MASTER DEVELOPMENT DRAINAGE PLAN
for
VILLAGES II AT WOLF RANCH
and
FINAL DRAINAGE REPORT
For
VILLAGES AT WOLF RANCH SUBDIVISION FILINGS 5, 6, 7, 8 and 9

December 2005

Prepared for:

Villages at Wolf Ranch, LLC (Nor`wood)
111 South Tejon Street, Suite 222
Colorado Springs, CO 80903
(719) 593-2600

Prepared by:

Rockwell Consulting, Inc.
1955 N. Union Boulevard, Suite 200
Colorado Springs, CO 80909
(719) 475-2575

Project# 05-030

MASTER DEVELOPMENT DRAINAGE PLAN
for
VILLAGES II AT WOLF RANCH
and
FINAL DRAINAGE REPORT
For
VILLAGES AT WOLF RANCH SUBDIVISION FILINGS 5, 6, 7, 8 and 9

December 2005

DRAINAGE PLAN STATEMENTS

ENGINEER'S STATEMENT

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City of Colorado Springs for drainage reports, and said drainage report is in conformity with the Master Plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Kent D. Rockwell, P.E.

COLORADO REGISTERED
KENT D. ROCKWELL
25000
12/2/05

DEVELOPER'S STATEMENT

I, the developer, have read and will comply with all the requirements specified in this drainage report and plan.

Villages at Wolf Ranch, LLC

BY: _____ 12/7/05
Ralph A. Braden DATE

TITLE: Vice President, Nor'wood Limited, Inc.

ADDRESS: 111 South Tejon Street, Suite 222
Colorado Springs, CO 80903

CITY OF COLORADO SPRINGS

Filed in accordance with Section 7-7-906 of the code of the City of Colorado Springs, 2001, as amended.

_____ Dec 14, 2005
CITY ENGINEER DATE

MASTER DEVELOPMENT DRAINAGE PLAN
for
VILLAGES II AT WOLF RANCH
and
FINAL DRAINAGE REPORT
For
VILLAGES AT WOLF RANCH SUBDIVISION FILINGS 5, 6, 7, 8 and 9

December 2005

PURPOSE

The purpose of this report is to identify the existing and proposed runoff patterns and drainage facilities required for the proposed Villages at Wolf Ranch Phase II Development consisting of approximately 98 acres of residential development and a 10 acre school parcel. This report acts as the Master Development Drainage Plan (MDDP) for the entire 108 acres and the Final Drainage Report for Villages at Wolf Ranch Filings 5, 6, 7, 8 and 9 consisting of approximately 39 acres.

Villages at Wolf Ranch Phase II is located north of Research Parkway approximately 1300 feet and extends from Tutt Boulevard to a point approximately 3300 feet to the east. (See Figure 1-Vicinity Map).

SUMMARY OF DATA

The sources of information used in the development of this study are listed below:

1. City of Colorado Springs and El Paso County "Drainage Criteria Manual", October 1987, revised November 1991.

2. Soil Survey for El Paso County, Colorado, U.S. Department of Agriculture, Soil Conservation Service, June 1980.

3. "Flood Insurance Studies for Colorado Springs and El Paso County, Colorado", prepared by the Federal Emergency Management Agency (FEMA), 1985.

4. "Cottonwood Creek Drainage Basin Planning Study" by URS Consultants, Inc., August 1995.

5. "Cottonwood Creek Prudent Line Study" by Ayres & Associates, 1996.

6. "Preliminary/Final Drainage Report for Power Boulevard (Research Parkway to Woodmen Road" by JR Engineering, July, 2000.

7. "Preliminary/Final Drainage Report for Research Parkway (Scarborough Drive to Powers Blvd.) including Research Parkway Subdivision Filing No. 6, by JR Engineering, April, 2000.

8. "Master Development Drainage Plan for Wolf Ranch, Colorado Springs, Colorado," prepared by Kiowa Engineering, approval pending.

9. "Westcreek at Wolf Ranch Subdivision Master Development Drainage Report & Final Drainage Report for Westcreek at Wolf Ranch Subdivision Filings 1, 2, 3, 4 and 5, prepared by Rockwell Minchow Consultants, Inc., dated July, 2004.

10. "Master Development Drainage Plan Wolf Ranch Development," prepared by Kiowa Engineering Corporation, July, 2004.

11. "Villages at Wolf Ranch Filings 1 through 4 Final Drainage Report," prepared by Rockwell Consulting, Inc, dated March, 2005.

GENERAL LOCATION AND DESCRIPTION

The Villages at Wolf Ranch Phase I Development is located within the northeastern portion of the City of Colorado Springs, El Paso County, Colorado. (see Vicinity Map - Figure 1). The site is within the east half of Section 36, Township 12 South, Range 66 West and in the west half of Section 31 and southwest portion of Section 30, Township 13 South, Range 65 West of the 6th P.M. The site is bound on the west by Tutt Boulevard and future residential development, on the south by Wolf Village Drive and residential lots within the Villages at Wolf Ranch Phase I development, on the north by future Leon Young Drive and additional residential development and on the east by future Wolf Lake Drive, additional single-family residential development and Wolf Creek.

Well-established native grasses exist throughout the proposed development. The topography generally slopes from northeast to southwest.

SOILS

According to the Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, the soils underlying the Westcreek Development fall under the Pring Series (Soil 71), the Stapleton Series (Soil 83), and the Truckton Series (Soil 97). All these soils are classified as Hydrologic Group "A" soils. However, since bedrock is known to exist just below the surface Hydrologic Group "D" soils were used to determine runoff coefficients.

CLIMATE

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region. Winters are generally cold and dry, and summers relatively warm and dry. Precipitation ranges from 12 to 14 inches per year, with the majority of this moisture occurring in the spring and summer in the form of rainfall. Thunderstorms are common during the summer months.

FLOODPLAIN STATEMENT

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #08041C0528 F and #08041c0529 F, dated March 17, 1997, no portion of the Villages at Wolf Ranch Phase II lies within a designated 100-year floodplain.

DRAINAGE CRITERIA

The current City of Colorado Springs/El Paso County Drainage Criteria was utilized in this report. Peak runoff quantities were determined using the Rational Method for both the 5 year and 100 year storms, as required for drainage basins less than 100 acres.

HISTORIC DRAINAGE BASIN DESCRIPTIONS

A brief description of the historic drainage for the site is provided in this section of the report. A summary of peak historic runoff for the historic basin(s) is depicted on the Historic Drainage Plan (Exhibit 1) provided in the appendix. The historic drainage area affecting this site is defined by a single historic drainage basin.

