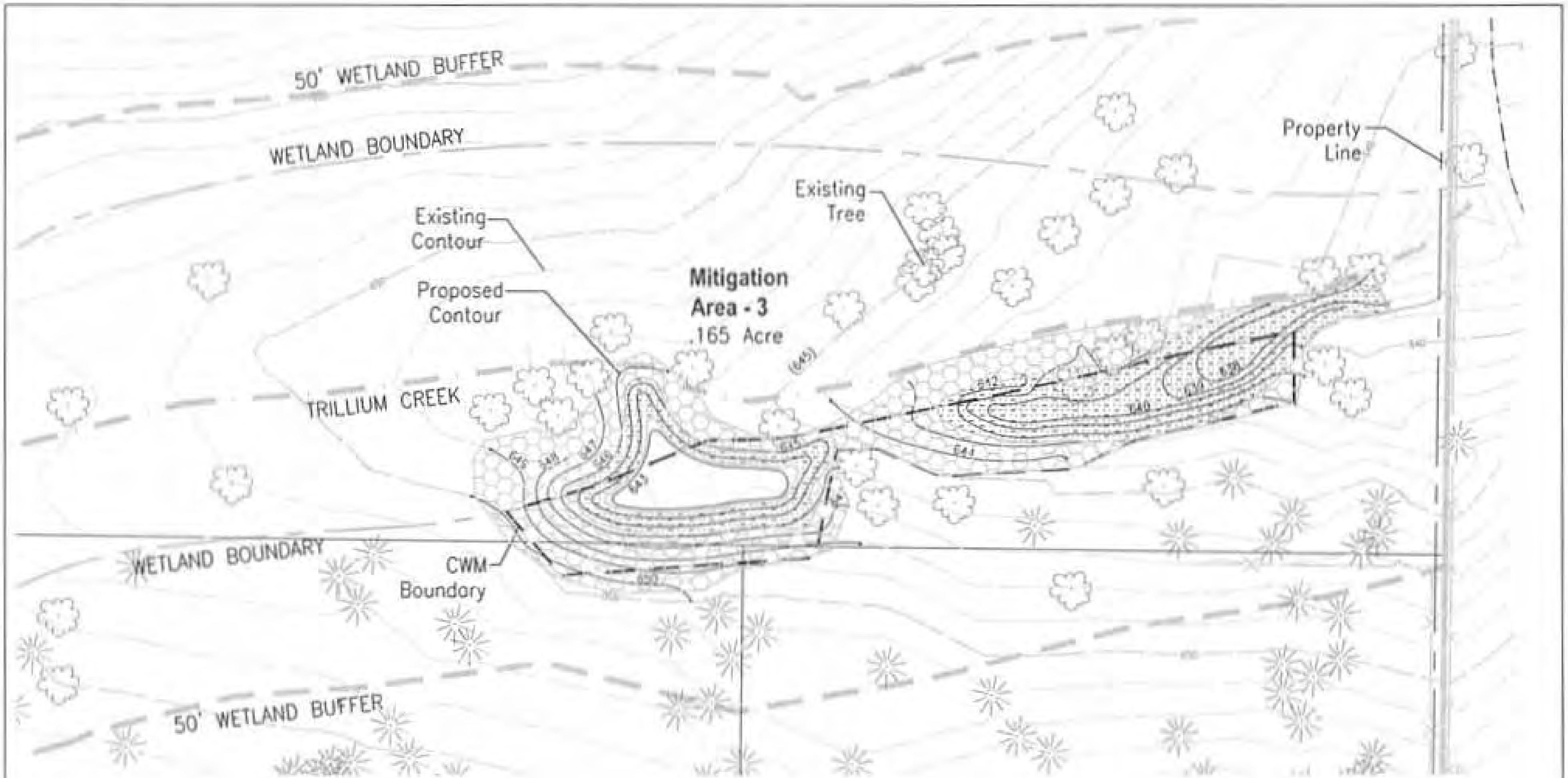
WALKER·MACY

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
Erickson Primary School
West Linn - Wilsonville School District

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
–	–	–	02.16.10	WM0911	–

TITLE
Mitigation Plan - Area 2
Exhibit D



LEGEND – MITIGATION AREA 3

PLANTING:
TREES, SHRUBS AND UNDERSTORY*

PLANTING:
EMERGENTS*

*SEE EXHIBIT 'B' FOR PLANT LIST

NOTE:
PROVIDE JUTE NETTING ON ALL SLOPES WITH GRADIENT OF 3:1 OR GREATER AS DIRECTED IN THE FIELD BY THE OWNER'S REPRESENTATIVE. STAPLE FABRIC TO GROUND WITH METAL STAKES AT 4' O.C.

SCALE: 1"=50'-0"
0 25 50

WALKER·MACY

WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT
Erickson Primary School
West Linn - Wilsonville School District

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
–	–	–	02.16.10	WM0911	–

TITLE
Mitigation Plan - Area 3
Exhibit E

West Linn – Wilsonville Schools

May 18, 2010

Anita Huffman
Northern Region Resource Coordinator
Wetlands and Waterways Conservation Division
Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279

RE: Response to comments on Removal-Fill Application #APP0044165

Dear Ms. Huffman:

This letter is in response to comments made on the West Linn-Wilsonville School District's Removal-Fill Application #APP0044165 (West Linn Primary School); letter dated April 26, 2010. The primary response it to those comments made by the Oregon Department of Fish and Wildlife (ODFW) letter dated March 23, 2010 and concerned citizens during the 30-day public review period for the permit application.

Comments received from the ODFW are addressed below:

1. "ODFW does not believe that the applicant has demonstrated that the proposed road construction/culvert installation within the wetland is consistent with Goal 5 and its administrative rule for locally significant resources."

→ The City of West Linn is responsible for implementing Goal 5 of Oregon's Statewide Planning Goals and Guidelines. The City's planning department has reviewed the project and determined that it will be consistent with land use regulations when certain local approvals (e.g. Conditional Use) are obtained.

2. "ODFW encourages the applicant to consider a pedestrian bridge linking the parking lot to the school, spanning the entire wetland and buffer area to completely avoid impact to a locally significant wetland."

→ The primary concern seems to be regarding impacts to Wetlands A and B caused by the road crossing. Currently, there is a dirt road/path crossing through this location and frequent vehicle use across the wetland there and in another location crossing the Wetland B and C. Measures were taken to minimize wetland impacts early in the site planning process. The delineated wetland and buffer became the base map over which the entire site was designed, and through an extensive alternatives analysis, the present design calls for the road to cross at the narrowest possible location on the school property. The proposed road will follow the existing road/path and will span the wetland with a 4-6 foot open-bottom culvert. The wetland impacts are minimal (0.07 ac) and mitigated at a 3:1 ratio.

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

→ The total number of parking spaces was reduced during planning, and the proposed plan includes 27 out of 117 total parking spaces to use the suggested location. However, there is not enough space at that location to accommodate the full parking needs, as well as allow for safe vehicle ingress/egress and a place to safely drop-off/pick-up primary school-aged children close to the school. The first responsibility of the District is the safety of the students; thus, this space is used as secondary parking area only.

3. "At a minimum, a vehicle bridge should be built to cross the entire wetland and buffer area to be consistent with statewide planning Goal 5."

→ A bridge spanning the entire wetland and buffer would be approximately $200-$300K in additional development costs to the District, which is economically cost-prohibitive to the project. The arching, open-bottom culvert was selected to provide the largest allowable opening that still maintains structural integrity at reasonable cost.

4. "ODFW appreciates the habitat considerations that are in the application packet including reduction of invasive plant species, which is a major problem at the project site."

→ Thank you for the comment.

5. ODFW recommends "continued invasive plant removal management into the future [and] use care working in early spring when native plants are emerging through non-native plants."

→ Five years of invasive species monitoring/control is a required component of the wetland mitigation plan. Further, part of the school curricula is expected to include native habitat education, including restoration and monitoring, increasing the chances for long-term success and a net benefit for the site. However, current boards cannot create long-term service agreements that bind future boards to commit to an invasive species management program. The suggestion to use care in early spring when native plants are emerging through non-native vegetation is noted and will be taken into consideration.

6. ODFW recommends to "use permeable pavers/porous materials for parking lots, walkways, and other traditionally impervious surfaces in place of asphalt or concrete."

→ High groundwater on the site limits the suitability of permeable pavers/porous materials. The project proposes to treat stormwater runoff by diverting water from all impervious parking areas into underground perforated pipes and vegetated swales with overflow into an underground detention pipe to infiltrate stormwater runoff and recharge groundwater.

7. ODFW recommends to "install signs that warn vehicles about frog migration and turtle crossing" and to "not release turtles or frogs into the area without first talking with an ODFW non-game biologist."

→ The suggestions to raise turtle and frog awareness through signage and to not release turtles or frogs into the area without first talking to OFDW are noted and will be taken into consideration.

8. ODFW recommends to "leave any large trees or snags that exist outside of the buffer area" and "not remove any oak trees."

→ Safety of the students is the number one responsibility of the District and are willing to leave snags standing up to the point that they do not present a danger to the students. Removal of some oak trees on the site is unfortunate, but necessary to construct the road into the site at the narrow wetland location.

9. ODFW recommends to "Preserve and restore grassland/prairie upland habitat for turtles, frogs, reptiles and ground nesting birds…Mow one third of the prairie every three years…Mow outside of breeding and nesting seasons (spring/early summer)…When mowing, watch for turtles and move them out of harm's way"

→ The suggestions to preserve and restore grassland/prairie habitat by mowing one-third of this habitat type every three years in spring/early summer and to watch for turtles during mowing are noted and will be taken into consideration in the classroom curriculum.

10. ODFW recommends to "install living roofs on buildings to supply habitat for insects and birds that will be displaced."

→ The suggestion is noted. The current site plan includes two eco-roofs as well as vegetated stormwater planters to receive roof runoff.

11. "ODFW has concerns that "Development within a Goal 5 designated resource area is not consistent with the City of West Linn's comprehensive plan, the Metro's Fish and Wildlife Habitat Protection Plan, the Oregon Conservation Strategy, or ODFW's management guidelines."

→ The City of West Linn's planning department has reviewed the project and determined that it will be consistent with the comprehensive plan when certain local approvals are obtained. The priorities of Metro, the state and ODFW are important to the school district; however, they are not part of the DSL and Corps of Engineer's Joint Removal-Fill Permitting process. The Applicant's approach to protection and provision for future wildlife habitat value in the project vicinity included baseline inventory, pre-design avoidance of valuable habitats, adequate mitigation area 3 (0.165 ac) that focuses on increasing the function for greater biodiversity targeting creation of habitat for amphibians and turtles. While again, this is not required under the DSL's JPA process, the Applicant believes this is supportive of the goals within the Metro's Fish and Wildlife Habitat Protection Plan, The Oregon Conservation Strategy, and the ODFW's management guidelines.

12. "An ESEE analysis is mandatory to amend West Linn's comprehensive plan."

→ No comprehensive plan amendment is under consideration for the school district's proposals thus an ESEE analysis would not be required.

13. "ODFW supports reconsidering alternatives [including] the properties one mile east that do not impact significant wetland and riparian resources, [and] can balance human and natural resource needs by retaining natural space."

→ Two alternative properties owned by the District were considered prior to settling on the proposed site. Both alternative sites are in conflict with the District goal of having schools serve the neighborhoods that surround them. The proposed site meets the criteria for access and the demographic served. Additionally, one alternative site is an established, highly-valued community/city youth sports field and the other site is unsuitable for a primary school.

Comments by concerned neighbors:

1. March 26, 2010 a neighbor recommended denial of the permit because of the confined nature of the project site. The comment stated further that the wetlands and open space limit development of the site and that there isn't infrastructure to support additional traffic.

→ Each of these concerns has been carefully evaluated and was taken into consideration during in the site planning and infrastructural design process.

2. March 27, 2010 Molly L. Hoeflich and Thomas A. Phipps commented that "draining this area and building a school would be a huge improvement".

→ The comment has been noted.

3. April 21, 2010 William H. Prentice and April 22, 2010 Joe Nolan were concerned about diversion of water and the risk that the project could increased flow erosion and flooding to Trillium Creek and that compensatory mitigation is insufficient.

→ The comments have been noted. Surface water runoff will be captured and managed according to City code. Any areas that may be disturbed, the surface water runoff would be detained per City of West Linn's standards (City of West Linn Design Standards Section 2). The runoff will be carefully controlled to match the pre-developed hydrology.

West Linn – Wilsonville Schools

The design criteria are discussed within the Land Use Application, and noted herein for your reference:

STORM DRAINAGE

Description
Storm water runoff from the impervious areas of the site will be addressed in a number of ways. Storm water from roof runoff and other impervious areas will be treated with bioswales and rain garden planters. Storm water quantity will be managed by two underground detention systems with metered outlet to the existing wetland area.

Design Criteria
The design of the sanitary system will be in accordance with the City of West Linn standards.

Materials
The materials of the sanitary system will be in accordance with the City of West Linn standards for public mains and the private portions of the system.

4. April 22, 2010 Joe Nolan was concerned about artifacts from Native Americans that may exist on site.

→ An inquiry to the State Historic Preservation Office was conducted and a response was provided by them about the project site (letter from SHPO dated April 5, 2010). A surface cultural survey (pedestrian) and record search was conducted by the Applicant in 2009, but no subsurface testing has been done. However, the creek and surrounding wetlands and upland prairies will be more protected once the school is in place than they have been in the recent past. As the project site has lain fallow, the area has been used by the public and vehicles have been driven through the waterways and seep areas. In the future, however, should any artifacts be discovered during construction, work will cease until a professional archeologist can assess the discovery.

