CITY OF West Linn

CITY OF WEST LINN

PLANNING COMMISSION PUBLIC HEARING
DATE: JANUARY 6, 2010

FILE NO.: **DR-09-05**

REQUEST: **CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.**

TABLE OF CONTENTS

City of West Linn
PLANNING & BUILDING DEPT.
STAFF REPORT

TO: West Linn Planning Commission (January 6, 2010 hearing date)

FROM: West Linn Planning Staff (Peter Spir, Associate Planner)

DATE: January 6, 2010

FILE NO: DR-09-05

SUBJECT: Class II design review to install one-way driveway around the northwest corner of school to allow school buses to access the site via Salamo Road and exit the site onto Rosemont Road. The proposal includes installing lights and light poles to illuminate soccer and baseball fields.

Planning Director's Initials _____ City Engineer's Initials KQL

SPECIFIC DATA

APPLICANT: Tim Woodley, West Linn Wilsonville School District
503-673-7976

OWNER: "

CONSULTANTS: Keith Liden (Planning Consultant) Parsons Brinkerhoff
503-478-2348
Steve Winkle (Architect) Dull, Olson and Weekes
503-226-6950

SITE LOCATION: 20001 Salamo Road

SITE SIZE: 20.8 acres.

LEGAL DESCRIPTION: 2S-1E-26A Tax Lot 701

COMP PLAN DESIGNATION: Low-Density Residential

ZONING:	R-10, Single-Family Residential
APPROVAL CRITERIA:	CDC Chapter 55, Design Review
120-DAY RULE:	The application was deemed complete on November 5, 2009. Therefore, the City must exhaust all local review by March 15, 2010 per the 120-day rule.
PUBLIC NOTICE:	Mailed public notice to property owners within 500 feet on December 14, 2009. The notice was also posted on the city's website. At least 10 days prior to the hearing, notice was published in the West Linn Tidings on December 17, 2009 and the site was posted on December 18, 2009. Therefore, public notice requirements of Chapter 99 of the Community Development Code (CDC) have been satisfied. No neighborhood meeting was required per CDC Section 99.038.

EXECUTIVE SUMMARY

The applicant has stated that the current on-site circulation in the Rosemont Middle School parking lot during AM and PM drop off and pick up is in a state of conflict. Parents use the parking lot and interior driveway at the same time school buses are trying to drop off and pick up students. In an environment of conflicts and delays comes the concern for student safety. The school district proposes solving the problem by constructing a 24-foot wide, one-way driveway from the west end of the parking lot which will then curl around the northwest corner of the school and connect with an existing driveway leading to Rosemont Road where buses will exit the site.

The school district also proposes to install lights on poles, approximately 40 feet tall, to illuminate the soccer and baseball fields on the southern portion of the site for low light and night games/activities. Class II Design Review (CDC Chapter 55) is required to allow these proposed uses. A public hearing is required.

MAJOR ISSUES

Safety of buses exiting the site on Rosemont Road

The applicant's traffic report states that there is sufficient line of sight on Rosemont Road to allow motorists traveling along that road to see the buses and safely slow down. The safe distance is roughly determined by multiplying the posted speed limit by 10 to get the necessary line of sight. The speed limit is 20 mph during school hours, which is

when the buses would operate. Thus the minimum line of sight distance is 200 feet. There is in excess of 450 feet of line of sight west on Rosemont when measured from the driveway. That would provide adequate recognition and braking distance for a car traveling at 40 mph, well above the posted speed. Meanwhile, the line of sight extends east 350 feet through the Santa Anita-Rosemont-Salamo Road intersection. That distance also exceeds the required 200 feet.

Glare from the Lights

There are two households in close proximity to the site. If the lights at the playing fields are poorly positioned and inadequately screened, direct glare and illumination could be a problem. The applicant has provided supplemental discussion addressing this concern. There is also a map that shows foot candle measurements around the site perimeter. Staff notes that the measurements are close to zero so no illumination of the nearby homes should occur. Also, with shielded lighting and existing vegetative screening the concerns about glare should be addressed.

Noise associated with the use of the new driveway

The house at 1156 Rosemont Road is located just 85 feet from the proposed driveway. The applicant provided a noise study by a certified acoustic engineer. Their findings were that the horizontal distance plus the fact that the driveway will be 16 feet below the grade of the neighboring property will keep the noise of the buses below the maximum noise levels allowed by CDC Chapter 52.

That study did not however address projected noise levels during night games using the more stringent 7pm-7am noise standards.

PUBLIC COMMENTS

Staff received an e-mail from Gary Hitesman on October 20, 2009 (attached as exhibit). He stated concerns about the lighting and the bus exit onto Rosemont Road. Also, there were concerns about defensible space at the rear of the school.

RECOMMENDATION

Based upon the findings prepared by the applicant and supplemented by staff, staff recommends approval of the application. The following conditions of approval would be appropriate:

RECOMMENDED CONDITIONS OF APPROVAL

1. SITE PLAN: The grading, erosion control, wall profiles, driveway, lighting, utilities and landscaping and associated improvements shown in exhibit F of the lighting plan and plans RR-C2 through C8 and plans L1.1-L1.2shall be complied with except as modified to be in agreement with these conditions. Efficacy of proposed treatment and detention must be quantified by applicant's engineer and supportive data.

2. TREES: Trees scheduled for retention on the applicant's plan that are in the work area shall be preserved and protected by the installation of six foot cyclone fence 10 feet beyond the dripline of those trees and this fence shall stay in place from site clearing/grubbing all the way through completion of all construction activity.

3. LIGHTING:
   a. The applicant shall provide lighting along the driveway adjacent to the senior center property.

   b. All lighting shall be oriented to create no off site illumination and the light fixtures shall be screened to allow no off-site glare. The pole lighting must be turned off at 9 p.m. including game days.

4. NOISE: The applicant shall provide findings from an acoustic engineer that the standards of CDC 55.100(D) are met relative to the adjacent residential uses during the 7pm to 7am period when evening athletic events are being conducted. Mitigation measures shall be installed or enacted as necessary to meet the noise standards.

5. PEDESTRIAN/WALKWAY: The loop driveway's drop off and pick up area shall include a curb flush sidewalk and a connective sidewalk to a school entryway with sidewalk grades not to exceed 5% or per ADA standards.

6 FIRE HYDRANT: Relocate the existing fire hydrant outside of curb radius of the driveway.

7. RIGHTS-OF-WAY (ROW): Dedicate ROW along both Rosemont and Salamo Roads to meet City of West Linn Engineering Department requirements.

8. EASEMENT: If an easement is approved on the Adult Community Center to accommodate a retaining wall the School District shall be required to record it with Clackamas County and provide the City with a copy of the recorded documents.

SUPPLEMENTAL STAFF FINDINGS

APPROVAL CRITERIA AND FINDINGS

DR-09-05

Staff recommends adoption of the findings for approval contained within the applicant's submittal, with the following exceptions and additions:

55.100 ***APPROVAL STANDARDS - CLASS II DESIGN REVIEW***

The approval authority shall make findings with respect to the following criteria when approving, approving with conditions, or denying a Class II design review application. (ORD. 1408)

B. ***Relationship to the natural and physical environment.***

1. The buildings and other site elements shall be designed and located so that all heritage trees, as defined in the Municipal Code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction.

FINDING NO. 1:

The City Arborist did not identify any significant trees in the areas that will be disturbed during construction. There are no heritage trees at the site. Therefore the criterion is met.

C. ***Compatibility between adjoining uses, buffering, and screening.***

1. *In addition to the compatibility requirements contained in Chapter 24, buffering shall be provided between different types of land uses; for example, buffering between single-family homes and apartment blocks. However, no buffering is required between single-family homes and duplexes or single-family attached units. The following factors shall be considered in determining the adequacy of the type and extent of the buffer:*
    a. *The purpose of the buffer, for example to decrease noise levels, absorb air pollution, filter dust, or to provide a visual barrier.*
    b. *The size of the buffer required to achieve the purpose in terms of width and height.*
    c. *The direction(s) from which buffering is needed.*
    d. *The required density of the buffering.*
    e. *Whether the viewer is stationary or mobile.*
2. *On-site screening from view from adjoining properties of such things as service areas, storage areas, and parking lots shall be provided and the following factors will be considered in determining the adequacy of the type and extent of the screening:*
    a. *What needs to be screened?*
    b. *The direction from which it is needed.*
    c. *How dense the screen needs to be.*
    d. *Whether the viewer is stationary or mobile.*
    e. *Whether the screening needs to be year around.*

3. *Roof top air cooling and heating systems and other mechanical equipment shall be screened from view from adjoining properties.*

FINDING NO. 2:

Screening is required between the nearby residential properties and the new potential noise and light sources. The residents at 1156 Rosemont Road could potentially experience impacts associated with bus traffic and student activity on the proposed loop road, including headlight glare and engine noise. However,the new driveway grade is 10-18 feet below the grade of the house on the adjacent property which should mitigate such impacts. There is also a concrete retaining wall which, along with a row of densely planted arbor vitae at the top of the bank, should screen any glare from buses and is expected to deflect and reduce the expected noise to meet West Linn noise standards. These same features plus shielding on the playing field lights should address concerns about glare from athletic field lights along the site perimeter.

At 21895 Salamo Road, there is a screen of trees along the north edge of the subject property which, in concert with shielding on the playing field lights, should meet the criterion that no off-site glare be allowed.

Another concern is that the lighting will facilitate evening/night games where none existed before. With those games and practices comes noise (noise of spectators, players, traffic and loudspeakers). It is reasonable to impose an evening cut-off for the lighting at 9 p.m. so as to be deferential to adjacent homeowners.

D. ***Privacy and noise.***

1. *Structures which include residential dwelling units shall provide private outdoor areas for each ground floor unit which is screened from view by adjoining units.*

2. *Residential dwelling units shall be placed on the site in areas having minimal noise exposure to the extent possible. Natural appearing sound barriers shall be used to lessen noise impacts where noise levels exceed the design standards of Table 1 below.*
   (ORD. 1442)

3. *Structures or on site activity areas which generate noise, lights, or glare shall be buffered from adjoining residential uses in accordance with the standards in Section 55.100(C) where applicable. Businesses or activities that can reasonably be expected to generate noise shall undertake and submit appropriate noise studies and mitigate as necessary. (See Sections 55.110(B)(11) and 55.120(M).)*
   To protect the health, safety, and welfare of the citizens of West Linn, the following design standards are established in Tables 1 and 2. In the case of land uses that are expected to be close to adopted noise standards, follow-up studies in the first year of operation may be required by a conditional of approval or required by the Planning Director as appropriate in order to monitor compliance.
   (ORD..1442)

TABLE 1

Allowable Sound Levels Within 25 Feet of a Dwelling

Type of Sound	*7 a.m. - 7 p.m.*	*7 p.m. - 7 a.m.*
Statistical Noise	*L50 = 55 dBA* *L10 = 60 dBA* *L1 = 75 dBA*	*L50 = 50 dBA* *L10 = 55 dBA* *L1 = 60 dBA*
Impulse Sound	*100 dB* *(ORD. 1442)*	*80 dB*

TABLE 2

Center Frequency	*Unweighted Sound Level*	
	7 a.m. - 7 p.m.	*7 p.m. - 7a.m.*
31.5 Hz	*68 dB*	*65 dB*
63 Hz	*65 dB*	*62 dB*
125 Hz	*61 dB*	*56 dB*
250 Hz	*55 dB*	*50 dB*
500 Hz	*52 dB*	*46 dB*
1000 Hz	*49 dB*	*43 dB*
2000 Hz	*46 dB*	*40 Db*
4000 Hz	*43 dB*	*37 dB*
8000 Hz	*40 dB*	*34 dB*

See Chapter 2 for definitions of these terms, as sub-headings under the alphabetic category of "Noise Definitions."

Ambient degradation associated with new noise sources. Any new commercial or industrial development to be built on a vacant or previously unused industrial or commercial site shall not cause or permit the operation of a noise source if the noise levels generated, or indirectly caused by

that noise source, would increase the ambient statistical noise levels, L50 or L10, by more than 5 dBA in any one hour. In some instances, the ambient degradation standard may establish lower allowable dBA levels than those established in Table 1, and in those instances, the lower level shall apply. Ambient noise levels shall be determined by a licensed acoustical engineer.

(ORD. 1442)

FINDING NO. 3:

Finding No. 2 responded to most of this criterion and found that the criterion is met. It should also be noted that the applicant has provided a report from a certified acoustic engineer who determined that the noise levels would not exceed City of West Linn standards.

However, that study did not include any findings that the 7pm to 7am noise standards will be met. Staff is concerned that vehicle noise and game related activities will exceed the noise standard. To address this concern and criterion, the applicant should be conditioned to provide findings from an acoustic engineer that those night time standards of CDC 55.100(D) are met relative to the adjacent residential uses. (Please note that the applicant has been made aware of this issue, as of 12-22-09, and may have a response at the hearing.)

1. *Streets.* *Sufficient right-of-way and slope easement shall be dedicated to accommodate all abutting streets to be improved to City's Improvement Standards and Specifications. The City Engineer shall determine the appropriate level of street and traffic control improvements to be required, including any off-site street and traffic control improvements based upon the transportation analysis submitted. The City Engineer's determination of developer obligation, the extent of road improvement and City's share, if any, of improvements and the timing of improvements shall be made based upon the City's systems development charge ordinance and capital improvement program, and the rough proportionality between the impact of the development and the street improvements. (ORD. 1442) (ORD. 1526)*

In determining the appropriate sizing of the street in commercial, office, multi-family, and public settings, the street should be the minimum necessary to accommodate anticipated traffic load and needs and should provide substantial accommodations for pedestrians and bicyclists. Road and driveway alignment should consider and mitigate impacts on adjacent properties and in neighborhoods in terms of increased traffic loads, noise, vibrations, and glare. (ORD. 1442)

The realignment or redesign of roads shall consider how the proposal meets accepted engineering standards, enhances public safety, and favorably relates to adjacent

lands and land uses. Consideration should also be given to selecting an alignment or design that minimizes or avoids hazard areas and loss of significant natural features (drainageways, wetlands, heavily forested areas, etc.) unless site mitigation can clearly produce a superior landscape in terms of shape, grades, reforestation, and is fully consistent with applicable code restrictions regarding resource areas.

Streets shall be installed per Chapter 85 standards. City Engineer has the authority to require that street widths match adjacent street widths. Sidewalks shall be installed per Section 85.200(A)(3)(e) for commercial and office projects, and Sections 85.200(A)(16)

FINDING NO. 4:

No street improvements are required at this site, but the City will require that the land comprising existing street and sidewalk improvements along Salamo Road at the east end of the school site be dedicated to the City as part of the Salamo Road ROW.

The applicant's traffic report explains that there is sufficient line of sight on Rosemont Road to allow vehicles traveling along that road to see the buses and safely slow down. The safe distance is roughly determined by multiplying the posted speed limit by 10 to get the necessary line of sight. The speed limit is 20 mph during school hours which is when the buses would operate. There is in excess of 450 feet of line of sight west on Rosemont when measured from the driveway which

exceeds the required 200 feet to provide sufficient line of sight. That distance would even provide adequate recognition and braking distance for a car traveling at 40 mph, well above the posted speed. Meanwhile, the line of sight extends east 350 feet through the Santa Anita-Rosemont-Salamo Road intersection and satisfies the standard. Therefore the criterion is met by the ROW dedication condition.

J. ***Crime prevention and safety/defensible space***.

1. *Windows shall be located so that areas vulnerable to crime can be surveyed by the occupants.*
2. *Interior laundry and service areas shall be located in a way that they can be observed by others.*
3. *Mail boxes, recycling, and solid waste facilities shall be located in lighted areas having vehicular or pedestrian traffic.*
4. *The exterior lighting levels shall be selected and the angles shall be oriented towards areas vulnerable to crime.*
5. *Light fixtures shall be provided in areas having heavy pedestrian or vehicular traffic and in potentially dangerous areas such as parking lots, stairs, ramps, and abrupt grade changes.*
6. *Fixtures shall be placed at a height so that light patterns overlap at a height of seven feet which is sufficient to illuminate a person. All commercial, industrial, residential, and public facility projects undergoing design review shall*

use low or high pressure sodium bulbs and be able to demonstrate effective shielding so that the light is directed downwards rather than omni-directional. Omni-directional lights of an ornamental nature may be used in general commercial districts only.

7. *Lines of sight shall be reasonably established so that the development site is visible to police and residents.*

8. *Security fences for utilities (e.g., power transformers, pump stations, pipeline control equipment, etc.) or wireless communication facilities may be up to eight feet tall in order to protect public safety. No variances are required regardless of location. (ORD. 1408)*

FINDING NO. 5:

Staff was concerned that the loop driveway would create a space that has almost no surveillance opportunities. The area of concern is that portion of the driveway between the north wall of the school and the retaining wall on the north side of the driveway. There are no floor or eye-level windows on this school elevation. Bus traffic during AM and PM drop off and pick up periods will bring an activity to this space, but only for 2-4 hours a day. Lighting this area would certainly be helpful at night but the inadequate lines of sight or surveillance from nearby ROWs is a continuing concern and has no apparent remedy.

K. ***Provisions for persons with disabilities.***

1. *The needs of a person with a disability shall be provided for. Accessible routes shall be provided between all buildings and accessible site facilities. The accessible route shall be the most practical direct route between accessible building entries, accessible site facilities, and the accessible entry to the site. An accessible route shall connect to the public right-of-way to at least one on-site or adjacent transit stop (if the area is served by transit). All facilities shall conform to, or exceed, the Americans with Disabilities Act (ADA) standards, including those included in the Uniform Building Code.*

FINDING NO. 6:

Pick up and drop off facilities for students will include those students with special needs. The loop driveway's drop off pick up area needs to include a curb flush sidewalk and a connective sidewalk to a school entryway with grades not to exceed 5% or per ADA standards.

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7. Transportation Planning Rule

(d.) *Accessways, parking lots, and internal driveways shall accommodate pedestrian circulation and access by specially textured, colored, or clearly defined foot paths at least six feet wide. Paths shall be eight feet wide when abutting parking areas or travel lanes. (Staff note: this criterion was the basis or rationale for seeking a connective path and stairs, in 2000, between the senior center and*

the school property to accommodate overflow parking when either the school or senior center was putting on a special event.)

FINDING NO. 7:

Stairs and a path linking the Senior Center with the school parking lot to accommodate peak parking needs were discussed but not required when the adjacent senior center application was being reviewed and approved. The concept of linking the two properties is still valid; but staff recognizes the physical and budgetary challenge of cutting a stairway through the 10+ foot high concrete retaining walls between the school site and the senior center. It makes more sense to satisfy connectivity by directing foot traffic from the school along the loop driveway to Rosemont Road. This route is more cost effective and, once at Rosemont Road, puts pedestrians just 230 feet from the entrance to the senior center. In addition, this route will be illuminated and at a grade more sympathetic to walking. Therefore the criterion is met.

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CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-1

PUBLIC NOTICE

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.

CITY OF WEST LINN
PLANNING COMMISSION
PUBLIC HEARING NOTICE
FILE NO. DR-09-05

The West Linn Planning Commission is scheduled to hold a public hearing, on **Wednesday, January 6, 2010, starting at 7:00 p.m.** in the Council Chambers of City Hall (located at 22500 Salamo Road, West Linn, OR,) to consider the request of the West Linn-Wilsonville School District to construct a one way driveway around the northwest corner of the Rosemont Middle School. The driveway would make it possible for school buses to enter the site from Salamo Road, load and unload students and then exit the site via an existing driveway on Rosemont Road. This driveway would help reduce conflicts and delays with vehicles driven by parents picking up and dropping off students in the main parking lot. It is expected that improved safety and a more efficient circulation of traffic could be achieved. This requires a Class II Design Review permit. Also included in the proposal are 40-foot tall light poles to illuminate the baseball and soccer fields. The approval criteria for the Class II Design Review are contained in Community Development Code (CDC) Chapter 55. Approval or disapproval of the request by the Planning Commission will be based upon these criteria and these criteria only. At the hearing, it is important that comments relate specifically to the applicable criteria listed.

You have been notified of this proposal because County records indicate that you own property within 500 feet of the proposed site located at tax lot 701 of Clackamas County Assessor's Map 2-1E-26A. The address is 20001 Salamo Road.

The complete application in the above noted file is available for inspection at no cost, or copies can be obtained for a minimal charge per page. At least ten days prior to the hearing, a copy of the staff report will be available for inspection. For further information, please contact Peter Spir, Associate Planner, at City Hall, 22500 Salamo Road, West Linn, OR 97068, or by email at pspir@westlinnoregon.gov or by telephone at 503-723-2539.

The hearing will be conducted in accordance with the rules of Section 99.170 of the Community Development Code, adopted December 14, 1987, Ordinance 1129. Anyone wishing to present written testimony on this proposed action may do so in writing prior to, or at the public hearing. Oral testimony may be presented at the public hearing. At the public hearing, the Planning Commission will receive a staff report presentation from the City Planner; and invite both oral and written testimony. The Planning Commission may continue the public hearing to another meeting to obtain additional information, or close the public hearing and take action on the application. If a person submits evidence in support of the application, any party is entitled to request a continuance of the hearing. If there is no continuance granted at the hearing, any participant in the hearing may request that the record remain open for at least seven days after the hearing. Failure to raise an issue in person or by letter at some point prior to the close of the hearing, or failure to provide sufficient specificity to afford the decision maker an opportunity to respond to the issue, precludes an appeal to the Land Use Board of Appeals (LUBA) based on that issue.

TERESA ZAK
Planning Administrative Assistant

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BARDANA ANTHONY JOHN
1944 FURLONG DR
WEST LINN OR 97068

BECHTOLD TIM J TRUSTEE
1148 S ROSEMONT RD
WEST LINN OR 97068

BELL EDWIN J
20393 NOBLE LN
WEST LINN OR 97068

BERGESON LINDA J
1700 SANTA ANITA DR
WEST LINN OR 97068

BKR INVESTMENT GROUP LLC
17933 NW EVERGREEN PKWY STE 300
BEAVERTON OR 97006

BLAKE KATHERINE MARIE
20275 HOODVIEW AVE
WEST LINN OR 97068

BLAKESLEE DAVID E
20408 NOBLE LN
WEST LINN OR 97068

BONNINGTON JEFF & KAYE
6260 HAVERHILL CT
WEST LINN OR 97068

BRASFIELD MICHELE PROVOST
4839 SUMMIT ST
WEST LINN OR 97068

BRYANT KEVIN DEWAYNE TRUSTEE
736 DAISYFIELD DR
LIVERMORE CA 94550

BUSSEY MARK
9734 NW SKYLINE HEIGHTS DR
PORTLAND OR 97229

CALIVA JAMES P
20339 NOBLE LN
WEST LINN OR 97068

CARTASEGNA MARY JO
20425 NOBLE LN
WEST LINN OR 97068

CENTURION HOMES INC
7128 SW GONZAGA ST STE 100
PORTLAND OR 97223

CRAMER ALAN & J KALPATHY-CRAMER
25655 KIMBERLY DR
WEST LINN OR 97068

CRANDALL MARK L & ANGELA
15375 NW WEST UNION RD
PORTLAND OR 97229

CREIGHTON GREGG B
20413 NOBLE LN
WEST LINN OR 97068

CUNHA MARLENE L TRUSTEE
20282 HOODVIEW AVE
WEST LINN OR 97068

DALMOLIN PAMELA M
20288 HOODVIEW AVE
WEST LINN OR 97068

DANNA HOLLY
4026 LEGEND DR
ROCKLIN CA 95765

DARROW MAUREEN R
8427 SW LAFAYETTE WAY
WILSONVILLE OR 97070

DEEKS VICTORIA D
20201 HOODVIEW AVE
WEST LINN OR 97068

DUNLAP THOMAS F TRUSTEE
6117 CANTER LN
WEST LINN OR 97068

EATON FRANK D & EMILY
4853 COHO LN
WEST LINN OR 97068

EMPEY BRUCE C
20226 HOODVIEW AVE
WEST LINN OR 97068

ERICKSON JANICE KAY
20237 HOODVIEW AVE
WEST LINN OR 97068

FRAZIER FAMILY TRUST
1235 ROSEMONT RD
WEST LINN OR 97068

FREEMAN EDWARD F & JENNEE R
PO BOX 1754
LAKE OSWEGO OR 97035

FUNKE STUART
20327 NOBLE LN
WEST LINN OR 97068

GAVRICH DOUG D
20296 HOODVIEW AVE
WEST LINN OR 97068

GILES MOLLIE E
20343 NOBLE LN
WEST LINN OR 97068

GONZALES CHRISTOPHER A
20276 HOODVIEW AVE
WEST LINN OR 97068

GOODWIN KENNETH D & CARRIE L
20225 HOODVIEW AVE
WEST LINN OR 97068

GRAVES ANDREW PAUL
1205 ROSEMONT RD
WEST LINN OR 97068

HALE LLOYD D & SANDRA
19905 BELLEVUE WAY
WEST LINN OR 97068

HEDMAN ANNE R
20173 HOODVIEW AVE
WEST LINN OR 97068

HOLE DANIEL D TRUSTEE
1184 AVENIDA AMANTEA
LA JOLLA CA 92037

HOLZER ALAN M TRUSTEE
6119 CANTER LN
WEST LINN OR 97068

HOODVIEW ESTATES LLC
3563 VISTA RIDGE
WEST LINN OR 97068

HOWARD KERRY
20371 NOBLE LN
WEST LINN OR 97068

KAGEY LANE ODEN & DIANE JOYCE
6250 HAVERHILL CT
WEST LINN OR 97068

KEYS RENTAL HOLDING COMPANY LLC
17933 NW EVERGREEN PKWY #370
BEAVERTON OR 97006

KROLOFF MARCUS R
20355 NOBLE LN
WEST LINN OR 97068

LANZ HUONG N
3003 S BRANDYWINE DR
WEST LINN OR 97068

LASZLO SUSAN E
20147 HOODVIEW AVE
WEST LINN OR 97068

LAWRENCE TARA R
20420 NOBLE LN
WEST LINN OR 97068

LENTZ CAROL J
20385 NOBLE LN
WEST LINN OR 97068

LU MIN
2020 NW NORTHRUP ST APT 215
PORTLAND OR 97209

MANGEL JANET S
6107 CANTER LN
WEST LINN OR 97068

MARCHEK MATTHEW R
20431 NOBLE LN
WEST LINN OR 97068

MATSON MARLENE
20416 NOBLE LN
WEST LINN OR 97068

MAZZIA CARMEN
20315 S NOBLE LN
WEST LINN OR 97068

MCCABE JAMES A & ANN L
20185 HOODVIEW AVE
WEST LINN OR 97068

MCCARTY MARK
20287 HOODVIEW AVE
WEST LINN OR 97068

MCELHINNEY GREGG
2425 SW GREGORY DR
WEST LINN OR 97068

MCNOWN MARK J & HEATHER
6270 HAVERHILL CT
WEST LINN OR 97068

MEISENHEIMER KEITH & DIANE
20264 HOODVIEW AVE
WEST LINN OR 97068

MORIARTY TEVYA
20349 NOBLE LN
WEST LINN OR 97068

NICHOL JAKE & DARNELL M
1156 S ROSEMONT RD
WEST LINN OR 97068

NICHOLS MARY L
1215 ROSEMONT RD
WEST LINN OR 97068

NICHOLSON CINDY G
6263 HAVERHILL CT
WEST LINN OR 97068

NUTT PAULINE H
414 NORFOLK DR
CARDIFF BY THE SEA CA 92007

OGLE DIANE L
1946 FURLONG DR
WEST LINN OR 97068

ORTIZ CHRISTINE
2320 E BASELINE RD STE 148
PHOENIX AZ 85042

PANKRATZ LORI L
20394 HOODVIEW AVE
WEST LINN OR 97068

PARISIO PIERGIORGIO & CATHERINE
20123 HOODVIEW AVE
WEST LINN OR 97068

PARKE JOHN C & DIANE C
20447 NOBLE LN
WEST LINN OR 97068

QUISLING MICHAEL P & LONDA R
1225 ROSEMONT RD
WEST LINN OR 97068

RANDALL EMILY
20111 HOODVIEW AVE
WEST LINN OR 97068

RANDALL LORI
6109 CANTER LN
WEST LINN OR 97068

REINKE FRED A & GWENDOLYN L
5743 RIVER ST
WEST LINN OR 97068

RICHARDS REBECCA A
20291 HOODVIEW AVE
WEST LINN OR 97068

RYAN SHELLY M
20281 HOODVIEW AVE
WEST LINN OR 97068

SAGERS ROCKEY E & PEGGY MARIE
6115 CANTER LN
WEST LINN OR 97068

~~SALAMO TERRACE HOMEOWNERS ASSN~~
~~NO MAILING ADDRESS~~
~~AVAILABLE - 0~~

SALAMO TERRACE LLC RTRND
822 NW MURRAY BLVD #284
PORTLAND OR 97229

SANDILANDS JAMES D & DARCY E
6223 HAVERHILL CT
WEST LINN OR 97068

SAPHIR WILLIAM H & LYNNE P
20322 NOBLE LN
WEST LINN OR 97068

SCHUMAKER DANIEL M & MEGAN K
6113 CANTER LN
WEST LINN OR 97068

SCOBIE GERALD & JACI L
20367 NOBLE LN
WEST LINN OR 97068

SEIDA JOYCE
17501 SE FOREST HILL DR
DAMASCUS OR 97089

SEIDA KENT
17501 SE FOREST HILL DR
DAMASCUS OR 97089

SELF CINDY
20342 HOODVIEW AVE
WEST LINN OR 97068

SEYMOUR MARSHA A
20251 HOODVIEW AVE
WEST LINN OR 97068

SMITH JARED A
8873 SW OSAGE ST
TUALATIN OR 97062

SMITH MOLLY F
20214 HOODVIEW AVE
WEST LINN OR 97068

TERWILLIGER PLAZA FNDTN HOLDINGS
2545 SW TERWILLIGER BLVD
PORTLAND OR 97201

TRIBOU JENNIFER E
3070 REMINGTON DR
WEST LINN OR 97068

TRIBOU SCOTT THOMAS
6316 BRIDGEVIEW DR
WEST LINN OR 97068

TRUSTY JONATHAN & SARA
20398 NOBLE LN
WEST LINN OR 97068

WALTERS MICHAEL D & DAWN K
6111 CANTER LN
WEST LINN OR 97068

WATSON LAVON M
20213 HOODVIEW AVE
WEST LINN OR 97068

WESSLING JENNIFER
20135 HOODVIEW AVE
WEST LINN OR 97068

WILLAMETTE CHRISTIAN CH OF WEST
3153 S BRANDYWINE DR
WEST LINN OR 97068

WILLIAMS JOSEPH R & BARBARA K
6210 HAVERHILL CT
WEST LINN OR 97068

WU MICHAEL YUNG-JEN
20238 HOODVIEW AVE
WEST LINN OR 97068

ZIDELL JASON ELLIOTT TRUSTEE
3121 SW MOODY AVE
PORTLAND OR 97201

TIM WOODLEY, DIRECTOR OF OPERATIONS
WEST LINN-WILSONVILLE SCHOOL DIST
PO BOX 35
WEST LINN OR 97068

ROGER WOEHL, SUPERINTENDENT
WEST LINN-WILSONVILLE SCHOOL DIST
PO BOX 35
WEST LINN OR 97068

JEFF HALLIN, SCHOOL BOARD CHAIR
WEST LINN-WILSONVILLE SCHOOL DIST
31501 SW ORCHID DR
WILSONVILLE OR 97070

MARY FURROW, SCHOOL BRD VICE CHAIR
WEST LINN-WILSONVILLE SCHOOL DIST
3120 SW CASCARA CT
WILSONVILLE OR 97070

DALE HOOGESTRAAT, SCHOOL BOARD
WEST LINN-WILSONVILLE SCHOOL DIST
4155 ROSEPARK DR
WEST LINN OR 97068

LORI BEIGHT, SCHOOL BOARD
WEST LINN-WILSONVILLE SCHOOL DIST
2388 APPALOOSA WAY
WEST LINN OR 97068

KEITH STEELE, SCHOOL BOARD
WEST LINN-WILSONVILLE SCHOOL DIST
21415 MILES DR
WEST LINN OR 97068

STEVE GARNER
BHT NA PRESIDENT
3525 RIVERKNOLL WAY
WEST LINN OR 97068

SALLY MCLARTY
BOLTON NA PRESIDENT
19575 RIVER RD # 64
GLADSTONE OR 97027

LYNN FOX
HIDDEN SPRINGS NA PRESIDENT
PO BOX 236
MARYLHURST OR 97036

JEFF TREECE
MARYLHURST NA PRESIDENT
1880 HILLCREST DR
WEST LINN OR 97068

BILL RELYEA
PARKER CREST NA PRESIDENT
3016 SABO LN
WEST LINN OR 97068

THOMAS BOES
ROBINWOOD NA PRESIDENT
18717 UPPER MIDHILL DR
WEST LINN OR 97068

DEAN SUHR
ROSEMONT SUMMIT NA PRESIDENT
21345 MILES DR
WEST LINN OR 97068

KRISTIN CAMPBELL
SKYLINE RIDGE NA PRESIDENT
1391 SKYE PARKWAY
WEST LINN OR 97068

TROY BOWERS
SUNSET NA PRESIDENT
2790 LANCASTER ST
WEST LINN OR 97068

DAVE RITTENHOUSE
TANNER BASIN NA PRESIDENT
2101 GREENE ST
WEST LINN OR 97068

BETH KIERES
WILLAMETTE NA PRESIDENT
1852 4TH AVE
WEST LINN OR 97068

30
30
29
25
114

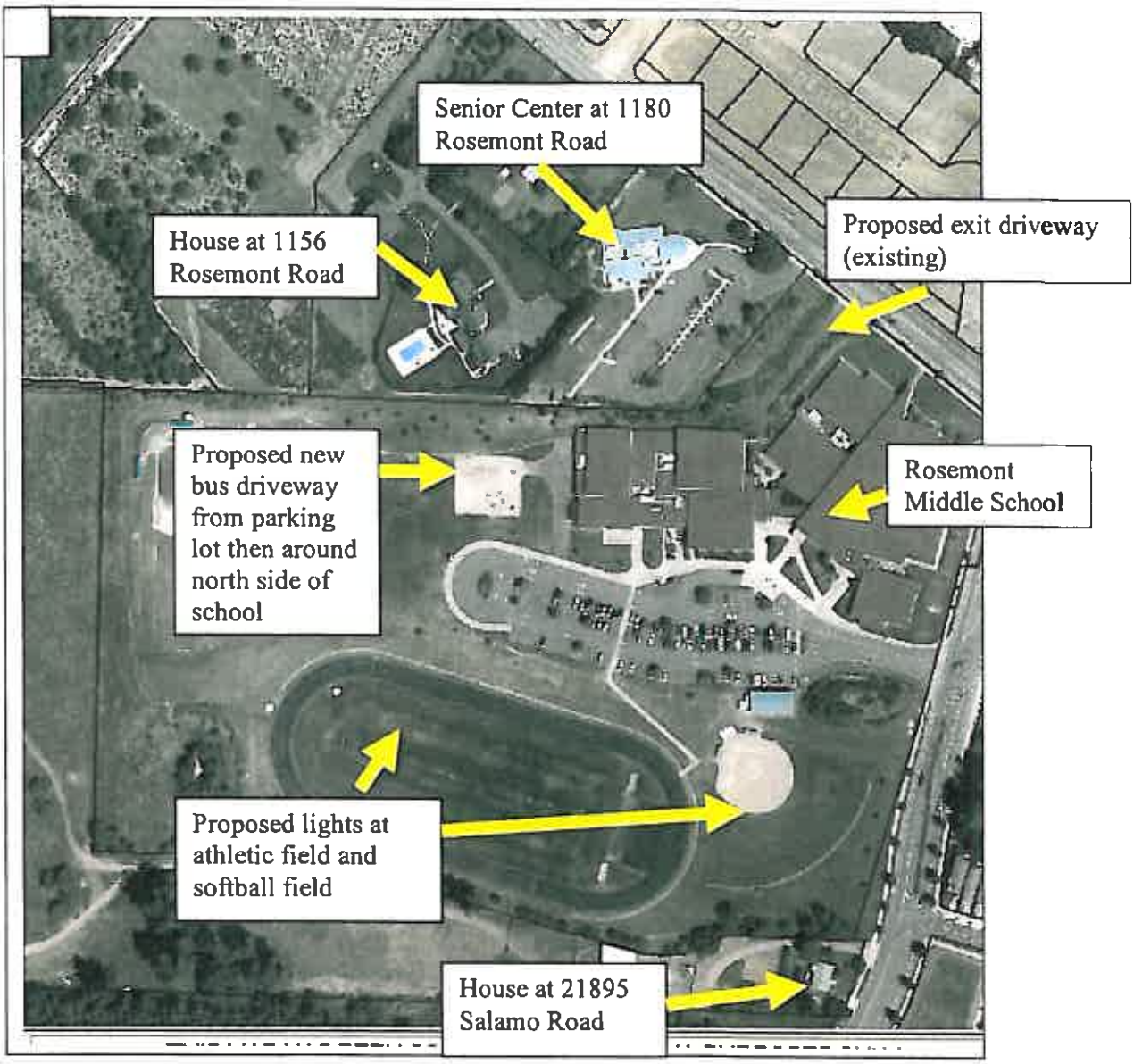
CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-2

AERIAL PHOTOS

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.


Senior Center at 1180 Rosemont Road
House at 1156 Rosemont Road
Proposed exit driveway (existing)
Proposed new bus driveway from parking lot then around north side of school
Rosemont Middle School
Proposed lights at athletic field and softball field
House at 21895 Salamo Road

City of West Linn GIS (Geographic Information System), SnapMap Date: 12/7/2009

Scale: 085 Feet

MAP DISCLAIMER:
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.


2D
3D
Road
Aerial
50 feet


SENIOR CENTER
1156 ROSEMONT ROAD

21895 SALAMO ROAD

CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-3

TVFR COMMENTS

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.

TUALATIN VALLEY FIRE & RESCUE - SOUTH DIVISION
COMMUNITY SERVICES • OPERATIONS • FIRE PREVENTION

August 7, 2009

Peter Spir
Associate Planner
Planning Department
City of West Linn
West Linn, Oregon 97068

Re: DR 09-05 Rosemont Middle School - Driveway and Field Lighting

Dear Mr. Spir;

Thank you for the opportunity to review the proposed site plan surrounding the above named development project. Tualatin Valley Fire & Rescue endorses this proposal predicated on the following criteria and conditions of approval:

1) **GATES:** If gates are used to secure the bus lane, the fire district would like to ensure the ability to operate gate and use bus lane. Please provide us with:
   Electric gates that are equipped with a means for operation by fire department personnel, and, or,
   Locking devices that are usable by the fire personnel

If you have questions, please call me at (503) 612-7012.

Sincerely,

Karen Mohling

Karen Mohling
Deputy Fire Marshal

CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-4

CITIZEN COMMENT

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.

Spir, Peter

From: GARY [hitesman@comcast.net]
Sent: Tuesday, October 20, 2009 10:44 AM
To: Spir, Peter; Sonnen, John; planningcommission@westlinnoregon.gov
Cc: Julia Simpson
Subject: 20001 Salamo Road Rosemont Ridge Middle School Exit Driveway & Field Lights

Mr. Spir and Mr. Sonnen,

1.) Field Lights are unsustainable and will reek havoc on the environment. Where is the DEIS that looks into mitigation or validates a No Dec.

2.) The proposed bus exit is a poor and improper engineering solution that does not meet CDC criteria.

Were any other right of way configurations looked into under this proposal? I do not think a review would be complete unless another configuration is proposed.

Why was the ball field reconfigured in advance when a possible scenario might have been to provide bus egress further down Salamo using part of that footprint?

I encourage a visit to the back of the gym where the road is proposed.

What are the impacts to the TSP that have not been included in the report?

Any bus that breaks down on that road will shut the whole thing down. How would children exit the bus if an emergency were to occur? How would emergency vehicles access the area in case of an emergency on the bus?

The roadway creates an unobservable point of entry to school grounds and is hidden from view. I cannot possibly imagine a worse scenario being requested by a public institution or designed by an engineering firm.

Worse is the impact to students and their safety. What is already a questionable area for a Middle School will now be made much worse.

The proposed alley way, which should be defined as such, is a poor solution to an otherwise ill-considered master plan for the school. What was the original traffic analysis that did not see or address this condition/inevitable reality?

The community center parking lot that is often used for school events is now completely cut off. Provisions should be made to encourage walking and safe pedestrian wayfinding between the two. As proposed, the retaining wall further divides.

Also, I don't believe Rosemont is designed properly to alleviate the current traffic mess the City finds itself in. Buses entering or exiting from there will create a safety hazard.

The Planning Commission should not approve this request as it currently exists. Of course,

staff should not be approving this anyway.

This application does not bode well for the other project the school district is contemplating.

Gary Hitesman

CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-5

ENGINEERING STAFF COMMENTS

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.

Spir, Peter

From: Le, Khoi
Sent: Thursday, August 13, 2009 10:55 AM
To: 'pjo@dkspdx.com'
Cc: Spir, Peter
Subject: Rosemont Ridge Middle School - Traffic Report

Pamela,

Attached is the original traffic report prepared for the school in 1997. There were two items that I would like you to verify:

Street Peak Hour
Sight Distance

In additional to the two items above, please look at the curb radius to see whether or not must be modified. The other item is to see whether or not the driveway should be one way and right turn only.

Please feel free to contact me if you have any questions or comments.

City of West Linn

Khoi Q. Le, PE
kle@westlinnoregon.gov
Public Improvement Program Manager
22500 Salamo Rd.
West Linn, OR, 97068
P: (503) 722-5517
F: (503) 656-4106
Web: westlinnoregon.gov

CITY OF WEST LINN
PLANNING AND
DEVELOPMENT

EXHIBIT PC-6

APPLICANT SUBMITTAL

FILE NO.: DR-09-05

REQUEST: CLASS II DESIGN REVIEW FOR ONE-WAY DRIVEWAY AROUND THE NORTHWEST CORNER OF ROSEMONT MIDDLE SCHOOL FOR IMPROVED ON-SITE CIRCULATION OF SCHOOL BUSES. INSTALL LIGHT POLES TO ILLUMINATE SOCCER AND BASEBALL FIELDS.

Chapter 1
Introduction and Summary

This study evaluates the transportation impacts of the proposed middle school on the southwest corner of Day Road/Rosemont Road, in West Linn (see Figure 1) for the West Linn-Wilsonville School District. This study assumes that the school will accommodate approximately 690 students at buildout. The study focuses on traffic operations at the following intersections:

- Day Road/Rosemont Road/Santa Anita Drive
- Hidden Springs Road/Rosemont Road
- Project Driveway

These intersections were selected for analysis in consultation with City of West Linn staff.[1] Other issues covered in the report include site access and circulation for busses, autos and pedestrians, and parking.

The proposed project building is located near the intersection of Day Road/Rosemont Road, with the parking lot for 142 vehicles located immediately south of the building and playing fields to the south and west. Two access points are proposed, one on Day Road and one on Rosemont Road. The Day Road driveway would be used as the main access to the school, providing access to the parking lot and the bus loading area. The Rosemont Road driveway would serve as a fire and emergency access point only.

Project traffic impacts were evaluated for the weekday morning, school and evening peak periods (7:00 AM to 9:00 AM, 2:00 PM to 4:00 PM, and 4:00 PM to 6:00 PM), when traffic volumes in the study area are highest. The school peak hour coincides with the peak hour for the adjacent street system during the morning (7:00 AM - 8:00 AM). The afternoon peak for the school would be somewhere between 2:30 PM and 4:00 PM, depending on when the school lets out. The PM peak hour for adjacent street traffic occurs between 4:30 PM and 5:30 PM, which is the time (with or without the proposed project) when the greatest number of vehicles are on the road. Table 1 provides a brief summary of project impacts.

---

[1] Based on telephone conversations with Joe Schiewe and Don Frascinella, City of West Linn staff, December, 1996.

DKS *Associates*
TRANSPORTATION SOLUTIONS

MEMORANDUM

TO: Tim Woodley, West Linn Wilsonville School District

FROM: Pamela O'Brien, P.E., PTOE, DKS Associates

DATE: April 28, 2009

SUBJECT: **Rosemont Ridge Middle School Access/Circulation Study** P09031-002

This memorandum summarizes work conducted by DKS Associates regarding the existing and proposed parking lot circulation at Rosemont Ridge Middle School.

The school site is located in the southwest quadrant of the intersection of Rosemont Road and Salamo Road in West Linn. Currently, a single access drive for buses and autos is located off of South Salamo Road south of Rosemont Road. The bus loading/unloading area is located next to the sidewalk along the front of the school and the buses must circulate back through the parking lot to exit the site. The parent pick-up/drop-off zone is located just prior to the exit drive from the parking lot. The conflict between the buses, autos and pedestrians have led to a proposal to change the bus access through the site. It is proposed to construct a bus drive aisle around the school and have the buses exit the school grounds using an existing maintenance access driveway onto Rosemont Road west of Salamo Road.

This access/circulation memorandum summarizes the impacts of modifications to the bus access to/from the school site and the impacts to the driveways on Rosemont Road and on Salamo Road along with the intersection of Rosemont Road/Salamo Road. The memo will also summarize the internal circulation pattern changes based on the modification of the bus exit.

Bus Circulation

Currently, fourteen school buses access Rosemont Ridge Middles School via a driveway on Salamo Road south of Rosemont Road. It is anticipated that the number of school buses will not change in the future. The access and circulation characteristics are different for the AM drop off than for the PM pick up.

AM Drop Off

Based on a recent site visit, the buses started to arrive at the school at 8:45 am with the last bus arriving at 9:02 am. The majority of the buses arrived within a four minute window between 8:58 am and 9:02 am. The buses dropped the students off at the curb in front of the school. Once the students were dropped off, the buses would exit the site. All of the buses turned right onto Salamo Road. While the buses were dropping students off in front of the school and circulating through and out of the parking lot, parents were also dropping students off. The designated drop-off area was located within the parking lot, right where the exit drive begins. It appeared that only one or two cars were able to drop students off at a time, which created a queue of parents

waiting to drop their student off. Since there is only one exit for the parking lot, the buses also had to wait in this queue. The auto/bus queue was cleared by 9:10 am.

PM Pick Up

During the afternoon pick-up, the buses started to arrive at the school at 3:30 pm and parked along the sidewalk in front of the school and around the corner in the parking lot. Parents also started to arrive around 3:30 pm and formed a line, starting at the pick-up/drop zone and winding through the parking lot, to wait for the students. For approximately 15 minutes, the parking lot was very crowded, but the vehicles flowed through in an orderly fashion. By the time the buses were ready to exit the site, most of the parents were gone and the buses had a minimal queue to wait behind. At the parking lot exit, 10 buses turned left and four buses turned right. All the buses and autos were cleared by 3:59 pm.

Figure 1: Bus and Auto interaction during afternoon pick-up

Operational Impacts

It is proposed to create a bus-only exit onto Rosemont Road. This new access will alter the circulation patterns within the parking lot and also alter the traffic volumes accessing Salamo Road and Rosemont Road. The buses exiting the site via the driveway on Rosemont Road will help to ease the congestion within the parking lot and reduce the friction between the autos, pedestrians and buses.

Queues

During the AM drop off, all of the buses exiting the site via Rosemont Road will turn right onto Rosemont Road and then right onto Salamo Road. A queue of 400 feet or more may be created at the proposed bus exit pm Rosemont Road as the buses approach the intersection after dropping the students off. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.

During the PM pick up, all of the buses exiting the site via Rosemont Road will turn right onto Rosemont Road. Seven of the buses will turn left at Salamo Road, while three will go straight through the intersection and four will turn right. As with the AM peak, a queue of 400 feet or

more may be created at the new exit as the buses approach the intersection after dropping the students off. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.

Intersection Level of Service

Existing turning movement volumes were collected at the intersection of Salamo Road/Rosemont Road. The intersection operation was evaluated to determine the impacts of modifying the bus circulation to and from the school on the all-way stop controlled intersection. The AM and PM peaks of the school do not coincide with the AM and PM peaks of the traffic along Rosemont Road and Salamo Road. The AM peak for the school was assumed to be from 8:30 to 9:30 am, while the PM peak for the school was assumed to be 3:30 to 4:30 pm. It was determined that the changes to the bus turning movements at the intersection do not have a negative impact on the operation of the intersection. During the AM peak, the intersection operates at a Level-of-Service B under existing and proposed conditions. During the PM peak, the intersection operates at a Level-of-Service C under existing and proposed conditions.

Intersection Sight Distance

The intersection sight distance was evaluated at the proposed driveway location. Rosemont Road, along the school frontage, is posted with a 20 mile per hour school speed zone during school hours. Since the buses will use the driveway during school hours, the required sight distance of 225 feet is based on the 20 mile per hour speed. There is adequate sight distance at the proposed driveway location.

Internal Circulation

The AM drop-off and PM pick-up are short, but intense events when looking a school parking lot access and circulation. The combination of the buses and autos creates more friction during the AM drop-off than the PM pick-up. This is due to the fact the buses arrive randomly and can exit the sight once all the students are dropped off, which coincides with the time the parents are dropping their kids off. The buses become incorporated into the drop-off queue. During the PM pick-up, the buses must wait until all the students are on board before departing. The PM bus departure is typically after the parents have picked up their kids and have exited the parking lot. The buses all depart at the same time, and typically do not have to wait in the pick-up queue.

Removing the buses from the current circulation pattern will help to alleviate the friction between the autos, pedestrians and buses. It will not, however, eliminate the queuing that is a result of the drop-off and pick-up events.

Considering the geographical constraints of the parking lot and circulation drive, the current method of drop-off and pick-up is a good solution. It provides a single, safe location for students to exit the vehicle and enter the school (with the assistance of a crossing guard). It does, however, create a queue of vehicles waiting to drop students off. One way to reduce the queue would be to create additional drop-off/pick-up locations. The existing pick-up drop-off area could possibly be expanded to allow for multiple vehicles to drop students off at the same time. If the buses are relocated to a new drive aisle on the west side of the school, there may be an

opportunity to create an additional drop off zone directly in front of the school, where the buses are located today.

Summary

- Creating a new drive aisle on the west side of Rosemont Ridge Middle School will allow the buses to be separated from the autos upon exiting the parking lot. This will ease the congestion within the parking lot and reduce the friction between the autos, pedestrians and buses.
- The unsignalized intersection of Rosemont Road/Salamo Road will continue to operate in an acceptable manner with the modification to the bus turning movement volumes.
- A queue of 400 feet or more may be created along the bus drive aisle as buses exit the sight at Rosemont Road. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.
- There is adequate sight distance at the proposed driveway location.
- The existing pick-up drop-off area could possibly be expanded to allow for multiple vehicles to drop students off at the same time.
- If the buses are relocated to a new drive aisle on the west side of the school, there may be an opportunity to create an additional drop off zone directly in front of the school, where the buses are located today.

Spir, Peter

From: Pamela O'Brien [pjo@dkspdx.com]
Sent: Friday, August 14, 2009 2:56 PM
To: Le, Khoi
Cc: Spir, Peter
Subject: RE: Rosemont Ridge Middle School - Traffic Report

Khoi,
I checked the original report against the current memo we submitted to the School District and found:

Street Peak Hour
The original report assumed that the AM street peak hour would be the same as the School peak hour. This assumption was made prior to knowing the school schedule and would be the worst case scenario for the AM. According to the current middle school schedule, school starts at 9:15 am (well outside of the AM street peak hour).

Site Distance
According to the original report, the 85th Percentile speed was 47 mph on Rosemont Road west of Day Rd (Salamo Rd), resulting in a sight distance requirement of 470 feet (whereas 440 feet is provided). Since the opening of the school, a School Zone Speed Limit of 20 mph has been established on Rosemont Road west of Salamo Road. The school zone speed limit is only in affect during school hours. Since the buses will use this driveway during the AM drop off and the PM pick up, when the speed limit is 20 mph, the required site distance is reduced to 225 feet.

Additional Items
Since I do not have the CAD files, I cannot check the curb radius. It appears that they used a turning template for a bus and showed that it works. There is, however, a fire hydrant right next to the driveway that may be vulnerable to bus encroachment.

Instead of restricting the driveway to one way or right turn only, the school should install signage to indicate that the access is only for buses and emergency vehicles.

Let me know if you need any additional info from me.
Thanks
Pam

From: Le, Khoi [mailto:kle@westlinnoregon.gov]
Sent: Thursday, August 13, 2009 10:55 AM
To: Pamela O'Brien
Cc: Spir, Peter
Subject: Rosemont Ridge Middle School - Traffic Report

Pamela,

Attached is the original traffic report prepared for the school in 1997. There were two items that I would like you to verify:

Street Peak Hour

Sight Distance

In additional to the two items above, please look at the curb radius to see whether or not must be modified. The other item is to see whether or not the driveway should be one way and right turn only.

Please feel free to contact me if you have any questions or comments.

West Linn

Khoi Q. Le, PE
kle@westlinnoregon.gov
Public Improvement Program Manager
22500 Salamo Rd.
West Linn, OR, 97068
P: (503) 722-5517
F: (503) 656-4106
Web: westlinnoregon.gov

Spir, Peter

From: Liden, Keith S. [Liden@pbworld.com]
Sent: Thursday, November 05, 2009 7:42 AM
To: Spir, Peter
Cc: Steve Winkle; Karina Ruiz; Norm Dull; Tim Woodley; Nick Collins; Jeff Mutschler
Subject: Rosemont Ridge - Lighting Issues

Peter,

In response to your questions and request for additional information about lighting, the district's lighting consultant has provided the attachments. Please review these and let me know if this will be sufficient to declare the application complete. I can then deliver the necessary copies. Thanks.