Basin H-1 consists of approximately 473 acres of existing rangeland. Runoff rates of 227 cubic feet per second (cfs) during the 5 year storm and 660 cfs during the 100 year storm are generated from this basin. These flows sheet flow from north to south toward Research Parkway. The flows from Basin H-1 discharge to land owned by the same developer, but historically exited the Wolf Ranch Development along its southerly property line. These flows were accounted for in the Wolf Ranch Master Development Drainage Plan (MDDP) prepared by Kiowa Engineering.

DEVELOPED DRAINAGE BASIN DESCRIPTIONS

A brief description of each developed drainage basin for the site is provided in this section of the report. A summary of peak-developed runoff for the basins is depicted on the Developed Drainage Plan (Exhibit 2) provided in the appendix. All proposed drainage facilities are approximate in size and may vary with actual layout and design.

Within the single-family residential development, side lot line swales will be created on the downstream lots to convey flows from the upstream lots and into the street. Swales will be constructed by the homebuilders and maintained by the homeowner to limit concentrated flows and to disperse the flows as much as possible. Lot Drainage Plans will be prepared on a per filing basis for the residential lots as they are developed and platted.

Individual lot drainage is the responsibility of the lot owner/builder. There are several tracts within this development that will be developed as the project progresses. These tracts are proposed to contain sidewalk, trails and some landscaping, but no additional structures. The tracts are relatively small, so drainage generated from this tracts will be dispersed as much as possible and directed into downstream side lot swales.

According to the Wolf Ranch MDDP, the eastern one-third of the Villages at Wolf Ranch Phase II development will be directed to the existing detention within Westcreek at Wolf Ranch Filing No. 10_(Pond E of the MDDP). A small area just west of Wolf Lake Drive will discharge to Pond F to be constructed just north of Research Parkway. The western two-thirds of Phase II will be directed to a future pond located northeast of the Cordera Ranch and Leon Young Drive intersection (Pond A, as described in the Wolf Ranch MDDP). The area draining to Pond A can be separated into a north drainage basin and a south drainage basin. Therefore, this report will be divided into three major drainage basins: 1) Pond E consisting of the east area of Villages Phase II; 2) Pond A South; and 3) Pond A North. Kiowa Engineering's MDDP overall drainage plan is included in the Appendix of this report for reference purposes showing the location of each pond.

Pond E (Basins 1 through 26)

Developed drainage Basin I consists of 2.27 acres of single-family residential development along the south side of Leon Young between Wolf Lake Drive and Valemount Drive. Runoff rates of 6.2 cfs during the 5 year storm and 13.4 cfs during the 100 year storm generated from this basin reach the Leon Young Drive and Valemount Drive intersection and then turn south into Basin 2.

Basin 2 consists of 1.00 acres along the east side of Valemount just south of Leon Young. Runoff rates of Q_5 =3.6 cfs and Q_{100} = 7.2 cfs are generated from this basin. The combined flows from Basin 1 and 2 reach the northeast corner of the Valemount and RevelstokeDrive intersection. Valemount Drive at a slope of 3% has a 5 year street capacity of 19.5 cfs per side. This is adequate street capacity to convey the combined flows from Basins 1 and 2. However, flows are close to approaching capacity so, a 15' inlet is proposed at the south end of Basin 2. Total flows of 9.8 and 20.6 cfs approach this inlet during the 5 year and 100 year storms, respectively. The inlet collects flows of Q_5 = 6.0 cfs and Q_{100} = 9.3 cfs leaving bypass flows of 3.8 cfs during the 5 year storm and 11.3 cfs during the 100 year storm. These flows approach Inlet 4 as street flows. An 18" reinforced concrete pipe (RCP) will convey the collected flows southerly.

Approximately 5.67 acres of single-family residential development along the north side of Revelstoke Drive comprise Basin 3. The runoff rates of 15.9 cfs and 33.6 cfs generated from this basin during the 5 year and 100 year storms, respectively, flow westerly within the north side of Revelstoke Drive to Valemount Drive. During the 100 year storm, the flows from Basins 3 and 4 will combine and be split on either side of Revelstoke Drive. A 15' inlet will be placed at the west end of Basin 3 to collect approximately 9.1 cfs during the 5 year storm and 10.6 cfs during the 100 year storm. Flows of Q_5 = 6.8 cfs and Q_{100} = 10.7 cfs will bypass this inlet and enter Valemount as street flows.

Runoff from Tract H will be conveyed via side lots swales to Revelstoke Drive. This will be shown on the individual lot drainage plans prepared for each filing.

Basin 4 consisting of 1.31 acres along the south side of Revelstoke Drive generates additional flow rates of Q_5 = 3.9 cfs and Q_{100} = 8.1 cfs. These flows also reach the Valemount and Revelstoke Drive intersection. Total flows of 14.5 cfs during the 5 year storm and 43.3 cfs during the 100 year storm will reach the north end of Basin 5. During the 100 year storm, flows will overtop the centerline of Valemount resulting in flows of 21.7 cfs on both side of Valemount. (Flows of 21.7 cfs will enter Basin 30 A during the 100 year storm.)

Valemount, as stated above, has a 5 year street capacity of 19.5 cfs per side. This is inadequate to convey the combined flows of Q_5 = 14.5 cfs and Q_{100} = 21.7 cfs to the north end of Basin 5. However, an additional 15' inlet will be placed just downstream of the Valemount and Revelstoke intersection to collect a portion of the flows reaching Inlet 4.

Inlet 4 will collect flows of 7.7 cfs during the 5 year storm and 9.6 cfs during the 100 year storms. Flow rates of 6.8 cfs and 12. 1 cfs during the 5 year and 100 year storms will bypass this inlet and enter Basin 5.

Basin 5 is located along the east side of Valemount between Adamants Drive and Revestoke Drive. This 1.78 acre basin generates runoff rates of 5.7 cfs during the 5 year storm and 12.5 cfs during the 100 year storm. These flows along with the flows bypassing Inlet 4 reach the northeast corner of the Valemount Drive and Adamants Drive intersection. Total flows of 12.5 cfs and 24.6 cfs during the 100 year storm will approach a 15' inlet to be installed at the south end of Basin 5. This inlet will collect flows of 7.1 cfs and 10.3 cfs during the 5 year and 100 year storms, respectively. Flow rates of Q_5 = 5.4 cfs and Q_{100} = 14.3 cfs will bypass this inlet and enter Basin 9 as street flows.

The residential lots along the north side of Adamants Drive comprise Basin 6. Runoff rates of 7.0 cfs and 14.8 cfs generated during the 5 year and 100 year storms, respectively, flow along the north side of Adamants. Adamants Drive at a minimum street slope of 2% has a 5 year street capacity of 15.9 cfs per side. This is adequate to convey the flows from Basin 6.