Sincerely,

Tim K. Woodley
Director, Department of Operations
West Linn-Wilsonville School District 3TJ

West Linn – Wilsonville Schools

May 18, 2010

Elizabeth Ruther
Oregon Department of Fish and Wildlife
Sauvie Island Wildlife Area
North Willamette Wildlife District
19330 NW Sauvie Island Road
Portland, OR 97231

RE: Response to comments on Removal-Fill Application #APP0044165

Dear Ms. Huffman:

This letter is in response to comments made on the West Linn-Wilsonville School District's Removal-Fill Application #APP0044165 (West Linn Primary School); letter dated April 26, 2010. The primary response it to those comments made by the Oregon Department of Fish and Wildlife (ODFW) letter dated March 23, 2010 and concerned citizens during the 30-day public review period for the permit application.

Comments received from the ODFW are addressed below:

1. "ODFW does not believe that the applicant has demonstrated that the proposed road construction/culvert installation within the wetland is consistent with Goal 5 and its administrative rule for locally significant resources."

→ The City of West Linn is responsible for implementing Goal 5 of Oregon's Statewide Planning Goals and Guidelines. The City's planning department has reviewed the project and determined that it will be consistent with land use regulations when certain local approvals (e.g. Conditional Use) are obtained.

2. "ODFW encourages the applicant to consider a pedestrian bridge linking the parking lot to the school, spanning the entire wetland and buffer area to completely avoid impact to a locally significant wetland."

→ The primary concern seems to be regarding impacts to Wetlands A and B caused by the road crossing. Currently, there is a dirt road/path crossing through this location and frequent vehicle use across the wetland there and in another location crossing the Wetland B and C. Measures were taken to minimize wetland impacts early in the site planning process. The delineated wetland and buffer became the base map over which the entire site was designed, and through an extensive alternatives analysis, the present design calls for the road to cross at the narrowest possible location on the school property. The proposed road will follow the existing road/path and will span the wetland with a 4-6 foot open-bottom culvert. The wetland impacts are minimal (0.07 ac) and mitigated at a 3:1 ratio.

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

→ The total number of parking spaces was reduced during planning, and the proposed plan includes 27 out of 117 total parking spaces to use the suggested location. However, there is not enough space at that location to accommodate the full parking needs, as well as allow for safe vehicle ingress/egress and a place to safely drop-off/pick-up primary school-aged children close to the school. The first responsibility of the District is the safety of the students; thus, this space is used as secondary parking area only.

3. “At a minimum, a vehicle bridge should be built to cross the entire wetland and buffer area to be consistent with statewide planning Goal 5.”

→ A bridge spanning the entire wetland and buffer would be approximately $200-$300K in additional development costs to the District, which is economically cost-prohibitive to the project. The arching, open-bottom culvert was selected to provide the largest allowable opening that still maintains structural integrity at reasonable cost.

4. “ODFW appreciates the habitat considerations that are in the application packet including reduction of invasive plant species, which is a major problem at the project site.”

→ Thank you for the comment.

5. ODFW recommends “continued invasive plant removal management into the future [and] use care working in early spring when native plants are emerging through non-native plants.”

→ Five years of invasive species monitoring/control is a required component of the wetland mitigation plan. Further, part of the school curricula is expected to include native habitat education, including restoration and monitoring, increasing the chances for long-term success and a net benefit for the site. However, current boards cannot create long-term service agreements that bind future boards to commit to an invasive species management program. The suggestion to use care in early spring when native plants are emerging through non-native vegetation is noted and will be taken into consideration.

6. ODFW recommends to “use permeable pavers/porous materials for parking lots, walkways, and other traditionally impervious surfaces in place of asphalt or concrete.”

→ High groundwater on the site limits the suitability of permeable pavers/porous materials. The project proposes to treat stormwater runoff by diverting water from all impervious parking areas into underground perforated pipes and vegetated swales with overflow into an underground detention pipe to infiltrate stormwater runoff and recharge groundwater.

7. ODFW recommends to “install signs that warn vehicles about frog migration and turtle crossing” and to “not release turtles or frogs into the area without first talking with an ODFW non-game biologist.”

→ The suggestions to raise turtle and frog awareness through signage and to not release turtles or frogs into the area without first talking to OFDW are noted and will be taken into consideration.

8. ODFW recommends to “leave any large trees or snags that exist outside of the buffer area” and “not remove any oak trees.”

→ Safety of the students is the number one responsibility of the District and are willing to leave snags standing up to the point that they do not present a danger to the students. Removal of some oak trees on the site is unfortunate, but necessary to construct the road into the site at the narrow wetland location.

9. ODFW recommends to “Preserve and restore grassland/prairie upland habitat for turtles, frogs, reptiles and ground nesting birds…Mow one third of the prairie every three years…Mow outside of breeding and nesting seasons (spring/early summer)…When mowing, watch for turtles and move them out of harm’s way”

→ The suggestions to preserve and restore grassland/prairie habitat by mowing one-third of this habitat type every three years in spring/early summer and to watch for turtles during mowing are noted and will be taken into consideration in the classroom curriculum.

10. ODFW recommends to “install living roofs on buildings to supply habitat for insects and birds that will be displaced.”

→ The suggestion is noted. The current site plan includes two eco-roofs as well as vegetated stormwater planters to receive roof runoff.

11. “ODFW has concerns that “Development within a Goal 5 designated resource area is not consistent with the City of West Linn’s comprehensive plan, the Metro’s Fish and Wildlife Habitat Protection Plan, the Oregon Conservation Strategy, or ODFW’s management guidelines.”

→ The City of West Linn’s planning department has reviewed the project and determined that it will be consistent with the comprehensive plan when certain local approvals are obtained. The priorities of Metro, the state and ODFW are important to the school district; however, they are not part of the DSL and Corps of Engineer’s Joint Removal-Fill Permitting process. The Applicant’s approach to protection and provision for future wildlife habitat value in the project vicinity included baseline inventory, pre-design avoidance of valuable habitats, adequate mitigation area 3 (0.165 ac) that focuses on increasing the function for greater biodiversity targeting creation of habitat for amphibians and turtles. While again, this is not required under the DSL’s JPA process, the Applicant believes this is supportive of the goals within the Metro's Fish and Wildlife Habitat Protection Plan, The Oregon Conservation Strategy, and the ODFW's management guidelines.

12. "An ESEE analysis is mandatory to amend West Linn's comprehensive plan."

→ No comprehensive plan amendment is under consideration for the school district's proposals thus an ESEE analysis would not be required.

13. "ODFW supports reconsidering alternatives [including] the properties one mile east that do not impact significant wetland and riparian resources, [and] can balance human and natural resource needs by retaining natural space."

→ Two alternative properties owned by the District were considered prior to settling on the proposed site. Both alternative sites are in conflict with the District goal of having schools serve the neighborhoods that surround them. The proposed site meets the criteria for access and the demographic served. Additionally, one alternative site is an established, highly-valued community/city youth sports field and the other site is unsuitable for a primary school.

Comments by concerned neighbors:

1. March 26, 2010 a neighbor recommended denial of the permit because of the confined nature of the project site. The comment stated further that the wetlands and open space limit development of the site and that there isn't infrastructure to support additional traffic.

→ Each of these concerns has been carefully evaluated and was taken into consideration during in the site planning and infrastructural design process.

2. March 27, 2010 Molly L. Hoeflich and Thomas A. Phipps commented that "draining this area and building a school would be a huge improvement".

→ The comment has been noted.

3. April 21, 2010 William H. Prentice and April 22, 2010 Joe Nolan were concerned about diversion of water and the risk that the project could increased flow erosion and flooding to Trillium Creek and that compensatory mitigation is insufficient.

→ The comments have been noted. Surface water runoff will be captured and managed according to City code. Any areas that may be disturbed, the surface water runoff would be detained per City of West Linn's standards (City of West Linn Design Standards Section 2). The runoff will be carefully controlled to match the pre-developed hydrology.

West Linn – Wilsonville Schools

The design criteria are discussed within the Land Use Application, and noted herein for your reference:

STORM DRAINAGE

Description
Storm water runoff from the impervious areas of the site will be addressed in a number of ways. Storm water from roof runoff and other impervious areas will be treated with bioswales and rain garden planters. Storm water quantity will be managed by two underground detention systems with metered outlet to the existing wetland area.

Design Criteria
The design of the sanitary system will be in accordance with the City of West Linn standards.

Materials
The materials of the sanitary system will be in accordance with the City of West Linn standards for public mains and the private portions of the system.

4. April 22, 2010 Joe Nolan was concerned about artifacts from Native Americans that may exist on site.

→ An inquiry to the State Historic Preservation Office was conducted and a response was provided by them about the project site (letter from SHPO dated April 5, 2010). A surface cultural survey (pedestrian) and record search was conducted by the Applicant in 2009, but no subsurface testing has been done. However, the creek and surrounding wetlands and upland prairies will be more protected once the school is in place than they have been in the recent past. As the project site has lain fallow, the area has been used by the public and vehicles have been driven through the waterways and seep areas. In the future, however, should any artifacts be discovered during construction, work will cease until a professional archeologist can assess the discovery.

Sincerely,

Tim K. Woodley
Director, Department of Operations
West Linn-Wilsonville School District 3TJ

Event: Erickson Easement Landscape Meeting
Date: April 21, 2010 – 6:00 PM

Name	Address	Phone Number/Email
NORM DULL	907 SW STARK PTLD OR	NORMD@DDUA.COM
Ben Vaughn	111 SW Oak St.	bvaughn@walkermacy.com
Amy Berger	2755 SW Borland	bergera@wlwv.k12.or.us
Patti Millage	2544 Bronco Ct	patti.millage@comcast.net
Deb Tingey	6137 Churchill Downs Dr.	deb10s@comcast.net
JANE LEWIS	1830 BAY MEADOWS DR	503-657-0687 janelewis_7@hotmail.com
SCOTT PERALA	2155 SW BORLAND RD.	PERALAS@WLWV.K12.OR.US
Tim Woodley	" " " "	woodleyt@wlwv.k12.or.us
TRACY PYEATT	2168 Clubhouse DR	tracypyeatt@msn.com
KAREN PYEATT	" "	Karenpyeatt@ " "
Mark Law		lawm@wlwv.k12.or.us

Amy Berger - RE: New Primary School

From: "Robert J. Wakefield" <rwakefield@walterenelson.com>
To: BergerA@wlwv.k12.or.us
Date: 1/7/2010 2:25 PM
Subject: RE: New Primary School

3:00 would be perfect - Thanks

From: Amy Berger [mailto:BergerA@wlwv.k12.or.us]
Sent: Thursday, January 07, 2010 2:00 PM
To: Robert J. Wakefield
Subject: RE: New Primary School

3 or 4 work?

Thanks,
Amy

>>> "Robert J. Wakefield" <rwakefield@walterenelson.com> 1/7/2010 1:17 PM >>>

Amy that would work great, how about mid to late afternoon?

From: Amy Berger [mailto:BergerA@wlwv.k12.or.us]
Sent: Thursday, January 07, 2010 1:12 PM
To: Robert J. Wakefield
Subject: RE: New Primary School

With Tim and the architect's schedule and you requesting a Monday or Tuesday it looks like our option is sometime the afternoon of Monday the 25th. Would that work for you, and what time would be best?

Thank you,
Amy Berger

>>> "Robert J. Wakefield" <rwakefield@walterenelson.com> 1/7/2010 1:00 PM >>>

Amy,

It would be best if my wife could meet with us also and she's off Monday's & Tuesday's. So those two days would work best but if not I can meet with Tim and the architect almost any time with enough notice.

Thanks for your help,

Bob

From: Amy Berger [mailto:BergerA@wlwv.k12.or.us]
Sent: Thursday, January 07, 2010 10:42 AM
To: Robert J. Wakefield
Subject: RE: New Primary School

Bob, I an waiting to hear back from our architect what days might work for him, are there any days/times that work best for you for him and Tim to meet with you?

Amy Berger
Administrative Assistant, Bond
WLWV School District
bergera@wlwv.k12.or.us
503-673-7195 direct
503-638-9143 fax

>>> Tim Woodley 1/6/2010 9:51 AM >>>
Bob: I am out of the office until the 19th. I will arrange to have our architect accompany me to your property when I get back. Amy Berger in our office can schedule. tim

West Linn-Wilsonville School District
DEPARTMENT OF OPERATIONS
Tim K. Woodley, Director

>>> "Robert J. Wakefield" <rwakefield@walterenelson.com> 12/29/2009 9:36 PM >>>

Tim,

From your cross section it appears there will be parking all along the turn around. From the meeting we attended we were told the trees in the landscaping will only be 10 feet tall which will provide very little "buffering". Like I've asked in my previous emails is there a problem meeting here? We can go round and round on this but until you see it for yourself I think it will be difficult for you to understand our concerns.

Bob

From: Tim Woodley [mailto:Woodleyt@wlwv.k12.or.us]
Sent: Tuesday, December 29, 2009 1:49 PM
To: Robert J. Wakefield
Cc: Karina Ruiz; Norm Dull
Subject: RE: New Primary School

Bob: Attached is a pdf of a cross-section through the drive/turn-around and your property. As you can see we are planning landscaping immediately adjacent to the drive to screen it from your residence. Since this is a drive for only vehicular movement, there will only be vehicles present periodically (not parking). Beyond the drive is open play area with the existing trees beyond. It is our expectation that this will provide adequate buffering to your property. Please review and let me know. tim

West Linn-Wilsonville School District
DEPARTMENT OF OPERATIONS
Tim K. Woodley, Director

>>> "Robert J. Wakefield" <rwakefield@walterenelson.com> 12/29/2009 1:33 PM >>>

I'm hoping you or your design staff might have some once you see it from our perspective. That's why I suggest we meet at our house so you can see why the elevation plays a large part in this. Can you tell me if there's a problem if we meet here?