Keith Liden, AICP
PB PlaceMaking Group
400 SW 6th Avenue, Suite 802
Portland, OR 97204
Direct: 503.478.2348
Fax: 503.274.1412
liden@pbworld.com

PAE CONSULTING ENGINEERS, INC.

MEMO

Date: November 3, 2009

Project Name: WLWSD Rosemount Ridge Softball and Football field lighting calculations

Project No.: 09-1012.33

To: Dull Olsen Weekes Architects, Steve Winkle

From: Jeff Mutschler

Subject: Response to City of West Linn lighting questions

Distribution:

The remaining City of West Linn questions are as follows:

1. What do these luminaire numbers (e.g. .05) mean in lay terms?
2. What will the luminaire numbers be at the edge or perimeter of the site? (There are numbers shown ranging from 0 feet to about 100 feet from athletic fields which is not the perimeter.)
3. Will the pylon lighting point towards the homes at 1156 Rosemont and 21895 Salamo Road?

PAE Response:

1. All of the lighting calculations numbers are in footcandles unit of measure. As light travels outward from a source, it ultimately impinges on a surface providing illumination of the surface. Footcandles is a unique measurement used to define an amount of lighting illumination at a given point or surface. The calculations assume a imaginary surface located three foot above the grade, and each calculation point would be the illumination amount at that point. Use of a light meter to read out lighting levels at various surfaces is the best way to get a feel of the footcandles measurement unit.
2. Refer to attached lighting calculations for lighting levels at the site property line, in most cases the lighting levels are fractional amounts of a footcandle.
3. One of the four softball field light poles has fixtures facing the direction of Salamo road. The lights on top of the pole however are pointed down at the playing field and have cutoff shields to prevent excess lighting beyond the field. Calculations at the 150 foot mark from the field show only fractional amounts of a footcandle at that point, which will probably not be noticeable since there is street lighting along the roadway.

   The football field has two of the four light poles facing the direction of Rosemont road. The calculation show that very little light is extending past 150 foot from the lights. These also are pointed down at the playing field and have cutoff shields to prevent excess lighting beyond the field.

   Residents in the area with a direct view of the lighting fixtures will be able to see the illuminated lighting source, but light trespass has been eliminated as much possible through the use of the shields on the fixtures.

SW Third Ave, Suite 300
Portland, Oregon 97204-2422
503-223-5510 Fax 503-223-2230
www.paeengineers.com

printed on recycled paper

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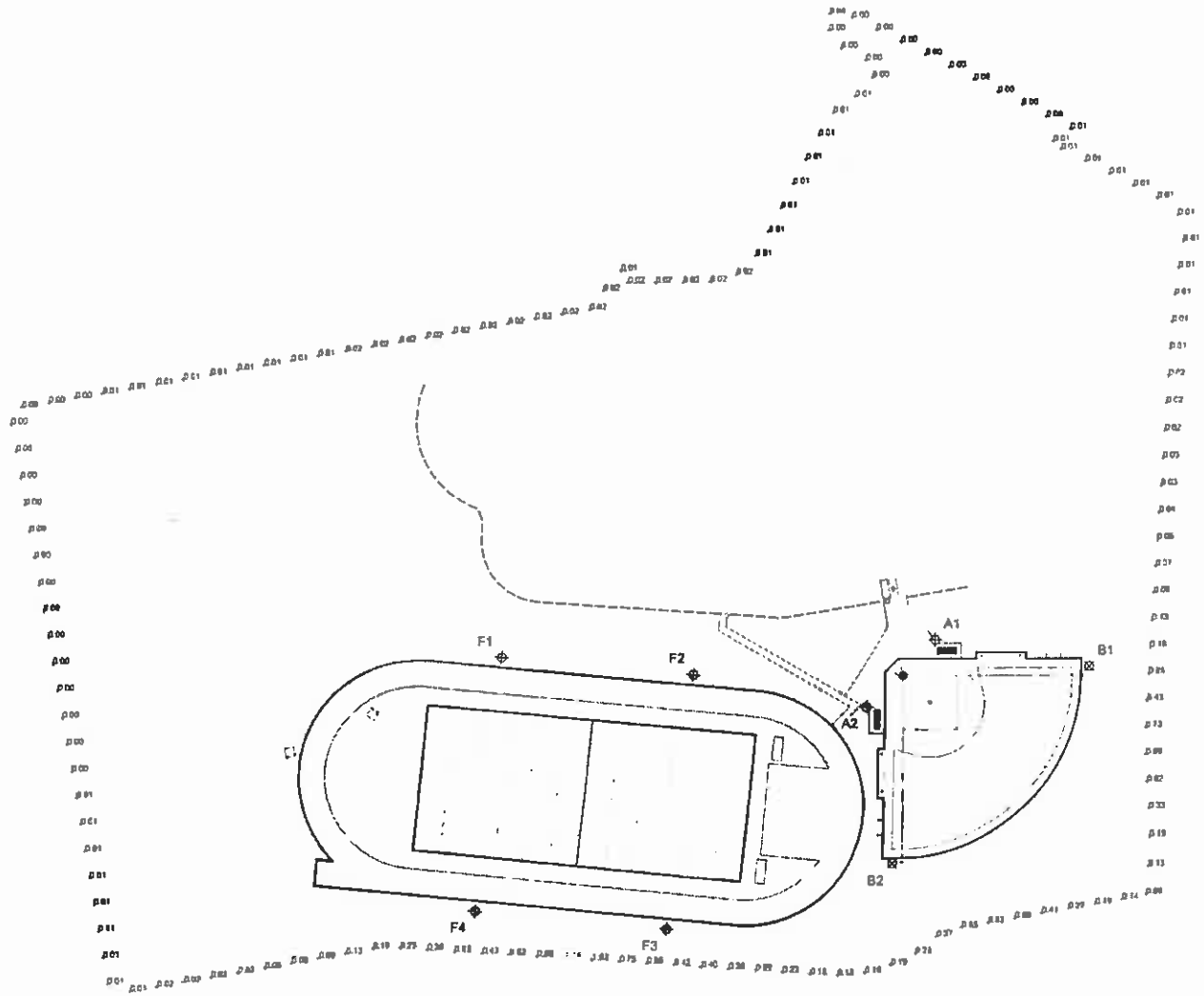


SCALE IN FEET 1 120

0' 180' 240'

Pole location(s) +/- dimensions are relative to 0,0 reference point(s) ○

MUSCO
GREEN GENERATION LIGHTING™

GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Spill @ PL
Rosemont Ridge Middle School SB & FB
West Linn, OR

Spill @ PL
Grid Spacing = 30.0'
Values given at 3.0' above grade

Luminaire Type:	Green Generation
Rated Lamp Life	5,000 hours
Avg Lumens/Lamp	134,000

CONSTANT ILLUMINATION
HORIZONTAL FOOTCANDLES

	Entire Grid
No. of Target Points	144
Average	0.124
Maximum	1.04
Minimum	0.00

Average Lamp Tilt Factor	1.000
Number of Luminaires	40
Avg KW over 5,000 hours	62.56
Max KW	66.0

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume +/- 3% nominal voltage at line side of the ballast and structures located within 3 feet (1m) of design locations.

By Eric Svenby
File #: 142031r1 Date: 04-Nov-09

Print Date (04/Nov/2009) & Time (14:14)

ROSEMONT RIDGE MIDDLE SCHOOL
Class II Design Review
October 8, 2009

APPLICATION SUMMARY

For Class II Design Review approval to make the following improvements at Rosemont Ridge Middle School:

- Create a new bus exit driveway, and
- Install lights for the football field, track, and softball field.

GENERAL INFORMATION

Location

20001 Salamo Road (Assessor's Maps and Tax Lots - 2S 1E Section 26, TL 201 and 300; 2S 1E Section 26A, TL 701, 800, 900). Its location is shown in Figure 1.

Comprehensive Plan and Zoning Designations

Comprehensive Plan - Residential.

Zoning – R10 Single Family Residential, Detached.

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

Steve Winkle, AIA
DOWA
907 S. W. Stark
Portland, OR 97205
Phone: 226-6950
Fax: 273-9192
E-mail: SteveW@dowa.com

Plan Sheets and Exhibits

RR-C1.0	Existing Conditions
RR-C2.0	General Arrangement
RR-C3.0	Demolition Plan
RR-C4.0	Site Plan
RR-C5.0	Grading and Erosion Control
RR-C6.0	Utility Plan
RR-C7.0	Wall Profile
RR-C8.0	Civil Details
L1.1	Overall Landscape Materials Plan
L1.2	Overall Landscape Planting Plan

Exhibit A	Geotechnical Investigation Rosemont Middle School Bus Lane
Exhibit B	Stormwater Management Report for Rosemont Ridge Middle School
Exhibit C	Rosemont Ridge Middle School Access/Circulation Study
Exhibit D	Rosemont Ridge Middle School Bus Noise Study
Exhibit E	Tualatin Valley Fire and Rescue Comments
Exhibit F	Exterior Lighting Plans – Athletic Fields and Driveway

Figure 1 – Vicinity Photo

Source: Google

BACKGROUND INFORMATION

Site Description

The driveway and athletic field improvements are proposed on a 21.56-acre site located along the west side of Salamo Road. The site is developed with Rosemont Ridge Middle School. The school is located in the northeast corner of the site, with parking located directly south of the building. The southern portion of the site includes the running track and softball field. A second baseball field is located in the northwest corner of the site. The property is relatively flat (Sheet RR-C1.0).

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*
Subject Property	R-10	Middle School
Surrounding Properties North	FU10/R7/R10	Senior Center /Single family residences
West	RRFF5	Agricultural
East	R3	Single family residences/open space
South	R3/RRFF5	Single family residences/Agricultural

APPLICATION SUMMARY

On-Site Circulation

The school experiences on-site congestion and circulation problems in the morning and afternoon that are primarily due to conflicts between school buses and parents dropping off and picking up students. Currently, all vehicles must enter and leave via the driveway on Salamo Road. The intermingling of buses and cars continues to be a source of frustration for everyone trying to enter and leave the school.

The district proposes to resolve this circulation problem by creating a separate driveway exit for buses. The new driveway segment would connect the existing parking lot driveway with the existing emergency access driveway on Rosemont Road. Buses would continue to enter on the Salamo Road driveway but then be directed to the new one-way exit-only driveway, which will begin at the western end of the existing parking lot. The drop-off and pick-up area will be adjacent to the north side of the parking lot and the eastern side of the new driveway. Spaces for 13 buses will be available. Following drop-off in the morning and pick-up in the afternoon, the buses would then exit to Rosemont Road (Sheet RR-C4.0).

The driveway will have sufficient width to allow buses to pass buses parked along the curb. Once past the loading area, the driveway will be 14.5 feet wide. A sidewalk, with a width of 7 to 10.5 feet, will abut the edge of the new driveway. Construction of the driveway and sidewalk extension will require a modest amount of grading (Sheet RR-C5.0) and the construction of a retaining wall along the northern property boundary (Sheet RR-C7.0). The sidewalk will be constructed to meet all applicable ADA standards. The retaining wall will have a setback of over 6 feet from the property line. A 15-foot wide easement will be provided to allow placement of retaining wall anchors below grade on the adjoining property. Stormwater facilities will be provided as part of the new driveway (Sheet RR-C6.0).

Five new traffic signs are proposed including:

- Two "Bus Only Do Not Enter" signs at the bus driveway entrance from the parking lot.
- Two "Do Not Enter" signs located at the Rosemont Road bus driveway exit.
- One "Stop" sign at the driveway exit.

The signs are required to have a 7-foot clearance. With sign dimensions of 30 to 36 inches, the total sign heights will be approximately 10 feet. The sign locations are shown on Sheet RR-C4.0, and the sign drawings are provided on Sheet RR-C8.0.

The new driveway will require removal of 23 trees, most of which were planted as part of the landscaping improvements for the middle school (Sheet RR-C3.0). The trees include 20 pines and three deciduous trees, which are generally 4 to 6 inches in diameter. The City Arborist, Mike Perkins, visited with site with the district's landscape architect on October 6th, and the arborist found there were no significant trees on the site. The trees will be replaced adjacent to the new driveway as shown in Sheets L1.1 and L1.2.

A slope analysis (Sheet RR-C1.0) shows the location of Type I and II lands due to slope. The proposed bus driveway will traverse and an area of Type I and II slopes along the rear of the school. A geotechnical analysis concludes that the proposed driveway and retaining wall improvements can be appropriately designed (Exhibit A) to deal with the grade and provide stability. Stormwater issues associated with the improvements were also analyzed, and it was found that the existing east detention pond will be adequate to accommodate the increased runoff (Exhibit B).

The potential traffic and noise impacts of this change in circulation were evaluated. Fourteen buses enter and leave the site in the morning and afternoon. DKS Associates, found that the on-site circulation would be improved with the bus-only exit driveway, and the driveway exit location would perform well (Exhibit C). The level-of-service (LOS) during the morning and afternoon peak hours (LOS B and C respectively) will not be affected by the new bus egress onto Rosemont Road. The new circulation pattern will enhance pedestrian, bus, and vehicle safety on-site, and it will not have an adverse impact on traffic operations or safety in the vicinity of the school.

The potential noise impact of having buses driving around the north side of the school was analyzed by Altermatt Associates, Inc. (Exhibit D). Noise measurements were taken of the existing bus and vehicle operations at the school. Based upon the noise measurements taken, the new bus route through the site is not anticipated to exceed the city's noise standards.

Tualatin Valley Fire and Rescue has reviewed the proposal and submitted comments (Exhibit E).

Athletic Field Improvements

It is well known throughout the district that providing sufficient athletic field space to support a variety of district and community sports is always a challenge. To help address this issue, the district proposes to replace the football field grass with artificial turf as well as providing a new surface on the running track. While these improvements do not require Design Review, the proposed field lighting for the football field and eastern softball field do.

Exterior Lighting

The lighting is proposed for the football and softball fields to expand the time they are available throughout the year. The lights will only be on when the fields are in use. The fields typically will not be used past 9 p.m., and the lights will never be on after 10 p.m. The lighting fixtures are specially designed to prevent illumination beyond the fields. A lighting analysis of the proposed lighting system shows that lighting will not extend past the property line. The lighting plan sheet photos show how the light levels for the fields drop off almost completely once beyond the edge of the playing field (Exhibit F).

Additional exterior lighting will be provided for the new bus driveway. The lights adjacent to the bus driveway will be the same as the lights currently used in the parking area. Directly behind the building, wall park lights will be mounted to the building face. Both the pole top and wall pack lights will have full cutoff and meet the city's exterior lighting criteria. The light levels for the driveway are also presented in Exhibit F.

Affect on Nearby Residences

The one residence located to the northwest of the driveway (1156 Rosemont Road) is currently well-buffered from school activities and the proposed driveway because:

- The elevation at the property line is approximately 15 feet higher than the driveway elevation,
- The home improvements include a retaining wall with a solid fence along the school boundary,
- A solid evergreen screen of approximately 12-15 feet is on the north side of the fence, and
- The district plans to compensate for the tree removal by planting new trees in locations that will offer additional screening.

Other residences in the vicinity are over 100 feet to the south or east from the edge of the field areas to be illuminated. The fields are at a lower elevation than nearby homes. The one residence to the south is also partially buffered by existing fir trees. The homes to the east are separated by Salamo Road, which has street lights. Neighboring properties will not be adversely affected.

CITY OF WEST LINN APPROVAL CRITERIA

55.100 Class II Design Review

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

1. Chapter 33 - Storm Water Quality and Detention

The approval criteria in Section 33.040 identify a number of things that must be accomplished according to city requirements during construction. These requirements will be met in coordination with the district, Planning Director, and City Engineer.

2. Chapter 34, Accessory Structures

Not applicable - none proposed.

3. ***Chapter 38, Additional Yard Area Required***

This chapter applies to buildings on streets with inadequate right-of-way widths. These standards are not applicable because all of the necessary street right-of-way and related improvements are provided.

4. ***Chapter 40, Building Height Limitations and Exceptions***

Not applicable – no new buildings or building additions are proposed.

5. ***Chapter 42, Clear Vision Areas***

The standards for clear vision areas adjacent to driveways will continue to be satisfied or exceeded. Although the internal driveway system will be modified, the location and design at the street access points will remain essentially unchanged.

6. ***Chapter 44, Fences and Screening Outdoor Storage***

The new bus loading area will continue to be located internally to the site, and it will not be visible from most vantage points on the perimeter of the site.

7. ***Chapter 46, Off-Street Parking and Loading***

Section 46.070 requires parking spaces to be no farther than 200 feet from building entrances. The existing parking layout was previously approved by the city. Parking will not be changed by this application.

Section 46.090 B. 6. contains parking requirements for a middle school. The parking was approved previously by the city and no changes to the size of the school or the design of the parking lot. Therefore, city standards will continue to be met.

Section 46.120 requires a 15-foot wide drive for loading and unloading passengers. This will continue to be provided as shown on the site plan.

Section 46.130 requires two loading spaces for the school (100,000+ sq. ft.). Sufficient loading space will continue to be provided in the service area as shown on the site plan.

Section 46.140 contains the design standards for parking areas. As noted above, the parking lot was previously approved by the city and will not be changed. The site plan complies with all of the relevant standards as shown on the site plan.

Section 46.150 A. contains a variety of standards pertaining to parking lot design, pavement, pedestrian access, handicapped parking, and grades. These standards will be satisfied as illustrated in the attached exhibits and as summarized below:

1. Existing parking space dimensions will remain.

2. Previously approved disabled spaces will remain unchanged.

3. Parking spaces will not require public right-of-way for maneuvering.

4. The proposed driveway system with a separate bus exit provides improved traffic circulation for automobiles, buses, and emergency vehicles.

5. Clear access continues to be provided for every parking space.

6. All existing standard and new handicapped spaces will continue to be marked.

7. All existing and new parking and driveways will be paved.

8. Existing parking and driveways are paved, and the new driveway will be as well.

9. No new access points are proposed, however, the emergency access on Rosemont Road will also become the exit drive for school buses only.

10. Vision clearance standards will continue to be met because no driveway or landscaping changes are proposed near street intersections.

11. Wheel stops meeting city standards are provided for the new handicapped spaces.

12. Drainage will be accommodated as shown in the plans with the approval of the City Engineer.

13. The location and type of lighting fixtures selected in the electrical plan information will direct light downward. In particular, the new field and new driveway lighting will be specially designed to not cast light or glare onto nearby properties.

14. Directional arrows will continue to be provided.

15. Not applicable - residential standard.

16. Not applicable - residential standard.

17. The maximum grade of the parking lot is less than 5%.

18. The parking lot locations and configurations will not change.

19. The site design will continue to comply with the parking, space grouping, landscaped island, and pedestrian walkway requirements in this section.

20. Walkways will continue to be provided to connect major entrances and activity areas as required.

21. All walkways and driveways will continue to be easily defined.

22. The parking spaces are as close as possible to the school.

Section 46.150 B. contains standards for handicapped parking. The proposal meets these requirements as noted in the site plan and below:

1. Existing spaces will be retained.

2. These spaces will continue to be provided close to the main school entrances.

3. ADA standards will continue to be satisfied.

4. Not applicable because no differences are identified between the code and federal standards.

5. The necessary 6 and 8-foot wide isles will continue to be provided.

Section 46.150 B. contains bicycle standards, which are satisfied.

1. Bike lanes are currently available along the Salamo and Rosemont road frontages.

2. Bicycle rack spaces are currently provided as previously required by the city.

3. Bicycle rack spaces are currently provided as previously required by the city.

8. Chapter 48, Access

Section 48.040 requires that service drives have a minimum width of 24 feet. The driveways will continue to have a minimum width of 24 feet.

Access drives in the parking area (Section 48.020 F.) will continue to meet code requirements.

Section 48.060 requires that the minimum/maximum curb cut should be 16-36 feet. The new driveway will be less than 36 feet, and all other driveways will remain the same.

9. Chapter 52, Signs

Five traffic direction signs are proposed as part of the new driveway to safely direct bus and automobile traffic in and around the new driveway. These signs meet city requirements and facilitate safe traffic circulation.

10. Chapter 54, Landscaping

The landscaping plan and the Irrigation Plan comply with the city's landscaping requirements. The approval criteria are satisfied as noted below:

Sections 54.020 A, B, and C encourage preservation of existing trees. The proposed site and landscaping plans will accomplish this. However, 23 trees must be removed around the northwest and north sides of the school. All landscaping and trees will be replaced as illustrated on Sheet L 1.2.

Section 54.020 D. does not apply because there are no heritage trees on the sight.

Section 54.020 E. is satisfied because well over 20% of the site will be landscaped; dimensional requirements for landscaped areas are met, because the new driveway loop will only involve a very small land area. Vegetation is located as specified as required by this section.

Section 55.100 B. contains the applicable approval standards for a Class II Design Review. These criteria are addressed below.

Section 55.100.B. Relationship to the Natural and Physical Environment

Subsections 1. and 2. require the protection of heritage and other significant trees. Subsection 3. and 4. call for the preservation of natural topography and drainage as well as avoidance of area subject to geologic hazards.

The site is substantially developed with the middle school and associated parking and athletic fields. The loop driveway for the buses will be built on a grassy area between the parking lot and existing emergency access driveway on Rosemont Road. The athletic field improvements and lighting will not expand upon the area currently used for this purpose. No natural features, including natural areas, or geologic hazard areas, will be impacted. As a result, Subsections 55.100 B. 1-4 do not apply. The City Arborist confirmed there are no significant trees on the site.

Subsection 5. requires provision of adequate distance between on-site buildings an those on adjoining properties.

No buildings or building additions are proposed, and therefore, this criterion does not apply.

Subsection 6. deals with the appropriate architectural styles to be used in a variety of circumstances.

No buildings or building additions are proposed, and therefore, this criterion does not apply.

Subsection 7. contains several criteria relating to site and building design and on-site circulation to encourage reduced dependence on automobile travel.

The original school design was reviewed, approved, and constructed according to these criteria. The only change to the site plan and circulation will be the addition of the new bus loading/unloading area.

Section 55.100 C. Compatibility Between Adjoining Uses, Buffering, and Screening

This section requires that the provisions of Section 56.100(D), "facility design and relationship to the human environment" apply. The provisions apply to architecture, material, human scale and transparency.

As demonstrated in the application materials, the proposed bus driveway will enhance circulation on the site, and the field and driveway lighting will be accomplished in a way that will not have a detrimental impact on surrounding homes.

Section 55.100 D. Privacy and Noise

This section requires that activities, which potential will generate noise, feature exterior lighting, or glare, shall be buffered from adjoining residential uses according to 55.100 C. above. This section also has noise standards that may not be exceeded within 25 feet of residential dwellings.

This section is satisfied because surrounding homes because the lights for the fields and driveway are designed to virtually eliminate any glare extending past the school property. The surrounding homes also have substantial setbacks and buffering to further minimize any potential adverse impacts. In addition, the noise study completed by Altermatt Associates demonstrates compliance with the city's noise standards.

Sections 55.100 E. and F.

These sections apply to residential development and are not relevant to this application.

Section 55.100 G. Demarcation of Public, Semi-public and Private Spaces

The school is completely open to the public, and the existing site arrangement was previously approved by the city. The only importance change is related to the new driveway loop connection. This will support the purpose of this section because the northern side of the school will now become a more public space subject to routine surveillance by people on the school site.

Section 55.100 H. Public Transit

This section does not apply because public transit is not available in this area of West Linn.

Section 55.100 I. Public Facilities

This section requires the provision of adequate public facilities. This requirement was satisfied as the school was first approved and constructed. The proposed change in bus access and lighting the fields will not place additional demands upon existing infrastructure. Therefore, this criterion continues to be satisfied.

Section 55.100 J. Crime Prevention and Safety/Defensible Space

This section requires the provision of safe areas that can be easily observed. The current situation allows for visual access on the north side of the school from near the Rosemont Road/Salamo Road intersection and from the northern athletic fields on the site. The introduction of the driveway will enhance the ability to view this portion of the school property. As noted herein, additional lighting will be provided, and the bus activity will make this a more active, public space. This code section is satisfied.

Section 55.100 K. Provisions for Persons with Disabilities

The site improvements currently meet ADA standards as approved by the city. The new sidewalk along the bus driveway will also be constructed to meet all applicable ADA standards. The criteria in this section will be satisfied.

Section 55.100 L. Signs

This section requires that signs are appropriate in consideration of the character of the site and surrounding properties. Only five, standard traffic control signs are proposed to safely direct buses and automobiles on the site. These signs are appropriate, and this section is satisfied.

Section 55.100 M. Utilities

This section requires the applicant to make necessary arrangements for service from utility providers. The site is currently serviced, and no additional utilities are necessary other than some new on-site storm drainage facilities to serve the new driveway. This section is satisfied.

Section 55.100 N. Wireless Communication Facilities

This section is not applicable because wireless facilities are not proposed.

Section 55.100 O. Refuse and Recycling Standards

This section requires the provision of adequate refuse and recycling facilities. These were provided and approved by the city when the school was constructed. They will not be affected in any way by the new driveway and exterior lighting. Therefore, these standards of this section will continue to be satisfied.

Section 55.110 B 3. Slope Analysis

A slope analysis is required as part of the site plan information. This information is provided on Sheet RR-C1.0, satisfying this requirement.

Section 55.110 B 13. Type I and II Lands

Type I and II lands need to be identified as part of the site plan information. This information is provided on Sheet RR-C1.0, satisfying this requirement.

Section 55.120 G. Setback Distances

This section requires that setback distances of structures on adjoining properties be shown. The residences near the property on the north, east, and south are shown on Sheet RR-C1.0, satisfying this requirement.

Section 55.120 H.2. Circulation

This section requires that different pick-up and drop-off locations be shown on the site plan. These areas for the buses and automobiles are shown on Sheet RR-C4.0, satisfying this requirement.

Section 55.120 J. Exterior Lighting

This section requires the location and type of exterior lighting. This is shown for the athletic fields as well as the driveway in Exhibit F, satisfying this requirement.

CONCLUSION

The proposed bus exist driveway and field lighting satisfies the relevant CDC requirements and the proposal should be approved.

GEOTECHNICAL INVESTIGATION

ROSEMONT RIDGE MIDDLE SCHOOL BUS LANE

WEST LINN, OREGON

GEOCON
NORTHWEST, INC.
GEOTECHNICAL &
ENVIRONMENTAL
CONSULTANTS

PREPARED FOR

WEST LINN-WILSONVILLE SCHOOL DISTRICT
TUALATIN, OREGON

MARCH 2009

TABLE OF CONTENTS

GEOTECHNICAL INVESTIGATION

1 PURPOSE AND SCOPE

This report presents the results of the geotechnical investigation for the proposed bus lane at Rosemont Ridge Middle School in West Linn, Oregon. The school is located at 20001 Salamo Road as shown in Figure 1, Vicinity Map. The purpose of the geotechnical investigation was to evaluate subsurface soil and geologic conditions at the site and, based on the conditions encountered, provide conclusions and recommendations pertaining to the geotechnical aspects of the proposed bus lane.

The scope of the field investigation consisted of a site reconnaissance, review of published geologic literature, three exploratory borings and several shallow hand-dug excavations. A detailed discussion of the field investigation is presented in Section 4 of this report. Exploratory logs are presented in Appendix A and Appendix B presents the results of laboratory testing.

The recommendations presented herein are based on analyses of the data obtained from the field investigation, laboratory test results, geologic literature review, and on our experience with similar soil and geologic conditions. This report has been prepared for the exclusive use of West Linn-Wilsonville School District, and their agents for specific application to this project, in accordance with generally accepted geotechnical engineering practice. This report may not contain sufficient information for purposes of other parties or other uses.

2 SITE AND PROJECT DESCRIPTION

Rosemont Ridge Middle School is located at 20001 Salamo Road in West Linn, Oregon. The site was originally developed in 1999 with all bus and automobile traffic routed in the same area, south of the existing building. It is understood that a new bus lane has been proposed that will extend from the west end of the existing parking area, loop along the north wall of the gymnasium, and connect with the existing fire/access lane that intersects Rosemont Road.

The construction of the bus lane along the north perimeter of the gymnasium will require a retaining/shoring wall due to site spatial limitations and the presence of an approximate 15 to 20-foot slope at the north property line. It is understood that the proposed alignment of the bus lane and the surcharge imposed by the bus traffic on the north gymnasium wall has been evaluated and deemed acceptable to the project structural engineer, James G. Pierson, Inc.

3 REGIONAL GEOLOGY

Based on the geologic literature reviewed for the site, the near-surface geology of the project area consists of Miocene-age deposits of the Columbia River Basalt Group (CRB). The CRB is composed of gray to black, dense, fine-grained , low-olivine basalt; locally deeply weathered and laterized.

4 SUBSURFACE EXLORATION AND CONDITIONS

4.1 Site Exploration

The subsurface soil conditions in the vicinity of the proposed retaining/shoring wall were determined based on the literature review, the field exploration, and laboratory testing. The field exploration was completed on February 26, 2009, and consisted of 3 exploratory borings and several hand-dug excavations. The explorations were located in the approximate locations shown in Figure 2, Site Plan.

The borings were advanced to depths ranging from approximately 15 to 30 feet below ground surface (bgs) and were completed with a truck mounted drill rig equipped with mud rotary and rock coring drilling capabilities. The borings were excavated at the top of the north slope on the Community Center property adjacent to the north of the school. A member of Geocon Northwest's geotechnical engineering staff logged the subsurface conditions encountered within the borings. Standard penetration tests (SPT) were performed at selected depths in each boring by driving a 2-inch outside diameter split spoon sampler 18 inches into the bottom of the boring, in general accordance with ASTM D 1586. The number of blows required to drive the sampler the last 12 of the 18 inches (blow count) are reported on the boring logs located in Appendix A at the end of this report. The blow counts shown in the boring logs are the values recorded in the field. An automatic SPT hammer was used to drive the sampler into the soil. A correction of 1.3 was applied to the field SPT values to obtain the conventional N_{60} blow count. The correction factor of 1.3 is based on the automatic SPT hammer having an estimated energy of 80% versus the 60% energy of conventional hammers. Disturbed bag samples were obtained from SPT testing. Soil samples were returned to the laboratory for further evaluation. Service providers subcontracted by Geocon Northwest completed the borings.

4.2 Subsurface Conditions

The subsurface explorations were widely spaced across the site and it is possible that some local variations and possible unanticipated subsurface conditions exist. Based on the conditions observed during the reconnaissance and field exploration, the subsurface conditions, in general, consisted of the following:

ORGANIC TOPSOIL/ASPHALT PAVEMENT– The borings were completed within the adjacent property to the north. Borings B-1 and B-3 were excavated in the asphalt paved driveway and boring B-2 was located in a landscaped surface. The pavement section consists of approximately 4 inches of asphalt and is underlain by approximately 8 inches of crushed base rock. The hand-dug excavations were completed on the school property within the existing slope. The portion of the slope adjacent to the gymnasium has overgrown grass and several moderately-size trees. The remaining alignment of the proposed bus lane has a surface of mowed grass. Stripping depths of 6 to 12 inches should be anticipated within

grass covered areas, while locations with trees or significant vegetation may locally require excavation in excess of 2 feet to completely remove the root wad.

RESIDUAL SOIL/WEATHERED BASALT– In general, stiff to hard, moist to wet, reddish brown to gray clayey silt to silty clay was encountered below the surface layer to the maximum depth explored of 30 feet (bgs). The maximum depth extended approximately 15 feet below the bottom of the proposed elevation of the bus lane. Borings B-1 and B-2 were completed without the need to switch to a rock drilling operation. Practical refusal was encountered with a tri-cone bit at a depths of 30 feet and 28feet bgs, respectively. Boring B-3 contained weathered rock with harder consistency (less weathering) and rock coring was completed between depths of 6 feet and the terminal depth of 15 feet. The rock quality designation (RQD) between 6 and 10 feet was 30 while the remaining core runs had RQD values of 0. The differing consistency in subsurface condition could be the result of variable weathering or the presence of large diameter (up to 5 feet) boulders. Difficult excavation and drilling characteristics should be anticipated.

GROUNDWATER – Groundwater was not encountered at the time of the soil borings within the depths explored. While significant groundwater is not anticipated to be a significant issue during construction, perched water, seeps, or springs may occur during excavation, particularly during prolonged periods of wet weather.

Exploration logs documenting the subsurface conditions encountered are presented in Appendix A at the end of this report.

5 LABORATORY TESTING

Laboratory testing was performed on selected soil samples to evaluate moisture content and gradation. Visual soil classification was performed both in the field and laboratory, in general accordance with the Unified Soil Classification System. Moisture content determinations (ASTM D2216) were performed on soil samples to aid in classifying the soil. Grain size analyses were performed on selected samples using procedures ASTM D1140 and ASTM D422. The plasticity index was determined in general accordance with ASTM D4318. Moisture contents are indicated on the boring logs and are located in Appendix A of this report. Other laboratory test results for this project are summarized in Appendix B.

6 DISCUSSION

Drawings provided by project civil engineer, Winzler and Kelly, indicate that the proposed bus lane will extend from the west end of the existing parking area, loop along the north wall of the

gymnasium, and connect with the existing fire/access lane that intersects Rosemont Road. The construction of the bus lane along the north perimeter of the gymnasium will require excavation into the existing slope to accommodate the width of the bus lane and associated curbs and sidewalks. Due to spatial restrictions imposed by the nearby north property line, several retaining wall/shoring wall schemes were evaluated. It appears that wall heights may range from 0 to 12 feet along the alignment. The results of the subsurface exploration program indicate a very stiff soil profile which may be excavated at a slope of 1H:1V and 2H:1V for temporary and permanent applications, respectively.

Retaining wall schemes such as a cast-in-place concrete, Keystone block, ultra block, or lock +load wall all require a temporary excavation to the full depth of the proposed bus lane prior to the onset of construction (bottom-up construction). Excavation in excess of 4 feet will require the temporary excavation slope of 1H:1V behind the wall alignment. A schematic cross section of potential cast in place concrete wall and associated temporary excavation slope is illustrated in Figure 3. The temporary cut slope would have to extend well beyond the property line and into the parking lot of the adjacent Community Center. Underground utilities are also present along the south perimeter of the parking lot. These spatial conflicts render a cast in place wall impractical. The scenario is worse for the block-type walls as they would require geogrid reinforcement that would further extend the temporary excavation into the adjacent property.

The spatial limitations present in the location of the proposed bus lane will require a shoring scheme that utilizes "top down" construction where the excavation is shored thereby allowing a vertical cut. The two most common types of shoring are soldier pile with lagging or soil nail walls. It is our opinion that a soldier pile with lagging wall would be difficult and likely costly due to the requirement of having to drill relatively large diameter (24 inches or more) holes into potential boulders and weather rock. A local shoring contractor performed a site reconnaissance with representatives of Winzler and Kelly and Geocon Northwest and indicated a soil nail wall would likely be the most feasible, cost effective shoring scheme for the project.

Soil nail excavation support consists of installing steel bars into the retained soil to provide an in-place "retaining wall" that resists the lateral soil pressures. Figure 4 shows a schematic soil nail section. A soil nail structure is a passive excavation support system as no tensioning of the steel bars (soil nails) is typically performed before excavating to the next level. The soil nail system develops resistance due to excavation-induced soil movements which mobilize soil-structure interaction within the soil nail mass. Minor soil movements are typically sufficient to develop the required soil-structure interaction. The soil nail system is constructed incrementally as site excavation progresses downward, and allows for incremental vertical excavation. Soil within the excavation is removed to the design soil nail elevation. Soil nails are then installed at the design horizontal spacing. After soil nail installation, steel mesh, prefabricated drainage panels, and shotcrete are placed over the exposed excavation face. Finally, the soil nail is fixed to the shotcrete face with a steel plate and nut.

An important factor in the success of soil nail construction is the ability of the soil to stand unsupported on a vertical excavation. This is due to the time lag between soil excavation and shotcrete operations. Results of the field investigation and laboratory tests indicate that the site soils consist primarily of hard silty clay to clayey silt residual soil with the potential for intact rock and/or boulder-size material. It is our opinion the subsurface conditions encountered during the geotechnical field investigation are capable of the temporary vertical excavation required for soil nail installation. However, difficult excavation characteristics should be anticipated and may require the using of hydraulic "pecking" equipment to chip through the more intact rock and/or boulders. Excavation should proceed with caution so that large boulders extending into the slope are not removed thereby leaving a large void space. The contractor should provide a unit cost for grout and shotcrete quantities due to the likelihood of extra volume being used to fill voids that are occur during excavation.

The soil nail wall should be designed assuming permanent loading conditions and corresponding factors of safety. The soil nails will extend across the property line of the Community Center, but it appears that they will be at a depth of at least 10 feet below grade at that location. However, an easement will have to be obtained to permit installation beyond the property line of the Community Center. The proposed wall location appears to be of sufficient distance from the property line of the private residence adjacent to the west of the Community Center that the soil nails will not extend beyond the schools property. The contractor should complete a design that does not require an easement from the private residence.

It should be noted that the final design, installation, and performance of excavation support systems is the responsibility of the shoring contractor. Geocon Northwest should review the proposed design and construction means and methods.

The soil nail wall will be considered a permanent structure. There are several aesthetic facing elements that may be constructed to improve the appearance of the wall. It is recommended that the owner consult with the shoring contractor to evaluate the type and expense of adding such elements to the wall.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 It is our opinion that the proposed Rosemont Ridge Middle School Bus Lane project is geotechnically feasible, provided the recommendations of this report are followed.

7.1.2 The majority of the proposed length of the bus lane will require excavation into the slope along the north perimeter of the property. Spatial limitations prevent temporary excavation sloping for much of this length. Per the discussion in Section 6, soil nail excavation

support is recommended.

7.1.3 Soil nails for excavation support will extend beyond the perimeter of the property. All existing utilities and underground structures should be identified in both the horizontal and vertical distances from the excavation walls to assist in placement of the soil nail locations. An easement will have to be obtained from adjacent Community Center to permit soil nail installation beyond the property line. It is recommended that the soil nails be designed to not extend beyond the property of the private residence adjacent to the west of the Community Center.

7.1.4 Difficult excavation and drilling characteristics should be anticipated. The subsurface conditions consist of a mixture of hard clayey silt to silty clay residual soil, weathered rock (RQD = 30), and potential boulder-size material. Care should be taken during excavation to prevent removal of large diameter particles that extend back into the slope that could result in large void spaces.

7.1.5 A portion of the proposed bus lane will be immediately adjacent to the north wall of the existing gymnasium. It is understood that project structural engineer, James G. Pierson, has evaluated ability of the existing gymnasium wall to withstand the surcharge pressure imposed by bus traffic. However, it is recommended that construction equipment not traverse within a horizontal distance of the wall that is equal to the depth of the footing below the existing grade. The required horizontal distance may be reduced as the excavation proceeds downward.

7.1.6 The soil adjacent to the existing north gymnasium wall was not likely placed as structural fill and could be unsuitable for pavement support. Recommendations for overexcavation of unsuitable soil and geotextile fabric are provided in subsequent sections of this report. The material should be evaluated by Geocon Northwest personnel during construction.

7.1.7 The surface layer of organic topsoil is generally unsuitable for pavement support and will require stripping prior to construction. Moisture conditioning and compaction will be required on material disturbed during site demolition and clearing. Recommendations for both wet and dry weather construction are provided herein. **However, dry weather construction is highly recommended and extra costs should be expected if site grading is completed during wet weather.**

7.2 Site Preparation

7.2.1 Prior to beginning construction, the areas of the site to support pavement should be stripped of vegetation, topsoil, non-engineered fill, previous subsurface improvements, debris, and otherwise unsuitable material, down to firm native soil. Stripping depths of 6 to 12 inches may be anticipated in undeveloped areas across the site. Additional overexcavation should

be anticipated in areas where trees or large shrubs are encountered. Overexcavation should also be anticipated adjacent to the north wall of the gymnasium where wall backfill was likely placed as landscape fill. Excavations made to remove previous subsurface improvements should be backfilled with structural fill per Section 7.4 of this report.

7.2.2 Staging areas and haul roads specifically constructed to accommodate anticipated construction loading must be installed by the contractor to minimize future overexcavation of deteriorated subgrade soil. **The pavement design recommendations presented in the following sections of this report do not include an allowance for construction traffic.** Past experience suggests that 18 inches of rock underlain by a geotextile separator fabric typically provides adequate work pad/haul road thickness. The recommended design section may be "overbuilt" to obtain the necessary working thickness and subsequently reduced to the design section for possible cost savings in lieu of overexcavation of suitable subgrade soil. Alternatively, the working surface may be incorporated into the final design. Recommendations for wet weather haul roads and working pads should be implemented in areas of the site that will experience significant construction traffic.

7.2.3 Moisture contents of near-surface soils were wet of optimum at the time of the field investigation. Due to the moisture sensitive nature of the near surface soils, it is recommended that earthwork-related construction take place during dry weather. Recommendations for both dry weather and wet weather site preparation are provided in the following sections. Wet weather is defined as any time of year that adequate moisture control cannot be obtained. Increased costs, associated with subgrade stabilization, should be anticipated if construction occurs during wet weather.

7.2.4 Dry Weather Construction

Native soil subgrades in structural areas that have been disturbed during stripping, cutting, or demolition operations should be scarified to a depth of at least 8 inches. The scarified soil should be moisture conditioned as necessary to achieve the proper moisture content, then compacted to at least 92% of the maximum dry density as determined by ASTM D 1557. Minimum compaction for the 8 inches immediately underlying pavement sections should be 95%. Even during dry weather it is possible that some areas of the subgrade will become soft or may "pump," particularly in poorly drained areas. Saturated subsurface conditions may be encountered in irrigated or cut areas regardless of the time of year construction occurs. Soft or wet areas that cannot be effectively dried and compacted should be prepared in accordance with Section 7.2.5.

7.2.5 Wet Weather Construction

During wet weather, defined as whenever adequate soil moisture control is not possible, it may be necessary to install a granular working blanket to support construction equipment

and provide a firm base on which to place subsequent fills and pavements. Commonly, the working blanket consists of a bank run gravel or pit run quarry rock (six to eight inch maximum size with no more than 5% by weight passing a No. 200 sieve). A member of Geocon Northwest's engineering staff should be contacted to evaluate the suitability of the material before installation.

The working blanket should be installed on a stripped subgrade in a single lift with trucks end-dumping off an advancing pad of granular fill. It should be possible to strip most of the site with careful operation of track-mounted equipment. However, during prolonged wet weather, or in particularly wet locations, operation of this type of equipment may cause excessive subgrade disturbance. In some areas final stripping and/or cutting may need to be accomplished with a smooth-bucket trackhoe, or similar equipment, working from an advancing pad of granular fill. After installation, the working blanket should be compacted by a minimum of four complete passes with a moderately heavy static steel drum or grid roller. It is recommended that Geocon Northwest be retained to observe granular working blanket installation and compaction.

The working blanket must provide a firm base for subsequent fill installation and compaction. Past experience indicates that about 18 inches of working pad is normally required. This assumes that the material is placed on a relatively undisturbed subgrade prepared in accordance with the preceding recommendations. Areas used as haul routes for heavy construction equipment or construction staging areas may require a work pad thickness of two feet or more.

In particularly soft areas, a heavy-grade, non-degradable geotextile fabric installed on the subgrade may reduce the thickness of working blanket required. The fabric should have a minimum puncture resistance of 80 pounds and a minimum Mullen Burst strength of 300 psi.

Cement treatment may be a suitable alternative wet-weather construction technique for the subgrade conditions encountered at this site. Successful cement treatment is dependent upon the moisture content of the subgrade soils, weather conditions at the time of treatment, percentage of cement used, and adequate mixing of the soil and cement. Past experience indicates that approximately 5 to 8% cement by weight, tilled to a depth of 12 inches, is typically sufficient to produce an acceptable subgrade. Treatment procedures should be completed within an elapsed time of approximately four-hours, and should be protected from all traffic for a minimum of five days. A seven-day unconfined compressive strength of 250 psi for the soil/cement mixture is recommended. Cement treatment design is typically the responsibility of the contractor.

Construction practices can affect the amount of work pad necessary. By using tracked equipment and special haul roads, the work pad area can be minimized. The routing of dump trucks and rubber tired construction equipment across the site can require extensive areas and thicknesses of work pad. Normally, the design, installation and maintenance of a work pad are the responsibility of the contractor.

7.3 Proof Rolling

7.3.1 It is recommended that, prior to on-grade slab construction, the subgrade or granular working blanket be proof-rolled with a fully-loaded 10- to 12-yard dump truck. Areas of the subgrade that pump, weave, or appear soft, muddy, or loose should be scarified, dried and compacted, or overexcavated and backfilled with structural granular fill per Section 7.4. If a significant length of time passes between fill placement and commencement of construction operations, or if significant traffic has been routed over these areas, the subgrade should be similarly proof-rolled before slab construction. It is recommended that a member of our geotechnical engineering staff observe the proof-roll operation.

7.4 Fills

7.4.1 Structural fills should be constructed on a subgrade that has been prepared in accordance with the recommendations in Section 7.2 of this report. Structural fills should be installed in horizontal lifts not exceeding approximately eight inches in thickness and should be compacted to at least 92% of the maximum dry density for the native soils, and 95% for imported granular material. Compaction should be referenced to ASTM D 1557 (Modified Proctor). The compaction criteria may be reduced to 85% in landscape, planter, or other non-structural areas.

7.4.2 Structural fills may consist of native material, free of topsoil, debris, organic matter and oversized material, which can be compacted to the preceding specifications. Material in excess of six inches in diameter is considered oversized. If excess moisture causes the fill to pump or weave, those areas should be scarified and allowed to dry. The soil should then be recompacted, or removed and backfilled with compacted granular fill as discussed in Section 7.2 of this report.

7.5 Surface and Subsurface Drainage

7.5.1 During site contouring, positive surface drainage should be maintained away pavement areas and the top of the soil nail wall. Additional drainage or dewatering provisions may be necessary if soft spots, springs, or seeps are encountered in subgrades. Where possible, surface runoff should be routed independently to a storm water collection system. Surface water should not be allowed to enter subsurface drainage systems.

7.5.2 Drainage systems should be sloped to drain by gravity to a storm sewer or other positive outlet.

7.5.3 Drainage and dewatering systems are typically designed and constructed by the contractor. Failure to install necessary subsurface drainage provisions may result in premature foundation or pavement failure.

7.6 Cut and Fill Slopes

7.6.1 Permanent cut slopes should be sloped no steeper than 2H:1V. These values assume that the slopes will be protected from erosion and that significant drainage will not occur over the face of the slope. They further assume that no loads will be imposed within a horizontal distance of one-half of the slope height measured from the top of the slope face. Cut slopes should be constructed with a smooth bucket excavator to minimize subgrade disturbance. Slope drainage may be required if springs, seeps, or groundwater are encountered.

7.6.2 If permanent fills are placed in areas where ground slopes exceed 5H:1V, the fills should be keyed and benched into existing native, undisturbed non-organic soil. Fill slopes should be obtained by placing and compacting material beyond the design slope and then excavating back to the desired grade or by other means that will result in a dense, compacted sloped face. Filled slopes should not be graded steeper than 2H:1V. The face of the fill slope should be protected from erosion by applying vegetation or other approved erosion control material as soon as practicable after construction. Fill compaction should be as stated in Section 7.4.

7.6.3 Temporary excavation walls may be sloped no steeper than 1H:1V. Shallower slope inclinations or shoring may be required if sloughing occurs due to the presence of non-engineered fill soil or loose soil. Temporary excavation slopes should not be constructed in areas where adjacent improvements are located within a horizontal distance less than or equal to the depth of the excavation (measured from the top of the excavation). The preceding recommendations are only applicable if the slopes will be protected from erosion, and significant drainage will not occur over the face of the slope. Vertical excavation to a maximum depth of 5 feet is recommended during the time between soil nail installation and the application of the shotcrete face.

7.7 Soil Nail Excavation Support

7.7.1 A soil nail wall is recommended for the site excavation support. A preliminary design evaluation was performed to verify the stability of a soil nail excavation . The final design analysis of the soil nail system will be performed by the specialty excavation contractor using performance based/design build process. The soil nail wall should be designed using

the Allowable Stress Design (ASD) method, in general conformance with the recommendations outlined in the Federal Highway Administration Document FHWA0-IF-03-017 Geotechnical Engineering Circular No. 7 "Soil Nail Walls."

7.7.2 The soil nails will extend across the property line of the Community Center, but it appears that they will be at a depth of at least 10 feet below grade at that location. However, an easement will have to be obtained to permit installation beyond the property line of the Community Center. The proposed wall location appears to be of sufficient distance from the property line of the private residence adjacent to the west of the Community Center that the soil nails will not extend beyond the schools property. The contractor should complete a design that does not require an easement from the private residence.

7.7.3 It is understood that the soil nail wall will be permanent and, as such, should be designed using factors of safety recommended for permanent structures. It is recommended that the seismic stability of the wall be evaluated using a pseudostatic coefficient of horizontal acceleration, k_h, equal to 0.15g. The value is one-half of 0.3g, the peak ground acceleration expected at the site.

7.7.4 Geocon Northwest performed a preliminary analysis of a potential soil nail wall design. The method of analysis and software SNAILZWin developed by CalTrans (California Department of Transportation) and the slope stability program SLIDE 5.0 was used to evaluate the global stability of the proposed excavation using soil nail support. Stability analyses were conducted for both static and seismic conditions for cross sections A-A' and B-B' using the input parameters listed in Table 1. The results of the analyses indicate factors of safety of approximately 1.7 and 1.3 for static and seismic conditions, respectively.

TABLE 1: SOIL NAIL DESIGN INPUT PARAMETERS

Wall Height	11 feet (A-A'), 8.5 feet (B-B')
Soil Unit Weight	120 pcf
Soil Cohesion	100 psf
Soil Friction Angle	30 degrees
Reinforcement Length	15 feet
Diameter of Grouted Hole	6 inches
Diameter of Steel Rod	1 inch
Soil Nail Inclination	15 degrees from horizontal
Soil Nail Vertical Spacing	5 feet
Soil Nail Horizontal Spacing	5 feet
Ultimate Soil Nail Bond Strength	3,000 pounds per foot
Punching Shear Capacity	45 kips
Yield Strength of Nail Element	60 kips per square inch
Surcharge	250 psf

7.7.5 The private residence adjacent to the west of the community center has and existing block retaining wall. The soil nail wall design should include an allowance for surcharge pressures associated with the block wall. The location and height of the wall was not known at the time of the preparation of this report.

7.7.6 Difficult excavation and drilling characteristics should be anticipated. The subsurface conditions consist of a mixture of hard clayey silt to silty clay residual soil, weathered rock (RQD = 30), and potential boulder-size material. Care should be taken during excavation to prevent removal of large diameter particles that extend back into the slope that could result in large void spaces. The contractor should provide a unit cost for grout and shotcrete quantities due to the likelihood of extra volume being used to fill voids that occur during excavation.

7.7.7 The soil nail reinforcing bars should be double corrosion protected due to the permanent application of the wall. The bars may be provided with one level of protection by epoxy coating with the second level being the grout.

7.7.8 The soil nail wall should be designed with a drainage system to prevent the buildup of excess porewater pressure behind the wall. The drainage system commonly consists of a vertical geocomposite strip drains placed behind the shotcrete face.

7.7.9 A minimum of two verification tests should be performed on **sacrificial** soil nail elements to confirm the design capacity. The soil nails should be tested to 200 percent of their design load in accordance with the schedule presented in Table 2.

TABLE 2: SOIL NAIL VERIFICATION LOAD TEST SCHEDULE

Load	*Hold Time*
Seating Load	1 minute
0.25 Design Load (DL)	10 minutes
0.50 DL	10 minutes
0.75 DL	10 minutes
1.0 DL	10 minutes
1.25 DL	10 minutes
1.50 DL (Creep Test)	60 minutes
1.75 DL	10 minutes
2.0 DL	10 minutes

7.7.10 The total movement at the maximum load during the verification test shall exceed 80 percent of the theoretical elastic elongation of the test nail unbonded length.

7.7.11 A verification creep test should be completed at 1.50 DL. Nail movements should be recorded during the verification creep test in increments of 1 minute, 2, 3, 5, 6, 10, 20, 30, 50, and 60 minutes. The verification creep test will be considered successful if the movement is less than 0.08 inches between the 6 and 60 minute readings and the creep rate is linear or decreasing during the test.

7.7.12 Approximately 5 percent of the production nails in each row should be proof tested. The recommended proof test loading schedule is presented below in Table 3.

TABLE 3: SOIL NAIL PROOF LOAD TEST SCHEDULE

Load	*Hold Time*
Seating Load	Until Stable
0.25 DL	Until Stable
0.50 DL	Until Stable
0.75 DL	Until Stable
1.00 DL	Until Stable
1.25 DL	Until Stable
1.50 DL	10 or 60 minutes, depending on movement

7.7.13 The total movement at the maximum load during the proof test shall exceed 80 percent of the theoretical elastic elongation of the test nail unbonded length.

7.7.14 A proof creep test should be completed at 1.50 DL. Nail movements should be recorded during the proof creep test in increments of 1 minute, 2, 3, 5, 6, 10 minutes. In the event the nail movements exceeds 0.04 inches between 1 and 10 minutes, the load should be held another 50 minutes with movements recorded at, 20, 30, 50, and 60 minutes. The proof creep test will be considered successful if the movement is less than 0.04 inches between 1 and 10 minutes or less than 0.08 inches between the 6 and 60 minute readings and the creep rate is linear or decreasing during the test.