A 15' inlet will be installed at the west end of Basin 6 to collect flows of 4.8 cfs and 8.7 cfs during the 5 and 100 year storms. Flows of Q_5 = 2.2 cfs and Q_{100} = 6.1 cfs will bypass this inlet and enter Basin 7.

Basin 7, consisting of an additional 1.64 acres west of Basin 6, generates additional flows of Q_5 = 5.5 cfs and Q_{100} = 11.8 cfs including bypass flows from Basin 6. Flows of 7.7 cfs during the 5 year storm and 14.5 cfs during the 100 year storm will approach an additional 15' inlet at the west end of Basin 7. This inlet will collect runoff rates of 5.2 cfs during the 5 year storm and 9.7 cfs during the 100 year storm. Flow rates of Q_5 = 2.5 cfs and Q_{100} = 8.2 cfs will bypass this inlet and enter Basin 8 as street flow.

The area south of Adamants Drive comprises Basin 8. This 1.13 acre basin generates runoff rates of 3.3 cfs during the 5 year storm and 7.1 cfs during the 100 year storm. These flows along with the flows bypassing the inlet within Basin 5 and 7 reach a proposed 15' inlet along the east side of Valemount Drive just south of Adamants. During the 100 year storm, approximately 7.1 cfs will overtop the centerline of Valemount and enter Basin 26. This inlet will collect flows of Q_5 = 6.7 cfs and Q_{100} = 9.8 cfs with flows of 4.6 cfs and 12.7 cfs bypassing this inlet during the 5 year and 100 year storms, respectively. These flows will enter directly into Basin 9 as street flows.

Basin 9 consists of 1.14 acres along the east side of Valemount between Wheatlleigh Drive and Adamants Drive. Runoff rates of Q_5 = 4.1 cfs and Q_{100} = 8.2 cfs are generated from this basin. The flows bypassing Inlet 8 will combine with the flows from Basin 9, resulting in total flow rates of Q_5 = 8.7 cfs and Q_{100} = 20.6 cfs within Valemount just north of Harney Drive. Approximately 7.6 cfs will overtop the centerline of Valemount during the 100 year storm and enter Basin 26.

A 15' inlet will be placed along the east side of Valemount just north of Harney Drive to collect a portion of these flows. This inlet will collect runoff rates of 5.5 cfs during the 5 year storm and 9.3 cfs during the 100 year storm. The flows rates of Q_5 = 3.2 cfs and Q_{100} = 11.3 cfs bypassing this inlet will enter Basin 12 as street flows.

Basin 10 is located along the north side of Harney Drive and consists of 3.16 acres. The flow rates of $Q_5 = 9.0$ cfs and $Q_{100} = 19.2$ cfs generated from this basin flow westerly in Harney Drive toward Valmount Drive. A 15' on-grade inlet will be placed at the west end of Basin 10 to collect a portion of these flows. The inlet will collect flow rates of 5.9 cfs during the 5 year storm and 10.1 cfs during the 100 year storm. The flows rates of $Q_5 = 3.1$ cfs and $Q_{100} = 9.1$ cfs bypassing this inlet will Basin 11 as street flows.

Approximately 0.60 acres along the south side of Harney comprises Basin 11 which generates runoff rates of 2.0 and 4.3 cfs during the 5 year and 100 year storms. These flows along with the bypass flows from Basins 9 and 10 reach a 15' inlet along the east side of Valemount just south of Harney Drive. This inlet will collect 5.5 cfs during the 5 year storm and 11.6 cfs during the 100 year storm. The remaining flow rates of $Q_5 = 2.8$ cfs and $Q_{100} = 13.1$ cfs bypassing this inlet will enter Basin 12.

Basin12 consists of approximately 0.37 acres along the east side of Valmount Drive and generates runoff rates of 1.3 cfs during the 5 year storm and 2.7 cfs during the 100 year storm. Additional flows bypassing Inlet 11 will enter Basin 12. Total flow rates of $Q_5 = 3.9$ cfs and $Q_{100} = 15.8$ cfs will reach the northeast corner of Wolf Village Drive and Valmount Drive. A 15' sump inlet will be placed on the east side of Valmount to collect the runoff flowing through Basin 12 along with the flows from Basin 23 reaching this point.

Basin OS-1 is located off-site to the north of the subject site along Wolf Lake Drive. This 3.57 acre basin generates flows of 9.5 cfs during the 5 year storm and 18.8 cfs during the 100 year storm. These flows reach a 15' on-grade inlet which collects flows of 5.6 cfs during the 5 year storm and 8.2 cfs during the 100 year storm. The flows ($Q_5 = 3.9$ cfs and $Q_{100} = 10.6$ cfs) bypassing this inlet enter Basin OS-3 as street flows.

Basin OS-3 consists of 1.82 acres directly south of Basin OS-1 along the west side of Wolf Lake Drive. Flows of $Q_5 = 5.1$ cfs and $Q_{100} = 11.4$ cfs generated from this basin combine with the bypass flows from Basin OS-1 and reach a 15' on-grade inlet at the south end of Basin OS-3. Flow rates of 9.0 cfs and 22.0 cfs approach this inlet from the north. This inlet collects flows of 5.4 cfs and 8.9 cfs during the 5 and 100 year storms, respectively. The remaining flows of 3.6 cfs during the 5 year storm and 13.1 cfs during the 100 year storm enter Basin 13A as street flows.

Basin 13A is just southwest of the Wolf Village and Leon Young intersection. Runoff rates of 5.4 cfs and 11.7 cfs generated from this basin during the 5 year and 100 year storms, respectively, flow southerly along the west side of Wolf Lake Drive. These flows reach the Wolf Lake and Revelstoke Drive intersection. Including the bypass flows from Basin OS-3, total flow rates of $Q_5 = 9.0$ cfs and $Q_{100} = 24.8$ cfs reach the low point of Basin 13A.

A 15' inlet will collect flows of $Q_5 = 5.4$ cfs and $Q_{100} = 9.6$ cfs. The remaining flows of 3.6 cfs during the 5 year storm and 15.2 cfs during the 100 year storm will enter Basin 13B.

An additional 2.11 acres just northwest of the Wolf Lake and Revelstoke Drive intersection comprises Basin 13-B. Runoff rates of $Q_5 = 5.9$ cfs and $Q_{100} = 12.7$ cfs generated from this basin combine with the flows from Basin 13-A resulting in total street flows of 9.5 cfs during the 5 year storm and 27.9 cfs during the 100 year storm just south of Revelstoke Drive.