From: Tim Woodley [mailto:Woodleyt@wlwv.k12.or.us]
Sent: Tuesday, December 29, 2009 10:18 AM
To: Robert J. Wakefield
Cc: Amy Berger
Subject: RE: New Primary School

Bob: I am happy to talk with you on the phone or meet you in my office. I have heard your concerns regarding the proposed new school design; but, you also mention "solutions". Can you share what those solutions might be?

Please feel free to contact Amy Berger, Bond Secretary at 503.673.7195 to schedule an appointment. tim

West Linn-Wilsonville School District
DEPARTMENT OF OPERATIONS
Tim K. Woodley, Director

>>> "Robert J. Wakefield" <rwakefield@walterenelson.com> 12/23/2009 3:47 PM >>>
Tim,
Scott mentioned that he was going to put together a meeting between himself, someone on the design team and my wife and I after the holidays. Now that you've replaced Scott as my contact concerning our issues with the project will you be putting the meeting together? Like I mentioned to Scott Mondays or Tuesdays work best for us due to my wife's work schedule. I also would like for the meeting to take place at our house so it's easier for both of us to explain our concerns/solutions.
Thanks and have a good holiday,
Bob

-----Original Message-----
From: Tim Woodley [mailto:woodleyt@wlwv.k12.or.us]
Sent: Monday, December 21, 2009 11:25 AM

To: rwakefield@walterenelson.com
Cc: Scott Perala
Subject: New Primary School

Bob: I will be happy to talk with you about the school design. Tim

Sent from my iPhone

****
This email virus and spam checked by **GWAVA**.
****
****
This email virus and spam checked by **GWAVA**.
****
****
This email virus and spam checked by **GWAVA**.
****
****
This email virus and spam checked by **GWAVA**.
****

Amy Berger - RE: Erickson School

From: Norm Dull <NormD@dowa.com>
To: "dcastagnola@coastdist.com" <dcastagnola@coastdist.com>
Date: 3/5/2010 11:28 AM
Subject: RE: Erickson School
CC: Scott Perala <PeralaS@wlwv.k12.or.us>, Amy Berger <BergerA@wlwv.k12.or.u...

Mr. Castagnola,

Please see my responses to your questions/concerns below in red. If you have further questions, please contact me or Tim Woodley.

Norm Dull

Dull Olson Weekes Architects

Amy

>>> "Dennis Castagnola" <dcastagnola@coastdist.com> 3/5/2010 6:47 AM >>>
Will there be lights along the staff parking area [yes] and if so will they be shielded to help keep light from entering the back windows of home along the parking lot? [yes]

Why would you have the bus drop off and pickup near the rear of homes when you have an another roadway which would keep the buses and their noise and the noise of the children away from home if used the road past the visitor parking. It would seem you would want to be the best neighbor and quietest neighbor you could. Seems the car/bus and visitor/staff parking should be swapped. [the site is very tight. We wanted to have the school relate to the forest area to the north. The light quality for the classrooms is better and the view to the forest was thought important. We didn't want to separate the school from the forest area where the children would need to go through the parking lot to get to the forest play area. We are currently looking at ways to reduce noise generated by the buses into the neighborhood. The landscape buffering that is being proposed is one example showing that the school district wants to be a good neighbor]

Buses can make alot of noise when starting and idleing as well as potential exhaust odors. How long will they be allowed to idle in the parking lot? [The school district has a no idle policy. The buses will be turned off as soon as they are stopped. As stated above, we are looking at ways to mitigate noise from buses.]

Will staff be alowed to back into their parking spaces? [I don't know why not. The headlights at the parking stalls will be shielded by landscaping and/or retaining wall, berms or slopes.]

Will the retaining wall be backfilled after it is done to keep any movement of the earth between the wall and fences from moving? [that is the prime reason for the retaining walls]

Will there be a fence around the school? [yes] If so are there any gates along the staff parking lot boundry? [the only access to the south is at Bay Meadows Drive]

Will the school only be used for school purpuses or will it be rented for other events and if so what are the hours of operation for these events? [as with all WLWVSD schools, the school open for after school activities. Hours are 6 AM to 10 PM, 7 days a week]

What is the phone number and e-mail address for noise and other complaints? [That would be Tim Woodley, Director of Operations, 503-673-7000. His email is in the cc'd line above.

Thank you for your time and I will await your replies.
Dennis Castagnola

Amy Berger - New PS at Erickson Site: Over the Fence meeting

From: Norm Dull <NormD@dowa.com>
To: "janelewis_7@hotmail.com" <janelewis_7@hotmail.com>
Date: 3/5/2010 4:49 PM
Subject: New PS at Erickson Site: Over the Fence meeting
CC: Tim Woodley <Woodleyt@wlwv.k12.or.us>, Amy Berger <BergerA@wlwv.k12.or.u...

Jane & John Lewis,

I will try to respond to your questions presented in bullet form dated March 4, 2010

- How close to the property lines will the bus driveway be and will there still be a drop in the parking lot elevation from Bay Meadows Dr.?
  - Answer: from the property line to the edge of the parking stall is approximately 26 feet, the drive lane for the bus is the additional length of the parking stall which is 16 feet (total of 42 feet). The drop in elevation from Bay Meadows Drive to the parking stalls is approximately 3 feet.

- How full and tall will the landscape buffer be as well how close to the property line will it be planted?
  - Answer: the final drawings have not been completed as yet. However I hope that the information provided by Ben from Walker Macy gave you a pretty good idea as to the intended design. The school district has directed our landscape architect to upsize the trees in the buffer zone.

- Does the end of Bay Meadows Dr. remain a gate at the end of Bay Meadows?
  - Answer: that is what we are proposing to the city. We have no desire to allow vehicular traffic to enter the site at that location.

- Will there be any revision to Bay Meadows Dr?
  - Answer: we are not planning on any changes.

- As stated at a previous information meeting when there is an event at the school, surrounding neighborhood areas will be impacted with parking issues. Would it be possible to open the north area of the Property for "Event Parking" so that perimeter neighbors are relieved of this problem?
  - Answer: we are providing only the minimum number of parking spaces required by code. This is because it is a sustainable thing to do and the site is very restrictive as to the amount of parking we can accommodate. However we have increased the width of the entrance drive to allow parking on one side without restricting emergency vehicle access and the drop off areas at the parent drop off and bus drop off can be use during bigger events if necessary with this additional capacity, we feel it would be a rare occasion that people would need to park in the neighborhoods, especially if the neighbors walk to the school. Opening up the northern portion of the site for event parking would present several legistical problems. There is no access from that area, and it would be unlit creating a safety concern. With the additional parking outlined above, we are at the maximum parking allowed by the city and I doubt the city would allow us to provide overflow parking in that area.

- Could perimeter residential streets be marked as no school parking?
  - Answer: the school district can't do this on their own. The City of West Linn has done this around the high school. If conditioned by the city, the school district could and would install signage.

The enforcement would be the responsibility of the city.

- What type of lighting will be in the parking areas? Will the lights be shut off at a certain time?
  - Answer: the lighting will comply with the city's requirement for dark sky which means no upward light. It will also comply with the required limit for light trespass (restricts the amount of light that can cross the property line and is a very small amount). We are planning on using light fixtures with a sharp cut off to prevent glare into the neighborhood. The lights are on all night time hours.

- How many days a week will the facility be open for community use? What hours will it be open? Will parking be open in all parking areas?
  - Answer: Seven days a week from 6 AM to 10 PM. All parking will be open for use at all times. This allows police to patrol the site.

- Where will the construction access be? Will Bay Meadows Drive be used as construction access?
  - Answer: All construction access will be from Rosemont Road. We don't foresee any need to access the site for construction via Bay Meadows Drive.

I hope this is helpful,
Norm Dull
Principal,
Dull Olson Weekes Architects Inc.

Amy Berger - New West Linn Primary School at Erickson Site: "over the fencemeeting"

From:	Norm Dull <NormD@dowa.com>
To:	"csycoffee@msn.com" <csycoffee@msn.com>
Date:	3/8/2010 1:40 PM
Subject:	New West Linn Primary School at Erickson Site: "over the fencemeeting"
CC:	Tim Woodley <Woodleyt@wlwv.k12.or.us>, Amy Berger <BergerA@wlwv.k12.or.u...
Attachments:	10-0304 Neighborhood Presentation grow character.pdf

Rodger and Casey Hepburn,

I am with the architectural team working on the design of the new primary school. As such, I have been asked to address your comments/ requests:

Comment/request #1: Gate to block off traffic to staff parking lot on nights and weekends.

Response: The school district does not restrict access to any of the district's schools. It is the intent that people wishing to access the gym, school or the school grounds in general would be able to use the parking lot to the south of the school as needed.

Comment/request #2: Large evergreen trees and blossoming trees (many) to serve as buffer between our yard and parking lot. Also we request larger than 3 inches.

Response: We are working with our landscape architect and the school district to provide appropriate buffering between the parking lot and the property line to the south. If you attended the meeting you now have a pretty good idea as to the extent of the landscaping proposed. If you didn't, I have attached the photos that were presented that represent the landscaping at time of planting, 5 years later and 10 years following planting. Installing trees of 3 inch caliper is pretty expensive and the school district has committed to installing these larger trees in strategic locations. I am afraid going to larger caliper trees would be cost prohibitive and the trees fail to thrive. What I mean by this is that a smaller caliper tree will catch and out grow a tree of the much larger caliper because the larger caliper tree is more likely to be shocked and takes longer to recover.

Comment/request #3: Small gate in chain link fence to allow access to school property from our yard (so kids can walk to school through our yard rather than have to go all the way around the neighborhood to get to the main entrances to school). If there is a closer access, it will keep kids from climbing the fence.

Response: I have discussed this with the school district and I am afraid we cannot accommodate this request. If it is good for one, it is good for all, and of course we won't put a gate into every adjacent lot. Liability for the school district and for you is too high for what could happen due to trespass.

Comment/request #4: We request the chain link fence not be higher than our rock retaining wall.

Response: In order to make the fence as unobtrusive as possible, the school district is spending additional money to have it a black vinyl coated fence. The fence is planned to be 6 feet tall at the property line to help deter kids and others from climbing the fence. We are planning on walking the property line again to identify issues with installing the fence 6 inches off the property line. There are possible conflicts with your retaining wall.

Comment/request #5: We request the large trees on the corner of our neighbors lot and ours not be removed.

Response: The school district will not remove the tree unless it is entirely on the school district's property <u>and</u> the city conditions them to remove it should their arborist deem it dangerous (cottonwoods, as I understand this tree to be, are known for having large limbs break off in windstorms).

Should you have additional comments, questions or requests, feel free to contact me.

Norm Dull, Principal
Dull Olson Weekes Architects Inc.

March 8, 2010

Matt & Krysta Fellman
2138 Clubhouse Drive
West Linn, OR 97068

Re: New West Linn Primary School @ Erickson Property

Dear Matt & Krysta,

Hello, I am with the architectural firm designing the new primary school at the Erickson property. I have been asked by the WLWV School District to respond to your letter of March 4, 2010. The school district wants to be a good neighbor so hopefully we can keep the lines of communication open.

I will try to address each of your specific comments/concerns.

At first blush, one would think that a site as large as this one would have plenty of options for placing the school, street access, play grounds and equipment and parking. The opposite is true. I can assure you that we spent a great deal of time investigating options and working with the site restrictions. The site restrictions include wetlands and associated setbacks, limited site access points, and a significant stand of trees along with several heritage trees that when taken together substantially reduce the usable portion of the site. We put together a "constraints and opportunities" diagram (attached) that shows the relatively small portion of the site that is large enough to accommodate a school of this size. you might have noticed from the site plan you mentioned in your letter, that we were only able to identify a small amount of play fields.

One of the main design goals in designing a school is to separate bus traffic and parent traffic. This is to reduce the traffic conflict with access onto and of site as well as creating a safer environment for the students. We looked at ways of meeting this criterion and frankly there weren't any other options we found that worked as well for the school as what is currently planned.

The school district wanted to keep a direct link (no vehicular traffic) between the school and the forested area to the north. This resulted in locating the bus/staff parking to the south side of the building. The school district is proposing to enhance the buffer between the parking lot and its south parking lot from 20 feet to a minimum of 25 feet. This is an increase of 25% over the code required minimum. We are also sensitive about the sight issues and have developed what we think is a good landscaping plan to screen the parking lot and associated vehicle lights. As for the noise of the buses and associated smells from the diesel, we are working on ways to further mitigate these issues. You can be assured that we will comply with the city's noise ordinance. The buses are required by district to comply with the district's no idle policy.

Regarding the addition to your home, I can understand your frustration. We deal with setbacks and other development code restrictions on a daily basis. In this case, as stated above, we have more than met the building and parking setback requirements for this site.

Sincerely,
Dull Olson Weekes Architects Inc.

Norman R. Dull
Principal

Cc: Tim Woodley, Director of Operations, WLWV School District

Attachment: Constraints & Opportunities Diagram, October 2009

DULL OLSON WEEKES
architects inc.

dowa

NEW ERICKSON SCHOOL

Constraints & Opportunities Diagram

phase	schematic
date	october 2009
project #	09014

Amy Berger - New PS @ Erickson: Over the Fence Meeting

From: Norm Dull <NormD@dowa.com>
To: "tracypyeatt@msn.com" <tracypyeatt@msn.com>
Date: 3/5/2010 11:03 AM
Subject: New PS @ Erickson: Over the Fence Meeting
CC: Karina Ruiz <KarinaR@dowa.com>, Tim Woodley <Woodleyt@wlwv.k12.or.us>, A...