7.8 Excavation Monitoring

8.6.1. It is recommended that the condition of existing buildings, pavements and other structures around the perimeter of the planned excavation be documented before the start of shoring and excavation work. Special attention should be given to documenting existing cracks or other indications of differential settlement within these adjacent structures, pavements and other improvements. Any underground utilities sensitive to settlement should be video taped prior to construction to verify integrity of pipes.

8.6.2. Lateral movement of shoring is associated with vertical ground settlement beyond the excavation. Therefore, it is recommended that horizontal movements of the soil nail wall be accurately monitored and recorded during excavation and soil nail construction.

7.9 Pavement Design

7.9.1 Near surface soil samples were evaluated to determine pavement design parameters. A CBR of 3 at 95% compaction and a resilient modulus of 4,500 psi were used for pavement design based on our experience with similar soils.

7.9.2 Asphalt pavement designs for asphalt concrete are presented in Table 4. Pavement designs have been prepared in accordance with accepted AASHTO design methods. A range of pavement designs for various traffic conditions is provided in the tables. The designs assume that the top 8 inches of pavement subgrade will be compacted to 95% of ASTM D 1557. Specifications for pavement and base course should conform to current Oregon Department of Transportation specifications. Additionally, the base rock should contain no more than 5% by weight passing a No. 200 Sieve, and the asphaltic concrete should be compacted to a minimum of 92% of ASTM D2041.

Pavement sections were designed using AASHTO design methods with an assumed reliability level (R) of 90%. A terminal serviceability of 2.0 was assumed. The 18 kip design axle loads are estimated from the number of trucks per day using Federal Highway Administration typical axle distributions for truck traffic and AASHTO load equivalency factors, and assuming a 20 year design life.

7.9.3 It is important to note that these pavement design recommendations do not include an allowance for construction traffic. If paving is planned prior to the completion of heavy construction, the construction traffic (i.e. concrete trucks) should be limited to unpaved and untreated roadways, or specially constructed haul roads. If this is not possible, the pavement design should include an allowance for construction traffic.

7.9.4 Non-engineered fill soils are should be expected adjacent to the north wall of the gymnasium. Geocon Northwest personnel should provide recommendations for remediation or overexcavation of the unsuitable soil during construction, if required. It is recommended that a geotextile filter fabric be placed on the subgrade prior to the placement of the crushed rock base course.

Table 4: Asphalt Concrete Pavement Design

Approximate Number of Trucks per Day (each way)	*Approximate Number of 18 Kip Design Axle Load (1000)*	*Asphalt Concrete Thickness (inches)*	*Crushed Rock Base Thickness (inches)*
Auto Parking	10	2.5	8
5	22	3.0	8
10	44	3.0	10
15	66	3.5	10
25	110	4.0	10
50	220	4.0	12
100	440	4.5	12
150	660	5.0	13

8 FUTURE GEOTECHNICAL SERVICES

The analyses, conclusions and recommendations contained in this report are based on site conditions as they presently exist, and on the assumption that the subsurface investigation locations are representative of the subsurface conditions throughout the site. It is the nature of geotechnical work for soil conditions to vary from the conditions encountered during a normally acceptable geotechnical investigation. While some variations may appear slight, their impact on the performance of the proposed improvements can be significant. Therefore, it is recommended that Geocon Northwest be retained to observe portions of this project relating to geotechnical engineering, including site preparation, grading, compaction, and soil nail wall construction. This will allow correlation of observations and findings to actual soil conditions encountered during construction and evaluation of construction conformance to the recommendations put forth in this report.

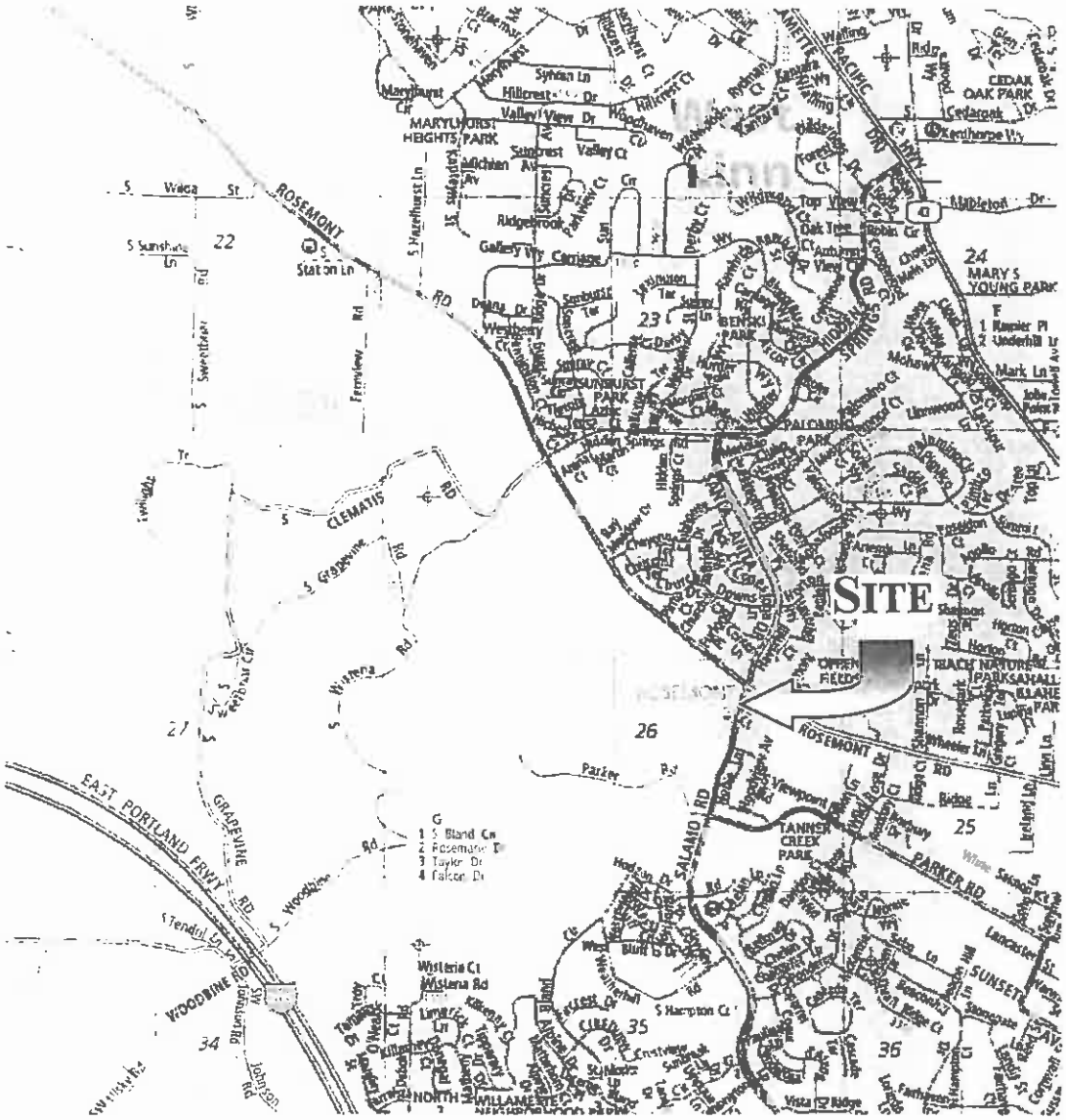
A copy of the plans and specifications should be forwarded to Geocon Northwest so that they may be evaluated for specific conceptual, design, or construction details that may affect the validity of the recommendations of this report. The review of the plans and specifications will also provide the opportunity for Geocon Northwest to evaluate whether the recommendations of this report have been appropriately interpreted.

9 LIMITATIONS

Unanticipated soil conditions are commonly encountered during construction and cannot always be determined by a normally acceptable subsurface exploration program. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Northwest, Inc. should be notified so that supplemental recommendations can be given.

This report is issued with the understanding that the owner, or his agents, will ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, the conclusions and recommendations provided in this letter are subject to review should such changes occur.



SOURCE: 2008 THOMAS BROTHERS MAP
PORTLAND METROPOLITAN AREA

N

NO SCALE

GEOCON
NORTHWEST
GEOTECHNICAL CONSULTANTS
8283 SW CIRRUS DRIVE BEAVERTON, OREGON 97008
PHONE: (503) 626-9889 FAX: (503) 626-8611

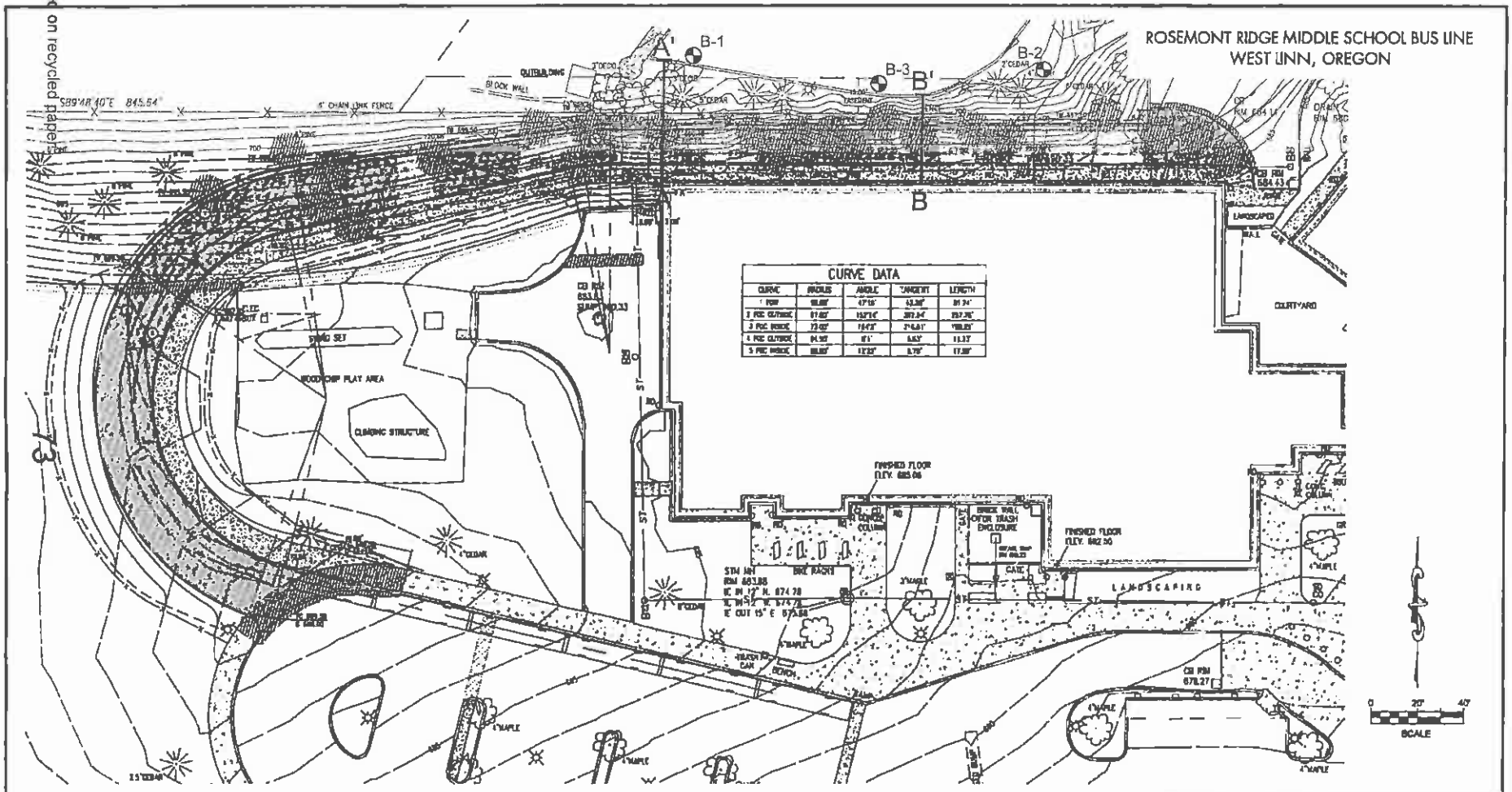
BJW / RSS		DSK / D000D

SITE VICINITY

Rosemont Ridge Middle School
West Linn, Oregon

March 2009	P1666-05-01	FIG. 1

printed on recycled paper



GEOCON LEGEND

B-3 ..... APPROX. LOCATION OF BORING

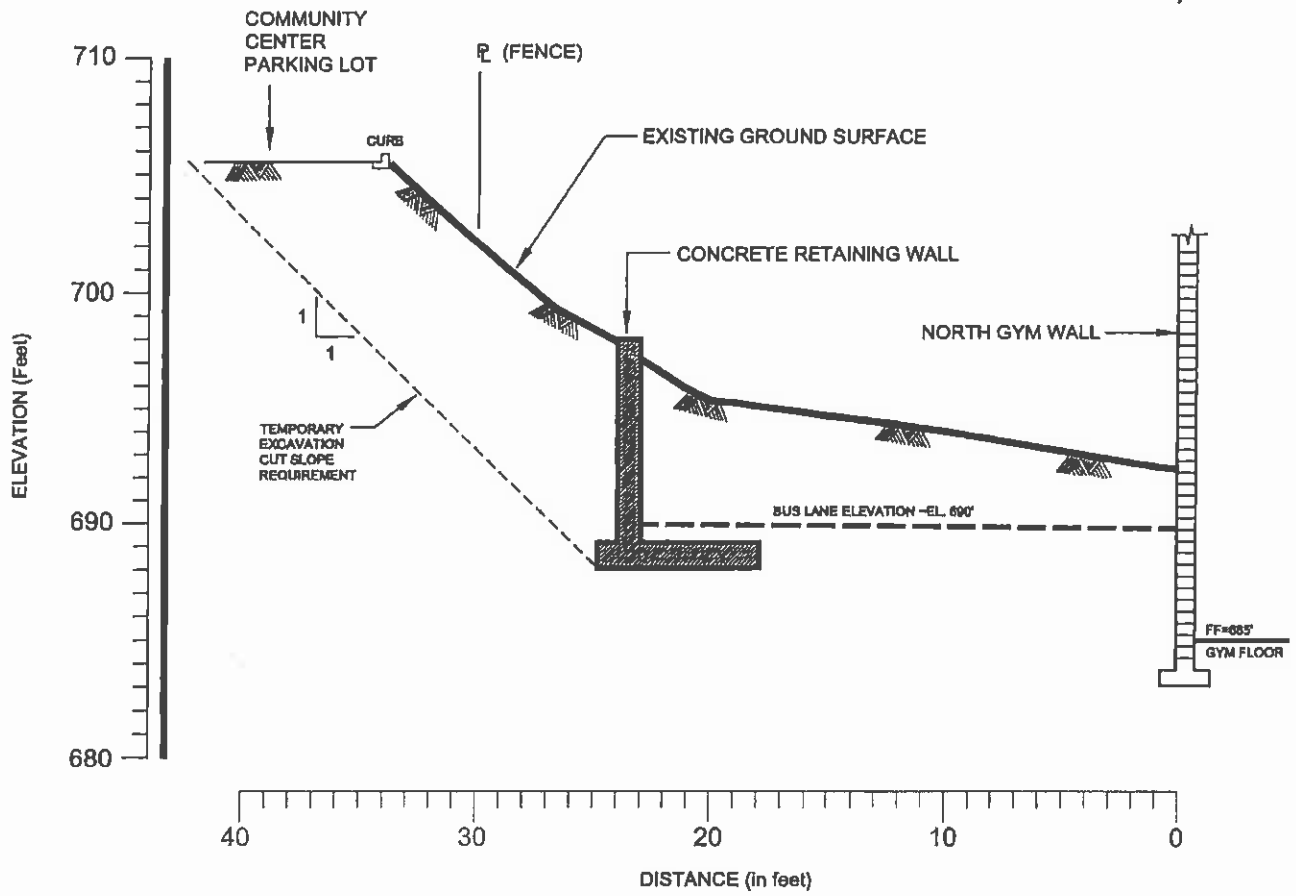
A — A' ..... APPROX. LOCATION OF CROSS-SECTION

SITE PLAN

GEOCON
NORTHWEST, INC
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
6241 SW CANYON DRIVE BEAVERTON, OREGON 97008 - 6443
PHONE 503 626-9189 - FAX 503 626-8611

DATE MARCH, 2009 | PROJECT NO. P1666-05-01 | FIG 2

ROSEMONT RIDGE MIDDLE SCHOOL BUS LANE
WEST LINN, OREGON



CONCRETE RETAINING WALL AT CROSS-SECTION B-B'

SCALE : 1" = 5' (HORIZONTAL = VERTICAL)

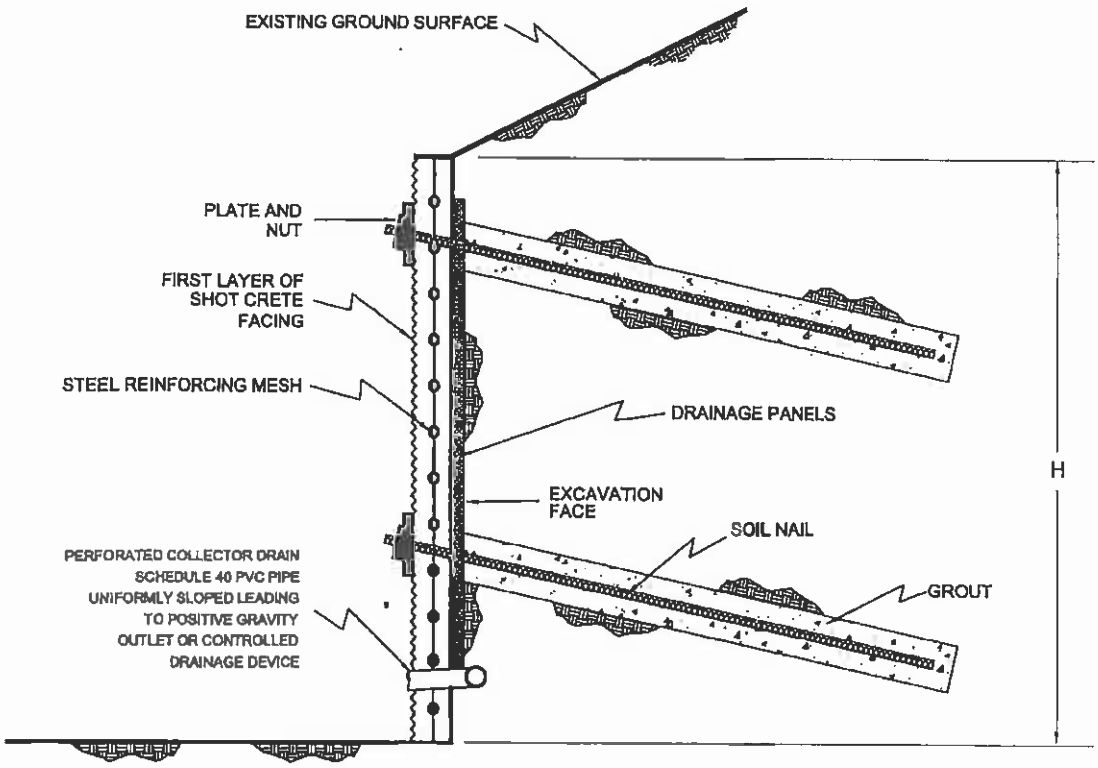
REF. DRAWING BASED ON ROSEMONT RIDGE MIDDLE SCHOOL, FIGURE SK1, WINZLER & KELLY

SCHEMATIC CROSS-SECTION

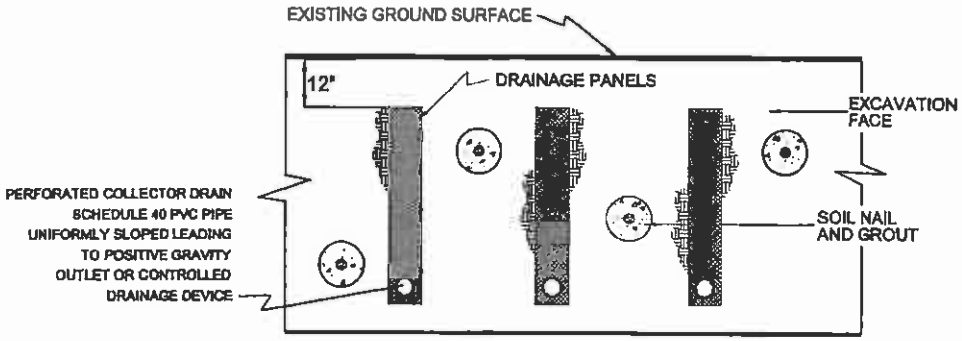
GEOCON
NORTHWEST, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
9285 SW OREGON DRIVE BEAVERTON, OREGON 97008 - 6443
PHONE 503 626-9889 - FAX 503 626-8611

DATE MARCH, 2009 | PROJECT NO. P1666-05-01 | FIG 3

P1666 05-01_F03_3D.DWG



SIDE VIEW



SOIL NAILS AND DRAINAGE PANELS TO BE DESIGNED BY WALL CONTRACTOR

FRONT VIEW

GENERAL SOIL NAIL WALL PLAN

GEOCON
NORTHWEST, INC.
GEOTECHNICAL CONSULTANTS
8283 SW CIRRUS DRIVE - BEAVERTON, OREGON 97008 - 6443
PHONE 503 626-9889 - FAX 503 626-8611

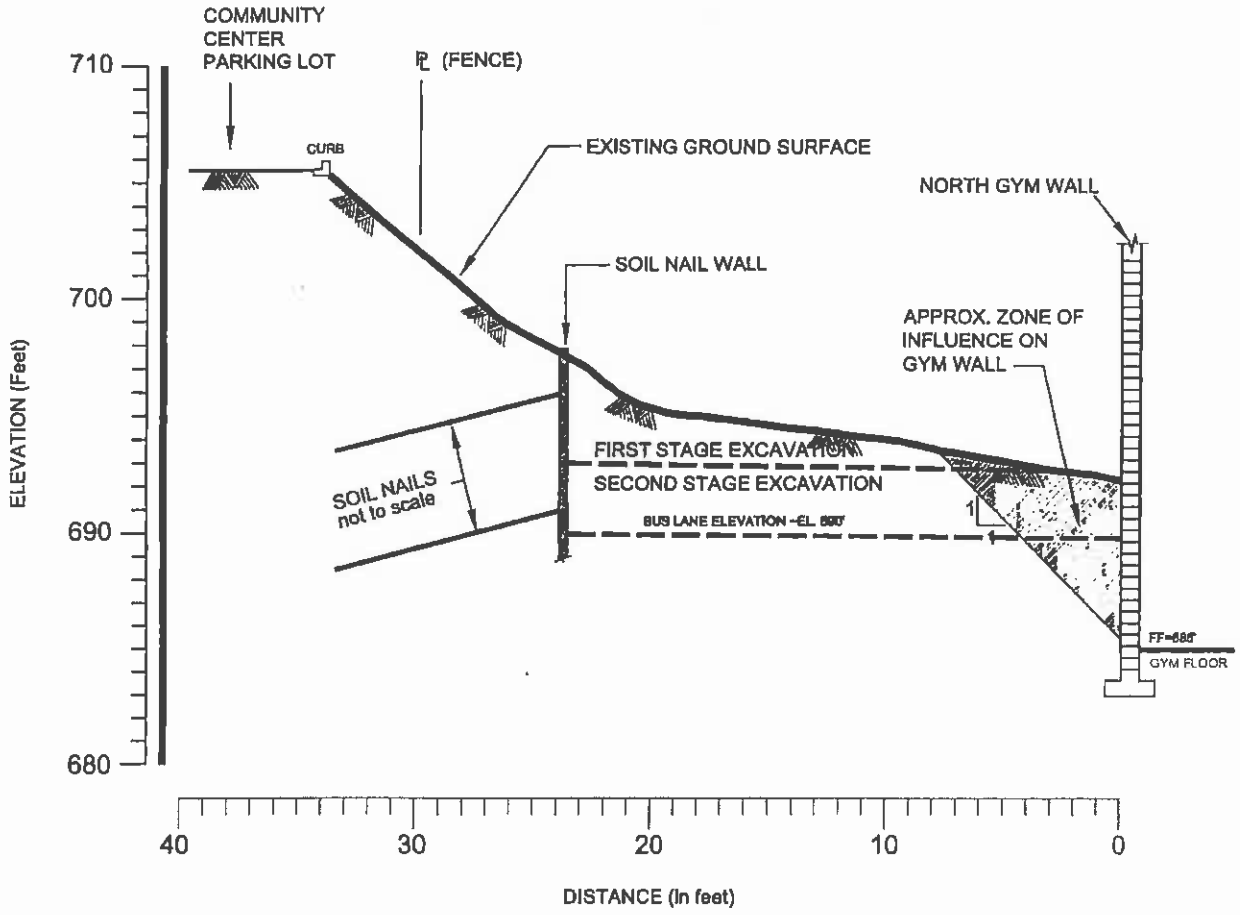
ROSEMONT RIDGE MIDDLE SCHOOL BUS LANE
WEST LINN, OREGON

BW / RSS		DSK/GTYPD

DATE MARCH, 2009	PROJECT NO. P1666 - 05 - 01	FIG. 4

P1666-05-01_GSNWP_FIG4_BW

ROSEMONT RIDGE MIDDLE SCHOOL BUS LANE
WEST LINN, OREGON



SOIL NAIL WALL AT CROSS-SECTION B-B'

SCALE : 1" = 5' (HORIZONTAL = VERTICAL)

REF. DRAWING BASED ON ROSEMONT RIDGE MIDDLE SCHOOL, FIGURE SK1, WINZLER & KELLY

SCHEMATIC CROSS-SECTION

GEOCON
NORTHWEST, INC
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
8383 SW CREEKS DRIVE BEAVERTON, OREGON 97008 - 6443
PHONE 503 626-9889 - FAX 503 626-6611

DATE MARCH, 2009 | PROJECT NO. P1666-05-01 | FIG. 5

P1666-05-01_R05_SDDW3

APPENDIX A
FIELD INVESTIGATION

The subsurface soil conditions in the vicinity of the proposed retaining/shoring wall were determined based on the literature review, the field exploration, and laboratory testing. The field exploration was completed on February 26, 2009, and consisted of 3 exploratory borings and several hand-dug excavations. The explorations were located in the approximate locations shown in Figure 2, Site Plan.

The borings were advanced to depths ranging from approximately 15 to 30 feet below ground surface (bgs) and were completed with a truck mounted drill rig equipped with mud rotary and rock coring drilling capabilities. The borings were excavated at the top of the north slope on the property adjacent to the school. A member of Geocon Northwest's geotechnical engineering staff logged the subsurface conditions encountered within the borings. Standard penetration tests (SPT) were performed at selected depths in each boring by driving a 2-inch outside diameter split spoon sampler 18 inches into the bottom of the boring, in general accordance with ASTM D 1586. The number of blows required to drive the sampler the last 12 of the 18 inches (blow count) are reported on the boring logs located in Appendix A at the end of this report. The blow counts shown in the boring logs are the values recorded in the field. An automatic SPT hammer was used to drive the sampler into the soil. A correction of 1.3 was applied to the field SPT values to obtain the conventional N_{60} blow count. The correction factor of 1.3 is based on the automatic SPT hammer having an estimated energy of 80% versus the 60% energy of conventional hammers. Disturbed bag samples were obtained from SPT testing. Soil samples were returned to the laboratory for further evaluation. Service providers subcontracted by Geocon Northwest completed the borings.

PROJECT NO. P1666-05-01

BORING B 1

ELEV. (MSL.) _____ DATE COMPLETED 02-26-2009

EQUIPMENT D50-MUD ROTARY BY: S. DIXON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
					4" Asphalt over 8" Base Rock			
2				CL	Medium stiff, moist to wet, brown, Silty CLAY			
	B1-1			CH/MH	WEATHERED BASALT SOIL	31		34.6
4					Hard, moist, reddish brown to gray, CLAY and SILT			
	B1-2					40		38.7
6								
	B1-3					56		42.1
8								
	B1-4					90		37.8
10								
12	B1-5				-Begins to drill as less weathered rock (possibly excavates as large boulder)	65/2"		N/A
14								
16								
18								
					-Becomes less hard			
20	B1-6					48		39.2
22					-Hard, moist to wet, reddish brown to gray CLAY and SILT			
24								
	B1-7				-Becomes harder and drills as less weathered rock	65/2"		21.0
26								
28								
30					BORING TERMINATED AT 30 FEET Groundwater not encountered			

P1666-05-01.GPJ

Figure A-1,
Log of Boring B 1, Page 1 of 1

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. P1666-05-01

BORING B 2

ELEV. (MSL.) _____ DATE COMPLETED 02-26-2009

EQUIPMENT D50-MUD ROTARY BY: S. DIXON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Grass Surface			
2	B2-1			ML	LANDSCAPE FILL Soft, wet, brown, SILT	3		30.9
4				CL	WEATHERED BASALT SOIL			
6	B2-2				Stiff, wet, reddish brown, CLAY	10		35.5
8	B2-3			CH/MH	Hard, wet, reddish brown to gray, CLAY and SILT	39		42.7
10	B2-4				-Becomes gray	98		33.4
12	B2-5				-With less weathered rock	78/4"		26.9
14								
16	B2-6				-Becomes reddish brown to gray	46		38.5
18	B2-7					39		33.3
20	B2-8				-Becomes very stiff	18		31.4
22					-Becomes hard			
24								
26	B2-9				-With less weathered rock	65/4"		53.0
28					BORING TERMINATED AT 28 FEET Refusal in rock Groundwater not encountered			

P1666-05-01.GPJ

Figure A-2,
Log of Boring B 2, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. P1666-05-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 3 ELEV. (MSL.) _____ DATE COMPLETED 02-26-2009 EQUIPMENT D50-MUD ROTARY BY: S. DIXON MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4" Asphalt over 8" Base Rock			
2				CH/MH	WEATHERED BASALT SOIL Stiff, moist to wet, reddish brown to gray, CLAY and SILT			
4								
6	B3-1				-Becomes less weathered rock -Core 6 feet to 10 feet; approximately 2.5 foot recovery; RQD=30%			
8								
10	B3-2				-Core 10 feet to 15 feet			
12								
14					-Approximate 1 foot recovery RQD=0%			
					BORING TERMINATED AT 15 FEET Groundwater not encountered			

P1666-05-01.GPJ

Figure A-3,
Log of Boring B 3, Page 1 of 1

SAMPLE SYMBOLS

- ☐ .. SAMPLING UNSUCCESSFUL
- ▨ .. DISTURBED OR BAG SAMPLE
- ◧ .. STANDARD PENETRATION TEST
- ◪ .. CHUNK SAMPLE
- ■ .. DRIVE SAMPLE (UNDISTURBED)
- ▼ .. WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

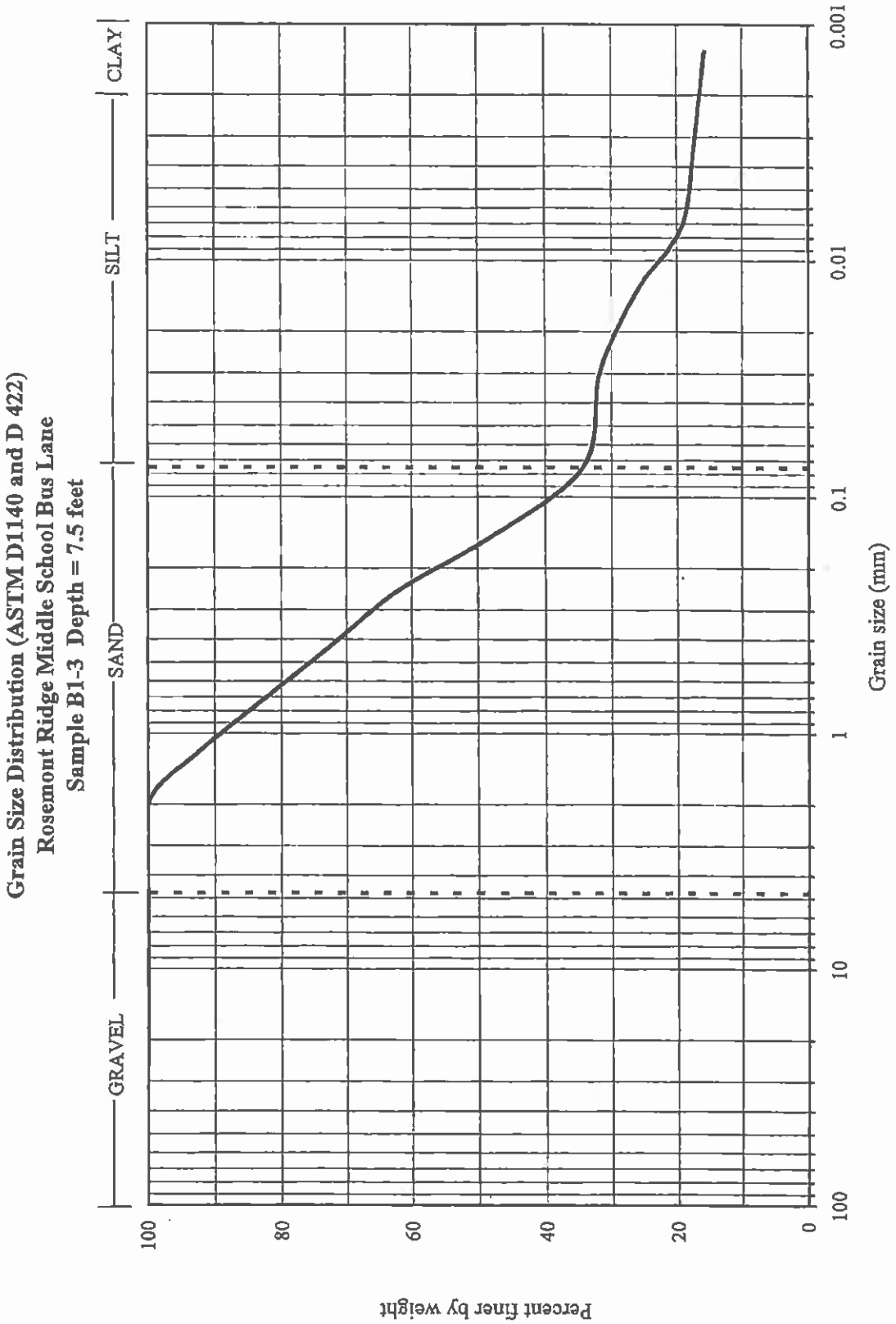
APPENDIX B

LABORATORY TESTING

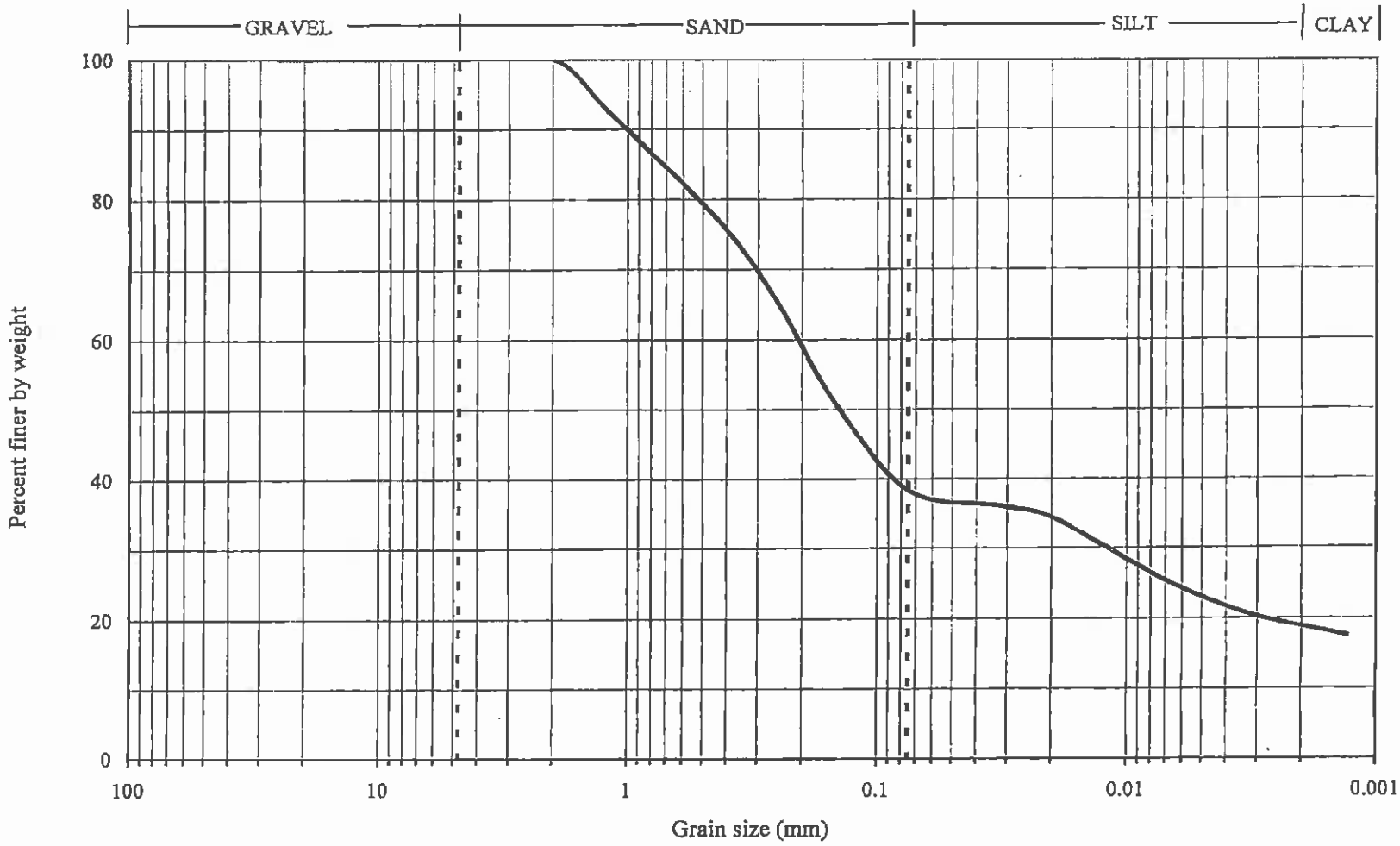
Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected soil samples were tested for their moisture content, plasticity, and gradation. Moisture contents are indicated on the boring logs in Appendix A. The results of the gradation tests are illustrated on the following pages.

TABLE B-1
SUMMARY OF PLASTICITY INDEX TEST RESULTS
ASTM D4318

Sample Number	*Depth (ft)*	*Liquid Limit*	*Plastic Limit*	*Plasticity Index*	*USCS Classification*
B1-3	7.5-9	57	30	27	MH/CH
B2-8	20-21.5	45	34	11	ML


Grain Size Distribution (ASTM D1140 and D 422)
Rosemont Ridge Middle School Bus Lane
Sample B1-3 Depth = 7.5 feet
GRAVEL
SAND
SILT
CLAY
100
80
60
40
20
0
Percent finer by weight
100
10
1
0.1
0.01
0.001
Grain size (mm)

Grain Size Distribution (ASTM D1140 and D 422)
Rosemont Ridge Middle School Bus Lane
Sample B2-3 Depth = 7.5 feet



Grain Size Distribution (ASTM D1140 and D 422)
Rosemont Ridge Middle School Bus Lane
Sample B2-8 Depth = 20 feet

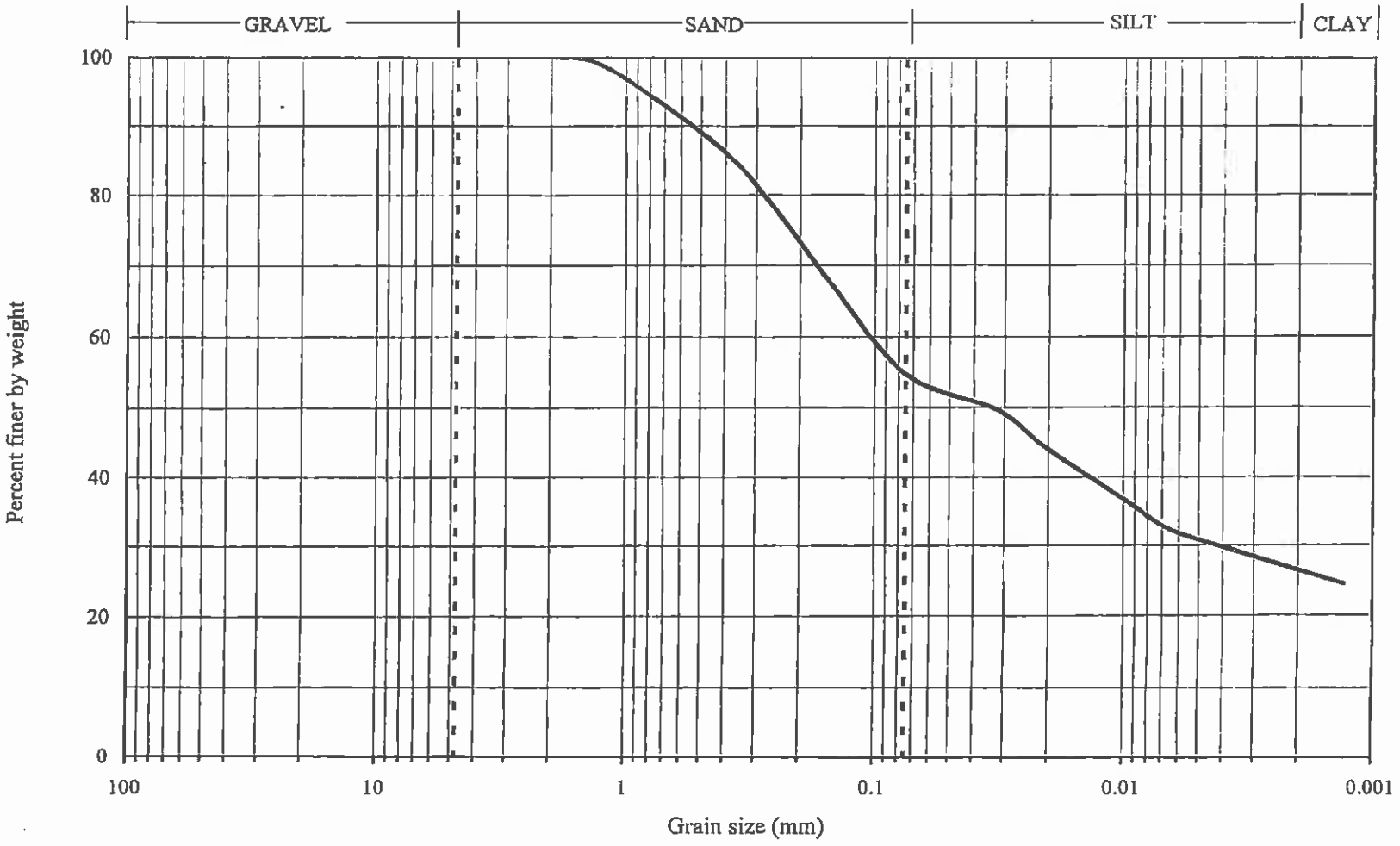
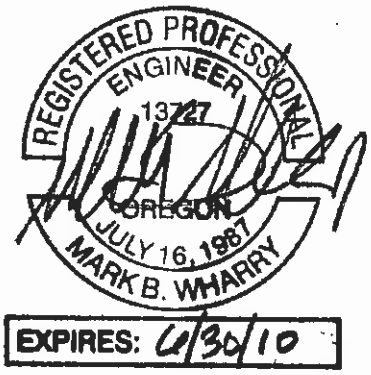


EXHIBIT B
Stormwater Management Report

STORMWATER MANAGEMENT REPORT FOR

ROSEMONT RIDGE MIDDLE SCHOOL

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



WINZLER & KELLY

15575 SW Sequoia Parkway, Suite 140
Portland, Oregon 97224

July 2009

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose of Study

Upgrades to Rosemont Ridge Middle School are proposed to replace an existing grass softball field with a synthetic turf surface, and to construct a driveway around the north perimeter of the existing school building that will connect the existing driveway and parking lot to Rosemont Road. A 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

The proposed project is located in Clackamas County, Oregon in the City of West Linn. The site is located at 20001 S. Salamo Road.

1.3 Project Description

The West Linn Wilsonville School District proposes to construct a driveway around the north perimeter of the existing school building that will connect the existing driveway and parking lot to Rosemont Road. The proposed driveway is intended to provide improved traffic circulation and increased bus loading and queuing area.

The School District also proposes to replace an existing grass softball field with a synthetic surface to provide an all-weather playing surface.

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 using the Santa Barbara Urban Hydrograph method with an 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.

Quality Control: The stormwater quality criteria used for this analysis is based on the criteria that was used for the original design of the water quality/detention pond that will be accepting the runoff from the improvements associated with this project. The original stormwater calculations, "Rosemont Ridge Middle School, West Linn, Oregon, Summary of Stormwater Calculations" (Revised December 8, 1998) were prepared by KPFF Consulting

Engineers. The water quality criteria used in the above referenced report is based on "Design and Construction Standards for Sanitary Sewer and Surface Water Management" published by the Unified Sewerage Agency, 1996 (Chapter 33, pp. 33-37). The design criteria is summarized as follows:

Design Rainfall Depth: 0.36 inches
Detention Time: 48 hours
Runoff Area: Impervious Surface

Conveyance Piping: The City of West Linn Design Standards (Section Two) defines the criteria for conveyance piping, which shall be designed to convey the runoff from the 100-year storm event.

2.0 EXISTING DRAINAGE CONDITIONS

2.1 Description of Existing Drainage Conditions

Rosemont Ridge Middle School is currently divided into two drainage basins: the eastern drainage basin consists of 7.4 acres that that discharges to the east detention pond which outlets to the City of West Linn public storm drain system; the western drainage basin consists of 13.2 acres that discharges to the west detention pond which outlets to the Clackamas County storm drain system (KPFF, 1998).

The FEMA Flood Insurance Rate Map Number 41005C 0257 D (Figure 1) shows 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".

2.2 Hydrologic Analysis of Existing Conditions

The existing east detention pond and outlet structure were designed per City of West Linn standards to have peak outflows that are less than or equal to the peak runoff from the site in its pre-developed condition. To determine those peak flows, a hydrologic analysis of the site in its pre-developed condition was performed as part of this study; the calculations are contained in Appendix B. The hydrologic analysis was performed using the Santa Barbara Urban Hydrograph method with an NRCS Type IA synthetic rainfall distribution. The 24-hour rainfall depths were obtained from the City of Portland Stormwater Management Manual and are summarized in Table 1 below.

Design Storm	24-Hour Rainfall
2-Year	2.40"
5-Year	2.90"
10-Year	3.40"
25-Year	3.90"
100-Year	4.40"

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

The physical characteristics of the site in its pre-developed condition were obtained from the stormwater calculations for the original construction of the site, prepared by KPFF Consulting Engineers (referenced above). The allowable peak outflows from the east detention pond are based on the following criteria:

Tributary Area: 7.40 acres
Time of Concentration: 22.3 minutes
Curve Number (CN): 87

The runoff hydrographs for the various design storms are shown in Appendix B, and the calculated peak runoff rates are summarized in Table 2.

Design Storm	Peak Runoff
2-Year	1.7 cfs
5-Year	2.3 cfs
10-Year	3.0 cfs
25-Year	3.7 cfs
100-Year	4.4 cfs

Table 2: Peak Runoff Rates for Pre-developed Conditions

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 proposed driveway to the existing east detention pond, and subdrainge and surface drainage systems to collect and convey runoff at the proposed synthetic turf field to the existing east detention pond. A portion of the proposed driveway area is currently part of the west basin that drains to the west detention pond, and is proposed to be redirected to drain to the east detention pond. It is intended that the current allowable discharge rate of the pond be maintained, and that the pond volume be increased to account for the additional tributary area and change in runoff rates associated with the proposed improvements.

3.2 Hydrologic Analysis of Proposed Conditions

A hydrologic analysis of the site in the proposed condition was performed as part of this study; the calculations are contained in Appendix C – see Figure 2 for a drainage map of the proposed conditions. The hydrologic analysis was performed using the Santa Barbara Urban Hydrograph method with an NRCS Type IA synthetic rainfall distribution. The 24-hour rainfall depths were obtained from the City of Portland Stormwater Management Manual and are summarized in Table 1 in Section 2.2. To maintain consistency with the original stormwater calculations (KPFF, 1998), a time of concentration of 7 minutes was used for the impervious and landscaped areas. A time of concentration of 10 minutes was used for the synthetic turf softball field. The curve numbers used are summarized below:

Impervious Areas CN: 98
Landscape Areas CN: 80
Synthetic Turf Field CN: 90

The calculated peak runoff rates for each sub-basin for various design storms are summarized in Table 3, and the runoff hydrographs for all sub-basins combined are shown in Appendix C.

Design Storm	Peak Runoff
2-Year	1.7 cfs
5-Year	2.3 cfs
10-Year	3.0 cfs
25-Year	3.7 cfs
100-Year	4.4 cfs

Table 3: Peak Runoff Rates for Proposed Conditions

The existing east detention pond is proposed to be expanded to provide additional water quality and detention capacity. The performance of the proposed pond for the various

MAP SCALE 1" = 500'

250 0 500 1000 FEET

ME

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	410081	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.

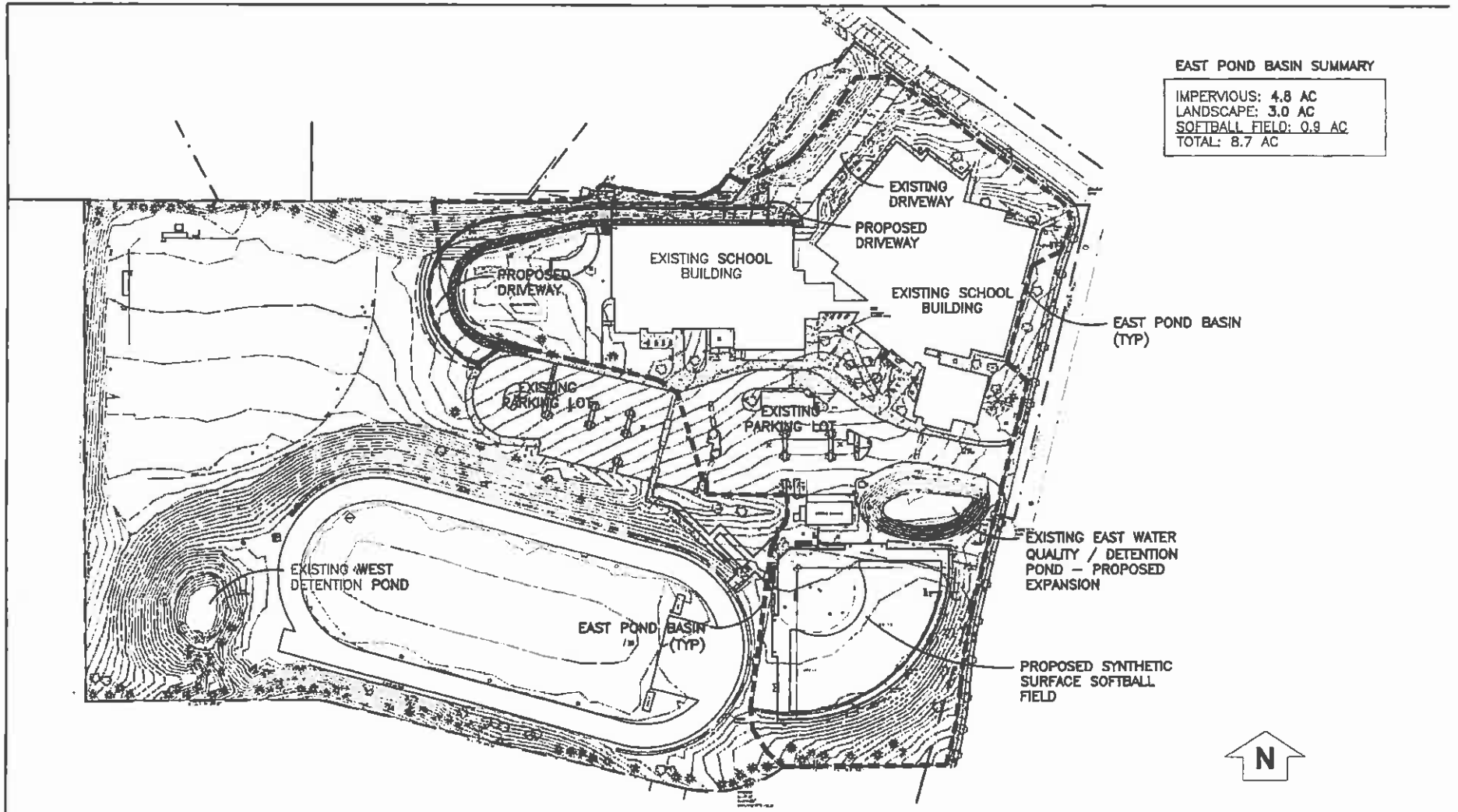
MAP NUMBER
41005C0257D

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

FIGURE 1

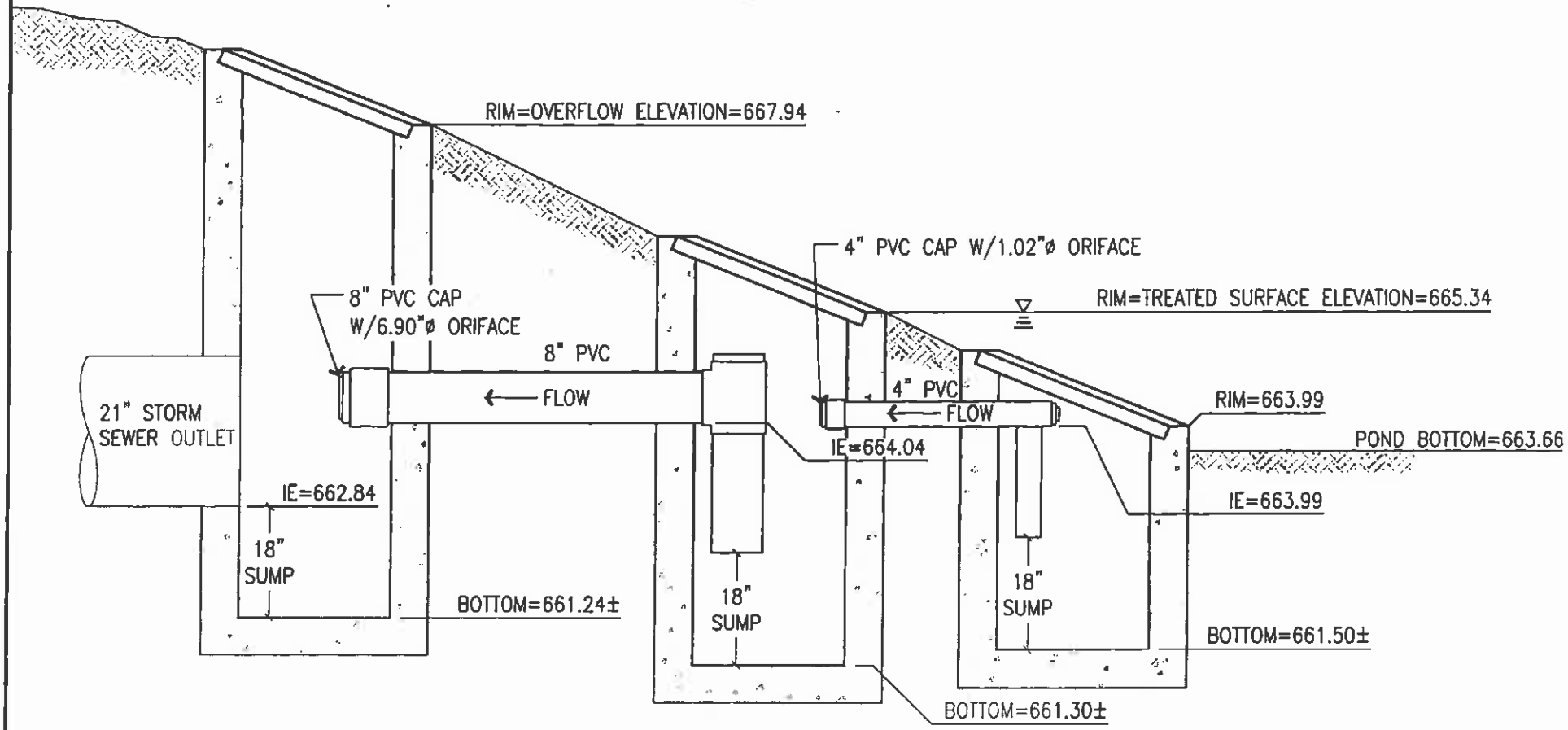


WINZLER & KELLY
15575 SW SEQUOIA PKWY, SUITE 140
PORTLAND, OR 97224
PH: 503-226-3921 FAX: 503-226-3926

PROJECT: ROSEMONT RIDGE MIDDLE SCHOOL

TITLE: DRAINAGE MAP - PROPOSED CONDITIONS

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
STS	STS		5/29/09	10884-08002	FIGURE 2



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

PROJECT
ROSEMONT RIDGE MIDDLE SCHOOL

TITLE
EXISTING EAST POND OUTLET STRUCTURE

DESIGNED	DRAWN	APPROVED	DATE	PROJECT NO.	DWG NO.
					FIGURE 3

O:\10884 - DOWA (DULL OLSON WEEKES ARCHITECTS)\10884-09002 DOWA WLWSD ROSEMONT RIDGE MS\CAD\EXHIBITS\POND OUTLET.DWG Seth Stevens 7/13/2009 10:4

Appendix A

NRCS Hydrologic Soil Group Information

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: 1:2,650 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.