A 15' inlet will be placed just south of the Revelstoke Drive and Wolf Lake Drive intersection along the west side of Wolf Lake to collect a portion of these flows. This inlet will collect runoff rates of $Q_5 = 5.6$ cfs and $Q_{100} = 10.2$ cfs while the remaining flows of 3.9 cfs during the 5 year storm and 17.7 cfs during the 100 year storm will bypass this inlet and continue as street flows to Basin 14.

Basin 14 contributes additional flows of Q_5 = 1.8 cfs and Q_{100} = 3.9 cfs which also reach the west side of Wolf Lake Drive. These flows along with the bypass flows from the Basin 13-B will reach the northwest corner of the Wolf Lake Drive and Adamants Drive intersection. Flows of 5.7 cfs during the 5 year storm and 21.6 cfs during the 100 year storm will reach a 15' inlet at the south end of Basin 14. Flows of Q_5 = 3.9 cfs and Q_{100} = 9.9 cfs will be collected by this inlet while flows of 1.8 cfs and 11.7 cfs will bypass this inlet during the 5 and 100 year storms, respectively. These flows will enter directly into Basin 15 as street flows.

Basin 15, located along the north side of Adamants Drive, generates additional flow rates of Q_5 = 4.1 cfs and Q_{100} = 8.4 cfs which enter the west side of Wolf Lake and enter Basin 16 as street flow. The total street flows just south of the Adamants Drive and Wolf Lake Drive intersection are 5.9 cfs during the 5 year storm and 20.1 cfs during the 100 year storm.

The 0.45 acres at the northwest corner of Harney Drive and Wolf Lake Drive comprise Basin 16. The flows of Q_5 = 1.6 cfs and Q_{100} = 3.2 cfs generated from this basin along with the flows entering from Basin 15 results in total flows of 7.5 cfs and 23.3 cfs during the 5 year and 100 year storms, respectively, reaching the south end of Basin 16.

A 15' inlet at the south end of Basin 16 will collect flows of 4.9 cfs during the 5 year storm and 10.3 cfs during the 100 year storm. Flow rates of Q_5 = 2.6 cfs and Q_{100} = 13.0 cfs bypassing this inlet will enter Basin 17 as street flows.

Additional flows of Q_5 = 3.1 cfs and Q_{100} = 6.9 cfs generated from Basin 17 located at the northwest corner of the Wolf Lake Drive and Harney Drive intersection also enter Basin 18. Total flows of Q_5 = 5.7 cfs and Q_{100} = 19.9 cfs will enter Basin 18. The 5 year street capacity of Wolf Lake at this point is 29.5 cfs per side based on the proposed 3% grade of the street.

Basin I8, consists of 0.42 acres at the northwest corner of Wolf Village Drive and Wolf Lake Drive. Flows of 1.4 cfs and 3.0 cfs are generated from this basin during the 5 and 100 year storms, respectively. Total flows of 7.1 cfs during the 5 year storm and 22.9 cfs during the 100 year storm flow southerly along the west side of Wolf Lake Drive. An inlet will be placed at the south end of Basin 18 to collect runoff rates of Q_5 = 4.7 cfs and Q_{100} = 10.2 cfs. Approximate flows of 2.4 cfs and 12.7 cfs will bypass this inlet and continue southerly within the west side of Wolf Lake Drive.

The area north of Wolf Village Drive just west of Wolf Lake Drive comprises Basin 19. This 1.16 acre basin generates runoff rates of 3.7 cfs during the 5 year storm and 7.8 cfs during the 100 year storm. These flows will reach Wolf Lake Drive and then flow southerly within the west side of Wolf Lake along with the flows bypassing the inlet at the south end of Basin 18.

Approximate flow rates of Q_5 = 5.8 cfs and Q_{100} = 20.3 cfs will enter the Wolf Lake Drive just south of the Wolf Lake Drive and Wolf Village Drive intersection from Basins 18 and 19.

The facilities along the east side of Wolf Lake Drive has been sized based on preliminary lot layouts for the proposed subdivision east of Wolf Lake Drive. The subdivision to the east of Wolf Lake Drive will be called "By the Creek at Wolf Ranch". The drainage report for that subdivision describes the proposed basins for the adjacent stretch of Wolf Lake Drive. The facilities shown along the east side of Wolf Lake Drive are based on the By the Creek at Wolf Ranch Drainage Report.

Basin 20 was originally located along the east side of Wolf Lake Drive adjacent to the Village at Wolf Ranch Phase 2 development. Since the original submittal of the Village Phase 2 development, a preliminary lot layout has been established for the east side of Wolf Lake Drive from Leon Young Drive to Wolf Village Drive.

Based on a preliminary layout of lots we have provided an approximation of the drainage facilities required along the east side of Wolf Lake Drive. The following text is taken right from the drainage study for this area which is referred to "By the Creek at Wolf Ranch." Therefore, the basin east of Wolf Lake Drive are labeled with a "BC" designation corresponding the basins depicted in the

Several of the following described basins have a "BC" designation before the basin number. These represent basins that were analyzed as part of the adjacent By the Creek at Wolf Ranch development located directly east of this subject property. These basins were analyzed as part of the By the Creek at Wolf Ranch development and are included in this report to further define the area drainage.

Basin OS-1 is located off-site to the north of the subject site along the west side of Wolf Lake Drive. This 3.57 acre basin generates flows of 9.5 cfs during the 5 year storm and 18.8 cfs during the 100 year storm. These flows reach a 15' on-grade inlet which collects flows of 5.6 cfs during the 5 year storm and 8.2 cfs during the 100 year storm. The flows (Q_5 = 3.9 cfs and Q_{100} = 10.6 cfs) bypassing this inlet enter Basin OS-3 as street flows.

Basin OS-2 is located along the east side of Wolf Lake Drive and generates flows of 3.4 cfs during the 5 year storm and 6.7 cfs during the 100 year storm. A 10' inlet will be placed at the south end of this basin to collect flows of 2.3 cfs and Q_{100} = 4.0 cfs. The remaining flows of 1.1 cfs and 2.7 cfs bypassing this inlet during the 5 and 100 year storms will enter Basin 5 as street flows.

An 18" RCP will convey the flows from the inlet within Basin OS-1 to the inlet within Basin V2. A 24" RCP will convey the flows from both of these basins easterly through the future mixed-use development to Wolf Creek.