Tracy,
Thanks for coming to the meeting last night.
I thought I would respond to your questions through this email.

Question #1: Elimination of Wetlands @ eastside of site and the resulting closer location of the play area to your property line. You note that you are losing an educational area Noise, Privacy and elimination of wetland issue.

- The drainage area was originally identified by the City of West Linn (COWL) as an open drainage way and they thought it contained wetlands. We had our wetland biologist review the area and worked with Oregon's Division of State Lands (DSL). It is a drainage way but only because water is gathered from the houses and streets to the south and deposited on the school site through a storm water system. The only time it runs is when it has gathered rain water. No wetlands were found. In order to get more usable property for the school, we are proposing to move the drainage way to the east. The drainage swale will have a 15-foot setback on each side of the new drainage way. We don't anticipate that there will be enough water to create wetlands. There are plenty of other places on the site for learning about wetlands.
- It doesn't make sense to install the play area only to replace/move it in the near future. It would be costly and a waste of money. The current setback from your property line to the play circle is 56 feet.
- Tracy, we don't have 25 feet to allow us to move the playground further west.

Question #2: The trail along the east property line of the school and your property can it be moved?

- It has been eliminated.

Question #3: Exterior lighting for entire site. Dark sky?

- Yes, the lighting fixtures will be selected to meet the city's dark sky requirement, also the requirements of LEED for light pollution/dark sky. Part of our submittal to the city will show the foot candle trespass at all locations around the schools property line to meet the city's requirements. We will be selecting light fixtures that will prevent glare into the neighborhood.
- Play areas and play structure will not have lights.
- We will not be lighting the building with flood lights.

Question #4: Tree and shrub selection:

- Hopefully following last night's presentation, you are comfortable with the vision Ben put forth for the planting/screening around the site. We will be providing a full landscape plan that the city will use during the planning approval process.

-Norm

West Linn-Wilsonville
School District

Friday, Mar 12, 2010

Jane & John -

Thank you for inviting me into your home to discuss design plans for the new primary school.

We will make sure you are invited to engage with our designers as the area adjacent to your home is detailed.

Best Regards Tim

WLWV
2755 SW Borland Rd
Tualatin, OR 97062

Jane & John Lewis
1830 Bay Meadows
West Linn, OR 97068

Tim K. Woodley
Director of Operations
District Operations Center
2755 SW Borland Road
Tualatin, Oregon 97062
503-673-7995
503-638-9143 Fax
woodleyt@wlwv.k12.or.us
www.wlwv.k12.or.us

West Linn Wilsonville School District 3JT

West Linn – Wilsonville Schools

MEMORANDUM

Date: December 2, 2009

To: Tara DuBois
Office of the Superintendent

From: Tim Woodley
Director of Operations

RE: Public Awareness Update
Erickson Project

Tara:

Find attached a report of our publicity campaign and meeting schedule for upcoming Board/neighborhood meetings scheduled in December as related to the development of the new Erickson school site in West Linn.

This should go into the Board Reading Packet for their information and planning. Of course we invite any Board members and administrators to attend.

To summarize, the following events are upcoming:

Architect presentation to the Board	Regular Board Meeting	Monday, 12/7 @ 7:00 pm
Neighborhood Social	Rosemont Ridge Cafeteria	Thursday, 12/10 @ 4:00-7:00 pm
Neighborhood Assoc. Mtng.	Rosemont Ridge Cafeteria	Tuesday, 12/15 @ 7:00 pm

Thanks tim

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

West Linn – Wilsonville Schools

MEMORANDUM

Date: November 30, 2009

To: Tim Woodley
Director of Operations

From: Scott Perala
Program Manager
2008 Capital Improvement Bond Program

RE: Public Awareness Update
Erickson Project

This memo serves as an update for the project team's efforts to keep the public informed of the District's work in developing the Erickson project.

EXECUTIVE SUMMARY:
The project team has worked diligently over the past 4 months to increase the public's awareness of the District's efforts and progress in developing the Erickson project. The team has accomplished the following milestones,

- Held a "summer social" at the site, open to the neighborhood
- Scheduled a presentation to the School Board by Architect Norm Dull of concept building and site design
- Completed planning and coordination for a "winter social" for the project at Rosemont Ridge Middle school, open to the neighborhood
- Received approval for a special meeting of the neighborhood association with an agenda for a presentation by the District of the team's efforts to date
- Completed public notice of our pending land use application in accordance with the City of West Linn Community Development Code

CRITICAL DATES SUMMARY			
Event	Place	Date	Time
1st Neighborhood Social	Project Site (1025 Rosemont Road)	July 20, 2009	4:00 – 6:00 pm
Pre-Application Meeting with City	West Linn City Hall	October 15, 2009	11:00 am
Concept Design Presentation to School Board	***District Administration Building***	***December 7, 2009***	***7:00 pm***
2nd Neighborhood Social	***Rosemont Ridge Middle School Commons***	***December 10, 2009***	***4:00 – 7:00 pm***
Hidden Springs Neighborhood Association Presentation	***Rosemont Ridge Middle School Commons***	***December 15, 2009***	***7:00 – 10:00 pm***
Land Use Application Submission	***West Linn City Hall***	***April 5, 2010 (estimated)***	***TBD***

West Linn – Wilsonville Schools

SUMMER SOCIAL - 2009:

The project team planned and coordinated a neighborhood-focused social gathering on July 20th, 2009. The District mailed invitations to and canvassed the neighborhood to invite residents living within five hundred feet of the property to the social held on the site. Over sixty people attended the function including local residents, members of the Hidden Creek Home Owner's Association, a member of the West Linn Tidings staff, Hidden Springs Ranch Recreational Association, City planning staff, District staff and project team members. The District provided mounted drawings of possible design concepts and site arrangements and displayed them for public viewing. Members of the project team engaged in various conversations with members of the community to discuss their perceptions and opinions about the various options. Following the social, the West Linn Tidings published a story entitled "District takes WL residents to school" on July 23, 2009.

WINTER SOCIAL - 2009:

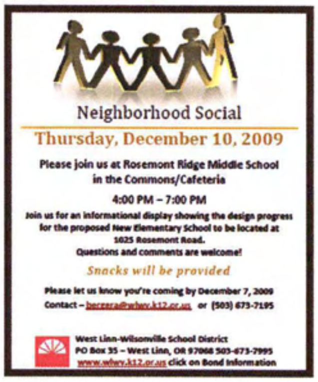
In addition to the required Hidden Springs Neighborhood Association meeting/presentation, the District is currently planning to host another neighborhood social for the project. The social is currently planned to be held at Rosemont Ridge Middle School on December 10, 2009 from 4:00 to 7:00 pm. Invitations were mailed on November 25th.

NEIGHBORHOOD ASSOCIATION MEETING AND PUBLIC NOTICE FOR LAND USE APPLICATION:

The District has coordinated with the Hidden Springs Neighborhood Association to schedule a special meeting of the Association on December 15th, 2009. At this meeting, the District will present the current design concepts to the Association for information and public comment. This presentation is a part of the City of West Linn's requirements for the District's land use application for the project. After coordinating a date and time with the Association's president, the District sent letters of invitation to the Association's president and officers on November 17th, 2009. In addition, the invitation was mailed to the residents that live within five hundred feet of the property line of the site and the District posted signs on the site announcing the meeting, both occurring the next day (November 18, 2009). In addition to the code mandated public notices, the District released a postcard mailing on November 22, 2009 to every resident in the Hidden Springs Neighborhood Association for the special meeting in an effort to reach as many residents as possible.

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

West Linn – Wilsonville Schools


Neighborhood Social

Thursday, December 10, 2009

Please join us at Rosemont Ridge Middle School
in the Commons/Cafeteria

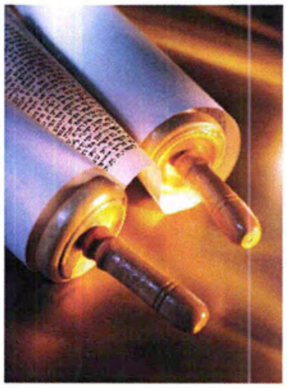
4:00 PM – 7:00 PM

Join us for an informational display showing the design progress for the proposed New Elementary School to be located at 1025 Rosemont Road.
Questions and comments are welcome!

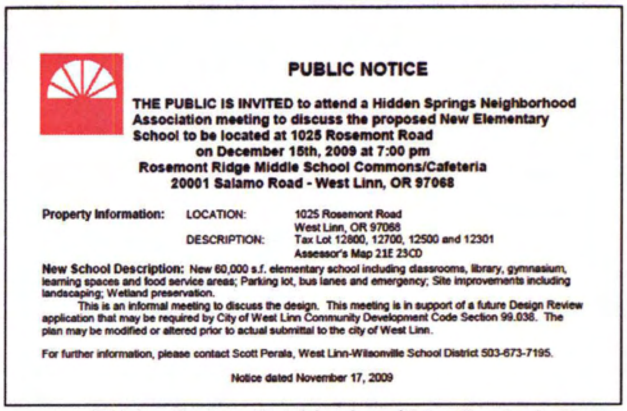
Snacks will be provided

Please let us know you're coming by December 7, 2009
Contact – berzera@wlwv.k12.or.us or (503) 673-7195

West Linn-Wilsonville School District
PO Box 35 – West Linn, OR 97068 503-673-7995
www.wlwv.k12.or.us click on Bond information



Winter Social – 2009 Invitation


PUBLIC NOTICE

THE PUBLIC IS INVITED to attend a Hidden Springs Neighborhood Association meeting to discuss the proposed New Elementary School to be located at 1025 Rosemont Road on December 15th, 2009 at 7:00 pm
Rosemont Ridge Middle School Commons/Cafeteria
20001 Salamo Road - West Linn, OR 97068

Property Information:	LOCATION:	1025 Rosemont Road West Linn, OR 97068
	DESCRIPTION:	Tax Lot 12800, 12700, 12500 and 12301 Assessor's Map 21E 23CD

New School Description: New 60,000 s.f. elementary school including classrooms, library, gymnasium, learning spaces and food service areas; Parking lot, bus lanes and emergency; Site improvements including landscaping; Wetland preservation.

This is an informal meeting to discuss the design. This meeting is in support of a future Design Review application that may be required by City of West Linn Community Development Code Section 99.038. The plan may be modified or altered prior to actual submittal to the city of West Linn.

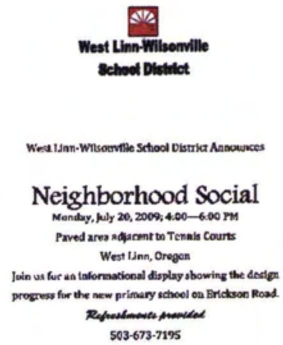
For further information, please contact Scott Perala, West Linn-Wilsonville School District 503-673-7195.

Notice dated November 17, 2009

Hidden Springs Neighborhood Meeting Invitation

Summer Social - 2009

Summer Social - 2009


West Linn-Wilsonville
School District

West Linn-Wilsonville School District Announces

Neighborhood Social

Monday, July 20, 2009; 4:00—6:00 PM

Paved area adjacent to Tennis Courts

West Linn, Oregon

Join us for an informational display showing the design progress for the new primary school on Brickson Road.

Refreshments provided

503-673-7195

Summer Social – 2009 Invitation

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

DULL OLSON WEEKES
architects inc.

ARCHITECTURE + INTERIORS + PLANNING

PROJECT: | DATE: 7/20/09
WITH:
O MEETING O TELEPHONE O OTHER | PROJECT NO.: | BY:

NAME	STREET ADDRESS	EMAIL	NOTIFICATION
KARINA RUIZ	907 SW STARK, PDX	KARINAR@dowa.COM	E-MAIL
Josh Golden	3250 Sabo Ln.	josh.golden@sas.com	email
April Peterson	1930 Arena Ct	april_katya@yahoo.com	
Pam Gates	20585 Suncrest Dr.	gina1957@comcast.net	email
Harvey Schulz	20520 Suncrest Dr.	harveyschulz@gmail.com	
Clare Baxter	1810 Bay Meadows Dr.	clare@flourishpilates.com	
Eric Gakstatter	19760 Bellevue Way	ericg@gps-mapping.com	
Jan Manley (also on board of Hidden Creek Homeowners Assoc.)	2178 Hidden Springs CT.	jmanley50@hotmail.com	
Dick Kraft	2148 Clubhouse	islandboard@earthlink.com	
Guy DeMars	20540 Martin Ct	vancemars@comcast.net	
Richard Gross	1845 Bay Meadows	richardgross999@msn.com	
Debra Ramsey	1931 Sunburst Ter	DRAMSEY214@AOL.COM	
Mary Farrar			
Jim BRICK	2001 BAY Meadows	brick225@comcast.net	
Nicole DeCosta	PO BOX 858, Lake Oswego OR 97034	ndecosta@westlinntidings.com	
Jolene + Dennis Castagnola	6137 Cheyenne Ter West Linn Or 97068		
Scott & Judy Church	20550 Martin Ct	judy-church@mentor.com	
Traci Monihan	2158 Clubhouse Dr	monihan7@comcast.net	email
SHARON V. MILLER	2171 HIDDEN SPRINGS CT	SHARONVMILLER@SPIRITONE.COM	
Keith Steele	21415 Miles Dr WL	keith@steelefamily.us	
Mary Jo Carson	20530 Martin Ct	mj4school@comcast.net	
Mike Prettyman	1920 Arena Crt.	MDPrettyman@comcast.net	
Jan + David Taut	20560 Suncrest Dr.	t8family@msn.com	email
Tom + Sandy Hiatt	20535 martin ct	thiatt8107@msn.com	
Saskia Dresler			

dowa

319 SW WASHINGTON ST. #200 | PORTLAND, OR 97204
t: 503 226 6950 f: 503 273 9192 | www.dowa.com

DULL OLSON WEEKES
architects inc.