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	8.7	27.2%
23B	Cornelius silt loam, 3 to 8 percent slopes	C	1.3	4.1%
23C	Cornelius silt loam, 8 to 15 percent slopes	C	16.1	50.4%
23D	Cornelius silt loam, 15 to 30 percent slopes	C	0.3	1.0%
30C	Delena silt loam, 3 to 12 percent slopes	D	5.5	17.3%
Totals for Area of Interest			31.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

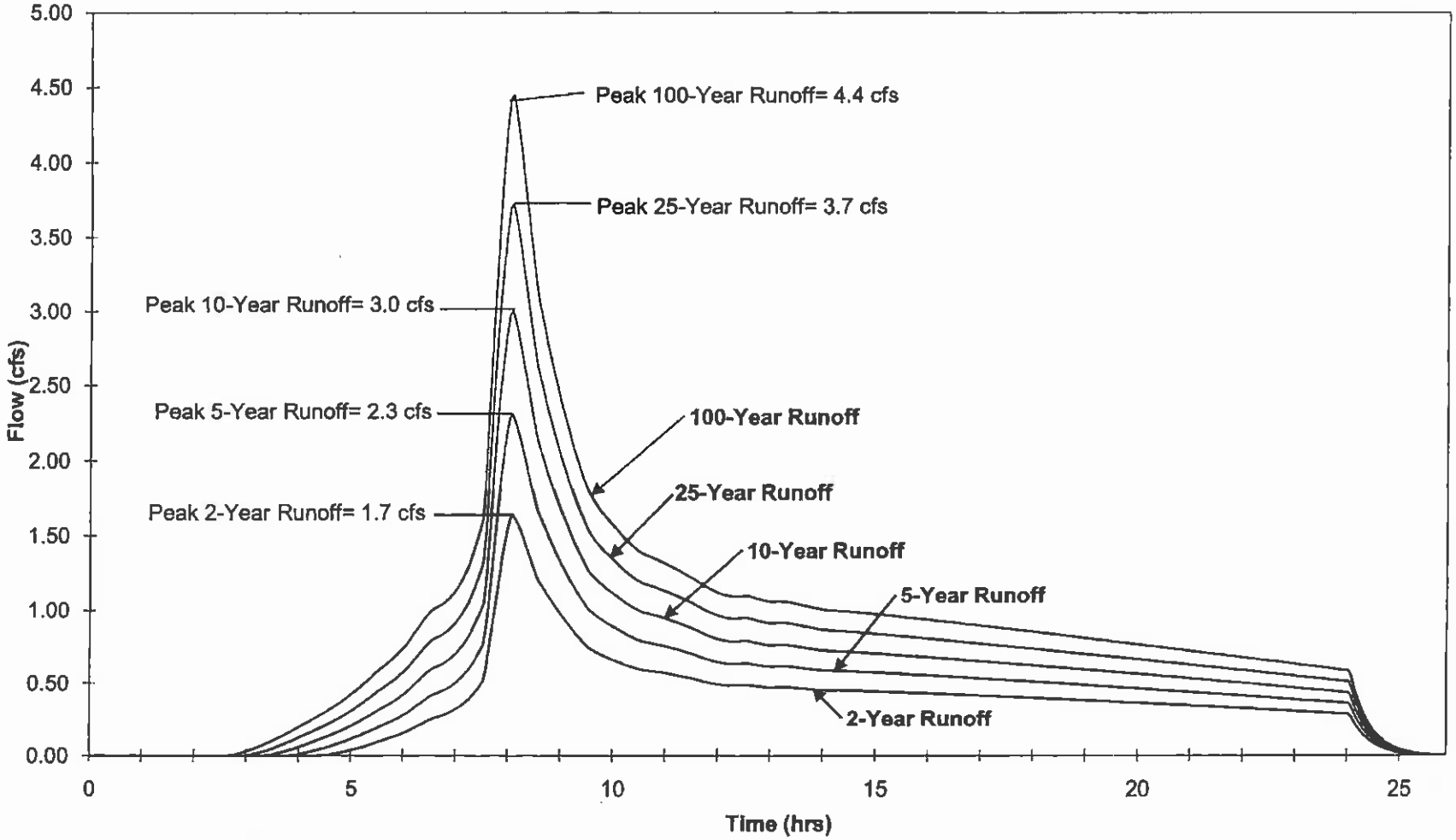
Tie-break Rule: Lower

Appendix B

Calculations for Hydrologic Analysis of Existing Conditions

ROSEMONT RIDGE MIDDLE SCHOOL

Runoff Hydrographs for Pre-developed Conditions



ROSEMONT RIDGE MIDDLE SCHOOL
Runoff Hydrographs for Pre-Developed Conditions

	Runoff (cfs)				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year
0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.00	0.00	0.00	0.00	0.00
0.10	0.00	0.00	0.00	0.00	0.00
0.15	0.00	0.00	0.00	0.00	0.00
0.20	0.00	0.00	0.00	0.00	0.00
0.25	0.00	0.00	0.00	0.00	0.00
0.30	0.00	0.00	0.00	0.00	0.00
0.35	0.00	0.00	0.00	0.00	0.00
0.40	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	0.00	0.00
0.55	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0.00	0.00	0.00
0.65	0.00	0.00	0.00	0.00	0.00
0.70	0.00	0.00	0.00	0.00	0.00
0.75	0.00	0.00	0.00	0.00	0.00
0.80	0.00	0.00	0.00	0.00	0.00
0.85	0.00	0.00	0.00	0.00	0.00
0.90	0.00	0.00	0.00	0.00	0.00
0.95	0.00	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00	0.00
1.05	0.00	0.00	0.00	0.00	0.00
1.10	0.00	0.00	0.00	0.00	0.00
1.15	0.00	0.00	0.00	0.00	0.00
1.20	0.00	0.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00	0.00	0.00
1.30	0.00	0.00	0.00	0.00	0.00
1.35	0.00	0.00	0.00	0.00	0.00
1.40	0.00	0.00	0.00	0.00	0.00
1.45	0.00	0.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	0.00	0.00
1.55	0.00	0.00	0.00	0.00	0.00
1.60	0.00	0.00	0.00	0.00	0.00
1.65	0.00	0.00	0.00	0.00	0.00
1.70	0.00	0.00	0.00	0.00	0.00
1.75	0.00	0.00	0.00	0.00	0.00
1.80	0.00	0.00	0.00	0.00	0.00
1.85	0.00	0.00	0.00	0.00	0.00
1.90	0.00	0.00	0.00	0.00	0.00
1.95	0.00	0.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	0.00	0.00
2.05	0.00	0.00	0.00	0.00	0.00
2.10	0.00	0.00	0.00	0.00	0.00
2.15	0.00	0.00	0.00	0.00	0.00
2.20	0.00	0.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	0.00	0.00
2.30	0.00	0.00	0.00	0.00	0.00
2.35	0.00	0.00	0.00	0.00	0.00
2.40	0.00	0.00	0.00	0.00	0.00
2.45	0.00	0.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	0.00	0.00
2.55	0.00	0.00	0.00	0.00	0.00
2.60	0.00	0.00	0.00	0.00	0.00
2.65	0.00	0.00	0.00	0.00	0.00
2.70	0.00	0.00	0.00	0.00	0.00
2.75	0.00	0.00	0.00	0.00	0.01
2.80	0.00	0.00	0.00	0.00	0.01
2.85	0.00	0.00	0.00	0.00	0.01
2.90	0.00	0.00	0.00	0.00	0.02
2.95	0.00	0.00	0.00	0.00	0.03
3.00	0.00	0.00	0.00	0.00	0.03
3.05	0.00	0.00	0.00	0.01	0.04
3.10	0.00	0.00	0.00	0.01	0.04
3.15	0.00	0.00	0.00	0.01	0.05
3.20	0.00	0.00	0.00	0.02	0.06
3.25	0.00	0.00	0.00	0.02	0.06
3.30	0.00	0.00	0.00	0.03	0.07
3.35	0.00	0.00	0.00	0.03	0.08
3.40	0.00	0.00	0.00	0.04	0.09
3.45	0.00	0.00	0.01	0.04	0.10
3.50	0.00	0.00	0.01	0.05	0.10
3.55	0.00	0.00	0.01	0.06	0.11
3.60	0.00	0.00	0.02	0.06	0.12

		Runoff (cfs)			
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year
3.65	0.00	0.00	0.02	0.07	0.13
3.70	0.00	0.00	0.03	0.08	0.14
3.75	0.00	0.00	0.03	0.09	0.15
3.80	0.00	0.00	0.04	0.09	0.16
3.85	0.00	0.00	0.04	0.10	0.17
3.90	0.00	0.01	0.05	0.11	0.18
3.95	0.00	0.01	0.05	0.12	0.19
4.00	0.00	0.01	0.06	0.13	0.20
4.05	0.00	0.02	0.07	0.13	0.21
4.10	0.00	0.02	0.07	0.14	0.22
4.15	0.00	0.02	0.08	0.15	0.23
4.20	0.00	0.03	0.09	0.16	0.24
4.25	0.00	0.03	0.09	0.17	0.25
4.30	0.00	0.04	0.10	0.18	0.26
4.35	0.00	0.04	0.11	0.18	0.27
4.40	0.00	0.05	0.11	0.19	0.28
4.45	0.00	0.05	0.12	0.20	0.29
4.50	0.01	0.06	0.13	0.21	0.31
4.55	0.01	0.06	0.13	0.22	0.32
4.60	0.01	0.07	0.14	0.23	0.33
4.65	0.01	0.07	0.15	0.24	0.34
4.70	0.02	0.08	0.16	0.25	0.35
4.75	0.02	0.08	0.17	0.26	0.36
4.80	0.02	0.09	0.17	0.27	0.38
4.85	0.03	0.10	0.18	0.28	0.39
4.90	0.03	0.10	0.19	0.29	0.40
4.95	0.03	0.11	0.20	0.30	0.42
5.00	0.04	0.12	0.21	0.31	0.43
5.05	0.04	0.12	0.22	0.33	0.44
5.10	0.05	0.13	0.23	0.34	0.46
5.15	0.05	0.14	0.24	0.35	0.48
5.20	0.06	0.15	0.25	0.37	0.49
5.25	0.06	0.15	0.26	0.38	0.51
5.30	0.07	0.16	0.27	0.39	0.52
5.35	0.08	0.17	0.28	0.41	0.54
5.40	0.08	0.18	0.29	0.42	0.56
5.45	0.09	0.19	0.30	0.43	0.57
5.50	0.09	0.20	0.32	0.45	0.59
5.55	0.10	0.20	0.33	0.46	0.60
5.60	0.10	0.21	0.34	0.47	0.62
5.65	0.11	0.22	0.35	0.48	0.63
5.70	0.12	0.23	0.36	0.50	0.65
5.75	0.12	0.24	0.37	0.51	0.66
5.80	0.13	0.25	0.38	0.52	0.68
5.85	0.14	0.26	0.39	0.54	0.70
5.90	0.14	0.26	0.40	0.55	0.71
5.95	0.15	0.27	0.42	0.57	0.73
6.00	0.16	0.28	0.43	0.58	0.75
6.05	0.17	0.30	0.44	0.60	0.77
6.10	0.18	0.31	0.46	0.63	0.80
6.15	0.18	0.32	0.48	0.65	0.83
6.20	0.19	0.34	0.50	0.67	0.85
6.25	0.20	0.35	0.51	0.69	0.88
6.30	0.21	0.36	0.53	0.71	0.90
6.35	0.22	0.38	0.55	0.73	0.93
6.40	0.23	0.39	0.56	0.75	0.95
6.45	0.24	0.40	0.58	0.77	0.97
6.50	0.25	0.42	0.60	0.79	0.99
6.55	0.26	0.42	0.61	0.80	1.01
6.60	0.26	0.43	0.61	0.81	1.02
6.65	0.27	0.44	0.62	0.82	1.03
6.70	0.28	0.45	0.63	0.83	1.04
6.75	0.28	0.45	0.64	0.84	1.05
6.80	0.29	0.46	0.65	0.85	1.06
6.85	0.30	0.47	0.66	0.87	1.08
6.90	0.31	0.48	0.68	0.88	1.10
6.95	0.32	0.50	0.70	0.90	1.12
7.00	0.33	0.51	0.71	0.93	1.15
7.05	0.34	0.53	0.73	0.95	1.18
7.10	0.35	0.55	0.76	0.98	1.21
7.15	0.37	0.57	0.78	1.01	1.25
7.20	0.38	0.59	0.81	1.04	1.29
7.25	0.40	0.61	0.84	1.08	1.33
7.30	0.42	0.64	0.87	1.12	1.38
7.35	0.44	0.67	0.91	1.17	1.43
7.40	0.46	0.70	0.95	1.22	1.49
7.45	0.49	0.73	1.00	1.27	1.56
7.50	0.52	0.77	1.04	1.33	1.63

Time (hrs)	Runoff (cfs) 2-Year	5-Year	10-Year	25-Year	100-Year
7.55	0.59	0.88	1.19	1.52	1.85
7.60	0.72	1.07	1.43	1.82	2.21
7.65	0.85	1.25	1.67	2.11	2.56
7.70	0.98	1.43	1.91	2.40	2.91
7.75	1.11	1.61	2.13	2.68	3.23
7.80	1.23	1.77	2.34	2.94	3.54
7.85	1.34	1.92	2.54	3.17	3.81
7.90	1.45	2.06	2.71	3.38	4.06
7.95	1.54	2.18	2.86	3.55	4.26
8.00	1.61	2.28	2.98	3.69	4.42
8.05	1.64	2.30	3.00	3.72	4.45
8.10	1.61	2.26	2.94	3.63	4.34
8.15	1.57	2.20	2.86	3.54	4.22
8.20	1.53	2.14	2.78	3.43	4.08
8.25	1.49	2.07	2.68	3.31	3.94
8.30	1.44	2.00	2.58	3.18	3.79
8.35	1.39	1.93	2.49	3.06	3.64
8.40	1.34	1.85	2.38	2.93	3.48
8.45	1.28	1.78	2.29	2.81	3.33
8.50	1.23	1.70	2.19	2.69	3.19
8.55	1.20	1.65	2.11	2.59	3.07
8.60	1.17	1.60	2.06	2.52	2.98
8.65	1.14	1.56	2.00	2.45	2.90
8.70	1.11	1.52	1.95	2.38	2.81
8.75	1.08	1.48	1.89	2.31	2.73
8.80	1.06	1.44	1.84	2.25	2.65
8.85	1.03	1.41	1.79	2.18	2.58
8.90	1.01	1.37	1.74	2.12	2.50
8.95	0.98	1.33	1.70	2.06	2.43
9.00	0.96	1.30	1.65	2.01	2.38
9.05	0.93	1.26	1.60	1.95	2.30
9.10	0.91	1.23	1.56	1.90	2.23
9.15	0.89	1.20	1.52	1.84	2.17
9.20	0.86	1.17	1.48	1.79	2.11
9.25	0.84	1.14	1.44	1.74	2.05
9.30	0.82	1.11	1.40	1.70	2.00
9.35	0.80	1.08	1.37	1.65	1.94
9.40	0.78	1.05	1.33	1.61	1.89
9.45	0.77	1.03	1.30	1.57	1.84
9.50	0.75	1.01	1.27	1.53	1.80
9.55	0.74	0.99	1.24	1.50	1.76
9.60	0.73	0.97	1.22	1.48	1.73
9.65	0.72	0.96	1.21	1.46	1.71
9.70	0.71	0.95	1.19	1.44	1.68
9.75	0.70	0.93	1.17	1.42	1.66
9.80	0.69	0.92	1.16	1.40	1.64
9.85	0.68	0.91	1.14	1.38	1.61
9.90	0.68	0.90	1.13	1.36	1.59
9.95	0.67	0.89	1.12	1.35	1.57
10.00	0.66	0.88	1.10	1.33	1.55
10.05	0.65	0.87	1.09	1.31	1.54
10.10	0.65	0.86	1.08	1.30	1.51
10.15	0.64	0.85	1.06	1.28	1.50
10.20	0.63	0.84	1.05	1.26	1.48
10.25	0.63	0.83	1.04	1.25	1.46
10.30	0.62	0.82	1.03	1.23	1.44
10.35	0.61	0.81	1.02	1.22	1.43
10.40	0.61	0.81	1.01	1.21	1.41
10.45	0.60	0.80	1.00	1.20	1.40
10.50	0.60	0.79	0.99	1.19	1.39
10.55	0.59	0.79	0.98	1.18	1.38
10.60	0.59	0.78	0.98	1.17	1.37
10.65	0.59	0.78	0.97	1.17	1.36
10.70	0.59	0.78	0.97	1.16	1.36
10.75	0.59	0.77	0.97	1.16	1.35
10.80	0.58	0.77	0.96	1.15	1.34
10.85	0.58	0.77	0.95	1.14	1.33
10.90	0.58	0.76	0.95	1.14	1.32
10.95	0.57	0.76	0.94	1.13	1.32
11.00	0.57	0.75	0.94	1.12	1.31
11.05	0.57	0.75	0.93	1.12	1.30
11.10	0.56	0.74	0.93	1.11	1.29
11.15	0.56	0.74	0.92	1.10	1.28
11.20	0.56	0.73	0.91	1.09	1.27
11.25	0.55	0.73	0.91	1.08	1.26
11.30	0.55	0.72	0.90	1.08	1.25
11.35	0.55	0.72	0.89	1.07	1.24
11.40	0.54	0.71	0.89	1.06	1.23

Time (hrs)	2-Year	Runoff (cfs) 5-Year	10-Year	25-Year	100-Year
11.45	0.54	0.71	0.88	1.05	1.22
11.50	0.54	0.70	0.87	1.04	1.21
11.55	0.53	0.70	0.86	1.03	1.20
11.60	0.53	0.69	0.86	1.02	1.19
11.65	0.52	0.68	0.85	1.01	1.18
11.70	0.52	0.68	0.84	1.00	1.17
11.75	0.51	0.67	0.83	0.99	1.16
11.80	0.51	0.67	0.83	0.99	1.15
11.85	0.50	0.66	0.82	0.98	1.14
11.90	0.50	0.66	0.81	0.97	1.13
11.95	0.50	0.65	0.81	0.96	1.12
12.00	0.50	0.65	0.80	0.96	1.11
12.05	0.49	0.65	0.80	0.95	1.11
12.10	0.49	0.64	0.80	0.95	1.10
12.15	0.49	0.64	0.79	0.94	1.10
12.20	0.49	0.64	0.79	0.94	1.09
12.25	0.49	0.64	0.79	0.94	1.09
12.30	0.49	0.64	0.79	0.94	1.09
12.35	0.49	0.64	0.79	0.94	1.09
12.40	0.49	0.64	0.79	0.94	1.09
12.45	0.49	0.64	0.79	0.94	1.09
12.50	0.49	0.64	0.79	0.95	1.10
12.55	0.49	0.64	0.79	0.94	1.09
12.60	0.49	0.64	0.79	0.94	1.09
12.65	0.49	0.63	0.78	0.93	1.08
12.70	0.48	0.63	0.78	0.93	1.08
12.75	0.48	0.63	0.78	0.92	1.07
12.80	0.48	0.63	0.77	0.92	1.07
12.85	0.48	0.62	0.77	0.92	1.06
12.90	0.48	0.62	0.77	0.91	1.06
12.95	0.48	0.62	0.76	0.91	1.05
13.00	0.47	0.62	0.76	0.91	1.05
13.05	0.47	0.62	0.76	0.91	1.05
13.10	0.48	0.62	0.77	0.91	1.05
13.15	0.48	0.62	0.77	0.91	1.06
13.20	0.48	0.62	0.77	0.91	1.06
13.25	0.48	0.62	0.77	0.91	1.05
13.30	0.48	0.62	0.76	0.91	1.05
13.35	0.48	0.62	0.76	0.91	1.05
13.40	0.47	0.62	0.76	0.90	1.05
13.45	0.47	0.62	0.76	0.90	1.04
13.50	0.47	0.61	0.75	0.90	1.04
13.55	0.47	0.61	0.75	0.89	1.03
13.60	0.47	0.61	0.75	0.89	1.03
13.65	0.47	0.61	0.75	0.89	1.03
13.70	0.46	0.60	0.74	0.88	1.02
13.75	0.46	0.60	0.74	0.88	1.02
13.80	0.46	0.60	0.74	0.88	1.01
13.85	0.46	0.60	0.73	0.87	1.01
13.90	0.46	0.60	0.73	0.87	1.01
13.95	0.46	0.59	0.73	0.87	1.00
14.00	0.46	0.59	0.73	0.86	1.00
14.05	0.46	0.59	0.73	0.86	1.00
14.10	0.46	0.59	0.73	0.86	1.00
14.15	0.46	0.59	0.73	0.86	1.00
14.20	0.45	0.59	0.72	0.86	0.99
14.25	0.45	0.59	0.72	0.86	0.99
14.30	0.45	0.59	0.72	0.86	0.99
14.35	0.45	0.59	0.72	0.86	0.99
14.40	0.45	0.59	0.72	0.85	0.99
14.45	0.45	0.59	0.72	0.85	0.99
14.50	0.45	0.58	0.72	0.85	0.98
14.55	0.45	0.58	0.72	0.85	0.98
14.60	0.45	0.58	0.72	0.85	0.98
14.65	0.45	0.58	0.72	0.85	0.98
14.70	0.45	0.58	0.71	0.85	0.98
14.75	0.45	0.58	0.71	0.84	0.98
14.80	0.45	0.58	0.71	0.84	0.97
14.85	0.45	0.58	0.71	0.84	0.97
14.90	0.45	0.58	0.71	0.84	0.97
14.95	0.45	0.58	0.71	0.84	0.97
15.00	0.45	0.58	0.71	0.84	0.97
15.05	0.45	0.58	0.71	0.84	0.97
15.10	0.45	0.57	0.70	0.83	0.96
15.15	0.44	0.57	0.70	0.83	0.96
15.20	0.44	0.57	0.70	0.83	0.96
15.25	0.44	0.57	0.70	0.83	0.96
15.30	0.44	0.57	0.70	0.83	0.96

		Runoff (cfs)			
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year
15.35	0.44	0.57	0.70	0.83	0.95
15.40	0.44	0.57	0.70	0.82	0.95
15.45	0.44	0.57	0.70	0.82	0.95
15.50	0.44	0.57	0.69	0.82	0.95
15.55	0.44	0.57	0.69	0.82	0.95
15.60	0.44	0.56	0.69	0.82	0.94
15.65	0.44	0.56	0.69	0.82	0.94
15.70	0.44	0.56	0.69	0.82	0.94
15.75	0.44	0.56	0.69	0.81	0.94
15.80	0.44	0.56	0.69	0.81	0.94
15.85	0.44	0.56	0.69	0.81	0.94
15.90	0.43	0.56	0.68	0.81	0.93
15.95	0.43	0.56	0.68	0.81	0.93
16.00	0.43	0.56	0.68	0.81	0.93
16.05	0.43	0.56	0.68	0.80	0.93
16.10	0.43	0.56	0.68	0.80	0.93
16.15	0.43	0.55	0.68	0.80	0.92
16.20	0.43	0.55	0.68	0.80	0.92
16.25	0.43	0.55	0.68	0.80	0.92
16.30	0.43	0.55	0.67	0.80	0.92
16.35	0.43	0.55	0.67	0.79	0.92
16.40	0.43	0.55	0.67	0.79	0.91
16.45	0.43	0.55	0.67	0.79	0.91
16.50	0.43	0.55	0.67	0.79	0.91
16.55	0.42	0.55	0.67	0.79	0.91
16.60	0.42	0.54	0.67	0.79	0.91
16.65	0.42	0.54	0.66	0.78	0.90
16.70	0.42	0.54	0.66	0.78	0.90
16.75	0.42	0.54	0.66	0.78	0.90
16.80	0.42	0.54	0.66	0.78	0.90
16.85	0.42	0.54	0.66	0.78	0.90
16.90	0.42	0.54	0.66	0.78	0.89
16.95	0.42	0.54	0.66	0.77	0.89
17.00	0.42	0.54	0.65	0.77	0.89
17.05	0.42	0.54	0.65	0.77	0.89
17.10	0.42	0.53	0.65	0.77	0.89
17.15	0.42	0.53	0.65	0.77	0.89
17.20	0.41	0.53	0.65	0.77	0.88
17.25	0.41	0.53	0.65	0.76	0.88
17.30	0.41	0.53	0.65	0.76	0.88
17.35	0.41	0.53	0.64	0.76	0.88
17.40	0.41	0.53	0.64	0.76	0.87
17.45	0.41	0.53	0.64	0.76	0.87
17.50	0.41	0.53	0.64	0.76	0.87
17.55	0.41	0.52	0.64	0.75	0.87
17.60	0.41	0.52	0.64	0.75	0.87
17.65	0.41	0.52	0.64	0.75	0.86
17.70	0.41	0.52	0.64	0.75	0.86
17.75	0.41	0.52	0.63	0.75	0.86
17.80	0.41	0.52	0.63	0.75	0.86
17.85	0.40	0.52	0.63	0.74	0.86
17.90	0.40	0.52	0.63	0.74	0.85
17.95	0.40	0.52	0.63	0.74	0.85
18.00	0.40	0.51	0.63	0.74	0.85
18.05	0.40	0.51	0.63	0.74	0.85
18.10	0.40	0.51	0.62	0.73	0.85
18.15	0.40	0.51	0.62	0.73	0.84
18.20	0.40	0.51	0.62	0.73	0.84
18.25	0.40	0.51	0.62	0.73	0.84
18.30	0.40	0.51	0.62	0.73	0.84
18.35	0.40	0.51	0.62	0.73	0.84
18.40	0.39	0.51	0.62	0.72	0.83
18.45	0.39	0.50	0.61	0.72	0.83
18.50	0.39	0.50	0.61	0.72	0.83
18.55	0.39	0.50	0.61	0.72	0.83
18.60	0.39	0.50	0.61	0.72	0.83
18.65	0.39	0.50	0.61	0.72	0.82
18.70	0.39	0.50	0.61	0.71	0.82
18.75	0.39	0.50	0.60	0.71	0.82
18.80	0.39	0.50	0.60	0.71	0.82
18.85	0.39	0.49	0.60	0.71	0.82
18.90	0.39	0.49	0.60	0.71	0.81
18.95	0.39	0.49	0.60	0.71	0.81
19.00	0.38	0.49	0.60	0.70	0.81
19.05	0.38	0.49	0.60	0.70	0.81
19.10	0.38	0.49	0.59	0.70	0.80
19.15	0.38	0.49	0.59	0.70	0.80
19.20	0.38	0.49	0.59	0.70	0.80

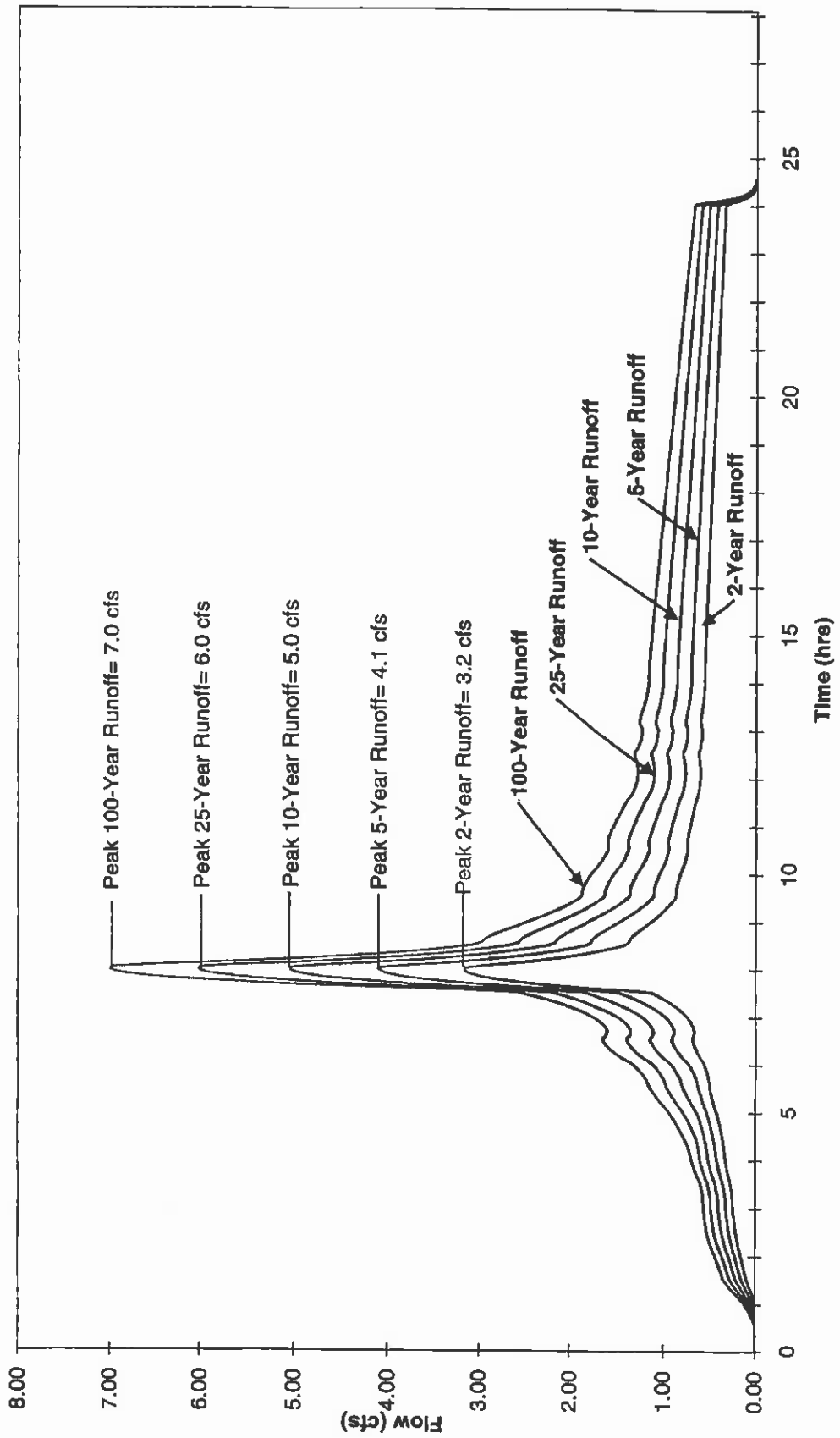
		Runoff (cfs)			
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year
19.25	0.38	0.48	0.59	0.69	0.80
19.30	0.38	0.48	0.59	0.69	0.80
19.35	0.38	0.48	0.59	0.69	0.79
19.40	0.38	0.48	0.59	0.69	0.79
19.45	0.38	0.48	0.58	0.69	0.79
19.50	0.38	0.48	0.58	0.69	0.79
19.55	0.37	0.48	0.58	0.68	0.79
19.60	0.37	0.48	0.58	0.68	0.78
19.65	0.37	0.48	0.58	0.68	0.78
19.70	0.37	0.47	0.58	0.68	0.78
19.75	0.37	0.47	0.57	0.68	0.78
19.80	0.37	0.47	0.57	0.67	0.77
19.85	0.37	0.47	0.57	0.67	0.77
19.90	0.37	0.47	0.57	0.67	0.77
19.95	0.37	0.47	0.57	0.67	0.77
20.00	0.37	0.47	0.57	0.67	0.77
20.05	0.37	0.47	0.57	0.67	0.76
20.10	0.36	0.46	0.56	0.66	0.76
20.15	0.36	0.46	0.56	0.66	0.76
20.20	0.36	0.46	0.56	0.66	0.76
20.25	0.36	0.46	0.56	0.66	0.76
20.30	0.36	0.46	0.56	0.66	0.75
20.35	0.36	0.46	0.56	0.65	0.75
20.40	0.36	0.46	0.55	0.65	0.75
20.45	0.36	0.46	0.55	0.65	0.75
20.50	0.36	0.45	0.55	0.65	0.75
20.55	0.36	0.45	0.55	0.65	0.74
20.60	0.35	0.45	0.55	0.64	0.74
20.65	0.35	0.45	0.55	0.64	0.74
20.70	0.35	0.45	0.55	0.64	0.74
20.75	0.35	0.45	0.54	0.64	0.73
20.80	0.35	0.45	0.54	0.64	0.73
20.85	0.35	0.45	0.54	0.64	0.73
20.90	0.35	0.44	0.54	0.63	0.73
20.95	0.35	0.44	0.54	0.63	0.73
21.00	0.35	0.44	0.54	0.63	0.72
21.05	0.35	0.44	0.53	0.63	0.72
21.10	0.35	0.44	0.53	0.63	0.72
21.15	0.34	0.44	0.53	0.62	0.72
21.20	0.34	0.44	0.53	0.62	0.71
21.25	0.34	0.44	0.53	0.62	0.71
21.30	0.34	0.43	0.53	0.62	0.71
21.35	0.34	0.43	0.53	0.62	0.71
21.40	0.34	0.43	0.52	0.62	0.71
21.45	0.34	0.43	0.52	0.61	0.70
21.50	0.34	0.43	0.52	0.61	0.70
21.55	0.34	0.43	0.52	0.61	0.70
21.60	0.34	0.43	0.52	0.61	0.70
21.65	0.33	0.43	0.52	0.61	0.70
21.70	0.33	0.42	0.51	0.60	0.69
21.75	0.33	0.42	0.51	0.60	0.69
21.80	0.33	0.42	0.51	0.60	0.69
21.85	0.33	0.42	0.51	0.60	0.69
21.90	0.33	0.42	0.51	0.60	0.68
21.95	0.33	0.42	0.51	0.59	0.68
22.00	0.33	0.42	0.50	0.59	0.68
22.05	0.33	0.41	0.50	0.59	0.68
22.10	0.33	0.41	0.50	0.59	0.68
22.15	0.32	0.41	0.50	0.59	0.67
22.20	0.32	0.41	0.50	0.58	0.67
22.25	0.32	0.41	0.50	0.58	0.67
22.30	0.32	0.41	0.49	0.58	0.67
22.35	0.32	0.41	0.49	0.58	0.66
22.40	0.32	0.41	0.49	0.58	0.66
22.45	0.32	0.40	0.49	0.58	0.66
22.50	0.32	0.40	0.49	0.57	0.66
22.55	0.32	0.40	0.49	0.57	0.66
22.60	0.32	0.40	0.49	0.57	0.65
22.65	0.31	0.40	0.48	0.57	0.65
22.70	0.31	0.40	0.48	0.57	0.65
22.75	0.31	0.40	0.48	0.56	0.65
22.80	0.31	0.40	0.48	0.56	0.64
22.85	0.31	0.39	0.48	0.56	0.64
22.90	0.31	0.39	0.48	0.56	0.64
22.95	0.31	0.39	0.47	0.56	0.64
23.00	0.31	0.39	0.47	0.55	0.64
23.05	0.31	0.39	0.47	0.55	0.63
23.10	0.31	0.39	0.47	0.55	0.63

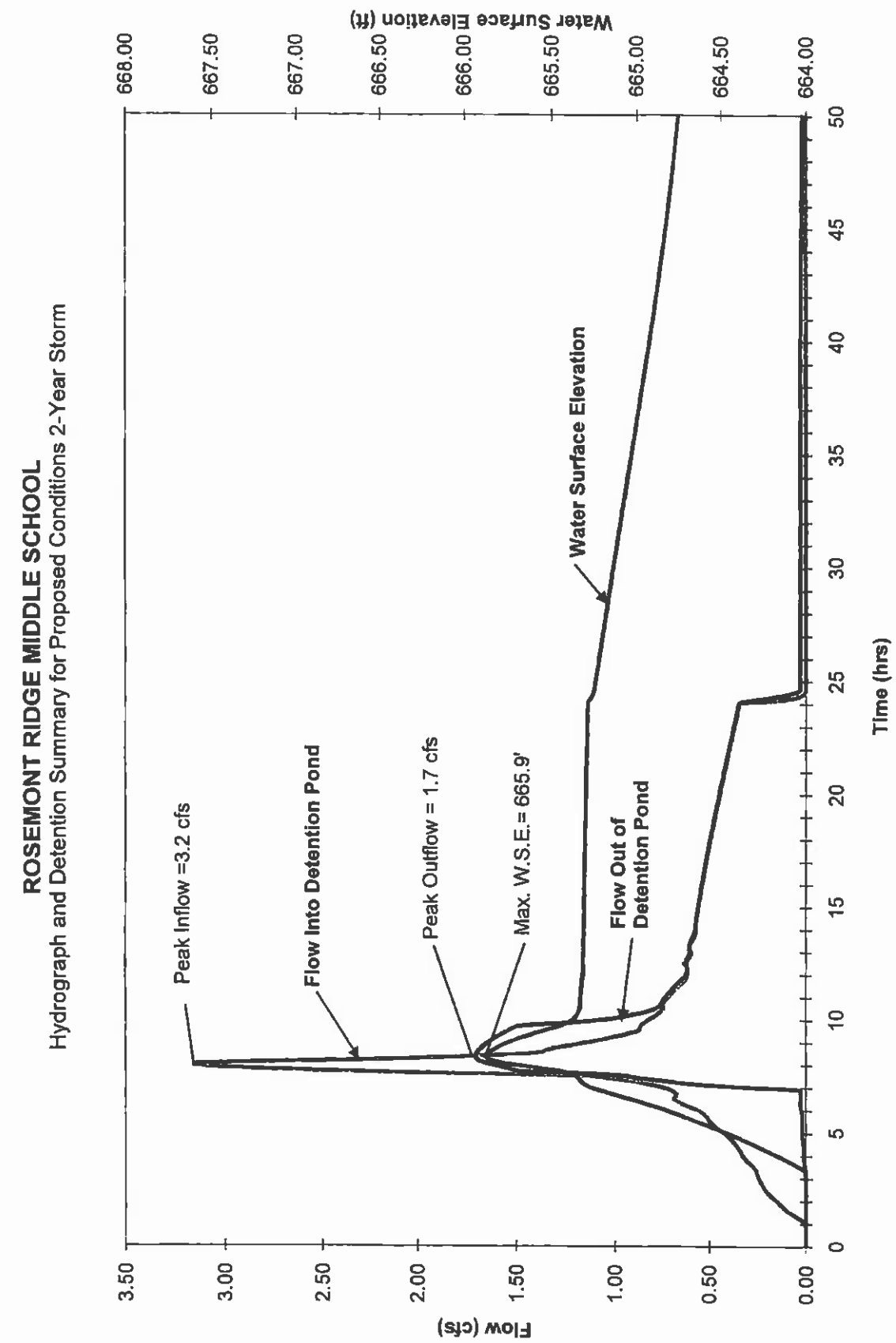
		Runoff (cfs)			
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year
23.15	0.30	0.39	0.47	0.55	0.63
23.20	0.30	0.38	0.47	0.55	0.63
23.25	0.30	0.38	0.46	0.54	0.62
23.30	0.30	0.38	0.46	0.54	0.62
23.35	0.30	0.38	0.46	0.54	0.62
23.40	0.30	0.38	0.46	0.54	0.62
23.45	0.30	0.38	0.46	0.54	0.62
23.50	0.30	0.38	0.46	0.53	0.61
23.55	0.30	0.38	0.45	0.53	0.61
23.60	0.30	0.37	0.45	0.53	0.61
23.65	0.29	0.37	0.45	0.53	0.61
23.70	0.29	0.37	0.45	0.53	0.60
23.75	0.29	0.37	0.45	0.53	0.60
23.80	0.29	0.37	0.45	0.52	0.60
23.85	0.29	0.37	0.44	0.52	0.60
23.90	0.29	0.37	0.44	0.52	0.60
23.95	0.29	0.36	0.44	0.52	0.59
24.00	0.29	0.36	0.44	0.52	0.59
24.05	0.27	0.34	0.41	0.48	0.55
24.10	0.23	0.30	0.36	0.42	0.48
24.15	0.21	0.26	0.31	0.37	0.42
24.20	0.18	0.23	0.27	0.32	0.37
24.25	0.16	0.20	0.24	0.28	0.32
24.30	0.14	0.17	0.21	0.25	0.28
24.35	0.12	0.15	0.18	0.22	0.25
24.40	0.10	0.13	0.16	0.19	0.22
24.45	0.09	0.12	0.14	0.16	0.19
24.50	0.08	0.10	0.12	0.14	0.16
24.55	0.07	0.09	0.11	0.13	0.14
24.60	0.06	0.08	0.09	0.11	0.13
24.65	0.05	0.07	0.08	0.10	0.11
24.70	0.05	0.06	0.07	0.08	0.10
24.75	0.04	0.05	0.06	0.07	0.08
24.80	0.04	0.05	0.05	0.06	0.07
24.85	0.03	0.04	0.05	0.06	0.06
24.90	0.03	0.03	0.04	0.05	0.06
24.95	0.02	0.03	0.04	0.04	0.05
25.00	0.02	0.03	0.03	0.04	0.04
25.05	0.02	0.02	0.03	0.03	0.04
25.10	0.02	0.02	0.02	0.03	0.03
25.15	0.01	0.02	0.02	0.03	0.03
25.20	0.01	0.02	0.02	0.02	0.03
25.25	0.01	0.01	0.02	0.02	0.02
25.30	0.01	0.01	0.01	0.02	0.02
25.35	0.01	0.01	0.01	0.01	0.02
25.40	0.01	0.01	0.01	0.01	0.01
25.45	0.01	0.01	0.01	0.01	0.01
25.50	0.01	0.01	0.01	0.01	0.01
25.55	0.00	0.01	0.01	0.01	0.01
25.60	0.00	0.01	0.01	0.01	0.01
25.65		0.00	0.01	0.01	0.01
25.70		0.00	0.00	0.01	0.01
25.75			0.00	0.01	0.01
25.80				0.00	0.01
25.85					0.00

Appendix C

Calculations for Hydrologic Analysis of Proposed Conditions

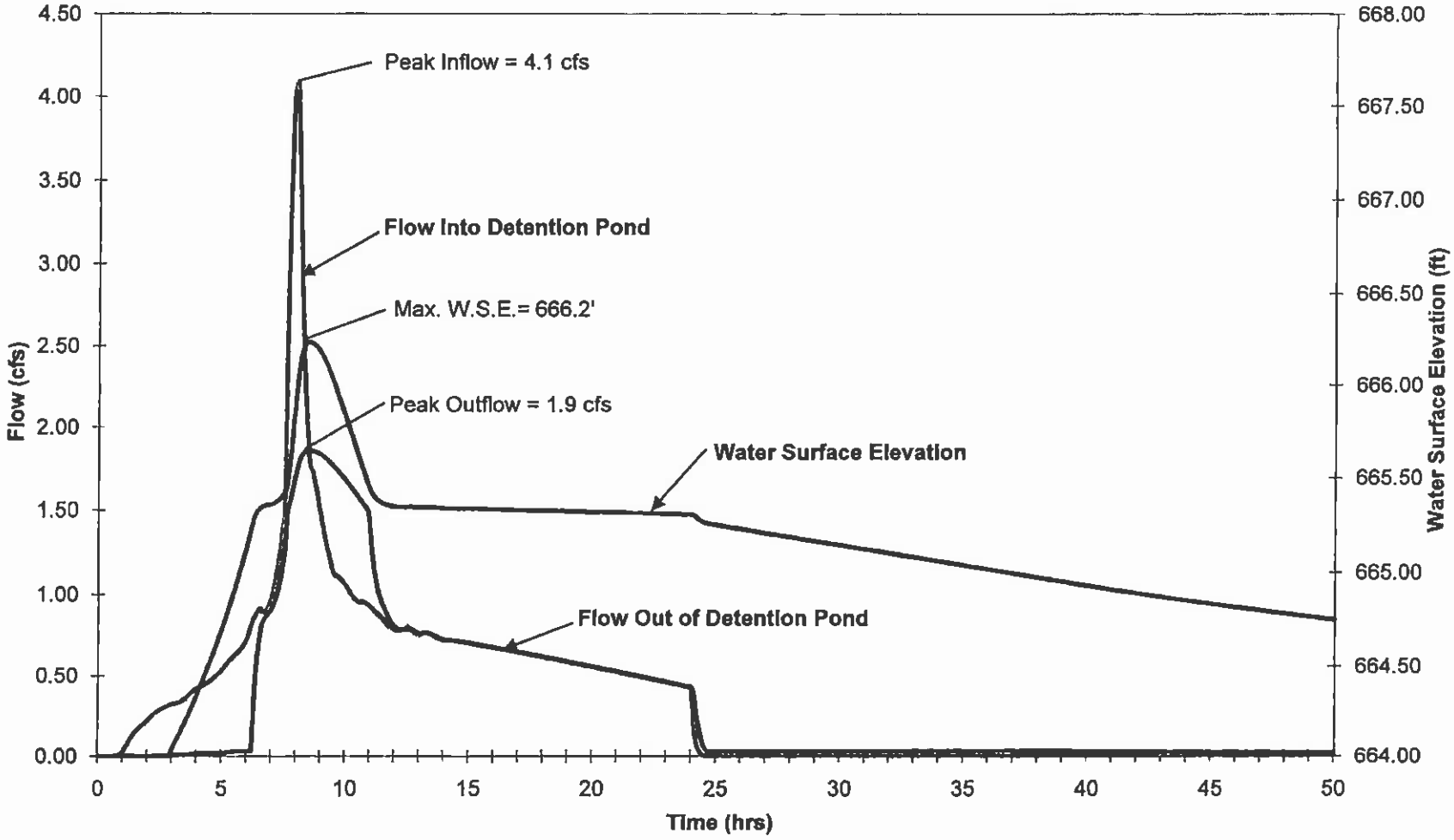
ROSEMONT RIDGE MIDDLE SCHOOL
Runoff Hydrographs for Proposed Conditions




ROSEMONT RIDGE MIDDLE SCHOOL
Hydrograph and Detention Summary for Proposed Conditions 2-Year Storm
Peak Inflow =3.2 cfs
Flow Into Detention Pond
Peak Outflow = 1.7 cfs
Max. W.S.E.= 665.9'
Water Surface Elevation
Flow Out of Detention Pond
Flow (cfs)
Water Surface Elevation (ft)
Time (hrs)
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
664.00
664.50
665.00
665.50
666.00
666.50
667.00
667.50
668.00
0
5
10
15
20
25
30
35
40
45
50