Basin OS-3 consists of 1.82 acres directly south of Basin OS-1 along the west side of Wolf Lake Drive. Flows of Q_5 = 5.1 cfs and Q_{100} = 11.4 cfs generated from this basin combine with the bypass flows from Basin OS-1 and reach a 15' on-grade inlet at the south end of Basin OS-3. Flow rates of 9.0 cfs and 22.0 cfs approach this inlet from the north. This inlet collects flows of 5.4 cfs and 8.9 cfs during the 5 and 100 year storms, respectively. The remaining flows of 3.6 cfs during the 5 year storm and 13.1 cfs during the 100 year storm enter Basin 13A as street flows.

Basin BC-1 consist of approximately 3.13 acres at the northern limits of the development. Runoff rates of 9.0 cubic feet per second (cfs) and 20.7 cfs generated from this basin reaches Stonefly Circle and enters Basin 2 as street flows.

Approximately 1.68 acres at the northwest corner of Stonefly Circle and Rennert Drive comprise Basin BC-2. This basin generates flows of 3.4 cfs during the 5 year storm and 7.6 cfs during the 100 year storm. The combined flows from Basin BC-1 and BC-2 flow along the northern side of Rennert Drive to a proposed 15' inlet.

This inlet will collect flows of 6.8 cfs during the 5 year storm and 10.6 cfs during the 100 year storm. The remaining flows of Q_5 = 4.4 cfs and Q_{100} = 14.0 cfs will bypass this inlet and will reach a 15' inlet just south of Rennert Drive just east of Wolf Lake Drive.

Basin BC-3 is located just east of Basin BC-1 and generates additional flows of 1.2 cfs during the 5 year storm and 2.8 cfs during the 100 year storm. These flows reach the Rennert Drive cul-de-sac and enter Basin BC-4 as street flows.

The south side of Rennert Drive comprises Basin BC-4. This 0.62 acre basin generates flows of 1.4 cfs and 3.1 cfs during the 5 year and 100 year storms, respectively, including bypass flows from Inlet 2 and flows from Basin BC-3. This results in total street flows of 7.0 cfs and 19.9 cfs at the low end of Basin BC-4.

A 15' inlet will be installed at this point to collect flows of $Q_5 = 4.6$ cfs and $Q_{100} = 9.4$ cfs. The remaining flows of 2.4 cfs during the 5 year storm and 10.5 cfs during the 100 year storm will enter Basin BC-6 as street flows.

Approximately 2.41 acres along the east side of Wolf Lake Drive comprises Basin BC-5. The runoff rates of $Q_5 = 5.4$ cfs and $Q_{100} = 12.0$ cfs generated from this basin flow southerly within the east side of Wolf Lake Drive. These flows along with the flows bypassing the Basin BC-4 inlet and the OS-2 inlet will flow southerly through Basin BC-5.

Total flows of $Q_5 = 8.9$ cfs and $Q_{100} = 25.2$ cfs approach a proposed 15' inlet along the east side of Wolf Lake Drive just south of Rennert Drive. This inlet will collect flows of 5.6 cfs and 10.8 cfs during the 5 year and 100 year storms. The remaining flows of $Q_5 = 3.3$ cfs and $Q_{100} = 14.4$ cfs will bypass this inlet and enter Basin BC-6 as street flows.

Basin BC-6 comprises 0.99 acres and generates flows of 1.9 cfs and 4.2 cfs during the 5 and 100 year storms, respectively. These flows enter the east side of Wolf Lake Drive and combine with the flows bypassing the inlet just south of the Rennert Drive and Wolf Lake Drive intersection. Flows of $Q_5 = 5.2$ cfs and $Q_{100} = 18.6$ cfs will flow southerly within the east side of Wolf Lake Drive through Basin BC-6. A 15' inlet will be installed at the south end of Basin BC-6 to collect flows of 3.5 cfs and 8.1 cfs during the 5 and 100 year storms, respectively. Flows of $Q_5 = 1.7$ cfs and $Q_{100} = 10.5$ cfs will bypass this inlet and enter Basin BC-7 as street flow.

Approximately 1.09 acres along the north side of Revelstoke Drive generates flows of 2.2 cfs and 4.9 cfs during the 5 year and 100 year storms, respectively. These flows generated from Basin BC-7 enter Revelstoke Drive and then flow westerly toward Wolf Lake Drive.

Additional flows of $Q_5 = 2.7$ cfs and $Q_{100} = 6.0$ cfs are generated from the 1.20 acre Basin BC-8. These flows enter the east side of Wolf Lake Drive. This results in total street flow rates of 6.6 cfs during the 5 year storm and 21.4 cfs during the 100 year storm at the south end of Basin BC-8. A 15' inlet will be placed at the south end of this basin to collect a portion of these flows. This inlet will collect flows of $Q_5 = 4.4$ cfs and $Q_{100} = 9.8$ cfs. Flow rates of 2.2 cfs and 11.6 cfs will bypass this inlet during the 5 and 100 year storms, respectively and enter Basin BC-9 as street flows.

The area surrounding the Adamants Drive cul-de-sac comprises Basin BC-9. This 1.21 acre basin generates flows of $Q_5 = 2.3$ cfs and $Q_{100} = 5.1$ cfs. These flows also enter Wolf Lake Drive and combine with the flows bypassing the inlet at the south end of Basin BC-8. This results in flows of 4.5 cfs during the 5 year storm and 16.7 cfs during the 100 year storm reaching the south end of Basin BC-9.

Basin BC-10 consists of an additional 1.64 acres along the east side of Wolf Lake Drive. This basin generates flows of 3.2 cfs and 7.0 cfs during the 5 year and 100 year storms, respectively. A 15' inlet at the south end of Basin BC-10 will collect flows of 5.0 cfs and 10.4 cfs during the 5 and 100 year storms, respectively. The remaining flows of 2.7 cfs and 13.3 cfs bypassing this inlet will enter Basin BC-13 as street flows.

Basin BC-13 comprises an additional 1.66 acres along the east side of Wolf Lake Drive by the Midge Way cul-de-sac. The flows of 3.2 cfs and 7.1 cfs generated from this basin during the 5 and 100 year storms, respectively, will enter Wolf Lake Drive and continue southerly as street flow within the east side of Wolf Lake Drive. Total flows of Q_5 = 5.9 cfs and Q_{100} = 20.4 cfs will approach a 15' inlet at the south end of Basin BC-13. This inlet will collect flows of Q_5 = 4.1 cfs and Q_{100} = 10.1 cfs. Flows of 1.8 cfs and 10.3 cfs will bypass this inlet during the 5 and 100 year storms and enter Basin BC-14 as street flows.