ARCHITECTURE + INTERIORS + PLANNING

Local homeowners
Hidden Springs
Roth Estates

PROJECT:

DATE:

WITH

O MEETING O TELEPHONE O OTHER

PROJECT NO.:

BY:

Name	Street Address	Email	How Notified?
Tony CARSON	20530 MARtin Ct.		mail + visit
Lori Beight	2388 Appaloosa Wy		
John Lewis	1830 Bay Meadows Dr.		notice.
Austin Ballou	20500 Martin Ct		Notice
•Susan Wakefield	6131 Cheyenne Ter		neighbor ~~gave~~ note.
Tom Wesley	1825 Bay Meadows Dr.		
Wrayann Estey	1400 Bay Meadows, WL		Realtor Hasson
Patti Umillage	2544 Bronco Court	(you have it)	HSRRA Brd mmbr
Thayne Balzer	.		
P Erickson	20800 Hidden Spring Rd		
Chris Kerr	City of Boat	ckerr@westlinnoregon.gov.	faxed
Donna & Jeff Kestek	1026 Rosemont Rd	donnakestek@comcast.net	notice
Lisa + Scott Peraka	9488 SW Delaware Cir		
Lola Skates	2475 Bellevue Terr	lolaskates5@earthlink.net	
Jessica Henry	2326 Athena Road	jehenry@deloitte.com	
Greg Gabler	20560 Martin Ct	greg.gabler@sumcousa.com	
Scott Hall	19343 Kapteyns St.	muchishiba@gmail.com	email
Patrick Taylor	20605 SW Suncrest Dr.	pataylor@prodigy.net	mail
Marty Cresalia	6133 Cheyenne		mail
Jacey Talavs	6140 Cheyenne Terr	jamestalavs@hotmail.com	
TRACY Pyeatt	2168 Clubhouse Dr	tracypyeatt@msn.com	
Karen Pyeatt	" " " "	KarenPyeatt@msn.com	
JUSTIN BAXTER	1810 BAY MEADOWS	JUSTIN@BAXTERLAW.COM	

dowa

319 SW WASHINGTON ST. #200 | PORTLAND, OR 97204
t: 503 226 6950 f: 503 273 9192 | www.dowa.com

DULL OLSON WEEKES
architects inc.

ARCHITECTURE + INTERIORS + PLANNING

PROJECT:

DATE:

WITH:

○ MEETING ○ TELEPHONE ○ OTHER

PROJECT NO.:

BY:

RAY CHESLEY

1835 BAY MEADOWS DR.
raylisa.chesley@comcast.net

RECEIVED A FLYER THAT A NEIGHBOR DISTRIBUTED

dowa

319 SW WASHINGTON ST. #200 | PORTLAND, OR 97204
t: 503 226 6950 f: 503 273 9192 | www.dowa.com

Event: Erickson Neighborhood Social
Date: December 10, 2009 - 4 PM – 7 PM

Name	Address	Phone Number/Email
Jim Brick	2001 Bay Meadows	503-723-8577 brick225@comcast.net
Tim Fields	20001 Salamo Rd.	503-673-7554 fieldst@wlwv.k12.or.us
Tim Woodley	2755 SW Borland, Tualatin	503-572-5444 woodleyt@wlwv.k12.or.us
Richard Gross	1845 Bay Meadows	503-657-4790 richardgross999@msn.com
Roger L. Woehl	2054 Ostman Rd	503-673-7028
Jeff Hallin	31501 SW Orchard Wilsonville	503-682-2476
Amy Berger		bergera@wlwv.k12.or.us
BETH CANTRELL	6326 NE 7th AVE, PORTLAND	(503) 331-0242 bethcodowa.com
Thayne Balzer		
Patrick Taylor	20605 SW Suncrest Dr., WL.	503-722-3852 / pataylor@prodigy.net
Jane Lewis	1830 Bay Meadows Dr.	503-657-0687 janelewis_7@hotmail.com
Missy Abrahamson	1820 Bay Meadows Dr.	503-655-4629 missy.abrahamson@g.mail.com
Steve Lobel	2178 Clubhouse Dr	503 650 7273
Guy DeMars	20540 Martin Ct	503 656 6307

Event: Erickson Neighborhood Social
Date: December 10, 2009 - 4 PM – 7 PM

Name	Address	Phone Number/Email
Marty Andersen	19920 Nicholas Ct.	503-657-7981/andersen44@comcast.net
~~Brenda~~		
MARK LAW		
Bob Teters	19775 SW 56th ct	
NORM DULL		NORMD@DOWA.com
Scott Perala		peralas@wlwv.k12.or.us
REMO DOUGLAS	12415 SE HUBBARD RD	REMODOUGLAS@GMAIL.COM
SHARON V. MILLER	2171 HIDDEN SPRINGS CT	503-557-1076
April W Peterson	1930 Arena CT	
Kay Leng	2480 Bellevue Terrace	503 656-2880 Kay.Leng@columbiamanagement.com
Tracy Pyle H	2168 Clubhouse	5036565052
Brian Monihan	2158 Clubhouse	503-722-7280/bmonihan@westlinnholdings.com
Ken + Bobbie Welch	2128 Clubhouse Dr	503 655 4440 nekahmas@comcast.net
Maureen & Greg Gabler	20560 Martin Ct	503 723 7765 molly_gabler@yahoo.com
Harvey Schulz	20520 SW Suncrest Dr.	503 655-9057 /harveyschulz@gmail.com

Event: Erickson Neighborhood Social
Date: December 10, 2009 - 4 PM – 7 PM

Name	Address	Phone Number/Email
Darwin Dale Keller	1045 Rosemont Rd	503-656-6543 brac8@comcast.net
Priscilla Keller	1045 Rosemont Rd	503 656 6543
Eric & Abby Gakstatter	19760 Bellevue Way	503 342 6288 ericpg@gps-mapping.com
Karen & Laura Pyeatt	2168 Clubhouse Dr.	503 656 5052 Karen
Casey Hepburn	6035 Cheyenne	503-636-6403 csycoffee@msn.com Rw
Amanda MacLaughlin	2599 Bronco Ct	503 723 5553 realtor

Event: Over the Fence Meeting
Date: March 4, 2010, 7:00 PM

Name	Address	Phone Number/Email
Amy Berger	2755 SW Borland Rd, Tualatin, OR	503-673-7195
Norm Bell	907 SW Stark St PTLD OR	503.226.6950
Bob Peters	19775 SW 56th Ct, Tualatin OR	503-724-0883
Scott Pepala	2755 SW Borland Rd. Tualatin, OR	503/799-9189
Karina Ruiz	907 SW Stark St Portland, OR 97205	503.226.6950
R Gross	1845 Bay Meadows	503-657-4790
Marsha Gross	1845 Bay Meadows Dr.	503-473-1807
Jane Lewis	1830 Bay Meadows Dr	503-657-0687
John Lewis	1830 Bay Meadows Dr	503-650-0054
Ben Vaughn	111 SW Oak Street	503.228.3122
Susan + Bob Wakefield	6131 Cheyenne Ter	503-655-1228
Kim K. Woodley	WLWV	503-572-5444

Event: Over the Fence Meeting
Date: March 4, 2010, 7:00 PM

Name	Address	Phone Number/Email
Peterson	1930 [illegible]	503 557-5148 [illegible]@yahoo
Dick Kraft	2148 Clubhouse ~~Dr~~	503 636 5539 islandboard@earthlink.net
Casey Hepburn	6135 Cheyenne Terr.	503-636-6403 csycoffee@msn.com
Tracy Pyeatt	2168 Clubhouse Dr	503 656 5052 tracypyeatt@msn.com
Monihan	2158 Clubhouse Dr	503-722-7280 ~~B~~ monihan7@comcast.net
Clare & Justin Baxter	1810 Bay Meadows Dr.	503-869-8295 clare@flourishpilates.com
Keith Steele	21415 Miles Dr	503 722 5244 Keith@steelefamily.us
Scott & Judy Church	20550 Martin Ct.	971 275 0365 schurch27@comcast.net judy.e.church@comcast.net

West Linn – Wilsonville Schools

February 24, 2010

Dear Neighbor:

You are personally invited to join the West Linn – Wilsonville School District for an "Over the Fence" informational meeting about the new West Linn Primary School planned to be built in the near future literally next to your back yard. It is important to the District that we interact with our direct neighbors such that you are fully aware of the conditions that are being designed adjacent to your property.

Please join us Thursday, March 4, 2010, 7:00 PM at the West Linn Adult Community Center located at 1180 Rosemont Road, West Linn, OR 97068.

Meet with the District and Architects to go over the site plan in relation to landscaping and fencing as it pertains to your property. We will also talk about our schedule for permitting and the construction process.

You will also be given the opportunity to meet and talk with the professionals that will be managing the construction project for the school district; and exchange contact information.

For further information, please contact Amy Berger, West Linn-Wilsonville School District 503-673-7195, bergera@wlwv.k12.or.us; or visit us on the web at www.bond.wlwv.k12.or.us

Hope to see you next Thursday,

Best Regards,

DEPARTMENT OF OPERATIONS

Tim

Tim Woodley, Director

Department of Operations
Mail: P.O. Box 35 • West Linn, Oregon 97068 • 503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us
Location: 2755 SW Borland Road, Tualatin, Oregon 97062

Site Plan

Scale: 1"=50'-0"

Erickson Primary School K-5

Dull Olson Weekes Architects | Walker Macy

West Linn Wilsonville School District | January 15, 2010

West Linn-Wilsonville School District
Neighbors Touching Erickson Property Boundary

Streets
Primary Schools
Middle Schools
High Schools
Parcels
Middle School Boundary Lines
High School Boundary Lines
Water
World Imagery

West Linn-Wilsonville School District

Dept. of Operations
PO Box 35
West Linn, OR 97068
503-673-7995

N
W E
S

0 0.010.02 0.04 Miles

Tim Woodley - RE: Erickson 3-4-10 Meeting Questions that have arisen

From: Tim Woodley
To: Amy Berger; Roger Woehl; T M PYEATT; bethc@dowa.com; karinar@dowa.com
Date: 03/03/2010 8:04 AM
Subject: RE: Erickson 3-4-10 Meeting Questions that have arisen

Tracy: Thanks for the comments. We are addressing each of them and can respond at the meeting. tim

West Linn-Wilsonville School District
DEPARTMENT OF OPERATIONS
Tim K. Woodley, Director

>>> T M PYEATT <tracypyeatt@msn.com> 3/2/2010 7:46 AM >>>
Good morning,

Here are 10 questions regarding the up coming meeting which if answered beforehand it could reduce some of the questions / concerns that the adjoining neighbors have voiced to me thus far. I am hopeful that you will review them and have responses for them at the meeting or beforehand if possible.

1) The trail bordering the property lines at the East Side of the site remains in the drawing. This was discussed and deleted at the last meeting. it would be nice to have an up to date drawing rather than speculating that things will be deleted.

2) Is the landscape architect (Walker Macy) going to be present at the meeting?

3) Is there an actual tree selection at this time?

4) Is there an option where the homeowner could upgrade (pay for it) the tree size from the standard 1 to 3 inch tree? How much would this cost? Concerns vary from covered play areas to turn around and bus entry.

5) The pictures show the future addition, there have been several good ideas to move the parts of or all of the play area closer to the building to keep the noise level further away from property lines. It appears that they currently are about 30 feet from PL. The cost to relocate play area's 10 years down the road could coincide with the need to replace/upgrade equipment and could be part of the addition bond.

6) Could the fire lane at the turn around (east side) be re-located to be between the basketball/k-play?

7) Is there a gate to close the bus entry for weekend?

8) Why is it that we did not shift the building West ?

9) Where is the creek at the East side ? The drawings do not show it being re-directed rather is appears to be under asphalt.

10) Where are the walkways from the neighborhoods?