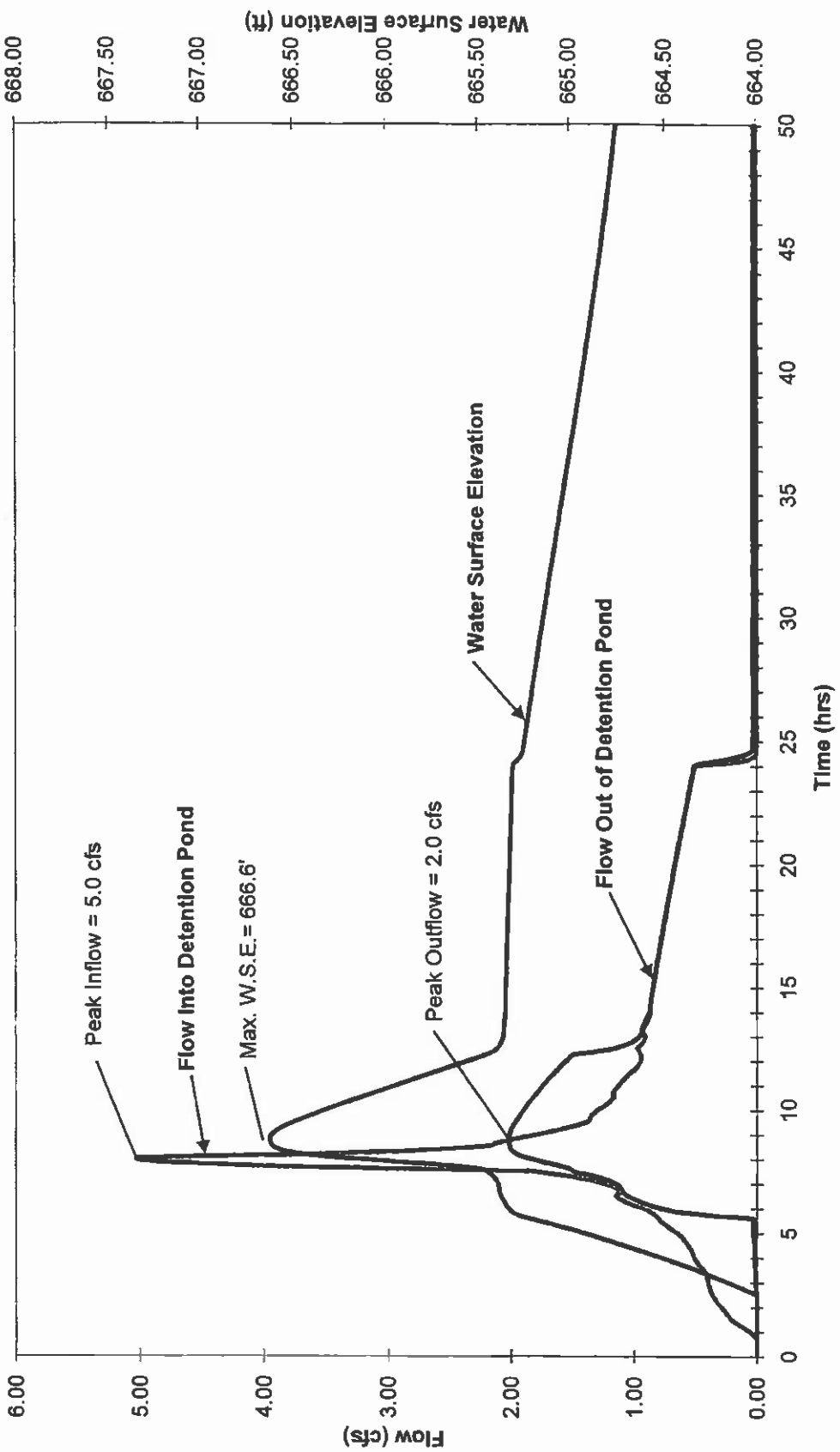
ROSEMONT RIDGE MIDDLE SCHOOL

Hydrograph and Detention Summary for Proposed Conditions 5-Year Storm



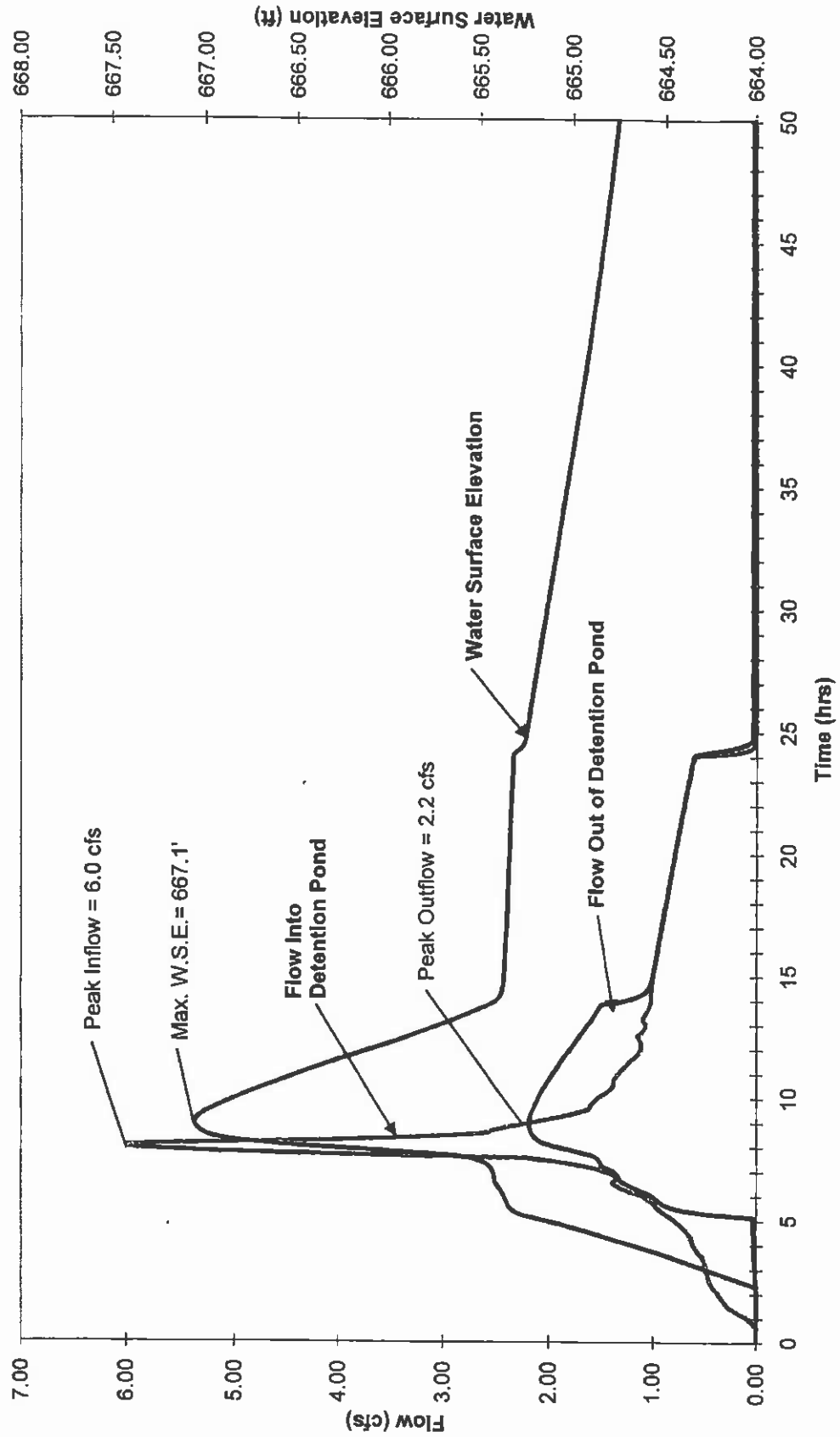
ROSEMONT RIDGE MIDDLE SCHOOL

Hydrograph and Detention Summary for Proposed Conditions 10-Year Storm



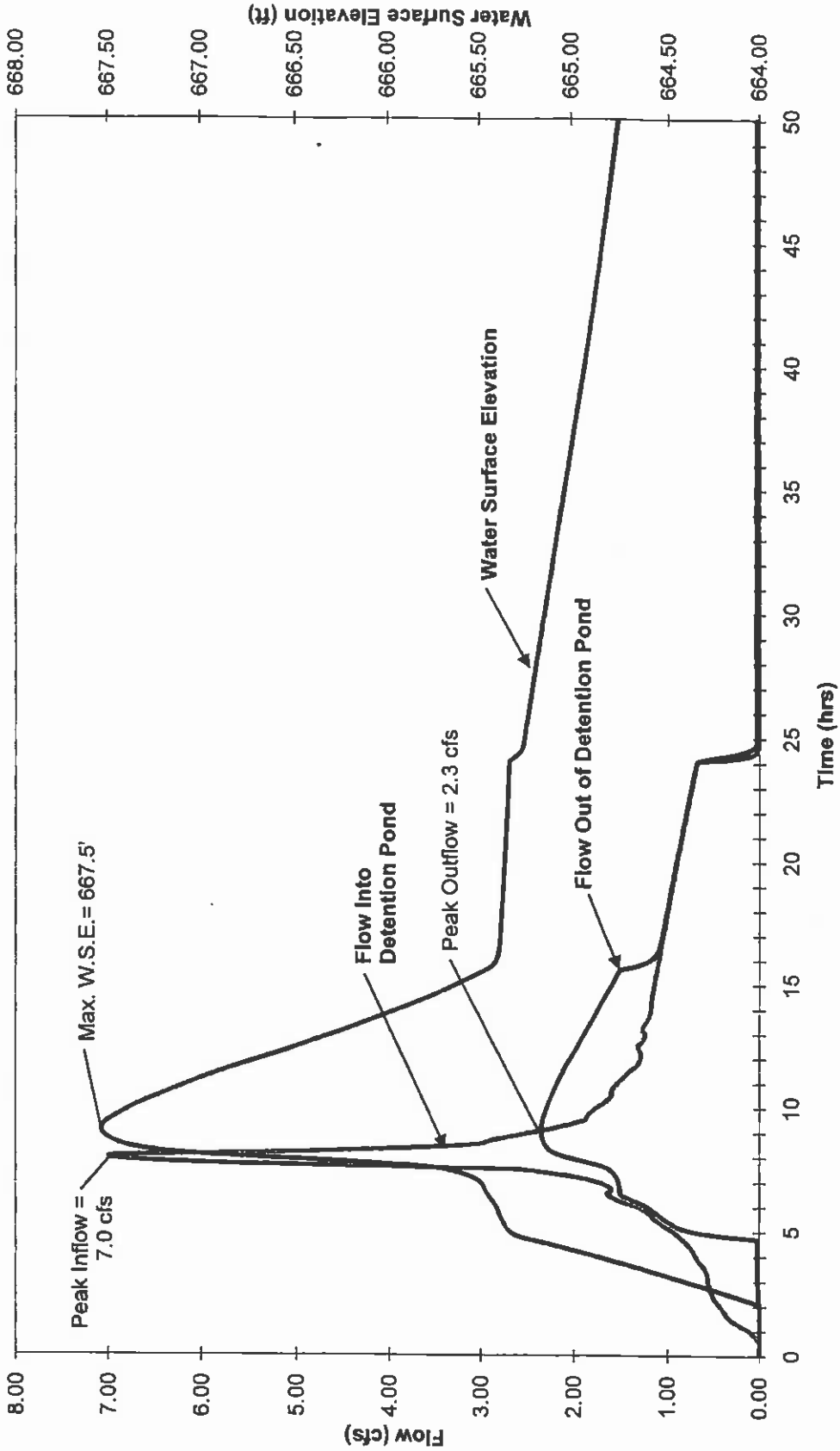
ROSEMONT RIDGE MIDDLE SCHOOL

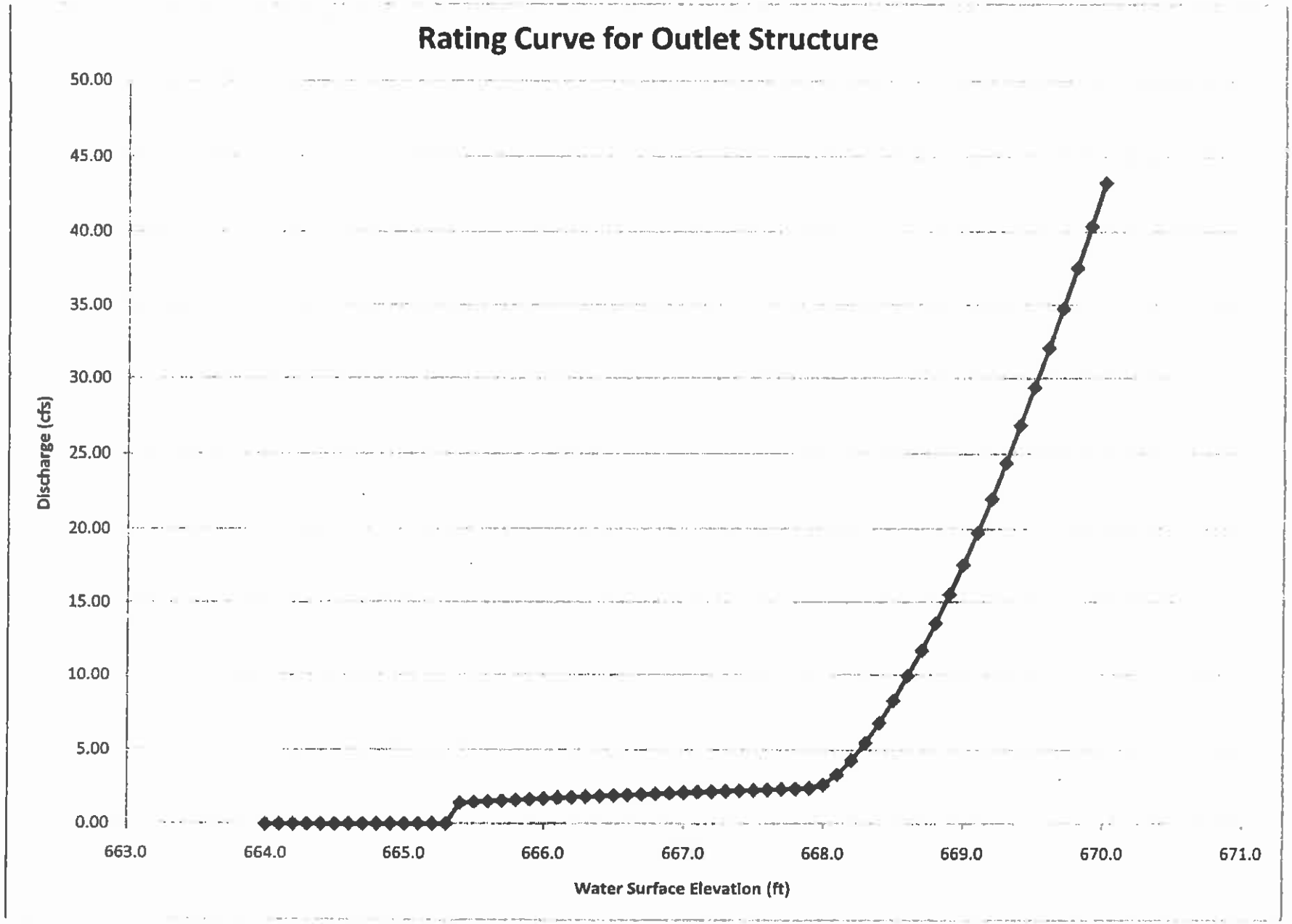
Hydrograph and Detention Summary for Proposed Conditions 25-Year Storm



ROSEMONT RIDGE MIDDLE SCHOOL

Hydrograph and Detention Summary for Proposed Conditions 100-Year Storm





PROPOSED CONDITIONS

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

ROSEMONT RIDGE MIDDLE SCHOOL

Hydrographs and Water Surface Elevation for Proposed Conditions (All Sub-Basins)

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.60	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.65	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.70	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.75	0.00	0.00	0.01	0.02	0.05	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.66
0.80	0.00	0.00	0.01	0.03	0.06	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.66	663.67
0.85	0.00	0.01	0.02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.67	663.67
0.90	0.00	0.01	0.03	0.06	0.09	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.67	663.67
0.95	0.00	0.02	0.04	0.07	0.10	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.66	663.67	663.68
1.00	0.01	0.03	0.05	0.08	0.12	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.67	663.67	663.68
1.05	0.01	0.04	0.07	0.10	0.14	0.00	0.00	0.00	0.00	0.00	663.66	663.66	663.67	663.68	663.69
1.10	0.02	0.05	0.08	0.12	0.17	0.00	0.00	0.00	0.00	0.00	663.66	663.67	663.67	663.68	663.70
1.15	0.03	0.06	0.10	0.15	0.19	0.00	0.00	0.00	0.00	0.00	663.66	663.67	663.68	663.69	663.71
1.20	0.03	0.07	0.12	0.17	0.22	0.00	0.00	0.00	0.00	0.00	663.66	663.67	663.68	663.70	663.72
1.25	0.04	0.09	0.13	0.19	0.24	0.00	0.00	0.00	0.00	0.00	663.67	663.68	663.69	663.71	663.73
1.30	0.05	0.10	0.15	0.21	0.27	0.00	0.00	0.00	0.00	0.00	663.67	663.68	663.70	663.72	663.74
1.35	0.06	0.11	0.17	0.23	0.29	0.00	0.00	0.00	0.00	0.00	663.67	663.68	663.70	663.73	663.75
1.40	0.07	0.13	0.18	0.25	0.31	0.00	0.00	0.00	0.00	0.00	663.67	663.69	663.71	663.74	663.77
1.45	0.08	0.14	0.20	0.26	0.33	0.00	0.00	0.00	0.00	0.00	663.68	663.70	663.72	663.75	663.78
1.50	0.09	0.15	0.21	0.28	0.35	0.00	0.00	0.00	0.00	0.00	663.68	663.70	663.73	663.76	663.80
1.55	0.10	0.16	0.22	0.29	0.36	0.00	0.00	0.00	0.00	0.00	663.69	663.71	663.74	663.77	663.81
1.60	0.11	0.16	0.23	0.30	0.37	0.00	0.00	0.00	0.00	0.00	663.69	663.72	663.75	663.79	663.83
1.65	0.11	0.17	0.24	0.31	0.38	0.00	0.00	0.00	0.00	0.00	663.70	663.73	663.76	663.80	663.85
1.70	0.12	0.18	0.24	0.31	0.39	0.00	0.00	0.00	0.00	0.00	663.70	663.73	663.77	663.82	663.86
1.75	0.12	0.19	0.25	0.32	0.39	0.00	0.00	0.00	0.00	0.00	663.71	663.74	663.78	663.83	663.88
1.80	0.13	0.19	0.26	0.33	0.40	0.00	0.00	0.00	0.00	0.00	663.71	663.75	663.80	663.85	663.90
1.85	0.14	0.20	0.27	0.34	0.41	0.00	0.00	0.00	0.00	0.00	663.72	663.76	663.81	663.86	663.92
1.90	0.14	0.21	0.28	0.35	0.42	0.00	0.00	0.00	0.00	0.00	663.73	663.77	663.82	663.88	663.94
1.95	0.15	0.21	0.28	0.36	0.43	0.00	0.00	0.00	0.00	0.00	663.73	663.78	663.83	663.89	663.96
2.00	0.15	0.22	0.29	0.37	0.44	0.00	0.00	0.00	0.00	0.00	663.74	663.79	663.85	663.91	663.98
2.05	0.16	0.23	0.30	0.38	0.45	0.00	0.00	0.00	0.00	0.00	663.75	663.80	663.86	663.93	664.00
2.10	0.17	0.24	0.31	0.39	0.46	0.00	0.00	0.00	0.00	0.00	663.76	663.81	663.88	663.94	664.02
2.15	0.17	0.25	0.32	0.40	0.48	0.00	0.00	0.00	0.00	0.00	663.76	663.82	663.89	663.96	664.04
2.20	0.18	0.25	0.33	0.41	0.49	0.00	0.00	0.00	0.00	0.01	663.77	663.83	663.90	663.98	664.06
2.25	0.19	0.26	0.34	0.42	0.50	0.00	0.00	0.00	0.00	0.01	663.78	663.85	663.92	664.00	664.08
2.30	0.19	0.27	0.34	0.42	0.50	0.00	0.00	0.00	0.00	0.01	663.79	663.86	663.93	664.02	664.10
2.35	0.20	0.27	0.35	0.43	0.51	0.00	0.00	0.00	0.00	0.01	663.80	663.87	663.95	664.04	664.12
2.40	0.20	0.28	0.36	0.44	0.52	0.00	0.00	0.00	0.01	0.01	663.81	663.88	663.97	664.05	664.14
2.45	0.21	0.28	0.36	0.45	0.53	0.00	0.00	0.00	0.01	0.01	663.82	663.90	663.98	664.07	664.17
2.50	0.21	0.29	0.37	0.45	0.53	0.00	0.00	0.00	0.01	0.01	663.83	663.91	664.00	664.09	664.19
2.55	0.22	0.29	0.37	0.46	0.54	0.00	0.00	0.00	0.01	0.01	663.84	663.92	664.02	664.11	664.21
2.60	0.22	0.30	0.38	0.46	0.54	0.00	0.00	0.00	0.01	0.01	663.85	663.94	664.03	664.13	664.23
2.65	0.22	0.30	0.38	0.46	0.55	0.00	0.00	0.01	0.01	0.01	663.86	663.95	664.05	664.15	664.26
2.70	0.23	0.31	0.39	0.47	0.55	0.00	0.00	0.01	0.01	0.01	663.87	663.96	664.07	664.17	664.28
2.75	0.23	0.31	0.39	0.47	0.55	0.00	0.00	0.01	0.01	0.01	663.88	663.98	664.08	664.19	664.30
2.80	0.23	0.31	0.39	0.47	0.56	0.00	0.00	0.01	0.01	0.01	663.89	663.99	664.10	664.21	664.33
2.85	0.24	0.32	0.40	0.48	0.56	0.00	0.00	0.01	0.01	0.02	663.90	664.00	664.12	664.23	664.35
2.90	0.24	0.32	0.40	0.48	0.56	0.00	0.00	0.01	0.01	0.02	663.91	664.02	664.13	664.25	664.37
2.95	0.24	0.32	0.40	0.48	0.57	0.00	0.00	0.01	0.01	0.02	663.92	664.03	664.15	664.27	664.39
3.00	0.24	0.32	0.41	0.49	0.57	0.00	0.01	0.01	0.01	0.02	663.93	664.05	664.17	664.29	664.42
3.05	0.25	0.33	0.41	0.49	0.57	0.00	0.01	0.01	0.01	0.02	663.94	664.06	664.18	664.31	664.44
3.10	0.25	0.33	0.41	0.49	0.57	0.00	0.01	0.01	0.01	0.02	663.95	664.07	664.20	664.33	664.46
3.15	0.25	0.33	0.41	0.49	0.57	0.00	0.01	0.01	0.02	0.02	663.96	664.09	664.22	664.35	664.48
3.20	0.25	0.33	0.41	0.49	0.57	0.00	0.01	0.01	0.02	0.02	663.98	664.10	664.23	664.37	664.51
3.25	0.25	0.33	0.41	0.50	0.58	0.00	0.01	0.01	0.02	0.02	663.99	664.12	664.25	664.39	664.53
3.30	0.26	0.34	0.42	0.50	0.58	0.00	0.01	0.01	0.02	0.02	664.00	664.13	664.27	664.41	664.55
3.35	0.26	0.34	0.42	0.50	0.59	0.00	0.01	0.01	0.02	0.02	664.01	664.15	664.29	664.43	664.57
3.40	0.26	0.35	0.43	0.51	0.59	0.00	0.01	0.01	0.02	0.02	664.02	664.16	664.30	664.45	664.59
3.45	0.27	0.35	0.43	0.52	0.60	0.00	0.01	0.01	0.02	0.02	664.03	664.17	664.32	664.47	664.62
3.50	0.27	0.36	0.44	0.52	0.60	0.01	0.01	0.01	0.02	0.02	664.04	664.19	664.34	664.49	664.64
3.55	0.28	0.36	0.45	0.53	0.62	0.01	0.01	0.02	0.02	0.02	664.06	664.20	664.36	664.51	664.66
3.60	0.28	0.37	0.46	0.54	0.63	0.01	0.01	0.02	0.02	0.02	664.07	664.22	664.37	664.53	664.69

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
3.65	0.29	0.38	0.47	0.55	0.64	0.01	0.01	0.02	0.02	0.02	664.08	664.24	664.39	664.55	664.71
3.70	0.30	0.39	0.48	0.56	0.65	0.01	0.01	0.02	0.02	0.02	664.09	664.25	664.41	664.57	664.73
3.75	0.30	0.39	0.48	0.57	0.66	0.01	0.01	0.02	0.02	0.02	664.11	664.27	664.43	664.59	664.76
3.80	0.31	0.40	0.49	0.58	0.67	0.01	0.01	0.02	0.02	0.02	664.12	664.28	664.45	664.62	664.78
3.85	0.32	0.41	0.50	0.59	0.68	0.01	0.01	0.02	0.02	0.02	664.13	664.30	664.47	664.64	664.81
3.90	0.32	0.41	0.50	0.60	0.69	0.01	0.01	0.02	0.02	0.02	664.15	664.32	664.49	664.66	664.83
3.95	0.32	0.42	0.51	0.60	0.70	0.01	0.01	0.02	0.02	0.03	664.16	664.33	664.51	664.68	664.86
4.00	0.33	0.42	0.52	0.61	0.70	0.01	0.02	0.02	0.02	0.03	664.17	664.35	664.53	664.71	664.88
4.05	0.33	0.43	0.52	0.61	0.71	0.01	0.02	0.02	0.02	0.03	664.19	664.37	664.55	664.73	664.91
4.10	0.33	0.43	0.52	0.62	0.71	0.01	0.02	0.02	0.02	0.03	664.20	664.38	664.57	664.75	664.93
4.15	0.34	0.43	0.53	0.62	0.72	0.01	0.02	0.02	0.02	0.03	664.22	664.40	664.59	664.78	664.96
4.20	0.34	0.44	0.53	0.62	0.73	0.01	0.02	0.02	0.02	0.03	664.23	664.42	664.61	664.80	664.99
4.25	0.34	0.44	0.53	0.63	0.74	0.01	0.02	0.02	0.02	0.03	664.24	664.44	664.63	664.82	665.01
4.30	0.35	0.44	0.54	0.64	0.75	0.01	0.02	0.02	0.03	0.03	664.26	664.45	664.65	664.84	665.04
4.35	0.35	0.45	0.55	0.64	0.76	0.01	0.02	0.02	0.03	0.03	664.27	664.47	664.67	664.87	665.06
4.40	0.36	0.45	0.55	0.65	0.77	0.01	0.02	0.02	0.03	0.03	664.29	664.49	664.69	664.89	665.09
4.45	0.36	0.46	0.56	0.66	0.78	0.01	0.02	0.02	0.03	0.03	664.30	664.50	664.71	664.91	665.12
4.50	0.37	0.47	0.56	0.67	0.80	0.01	0.02	0.02	0.03	0.03	664.32	664.52	664.73	664.94	665.14
4.55	0.37	0.47	0.57	0.68	0.81	0.01	0.02	0.02	0.03	0.03	664.33	664.54	664.75	664.96	665.17
4.60	0.38	0.48	0.58	0.69	0.82	0.02	0.02	0.02	0.03	0.03	664.35	664.56	664.77	664.98	665.20
4.65	0.38	0.48	0.58	0.70	0.84	0.02	0.02	0.02	0.03	0.03	664.36	664.58	664.79	665.01	665.23
4.70	0.39	0.49	0.59	0.71	0.85	0.02	0.02	0.02	0.03	0.03	664.38	664.60	664.82	665.03	665.26
4.75	0.39	0.50	0.60	0.72	0.86	0.02	0.02	0.02	0.03	0.21	664.39	664.61	664.84	665.06	665.28
4.80	0.40	0.50	0.61	0.74	0.88	0.02	0.02	0.03	0.03	0.38	664.41	664.63	664.86	665.08	665.30
4.85	0.40	0.51	0.62	0.75	0.90	0.02	0.02	0.03	0.03	0.51	664.42	664.65	664.88	665.11	665.32
4.90	0.41	0.52	0.63	0.77	0.91	0.02	0.02	0.03	0.03	0.61	664.44	664.67	664.90	665.13	665.33
4.95	0.42	0.53	0.64	0.78	0.93	0.02	0.02	0.03	0.03	0.69	664.45	664.69	664.93	665.16	665.34
5.00	0.42	0.53	0.65	0.80	0.95	0.02	0.02	0.03	0.03	0.76	664.47	664.71	664.95	665.19	665.34
5.05	0.43	0.54	0.66	0.81	0.97	0.02	0.02	0.03	0.03	0.81	664.49	664.73	664.97	665.22	665.35
5.10	0.44	0.56	0.68	0.83	0.99	0.02	0.02	0.03	0.03	0.85	664.50	664.75	664.99	665.24	665.36
5.15	0.45	0.57	0.70	0.85	1.01	0.02	0.02	0.03	0.12	0.89	664.52	664.77	665.02	665.27	665.36
5.20	0.46	0.58	0.71	0.87	1.03	0.02	0.02	0.03	0.31	0.91	664.54	664.79	665.04	665.29	665.36
5.25	0.47	0.58	0.72	0.89	1.05	0.02	0.02	0.03	0.45	0.94	664.56	664.81	665.07	665.31	665.37
5.30	0.47	0.59	0.74	0.90	1.07	0.02	0.02	0.03	0.57	0.96	664.57	664.84	665.09	665.32	665.37
5.35	0.48	0.60	0.75	0.92	1.09	0.02	0.03	0.03	0.66	0.98	664.59	664.86	665.12	665.33	665.38
5.40	0.49	0.61	0.77	0.93	1.11	0.02	0.03	0.03	0.73	1.01	664.61	664.88	665.15	665.34	665.38
5.45	0.49	0.62	0.78	0.95	1.13	0.02	0.03	0.03	0.78	1.03	664.63	664.90	665.17	665.35	665.38
5.50	0.50	0.63	0.79	0.96	1.15	0.02	0.03	0.03	0.83	1.05	664.65	664.92	665.20	665.35	665.39
5.55	0.50	0.63	0.80	0.97	1.16	0.02	0.03	0.03	0.88	1.07	664.67	664.94	665.23	665.36	665.39
5.60	0.50	0.64	0.81	0.98	1.16	0.02	0.03	0.03	0.89	1.08	664.68	664.97	665.25	665.36	665.39
5.65	0.51	0.64	0.81	0.99	1.18	0.02	0.03	0.17	0.91	1.10	664.70	664.99	665.28	665.36	665.40
5.70	0.51	0.65	0.82	1.00	1.19	0.02	0.03	0.34	0.93	1.12	664.72	665.01	665.30	665.37	665.40
5.75	0.52	0.66	0.84	1.02	1.21	0.02	0.03	0.47	0.94	1.13	664.74	665.03	665.31	665.37	665.40
5.80	0.53	0.67	0.85	1.04	1.23	0.02	0.03	0.56	0.96	1.16	664.76	665.06	665.32	665.37	665.40
5.85	0.53	0.69	0.87	1.05	1.25	0.02	0.03	0.64	0.97	1.16	664.78	665.08	665.33	665.37	665.41
5.90	0.54	0.70	0.88	1.07	1.27	0.02	0.03	0.70	0.99	1.18	664.80	665.10	665.34	665.38	665.41
5.95	0.55	0.71	0.90	1.09	1.29	0.02	0.03	0.75	1.01	1.20	664.82	665.13	665.34	665.38	665.41
6.00	0.56	0.73	0.92	1.12	1.32	0.02	0.03	0.79	1.03	1.22	664.84	665.15	665.35	665.38	665.42
6.05	0.57	0.75	0.95	1.15	1.36	0.03	0.03	0.83	1.05	1.24	664.86	665.18	665.35	665.39	665.42
6.10	0.59	0.78	0.98	1.19	1.41	0.03	0.03	0.88	1.07	1.27	664.88	665.20	665.36	665.39	665.42
6.15	0.61	0.80	1.01	1.23	1.45	0.03	0.03	0.89	1.10	1.30	664.90	665.23	665.36	665.39	665.43
6.20	0.63	0.83	1.04	1.26	1.49	0.03	0.03	0.92	1.12	1.33	664.92	665.26	665.37	665.40	665.43
6.25	0.64	0.84	1.06	1.29	1.52	0.03	0.23	0.94	1.15	1.36	664.95	665.28	665.37	665.40	665.44
6.30	0.65	0.86	1.08	1.31	1.55	0.03	0.39	0.97	1.18	1.39	664.97	665.30	665.37	665.41	665.44
6.35	0.66	0.88	1.10	1.33	1.57	0.03	0.52	0.99	1.20	1.42	664.99	665.32	665.38	665.41	665.45
6.40	0.67	0.89	1.12	1.35	1.59	0.03	0.61	1.01	1.23	1.45	665.02	665.33	665.38	665.42	665.45
6.45	0.68	0.90	1.13	1.37	1.61	0.03	0.68	1.03	1.25	1.48	665.04	665.34	665.38	665.42	665.46
6.50	0.69	0.91	1.14	1.38	1.63	0.03	0.74	1.05	1.28	1.49	665.06	665.34	665.39	665.42	665.46
6.55	0.69	0.91	1.14	1.38	1.62	0.03	0.78	1.07	1.30	1.49	665.09	665.35	665.39	665.43	665.47
6.60	0.68	0.89	1.12	1.35	1.60	0.03	0.82	1.08	1.31	1.50	665.11	665.35	665.39	665.43	665.47
6.65	0.67	0.89	1.11	1.34	1.58	0.03	0.83	1.09	1.32	1.50	665.13	665.35	665.39	665.43	665.47
6.70	0.68	0.89	1.11	1.34	1.58	0.03	0.85	1.09	1.32	1.50	665.16	665.36	665.39	665.43	665.48
6.75	0.68	0.89	1.12	1.35	1.59	0.03	0.86	1.10	1.33	1.50	665.18	665.36	665.39	665.43	665.48
6.80	0.69	0.91	1.13	1.37	1.61	0.03	0.87	1.10	1.33	1.50	665.20	665.36	665.40	665.43	665.48
6.85	0.70	0.92	1.15	1.39	1.64	0.03	0.88	1.11	1.34	1.50	665.23	665.36	665.40	665.44	665.49
6.90	0.72	0.94	1.17	1.42	1.67	0.03	0.89	1.12	1.35	1.51	665.25	665.36	665.40	665.44	665.49
6.95	0.73	0.96	1.20	1.45	1.71	0.13	0.90	1.13	1.37	1.51	665.27	665.36	665.40	665.44	665.50
7.00	0.76	0.99	1.24	1.49	1.75	0.29	0.92	1.15	1.39	1.51	665.29	665.36	665.40	665.44	665.51
7.05	0.78	1.02	1.27	1.54	1.80	0.41	0.93	1.17	1.41	1.52	665.30	665.37	665.41	665.45	665.51
7.10	0.81	1.06	1.32	1.59	1.86	0.51	0.95	1.19	1.44	1.52	665.32	665.37	665.41	665.45	665.52
7.15	0.84	1.09	1.36	1.64	1.93	0.59	0.98	1.22	1.47	1.53	665.33	665.37	665.42	665.46	665.54
7.20	0.87	1.14	1.42	1.70	2.00	0.66	1.00	1.25	1.49	1.54	665.33	665.38	665.42	665.46	665.55
7.25	0.91	1.18	1.47	1.77	2.08	0.72	1.03	1.29	1.50	1.54	665.34	665.38	665.43	665.47	665.57
7.30	0.94	1.23	1.53	1.85	2.17	0.77	1.06	1.33	1.50	1.55	665.35	665.39	665.43	665.48	665.59
7.35	0.99	1.29	1.60	1.93	2.26	0.82	1.10	1.37	1.51	1.56	665.35	665.40	665.44	665.49	665.61
7.40	1.03	1.35	1.67	2.01	2.36	0.87	1.14	1.42	1.51	1.58	665.36	665.40	665.45	665.51	665.63
7.45	1.08	1.41	1.75	2.10	2.47	0.91	1.18	1.46	1.52	1.59	665.36	665.41	665.46	665.53	665.66
7.50	1.13	1.48	1.83	2.20	2.58	0.95	1.23	1.49	1.53	1.60	665.37	665.42	665.47	665.55	665.69

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
7.55	1.43	1.86	2.31	2.77	3.24	1.01	1.31	1.50	1.55	1.63	665.38	665.43	665.49	665.58	665.73
7.60	1.89	2.45	3.04	3.65	4.27	1.13	1.47	1.52	1.58	1.66	665.40	665.46	665.53	665.63	665.80
7.65	2.24	2.91	3.60	4.32	5.05	1.30	1.51	1.55	1.62	1.70	665.43	665.50	665.58	665.71	665.89
7.70	2.53	3.28	4.06	4.86	5.67	1.49	1.53	1.59	1.66	1.75	665.46	665.55	665.66	665.81	666.00
7.75	2.74	3.56	4.40	5.26	6.14	1.51	1.57	1.63	1.71	1.81	665.50	665.61	665.74	665.91	666.13
7.80	2.92	3.78	4.67	5.58	6.52	1.53	1.60	1.68	1.76	1.87	665.54	665.68	665.83	666.02	666.26
7.85	3.04	3.93	4.85	5.80	6.78	1.56	1.64	1.72	1.81	1.92	665.59	665.75	665.93	666.14	666.40
7.90	3.12	4.04	4.98	5.95	6.93	1.58	1.67	1.76	1.87	1.98	665.64	665.82	666.03	666.26	666.54
7.95	3.16	4.08	5.03	6.00	6.99	1.61	1.71	1.80	1.91	2.03	665.69	665.90	666.13	666.38	666.68
8.00	3.16	4.07	5.02	5.99	6.97	1.63	1.74	1.85	1.96	2.08	665.74	665.97	666.22	666.50	666.81
8.05	2.97	3.83	4.71	5.62	6.54	1.65	1.77	1.88	2.00	2.13	665.79	666.04	666.31	666.60	666.94
8.10	2.65	3.41	4.20	5.01	5.83	1.67	1.79	1.91	2.04	2.17	665.82	666.09	666.38	666.70	667.04
8.15	2.39	3.08	3.80	4.52	5.26	1.68	1.81	1.94	2.07	2.20	665.85	666.14	666.44	666.77	667.13
8.20	2.18	2.81	3.45	4.11	4.78	1.69	1.83	1.96	2.09	2.22	665.87	666.17	666.49	666.83	667.20
8.25	2.00	2.58	3.17	3.77	4.38	1.70	1.84	1.97	2.10	2.24	665.88	666.20	666.53	666.88	667.26
8.30	1.85	2.37	2.92	3.47	4.04	1.70	1.84	1.98	2.12	2.26	665.89	666.22	666.56	666.92	667.31
8.35	1.71	2.20	2.70	3.22	3.74	1.70	1.85	1.99	2.13	2.27	665.89	666.23	666.58	666.95	667.35
8.40	1.59	2.05	2.51	2.99	3.47	1.70	1.85	2.00	2.14	2.29	665.89	666.24	666.60	666.98	667.38
8.45	1.49	1.92	2.35	2.80	3.25	1.70	1.86	2.00	2.15	2.30	665.88	666.24	666.61	667.00	667.41
8.50	1.40	1.80	2.21	2.63	3.05	1.70	1.86	2.01	2.15	2.30	665.88	666.24	666.62	667.01	667.43
8.55	1.36	1.75	2.15	2.55	2.96	1.69	1.85	2.01	2.16	2.31	665.87	666.24	666.62	667.02	667.45
8.60	1.36	1.74	2.13	2.54	2.94	1.69	1.85	2.01	2.16	2.32	665.86	666.24	666.63	667.03	667.46
8.65	1.34	1.72	2.11	2.50	2.90	1.68	1.85	2.01	2.17	2.32	665.84	666.23	666.63	667.04	667.48
8.70	1.32	1.69	2.07	2.45	2.84	1.68	1.85	2.01	2.17	2.32	665.83	666.23	666.63	667.05	667.49
8.75	1.29	1.65	2.02	2.40	2.78	1.67	1.85	2.01	2.17	2.33	665.82	666.22	666.63	667.06	667.50
8.80	1.26	1.61	1.97	2.34	2.71	1.66	1.84	2.01	2.17	2.33	665.81	666.22	666.63	667.06	667.51
8.85	1.22	1.57	1.92	2.27	2.64	1.66	1.84	2.01	2.18	2.33	665.80	666.21	666.63	667.06	667.52
8.90	1.18	1.52	1.87	2.21	2.56	1.65	1.84	2.01	2.18	2.34	665.78	666.20	666.63	667.07	667.53
8.95	1.16	1.48	1.82	2.15	2.49	1.64	1.83	2.01	2.18	2.34	665.77	666.19	666.62	667.07	667.53
9.00	1.13	1.44	1.76	2.09	2.42	1.64	1.83	2.01	2.18	2.34	665.75	666.18	666.62	667.07	667.53
9.05	1.10	1.40	1.72	2.03	2.36	1.63	1.82	2.00	2.17	2.34	665.73	666.17	666.61	667.06	667.54
9.10	1.07	1.37	1.67	1.98	2.29	1.62	1.82	2.00	2.17	2.34	665.72	666.15	666.60	667.06	667.54
9.15	1.04	1.33	1.62	1.92	2.23	1.61	1.81	2.00	2.17	2.34	665.70	666.14	666.59	667.05	667.53
9.20	1.01	1.29	1.58	1.87	2.17	1.60	1.80	1.99	2.17	2.34	665.68	666.12	666.58	667.05	667.53
9.25	0.99	1.26	1.54	1.82	2.11	1.59	1.80	1.99	2.16	2.34	665.66	666.11	666.57	667.04	667.53
9.30	0.96	1.23	1.50	1.78	2.06	1.58	1.79	1.98	2.16	2.33	665.64	666.09	666.55	667.03	667.52
9.35	0.94	1.20	1.46	1.73	2.01	1.57	1.78	1.98	2.16	2.33	665.62	666.08	666.54	667.02	667.51
9.40	0.92	1.17	1.43	1.69	1.96	1.56	1.77	1.97	2.15	2.33	665.60	666.06	666.53	667.01	667.50
9.45	0.90	1.14	1.40	1.65	1.91	1.55	1.77	1.96	2.15	2.33	665.58	666.04	666.51	666.99	667.49
9.50	0.88	1.12	1.37	1.62	1.87	1.54	1.76	1.96	2.14	2.32	665.56	666.02	666.49	666.98	667.48
9.55	0.87	1.11	1.36	1.60	1.85	1.53	1.75	1.95	2.14	2.32	665.53	666.00	666.48	666.97	667.47
9.60	0.87	1.11	1.36	1.61	1.86	1.52	1.74	1.94	2.13	2.31	665.51	665.98	666.46	666.95	667.46
9.65	0.87	1.11	1.35	1.60	1.85	1.51	1.73	1.94	2.13	2.31	665.49	665.96	666.44	666.94	667.45
9.70	0.87	1.10	1.35	1.59	1.84	1.50	1.73	1.93	2.12	2.31	665.47	665.94	666.43	666.92	667.44
9.75	0.86	1.10	1.34	1.58	1.83	1.43	1.72	1.92	2.12	2.30	665.45	665.92	666.41	666.91	667.43
9.80	0.85	1.09	1.33	1.57	1.81	1.33	1.71	1.92	2.11	2.30	665.43	665.90	666.39	666.90	667.42
9.85	0.85	1.08	1.32	1.56	1.80	1.24	1.70	1.91	2.11	2.29	665.42	665.88	666.38	666.88	667.40
9.90	0.84	1.07	1.30	1.54	1.78	1.16	1.69	1.90	2.10	2.29	665.41	665.86	666.36	666.87	667.39
9.95	0.83	1.06	1.29	1.53	1.76	1.10	1.68	1.90	2.10	2.28	665.40	665.85	666.34	666.85	667.38
10.00	0.82	1.05	1.28	1.51	1.75	1.05	1.67	1.89	2.09	2.28	665.39	665.83	666.32	666.84	667.37
10.05	0.81	1.04	1.26	1.49	1.73	1.01	1.66	1.88	2.08	2.28	665.38	665.81	666.31	666.82	667.35
10.10	0.80	1.02	1.25	1.47	1.70	0.97	1.65	1.87	2.08	2.27	665.37	665.79	666.29	666.80	667.34
10.15	0.79	1.01	1.23	1.45	1.68	0.94	1.64	1.87	2.07	2.27	665.37	665.77	666.27	666.79	667.32
10.20	0.78	1.00	1.22	1.44	1.66	0.91	1.63	1.86	2.07	2.26	665.36	665.75	666.25	666.77	667.31
10.25	0.78	0.99	1.20	1.42	1.64	0.89	1.62	1.85	2.06	2.26	665.36	665.72	666.23	666.75	667.29
10.30	0.77	0.98	1.19	1.41	1.63	0.86	1.61	1.84	2.05	2.25	665.36	665.70	666.21	666.74	667.28
10.35	0.76	0.97	1.18	1.40	1.61	0.83	1.60	1.83	2.05	2.24	665.35	665.68	666.18	666.72	667.26
10.40	0.76	0.96	1.17	1.39	1.60	0.82	1.59	1.83	2.04	2.24	665.35	665.66	666.17	666.70	667.25
10.45	0.75	0.96	1.17	1.38	1.59	0.80	1.58	1.82	2.03	2.23	665.35	665.64	666.15	666.68	667.23
10.50	0.75	0.95	1.16	1.37	1.58	0.79	1.57	1.81	2.03	2.23	665.35	665.62	666.13	666.66	667.21
10.55	0.75	0.95	1.16	1.37	1.58	0.78	1.56	1.80	2.02	2.22	665.35	665.60	666.11	666.65	667.20
10.60	0.75	0.95	1.16	1.37	1.58	0.77	1.55	1.79	2.01	2.22	665.35	665.58	666.10	666.63	667.18
10.65	0.75	0.95	1.16	1.37	1.58	0.76	1.54	1.78	2.00	2.21	665.35	665.56	666.08	666.61	667.16
10.70	0.75	0.95	1.16	1.37	1.58	0.76	1.53	1.77	2.00	2.20	665.35	665.54	666.06	666.59	667.15
10.75	0.75	0.95	1.15	1.36	1.57	0.76	1.52	1.77	1.99	2.20	665.34	665.52	666.04	666.58	667.13
10.80	0.74	0.94	1.15	1.35	1.56	0.75	1.51	1.76	1.98	2.19	665.34	665.51	666.02	666.56	667.12
10.85	0.74	0.94	1.14	1.35	1.55	0.75	1.50	1.75	1.98	2.19	665.34	665.49	666.00	666.54	667.10
10.90	0.73	0.93	1.13	1.34	1.54	0.75	1.49	1.74	1.97	2.18	665.34	665.47	665.98	666.52	667.08
10.95	0.73	0.92	1.12	1.33	1.53	0.74	1.43	1.74	1.96	2.18	665.34	665.45	665.96	666.50	667.07
11.00	0.72	0.92	1.12	1.32	1.52	0.74	1.34	1.73	1.95	2.17	665.34	665.43	665.95	666.49	667.05
11.05	0.72	0.91	1.11	1.31	1.51	0.73	1.26	1.72	1.95	2.16	665.34	665.42	665.93	666.47	667.03
11.10	0.71	0.90	1.10	1.29	1.49	0.73	1.19	1.71	1.94	2.16	665.34	665.41	665.91	666.45	667.02
11.15	0.71	0.90	1.09	1.28	1.48	0.72	1.14	1.70	1.93	2.15	665.34	665.40	665.89	666.43	667.00
11.20	0.70	0.89	1.08	1.27	1.47	0.72	1.09	1.69	1.93	2.14	665.34	665.39	665.87	666.41	666.98
11.25	0.69	0.88	1.07	1.26	1.46	0.71	1.05	1.68	1.92	2.14	665.34	665.39	665.85	666.39	666.96
11.30	0.69	0.87	1.06	1.25	1.44	0.71	1.02	1.68	1.91	2.13	665.34	665.38	665.83	666.38	666.94
11.35	0.68	0.87	1.05	1.24	1.43	0.70	0.99	1.67	1.90	2.12	665.34	665.38	665.81	666.36	666.93
11.40	0.68	0.86	1.04	1.23	1.42	0.70	0.97	1.66	1.89	2.12	665.34	665.37	665.79	666.34	666.91

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
11 45	0.67	0.85	1.03	1.22	1.41	0.69	0.95	1.65	1.89	2.11	665.34	665.37	665.77	666.32	666 89
11.50	0.67	0.84	1.02	1.21	1.39	0.68	0.93	1 64	1.88	2.10	665.34	665.37	665.75	666.30	666.87
11.55	0.66	0.83	1.01	1.19	1.38	0.68	0.91	1.63	1.87	2.10	665.34	665.36	665 73	666.28	666.85
11.60	0.65	0.82	1 00	1.18	1.36	0.67	0.90	1.62	1.86	2.09	665.33	665.36	665.71	666.26	666.83
11 65	0 64	0.81	0 99	1.18	1.34	0.66	0.88	1.61	1.85	2 08	665.33	665.36	665.69	666.24	666.81
11.70	0.63	0.80	0.98	1.15	1 33	0.66	0.86	1.60	1.85	2.07	665.33	665.36	665.67	666.22	666.79
11.75	0.63	0.80	0.97	1.14	1.31	0.65	0.85	1.59	1.84	2.07	665.33	665.36	665.65	666.20	666.77
11.80	0.62	0.79	0.96	1.13	1.31	0.64	0.83	1.58	1.83	2.06	665.33	665.35	665.63	666.18	666 75
11 85	0.62	0 79	0.96	1.13	1.30	0.64	0.82	1.57	1.82	2.05	665.33	665.35	665.61	666.16	666.73
11.90	0.62	0.78	0.95	1.12	1 29	0.63	0.81	1.56	1.81	2.04	665.33	665.35	665.59	666.14	666.71
11.95	0.62	0.78	0.95	1.11	1.28	0.63	0.80	1.55	1.80	2.04	665.33	665.35	665.57	666.11	666.69
12.00	0.61	0.78	0.94	1.11	1.28	0.63	0.80	1.54	1.79	2.03	665.33	665.35	665.55	666.09	666.67
12.05	0 61	0.78	0.94	1 11	1.28	0.62	0.79	1.53	1.78	2.02	665.33	665.35	665.53	666.07	666 65
12 10	0.61	0 77	0.94	1.11	1.27	0.62	0.79	1.52	1.77	2.01	665.33	665.35	665.51	666.05	666.63
12.15	0.61	0.77	0.94	1.11	1.27	0 62	0.78	1.51	1.76	2.00	665.33	665.35	665.50	666.03	666.61
12.20	0.61	0.78	0.94	1.11	1.28	0 62	0.78	1.50	1.76	2.00	665.33	665.35	665.48	666.01	666.59
12.25	0.61	0 78	0.94	1 11	1.28	0.62	0.78	1.48	1.75	1.99	665.33	665.35	665.46	665.99	666.57
12.30	0.62	0.78	0.95	1.12	1.28	0.62	0.78	1.38	1.74	1.98	665.33	665.35	665.44	665.97	666.55
12 35	0 62	0.78	0.95	1 12	1.29	0.62	0.78	1.30	1.73	1.97	665.33	665.35	665.43	665.96	666.53
12 40	0.62	0.79	0.96	1.13	1.30	0.62	0.78	1.24	1.72	1.96	665.33	665.35	665.42	665.94	666.51
12 45	0.63	0.79	0.96	1.13	1.30	0.62	0 78	1.19	1.72	1.96	665.33	665.35	665.41	665.92	666.49
12 50	0.63	0.80	0.97	1 14	1.31	0.62	0.79	1.14	1.71	1.95	665.33	665.35	665.40	665.90	666 47
12.55	0.63	0.79	0.96	1 13	1.31	0.62	0.79	1.11	1.70	1.94	665.33	665.35	665.40	665.88	666.45
12.60	0.62	0.78	0.95	1.12	1.29	0.62	0.79	1.08	1.69	1.93	665 33	665.35	665.39	665.86	666 44
12.65	0.61	0.77	0.94	1.10	1.27	0.62	0.79	1.06	1.68	1.93	665.33	665.35	665.39	665.85	666.42
12.70	0.61	0.77	0.93	1.10	1.26	0.62	0.78	1.03	1.67	1.92	665.33	665.35	665.38	665.83	666.40
12.75	0.60	0.76	0.92	1.09	1.25	0.61	0.78	1.01	1.67	1.91	665 33	665.35	665.38	665.81	666.38
12.80	0.60	0.76	0.92	1.08	1.24	0.61	0.77	1.00	1.66	1.90	665.33	665.35	665.38	665.79	666.36
12.85	0.60	0.75	0.92	1.08	1.24	0.61	0.77	0.98	1.65	1.90	665.33	665.35	665.38	665.77	666.34
12.90	0.60	0.75	0.91	1.07	1.24	0.60	0.77	0.97	1.64	1.89	665.33	665.35	665.37	665.76	666.32
12.95	0.59	0.75	0.91	1.07	1.23	0.60	0.76	0.96	1.63	1.88	665.33	665.35	665.37	665.74	666.30
13.00	0 59	0.75	0.91	1.07	1.23	0.60	0.76	0.95	1.62	1.87	665.33	665.34	665.37	665.72	666.28
13.05	0.60	0.75	0.91	1.07	1.24	0.60	0.76	0.94	1.61	1.87	665.33	665.34	665.37	665 70	666.27
13.10	0.60	0.76	0.92	1.09	1.25	0.60	0.76	0.94	1.60	1.86	665.33	665.34	665.37	665.69	666.25
13.15	0.61	0.77	0.93	1.09	1.26	0.60	0.76	0.94	1.59	1.85	665.33	665.35	665.37	665.67	666.23
13.20	0.61	0.77	0.93	1.09	1.26	0.60	0.76	0.93	1.59	1.84	665.33	665.35	665.37	665.65	666.21
13.25	0.60	0.76	0.93	1.09	1.25	0.60	0.76	0.93	1.58	1.84	665.33	665.35	665.37	665.64	666.20
13.30	0.60	0.76	0.92	1.08	1.25	0.60	0.76	0.93	1.57	1.83	665.33	665.35	665.37	665.62	666 18
13.35	0.60	0.76	0.92	1.08	1.24	0.60	0.76	0.93	1.56	1.82	665.33	665.35	665.37	665.60	666.16
13.40	0.60	0.75	0.91	1.07	1.23	0.60	0.76	0.93	1.55	1.81	665.33	665.35	665.37	665.59	666.14
13.45	0.59	0.75	0.91	1.06	1.22	0.60	0.76	0.92	1.55	1.80	665.33	665.34	665.37	665.57	666.13
13.50	0.59	0.74	0.90	1.06	1.22	0.60	0.75	0.92	1.54	1.80	665.33	665.34	665.37	665.56	666.11
13.55	0.58	0.74	0.89	1.05	1.21	0.59	0.75	0.92	1.53	1.79	665.33	665.34	665.36	665.54	666.09
13.60	0.58	0.73	0.89	1.05	1.20	0.59	0.75	0.91	1.52	1.78	665.33	665.34	665.36	665.53	666.07
13.65	0.58	0.73	0.88	1.04	1.20	0.59	0.74	0.91	1.51	1.77	665.33	665.34	665.36	665.51	666.06
13.70	0.58	0.73	0.88	1.03	1.19	0.59	0.74	0.90	1.51	1.77	665.32	665.34	665.36	665.49	666 04
13.75	0.57	0.72	0.88	1.03	1.18	0.58	0.74	0.90	1.50	1.76	665.32	665.34	665.36	665 48	666.02
13.80	0.57	0.72	0.87	1.03	1.18	0.58	0 73	0.89	1.49	1.75	665 32	665.34	665.36	665.48	666.00
13.85	0.57	0.72	0.87	1.02	1.18	0.58	0.73	0.89	1.42	1.74	665.32	665.34	665.36	665.45	665.99
13.90	0.57	0.72	0.87	1.02	1.17	0.58	0.73	0.88	1.34	1.74	665.32	665.34	665.36	665.44	665.97
13.95	0.57	0.72	0.87	1.02	1.17	0.57	0.72	0.88	1.28	1.73	665.32	665.34	665.36	665.43	665.95
14.00	0.57	0.71	0.86	1.02	1.17	0.57	0.72	0.88	1.23	1.72	665.32	665.34	666.36	665.42	665.93
14.05	0.57	0.71	0.87	1.02	1.17	0.57	0.72	0.87	1.19	1.72	665.32	665.34	665.36	665.41	665.92
14.10	0.57	0.72	0.87	1.02	1.17	0.57	0.72	0.87	1.16	1.71	665.32	665.34	665.36	665.41	665.90
14.15	0.57	0.72	0.87	1.02	1.17	0.57	0.72	0.87	1.13	1.70	665.32	665.34	665.36	665.40	665.88
14.20	0.57	0.72	0.87	1.02	1.17	0.57	0.72	0.87	1.11	1.69	665.32	665.34	665.36	665.40	665.87
14.25	0.57	0.72	0.87	1.02	1.17	0.57	0.72	0.87	1.10	1.69	665.32	665.34	665.36	665.39	665.85
14.30	0.57	0.71	0.86	1.02	1.17	0.57	0.72	0.87	1.08	1.68	665 32	665.34	665.36	665.39	665.83
14.35	0.57	0.71	0.86	1.01	1.17	0.57	0.72	0.87	1.07	1.67	665.32	665.34	665.36	665.39	665.82
14.40	0.57	0 71	0.86	1.01	1.16	0.57	0.72	0.87	1.06	1.66	665.32	665.34	665.36	665.39	665.80
14.45	0.56	0.71	0.86	1.01	1.16	0.57	0.71	0.86	1.05	1.65	665.32	665.34	665.36	665.39	665.79
14.50	0.56	0.71	0.86	1.01	1.16	0.57	0.71	0.86	1.04	1.65	665.32	665.34	665.36	665.39	665.77
14.55	0.56	0.71	0.86	1.01	1.16	0.56	0.71	0.86	1.04	1.64	665.32	665.34	665.36	665.38	665.76
14.60	0.56	0.71	0.86	1.01	1.16	0.56	0.71	0.86	1.03	1.63	665.32	665.34	665.36	665.38	665.74
14.65	0 56	0.71	0.85	1.00	1.15	0.56	0.71	0.86	1.03	1.62	665.32	665.34	665.36	665.38	665.73
14.70	0.56	0.71	0.85	1.00	1.15	0.56	0.71	0.86	1.02	1.62	665.32	665.34	665.36	665.38	665.71
14.75	0.56	0.70	0.85	1.00	1.15	0.56	0.71	0.86	1.02	1.61	665.32	665.34	665.36	665.38	665.70
14.80	0.56	0.70	0.85	1.00	1.15	0.56	0.71	0.85	1.01	1.60	665 32	665.34	665.36	665.38	665.68
14.85	0.56	0.70	0.85	0.99	1.14	0.56	0 71	0.85	1.01	1.59	665.32	665.34	665.36	665 38	665.67
14.90	0.55	0.70	0.85	0.99	1.14	0.56	0.70	0.85	1.01	1.59	665.32	665.34	665.36	665.38	665.65
14.95	0.55	0.70	0.84	0.99	1.14	0.56	0.70	0.85	1.00	1.58	665.32	665.34	665.36	665.38	665.64
15.00	0.55	0.70	0.84	0.99	1.14	0.56	0.70	0.85	1.00	1.57	665.32	665.34	665.36	665.38	665.62
15.05	0.55	0.70	0.84	0.99	1.14	0.56	0.70	0.85	1.00	1.56	665.32	665.34	665.36	665 38	665.61
15.10	0.55	0.70	0.84	0.99	1.13	0.55	0.70	0.85	1.00	1 56	665.32	665.34	665.36	665.38	665.59
15.15	0.55	0.69	0.84	0.98	1.13	0.55	0 70	0.84	1.00	1.55	665.32	665.34	665.35	665.38	665.58
15.20	0.55	0.69	0.84	0.98	1.13	0.55	0 70	0.84	0.99	1.54	665.32	665.34	665.35	665.38	665.57
15.25	0.55	0.69	0.84	0.98	1.13	0.55	0.70	0.84	0.99	1 54	665 32	665.34	665.35	665 38	665.55
15.30	0.55	0.69	0.83	0.98	1.12	0.55	0.69	0.84	0.99	1.53	665.32	665.34	665.35	665.38	665.54