Basins BC-14 is located along the east side of Wolf Lake Drive just north of Caddis Court. This 1.27 acre basin generates flows of 2.5 cfs during the 5 year storm and 5.4 cfs during the 100 year storm. These flows continue southerly along the east side of Wolf Lake Drive and enter Basin BC-15 as street flows.

Basin BC-15 generates an additional 2.5 cfs during the 5 year storm and 5.5 cfs during the 100 year storm. These flows reach the Caddis Court cul-de-sac and then enter Wolf Lake Drive as street flows.

The area along the east side of Wolf Lake Drive between Caddis Court and Kathi Creek Drive comprises Basin BC-16. This 1.56 acre basin generates flows of 3.1 cfs during the 5 year storm and 6.7 cfs during the 100 year storm. These flows along with the flows bypassing the inlet within Basin BC-13, plus the flows from Basins BC-14 and BC-15 will reach the south end of Basin BC-16.

Total flows of Q_5 = 9.9 cfs and Q_{100} = 27.9 cfs will reach a proposed 15' inlet just north of Kathi Creek Drive along the east side of Wolf Lake Drive. This inlet will collect flows of 6.3 cfs during the 5 year storm and 12.4 cfs during the 100 year storm. Flows of Q_5 = 3.6 cfs and Q_{100} = 15.5 cfs will bypass this inlet and enter Basin BC-17 as street flows.

Basin BC-17 is located just south of Basin 16 and just north of Research Parkway. This 0.89 acre basin generates flows of 1.9 cfs during the 5 year storm and 4.2 cfs during the 100 year storm. An additional 15' inlet will be placed at the end of Basin BC-17 to collect a portion of these flows. Flows of Q_5 = 3.9 cfs and Q_{100} = 10.2 cfs will be collected by this inlet. The flows of 1.6 cfs during the 5 year storm and 9.5 cfs during the 100 year storm bypassing this inlet will enter Research Parkway (Basin BC-18) as street flows.

The north side of Research Parkway between Wolf Lake Drive and Wolf Creek comprise Basin BC-18. Runoff rates of Q_5 = 4.0 cfs and Q_{100} = 8.1 cfs generated from Basin BC-18 along with the flows bypassing the inlet at the south end of Basin BC-17 will flow easterly within the north side of Research Parkway and reach the low point of Research Parkway at Wolf Creek. A 12' inlet will be placed at the low point of Research to collect these flows.

The following basins were originally described in the Villages at Wolf Ranch Phase 2 Master Development Drainage Plan and are provided within this report to show the total flows within the Wolf Lake corridor.

Basin 13A is just southwest of the Wolf Village and Leon Young intersection. Runoff rates of 5.4 cfs and 11.7 cfs generated from this basin during the 5 year and 100 year storms, respectively, flow southerly along the west side of Wolf Lake Drive. These flows reach the Wolf Lake and Revelstoke Drive intersection. Including the bypass flows from Basin OS-3, total flow rates of Q_5 = 9.0 cfs and Q_{100} = 24.8 cfs reach the low point of Basin 13A.

A 15' inlet will collect flows of Q_5 = 5.4 cfs and Q_{100} = 9.6 cfs. The remaining flows of 3.6 cfs during the 5 year storm and 15.2 cfs during the 100 year storm will enter Basin 13B.

An additional 2.11 acres just northwest of the Wolf Lake and Revelstoke Drive intersection comprises Basin 13-B. Runoff rates of Q_5 = 5.9 cfs and Q_{100} = 12.7 cfs generated from this basin combine with the flows from Basin 13-A resulting in total street flows of 9.5 cfs during the 5 year storm and 27.9 cfs during the 100 year storm just south of Revelstoke Drive.

A 15' inlet will be placed just south of the Revelstoke Drive and Wolf Lake Drive intersection along the west side of Wolf Lake to collect a portion of these flows. This inlet will collect runoff rates of Q_5 = 5.6 cfs and Q_{100} = 10.2 cfs while the remaining flows of 3.9 cfs during the 5 year storm and 17.7 cfs during the 100 year storm will bypass this inlet and continue as street flows to Basin 14.

Basin 14 contributes additional flows of Q_5 = 1.8 cfs and Q_{100} = 3.9 cfs which also reach the west side of Wolf Lake Drive. These flows along with the bypass flows from the Basin 13-B will reach the northwest corner of the Wolf Lake Drive and Adamants Drive intersection. Flows of 5.7 cfs during the 5 year storm and 21.6 cfs during the 100 year storm will reach a 15' inlet at the south end of Basin 14. Flows of Q_5 = 3.9 cfs and Q_{100} = 9.9 cfs will be collected by this inlet while flows of 1.8 cfs and 11.7 cfs will bypass this inlet during the 5 and 100 year storms, respectively. These flows will enter directly into Basin 15 as street flows.

Basin 15, located along the north side of Adamants Drive, generates additional flow rates of Q_5 = 4.1 cfs and Q_{100} = 8.4 cfs which enter the west side of Wolf Lake and enter Basin 16 as street flow. The total street flows just south of the Adamants Drive and Wolf Lake Drive intersection are 5.9 cfs during the 5 year storm and 20.1 cfs during the 100 year storm.

The 0.45 acres at the northwest corner of Harney Drive and Wolf Lake Drive comprise Basin 16. The flows of Q_5 = 1.6 cfs and Q_{100} = 3.2 cfs generated from this basin along with the flows entering from Basin 15 results in total flows of 7.5 cfs and 23.3 cfs during the 5 year and 100 year storms, respectively, reaching the south end of Basin 16.

A 15' inlet at the south end of Basin V2-16 will collect flows of 4.9 cfs during the 5 year storm and 10.3 cfs during the 100 year storm. Flow rates of Q_5 = 2.6 cfs and Q_{100} = 13.0 cfs bypassing this inlet will enter Basin 17 as street flows.

Additional flows of Q_5 = 3.1 cfs and Q_{100} = 6.9 cfs generated from Basin 17 located at the northwest corner of the Wolf Lake Drive and Harney Drive intersection also enter Basin 18. Total flows of Q_5 = 5.7 cfs and Q_{100} = 19.9 cfs will enter Basin 18. The 5 year street capacity of Wolf Lake at this point is 29.5 cfs per side based on the proposed 3% grade of the street.

Basin I8, consists of 0.42 acres at the northwest corner of Wolf Village Drive and Wolf Lake Drive. Flows of 1.4 cfs and 3.0 cfs are generated from this basin during the 5 and 100 year storms, respectively. Total flows of 7.1 cfs during the 5 year storm and 22.9 cfs during the 100 year storm flow southerly along the west side of Wolf Lake Drive. An inlet will be placed at the south end of Basin 18 to collect runoff rates of Q_5 = 4.7 cfs and Q_{100} = 10.2 cfs. Approximate flows of 2.4 cfs and 12.7 cfs will bypass this inlet and continue southerly within the west side of Wolf Lake Drive.