Tracy Pyeatt
503-421-0787 Cell Phone

Erickson Design Meetings

District Employee Name
Roger Woehl
Jane Stickney
Thayne Balzer
Tim Woodley
Kimberly Steele
Patrick Meigs
Lisa Hawking
Allison Gilbert
Kathy Ludwig
Tracy Pyeatt
Barbara Miller
Charlotte Morris
Amy Schauer
April Locke
David Pryor
Jacquie Banet
Jen Freeborn
Michelle Beyer
Saskia Dresler
Travis Burke
Holly Omlin-Ruback
Margaret Allen
Jennifer Patterson
Cynthia Able
Curtis Nelson
Dan Whitenger
Scott Perala
Mark Law
Victor Everingham
Bob Carlson
Pat McGough

Consultant Name	Company
Norm Dull	DOWA
Karina Ruiz	DOWA
Jessica Molinar	DOWA
Beth Cantrell	DOWA
Nick Collins	PAE Engineers
Rebecca Grant	DOWA
Renee Shelton	DOWA
John Weekes	DOWA
Ken Riddle	DOWA
Neil Ross	Heery
Tim Elley	PAE Engineers
Mark Ramsby	PAE Engineers
Mike Streb	PAE Engineers
Brad Wilson	PAE Engineers
Steve Turina	PAE Engineers
Charlie Brucker	Walker Macy
Colleen Wolfe	Walker Macy
Ben Vaughn	Walker Macy
Mark Wharry	Winzler & Kelly
Pat Tortora	Winzler & Kelly
Christian Sinai	DOWA
Colin Moar	Heery
Laura Bourland	Halliday Associates
Darcy Tucker	Interface Engineering
Dean Azimi	Froelich Consulting
Matthew Peairs	PAE Engineers
Stan Pszczolkowski	ACC
Tonie Esteban	DOWA
Nancy Rad	DOWA
Travis Butler	DOWA

Meeting Dates	Meeting
2/27/2009	New Primary Schools Design Meeting
3/9/2009	New Primary Schools Design Meeting
3/16/2009	New Primary Schools Design Meeting
3/30/2009	New Primary Schools Design Meeting
4/6/2009	New Primary Schools Design Meeting
4/20/2009	New Primary Schools Design Meeting
4/27/2009	New Primary Schools Design Meeting
5/4/2009	New Primary Schools Design Meeting
5/11/2009	New Primary Schools Design Meeting
5/18/2009	New Primary Schools Design Meeting
6/1/2009	New Primary Schools Design Meeting
6/8/2009	New Primary Schools Design Meeting
6/22/2009	New Primary Schools Design Meeting
6/24/2009	Sustainability Forum
6/29/2009	New Primary Schools Design Meeting
7/28/2009	New Primary Schools Design Meeting
8/10/2009	New Primary Schools Design Meeting
8/24/2009	New Primary Schools Design Meeting
9/14/2009	New Primary Schools Design Meeting
9/28/2009	New Primary Schools Design Meeting
10/26/2009	New Primary Schools Design Meeting
11/16/2009	Erickson Design Meeting
12/7/2009	New Primary Schools Design Meeting
1/26/2010	Erickson Design Meeting

PUBLIC NOTICE

THE PUBLIC IS INVITED to attend a Hidden Springs Neighborhood Association meeting to discuss the proposed New Elementary School at to be located at 1025 Rosemont Road on December 15th, 2009 at 7:00 pm
Rosemont Ridge Middle School Commons
20001 Salamo Road
West Linn, OR 97068

Property Information:

- LOCATION: 1025 Rosemont Road
  West Linn, OR 97068
- DESCRIPTION: Tax Lot 12800, 12700, 12500 and 12301
  Assessor's Map 21E 23CD

New School Description:

- New 60,000 s.f. elementary school including classrooms, library, gymnasium, learning spaces and food service areas
- Parking lot, bus lanes and emergency
- Site improvements including landscaping
- Wetland preservation

This is an informal meeting to discuss the design. This meeting is in support of a future Design Review application that may be required by City of West Linn Community Development Code Section 99.038. The plan may be modified or altered prior to actual submittal to the city of West Linn.

For further information, please contact Scott Perala, West Linn-Wilsonville School District 503-673-7195.

Notice dated November 17, 2009

AFFIDAVIT

I, Scott Perala, so hereby solemnly attest that the following statement is true.

A copy of the letter to officers of the Hidden Springs Neighborhood Association and property owners within 500 feet of the District's property line was mailed on November 17, 2009. A copy of the mailing list with names and addresses is attached.

Scott Perala: G. Scott Perala **Date: November 17, 2009**

State of Oregon

County of Clackamas

Signed or attested before me on November 20, 2009
by Scott Perala**, Notary Public State of Oregon.**
My Commission expires: October 20, 2012

Notary: Tara DuBois

OFFICIAL SEAL
TARA LYNN DU BOIS
NOTARY PUBLIC - OREGON
COMMISSION NO. 433598
MY COMMISSION EXPIRES OCT. 20, 2012

AFFIDAVIT

I, Pat McGough, so hereby solemnly attest that the following statement is true.

Signage for the public notice of the West Linn – Wilsonville School District land use application presentation to the Hidden Springs Neighborhood Association meeting was posted on November 18, 2009 within viewing distance of both Rosemont Road and Hidden Springs Road. A copy of the sign is attached.

Pat McGough: Patric McGough **Date: November 18, 2009**

State of Oregon

County of Clackamas

Signed or attested before me on November 20, 2009
by Patric McGough**, Notary Public State of Oregon.**
My Commission expires: October 20, 2012

Notary: Tara DuBois

OFFICIAL SEAL
TARA LYNN DU BOIS
NOTARY PUBLIC - OREGON
COMMISSION NO. 433598
MY COMMISSION EXPIRES OCT. 20, 2012

ALLISON JAMES G & CYNTHIA N(or Current Resident)
19865 BELLEVUE WAY
WEST LINN, OR 97068

ANDERSEN MARTIN E & BRENDA R(or Current Resident)
19920 NICHOLAS CT
WEST LINN, OR 97068

BAKER ROBERT C & DONNA L(or Current Resident)
1925 AZTEC CT
WEST LINN, OR 97068

BALLOU AUSTIN G(or Current Resident)
20500 MARTIN CT
WEST LINN, OR 97068

BARR THEODORE G JR & LIZ A(or Current Resident)
19905 NICHOLAS CT
WEST LINN, OR 97068

BAXTER JUSTIN M(or Current Resident)
1810 BAY MEADOWS DR
WEST LINN, OR 97068

BOCCIOLATT LORI LEE(or Current Resident)
2132 BRIDLE WAY
WEST LINN, OR 97068

BOHM MICHAEL A & BONNIE(or Current Resident)
1930 AZTEC CT
WEST LINN, OR 97068

BORNE TRINA S(or Current Resident)
20520 MARTIN CT
WEST LINN, OR 97068

BOYER DOUGLAS B & HEATHER A(or Current Resident)
1922 AZTEC CT
WEST LINN, OR 97068

BRACCO MERRY(or Current Resident)
2106 BRIDLE WAY
WEST LINN, OR 97068

BRANT WILLIAM D & ZANDRA(or Current Resident)
1924 AZTEC CT
WEST LINN, OR 97068

BRICK JAMES D & LYN I(or Current Resident)
2001 BAY MEADOWS DR
WEST LINN, OR 97068

BROOKSBY W ALAN(or Current Resident)
2168 HIDDEN SPRINGS CT
WEST LINN, OR 97068

BUSHNELL DAVID F & KRISTIN J(or Current Resident)
2780 MORGAN CT
WEST LINN, OR 97068

CARSON ANTHONY V & MARY JO(or Current Resident)
20530 MARTIN CT
WEST LINN, OR 97068

CASTAGNOLA DENNIS A & JOLENE A(or Current Resident)
6137 CHEYENNE TER
WEST LINN, OR 97068

CAUDELL W DOUGLAS & ROSEMARY L(or Current Resident)
1852 CHURCHILL TER
WEST LINN, OR 97068

CHESLEY RAY M & LISA M(or Current Resident)
1835 BAY MEADOWS DR
WEST LINN, OR 97068

CHRISTIE GEORGE W(or Current Resident)
19875 BELLEVUE WAY
WEST LINN, OR 97068

CHURCH SCOTT J & JUDY E(or Current Resident)
20550 MARTIN CT
WEST LINN, OR 97068

CLARK DEAN A & ANNE R(or Current Resident)
2415 BELLEVUE TER
WEST LINN, OR 97068

CRAIG THOMAS R & CYNTHIA M(or Current Resident)
2191 HIDDEN SPRINGS CT
WEST LINN, OR 97068

CRESALIA MARTIN F & SHARON P(or Current Resident)
6133 CHEYENNE TER
WEST LINN, OR 97068

DAHLIN THOMAS C & KAREN L(or Current Resident)
19925 NICHOLAS CT
WEST LINN, OR 97068

DALGAARD PETER B & SHIRLEY J(or Current Resident)
2186 HIDDEN SPRINGS CT
WEST LINN, OR 97068

DANIELSON RUSSELL & TERRY L(or Current Resident)
1926 AZTEC CT
WEST LINN, OR 97068

DEATON CHRISTIAN & MICHELLE(or Current Resident)
1905 ARENA CT
WEST LINN, OR 97068

DEMARS GUY V TRUSTEE(or Current Resident)
20540 MARTIN CT
WEST LINN, OR 97068

EDMONDSON GARY R & KATHY R(or Current Resident)
1853 CHURCHILL TER
WEST LINN, OR 97068

ELGIN KATHERINE E(or Current Resident)
6136 CHEYENNE TER
WEST LINN, OR 97068

ERICKSON PALMER J CO-TRSTEE(or Current Resident)
20800 S HIDDEN SPRINGS RD
WEST LINN, OR 97068

FAIRCHILD GARY D & ALISON M(or Current Resident)
6144 CHURCHILL DOWNS DR
WEST LINN, OR 97068

FELLMAN MATT L & KRYSTA(or Current Resident)
2138 CLUB HOUSE DR
WEST LINN, OR 97068

FELTZ JOSEPH E & JEANNE M(or Current Resident)
6145 CHURCHILL DOWNS DR
WEST LINN, OR 97068

FINKLEA EDWARD A & ERIN K(or Current Resident)
2112 BRIDLE WAY
WEST LINN, OR 97068

FLETCHER ALAN J & DEBRA L(or Current Resident)
1851 CHURCHILL TER
WEST LINN, OR 97068

GABLER GREGORY S & MAUREEN L(or Current Resident)
20560 MARTIN CT
WEST LINN, OR 97068

GATES KATHLEEN A TRUSTEE(or Current Resident)
20585 SUNCREST DR
WEST LINN, OR 97068

GROSS RICHARD MICHAEL(or Current Resident)
1845 BAY MEADOWS DR
WEST LINN, OR 97068

GUERINS KENNETH T & CHRISTINA B(or Current Resident)
2109 CLUB HOUSE DR
WEST LINN, OR 97068

HACKETT DAVID III & LOUISE J(or Current Resident)
2110 CLUB HOUSE DR
WEST LINN, OR 97068

HALE LLOYD D & SANDRA(or Current Resident)
19905 BELLEVUE WAY
WEST LINN, OR 97068

HANKERSON NEIL R(or Current Resident)
19880 BELLEVUE WAY
WEST LINN, OR 97068

HAWKINS DARRELL G & SARAH C(or Current Resident)
1945 ARENA CT
WEST LINN, OR 97068

HEPBURN RODGER & CASEY(or Current Resident)
6135 CHEYENNE TER
WEST LINN, OR 97068

HIATT THOMAS H & SANDRA L(or Current Resident)
20535 MARTIN CT
WEST LINN, OR 97068

HICKS REBECCA ANN(or Current Resident)
1859 CHURCHILL TER
WEST LINN, OR 97068

HITESMAN GARY A & ELIZABETH M(or Current Resident)
2188 CLUB HOUSE DR
WEST LINN, OR 97068

HUGHES SUSAN M(or Current Resident)
1950 ARENA CT
WEST LINN, OR 97068

HUNT RICHARD A & JOY LINN(or Current Resident)
2470 BELLEVUE TER
WEST LINN, OR 97068

HWANG CHANG IK(or Current Resident)
6148 CHURCHILL DOWNS DR
WEST LINN, OR 97068

JOLLEY JOHN L JR & GENOVEVA(or Current Resident)
2131 CLUB HOUSE DR
WEST LINN, OR 97068

JONES TIMOTHY A & JUDY A(or Current Resident)
6280 TACK CT
WEST LINN, OR 97068

KAMATH DENISE A & SEAN(or Current Resident)
19830 SUNCREST DR
WEST LINN, OR 97068

KELLER PRISCILLA(or Current Resident)
1045 S ROSEMONT RD
WEST LINN, OR 97068

KESTEK JEFFREY & DONNA MARIE(or Current Resident)
1026 S ROSEMONT RD
WEST LINN, OR 97068

KESTEK RAYMOND & BEVERLY J(or Current Resident)
1010 S ROSEMONT RD
WEST LINN, OR 97068

KIDD TONI(or Current Resident)
1935 ARENA CT
WEST LINN, OR 97068

KLAVIK KRISTINE(or Current Resident)
1854 CHURCHILL TER
WEST LINN, OR 97068

KRAFT RICHARD D & KAY L(or Current Resident)
2148 CLUB HOUSE DR
WEST LINN, OR 97068

KUBOTA ATSUSHI & M J(or Current Resident)
2130 HIDDEN SPRINGS CT
WEST LINN, OR 97068

LACOUR WILLIAM DOUGLAS & ANN(or Current Resident)
6146 CHURCHILL DOWNS DR
WEST LINN, OR 97068

LAMONT JOHN W TRUSTEE(or Current Resident)
1923 AZTEC CT
WEST LINN, OR 97068

LANG KEVIN W & KAY C(or Current Resident)
2480 BELLEVUE TER
WEST LINN, OR 97068

LEEDING DOUGLAS H(or Current Resident)
19886 BELLEVUE WAY
WEST LINN, OR 97068

LEWIS JOHN J & JANE M(or Current Resident)
1830 BAY MEADOWS DR
WEST LINN, OR 97068

LOBEL STEPHEN Z & GAY P(or Current Resident)
2178 CLUB HOUSE DR
WEST LINN, OR 97068

LOVE DONALD J & TERESA C(or Current Resident)
2156 BRIDLE WAY
WEST LINN, OR 97068

LUCAS JEFFREY A & JEANNE M(or Current Resident)
2158 HIDDEN SPRINGS CT
WEST LINN, OR 97068

LUCIBELLO VINCENT J & SUSAN E(or Current Resident)
1921 AZTEC CT
WEST LINN, OR 97068

LUTES YORICK & G L(or Current Resident)
2104 CLUB HOUSE DR
WEST LINN, OR 97068

LYNDE MELISSA J(or Current Resident)
2189 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MACKEN JANICE V(or Current Resident)
1927 AZTEC CT
WEST LINN, OR 97068

MACVICAR THOMAS A & LESLIE D(or Current Resident)
1940 ARENA CT
WEST LINN, OR 97068

MAIDEN JOEL D & HOLLY M(or Current Resident)
20701 S WISTERIA RD
WEST LINN, OR 97068

MANLEY JANICE F(or Current Resident)
2178 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MANTHEY MARK & WENDI S(or Current Resident)
20540 SUNCREST DR
WEST LINN, OR 97068