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
15.35	0.55	0.69	0.83	0.98	1.12	0.55	0.69	0.84	0.99	1.52	665.32	665.34	665.35	665.38	665.53
15.40	0.54	0.69	0.83	0.97	1.12	0.55	0.69	0.84	0.98	1.52	665.32	665.34	665.35	665.38	665.51
15.45	0.54	0.68	0.83	0.97	1.12	0.55	0.69	0.83	0.98	1.51	665.32	665.34	665.35	665.38	665.50
15.50	0.54	0.68	0.83	0.97	1.11	0.55	0.69	0.83	0.98	1.50	665.32	665.34	665.35	665.38	665.49
15.55	0.54	0.68	0.82	0.97	1.11	0.55	0.69	0.83	0.98	1.50	665.32	665.34	665.35	665.38	665.47
15.60	0.54	0.68	0.82	0.97	1.11	0.54	0.69	0.83	0.98	1.49	665.32	665.34	665.35	665.37	665.46
15.65	0.54	0.68	0.82	0.96	1.11	0.54	0.68	0.83	0.97	1.42	665.32	665.34	665.35	665.37	665.45
15.70	0.54	0.68	0.82	0.96	1.10	0.54	0.68	0.83	0.97	1.37	665.32	665.34	665.35	665.37	665.44
15.75	0.54	0.68	0.82	0.96	1.10	0.54	0.68	0.82	0.97	1.32	665.32	665.34	665.35	665.37	665.43
15.80	0.54	0.68	0.82	0.96	1.10	0.54	0.68	0.82	0.97	1.28	665.32	665.34	665.35	665.37	665.42
15.85	0.54	0.68	0.82	0.96	1.10	0.54	0.68	0.82	0.97	1.24	665.32	665.34	665.35	665.37	665.42
15.90	0.54	0.67	0.81	0.95	1.10	0.54	0.68	0.82	0.96	1.22	665.32	665.34	665.35	665.37	665.41
15.95	0.53	0.67	0.81	0.95	1.09	0.54	0.68	0.82	0.96	1.19	665.32	665.34	665.35	665.37	665.41
16.00	0.53	0.67	0.81	0.95	1.09	0.54	0.68	0.82	0.96	1.17	665.32	665.34	665.35	665.37	665.41
16.05	0.53	0.67	0.81	0.95	1.09	0.54	0.67	0.81	0.96	1.16	665.32	665.34	665.35	665.37	665.41
16.10	0.53	0.67	0.81	0.95	1.09	0.53	0.67	0.81	0.96	1.15	665.32	665.33	665.35	665.37	665.40
16.15	0.53	0.67	0.80	0.94	1.08	0.53	0.67	0.81	0.95	1.13	665.32	665.33	665.35	665.37	665.40
16.20	0.53	0.66	0.80	0.94	1.08	0.53	0.67	0.81	0.95	1.12	665.32	665.33	665.35	665.37	665.40
16.25	0.53	0.66	0.80	0.94	1.08	0.53	0.67	0.81	0.95	1.12	665.32	665.33	665.35	665.37	665.40
16.30	0.53	0.66	0.80	0.94	1.08	0.53	0.67	0.81	0.95	1.11	665.32	665.33	665.35	665.37	665.40
16.35	0.53	0.66	0.80	0.94	1.07	0.53	0.67	0.80	0.95	1.10	665.32	665.33	665.35	665.37	665.40
16.40	0.52	0.66	0.80	0.93	1.07	0.53	0.66	0.80	0.94	1.10	665.32	665.33	665.35	665.37	665.39
16.45	0.52	0.66	0.79	0.93	1.07	0.53	0.66	0.80	0.94	1.09	665.32	665.33	665.35	665.37	665.39
16.50	0.52	0.66	0.79	0.93	1.07	0.53	0.66	0.80	0.94	1.09	665.32	665.33	665.35	665.37	665.39
16.55	0.52	0.66	0.79	0.93	1.06	0.52	0.66	0.80	0.94	1.08	665.32	665.33	665.35	665.37	665.39
16.60	0.52	0.65	0.79	0.93	1.06	0.52	0.66	0.80	0.94	1.08	665.32	665.33	665.35	665.37	665.39
16.65	0.52	0.65	0.79	0.92	1.06	0.52	0.66	0.79	0.93	1.08	665.32	665.33	665.35	665.37	665.39
16.70	0.52	0.65	0.79	0.92	1.06	0.52	0.66	0.79	0.93	1.07	665.32	665.33	665.35	665.37	665.39
16.75	0.52	0.65	0.78	0.92	1.05	0.52	0.65	0.79	0.93	1.07	665.32	665.33	665.35	665.37	665.39
16.80	0.52	0.65	0.78	0.92	1.05	0.52	0.65	0.79	0.93	1.07	665.32	665.33	665.35	665.37	665.39
16.85	0.51	0.65	0.78	0.91	1.05	0.52	0.65	0.79	0.93	1.06	665.32	665.33	665.35	665.37	665.39
16.90	0.51	0.65	0.78	0.91	1.05	0.52	0.65	0.78	0.92	1.06	665.32	665.33	665.35	665.37	665.39
16.95	0.51	0.64	0.78	0.91	1.04	0.52	0.65	0.78	0.92	1.06	665.32	665.33	665.35	665.37	665.39
17.00	0.51	0.64	0.78	0.91	1.04	0.51	0.65	0.78	0.92	1.06	665.32	665.33	665.35	665.37	665.39
17.05	0.51	0.64	0.77	0.91	1.04	0.51	0.65	0.78	0.92	1.05	665.32	665.33	665.35	665.36	665.39
17.10	0.51	0.64	0.77	0.90	1.04	0.51	0.64	0.78	0.91	1.05	665.32	665.33	665.35	665.36	665.39
17.15	0.51	0.64	0.77	0.90	1.04	0.51	0.64	0.78	0.91	1.05	665.32	665.33	665.35	665.36	665.39
17.20	0.51	0.64	0.77	0.90	1.03	0.51	0.64	0.77	0.91	1.05	665.32	665.33	665.35	665.36	665.39
17.25	0.51	0.64	0.77	0.90	1.03	0.51	0.64	0.77	0.91	1.04	665.32	665.33	665.35	665.36	665.39
17.30	0.50	0.63	0.76	0.90	1.03	0.51	0.64	0.77	0.91	1.04	665.32	665.33	665.35	665.36	665.39
17.35	0.50	0.63	0.76	0.89	1.02	0.51	0.64	0.77	0.90	1.04	665.32	665.33	665.35	665.36	665.38
17.40	0.50	0.63	0.76	0.89	1.02	0.51	0.64	0.77	0.90	1.03	665.32	665.33	665.35	665.36	665.38
17.45	0.50	0.63	0.76	0.89	1.02	0.50	0.63	0.77	0.90	1.03	665.32	665.33	665.35	665.36	665.38
17.50	0.50	0.63	0.76	0.89	1.02	0.50	0.63	0.76	0.90	1.03	665.32	665.33	665.35	665.36	665.38
17.55	0.50	0.63	0.76	0.89	1.02	0.50	0.63	0.76	0.90	1.03	665.32	665.33	665.35	665.36	665.38
17.60	0.50	0.63	0.75	0.88	1.01	0.50	0.63	0.76	0.89	1.02	665.31	665.33	665.35	665.36	665.38
17.65	0.50	0.62	0.75	0.88	1.01	0.50	0.63	0.76	0.89	1.02	665.31	665.33	665.34	665.36	665.38
17.70	0.50	0.62	0.75	0.88	1.01	0.50	0.63	0.76	0.89	1.02	665.31	665.33	665.34	665.36	665.38
17.75	0.49	0.62	0.75	0.88	1.01	0.50	0.63	0.76	0.89	1.02	665.31	665.33	665.34	665.36	665.38
17.80	0.49	0.62	0.75	0.88	1.00	0.50	0.62	0.75	0.88	1.02	665.31	665.33	665.34	665.36	665.38
17.85	0.49	0.62	0.75	0.87	1.00	0.50	0.62	0.75	0.88	1.01	665.31	665.33	665.34	665.36	665.38
17.90	0.49	0.62	0.74	0.87	1.00	0.49	0.62	0.75	0.88	1.01	665.31	665.33	665.34	665.36	665.38
17.95	0.49	0.61	0.74	0.87	0.99	0.49	0.62	0.75	0.88	1.01	665.31	665.33	665.34	665.36	665.38
18.00	0.49	0.61	0.74	0.87	0.99	0.49	0.62	0.75	0.87	1.01	665.31	665.33	665.34	665.36	665.38
18.05	0.49	0.61	0.74	0.86	0.99	0.49	0.62	0.74	0.87	1.00	665.31	665.33	665.34	665.36	665.38
18.10	0.49	0.61	0.74	0.86	0.99	0.49	0.62	0.74	0.87	1.00	665.31	665.33	665.34	665.36	665.38
18.15	0.48	0.61	0.73	0.86	0.98	0.49	0.61	0.74	0.87	1.00	665.31	665.33	665.34	665.36	665.38
18.20	0.48	0.61	0.73	0.86	0.98	0.49	0.61	0.74	0.86	0.99	665.31	665.33	665.34	665.36	665.38
18.25	0.48	0.61	0.73	0.86	0.98	0.49	0.61	0.74	0.86	0.99	665.31	665.33	665.34	665.36	665.38
18.30	0.48	0.61	0.73	0.85	0.98	0.49	0.61	0.73	0.86	0.99	665.31	665.33	665.34	665.36	665.38
18.35	0.48	0.60	0.73	0.85	0.98	0.48	0.61	0.73	0.86	0.99	665.31	665.33	665.34	665.36	665.38
18.40	0.48	0.60	0.73	0.85	0.97	0.48	0.61	0.73	0.86	0.99	665.31	665.33	665.34	665.36	665.38
18.45	0.48	0.60	0.72	0.85	0.97	0.48	0.61	0.73	0.85	0.98	665.31	665.33	665.34	665.36	665.38
18.50	0.48	0.60	0.72	0.84	0.97	0.48	0.60	0.73	0.85	0.98	665.31	665.33	665.34	665.36	665.38
18.55	0.48	0.60	0.72	0.84	0.97	0.48	0.60	0.73	0.85	0.98	665.31	665.33	665.34	665.36	665.38
18.60	0.47	0.60	0.72	0.84	0.96	0.48	0.60	0.72	0.85	0.98	665.31	665.33	665.34	665.36	665.37
18.65	0.47	0.59	0.72	0.84	0.96	0.48	0.60	0.72	0.85	0.97	665.31	665.33	665.34	665.36	665.37
18.70	0.47	0.59	0.71	0.84	0.96	0.48	0.60	0.72	0.84	0.97	665.31	665.33	665.34	665.35	665.37
18.75	0.47	0.59	0.71	0.83	0.96	0.48	0.60	0.72	0.84	0.97	665.31	665.33	665.34	665.35	665.37
18.80	0.47	0.59	0.71	0.83	0.95	0.47	0.59	0.72	0.84	0.97	665.31	665.33	665.34	665.35	665.37
18.85	0.47	0.59	0.71	0.83	0.95	0.47	0.59	0.71	0.84	0.96	665.31	665.33	665.34	665.35	665.37
18.90	0.47	0.59	0.71	0.83	0.95	0.47	0.59	0.71	0.83	0.96	665.31	665.33	665.34	665.35	665.37
18.95	0.47	0.59	0.70	0.83	0.95	0.47	0.59	0.71	0.83	0.96	665.31	665.33	665.34	665.35	665.37
19.00	0.47	0.59	0.70	0.82	0.94	0.47	0.59	0.71	0.83	0.96	665.31	665.33	665.34	665.35	665.37
19.05	0.46	0.58	0.70	0.82	0.94	0.47	0.59	0.71	0.83	0.95	665.31	665.33	665.34	665.35	665.37
19.10	0.46	0.58	0.70	0.82	0.94	0.47	0.59	0.71	0.83	0.95	665.31	665.32	665.34	665.35	665.37
19.15	0.46	0.58	0.70	0.82	0.94	0.47	0.58	0.70	0.82	0.95	665.31	665.32	665.34	665.35	665.37
19.20	0.46	0.58	0.70	0.81	0.93	0.46	0.58	0.70	0.82	0.95	665.31	665.32	665.34	665.35	665.37

	Flow Into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
19.25	0.46	0.58	0.69	0.81	0.93	0.46	0.58	0.70	0.82	0.94	665.31	665.32	665.34	665.35	665.37
19.30	0.46	0.57	0.69	0.81	0.93	0.46	0.58	0.70	0.82	0.94	665.31	665.32	665.34	665.35	665.37
19.35	0.46	0.57	0.69	0.81	0.93	0.46	0.58	0.70	0.82	0.94	665.31	665.32	665.34	665.35	665.37
19.40	0.46	0.57	0.68	0.81	0.92	0.46	0.58	0.69	0.81	0.94	665.31	665.32	665.34	665.35	665.37
19.45	0.46	0.57	0.69	0.80	0.92	0.46	0.58	0.69	0.81	0.93	665.31	665.32	665.34	665.35	665.37
19.50	0.45	0.57	0.68	0.80	0.92	0.46	0.57	0.69	0.81	0.93	665.31	665.32	665.34	665.35	665.37
19.55	0.45	0.57	0.68	0.80	0.92	0.46	0.57	0.69	0.81	0.93	665.31	665.32	665.34	665.35	665.37
19.60	0.45	0.57	0.68	0.80	0.91	0.46	0.57	0.69	0.80	0.93	665.31	665.32	665.34	665.35	665.37
19.65	0.45	0.56	0.68	0.80	0.91	0.45	0.57	0.68	0.80	0.92	665.31	665.32	665.34	665.35	665.37
19.70	0.45	0.56	0.68	0.79	0.91	0.45	0.57	0.68	0.80	0.92	665.31	665.32	665.34	665.35	665.37
19.75	0.45	0.56	0.68	0.79	0.90	0.45	0.57	0.68	0.80	0.92	665.31	665.32	665.34	665.35	665.36
19.80	0.45	0.56	0.67	0.79	0.90	0.45	0.56	0.68	0.80	0.91	665.31	665.32	665.34	665.35	665.36
19.85	0.44	0.56	0.67	0.78	0.90	0.45	0.56	0.68	0.79	0.91	665.31	665.32	665.34	665.35	665.36
19.90	0.44	0.56	0.67	0.78	0.90	0.45	0.56	0.68	0.79	0.91	665.31	665.32	665.34	665.35	665.36
19.95	0.44	0.55	0.67	0.78	0.89	0.45	0.56	0.67	0.79	0.91	665.31	665.32	665.34	665.35	665.36
20.00	0.44	0.55	0.67	0.78	0.89	0.45	0.56	0.67	0.79	0.90	665.31	665.32	665.33	665.35	665.36
20.05	0.44	0.55	0.66	0.78	0.89	0.44	0.56	0.67	0.78	0.90	665.31	665.32	665.33	665.35	665.36
20.10	0.44	0.55	0.66	0.77	0.89	0.44	0.56	0.67	0.78	0.90	665.31	665.32	665.33	665.35	665.36
20.15	0.44	0.55	0.66	0.77	0.89	0.44	0.55	0.67	0.78	0.90	665.31	665.32	665.33	665.35	665.36
20.20	0.44	0.55	0.66	0.77	0.88	0.44	0.55	0.67	0.78	0.89	665.31	665.32	665.33	665.35	665.36
20.25	0.44	0.55	0.66	0.77	0.88	0.44	0.55	0.66	0.78	0.89	665.31	665.32	665.33	665.35	665.36
20.30	0.43	0.54	0.66	0.77	0.88	0.44	0.55	0.66	0.77	0.89	665.31	665.32	665.33	665.35	665.36
20.35	0.43	0.54	0.65	0.76	0.87	0.44	0.55	0.66	0.77	0.89	665.31	665.32	665.33	665.35	665.36
20.40	0.43	0.54	0.65	0.76	0.87	0.44	0.55	0.66	0.77	0.88	665.31	665.32	665.33	665.35	665.36
20.45	0.43	0.54	0.65	0.76	0.87	0.43	0.54	0.66	0.77	0.88	665.31	665.32	665.33	665.35	665.36
20.50	0.43	0.54	0.65	0.76	0.87	0.43	0.54	0.65	0.76	0.88	665.31	665.32	665.33	665.35	665.36
20.55	0.43	0.54	0.65	0.75	0.86	0.43	0.54	0.65	0.76	0.87	665.31	665.32	665.33	665.35	665.36
20.60	0.43	0.53	0.64	0.75	0.86	0.43	0.54	0.65	0.76	0.87	665.31	665.32	665.33	665.35	665.36
20.65	0.43	0.53	0.64	0.75	0.86	0.43	0.54	0.65	0.76	0.87	665.31	665.32	665.33	665.34	665.36
20.70	0.42	0.53	0.64	0.75	0.86	0.43	0.54	0.65	0.76	0.86	665.31	665.32	665.33	665.34	665.36
20.75	0.42	0.53	0.64	0.75	0.85	0.43	0.54	0.64	0.75	0.86	665.31	665.32	665.33	665.34	665.36
20.80	0.42	0.53	0.64	0.74	0.85	0.43	0.53	0.64	0.75	0.86	665.31	665.32	665.33	665.34	665.36
20.85	0.42	0.53	0.63	0.74	0.85	0.43	0.53	0.64	0.75	0.86	665.31	665.32	665.33	665.34	665.36
20.90	0.42	0.53	0.63	0.74	0.85	0.42	0.53	0.64	0.75	0.86	665.31	665.32	665.33	665.34	665.36
20.95	0.42	0.52	0.63	0.74	0.84	0.42	0.53	0.64	0.74	0.85	665.31	665.32	665.33	665.34	665.36
21.00	0.42	0.52	0.63	0.73	0.84	0.42	0.53	0.63	0.74	0.85	665.31	665.32	665.33	665.34	665.36
21.05	0.42	0.52	0.63	0.73	0.84	0.42	0.53	0.63	0.74	0.85	665.31	665.32	665.33	665.34	665.36
21.10	0.41	0.52	0.62	0.73	0.84	0.42	0.52	0.63	0.74	0.84	665.31	665.32	665.33	665.34	665.35
21.15	0.41	0.52	0.62	0.73	0.83	0.42	0.52	0.63	0.74	0.84	665.31	665.32	665.33	665.34	665.35
21.20	0.41	0.52	0.62	0.73	0.83	0.42	0.52	0.63	0.73	0.84	665.31	665.32	665.33	665.34	665.35
21.25	0.41	0.51	0.62	0.72	0.83	0.42	0.52	0.63	0.73	0.84	665.30	665.32	665.33	665.34	665.35
21.30	0.41	0.51	0.62	0.72	0.83	0.41	0.52	0.62	0.73	0.83	665.30	665.32	665.33	665.34	665.35
21.35	0.41	0.51	0.61	0.72	0.82	0.41	0.52	0.62	0.73	0.83	665.30	665.32	665.33	665.34	665.35
21.40	0.41	0.51	0.61	0.72	0.82	0.41	0.52	0.62	0.72	0.83	665.30	665.32	665.33	665.34	665.35
21.45	0.41	0.51	0.61	0.71	0.82	0.41	0.51	0.62	0.72	0.83	665.30	665.32	665.33	665.34	665.35
21.50	0.40	0.51	0.61	0.71	0.81	0.41	0.51	0.62	0.72	0.82	665.30	665.32	665.33	665.34	665.35
21.55	0.40	0.51	0.61	0.71	0.81	0.41	0.51	0.61	0.72	0.82	665.30	665.32	665.33	665.34	665.35
21.60	0.40	0.50	0.61	0.71	0.81	0.41	0.51	0.61	0.71	0.82	665.30	665.32	665.33	665.34	665.35
21.65	0.40	0.50	0.60	0.71	0.81	0.41	0.51	0.61	0.71	0.82	665.30	665.32	665.33	665.34	665.35
21.70	0.40	0.50	0.60	0.70	0.80	0.40	0.51	0.61	0.71	0.81	665.30	665.32	665.33	665.34	665.35
21.75	0.40	0.50	0.60	0.70	0.80	0.40	0.50	0.61	0.71	0.81	665.30	665.32	665.33	665.34	665.35
21.80	0.40	0.50	0.60	0.70	0.80	0.40	0.50	0.60	0.71	0.81	665.30	665.32	665.33	665.34	665.35
21.85	0.40	0.50	0.60	0.70	0.80	0.40	0.50	0.60	0.70	0.81	665.30	665.31	665.33	665.34	665.35
21.90	0.39	0.49	0.59	0.69	0.79	0.40	0.50	0.60	0.70	0.80	665.30	665.31	665.33	665.34	665.35
21.95	0.39	0.49	0.59	0.69	0.79	0.40	0.50	0.60	0.70	0.80	665.30	665.31	665.33	665.34	665.35
22.00	0.39	0.49	0.59	0.69	0.79	0.40	0.50	0.60	0.70	0.80	665.30	665.31	665.33	665.34	665.35
22.05	0.39	0.49	0.59	0.69	0.79	0.40	0.49	0.59	0.69	0.80	665.30	665.31	665.33	665.34	665.35
22.10	0.39	0.49	0.59	0.69	0.78	0.39	0.49	0.59	0.69	0.79	665.30	665.31	665.33	665.34	665.35
22.15	0.39	0.49	0.58	0.68	0.78	0.39	0.49	0.59	0.69	0.79	665.30	665.31	665.33	665.34	665.35
22.20	0.39	0.48	0.58	0.68	0.78	0.39	0.49	0.59	0.69	0.79	665.30	665.31	665.33	665.34	665.35
22.25	0.39	0.48	0.58	0.68	0.78	0.39	0.49	0.59	0.69	0.78	665.30	665.31	665.32	665.34	665.35
22.30	0.38	0.48	0.58	0.67	0.77	0.39	0.49	0.58	0.68	0.78	665.30	665.31	665.32	665.34	665.35
22.35	0.38	0.48	0.58	0.67	0.77	0.39	0.48	0.58	0.68	0.78	665.30	665.31	665.32	665.34	665.35
22.40	0.38	0.48	0.57	0.67	0.77	0.39	0.48	0.58	0.68	0.78	665.30	665.31	665.32	665.34	665.35
22.45	0.38	0.48	0.57	0.67	0.76	0.38	0.48	0.58	0.68	0.77	665.30	665.31	665.32	665.34	665.35
22.50	0.38	0.47	0.57	0.67	0.76	0.38	0.48	0.58	0.67	0.77	665.30	665.31	665.32	665.34	665.35
22.55	0.38	0.47	0.57	0.66	0.76	0.38	0.48	0.58	0.67	0.77	665.30	665.31	665.32	665.33	665.35
22.60	0.38	0.47	0.57	0.66	0.76	0.38	0.48	0.57	0.67	0.77	665.30	665.31	665.32	665.33	665.35
22.65	0.38	0.47	0.57	0.66	0.75	0.38	0.48	0.57	0.67	0.76	665.30	665.31	665.32	665.33	665.35
22.70	0.37	0.47	0.56	0.66	0.75	0.38	0.47	0.57	0.67	0.76	665.30	665.31	665.32	665.33	665.35
22.75	0.37	0.47	0.56	0.66	0.75	0.38	0.47	0.57	0.66	0.76	665.30	665.31	665.32	665.33	665.34
22.80	0.37	0.47	0.56	0.65	0.75	0.38	0.47	0.57	0.66	0.76	665.30	665.31	665.32	665.33	665.34
22.85	0.37	0.46	0.56	0.65	0.74	0.38	0.47	0.56	0.66	0.75	665.30	665.31	665.32	665.33	665.34
22.90	0.37	0.46	0.55	0.65	0.74	0.37	0.47	0.56	0.66	0.75	665.30	665.31	665.32	665.33	665.34
22.95	0.37	0.46	0.55	0.65	0.74	0.37	0.47	0.56	0.65	0.75	665.30	665.31	665.32	665.33	665.34
23.00	0.37	0.46	0.55	0.64	0.74	0.37	0.46	0.56	0.65	0.74	665.30	665.31	665.32	665.33	665.34
23.05	0.37	0.46	0.55	0.64	0.73	0.37	0.46	0.56	0.65	0.74	665.30	665.31	665.32	665.33	665.34
23.10	0.36	0.45	0.55	0.64	0.73	0.37	0.46	0.55	0.65	0.74	665.30	665.31	665.32	665.33	665.34

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
23.15	0.36	0.45	0.54	0.64	0.73	0.37	0.46	0.55	0.64	0.74	665.30	665.31	665.32	665.33	665.34
23.20	0.36	0.45	0.54	0.63	0.73	0.37	0.46	0.55	0.64	0.73	665.30	665.31	665.32	665.33	665.34
23.25	0.36	0.45	0.54	0.63	0.72	0.36	0.46	0.55	0.64	0.73	665.30	665.31	665.32	665.33	665.34
23.30	0.36	0.45	0.54	0.63	0.72	0.36	0.45	0.55	0.64	0.73	665.30	665.31	665.32	665.33	665.34
23.35	0.36	0.45	0.54	0.63	0.72	0.36	0.45	0.54	0.64	0.73	665.30	665.31	665.32	665.33	665.34
23.40	0.36	0.45	0.54	0.63	0.72	0.36	0.45	0.54	0.63	0.72	665.30	665.31	665.32	665.33	665.34
23.45	0.36	0.44	0.53	0.62	0.71	0.36	0.45	0.54	0.63	0.72	665.30	665.31	665.32	665.33	665.34
23.50	0.35	0.44	0.53	0.62	0.71	0.36	0.45	0.54	0.63	0.72	665.30	665.31	665.32	665.33	665.34
23.55	0.35	0.44	0.53	0.62	0.71	0.36	0.45	0.54	0.63	0.72	665.30	665.31	665.32	665.33	665.34
23.60	0.35	0.44	0.53	0.62	0.70	0.36	0.44	0.53	0.62	0.71	665.30	665.31	665.32	665.33	665.34
23.65	0.35	0.44	0.53	0.61	0.70	0.35	0.44	0.53	0.62	0.71	665.30	665.31	665.32	665.33	665.34
23.70	0.35	0.44	0.52	0.61	0.70	0.35	0.44	0.53	0.62	0.71	665.30	665.31	665.32	665.33	665.34
23.75	0.35	0.43	0.52	0.61	0.70	0.35	0.44	0.53	0.62	0.71	665.30	665.31	665.32	665.33	665.34
23.80	0.35	0.43	0.52	0.61	0.69	0.35	0.44	0.53	0.61	0.70	665.30	665.31	665.32	665.33	665.34
23.85	0.34	0.43	0.52	0.60	0.69	0.35	0.44	0.52	0.61	0.70	665.30	665.31	665.32	665.33	665.34
23.90	0.34	0.43	0.52	0.60	0.69	0.35	0.43	0.52	0.61	0.70	665.30	665.31	665.32	665.33	665.34
23.95	0.34	0.43	0.51	0.60	0.69	0.35	0.43	0.52	0.61	0.69	665.30	665.31	665.32	665.33	665.34
24.00	0.34	0.43	0.51	0.60	0.68	0.35	0.43	0.52	0.61	0.69	665.30	665.31	665.32	665.33	665.34
24.05	0.28	0.35	0.42	0.49	0.56	0.34	0.42	0.51	0.59	0.67	665.30	665.31	665.32	665.33	665.34
24.10	0.18	0.23	0.28	0.32	0.37	0.31	0.39	0.47	0.54	0.62	665.29	665.30	665.31	665.32	665.33
24.15	0.12	0.15	0.18	0.21	0.24	0.27	0.34	0.40	0.47	0.54	665.29	665.30	665.30	665.31	665.32
24.20	0.08	0.10	0.12	0.14	0.16	0.23	0.28	0.34	0.40	0.45	665.28	665.29	665.30	665.30	665.31
24.25	0.05	0.07	0.08	0.09	0.11	0.18	0.23	0.28	0.32	0.37	665.28	665.28	665.29	665.29	665.30
24.30	0.03	0.04	0.05	0.06	0.07	0.15	0.19	0.22	0.26	0.30	665.27	665.28	665.28	665.29	665.29
24.35	0.02	0.03	0.03	0.04	0.05	0.12	0.15	0.18	0.21	0.24	665.27	665.27	665.28	665.28	665.28
24.40	0.01	0.02	0.02	0.03	0.03	0.09	0.12	0.14	0.16	0.19	665.27	665.27	665.27	665.28	665.28
24.45	0.01	0.01	0.02	0.02	0.02	0.07	0.09	0.11	0.13	0.14	665.26	665.27	665.27	665.27	665.27
24.50	0.00	0.00	0.01	0.01	0.01	0.05	0.07	0.08	0.10	0.11	665.26	665.26	665.27	665.27	665.27
24.55	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.06	0.07	0.08	665.26	665.26	665.26	665.27	665.27
24.60	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.05	0.05	0.06	665.26	665.26	665.26	665.26	665.26
24.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.04	0.05	665.26	665.26	665.26	665.26	665.26
24.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.26	665.26	665.26	665.26	665.26
24.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.26	665.26	665.26	665.26	665.26
24.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.26	665.26	665.26	665.26	665.26
24.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.26	665.26	665.26	665.26
24.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.26	665.26	665.26
24.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.26
25.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.25	665.25	665.25	665.25	665.25
25.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.25	665.25	665.25
25.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.25	665.25
25.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.24	665.24	665.24	665.24	665.24
25.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.24	665.24	665.24	665.24
25.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.24	665.24	665.24
25.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.24
25.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.23	665.23	665.23	665.23	665.23
26.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.23	665.23	665.23
26.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.23	665.23
26.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.22	665.22	665.22	665.22	665.22
26.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.22	665.22	665.22	665.22
26.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.22	665.22	665.22
26.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.22
26.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
26.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
27.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
27.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
27.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
27.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
27.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.21	665.21	665.21	665.21	665.21
27.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.21	665.21	665.21
27.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.21	665.21
27.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.20	665.20	665.20	665.20	665.20
27.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.20	665.20	665.20	665.20
27.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.20	665.20
27.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.20
27.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
27.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
27.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
28.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
28.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
28.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.19	665.19	665.19	665.19	665.19
28.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.19	665.19	665.19	665.19
28.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.19	665.19	665.19
28.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.19	665.19
28.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.18	665.18	665.18	665.18	665.18
28.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.18	665.18	665.18	665.18
28.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.18	665.18
28.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.18
28.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
28.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
28.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
28.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
29.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
29.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.17	665.17	665.17	665.17	665.17
29.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.17	665.17	665.17	665.17
29.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.17	665.17	665.17
29.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.17	665.17
29.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.16	665.16	665.16	665.16	665.16
29.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.16	665.16	665.16	665.16
29.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.16	665.16
29.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
29.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
29.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
29.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
29.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
29.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
30.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.15	665.15	665.15	665.15	665.15
30.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.15	665.15	665.15	665.15
30.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.15	665.15	665.15
30.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.15
30.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.14	665.14	665.14	665.14	665.14
30.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.14	665.14	665.14	665.14
30.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.14	665.14	665.14
30.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.14	665.14
30.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
30.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
30.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
30.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
30.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
30.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
30.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.13	665.13	665.13	665.13	665.13
31.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.13	665.13	665.13	665.13
31.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.13	665.13
31.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.12	665.12	665.12	665.12	665.12
31.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.12	665.12	665.12	665.12
31.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.12	665.12	665.12
31.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.12
31.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.11	665.11	665.11	665.11	665.11
31.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.11	665.11	665.11	665.11
31.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.11	665.11	665.11
32.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.11
32.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.10	665.10	665.10	665.10	665.10
32.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.10	665.10	665.10	665.10
32.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.10	665.10
32.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.09	665.09	665.09	665.09	665.09
32.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.09	665.09	665.09	665.09
32.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.09	665.09	665.09
32.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.09
33.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.08	665.08	665.08	665.08	665.08
33.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.08	665.08	665.08	665.08
33.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.08	665.08	665.08
33.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.08
33.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.07	665.07	665.07	665.07	665.07
33.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.07	665.07	665.07
33.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.07	665.07
33.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
33.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.06	665.06	665.06	665.06	665.06
34.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.06	665.06	665.06	665.06
34.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.06	665.06
34.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.05	665.05	665.05	665.05	665.05
34.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.05	665.05	665.05	665.05
34.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.05	665.05
34.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.05

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
34.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
34.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
34.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
35.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
35.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
35.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.04	665.04	665.04	665.04	665.04
35.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.04	665.04	665.04	665.04
35.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.04	665.04	665.04
35.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.04
35.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.03	665.03	665.03	665.03	665.03
35.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.03	665.03	665.03	665.03
35.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.03	665.03	665.03
35.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.03
35.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
35.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
35.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
35.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
35.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
36.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.02	665.02	665.02	665.02	665.02
36.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.02	665.02	665.02	665.02
36.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.02	665.02	665.02
36.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.02	665.02
36.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.01	665.01	665.01	665.01	665.01
36.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.01	665.01	665.01
36.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.01	665.01
36.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
36.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	665.00	665.00	665.00	665.00	665.00
37.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	665.00	665.00	665.00
37.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	665.00	665.00
37.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.99	664.99	664.99	664.99	664.99
37.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.99	664.99	664.99	664.99
37.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.99	664.99
37.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.98	664.98	664.98	664.98	664.98
37.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.98	664.98	664.98	664.98
37.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.98	664.98
38.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.98
38.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.97	664.97	664.97	664.97	664.97
38.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.97	664.97	664.97	664.97
38.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.97	664.97	664.97
38.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.97
38.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96
38.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96
38.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96
38.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96
38.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
38.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.96	664.96	664.96	664.96	664.96
38.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.96	664.96	664.96	664.96
38.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.96	664.96	664.96
38.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.96
38.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.95	664.95	664.95	664.95	664.95
39.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.95	664.95	664.95	664.95
39.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.95	664.95	664.95
39.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.95
39.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.94	664.94	664.94	664.94	664.94
39.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.94	664.94	664.94	664.94
39.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.94	664.94	664.94
39.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.94	664.94
39.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
39.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
39.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
40.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
40.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
40.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
40.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.93	664.93	664.93	664.93	664.93
40.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.93	664.93	664.93	664.93
40.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.93	664.93
40.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.92	664.92	664.92	664.92	664.92
40.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.92	664.92	664.92	664.92
40.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.92	664.92	664.92
40.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.92
40.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
40.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
40.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
40.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
41.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
41.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
41.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.91	664.91	664.91	664.91	664.91
41.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.91	664.91	664.91	664.91
41.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.91	664.91
41.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.90	664.90	664.90	664.90	664.90
41.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.90	664.90	664.90
41.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.90	664.90
41.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
41.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
41.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
41.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
41.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
42.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
42.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
42.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.89	664.89	664.89	664.89	664.89
42.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.89	664.89	664.89
42.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.89	664.89
42.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88
42.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.88	664.88	664.88	664.88	664.88

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
42.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.88	664.88	664.88
42.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.88	664.88
42.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
42.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
42.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
42.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
42.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
43.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
43.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
43.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.87	664.87	664.87	664.87	664.87
43.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.87	664.87	664.87	664.87
43.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.87	664.87
43.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.30	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.35	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.40	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.45	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.50	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.55	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.60	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.86	664.86	664.86	664.86	664.86
43.65	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.86	664.86	664.86	664.86
43.70	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.86	664.86	664.86
43.75	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.86
43.80	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
43.85	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
43.90	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
43.95	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
44.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
44.05	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
44.10	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.85	664.85	664.85	664.85	664.85
44.15	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.84	664.85	664.85	664.85	664.85
44.20	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.84	664.84	664.85	664.85	664.85
44.25	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	664.84	664.84	664.84	664.85	664.85
44.30	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.03	0.03	664.84	664.84	664.84	664.84	664.84
44.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.03	0.03	664.84	664.84	664.84	664.84	664.84
44.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.03	664.84	664.84	664.84	664.84	664.84
44.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.84	664.84	664.84	664.84	664.84
44.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.84	664.84	664.84	664.84	664.84
44.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.84	664.84	664.84	664.84	664.84
44.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.84	664.84	664.84	664.84	664.84
44.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.84	664.84	664.84	664.84	664.84
44.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.84	664.84	664.84	664.84
44.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.84	664.84	664.84
44.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.84
44.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
44.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
44.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.83	664.83	664.83	664.83	664.83
45.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.83	664.83	664.83	664.83
45.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.83	664.83	664.83
45.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.83
45.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.82	664.82	664.82	664.82	664.82
45.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.82	664.82	664.82	664.82
45.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.82	664.82	664.82
45.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.82
45.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.81	664.81	664.81	664.81	664.81
46.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.81	664.81	664.81
46.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.81	664.81
46.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
46.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.80	664.80	664.80	664.80	664.80
46.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.80	664.80	664.80	664.80
47.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.80	664.80	664.80
47.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.80
47.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.79	664.79	664.79	664.79	664.79
47.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.79	664.79	664.79
47.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.79	664.79
47.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
47.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
47.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
47.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
47.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
47.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
48.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
48.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
48.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
48.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.78	664.78	664.78	664.78	664.78
48.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.78	664.78	664.78	664.78
48.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.78	664.78
48.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.78
48.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.77	664.77	664.77	664.77	664.77
48.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.77	664.77	664.77	664.77
48.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.77	664.77
48.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.76	664.76	664.76	664.76	664.76
49.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.76	664.76	664.76	664.76
49.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.76	664.76
49.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
49.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
50.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
50.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
50.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.75	664.75	664.75	664.75	664.75
50.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.75	664.75	664.75	664.75
50.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.75	664.75
50.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
50 45	0.00	0 00	0.00	0 00	0.00	0.02	0 02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50 55	0 00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0 02	664.74	664.74	664.74	664.74	664.74
50.60	0.00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50 65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0 02	664 74	664.74	664.74	664.74	664.74
50.70	0.00	0.00	0 00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664.74	664.74	664.74	664.74
50.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.74	664 74	664.74	664.74	664.74
50.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.74	664.74	664.74
50 85	0.00	0.00	0.00	0 00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.74	664.74
50.90	0.00	0.00	0.00	0 00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.73	664.73
50.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.73	664.73
51.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664 73	664.73	664.73	664.73	664.73
51.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.73	664.73
51.10	0.00	0.00	0.00	0 00	0.00	0.02	0 02	0.02	0.02	0.02	664.73	664.73	664 73	664.73	664.73
51 15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0 02	0.02	0 02	664.73	664.73	664.73	664.73	664.73
51.20	0.00	0.00	0.00	0.00	0.00	0.02	0 02	0 02	0.02	0.02	664.73	664.73	664.73	664.73	664.73
51.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.73	664.73
51.30	0.00	0.00	0.00	0.00	0 00	0.02	0.02	0.02	0.02	0.02	664.73	664.73	664.73	664.73	664 73
51.35	0.00	0.00	0.00	0.00	0 00	0.02	0.02	0.02	0 02	0.02	664.73	664.73	664.73	664.73	664.73
51 40	0.00	0.00	0.00	0 00	0.00	0.02	0 02	0 02	0.02	0.02	664 73	664.73	664.73	664.73	664.73
51.45	0.00	0.00	0.00	0 00	0 00	0.02	0 02	0.02	0.02	0.02	664.72	664.72	664.73	664.73	664.73
51.50	0.00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664.72	664.72	664.72	664.73	664.73
51.55	0.00	0.00	0.00	0 00	0.00	0.02	0.02	0.02	0.02	0.02	664 72	664.72	664.72	664.72	664.72
51.60	0.00	0.00	0.00	0 00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.75	0.00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0 02	0.02	664.72	664.72	664.72	664.72	664.72
51.90	0.00	0.00	0.00	0.00	0.00	0 02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
51.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
52 00	0.00	0.00	0.00	0 00	0.00	0.02	0.02	0.02	0.02	0.02	664.72	664.72	664.72	664.72	664.72
52.05	0.00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664 72	664.72	664.72	664.72	664.72
52.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.71	664.71	664.72	664.72	664.72
52 15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.71	664.71	664.71	664.72	664.72
52.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0 02	0.02	664.71	664.71	664.71	664.71	664.71
52.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0 02	0.02	664.71	664.71	664.71	664.71	664.71
52 30	0 00	0.00	0.00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.40	0 00	0.00	0.00	0.00	0.00	0 02	0.02	0.02	0 02	0.02	664.71	664.71	664.71	664.71	664.71
52 45	0.00	0.00	0 00	0.00	0.00	0.02	0.02	0 02	0 02	0.02	664.71	664.71	664.71	664.71	664.71
52.50	0.00	0.00	0 00	0.00	0 00	0.02	0.02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.60	0.00	0.00	0 00	0.00	0.00	0.02	0 02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.65	0.00	0.00	0.00	0.00	0.00	0 02	0.02	0.02	0.02	0.02	664.71	664.71	664.71	664.71	664.71
52.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0 02	0.02	664.71	664.71	664.71	664.71	664.71
52.75	0 00	0.00	0.00	0.00	0.00	0 02	0.02	0.02	0.02	0.02	664.70	664.70	664.71	664.71	664.71
52.80	0.00	0 00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.71	664.71
52.85	0.00	0.00	0.00	0.00	0.00	0 02	0.02	0.02	0.02	0.02	664.70	664.70	664 70	664.70	664.70
52.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
52.95	0.00	0.00	0.00	0.00	0.00	0 02	0 02	0 02	0 02	0.02	664.70	664.70	664.70	664.70	664.70
53.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.05	0.00	0.00	0 00	0.00	0.00	0 02	0.02	0 02	0.02	0.02	664 70	664.70	664.70	664.70	664.70
53.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.30	0.00	0.00	0 00	0.00	0 00	0.02	0.02	0.02	0.02	0.02	664.70	664.70	664.70	664.70	664.70
53.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.70	664.70	664.70	664.70
53.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.70	664.70	664.70
53.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.70
53.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.55	0.00	0.00	0 00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53 60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.75	0.00	0.00	0.00	0.00	0 00	0.02	0.02	0.02	0.02	0.02	664.69	664 69	664.69	664.69	664.69
53.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53 90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
53.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.69	664.69	664.69	664.69	664.69
54.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.69	664.69	664.69	664.69
54.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.69	664.69	664.69
54.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.69
54.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0 02	664.68	664.68	664.68	664.68	664.68
54.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
54.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.68	664.68	664.68	664.68	664.68
54.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.68	664.68	664.68	664.68
54.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.68	664.68	664.68
54.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.68
54.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
54.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
54.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
54.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.67	664.67	664.67	664.67	664.67
55.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.67	664.67	664.67	664.67
55.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.67	664.67	664.67
55.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.67
55.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.66	664.66	664.66	664.66	664.66
55.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.66	664.66	664.66	664.66
56.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.66	664.66	664.66
56.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.66
56.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.65	664.65	664.65	664.65	664.65
56.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.65	664.65	664.65	664.65
56.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.65	664.65
56.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
56.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
56.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
56.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
56.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
56.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
57.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
57.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
57.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
57.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.64	664.64	664.64	664.64	664.64
57.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.64	664.64	664.64	664.64
57.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.64	664.64	664.64
57.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.64
57.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.63	664.63	664.63	664.63	664.63
57.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.63	664.63	664.63	664.63
57.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.63	664.63	664.63
57.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.63
58.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62

	Flow into Basin (cfs)					Flow Out of Outlet Structure (cfs)					Water Surface Elevation in Basin				
Time (hrs)	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year	2-Year	5-Year	10-Year	25-Year	100-Year
58.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.62	664.62	664.62	664.62	664.62
58.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.62	664.62	664.62	664.62
58.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.62	664.62
58.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
58.95	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
59.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
59.05	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.61	664.61	664.61	664.61	664.61
59.10	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.61	664.61	664.61	664.61
59.15	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.61	664.61	664.61
59.20	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.61	664.61
59.25	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.30	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.35	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.40	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.45	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.50	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.55	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.60	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.65	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.70	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.60	664.60	664.60	664.60	664.60
59.75	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.59	664.60	664.60	664.60	664.60
59.80	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.59	664.59	664.60	664.60	664.60
59.85	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.59	664.59	664.59	664.59	664.60
59.90	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	664.59	664.59	664.59	664.59	664.59

Appendix D

Water Quality Calculations

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

By STS Date 5/29/09 Client _____ Sheet No. _____ of _____

Subject EAST POND WATER QUALITY CALCULATION Job No. _____

CRITERIA

DESIGN RAINFALL DEPTH: 0.36"
DETENTION TIME: 48 HOURS
TRIBUTARY AREA: IMPERVIOUS AREA = 4.8 AC

REQUIRED VOLUME

$V = (0.36")(1\ FT/12")(4.8\ AC)(43{,}560\ FT/AC) = 6270\ FT^3$

ALLOWABLE PONDING DEPTH = 665.34 − 663.66 = 1.68' (FOR TREATMENT - SEE FIGURE 3)
TREATMENT VOLUME OF PROPOSED POND: 7150 FT³

PEAK OUTFLOW

ORIFICE FLOW: $Q = CA\sqrt{2gh}$

$A = \pi\left(\frac{1.02}{24}\right)^2 = 5.67 \times 10^{-3}\ FT^2$

$Q = (0.60)(5.67 \times 10^{-3}\ FT^3)\sqrt{2(32.2\ FT/S^2)(1.34')} = 0.032\ CFS$

DETENTION TIME

ASSUME CONSERVATIVELY THAT FLOW OUT OF POND = PEAK FLOW

$t_d = \frac{V}{Q} = \frac{7150\ FT^3}{0.032\ CFS}\left(\frac{1\ HR}{3600\ S}\right) = 62\ HRS > 48\ HRS$, OKAY

EXHIBIT C
Access/Circulation Study

DKS *Associates*
TRANSPORTATION SOLUTIONS

MEMORANDUM

TO: Tim Woodley, West Linn Wilsonville School District

FROM: Pamela O'Brien, P.E., PTOE, DKS Associates

DATE: April 28, 2009

SUBJECT: **Rosemont Ridge Middle School Access/Circulation Study** P09031-002

This memorandum summarizes work conducted by DKS Associates regarding the existing and proposed parking lot circulation at Rosemont Ridge Middle School.

The school site is located in the southwest quadrant of the intersection of Rosemont Road and Salamo Road in West Linn. Currently, a single access drive for buses and autos is located off of South Salamo Road south of Rosemont Road. The bus loading/unloading area is located next to the sidewalk along the front of the school and the buses must circulate back through the parking lot to exit the site. The parent pick-up/drop-off zone is located just prior to the exit drive from the parking lot. The conflict between the buses, autos and pedestrians have led to a proposal to change the bus access through the site. It is proposed to construct a bus drive aisle around the school and have the buses exit the school grounds using an existing maintenance access driveway onto Rosemont Road west of Salamo Road.

This access/circulation memorandum summarizes the impacts of modifications to the bus access to/from the school site and the impacts to the driveways on Rosemont Road and on Salamo Road along with the intersection of Rosemont Road/Salamo Road. The memo will also summarize the internal circulation pattern changes based on the modification of the bus exit.

Bus Circulation

Currently, fourteen school buses access Rosemont Ridge Middles School via a driveway on Salamo Road south of Rosemont Road. It is anticipated that the number of school buses will not change in the future. The access and circulation characteristics are different for the AM drop off than for the PM pick up.

AM Drop Off

Based on a recent site visit, the buses started to arrive at the school at 8:45 am with the last bus arriving at 9:02 am. The majority of the buses arrived within a four minute window between 8:58 am and 9:02 am. The buses dropped the students off at the curb in front of the school. Once the students were dropped off, the buses would exit the site. All of the buses turned right onto Salamo Road. While the buses were dropping students off in front of the school and circulating through and out of the parking lot, parents were also dropping students off. The designated drop-off area was located within the parking lot, right where the exit drive begins. It appeared that only one or two cars were able to drop students off at a time, which created a queue of parents

waiting to drop their student off. Since there is only one exit for the parking lot, the buses also had to wait in this queue. The auto/bus queue was cleared by 9:10 am.

PM Pick Up

During the afternoon pick-up, the buses started to arrive at the school at 3:30 pm and parked along the sidewalk in front of the school and around the corner in the parking lot. Parents also started to arrive around 3:30 pm and formed a line, starting at the pick-up/drop zone and winding through the parking lot, to wait for the students. For approximately 15 minutes, the parking lot was very crowded, but the vehicles flowed through in an orderly fashion. By the time the buses were ready to exit the site, most of the parents were gone and the buses had a minimal queue to wait behind. At the parking lot exit, 10 buses turned left and four buses turned right. All the buses and autos were cleared by 3:59 pm.

Figure 1: Bus and Auto interaction during afternoon pick-up

Operational Impacts

It is proposed to create a bus-only exit onto Rosemont Road. This new access will alter the circulation patterns within the parking lot and also alter the traffic volumes accessing Salamo Road and Rosemont Road. The buses exiting the site via the driveway on Rosemont Road will help to ease the congestion within the parking lot and reduce the friction between the autos, pedestrians and buses.

Queues

During the AM drop off, all of the buses exiting the site via Rosemont Road will turn right onto Rosemont Road and then right onto Salamo Road. A queue of 400 feet or more may be created at the proposed bus exit pm Rosemont Road as the buses approach the intersection after dropping the students off. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.

During the PM pick up, all of the buses exiting the site via Rosemont Road will turn right onto Rosemont Road. Seven of the buses will turn left at Salamo Road, while three will go straight through the intersection and four will turn right. As with the AM peak, a queue of 400 feet or

more may be created at the new exit as the buses approach the intersection after dropping the students off. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.

Intersection Level of Service

Existing turning movement volumes were collected at the intersection of Salamo Road/Rosemont Road. The intersection operation was evaluated to determine the impacts of modifying the bus circulation to and from the school on the all-way stop controlled intersection. The AM and PM peaks of the school do not coincide with the AM and PM peaks of the traffic along Rosemont Road and Salamo Road. The AM peak for the school was assumed to be from 8:30 to 9:30 am, while the PM peak for the school was assumed to be 3:30 to 4:30 pm. It was determined that the changes to the bus turning movements at the intersection do not have a negative impact on the operation of the intersection. During the AM peak, the intersection operates at a Level-of-Service B under existing and proposed conditions. During the PM peak, the intersection operates at a Level-of-Service C under existing and proposed conditions.