A 36" pipe will convey the collected flows (Q_5 = 60.1 cfs and Q_{100} = 118.4 cfs) from these basins easterly to Wolf Creek.

The area north of Wolf Village Drive just west of Wolf Lake Drive comprises Basin 19. This 1.16 acre basin generates runoff rates of 3.7 cfs during the 5 year storm and 7.8 cfs during the 100 year storm. These flows will reach Wolf Lake Drive and then flow southerly within the west side of Wolf Lake along with the flows bypassing the inlet at the south end of Basin 18.

Approximate flow rates of Q_5 = 5.8 cfs and Q_{100} = 20.3 cfs will enter the Wolf Lake Drive just south of the Wolf Lake Drive and Wolf Village Drive intersection from Basins 18 and 19.

Basin OS-4 consists of 2.35 acres along the west half of Wolf Lake Drive and generates flows of Q_5 = 7.6 cfs and Q_{100} = 15.2 cfs. This results in total flows street flows of 13.4 cfs and 35.5 cfs during the 5 and 100 year storms, respectively, flowing southerly in Wolf Lake Drive.

A 15' inlet will be installed along the west side of Wolf Lake Drive just south of Wolf Village Drive to collect a portion of these flows. Flows of Q_5 = 8.1 cfs and Q_{100} = 14.1 cfs will be collected by this inlet while flows of Q_5 = 5.3 cfs and Q_{100} = 21.4 cfs will bypass this inlet and continue southerly as street flows within Wolf Lake Drive.

The 5 year street capacity of Wolf Lake Drive is 19.5 cfs based on the minimum street slope of 3 %. This is not adequate to convey all the flows generated from Basin 20. Therefore, an inlet will be installed approximately half way through this basin to collect a portion of these flows. Assuming half of the flows generated from Basin 20 reach this proposed inlet, the inlet will collect flows of Q_5 = 7.1 cfs and Q_{100} = 10.8 cfs. This results in total flows of Q_5 = 12.7 cfs and Q_{100} = 26.8 cfs continue southerly along the east side of Wolf Lake Drive. A second inlet will be placed at the south end of Basin 20 to collect additional flows of 8.7 cfs during the 5 year storm and 14.0 cfs during the 100 year storm. Flows of Q_5 = 9.6 cfs and Q_{100} = 28.8 cfs will flow into Villages at Wolf Ranch Phase 2.

The 30' RCP conveying the collected flows will either be discharged easterly into future Pond F along Wolf Creek or connect to the existing 42" stub-outs located along the north side of Research just east of Wolf Center Drive.

Approximately 1.29 acres at the northeast corner of Markham Drive and Wolf Village Drive comprise Basin 21. This basin generates flows of 4.1 cfs during the 5 year storm and 8.8 cfs during the 100 year storm. These flows reach the Markham Drive and Wolf Village Drive intersection combining with the flows from Basin 22 and then continuing westerly along the north side of Wolf Village Drive into Basin 23.

Basin 22 is located along the north side of Wolf Village and generates additional flows of Q_5 = 2.8 cfs and Q_{100} = 6.3 cfs. The combined flows of 5.9 cfs during the 5 year storm and 15.1 cfs during the 100 year storm from Basins 21 and 22 enter Basin 23 as street flows.

The area along the north side of Wolf Village Drive between Valemount Drive and Markham Drive and Valemount Drive comprise Basin 23. Total flow rates of Q_5 = 12.0 cfs and Q_{100} = 27.6 cfs reach the west end of Basin 23. The 5 year street capacity of Wolf Village Drive is 15.9 cfs based on the minimum street slope of 2%. These flows will reach a 15' sump inlet along the east side of Valemount Drive just north of Wolf Village Drive. Additional flows reach this inlet from Basin 12 and the upstream basins. During the 100 year storm, it is anticipated that the approach flows reaching this intersection will be split on both sides of Wolf Village Drive (16.3 cfs/side) .

Basin 24 comprises the south half of Wolf Village Drive from Wolf Lake Drive to Valemount Drive generating flows of Q_5 = 2.6 cfs and Q_{100} = 5.0 cfs. A 6' sump inlet will be placed along the south side of Wolf Village Drive at Valemount to collect these flows along with the flows generated from Basin 25.

Basin 25, located just southwest of the Valemount Drive and Wolf Village Drive, generates additional flows of 0.6 cfs during the 5 year storm and 1.0 cfs during the 100 year storm. These flows also reach the proposed 6' sump inlet along the south side of Wolf Village Drive.

The area along the west side of Valemount between Adamants Drive and Wolf Village Drive comprises Basin 26. The runoff rates (Q_5 = 4.7 cfs and Q_{100} = 10.1 cfs) generated from this basin along with the overtopping flows of 7.6 cfs from Bain 9 reach a 6' sump inlet along the west side of Valemount just north of Wolf Village Drive.

The total flows from Basins 1 through 12 and 21 through 26, inclusive which reach Design Point #1 are Q_5 = 77.0 cfs and Q_{100} = 162 cfs. A 36" pipe will convey these southerly through the parcel south of Wolf Village Drive reaching the existing 42" RCP stub-outs along the north side of Research Parkway just east of Wolf Center Drive.

Pond A –South (Basins 27 through 40 and Basins 50 through Basin 62)

A second drainage area is located toward the central and southwestern portion of the site.

Basin 27-A consists of the area just south of Leon Young Drive and east of Boylston Drive. This 1.45 acre basin generates runoff rates of 4.6 cfs during the 5 year storm and 9.8 cfs during the 100 year storm which reach the intersection of Boylston Drive and Revelstoke Drive.

Additional flows of Q_5 = 5.7 cfs and Q_{100} = 12.2 cfs are generated from Basin 27-B which is located north of Revelstoke Drive just east of Boylstone Drive. The combined flows of Q_5 = 10.3 cfs and Q_{100} = 22.0 cfs from Basin 27-A and Basin 27-B approach Basin 28-B as street flows. Revelstoke Drive at a minimum slope of 2% and a corresponding street capacity of 15.9 cfs per side. A 15' inlet will be placed just west of the Boylston Drive on the north side of Revelstoke to collect a portion of these flows. During the 100 year storm the centerline of Revelstoke will overtop resulting in 11.0 cfs on both sides of Revelstoke. The 11.0 cfs overtopping Revelstoke enters Basin 29. The inlet at the west end of Basin 28-B will collect runoff rates of 6.6 cfs during the 5 year storm and 6.9 cfs during the 100 year storm. The remaining flows of Q_5 = 3.7 cfs and Q_{100} = 4.1 cfs will enter Basin 28-B as street flows.