MARTIN JOEL H & VICKY(or Current Resident)
19870 BELLEVUE WAY
WEST LINN, OR 97068

MATERN MICHAEL & CATHERINE J(or Current Resident)
1928 AZTEC CT
WEST LINN, OR 97068

MAYS ELIZABETH R & LAWRENCE(or Current Resident)
2178 BRIDLE WAY
WEST LINN, OR 97068

MCALISTER BRUCE C(or Current Resident)
2181 CLUB HOUSE DR
WEST LINN, OR 97068

MCMILLAN MICHAEL THOMAS(or Current Resident)
2173 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MCNULTY STEPHEN M(or Current Resident)
2770 MORGAN CT
WEST LINN, OR 97068

MERCADO-ROMERO FROYLAN & HELEN(or Current Resident)
1800 BAY MEADOWS DR
WEST LINN, OR 97068

MERRILL ROBERT N & RENATE R(or Current Resident)
6142 CHURCHILL DOWNS DR
WEST LINN, OR 97068

METCALF ROY E JR TRUSTEE(or Current Resident)
2455 BELLEVUE TER
WEST LINN, OR 97068

MILLER VERNA H TRUSTEE(or Current Resident)
2171 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MITCHELL JAMES L & ELISE A(or Current Resident)
2107 CLUB HOUSE DR
WEST LINN, OR 97068

MITCHELL MICHAEL K & KAREN J(or Current Resident)
2110 HIDDEN SPRINGS CT
WEST LINN, OR 97068

MULLEN MICHAEL JOHN(or Current Resident)
19910 NICHOLAS CT
WEST LINN, OR 97068

MURRIETA DAVID(or Current Resident)
2175 HIDDEN SPRINGS CT
WEST LINN, OR 97068

NELSON THOMAS E JR & ANN D(or Current Resident)
1856 CHURCHILL TER
WEST LINN, OR 97068

NEWRONES SCOTT & NADINE(or Current Resident)
6134 CHEYENNE TER
WEST LINN, OR 97068

NEWTON THOMAS C & CHERYL(or Current Resident)
6147 CHURCHILL DOWNS DR
WEST LINN, OR 97068

NOKES CANDISE C(or Current Resident)
19930 NICHOLAS CT
WEST LINN, OR 97068

NOLAN JOSEPH W(or Current Resident)
2176 HIDDEN SPRINGS CT
WEST LINN, OR 97068

NORMAN EUGENE MICHAEL TRSTE(or Current Resident)
19860 BELLEVUE WAY
WEST LINN, OR 97068

OLSON MARC W & GINA M(or Current Resident)
20755 S WISTERIA RD
WEST LINN, OR 97068

OMARA EDWIN J & PATRICIA G(or Current Resident)
19885 BELLEVUE WAY
WEST LINN, OR 97068

OWENS PAUL G & JETTE L(or Current Resident)
2160 HIDDEN SPRINGS CT
WEST LINN, OR 97068

PAK THOMAS T TRUSTEE(or Current Resident)
2059 BAY MEADOWS DR
WEST LINN, OR 97068

PARKER DAVID S & ROBIN M(or Current Resident)
2118 CLUB HOUSE DR
WEST LINN, OR 97068

PASCHAL JASON S & SYLVIA M(or Current Resident)
1861 CHURCHILL TER
WEST LINN, OR 97068

PATTERSON LARRY D & CAROL A(or Current Resident)
20681 S WISTERIA RD
WEST LINN, OR 97068

PETERSON WILLIAM J & APRIL W(or Current Resident)
1930 ARENA CT
WEST LINN, OR 97068

PHIPPS MAURICE T & VIRGINIA R(or Current Resident)
1857 CHURCHILL TER
WEST LINN, OR 97068

PHIPPS THOMAS A & MOLLY L(or Current Resident)
1860 CHURCHILL TER
WEST LINN, OR 97068

PITASSI DOUGLAS D & KAREN M(or Current Resident)
1098 S ROSEMONT RD
WEST LINN, OR 97068

POCHE NATHALIE(or Current Resident)
6139 CHEYENNE TER
WEST LINN, OR 97068

PORTER JAMES R & ETHEL L(or Current Resident)
1955 ARENA CT
WEST LINN, OR 97068

PORTILLO CAROL J(or Current Resident)
1932 AZTEC CT
WEST LINN, OR 97068

PRENTICE WILLIAM H & CAREN M(or Current Resident)
2180 HIDDEN SPRINGS CT
WEST LINN, OR 97068

PRETTYMAN MICHAEL D JR & ANNE C(or Current Resident)
1920 ARENA CT
WEST LINN, OR 97068

PYEATT TRACY M & KAREN R(or Current Resident)
2168 CLUB HOUSE DR
WEST LINN, OR 97068

RASHAD ABDEL RAZZAK M(or Current Resident)
2151 CLUB HOUSE DR
WEST LINN, OR 97068

RINNAN RONALD L & LINDA L(or Current Resident)
19915 NICHOLAS CT
WEST LINN, OR 97068

RUFFNER MICHAEL E & LYNDALEA(or Current Resident)
19995 SUNCREST DR
WEST LINN, OR 97068

SABO SAMUEL R CO-TRUSTEE(or Current Resident)
2179 HIDDEN SPRINGS CT
WEST LINN, OR 97068

SANDVOLD MARY E(or Current Resident)
2150 HIDDEN SPRINGS CT
WEST LINN, OR 97068

SCHLEEF DANIEL & TARA(or Current Resident)
1925 ARENA CT
WEST LINN, OR 97068

SCHROEDER KIMBERLY J TRUSTEE(or Current Resident)
2460 BELLEVUE TER
WEST LINN, OR 97068

SCHULZ HARVEY R & PATRICIA ANN(or Current Resident)
20520 SUNCREST DR
WEST LINN, OR 97068

SEDLENIEK GUNNAR TRUSTEE(or Current Resident)
6132 CHEYENNE TER
WEST LINN, OR 97068

SEXTON BRUCE H & JAMIE M(or Current Resident)
19935 NICHOLAS CT
WEST LINN, OR 97068

SHEARER WILLIAM R TRUST(or Current Resident)
2450 BELLEVUE TER
WEST LINN, OR 97068

SHIMIZU HARUO & MIDORI(or Current Resident)
2120 HIDDEN SPRINGS CT
WEST LINN, OR 97068

SKATES MICHAEL L & LOLA K(or Current Resident)
2475 BELLEVUE TER
WEST LINN, OR 97068

SMITH JAMES P & NANCY G(or Current Resident)
20525 MARTIN CT
WEST LINN, OR 97068

SMITH NEIL M & ROBERTA J(or Current Resident)
2440 BELLEVUE TER
WEST LINN, OR 97068

SOLLOM STEVE D & DARNELL A(or Current Resident)
2108 CLUB HOUSE DR
WEST LINN, OR 97068

STOHR SCOTT R & MARY R(or Current Resident)
19950 NICHOLAS CT
WEST LINN, OR 97068

STROBECK STEPHEN E & CAROLANN(or Current Resident)
2121 CLUB HOUSE DR
WEST LINN, OR 97068

TAIT DAVID B & JAN C(or Current Resident)
20560 SUNCREST DR
WEST LINN, OR 97068

TALAVS JAMES C & JACEY L(or Current Resident)
6140 CHEYENNE TER
WEST LINN, OR 97068

TAPELLA DANNY L & LINDA L(or Current Resident)
20515 MARTIN CT
WEST LINN, OR 97068

TAYLOR PATRICK A & E(or Current Resident)
20605 SUNCREST DR
WEST LINN, OR 97068

TURNER J PAUL TRUSTEE(or Current Resident)
2177 HIDDEN SPRINGS CT
WEST LINN, OR 97068

UTLEY ROBERT C & ELIZABETH M(or Current Resident)
20505 MARTIN CT
WEST LINN, OR 97068

VEDDER DAVID R(or Current Resident)
2445 BELLEVUE TER
WEST LINN, OR 97068

VELEY CHRISTOPHER W TRUSTEE(or Current Resident)
6138 CHEYENNE TER
WEST LINN, OR 97068

VERONA MICHAEL R & DANIELLE J(or Current Resident)
1929 AZTEC CT
WEST LINN, OR 97068

WAKEFIELD ROBERT J & SUSAN K(or Current Resident)
6131 CHEYENNE TER
WEST LINN, OR 97068

WALCZYK JOSEPH G(or Current Resident)
2111 CLUB HOUSE DR
WEST LINN, OR 97068

WALDROFF MICHAEL F & KIMBER L(or Current Resident)
20510 MARTIN CT
WEST LINN, OR 97068

WANG JIE & WEI LI(or Current Resident)
1915 ARENA CT
WEST LINN, OR 97068

WAY SCOTT P & ROBIN A(or Current Resident)
2140 HIDDEN SPRINGS CT
WEST LINN, OR 97068

WELCH KENNETH V & BOBBIE D(or Current Resident)
2128 CLUB HOUSE DR
WEST LINN, OR 97068

WELLS JOHN L & MARY E(or Current Resident)
19900 NICHOLAS CT
WEST LINN, OR 97068

WEST LINN-WILS SCH DIST #3J(or Current Resident)
1025 S ROSEMONT RD
WEST LINN, OR 97068

WILLIAMSON J JR&J(or Current Resident)
1858 CHURCHILL TER
WEST LINN, OR 97068

WINKLE MELVIN T TRUSTEE(or Current Resident)
2171 CLUB HOUSE DR
WEST LINN, OR 97068

WISCHMEYER W THOMAS & JACQUELINE(or Current Resident)
1825 BAY MEADOWS DR
WEST LINN, OR 97068

HIDDEN SPRINGS NA PRESIDENT
LYNN FOX
P O BOX 236
MARYLHURST, OR 97036

HIDDEN SPRINGS NA VICE PRESIDENT
HARVEY SCHULZ
20520 SUNCREST DRIVE
WEST LINN, OR 97068

HIDDEN SPRINGS NA TREASURER
DONNA BAKER
1925 AZTEC COURT
WEST LINN, OR 97068

HIDDEN SPRINGS NA SECRETARY
DR CHARLES LYTLE
2006 CONESTOGA LANE
WEST LINN, OR 97068

HIDDEN SPRINGS NEIGHBORHOOD ASSOCIATION
MINUTES
MEETING OF DECEMBER 15, 2009

CALL TO ORDER. The meeting was called to order at 7:07 PM at the Rosemont Ridge Middle School by President, Lynn C. Fox. Other officers in attendance: Harvey Schultz, Vice President; Donna Baker, Treasurer; Charles Lytle, Secretary.

QUORUM DATA. Fifty two members have attended meetings in 2009. Therefore the quorum was five. There were twenty members at the beginning of the meeting.

TREASURER'S REPORT. The current balance is $2,470.39.

POLICE REPORT. None.

ANNOUNCEMENTS. None.

GUEST SPEAKERS. None.

PRESENTATION. The West Linn-Wilsonville School District (WLWSD) and its contract architect (Dull Olson Weekes) and engineering (PAE Engineers) companies gave presentations on the design of the proposed grade school to be located on what is known as that Erickson property, recently annexed into the city of West Linn. The first part of the presentation reviewed the overall site plan, which included protecting wetland and riparian areas. The school would take up the SE corner of the site with access onto Rosemont. Bay Meadows would be extended but would be blocked for general traffic and be used only for pedestrians and bicycles and by emergency vehicles. There would be a small ball field in the NW corner of the site, and the NE part of the site would be undeveloped. The building itself will be in two longitudinal sections separated by a large library/commons area. The WLWSD will request two construction bids: one for 300 student capacity and one to accommodate 500 students. Questions involved adequacy of parking, protection of sensitive areas, storm water treatment, through traffic on Bay Meadows, and sight lines from the houses on Bay Meadows and the west end of Churchill Downs Way. The WLWSD was unprepared to talk about future possibilities for the Sunset primary school or future development at Oppenlander Park and deferred discussions on those issues to another time. West Linn Wilsonville School District filmed the meeting including public comments and questions.

OLD BUSINESS

1) Meeting Minutes. There were general complaints about meeting minutes being sent out late in the day on the Monday right before the Tuesday meetings. There was also frustration at draft minutes being sent to the city before being approved by the membership. It was noted that the city email address was included in one of the mass mailings, resulting in the city inadvertently getting the draft minutes. The following motion was made by Elise Thompson and seconded by Ruby Friesen:

"Resolved that written minutes be emailed to the membership within two weeks of any meeting."

The motion passed 19 – 0 – 1.

2) Special Meetings in November. President Fox explained that the bylaws prevented HSNA from taking timely action on any land use appeals to City Council by requiring a two-month process to hold a special meeting. The City amended the Community Development Code requiring that an appeal be filed within two weeks of the Planning Commission decision. A potential Neighborhood Association bylaw problem was brought to the attention of the NA president by member Alex Kachirisky. The matter was put before the Bylaws Committee, who recommended changes necessary to be able to file an appeal in a timely manner. Based on information provided by the city attorney, an emergency meeting had to be called to approve the bylaws. Once approved, a special meeting was called to vote on whether or not to appeal the proposed Suncrest PUD development, which was strongly opposed by HSNA members living next to or close to the site. These meetings occurred back to back on November 9, 2009. The revised bylaws were approved at an emergency meeting, and the decision to appeal was made at a special meeting.

3) Hidden Springs Sign. Member Scott Howard reported that the sign knocked down last winter at the NE corner of Pimlico & Highway 43 was ready to go but scheduling and weather has prevented putting it back up.