Intersection Sight Distance

The intersection sight distance was evaluated at the proposed driveway location. Rosemont Road, along the school frontage, is posted with a 20 mile per hour school speed zone during school hours. Since the buses will use the driveway during school hours, the required sight distance of 225 feet is based on the 20 mile per hour speed. There is adequate sight distance at the proposed driveway location.

Internal Circulation

The AM drop-off and PM pick-up are short, but intense events when looking a school parking lot access and circulation. The combination of the buses and autos creates more friction during the AM drop-off than the PM pick-up. This is due to the fact the buses arrive randomly and can exit the sight once all the students are dropped off, which coincides with the time the parents are dropping their kids off. The buses become incorporated into the drop-off queue. During the PM pick-up, the buses must wait until all the students are on board before departing. The PM bus departure is typically after the parents have picked up their kids and have exited the parking lot. The buses all depart at the same time, and typically do not have to wait in the pick-up queue.

Removing the buses from the current circulation pattern will help to alleviate the friction between the autos, pedestrians and buses. It will not, however, eliminate the queuing that is a result of the drop-off and pick-up events.

Considering the geographical constraints of the parking lot and circulation drive, the current method of drop-off and pick-up is a good solution. It provides a single, safe location for students to exit the vehicle and enter the school (with the assistance of a crossing guard). It does, however, create a queue of vehicles waiting to drop students off. One way to reduce the queue would be to create additional drop-off/pick-up locations. The existing pick-up drop-off area could possibly be expanded to allow for multiple vehicles to drop students off at the same time. If the buses are relocated to a new drive aisle on the west side of the school, there may be an

opportunity to create an additional drop off zone directly in front of the school, where the buses are located today.

Summary

- Creating a new drive aisle on the west side of Rosemont Ridge Middle School will allow the buses to be separated from the autos upon exiting the parking lot. This will ease the congestion within the parking lot and reduce the friction between the autos, pedestrians and buses.
- The unsignalized intersection of Rosemont Road/Salamo Road will continue to operate in an acceptable manner with the modification to the bus turning movement volumes.
- A queue of 400 feet or more may be created along the bus drive aisle as buses exit the sight at Rosemont Road. The buses will also create a queue in the eastbound lane at the intersection of Salamo Road/Rosemont Road, but it should dissipate quickly, since there are only 14 buses.
- There is adequate sight distance at the proposed driveway location.
- The existing pick-up drop-off area could possibly be expanded to allow for multiple vehicles to drop students off at the same time.
- If the buses are relocated to a new drive aisle on the west side of the school, there may be an opportunity to create an additional drop off zone directly in front of the school, where the buses are located today.

EXHIBIT D
School Bus Noise Study

May 11, 2009

Dull Olson Weekes
907 S.W. Stark St.
Portland, OR 97205

Attention: Ms. B. Karina Ruiz

Reference: Rosemont Ridge Middle School
West Linn/Wisonville School District
Bus Noise Study

Proposal 09034

Dear Ms. Ruiz:

At your request, a study was made of the noise generated by bus activities at the Rosemont Ridge Middle School. The study was undertaken to ensure that future modifications to the bus delivery route does not cause sound levels at a nearby residential property to exceed the City of West Linn Noise Code.

1. Criterion

1.1 Noise in the City of West Linn is regulated by the Noise Code of Chapter 55 of the community development code. Specifically, for this project, the requirement is that the school bus activity on the project site does not cause measured sound levels at an adjacent residence to exceed L_{50} = 55 dBA, L_{10} = 60 dBA and L_1 = 75 dBA between the hours of 7 AM and 7 PM. The school busses only arrive and depart during these daytime hours, so the more strict nighttime criteria do not apply.

1.2 The City of West Linn Noise Code also requires that octave band sound levels do not exceed the following limits.

31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
68 dB	65 dB	61 dB	55 dB	52 dB	49 dB	46 dB	43 dB	40 dB

1.3 When the receiver is a residential property, these limits are assessed at any location within 25 feet of the residence.

522 SW Fifth Avenue, Suite 1200 Portland, Oregon 97204 (503) 221-1044 Fax: 221-1445

2. Existing Noise Levels & Background Sound Levels

2.1 Project site noise levels were measured on May 1, 2009. Overall measurements were made using a sound level meter meeting American National Standards Institute (ANSI) for a Type 2 Sound Level meter. The output of the sound level meter was recorded for Octave Band Analysis at a later date. The weather conditions were partially cloudy with winds of approximately 6-9 mph gusting to 20 mph.

2.2 Vehicle sound level measurements were made approximately 30 feet south of the existing car and bus exit lanes. The measurement location was approximately 315 feet west of the nearest lane of South Salmon Road. Idling car levels were measured between 65 and 68 dBA. A large diesel passenger truck was measured at 73 dBA while idling. This truck had left the parking lot before the buses started their engines.

2.3 When the buses slowly drove past the measurement position, the measured sound level was 71 dBA. After most of the vehicles had left the parking lot, the sound level was 58 dBA.

2.4 The sound level meter was moved approximately 40 feet to the east of the original measurement site to measure additional background sound levels. This location was shielded from wind gusts by nearby storage containers. The background sound level was measured at 45-47 dBA. The minimum measured sound level (L_{min}) was 44 dBA at this location.

2.5 Additional background sound level measurements were made approximately 40 feet south of the northwest corner of the school, approximately 6 feet out from the building. The background sound level was measured at 42-46 dBA. The minimum measured sound level (L_{min}) was 42 dBA at this location.

3. Observations

3.1 At the middle school, the busses were parked in the turn-about at the west end of the parking lot. While waiting for school to be dismissed and before the majority of parents vehicles had left the parking lot, the school bus engines were turned off. The duration of time from when the busses started their engines to when all the busses had left the school was less than 8 minutes.

3.2 Parents who were picking up there children lined up along the southern edge of the parking lot in front of the line of busses. A flagger directed traffic flow out of the main parking area. Most parents engines were left idling as they waited for school to dismiss.

4. Proposed Site Design & Predicted Sound Levels

4.1 The planned bus exit realignment will route busses along the north side of the existing school. To accomplish this, a roadway will be cut into the landscaping at the north side of the building. A 10 foot tall retaining wall is planned at the north side of the bus path.

4.2 The closest residence to the north is approximately 85 north of the center of the proposed new bus exit path. The compliance with the sound level limits would be assessed at a location 25 feet south of the residence. The distance between the bus path and the nearest site for determination of sound level compliance would be 60 feet.

4.3 The residential property is also elevated above the proposed bus path by about 16 feet.

4.4 Sound levels were predicted assuming a 10 foot tall retaining wall at 10 from the buses and total distance of 60 between the buses and the nearest residential receiver. During bus movements, the predicted short term L_{eq} (1 minute duration) sound level at the residential property was estimated to be 52 dBA with an L_{max} of 66 dBA.

4.5 The L_{50} sound level due to bus activities was estimated to be less than 50 dBA and the L_{10} to be less than 60 dBA (considering a total of 20 minutes of bus idling and driving at the project site). With a predicted L_{max} sound level for bus activity of 66 dBA the L_1 should also be below 66 dBA.

4.6 The predicted octave band sound levels did not exceed the West Linn Noise Code maximums.

5. Conclusion

5.1 Based on the above review, the proposed bus exit realignment should meet the sound level limit requirements of the West Linn Noise Code at the adjacent residential property.

Please contact me with any questions.

Sincerely,
ALTERMATT ASSOCIATES

Kent McKelvie
Staff Engineer

09034L01

EXHIBIT E
TVFR Comments

TUALATIN VALLEY FIRE & RESCUE - SOUTH DIVISION
COMMUNITY SERVICES • OPERATIONS • FIRE PREVENTION

August 7, 2009

Peter Spir
Associate Planner
Planning Department
City of West Linn
West Linn, Oregon 97068

Re: DR 09-05 Rosemont Middle School - Driveway and Field Lighting

Dear Mr. Spir;

Thank you for the opportunity to review the proposed site plan surrounding the above named development project. Tualatin Valley Fire & Rescue endorses this proposal predicated on the following criteria and conditions of approval:

1) **GATES:** If gates are used to secure the bus lane, the fire district would like to ensure the ability to operate gate and use bus lane. Please provide us with:
   Electric gates that are equipped with a means for operation by fire department personnel, and, or,
   Locking devices that are usable by the fire personnel

If you have questions, please call me at (503) 612-7012.

Sincerely,

Karen Mohling

Karen Mohling
Deputy Fire Marshal

TUALATIN VALLEY FIRE & RESCUE - SOUTH DIVISION
COMMUNITY SERVICES • OPERATIONS • FIRE PREVENTION

February 4, 2009

Peter Spir
Associate Planner
City of West Linn
22500 Salamo Road
West Linn, OR 97068

Re: Fire Plan Review Comments

Dear Mr. Spir;

Since I am unable to attend the February 5th Pre-Application meeting, I am submitting these general items that may apply to the development project. Please invite the applicant to contact me to schedule a meeting if desired, or call with any questions. Tualatin Valley Fire & Rescue endorses this proposal predicated on the following criteria and conditions of approval:

1) FIRE APPARATUS ACCESS ROAD DISTANCE FROM BUILDING AND TURNAROUNDS: Access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building. An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet. (IFC 503.1.1)

2) DEAD END ROADS: Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround. (IFC 503.2.5) ***Please refer to the Fire District's Fire Code Applications Guide for specifications:***
http://www.tvfr.com/Dept/fm/const/doc_files/fire_code_applications_guide.pdf

3) FIRE APPARATUS ACCESS ROAD EXCEPTION FOR AUTOMATIC SPRINKLER PROTECTION: When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access may be modified as approved by the fire code official. (IFC 503.1.1)

4) ADDITIONAL ACCESS ROADS – COMMERCIAL: Where buildings exceed 30 feet in height or three stories in height shall have at least three separate means of fire apparatus access. Buildings or facilities having a gross area of more than 62,000 square feet shall be provided with at least two separate means of fire apparatus access. Buildings up to 124,000 square feet provided with fire sprinklers may have a single access. (IFC D104)

5) ADDITIONAL ACCESS ROADS – ONE-OR TWO-FAMILY RESIDENTIAL: Where there are more than 30 one- or two-family dwelling units, not less than two separate approved means of access shall be provided. Where there are more than 30 dwelling units and all are protected by approved residential sprinkler systems, a single access will be allowed. (IFC D107)

6) ADDITIONAL ACCESS ROADS – MULTIPLE-FAMILY RESIDENTIAL: Where there are more than 100 multiple-family dwelling units, not less than two separate approved means of access shall be provided. Projects up to 200 dwelling units that are protected by approved residential sprinkler systems may have a single access. Projects having more than 200 dwelling units shall have two separate approved means of access regardless of whether they are equipped with fire sprinkler systems. (IFC D106)

7) AERIAL FIRE APPARATUS ACCESS: Buildings or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway. Fire apparatus access roads shall have a minimum unobstructed width of 26 feet in the immediate vicinity of any building or portion of building more than 30 feet in height. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. (IFC D105)

8) REMOTENESS: Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses. (IFC D104.3)

9) FIRE APPARATUS ACCESS ROAD WIDTH AND VERTICAL CLEARANCE: Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (12 feet for up to two dwelling units and accessory buildings), and an unobstructed vertical clearance of not less than 13 feet 6 inches. Where fire apparatus roadways are less than 26 feet wide, "NO PARKING" signs shall be installed on both sides of the roadway and in turnarounds as needed. Where fire apparatus roadways are more than 28 feet wide but less than 32 feet wide, "NO PARKING" signs shall be installed on one side of the roadway and in turnarounds as needed. Where fire apparatus roadways are 32 feet wide or more, parking is not restricted. (IFC 503.2.1) ***The Fire District does not endorse the design concept wherein twenty feet of unobstructed roadway width is not provided.***

10) FIRE APPARATUS ACCESS ROADS WITH FIRE HYDRANTS: Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet. (IFC D103.1)

11) TURNOUTS: When any fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the fire code official. These distances may be adjusted based on visibility and light distances. (IFC 503.2.2)

12) NO PARKING SIGNS: Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking" signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Roads 26 feet wide or less shall be posted on both sides as a fire lane. Roads more than 26 feet wide to 32 feet wide shall be posted on one side as a fire lane. Signs shall read "NO PARKING - FIRE LANE" and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (IFC D103.6)

13) SURFACE AND LOAD CAPACITIES: Fire apparatus access roads shall be of an all-weather surface that is easily distinguishable from the surrounding area and is capable of supporting not less than 12,500 pounds point load (wheel load) and 75,000 pounds live load (gross vehicle weight). You may need to provide documentation from a registered engineer that the design will be capable of supporting such loading. (IFC D102.1)

14) BRIDGES: Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO *Standard Specification for Highway Bridges.* Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the fire code official. (IFC 503.2.6)

15) TURNING RADIUS: The inside turning radius and outside turning radius shall be not less than 28 feet and 48 feet respectively, measured from the same center point. (IFC 503.2.4 & D103.3)

16) PAINTED CURBS: Where required, fire apparatus access roadway curbs shall be painted red and marked "NO PARKING FIRE LANE" at approved intervals. Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background. (IFC 503.3)

17) GRADE: Fire apparatus access roadway grades shall not exceed 10 percent. Intersections and turnarounds shall be level (maximum 5%) with the exception of crowning for water run-off. When fire

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sprinklers are installed, a maximum grade of 15% may be allowed. The approval of fire sprinklers as an alternate shall be accomplished in accordance with the provisions of ORS 455.610(5). (IFC 503.2.7 & D103.2)

18) GATES: Gates securing fire apparatus roads shall comply with all of the following: (IFC D103.5)
Minimum unobstructed width shall be 16 feet, or two 10 foot sections with a center post or island.
Gates serving one- or two-family dwellings shall be a minimum of 12 feet in width.
Gates shall be set back at minimum of 30 feet from the intersecting roadway.
Gates shall be of the swinging or sliding type
Manual operation shall be capable by one person
Electric gates shall be equipped with a means for operation by fire department personnel
Locking devices shall be approved.

19) COMMERCIAL BUILDINGS - REQUIRED FIRE FLOW: The required fire flow for the building shall not exceed 3,000 gallons per minute (GPM) or the available GPM in the water delivery system at 20 psi, whichever is less as calculated using IFC, Appendix B. A worksheet for calculating the required fire flow is available from the Fire Marshal's Office. (IFC B105.2) ***Please provide a current fire flow test of the nearest fire hydrant demonstrating available fire flow at 20 psi residual pressure, as well as fire flow calculation worksheets. Fire Flow calculation worksheets and instructions are available on our website: www.tvfr.com.***

20) SINGLE FAMILY DWELLINGS - REQUIRED FIRE FLOW: The minimum available fire flow for single family dwellings and duplexes served by a municipal water supply shall be 1,000 gallons per minute. If the structure(s) is (are) 3,600 square feet or larger, the required fire flow shall be determined according to IFC Appendix B. (IFC B105.1) ***Prior to issuance of a building permit, provide evidence of a current fire flow test of the nearest fire hydrant demonstrating available flow at 20 psi residual pressure.***

21) RURAL BUILDINGS - REQUIRED FIRE FLOW: Required fire flow for rural and suburban areas in which adequate and reliable water supply systems do not exist may be calculated in accordance with National Fire Protection Association Standard 1142, 2001 Edition, when approved by the fire code official. Please contact the Fire Marshal's Office for special assistance and other requirements that may apply. (IFC B105.1.1)

22) FIRE HYDRANTS – COMMERCIAL BUILDINGS: Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided. This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system. (IFC 508.5.1)

23) FIRE HYDRANTS – ONE- AND TWO-FAMILY DWELLINGS & ACCESSORY STRUCTURES: Where a portion of a structure is more than 600 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), on-site fire hydrants and mains shall be provided. (IFC 508.5.1)

24) FIRE HYDRANT NUMBER AND DISTRIBUTION: The minimum number and distribution of fire hydrants available to a building shall not be less than that listed in Appendix C, Table C 105.1.

Considerations for placing fire hydrants may be as follows:

- Existing hydrants in the area may be used to meet the required number of hydrants as approved. Hydrants that are up to 600 feet away from the nearest point of a subject building that is protected with fire sprinklers may contribute to the required number of hydrants.
- Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants unless approved by the fire code official.
- Hydrants that are separated from the subject building by divided highways or freeways shall not contribute to the required number of hydrants. Heavily traveled collector streets only as approved by the fire code official.
- Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the fire code official.

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25) FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD: Fire hydrants shall be located not more than 15 feet from an approved fire apparatus access roadway. (IFC C102.1)

26) REFLECTIVE HYDRANT MARKERS: Fire hydrant locations shall be identified by the installation of reflective markers. The markers shall be blue. They shall be located adjacent and to the side of the centerline of the access road way that the fire hydrant is located on. In case that there is no center line, then assume a centerline, and place the reflectors accordingly. (IFC 508.5.4)

27) FIRE HYDRANT/FIRE DEPARTMENT CONNECTION: A fire hydrant shall be located within 100 feet of a fire department connection (FDC). Fire hydrants and FDC's shall be located on the same side of the fire apparatus access roadway. FDCs shall normally be remote except when approved by the fire code official. (IFC 912.2)

28) ACCESS AND FIRE FIGHTING WATER SUPPLY DURING CONSTRUCTION: Approved fire apparatus access roadways and fire fighting water supplies shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. (IFC 1410.1 & 1412.1)

29) KNOX BOX: A Knox Box for building access is required for this building. For gates securing an emergency access road a Knox box or Knox padlock will be required; a Knox switch will be required for electrically operated gates. Please contact the Fire Marshal's Office for an order form and instructions regarding installation and placement. (IFC 506)

30) HIGH-PILED COMBUSTIBLE STORAGE: Storage greater than 6' or 12' in height, depending on the commodity stored, must meet the requirements of 2007 Oregon Fire Code, Chapter 23. The requirements for High-Piled stock may include, but are not limited to: increased sprinkler density and/or rack sprinklers, fire detection system, additional building access, draft curtains, and, smoke and heat vents.

31) Complete the Building Survey Form prior to the issuance of the Building Permit: http://www.tvfr.com/Dept/fm/brochures/document_files/building_survey_form_ifc.pdf

32) Resubmit plans for final approval.

If you have questions or need clarification, please call me at (503) 612-7012.

Sincerely,

Karen Mohling

Karen Mohling
Deputy Fire Marshal

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TUALATIN VALLEY FIRE & RESCUE - SOUTH DIVISION
COMMUNITY SERVICES • OPERATIONS • FIRE PREVENTION

February 4, 2009

Peter Spir
Associate Planner
City of West Linn
22500 Salamo Road
West Linn, OR 97068

Re: PA 08-02 Rosemont Middle School - Site Improvements

Dear Mr. Spir;

Thank you for the opportunity to review the proposed site plan surrounding the above named development project. I am unable to attend the February 5th Pre-Application meeting so I am submitting comments for this project. It is recommended that the bus route is constructed to allow and provide emergency access by fire apparatus to the north side of the campus. Please invite the applicant to contact me for a meeting, or, with any questions. Tualatin Valley Fire & Rescue endorses this proposal predicated on the following criteria and conditions of approval:

1) FIRE APPARATUS ACCESS ROAD DISTANCE FROM BUILDING AND TURNAROUNDS: Access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building. An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet. (IFC 503.1.1)

2) DEAD END ROADS: Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround. (IFC 503.2.5)

3) FIRE APPARATUS ACCESS ROAD EXCEPTION FOR AUTOMATIC SPRINKLER PROTECTION: When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access may be modified as approved by the fire code official. (IFC 503.1.1)

4) ADDITIONAL ACCESS ROADS – COMMERCIAL: Where buildings exceed 30 feet in height or three stories in height shall have at least three separate means of fire apparatus access. Buildings or facilities having a gross area of more than 62,000 square feet shall be provided with at least two separate means of fire apparatus access. Buildings up to 124,000 square feet provided with fire sprinklers may have a single access. (IFC D104)

5) AERIAL FIRE APPARATUS ACCESS: Buildings or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway. Fire apparatus access roads shall have a minimum unobstructed width of 26 feet in the immediate vicinity of any building or portion of building more than 30 feet in height. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. (IFC D105)

6) REMOTENESS: Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses. (IFC D104.3)

7) FIRE APPARATUS ACCESS ROAD WIDTH AND VERTICAL CLEARANCE: Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (12 feet for up to two dwelling units and accessory buildings), and an unobstructed vertical clearance of not less than 13 feet 6 inches. Where fire apparatus roadways are less than 26 feet wide, "NO PARKING" signs shall be installed on both sides of the roadway and in turnarounds as needed. Where fire apparatus roadways are more than 28 feet wide but less than 32 feet wide, "NO PARKING" signs shall be installed on one side of the roadway and in turnarounds as needed. Where fire apparatus roadways are 32 feet wide or more, parking is not restricted. (IFC 503.2.1) ***The Fire District does not endorse the design concept wherein twenty feet of unobstructed roadway width is not provided.***

8) FIRE APPARATUS ACCESS ROADS WITH FIRE HYDRANTS: Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet. (IFC D103.1)

9) TURNOUTS: When any fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the fire code official. These distances may be adjusted based on visibility and light distances. (IFC 503.2.2)

10) NO PARKING SIGNS: Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking" signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Roads 26 feet wide or less shall be posted on both sides as a fire lane. Roads more than 26 feet wide to 32 feet wide shall be posted on one side as a fire lane. Signs shall read "NO PARKING - FIRE LANE" and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (IFC D103.6)

11) SURFACE AND LOAD CAPACITIES: Fire apparatus access roads shall be of an all-weather surface that is easily distinguishable from the surrounding area and is capable of supporting not less than 12,500 pounds point load (wheel load) and 75,000 pounds live load (gross vehicle weight). You may need to provide documentation from a registered engineer that the design will be capable of supporting such loading. (IFC D102.1)

12) TURNING RADIUS: The inside turning radius and outside turning radius shall be not less than 28 feet and 48 feet respectively, measured from the same center point. (IFC 503.2.4 & D103.3)

13) PAINTED CURBS: Where required, fire apparatus access roadway curbs shall be painted red and marked "NO PARKING FIRE LANE" at approved intervals. Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background. (IFC 503.3)

14) GATES: Gates securing fire apparatus roads shall comply with all of the following: (IFC D103.5)
Minimum unobstructed width shall be 16 feet, or two 10 foot sections with a center post or island.
Gates shall be set back at minimum of 30 feet from the intersecting roadway.
Gates shall be of the swinging or sliding type
Manual operation shall be capable by one person
Electric gates shall be equipped with a means for operation by fire department personnel
Locking devices shall be approved.

15) COMMERCIAL BUILDINGS - REQUIRED FIRE FLOW: The required fire flow for the building shall not exceed 3,000 gallons per minute (GPM) or the available GPM in the water delivery system at 20 psi, whichever is less as calculated using IFC, Appendix B. A worksheet for calculating the required fire flow is available from the Fire Marshal's Office. (IFC B105.2) ***Please provide a current fire flow test of the nearest fire hydrant demonstrating available fire flow at 20 psi residual pressure, as well as fire flow calculation worksheets. Fire Flow calculation worksheets and instructions are available on our website: www.tvfr.com.***

16) FIRE HYDRANTS – COMMERCIAL BUILDINGS: Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided. This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system. (IFC 508.5.1)

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17) FIRE HYDRANT NUMBER AND DISTRIBUTION: The minimum number and distribution of fire hydrants available to a building shall not be less than that listed in Appendix C, Table C 105.1.

Considerations for placing fire hydrants may be as follows:

- Existing hydrants in the area may be used to meet the required number of hydrants as approved. Hydrants that are up to 600 feet away from the nearest point of a subject building that is protected with fire sprinklers may contribute to the required number of hydrants.
- Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants unless approved by the fire code official.
- Hydrants that are separated from the subject building by divided highways or freeways shall not contribute to the required number of hydrants. Heavily traveled collector streets only as approved by the fire code official.
- Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the fire code official.

18) FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD: Fire hydrants shall be located not more than 15 feet from an approved fire apparatus access roadway. (IFC C102.1)

19) REFLECTIVE HYDRANT MARKERS: Fire hydrant locations shall be identified by the installation of reflective markers. The markers shall be blue. They shall be located adjacent and to the side of the centerline of the access road way that the fire hydrant is located on. In case that there is no center line, then assume a centerline, and place the reflectors accordingly. (IFC 508.5.4)

20) FIRE HYDRANT/FIRE DEPARTMENT CONNECTION: A fire hydrant shall be located within 100 feet of a fire department connection (FDC). Fire hydrants and FDC's shall be located on the same side of the fire apparatus access roadway. FDCs shall normally be remote except when approved by the fire code official. (IFC 912.2)

21) ACCESS AND FIRE FIGHTING WATER SUPPLY DURING CONSTRUCTION: Approved fire apparatus access roadways and fire fighting water supplies shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. (IFC 1410.1 & 1412.1)

22) KNOX BOX: A Knox Box for building access is required for this building. For gates securing an emergency access road a Knox box or Knox padlock will be required; a Knox switch will be required for electrically operated gates. Please contact the Fire Marshal's Office for an order form and instructions regarding installation and placement. (IFC 506)

23) Complete the Building Survey Form prior to the issuance of the Building Permit: http://www.tvfr.com/Dept/fm/brochures/document_files/building_survey_form_ifc.pdf

24) Resubmit plans for final approval.

If you have questions or need clarification, please call me at (503) 612-7012.

Sincerely,

Karen Mohling

Karen Mohling
Deputy Fire Marshal

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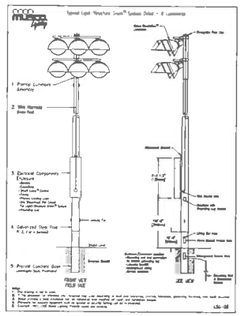
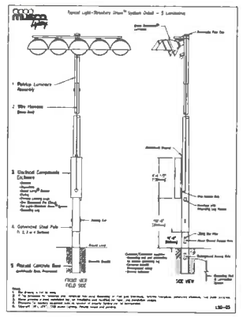
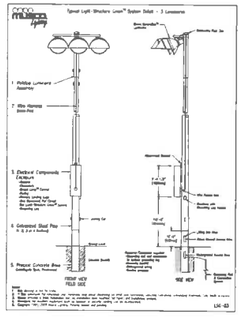
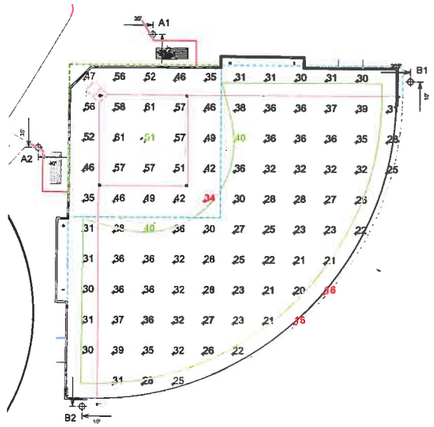
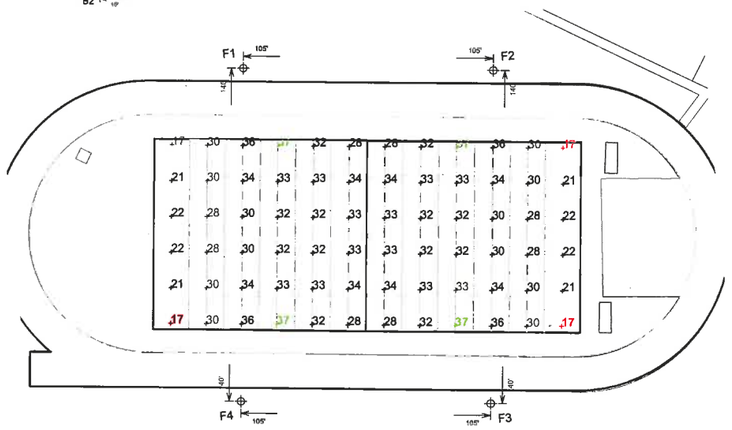
EXHIBIT F
Exterior Lighting Plans

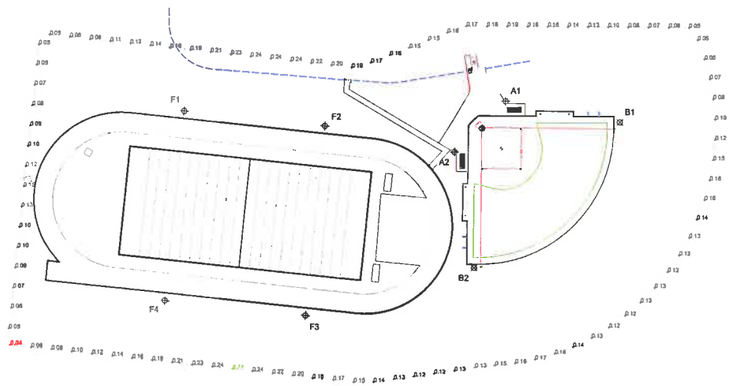










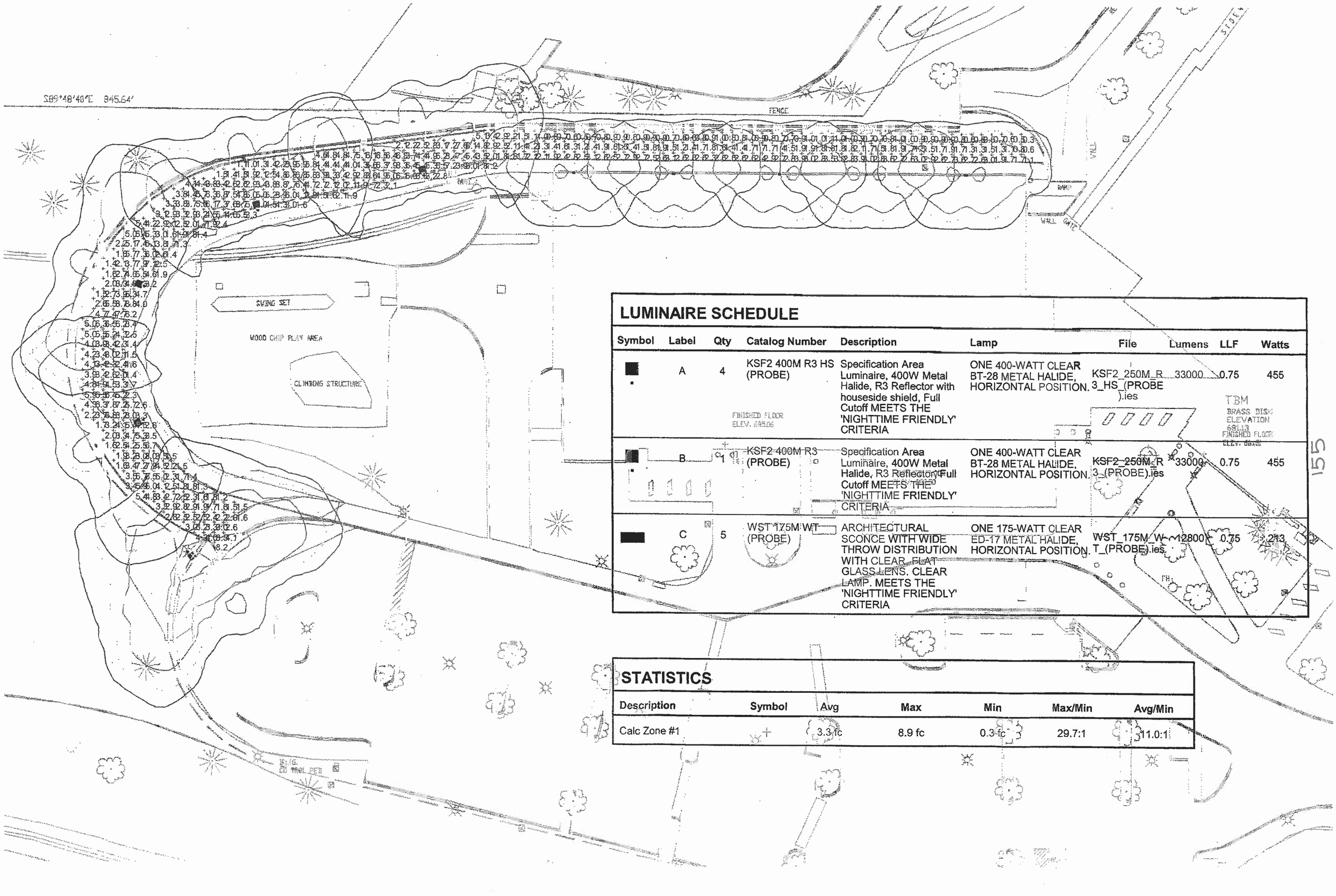


154

Rosemont Ridge Neighborhood Meeting
WEST LINN- WILSONVILLE SCHOOL DISTRICT

WALKER·MACY
Landscape Architecture Urban Design Planning

DULL OLSON WEEKES
architects



LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
■	A	4	KSF2 400M R3 HS (PROBE)	Specification Area Luminaire, 400W Metal Halide, R3 Reflector with houseside shield, Full Cutoff MEETS THE 'NIGHTTIME FRIENDLY' CRITERIA	ONE 400-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	KSF2_250M_R3_HS_(PROBE).ies	33000	0.75	455
■	B	1	KSF2 400M R3 (PROBE)	Specification Area Luminaire, 400W Metal Halide, R3 Reflector, Full Cutoff MEETS THE 'NIGHTTIME FRIENDLY' CRITERIA	ONE 400-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	KSF2_250M_R3_(PROBE).ies	33000	0.75	455
▬	C	5	WST 175M WT (PROBE)	ARCHITECTURAL SCONCE WITH WIDE THROW DISTRIBUTION WITH CLEAR FLAT GLASS LENS. CLEAR LAMP. MEETS THE 'NIGHTTIME FRIENDLY' CRITERIA	ONE 175-WATT CLEAR ED-17 METAL HALIDE, HORIZONTAL POSITION.	WST_175M_WT_(PROBE).ies	12800	0.75	213

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	3.3 fc	8.9 fc	0.3 fc	29.7:1	11.0:1

NOTES

1. TOPOGRAPHIC FEATURES SHOWN ON THIS MAP WERE LOCATED USING STANDARD PRECISION TOPOGRAPHIC MAPPING PROCEDURES. THIRD PARTY USERS OF DATA FROM THIS MAP PROVIDED VIA AUTOCAD DRAWING FILES OR DATA EXCHANGE FILES SHOULD NOT RELY ON ANY AUTOCAD GENERATED INFORMATION WHICH IS BEYOND THE LIMITS OF PRECISION OF THIS MAP. THIRD PARTIES USING DATA FROM THIS MAP IN AN AUTOCAD FORMAT SHOULD VERIFY ANY ELEMENTS REQUIRING PRECISE LOCATIONS PRIOR TO COMMENCEMENT OF ANY ORIGINAL DESIGN OR CONSTRUCTION. CONTACT COMPASS ENGINEERING FOR FURTHER INFORMATION. FURTHERMORE, COMPASS ENGINEERING WILL NOT BE RESPONSIBLE NOR HELD LIABLE FOR ANY DESIGN OR CONSTRUCTION RELATED PROBLEMS THAT ARISE OUT OF THIRD PARTY USAGE OF THIS MAP (IN AUTOCAD OR OTHER FORMAT) FOR ANY PURPOSE OTHER THAN SPECIFICALLY STATED HEREIN. THIS STATEMENT IS AN OFFICIAL PART OF THIS MAP.
2. ONLY VISIBLE UTILITIES HAVE BEEN SHOWN. ADDITIONAL UNDERGROUND UTILITIES MAY EXIST.
3. FROM FIELD SURVEY TAKEN IN FEBRUARY, 2009.
4. BASIS OF ELEVATIONS IS HAND TIES UTILIZING GPS OBSERVATIONS ON MAIN STATION "TERM" IN OREGON CITY.
5. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY AND SHOULD NOT BE CONSTRUED AS SUCH. PROPERTY LINES SHOWN ARE BASED ON EXISTING MONUMENTS AND SURVEYS OF RECORD.
6. CONTOURS ARE ONE FOOT.
7. TAX LOT NUMBERS ARE FROM CURRENT ASSESSOR'S MAP 1S-3E-30A AND ARE SHOWN FOR REFERENCE ONLY.

LEGEND

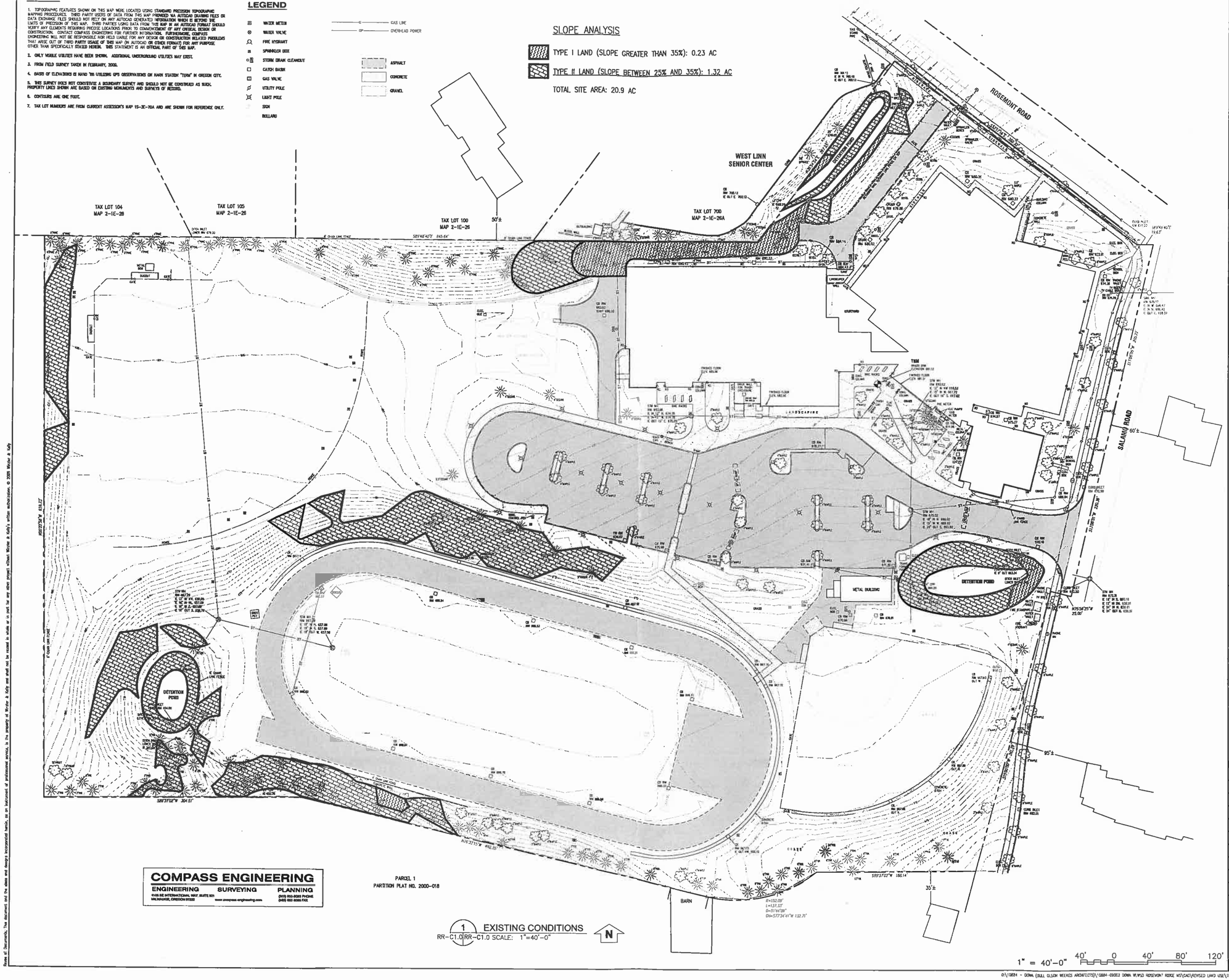
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- SPRINKLER BOX
- STORM DRAIN CLEANOUT
- CATCH BASIN
- GAS VALVE
- UTILITY POLE
- LIGHT POLE
- SIGN
- BOLLARD
- GAS LINE
- OVERHEAD POWER
- ASPHALT
- CONCRETE
- GRAVEL

SLOPE ANALYSIS

TYPE I LAND (SLOPE GREATER THAN 35%): 0.23 AC

TYPE II LAND (SLOPE BETWEEN 25% AND 35%): 1.32 AC

TOTAL SITE AREA: 20.9 AC



1 EXISTING CONDITIONS
RR-C1.0 RR-C1.0 SCALE: 1"=40'-0"

N

1" = 40'-0" 40' 0 40' 80' 120'

PARCEL 1
PARTITION PLAT NO. 2000-018

COMPASS ENGINEERING
ENGINEERING SURVEYING PLANNING
4105 SE INTERNATIONAL WAY, SUITE 501
MILWAUKIE, OREGON 97222
(503) 653-3085 PHONE
(503) 653-3086 FAX
www.compass-engineering.com

DULL OLSON WEEKES architects inc.
307 SW STARK STREET | PORTLAND, OREGON 97205
t: 503 226 6950 / 503 223 8163 www.dowa.com
ARCHITECTURE • INTERIORS • PLANNING

ROSEMONT RIDGE MS

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f. (503) 673 7044

WINZLER & KELLY
15675 SW SEQUOIA PARKWAY, SUITE 140
PORTLAND, OR 97224
PH (503) 226-3824 • FAX (503) 226-3828
WWW.W-AND-K.COM

key plan

phase .

date Sept. 10, 2009

revisions
REVISED LANDUSE

project # 09017

EXSITING CONDTIONS

RR-C1.0

156

PROPOSED NEW BUS DRIVE
DRAWINGS RR-C3.0, RR-C4.0, RR-C5.0, RR-C6.0, RR-C7.0

TAX LOT 104
MAP 2-1E-28

TAX LOT 105
MAP 2-1E-26

TAX LOT 100
MAP 2-1E-25

TAX LOT 700
MAP 2-1E-25A

WEST LINN
SENIOR CENTER

PROPOSED RETAINING WALL

PROPOSED NEW BUS DRIVE

EXISTING DRIVE

ROSEMONT ROAD

EXISTING
SCHOOL
BUILDING

EXISTING ROSEMONT RIDGE
MIDDLE SCHOOL

EXISTING
SCHOOL
BUILDING

EXISTING
PARKING
LOT

SALAMO ROAD

DETENTION POND

DETENTION
POND

PROPOSED NEW TRACK LAYOUT AND ASSOCIATED REVISED STORM DRAINAGE RR-C6.1

PARCEL 1
PARTITION PLAT NO. 2000-018

1 GENERAL ARRANGEMENT
RR-C2.0 RR-C2.0 SCALE: 1"=40'-0"

N

1" = 40'-0" 40' 0 40' 80' 120'

DULL OLSON WEEKES
architects inc.
921 SW WASHINGTON STREET | PORTLAND, OREGON 97205
t: 503 226 1565 / 503 275 9192 www.dowa.com

ROSEMONT RIDGE MS
West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

WINZLER & KELLY
15575 SW SEQUOIA PARKWAY, SUITE 140
PORTLAND, OR 97224
PH (503) 226-3621 ♦ FAX (503) 226-3628
WWW.W-AND-K.COM

REGISTERED PROFESSIONAL ENGINEER
13,777
OREGON
JULY 14, 1972
MARK B. WHARY
EXPIRES: 6/30/10

key plan

phase | .

date | Sept. 10, 2009

revisions |
REVISED LANDUSE

project # | 09017

GENERAL ARRANGEMENT

RR-C2.0

SITE DEMOLITION NOTES

1. SAVE AND PROTECT EXISTING ASPHALT THROUGHOUT CONSTRUCTION ACTIVITIES.
2. SAVE AND PROTECT EXISTING CONCRETE THROUGHOUT CONSTRUCTION ACTIVITIES.
3. SAVE AND PROTECT EXISTING CURB THROUGHOUT CONSTRUCTION ACTIVITIES.
4. SAVE AND PROTECT EXISTING LANDSCAPING THROUGHOUT CONSTRUCTION ACTIVITIES.
5. SAVE AND PROTECT EXISTING UTILITIES THROUGHOUT CONSTRUCTION ACTIVITIES.
6. SAVE AND PROTECT EXISTING BUILDING EXTERIOR THROUGHOUT CONSTRUCTION ACTIVITIES.
7. SAVE AND PROTECT EXISTING LIGHT POLE.
8. DEMOLISH AND REMOVE EXISTING CURB.
9. DEMOLISH AND REMOVE EXISTING CATCH BASIN.
10. SAWCUT CONCRETE CURB.
11. SAVE AND PROTECT EXISTING FENCE.
12. DEMOLISH AND REMOVE EXISTING ASPHALT PAVING SECTION. REMOVE TO ADEQUATE SUBGRADE TO PROVIDE COMPLETE NEW PAVING SECTION AS DETAILED. REMOVE ALL ASPHALT WITHIN DEMOLITION LIMITS AND DISPOSE OFFSITE.
13. DEMOLISH AND REMOVE EXISTING CONCRETE SLABS AND PAVING. REMOVE TO ADEQUATE SUBGRADE TO PROVIDE COMPLETE NEW PAVING SECTION AS DETAILED. REMOVE ALL CONCRETE WITHIN DEMOLITION LIMITS AND DISPOSE OFFSITE.
14. SAWCUT AC PAVING.
15. SAWCUT EXISTING CONCRETE SLAB.
16. REMOVE EXISTING TREE. SEE LANDSCAPE DRAWINGS.
17. DEMOLISH AND REMOVE SECTION OF EXISTING RETAINING WALL AND CHAIN LINK FENCE. DISPOSE OF OFF SITE.
18. SAVE AND PROTECT EXISTING TRENCH DRAIN.
19. REMOVE AND RELOCATE EXISTING FIRE HYDRANT. SEE UTILITY DRAWING.
20. SAVE AND PROTECT EXISTING RETAINING WALL AND CHAIN LINK FENCE.

WEST LINN SENIOR CENTER

TAX LOT 100
MAP 2-1E-26

TAX LOT 700
MAP 2-1E-26A

DETENTION POND

ROSEMONT ROAD

EXISTING ROSEMONT RIDGE MIDDLE SCHOOL

CB RIM 701.13
IE IN W. 700.48
IE OUT E. 700.13

CB RIM 705.12
IE OUT E. 702.12

12" CPP IE 699.29

LOWER RIM INLET 699.30

LOWER RIM INLET 698.16

6" WIDE SLOTTED DRAIN

CB RIM 680.34

DRAIN RIM 679.86

DRAIN RIM 680.03

CB RIM 684.14

CB RIM 684.43

DRAIN RIM 690.33

CB RIM 683.83
SUMP 680.33

STM MH
RIM 683.98
IE IN 12" N. 674.78
IE IN 12" W. 674.78
IE OUT 15" E. 675.68

FINISHED FLOOR ELEV. 685.06

FINISHED FLOOR ELEV. 682.50

FINISHED FLOOR ELEV. 681.51

STM MH
RIM 680.62
IE 12" IN NW 668.52
IE 15" IN W. 667.72
IE OUT 18" S. 667.62

STM MH
RIM 675.52
IE 18" IN N. 666.02
IE 15" IN W. 666.02
IE 24" OUT S. 665.92

CB RIM 678.27

CB RIM 674.96

CB RIM 674.22

RETAINING WALL W/CHAIN LINK FENCE ON TOP

BRICK WALL FOR TRASH ENCLOSURE

GREASE TRAP RIM 682.33

PROPOSED NEW BUS ROAD

SWING SET

WOOD CHIP PLAY AREA

CLIMBING STRUCTURE

COURTYARD

LANDSCAPING

SIDEWALK

SPEED BUMP

RAMP

6' CHAIN LINK FENCE

BLOCK WALL

1 DEMOLITION PLAN
RR-C3.0 SCALE: 1"=20'-0"

N

1" = 20'-0" 20' 0 20' 40' 60'

DULL OLSON WEEKES architects inc.
ARCHITECTURE + INTERIORS + PLANNING
307 SW STARK STREET | PORTLAND, OREGON 97204
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OREGON
JULY 14, 1972
MARK B. WHARY
EXPIRES: 6/30/10

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phase	.
date	Sept. 10, 2009
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project #	09017

DEMOLITION PLAN

RR-C3.0

158

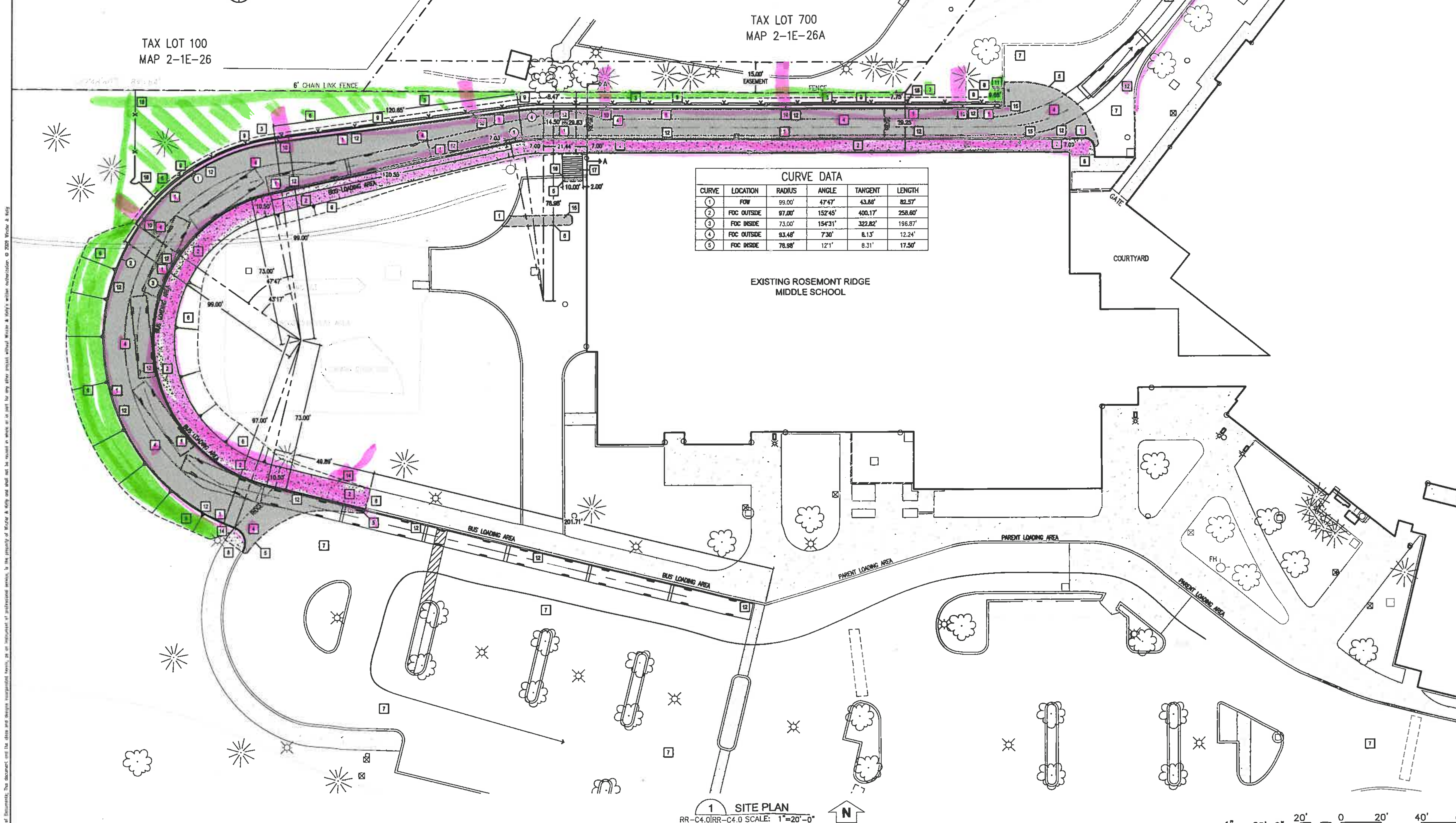
SITE CONTRUCTION NOTES

(NOTE: NOT ALL NOTES USED ON THIS PLAN)

1. CONSTRUCT STANDARD CURB. — 1 RR-C4.0 | RR-C8.0
2. CONSTRUCT STANDARD SIDEWALK. — 3 RR-C4.0 | RR-C8.0; 4 RR-C4.0 | RR-C8.0
3. SEE LANDSCAPE PLANS FOR CONSTRUCTION INFORMATION.
4. CONSTRUCT HEAVY ASPHALT PAVEMENT SECTION. — 2 RR-C4.0 | RR-C8.0
5. MATCH EXISTING AC PAVING, PROVIDE TACK COAT AT JOINT.
6. PROVIDE NEW LAWN IN AREAS DISTURBED BY CONSTRUCTION. SEE LANDSCAPE DRAWINGS.
7. CONTRACTOR SHALL PATCH & REPAIR ALL EXISTING ASPHALT PAVING USED FOR STAGING AREAS AND CONSTRUCTION TRUCK ROUTES. DAMAGED PAVING AREAS SHALL BE REMOVED AND REPLACED WITH MATCHING PAVEMENT SECTION.
8. MATCH NEW SIDEWALK TO EXISTING SIDEWALK AND PROVIDE SMOOTH TRANSITION TO ADJACENT GRASS GRADES.
9. CONSTRUCT 4' TALL CHAIN LINK FENCE AT TOP OF WALL. — 11 RR-C4.0 | RR-C8.0
10. CONSTRUCT SOIL NAIL RETAINING WALL. — 3 RR-C4.0 | RR-C7.0
11. TIE NEW CHAIN LINK FENCE INTO EXISTING FENCE AT EXISTING RETAINING WALL.
12. PROVIDE YELLOW PAINTED CURB.
13. PROVIDE "STOP" SIGN. — 6 RR-C4.0 | RR-C8.0
14. PROVIDE "BUS ONLY DO NOT ENTER" SIGN. — 7 RR-C4.0 | RR-C8.0
15. PROVIDE "DO NOT ENTER" SIGN. — 8 RR-C4.0 | RR-C8.0
16. INSTALL PAVING PATCH. MATCH EXISTING PAVING SECTION.
17. CONSTRUCT CONCRETE STEPS. — 10 RR-C4.0 | RR-C8.0
18. CONSTRUCT 6' TALL CHAIN LINK FENCE WITH MAN GATE FOR ACCESS. — 11 RR-C4.0 | RR-C8.0

GENERAL SITE NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE. CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND BECOMING FAMILIAR WITH THE SITE CONDITIONS PRIOR TO BIDDING.
2. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THAT NEW FEATURES TIE INTO EXISTING SITE DEVELOPMENT, PAVEMENT JOINTS MATCH CORRECTLY, AND THAT GENERAL DESIGN ELEVATIONS FOR NEW CONSTRUCTION PROVIDE PROPER PAVEMENT AND DRAINAGE SLOPES FROM EXISTING TIE IN POINTS. REPORT DISCREPANCIES TO OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
3. IN AREAS WHERE ASPHALT PAVING IS BEING REWORKED, PROVIDE NEW PAINT STRIPING FOR ALL REVISED PAVING WORK AND PARKING STALLS. EXISTING STRIPING TO BE BLACKENED OUT IN RECONFIGURED AREAS AS REQUIRED.
4. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH CITY INSPECTOR(S). CONTRACTOR SHALL NOTIFY CITY INSPECTOR(S) 48 HOURS PRIOR TO START OF CONSTRUCTION.
5. DURING CONSTRUCTION, THE CONTRACTOR AND/OR SUBCONTRACTORS SHALL HAVE A MINIMUM OF ONE (1) SET OF PERMIT APPROVED PLANS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.
6. UPON COMPLETION OF THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL LEAVE THE PROJECT AREA FREE OF DEBRIS AND UNUSED MATERIAL. ALL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE RESTORED TO AN "AS GOOD OR BETTER" CONDITION.



CURVE DATA					
CURVE	LOCATION	RADIUS	ANGLE	TANGENT	LENGTH
1	FOW	99.00'	47°47'	43.86'	82.57'
2	FOC OUTSIDE	97.00'	152°45'	400.17'	258.60'
3	FOC INSIDE	73.00'	154°31'	322.82'	196.87'
4	FOC OUTSIDE	93.48'	7°30'	8.13'	12.24'
5	FOC INSIDE	78.98'	12°1'	8.31'	17.50'

1 SITE PLAN
RR-C4.0 | RR-C4.0 SCALE: 1"=20'-0"

1" = 20'-0" 20' 0 20' 40' 60'

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DULL OLSON WEEKES architects inc.

ROSEMONT RIDGE MS

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

WINZLER & KELLY
15575 SW SEQUOIA PARKWAY, SUITE 140
PORTLAND, OR 97224
PH (503) 226-3921 • FAX (503) 226-3928
WWW.W-AND-K.COM

REGISTERED PROFESSIONAL ENGINEER 13,727
OREGON JULY 16, 1987
MARK B. WHARRY
EXPIRES 6/30/10

key plan

phase	
date	
revisions	

project #	09017

SITE PLAN

RR-C4.0

159

EROSION CONTROL

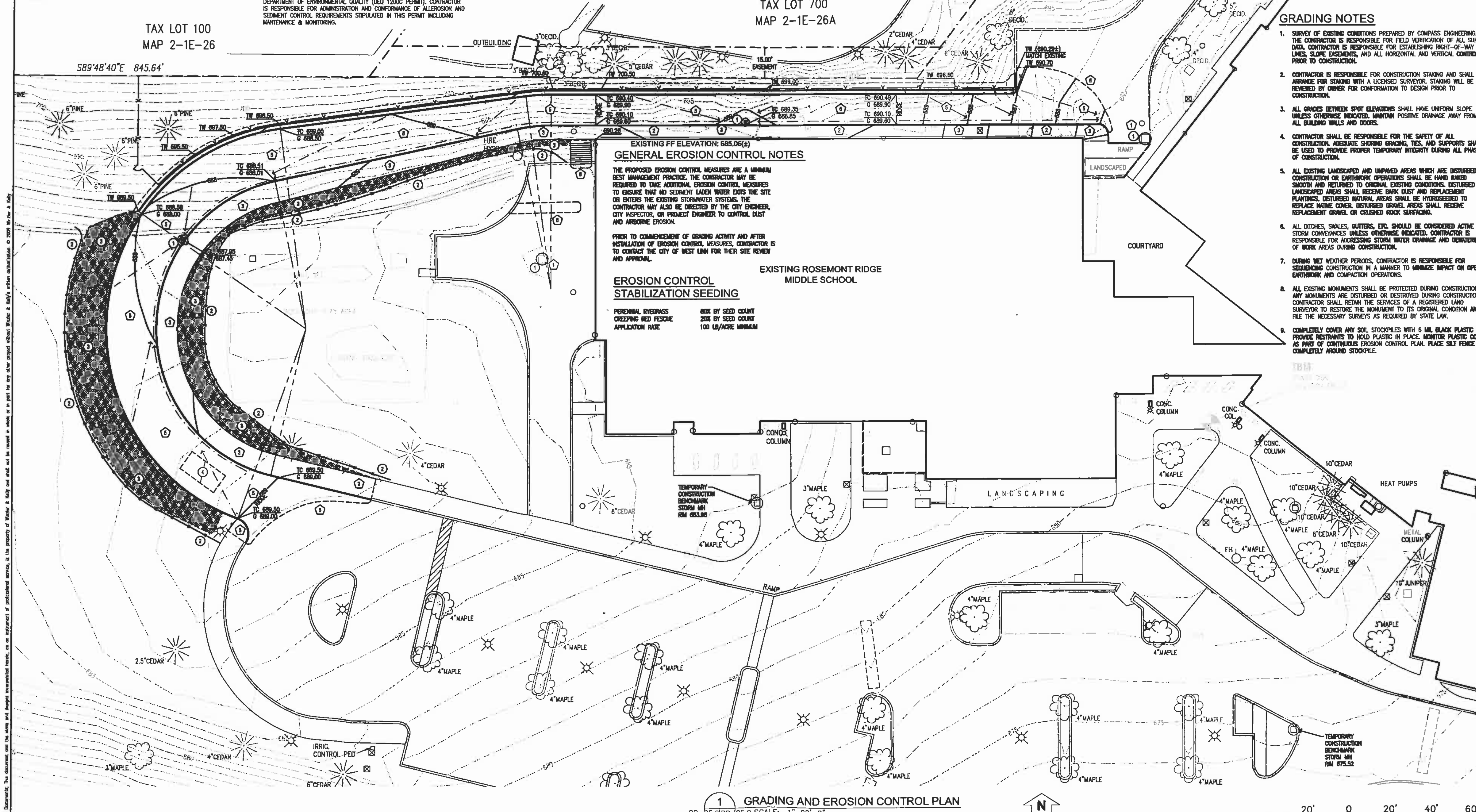
1. ALL EROSION, SEDIMENT, AND POLLUTION CONTROL PLAN (ESPCP) MEASURES SHALL BE INSTALLED AS PER THE DETAIL DRAWINGS IN THE CITY OF PORTLAND EROSION CONTROL MANUAL.
2. TEMPORARY ESPCP MEASURES SHALL BE INSTALLED, INSPECTED, AND APPROVED BY A CITY INSPECTOR BEFORE STARTING GROUND DISTURBING ACTIVITIES.
3. ESPCP MEASURES SHALL NOT BE REMOVED UNTIL PERMANENT LANDSCAPING HAS BEEN INSTALLED AND FINAL INSPECTION HAS BEEN REQUESTED AND APPROVED BY A CITY INSPECTOR.
4. INSPECTIONS MAY BE REQUESTED BY TELEPHONING THE INSPECTION REQUEST NUMBER 823-7000 ONE DAY PRIOR TO THE TIME OF INSPECTION.
5. APPROVAL OF THIS ESPCP PLAN DOES NOT CONSTITUTE APPROVAL OF PERMANENT OR DRAINAGE DESIGN (I.E. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITES, ETC.)
6. THE IMPLEMENTATION OF THIS ESPCP AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESPCP FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
7. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
8. THE BOUNDARIES OF THE CLEARING LIMITS (IF REQUIRED BY THE CITY) SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF THE CONSTRUCTION.
9. THE ESPCP FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESPCP FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
10. THE ESPCP FACILITIES SHALL BE INSPECTED DAILY BETWEEN OCTOBER 1 AND APRIL 30 BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. ALL INSPECTIONS SHALL BE NOTED IN AN INSPECTION LOG WHICH SHALL BE MADE AVAILABLE TO THE CITY INSPECTOR UPON REQUEST.
11. ESPCP FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 24 HOURS FOLLOWING A STORM EVENT.
12. A SIGN WITH THE CITY'S EROSION CONTROL HOTLINE NUMBER, PROJECT ADDRESS, AND PERMIT NUMBER SHALL BE POSTED AT A LOCATION CLEARLY VISIBLE FROM THE RIGHT OF WAY AND MAINTAINED UNTIL PROJECT COMPLETION.
13. EXPOSED SOILS THAT REMAIN UNWORKED FOR 14 DAYS OR MORE SHALL BE IMMEDIATELY PROTECTED BY APPROPRIATE GROUND COVER. DISTURBED LAND THAT WILL REMAIN UNWORKED FOR 2 MONTHS OR LONGER SHALL ALSO BE SEEDED WITH AN APPROVED SEED MIXTURE.
14. PUBLIC STREETS WILL BE SWEPT DAILY, IF NECESSARY, TO ALLEVIATE SEDIMENT DISCHARGE TO THE STORM WATER MANAGEMENT SYSTEM. UNFILTERED WASH WATER CANNOT BE DISCHARGED TO STORM DRAINS.
15. ALL EROSION CONTROL SEEDING FOR SITE STABILIZATION WILL BE PERFORMED NO LATER THAN SEPTEMBER 1ST TO ALLOW TIME FOR VEGETATIVE ESTABLISHMENT PRIOR TO THE ONSET OF THE WET WEATHER SEASON.
16. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THEY ARE NO LONGER NEEDED.
17. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE REPAIRED AND PROTECTED WITH ADEQUATE GROUND COVER (2" STRAW, COMPOST, MULCH, ETC.)
18. SEEDING SHALL BE SUPPLIED WITH ADEQUATE MOISTURE. SUPPLY WATER AS NEEDED. WATER SHOULD BE CONTROLLED TO PREVENT RUNOFF. AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT EROSION SHALL BE RESEEDED AS SOON AS AREAS ARE IDENTIFIED.
19. DISTURBED AREAS OF SLOPE GREATER THAN 2:1 WILL BE STABILIZED THROUGH SEEDING AND THE INSTALLATION OF NORTH AMERICAN GREEN SC150BN MATTING OR EQUIVALENT PRODUCT.
20. THE PROPOSED EROSION CONTROL MEASURES ARE A MINIMUM BEST MANAGEMENT PRACTICE. THE CONTRACTOR MAY BE REQUIRED TO MAKE ADDITIONAL EROSION CONTROL MEASURES TO ENSURE THAT NO SEDIMENT LADEN WATER EXITS THE SITE OR ENTERS THE EXISTING STORMWATER SYSTEM.
21. IN THE CASE OF STABILIZATION SEEDING AND PLANTINGS FOR SWALES & SLOPES, IT IS THE CONTRACTORS RESPONSIBILITY TO SEQUENCE THE WORK SUCH THAT THE PLANTINGS ARE ESTABLISHED AS FAR AS POSSIBILE PRIOR TO OCTOBER 1.
22. CONTRACTOR SHALL DESIGNATE AN ONSITE EROSION & SEDIMENT CONTROL INSPECTOR AND SHALL SUBMIT THE NAME TO THE OWNER'S REPRESENTATIVE FOR SUBMITTAL TO DEQ AS PART OF THE DEQ 1200C PERMIT REQUIREMENTS.
23. AN EROSION AND SEDIMENT CONTROL PERMIT HAS BEEN ISSUED BY OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ 1200C PERMIT). CONTRACTOR IS RESPONSIBLE FOR ADMINISTRATION AND CONFORMANCE OF ALLEROSION AND SEDIMENT CONTROL REQUIREMENTS STIPULATED IN THIS PERMIT INCLUDING MAINTENANCE & MONITORING.

GRADING NOTES

1. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TOWARD ALL EXISTING STORMWATER FEATURES.
2. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING.
3. SEE LANDSCAPE PLANS FOR PEDESTRIAN SIDEWALK GRADES AROUND BUILDING.
4. COMPLETELY COVER ANY SOIL STOCKPILES WHICH REMAIN UNWORKED FOR MORE THAN TWO WEEKS WITH 6MIL BLACK PLASTIC AND PROVIDE RESTRAINTS TO HOLD PLASTIC IN PLACE. MONITOR PLASTIC COVER AS PART OF CONTINUOUS EROSION CONTROL PLAN. INSTALL SILT FENCE COMPLETELY AROUND STOCKPILE.
5. STRIP TOPSOIL AND PROVIDE EXCAVATION AS NEEDED TO ACHIEVE SUBGRADE. PROVIDE STRUCTURAL FILL AS SPECIFIED UNDER BUILDING AND PAVEMENT TO ACHIEVE INDICATED FINISH ELEVATIONS.
6. MATCH EXISTING PAVEMENT GRADES AT JOINTS BETWEEN NEW AND EXISTING PAVEMENTS.

EROSION CONTROL NOTES

1. INSTALL INLET PROTECTION (TYPICAL OVER ALL OPEN GRATES AND INCLUDING CATCH BASINS AND YARD DRAINS.) — 15 RR-C5.0 RR-C8.0
2. INSTALL SEDIMENT FENCE. (TYPICAL) — 16 RR-C5.0 RR-C8.0
3. INSTALL JUTE MATTING AND COMPOST BLANKETS ON ALL SLOPES DISTURBED BY CONSTRUCTION. — 12 RR-C5.0 RR-C8.0, 13 RR-C5.0 RR-C8.0
4. INSTALL 10'x20' CONCRETE WASHOUT AREA. ALL WATER COLLECTED THROUGH WASHOUT AREA IS CONSIDERED HAZARDOUS WASTE AND SHALL BE CAPTURED AND HANDLED AS SUCH. ALL CONCRETE FROM PIT SHALL BE REMOVED. PIT SHALL BE MONITORED & MAINTAINED BY CONTRACTOR TO ENSURE NO OVERFLOW OCCURS. CONTRACTOR MAY ADJUST LOCATION WITH OWNERS PERMISSION.



GENERAL EROSION CONTROL NOTES

THE PROPOSED EROSION CONTROL MEASURES ARE A MINIMUM BEST MANAGEMENT PRACTICE. THE CONTRACTOR MAY BE REQUIRED TO TAKE ADDITIONAL EROSION CONTROL MEASURES TO ENSURE THAT NO SEDIMENT LADEN WATER EXITS THE SITE OR ENTERS THE EXISTING STORMWATER SYSTEMS. THE CONTRACTOR MAY ALSO BE DIRECTED BY THE CITY ENGINEER, CITY INSPECTOR, OR PROJECT ENGINEER TO CONTROL DUST AND AIRBORNE EROSION.

PRIOR TO COMMENCEMENT OF GRADING ACTIVITY AND AFTER INSTALLATION OF EROSION CONTROL MEASURES, CONTRACTOR IS TO CONTACT THE CITY OF WEST LINN FOR THEIR SITE REVIEW AND APPROVAL.

EROSION CONTROL STABILIZATION SEEDING

PERENNIAL RYEGRASS	80% BY SEED COUNT
CREEPING RED FESCUE	20% BY SEED COUNT
APPLICATION RATE	100 LB/ACRE MINIMUM

GRADING NOTES

1. SURVEY OF EXISTING CONDITIONS PREPARED BY COMPASS ENGINEERING. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL SURVEY DATA. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING RIGHT-OF-WAY LINES, SLOPE EASEMENTS, AND ALL HORIZONTAL AND VERTICAL CONTROL PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAKING AND SHALL ARRANGE FOR STAKING WITH A LICENSED SURVEYOR. STAKING WILL BE REVIEWED BY OWNER FOR CONFORMATION TO DESIGN PRIOR TO CONSTRUCTION.
3. ALL GRADES BETWEEN SPOT ELEVATIONS SHALL HAVE UNIFORM SLOPE UNLESS OTHERWISE INDICATED. MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING WALLS AND DOORS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION. ADEQUATE SHORING BRACING, TIES, AND SUPPORTS SHALL BE USED TO PROVIDE PROPER TEMPORARY INTEGRITY DURING ALL PHASES OF CONSTRUCTION.
5. ALL EXISTING LANDSCAPED AND UNPAVED AREAS WHICH ARE DISTURBED BY CONSTRUCTION OR EARTHWORK OPERATIONS SHALL BE HAND RAKED SMOOTH AND RETURNED TO ORIGINAL EXISTING CONDITIONS. DISTURBED LANDSCAPED AREAS SHALL RECEIVE BARK DUST AND REPLACEMENT PLANTINGS. DISTURBED NATURAL AREAS SHALL BE HYDROSEEDED TO REPLACE NATIVE COVER. DISTURBED GRAVEL AREAS SHALL RECEIVE REPLACEMENT GRAVEL OR CRUSHED ROCK SURFACING.
6. ALL DITCHES, SWALES, GUTTERS, ETC. SHOULD BE CONSIDERED ACTIVE STORM CONVEYANCES UNLESS OTHERWISE INDICATED. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING STORM WATER DRAINAGE AND DEWATERING OF WORK AREAS DURING CONSTRUCTION.
7. DURING WET WEATHER PERIODS, CONTRACTOR IS RESPONSIBLE FOR SEQUENCING CONSTRUCTION IN A MANNER TO MINIMIZE IMPACT ON OPEN EARTHWORK AND COMPACTION OPERATIONS.
8. ALL EXISTING MONUMENTS SHALL BE PROTECTED DURING CONSTRUCTION. IF ANY MONUMENTS ARE DISTURBED OR DESTROYED DURING CONSTRUCTION, CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED LAND SURVEYOR TO RESTORE THE MONUMENT TO ITS ORIGINAL CONDITION AND FILE THE NECESSARY SURVEYS AS REQUIRED BY STATE LAW.
9. COMPLETELY COVER ANY SOIL STOCKPILES WITH 6 MIL BLACK PLASTIC AND PROVIDE RESTRAINTS TO HOLD PLASTIC IN PLACE. MONITOR PLASTIC COVER AS PART OF CONTINUOUS EROSION CONTROL PLAN. PLACE SILT FENCE COMPLETELY AROUND STOCKPILE.

1 GRADING AND EROSION CONTROL PLAN
RR-C5.0 RR-C5.0 SCALE: 1"=20'-0"

1" = 20'-0" 20' 0 20' 40' 60'

DULL OLSON WEEKES architects inc.
ARCHITECTURE + INTERIORS + PLANNING
907 SW STARK STREET PORTLAND, OREGON 97205
t: 503 226 6950 / f: 503 273 9192 www.dowa.com

ROSEMONT RIDGE MS

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

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

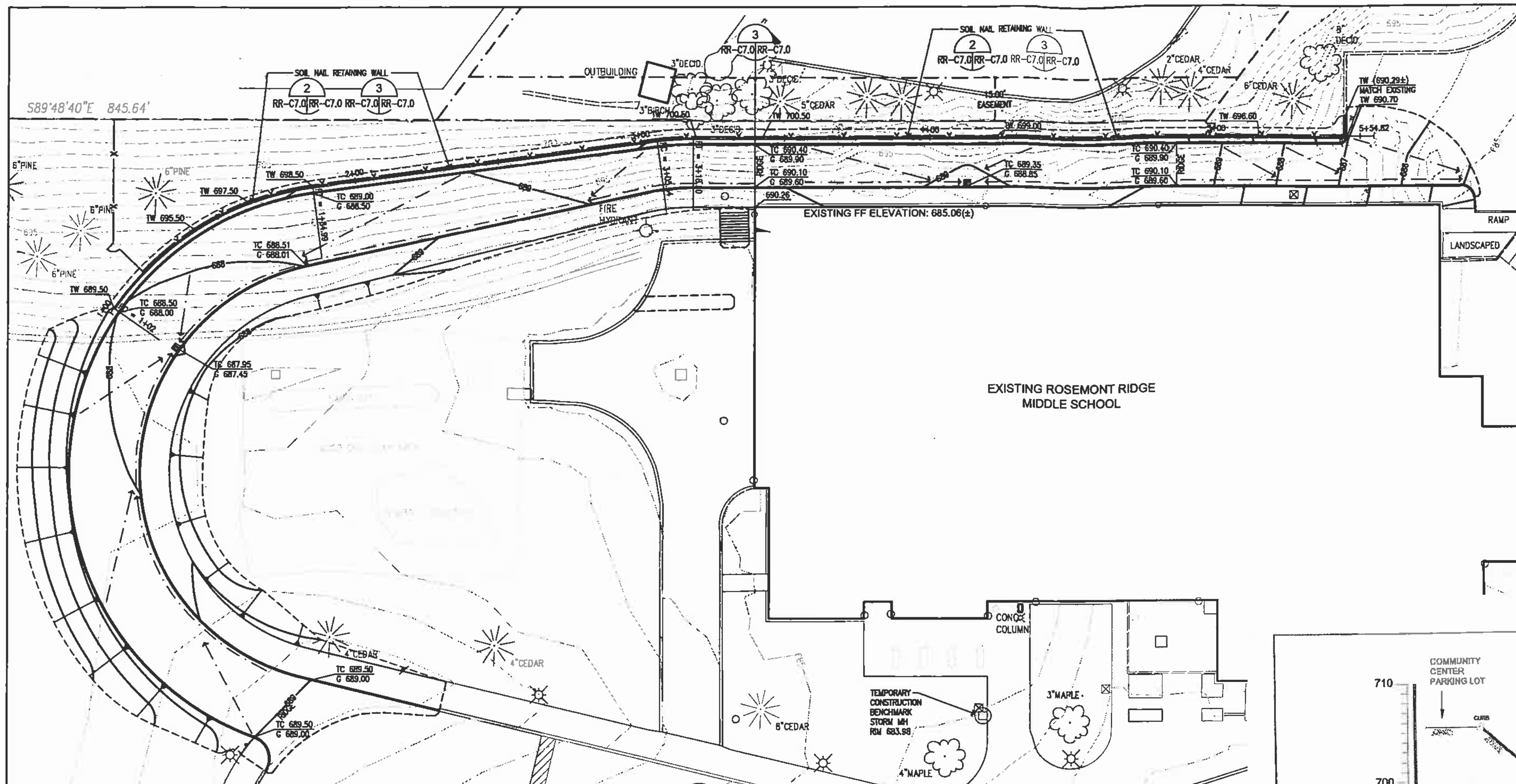
key plan

phase	.
date	Sept. 10, 2009
revisions	
REVISED LANDUSE	
project #	09017

GRADING AND EROSION CONTROL PLAN

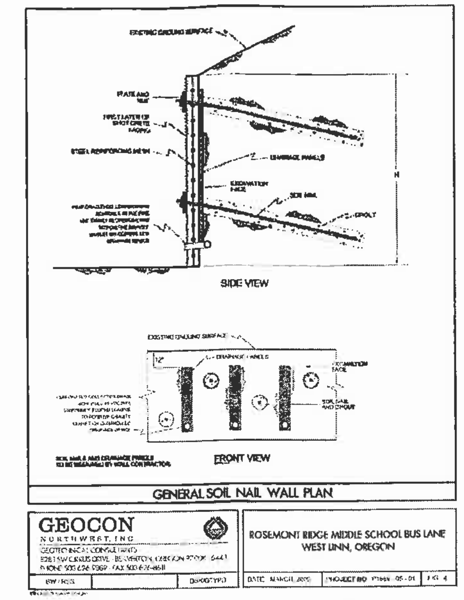
RR-C5.0

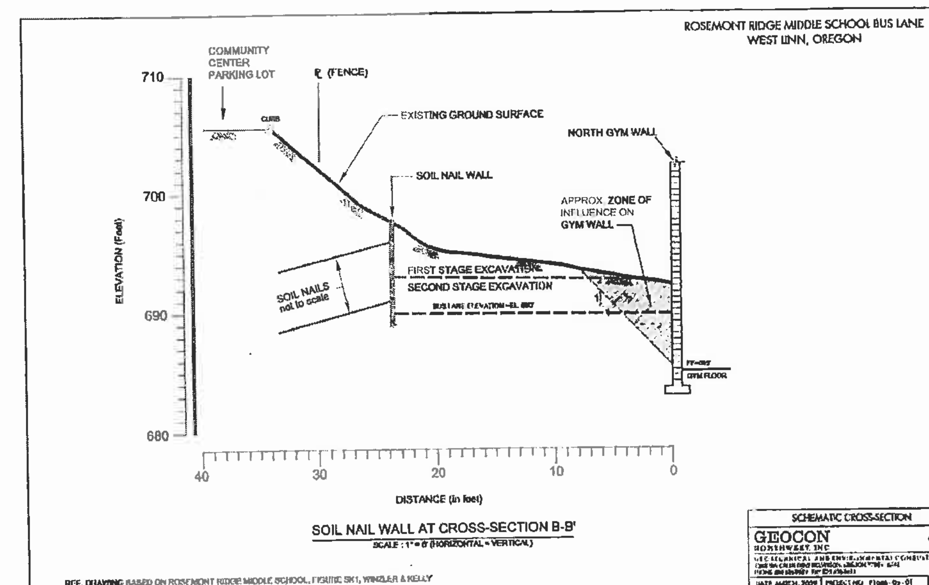
168

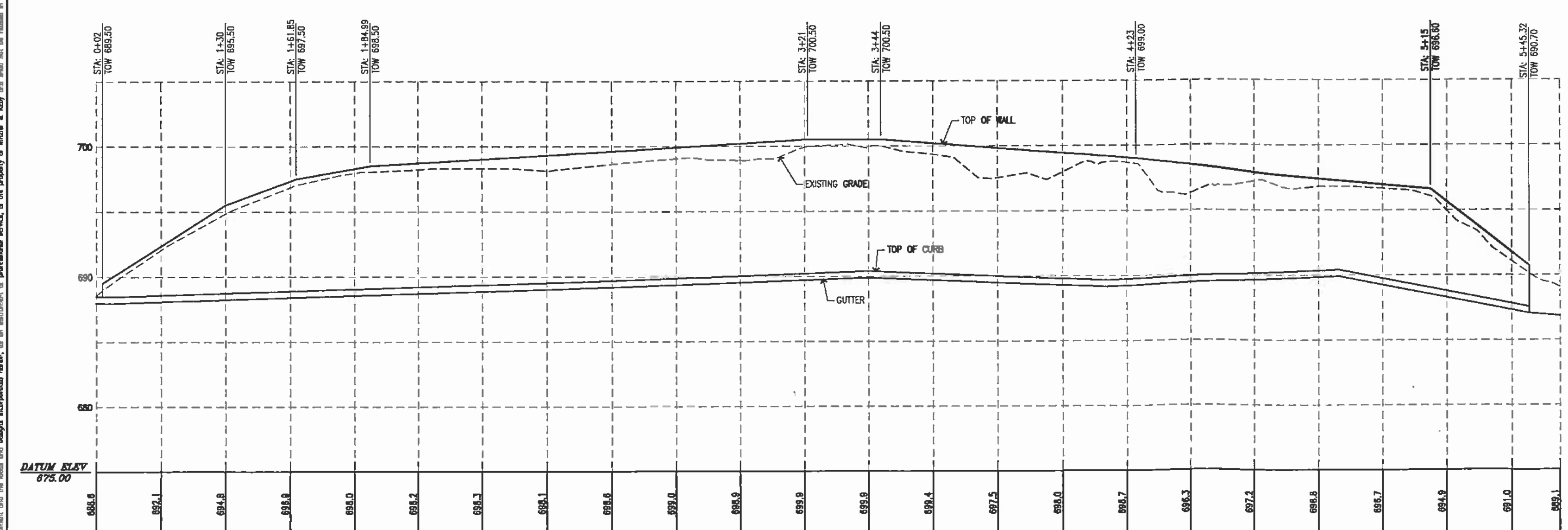


1 SOIL NAIL RETAINING WALL PLAN

RR-C7.0 RR-C7.0 SCALE: 1"=20'-0"



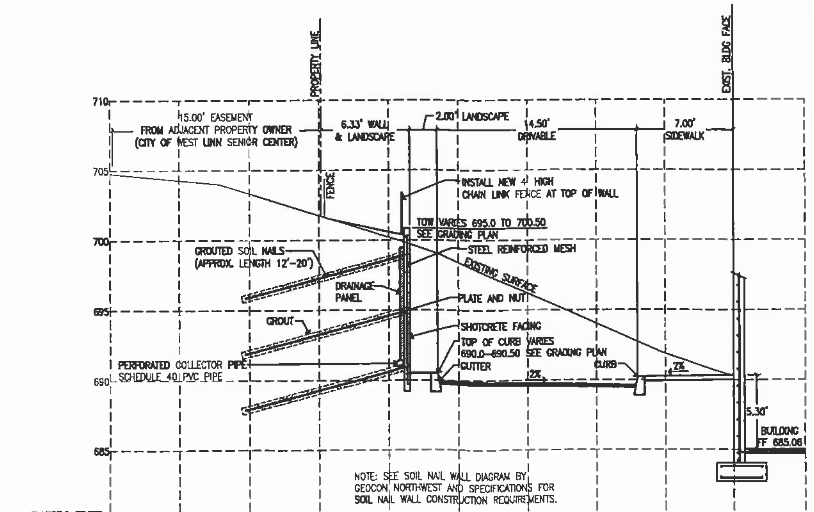




2 SOIL NAIL RETAINING WALL PROFILE

RR-C7.0 RR-C7.0 SCALE: 1"=5'-0" VERTICAL
1"=20'-0" HORIZONTAL

1" = 5'-0"
1" = 20'-0"



3 SOIL NAIL RETAINING WALL TYPICAL SECTION

RR-C4.0 RR-C7.0 RR-C7.0 SCALE: 1"=5'-0"

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DULL OLSON WEEKES architects inc.

ROSEMONT RIDGE MS

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

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key plan

phase

date Sept. 10, 2009

revisions

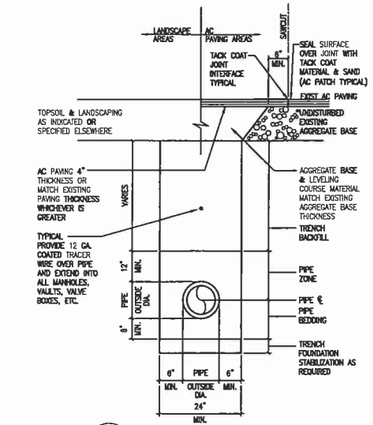
REVISED LANDUSE

project # 09017

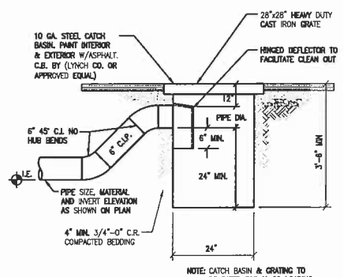
WALL PROFILE

RR-C7.0

162

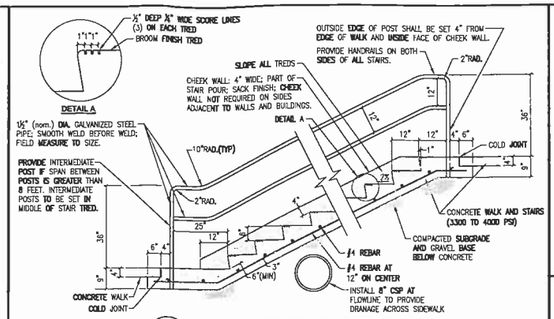


16 UTILITY TRENCH SECTION
RR-C6.0|RR-C8.0 SCALE: NONE

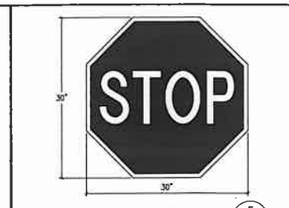


NOTE: CATCH BASIN & GRATING TO BE RATED FOR H-20 LOADING

14 METAL CATCH BASIN
RR-C6.0|RR-C8.0 SCALE: NONE



10 CONCRETE STAIR DETAILS
RR-C4.0|RR-C8.0 SCALE: NONE

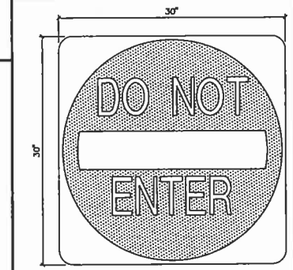


SEE SIGN POST DETAIL 5 RR-C8.0|RR-C8.0

6 STOP SIGN
RR-C4.0|RR-C8.0 SCALE: NONE

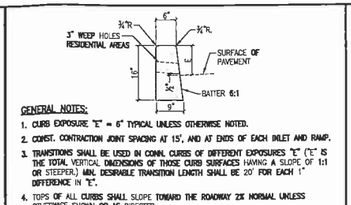
SEE SIGN POST DETAIL 5 RR-C8.0|RR-C8.0

7 BUS ONLY SIGN
RR-C4.0|RR-C8.0 SCALE: NONE



SEE SIGN POST DETAIL 5 RR-C8.0|RR-C8.0

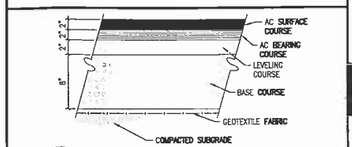
8 DO NOT ENTER SIGN
RR-C4.0|RR-C8.0 SCALE: NONE



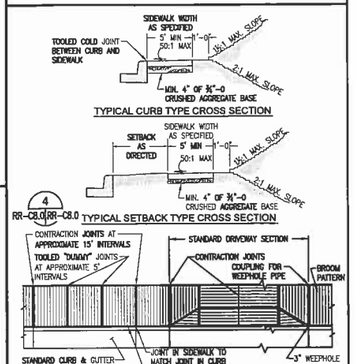
GENERAL NOTES:

1. CURB EXPOSURE "E" = 6" TYPICAL UNLESS OTHERWISE NOTED.
2. CONST. CONTRACTION JOINT SPACING AT 15', AND AT ENDS OF EACH INLET AND RAMP.
3. TRANSITIONS SHALL BE USED IN CONNL CURBS OF DIFFERENT EXPOSURES "E" ("E" IS THE TOTAL VERTICAL DIMENSIONS OF THOSE CURB SURFACES HAVING A SLOPE OF 1:1 OR STEEPER.) MIN. DESIRABLE TRANSITION LENGTH SHALL BE 20' FOR EACH 1" DIFFERENCE IN "E".
4. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY 2% NORMAL UNLESS OTHERWISE SHOWN OR AS DIRECTED.
5. DIMENSIONS NOM. VARY TO CONFORM WITH CURB MACHINE APPROVED BY THE ENGINEER.
6. ALL RADII SHALL BE ¾" EXCEPT AS OTHERWISE NOTED.
7. INSTALL CONTRACTION JOINT AT WEEP HOLES.

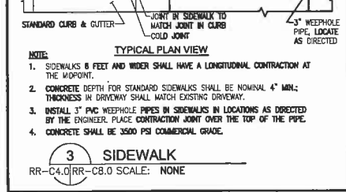
1 STANDARD CURB
RR-C4.0|RR-C8.0 SCALE: NONE



2 TYPICAL PAVING SECTION-HEAVY
RR-C4.0|RR-C8.0 SCALE: NONE



4 TYPICAL SETBACK TYPE CROSS SECTION
RR-C8.0|RR-C8.0

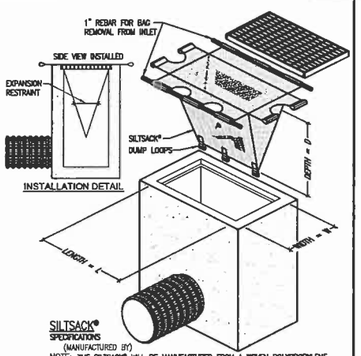


TYPICAL PLAN VIEW

NOTE:

1. SIDEWALKS 8 FEET AND WIDER SHALL HAVE A LONGITUDINAL CONTRACTION AT THE MIDPOINT.
2. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 4" MIN.; THICKNESS IN DRIVEWAY SHALL MATCH EXISTING DRIVEWAY.
3. INSTALL 3" PVC WEEPHOLE PIPES IN SIDEWALKS IN LOCATIONS AS DIRECTED BY THE ENGINEER. PLACE CONTRACTION JOINT OVER THE TOP OF THE PIPE.
4. CONCRETE SHALL BE 3500 PSI COMMERCIAL GRADE.

3 SIDEWALK
RR-C4.0|RR-C8.0 SCALE: NONE



INSTALLATION DETAIL

SILTSACK® SPECIFICATIONS
(MANUFACTURED BY)

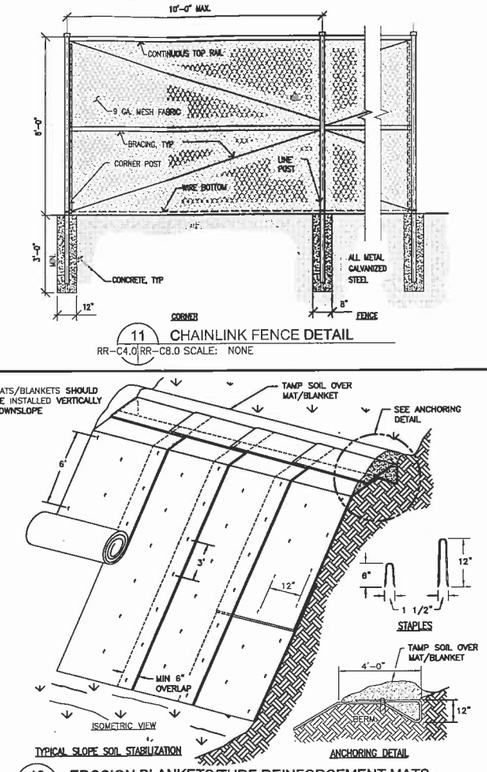
NOTE: THE SILTSACK® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

REGULAR FLOW SILTSACK®

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

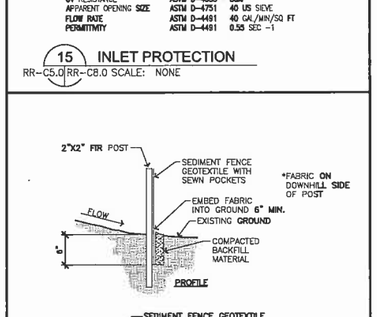
PROPERTIES	TEST METHOD	UNITES
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

15 INLET PROTECTION
RR-C5.0|RR-C8.0 SCALE: NONE



11 CHAINLINK FENCE DETAIL
RR-C4.0|RR-C8.0 SCALE: NONE

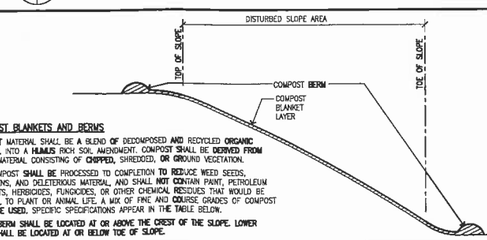
12 EROSION BLANKETS/TURF REINFORCEMENT MATS
RR-C5.0|RR-C8.0 SCALE: NONE



FILTER FENCE

1. FILTER FABRIC SHALL BE INSTALLED IN A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHERE JOINTS ARE NECESSARY, USE TURNED ENDS.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 6".
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND 6" DEEP ALONG THE LINE OF POSTS DOWNHILL FROM THE BARRIER. TRENCH SHALL FOLLOW THE CONTOUR.
4. TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL.
5. INSPECT AND REPAIR AFTER EACH RAINFALL. INSPECT DAILY DURING PROLONGED RAINFALL.
6. REMOVE SEDIMENT WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT ABOVE GROUND PORTION OF THE FENCE.
7. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE AND SEEDED. EXISTING GRADE AND SEEDED.
8. WHEN JOINING TWO OR MORE SEDIMENT FENCES TOGETHER, JOIN JOIN STAKES BY UNWRAPPING THE ENDS AT LEAST TWO TURNS AND DRIVING THE JOINED STAKES INTO THE GROUND TOGETHER.

16 SEDIMENT FENCE DETAIL
RR-C5.0|RR-C8.0 SCALE: NONE



COMPOST BLANKETS AND BERMS

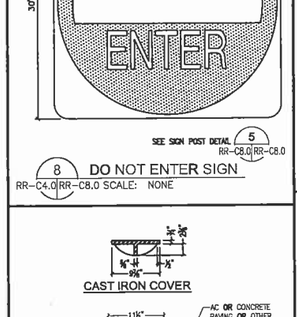
COMPOST MATERIAL SHALL BE A BLEND OF DECOMPOSED AND RECYCLED ORGANIC MATERIAL INTO A HUMUS RICH SOIL AMENDMENT. COMPOST SHALL BE DERIVED FROM GREEN MATERIAL CONSISTING OF CHIPPED, SHREDDED, OR GROUND VEGETATION.

THE COMPOST SHALL BE PROCESSED TO COMPLETION TO REDUCE WEED SEEDS, PATHOGENS, AND DELETERIOUS MATERIAL, AND SHALL NOT CONTAIN PAINT, PETROLEUM PRODUCTS, HERBICIDES, FUNGICIDES, OR OTHER CHEMICAL RESIDUES THAT WOULD BE HARMFUL TO PLANT OR ANIMAL LIFE. A MIX OF FINE AND COURSE GRADES OF COMPOST SHALL BE USED. SPECIFIC SPECIFICATIONS APPEAR IN THE TABLE BELOW.

UPPER BERM SHALL BE LOCATED AT OR ABOVE THE CREST OF THE SLOPE. LOWER BERM SHALL BE LOCATED AT OR BELOW TOE OF SLOPE.

PROPERTY	COMPOST BLANKET	COMPOST BERM
FINE PARTICLE SIZE/CONTENT	3/8-1/2 INCH SCREEN / 33%	3/8-1/2 INCH / 50%
COURSE PARTICLE SIZE/CONTENT	3/4" MINUS	3/4" MINUS
MOISTURE CONTENT	20-35%	20-35%
SOLUBLE SALT	4.0-5.0 MMHOS/CM	4.0-5.0 MMHOS/CM
ORGANIC MATTER	40-70%	40-70%
pH	6.0-8.0	6.0-8.0
HUMAN MADE INERTS	1.0% MAX	1.0% MAX
APPLICATION	2"-3" DEPTH	12" HIGH x 2' WIDE
STABLE/MATURITY	YES/HIGH	YES/HIGH

13 COMPOST BLANKET / BERM
RR-C5.0|RR-C8.0 SCALE: NONE

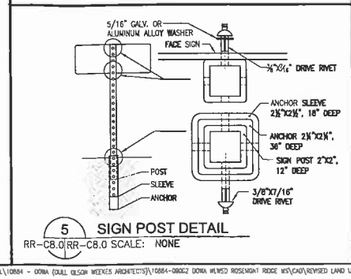


NOTE:
ALL CLEANOUT MATERIAL TO BE SAME AS CARRIER PIPE.

9 TYPICAL CLEANOUT
RR-C6.0|RR-C8.0 SCALE: NONE

NOTE:
ALL JOINTS TO BE TOOLED WITH ⅜" RADIUS UNLESS SAWCUT

4 CONCTRETE PAVEMENT JOINTS
RR-C8.0|RR-C8.0 SCALE: NONE



5 SIGN POST DETAIL
RR-C8.0|RR-C8.0 SCALE: NONE

DULL OLSON WEEKES architects inc.
ARCHITECTURE • INTERIORS • PLANNING
333 SW TAYLOR STREET | PORTLAND, OREGON 97205
t: 503 226 1286 / f: 503 226 1287 www.dowa.com

WINZLER & KELLY
15575 SW SEQUOIA PARKWAY, SUITE 140
PORTLAND, OR 97224
PH (503) 226-3621 • FAX (503) 226-3626
WWW.W-AND-K.COM

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 31, 1981
MARK B. WHARRY
EXPIRES 6/30/10

key plan

ROSEMONT RIDGE MS
West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

phase |
date | Sept. 10, 2009
revisions |
REVISED LANDUSE

project # | 09017

CIVIL DETAILS

RR-C8.0

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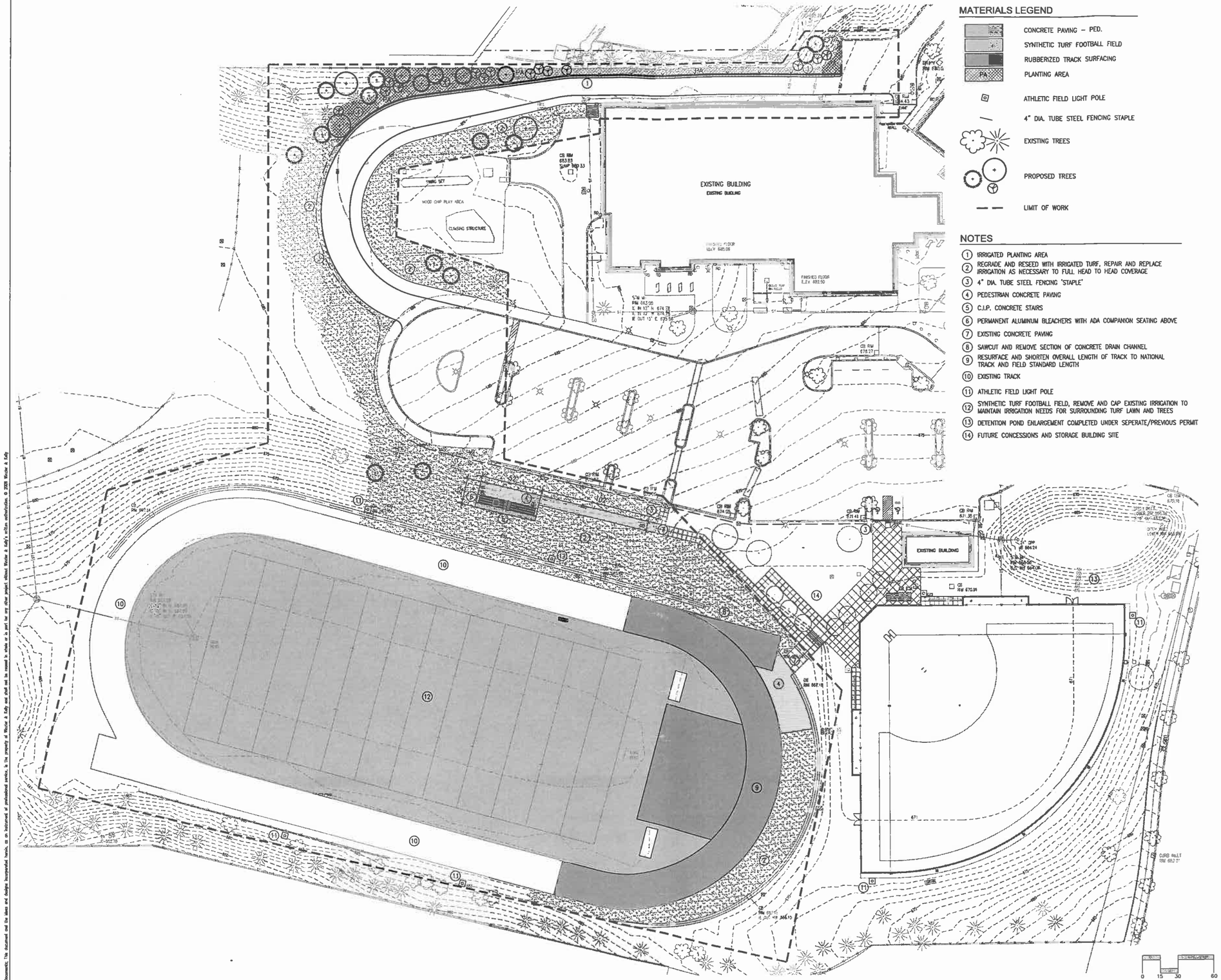

MATERIALS LEGEND

- CONCRETE PAVING – PED.
- SYNTHETIC TURF FOOTBALL FIELD
- RUBBERIZED TRACK SURFACING
- PA — PLANTING AREA
- ATHLETIC FIELD LIGHT POLE
- 4" DIA. TUBE STEEL FENCING STAPLE
- EXISTING TREES
- PROPOSED TREES
- LIMIT OF WORK

NOTES

1. IRRIGATED PLANTING AREA
2. REGRADE AND RESEED WITH IRRIGATED TURF, REPAIR AND REPLACE IRRIGATION AS NECESSARY TO FULL HEAD TO HEAD COVERAGE
3. 4" DIA. TUBE STEEL FENCING 'STAPLE'
4. PEDESTRIAN CONCRETE PAVING
5. C.I.P. CONCRETE STAIRS
6. PERMANENT ALUMINUM BLEACHERS WITH ADA COMPANION SEATING ABOVE
7. EXISTING CONCRETE PAVING
8. SAWCUT AND REMOVE SECTION OF CONCRETE DRAIN CHANNEL
9. RESURFACE AND SHORTEN OVERALL LENGTH OF TRACK TO NATIONAL TRACK AND FIELD STANDARD LENGTH
10. EXISTING TRACK
11. ATHLETIC FIELD LIGHT POLE
12. SYNTHETIC TURF FOOTBALL FIELD, REMOVE AND CAP EXISTING IRRIGATION TO MAINTAIN IRRIGATION NEEDS FOR SURROUNDING TURF LAWN AND TREES
13. DETENTION POND ENLARGEMENT COMPLETED UNDER SEPERATE/PREVIOUS PERMIT
14. FUTURE CONCESSIONS AND STORAGE BUILDING SITE

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ARCHITECTURE • INTERIORS • PLANNING
DULL OLSON WEEKES architects inc.
207 SW STARK STREET | PORTLAND, OREGON 97205
t: 503 226 6950 f: 503 273 8182 | www.dlowa.com

ROSEMONT RIDGE MIDDLE SCHOOL

West Linn Wilsonville School District
22210 SW Stafford Road
West Linn, OR 97068
t: (503) 673 7975
f: (503) 673 7044

Planning
Urban Design Landscape Architecture
WALKER·MACY
111 S.W. Oak, Suite 200
Portland, Oregon 97204
Phone 503-228-3122 Fax 503-273-8878

key plan

phase	DESIGN REVIEW
date	JUNE 26, 2009
revisions	
project #	09017

OVERALL LANDSCAPE MATERIALS PLAN

L1.1

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LANDSCAPE PLANT SCHEDULE (TO BE SELECTED FROM)

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION	SPACING
	EVERGREEN TREES			
	PINUS CONTORTA 'CONTORTA'	SHORE PINE	8' HT./B&B.	AS SHOWN
	PINUS PONDEROSA	PONDEROSA PINE	8' HT./B&B.	AS SHOWN
	PSUEDOTSUGA MENZIESII	DOUGLAS FIR	8' HT./B&B.	AS SHOWN
	DECIDUOUS TREES			
	ACER TRUNC. X A. PLAT. 'KEITHSFORM'	NORWEGIAN SUNSET MAPLE	3" CAL./B&B.	AS SHOWN
	FRAXINUS PENNSYLVANICA 'MARSHALL'	MARSHALL SEEDLESS ASH	3" CAL./B&B.	AS SHOWN
	QUERCUS GARRYANA VAR. BREWERI	BREWERS OREGON OAK	6' HT./B&B.	AS SHOWN
	ZELCOVA SERRATA 'VILLAGE GREEN'	VILLAGE GREEN ZELKOVA	3" CAL./B&B.	AS SHOWN
	GROUNDCOVER			
	HYPERICUM CALYCINUM	CREEPING ST. JOHNS WORT	1 GAL.	18" O.C.
	MAHONIA REPENS	CREEPING MAHONIA	1 GAL.	18" O.C.
	PARTHENOCISSUS TRICUSPIDATA	BOSTON IVY	1 GAL.	18" O.C.

PLANTING LEGEND

- IRRIGATED GROUNDCOVER PLANTING
- IRRIGATED LAWN
- PROPOSED TREES
- LIMIT OF WORK

SITE ANALYSIS DATA

TREES REMOVED	
3" CAL. EVERGREEN	2
4" CAL. EVERGREEN	1
6" CAL. EVERGREEN	19
7" CAL. EVERGREEN	1
4" CAL. DECIDUOUS	2
6" CAL. EVERGREEN	1
8" CAL. EVERGREEN	1
TOTAL	27

TREES PROPOSED	
8' HT. EVERGREEN	18
3" CAL. DECIDUOUS	3
6' HT. DECIDUOUS	15
TOTAL	36

EXISTING BUILDING
EXISTING BUILDING
WOOD CHIP PLAY AREA
CLIMBING STRUCTURE
SWING SET
FINISHED FLOOR ELEV. 682.05
FINISHED FLOOR ELEV. 682.50
GOAL POST
EXISTING BUILDING
CURB INLET Rim 672.50
CURB INLET Rim 682.0±

0 15 30 60
SCALE: 1"=30'-0"
NORTH

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DULL OLSON WEEKES architects inc.
907 SW STARK STREET :: PORTLAND, OREGON 97205
t: 503 226 6850 f: 503 223 8192 www.dlowa.com

ROSEMONT RIDGE MIDDLE SCHOOL

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Urban Design Landscape Architecture
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Portland, Oregon 97204
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OVERALL LANDSCAPE PLANTING PLAN

L1.2

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