4) Future Meeting Location. President Fox stated that, at the request of members the President and the Treasurer had reserved the community room at the Roundtable Pizza restaurant next to the old Bales/Zupans. Members requesting that meeting space felt it was a good spot because it was at a convenient location, there are activities for children, they could purchase their own food and refreshments, and no one had to sign a hold-harmless agreement. Member Scott Howard had simultaneously reserved the city council chambers, personally signing the City's hold harmless document obligating Mr. Howard to pay for any costs or damages that occur in the building at the time of the meeting. The following motion was made by Scott Howard and seconded by Alex Kachirisky:

> *"Future meetings of the HSNA will be held at city hall in the council chambers."*

The motion passed 19 – 0 – 0.

5) Secretary Lytle noted that the resolution passed at the September 2009 meeting is in violation of the HSNA bylaws, which state that the NA President sets the agenda. Several members asserted that "setting" and "controlling" are not the same and stated that members as well as the board may give input as to items for placement on the agenda.

6) Several members stated that they were unaware, because of never attending meetings until October 2008, that the NA had a standing bylaws committee. Secretary Lytle explained that a committee was formed in late 2004 and consisted of the HSNA Board and three other members and is a standing committee. Several members expressed an interest in participating in the committee. President Fox stated that two positions would be available soon and asked interested members to submit their requests to serve and any questions they may have to the President.

NEW BUSINESS

1) NA Association Presidents' Meeting With City Council. Mayor Patti Galle explained that a meeting with all the neighborhood association officers and the council was scheduled for a work session to be held next month. There was discussion if the work session should be postponed in light of the upcoming election of HSNA officers or if the information provided by existing officers would be helpful in evaluating the current NA procedures. Mayor Galle said she would talk to the City Manager about postponing the NA Presidents/Council meeting until after the election of HSNA officers in February 2010.

2) Upcoming Elections. Secretary Lytle noted that election of officers would occur at the February 2010 meeting. A question was asked about who was eligible to vote. Mr. Lytle read from the bylaws that the only requirement for voting in a regular election was that the person be eligible for membership in the Hidden Springs NA. Prior meeting attendance was NOT necessary.

There being no further business before the Association, the meeting was adjourned at 9:15 PM.

Submitted by Secretary Charles Lytle.

Public Notice:
Land Use Application
New Elementary School

Neighborhood Association Meeting Presentation
December 15th @ 7:00 pm
Rosemont Ridge Middle School Commons

Contact:
West Linn – Wilsonville School District
Attn: Scott Perala, Program Manager
503-673-7995

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Lynn Fox
Hidden Springs NA
PO Box 236
Marylhurst, OR 97036

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Lynn Fox
☐ Agent
☐ Addressee

B. Received by *(Printed Name)* Lynn Fox

C. Date of Delivery 11-18-09

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7009 1410 0001 6044 5680

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

West Linn-Wilsonville Schools
Amy Berger
2755 SW Borland Rd
~~T~~ Tualatin, OR 97062

Clackamas County School District 3Jt
West Linn-Wilsonville Public Schools
ADMINISTRATION BUILDING
P.O. Box 35
West Linn, Oregon 97068

UNITED STATES POSTAGE
PITNEY BOWES
02 1A $ 00.44[0]
0004332646 NOV 18 2009
MAILED FROM ZIP CODE 97068

RASHAD ABDEL RAZZAK M
2151 CLUB HOUSE DR
WEST LINN, OR 97068

NOT DELIVERABLE
AS ADDRESSED,
UNABLE TO FORWARD

NIXIE 970 DE 1 00 11/28/09
RETURN TO SENDER
REFUSED
UNABLE TO FORWARD
BC: 97068003535 *0129-02964-18-39

97068&2235 C006
9970688999SR

Clackamas County School District 3Jt
West Linn-Wilsonville Public Schools
ADMINISTRATION BUILDING
P.O. Box 35
West Linn, Oregon 97068

UNITED STATES POSTAGE
PITNEY BOWES
02 1A $ 00.44⁰
0004332646 NOV 18 2009
MAILED FROM ZIP CODE 97068

WEST LINN-WILS SCH DIST #3J
1025 S ROSEMONT RD
WEST LINN, OR 97068

NIXIE 970 DE 1 00 11/20/09
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
BC: 97068003535 *0129-02954-18-39

970683327*0095

Clackamas County School District 3Jt
West Linn-Wilsonville Public Schools
ADMINISTRATION BUILDING
P.O. Box 35
West Linn, Oregon 97068

UNITED STATES POSTAGE
PITNEY BOWES
02 1A
0004332646
$ 00.44⁰
NOV 18 2009
MAILED FROM ZIP CODE 97068

UTF

FLETCHER ALAN J & DEBRA L
1851 CHURCHILL TER
WEST LINN, OR 97068

X 970 NFE 1 708F 00 11/22/09
FORWARD TIME EXP RTN TO SEND
FLETCHER'ALAN J
1142 NASH LOOP
THE VILLAGES FL 32162-4542

RETURN TO SENDER

97068329708800085

Clackamas County School District 3Jt
West Linn-Wilsonville Public Schools
ADMINISTRATION BUILDING
P.O. Box 35
West Linn, Oregon 97068

UNITED STATES POSTAGE
PITNEY BOWES
02 1A
$ 00.44⁰
0004332646
NOV 18 2009
MAILED FROM ZIP CODE 97068

SMITH NEIL M & ROBERTA J
2440 BELLEVUE TER
WEST LINN, OR 97068

X 970 NFE 1 608C 00 11/21/09
FORWARD TIME EXP RTN TO SEND
SMITH
3528 SW 64TH PL
PORTLAND OR 97221-1329
RETURN TO SENDER

97068822298 C013
97068@0035

Clackamas County School District 3Jt
West Linn-Wilsonville Public Schools
ADMINISTRATION BUILDING
P.O. Box 35
West Linn, Oregon 97068

UNITED STATES POSTAGE
PITNEY BOWES
02 1A $ 00.44[0]
0004332646 NOV 18 2009
MAILED FROM ZIPCODE 97068

NSB

ERICKSON PALMER J CO-TRSTEE
20800 S HIDDEN SPRINGS RD
WEST LINN, OR 97068

NIXIE 970 DE 1 00 11/22/09
RETURN TO SENDER
NO SUCH NUMBER
UNABLE TO FORWARD
BC: 97068003535 *0129-02955-18-39

97068@0035

Hidden Springs Neighborhood Association | Meeting 12-15-09

Name	e-mail address	Phone Number
Tamie Brown	Tamie@ren-realty.com	503-655-4092
Frank Heuschkel	fheuschkel@comcast.net	503-656-9420
Jim Brown	JCXBROWNPC@MSN.COM	503-557-2245
Scott Howard	W.S.HOWARD@COMCAST.NET	503 655-1229
PAT CORCORAN	CORCORAN.P@COMCAST.NET	503-539-1806
JAY LAMB	JALALOMB@COMCAST.NET	503-657-0430
Connie [illegible]		503.657.6519
ELISE THOMPSON	thompsonelise@hotmail.com	
Ruby Friesen	rmfriesen@comcast.net	503-655-4115
Susan Van de Water	susanvatew@comcast.net	503-344-4214
Kris Kachirisky (wife)	kris.kachirisky@gmail.com	
Susan + Bob Wakefield	wakefield.susan@comcast.net	503-655-1228
Deb Tingey	dougct@comcast.net	
Janet Freiling	jmfreiling@comcast.net	

Hidden Springs Neighborhood Association

Meeting 12-15-09

Name	e-mail address	Phone Number
Rick Abrahamson	RAbrahamson@fullertonco.com	503-655-4629
Cindy Hepting	heptingc@wlwv.k12.or.us	503-673-7995
Nancy + Jim Smith	smitty627@msn.com nancysmith7@msn.com	503-636-9808
Allison Gilbert	22232 Skyview Dr (Primary Design Team volunteer) WL OR 97068	971 219 6006
KARINA RUIZ	KARINAR@DOWA.COM	503.226.6950
NORM DULL	NORMD@DOWA.COM	" " "

Hidden Springs Neighborhood Association Meeting 12-15-09

Name	e-mail address	Phone Number
Harvey R. Schulz	harveyschulz@gmail.com	(503) 655-9057
Alax Kachirisky	alex.kachirisky@gmail.com	(503) 343-4752
Lynn Fox	wlhsna@msn.com	(503)655-6347
CHUCK LYTLE	CRLYTLE12@MSN.COM	503-823-5568
Bob Teters	r.teters@yahoo.com	503-724-0883
Jim Woodley	w/wv	—
MARK LAW	WLWV	
BURNEY & SALLY OLSON		503-636-8950
Tom Miller	tomjmill@aol.com	503-522-9586
JEFF HALLIN	w/wv	503-682-2476
Roger L. Woehl	WLWV	503-673-7028
RICHARD BURKHARTSMEYER	- ON RECORD -	503-655-4556
DAVID MURRIETA		503-655-7994
Ben Vaughn	bvaughn@walkermacy.com	503.228.3127

Hidden Springs Neighborhood Association Meeting 12-15-09

Name	e-mail address	Phone Number
Patricia millage	patti.millage@comcast.net	503 722 3942
Gretchen Katko	gretchenkatko@ Yahoo.com	503 655-6545
Lori Beight	loribeight@gmail.com	723-8599
Kathy Ludwig	ludwigk@wlwv.k12.or.us	673-7205
MARK WHARRY	markwharry@w-and-k.com	503-226-3921
NANCY OLMSTED	nancyolmsted@w-and-k.com	503 701 9987
SCOTT PERALA	PERALAS@WLWV.K12.OR.US	503 799-9189
Amy Berger	berger@wlwv.k12.or.us	503-673-7195
PATTI Galle	MAIL@pattigalle.com	503 636 0714
Charlotte Morris	crmorris5@comcast.net	503-673-7750
Amy Schaner	amy@coho.net	503-557-8140
Brandy Sargent	Sargentba@Gmail.com	971-645-9466
JANE LEWIS	janelewis_7@hotmail.com	503-657-0687
Marsha Gross/Richard Gross	Richardgross999@MSN.com	503-657-4790

DEVELOPMENT REVIEW APPLICATION

City of West Linn

TYPE OF REVIEW (Please check all boxes that apply):

[ ]	Annexation	[ ]	Non-Conforming Lots, Uses & Structures
[ ]	Appeal and Review *	[ ]	One-Year Extension *
[X]	Conditional Use	[ ]	Planned Unit Development
[X]	Design Review	[ ]	Pre-Application Meeting *
[ ]	Easement Vacation	[ ]	Quasi-Judicial Plan or Zone Change
[ ]	Extraterritorial Ext. of Utilities	[ ]	Street Vacation
[ ]	Final Plat or Plan	[ ]	Subdivision
[ ]	Flood Plain Construction	[ ]	Temporary Uses *
[ ]	Hillside Protection and Erosion Control	[ ]	Tualatin River Greenway
[ ]	Historic District Review	[X]	Variance (4)
[ ]	Legislative Plan or Change	[X]	Water Resource Area Protection/Wetland
[ ]	Lot Line Adjustment * /**	[ ]	Willamette River Greenway
[ ]	Minor Partition (Preliminary Plat or Plan)	[ ]	Other/Misc

Home Occupation, Pre-Application, Sidewalk Use Application *, Permanent Sign Review *, Temporary Sign Application require different application forms available in the forms and application section of the City Website or at City Hall.

TOTAL FEES/DEPOSIT ____________

WEST LINN-WILS. SCHOOL DIST. | PO BOX 35 | WEST LINN OR 97062 | 503-673-7976
OWNER (PRINT) | **ADDRESS** | **CITY** | **ZIP** | **PHONE &/OR E-MAIL**

TIM WOODLEY | SAME AS ABOVE
APPLICANT(PRINT) | **ADDRESS** | **CITY** | **ZIP** | **PHONE &/OR E-MAIL**

KEITH LIDEN | PARSONS BRINCKERHOFF 400 SW 6TH #802 | PORTLAND | 97204 | 503-478-2348
CONSULTANT(PRINT) | **ADDRESS** | **CITY** | **ZIP** | **PHONE &/OR E-MAIL**

SITE LOCATION/ADDRESS ROSEMONT ROAD

Assessor's Map No.: 2S1E 23CD/S2 2S 1E 26AC TL 5500 **Tax Lot(s):** 12500, 12700 + 12800 **Total Land Area:** 15.98 AC

1. **All application fees are non-refundable (excluding deposit).**
2. **The owner/applicant or their representative should be present at all public hearings.**
3. **A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.**
4. **Four (4) complete hard-copy sets (single sided) of application materials must be submitted with this application. One (1) complete set of digital application materials must also be submitted on CD in PDF format.**

*** No CD required / ** Only one copy needed**

x Tim K. Woodley, Director of Operations, WLWV 6-18-10

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application.

SIGNATURE OF PROPERTY OWNER(S)
x [signature], Treasurer HSKLA **Date** 6-17-10

SIGNATURE OF APPLICANT(S)
x [signature] **Date** 5.7.10

ACCEPTANCE OF THIS APPLICATION DOES NOT INFER A COMPLETE SUBMITTAL. THE APPLICANT WAIVES THE RIGHT TO THE PROVISIONS OF ORS 94.020. ALL AMENDMENTS TO THE COMMUNITY DEVELOPMENT CODE AND TO OTHER REGULATIONS ADOPTED AFTER THE APPLICATION IS APPROVED SHALL BE ENFORCED WHERE APPLICABLE. APPROVED APPLICATIONS AND SUBSEQUENT DEVELOPMENT IS NOT VESTED UNDER THE PROVISIONS IN PLACE AT THE TIME OF INTIAL APPLICATION.

CONTACT: PLANNING AND BUILDING; 22500 SALAMO RD #1000; WEST LINN, OR 97068; PHONE: 656-4211 FAX: 656-4106 PLANNING@WESTLINNOREGON.GOV