Basin 28-A is located along Leon Young Drive just northeast of the Wolf Center Drive and Revelstoke Drive intersection. This 1.54 acre basin generates runoff rates of Q_5 = 4.8 cfs and Q_{100} = 10.3 cfs which reach the Revelstoke Drive and Wolf Center Drive intersection.

Additional flows of 5.2 cfs and 10.8 cfs are generated from Basin 28-B. These flows along with the flows bypassing Inlet 27-B result in total street flows of Q_5 = 8.9 cfs and Q_{100} = 17.0 cfs at the west end of Basin 28-B including one-half of the flows from Basin 29, since the centerline of Reveltoke is overtopped during the 100 year storm. A 15' inlet will be placed at the west end of Basin 28-B to collect a portion of these flows. Flow rates of 3.1 cfs and 7.6 cfs will bypass this inlet and enter Wolf Center as street flows, combining with flows from Basin 29.

Basin 29 consists of 3.04 acres along the south side of Revelstoke Drive and the east side of Wolf Center Drive. Runoff rates of Q_5 = 8.3 cfs and Q_{100} = 17.0 cfs generated from this basin along with the bypass flows from Inlet 28-B and Basin 28-A results in total street flows of Q_5 = 16.2 cfs and Q_{100} = 44.0 cfs at the south end of Basin 29. Approximately 22.0 cfs will overtop the centerline of Wolf Center Drive during the 100 year storm and enter Basin 50. A 15' inlet will be placed at the south end of Basin 29 to collect flows of Q_5 = 8.6 cfs and Q_{100} = 10.2 cfs. Flow rates of 7.6 cfs and 11.8 cfs will bypass this inlet during the 5 year and 100 year storms, respectively, entering Basin 33 as street flows.

The area west of Valemount Drive and north of Adamants Drive comprises Basin 30-A. Runoff rates of 3.2 cfs during the 5 year storm and 6.9 cfs during the 100 year storm flow westerly within the north side of Adamants Drive and enter Basin 30-B. Additional flows of 20.8 cfs during the 100 year storm enters this basin from upstream areas.

Half way through Basin 30-B, 100 year storm flows of approximately 20.3 cfs will overtop Adamants and enter Basin 34.

Basin 30-B generates additional flows of Q_5 = 11.9 cfs and Q_{100} = 25.4 cfs which also reach the north side of Adamants Drive. Total street flows of 15.1 cfs during the 5 year storm and 16.7 cfs during the 100 year storm reach the west end of Basin 30-B. During the 100 year storm, 16.7 cfs will overtop the centerline of Wolf Center Drive and enter Basin 52. A 15' inlet will collect flows of Q_5 = 9.1 cfs and Q_{100} = 9.6 cfs at this location. Flows of 6.0 cfs during the 5 year storm and 7.1 cfs during the 100 year storm will bypass this inlet and enter Basin 31.

The area to the northeast of the Wolf Center and Adamants Drive intersection comprise the 2.95 acre Basin 31. The flows bypassing Inlet 30-B combine with the flow rates of Q_5 = 8.8 cfs and Q_{100} = 19.1 cfs generated from Basin 31 resulting in total street flows of 14.8 cfs during the 5 year storm and 23.7 cfs during the 100 year storm at the west end of Basin 31.

A 15' inlet will be placed at the west end of Basin 31 to collect flow rates of Q_5 = 9.1 cfs and Q_{100} = 12.2 cfs. The remaining flows of 5.7 cfs during the 5 year storm and 11.5 cfs during the 100 year storm will bypass this inlet and enter Basin 33 as street flows.

Basin 32 is located along the south side of Adamants between Wolf Center Drive and Carrolton Drive. Runoff rates of Q_5 = 2.0 cfs and Q_{100} = 4.5 cfs generated from this basin combine with the overflow flows during the 100 year storm resulting in street flows of 2.0 and 23.7 cfs approaching the inlet at the west end of Basin 32. This 15' inlet will collect flows of 1.8 cfs and 12.2 cfs during the 5 year and 100 year storms. Flow rates of Q_5 = 0.2 cfs and Q_{100} = 11.5 cfs will bypass this inlet and enter Basin 33.

Total flows of 13.5 cfs during the 5 year storm and 34.8 cfs during the 100 year storm enter Basin 33 as street flows. Wolf Center at this point has a 5 year street capacity of 19.5 cfs per side

The 0.45 acre Basin 33 generates an additional 1.4 cfs during the 5 year storm and 3.2 cfs during the 100 year storm. Therefore, total flows of Q_5 = 14.9 cfs and Q_{100} = 38.0 cfs flow to the south end of Basin 33. The centerline of Wolf Center will overtop resulting in 19.0 cfs entering Basin 52 during the 100 year storm.

Basin 34 is located just southeast of the Adamants Drive and Carrolton Drive intersection. Flow rates of 4.7 cfs during the 5 year storm and 10.1 cfs during the 100 year storm reach this same intersection from the north. As stated above, 20.3 cfs will enter this basin during the 100 year storm due to overtopping of the street.

Additional flow rates of Q_5 = 3.8 cfs and Q_{100} = 8.3 cfs reach this same intersection from the east from Basin 35. Combined flows of 8.5 cfs during the 5 year storm and 38.7 cfs during the 100 year storm pass through the Harney Drive and Carrolton Drive intersection from east to west along the its north curb line and enter Basin 36. During the 100 year storm, the centerline of Harney is overtopped resulting in 19.5 cfs on both sides of Harney just west of Carrolton Drive.

Basin 36 generates additional flows of Q_5 = 6.2 cfs and Q_{100} = 13.1 cfs. Total street flows of 14.7 cfs during the 5 year storm and 28.2 cfs during the 100 year storm reach the west end of Basin 36 where a 15' inlet will be installed to collect a portion of these flows. This inlet will collect flows of 9.1 cfs during the 5 year storm and 13.5 cfs during the 100 year storm. The flows rates of Q_5 = 5.6 cfs and Q_{100} = 14.7 cfs bypassing this inlet will enter Basin 40 as street flows.

Approximately 1.21 acres located northeast of the Wolf Village Drive and Carrolton Drive intersection comprise Basin 37. Runoff rates of Q_5 = 3.8 cfs and Q_{100} = 7.9 cfs generated from Basin 37 approach this intersection from the north.

Additional flow rates of 4.7 cfs during the 5 year storm and 10.4 cfs during the 100 year storm approach this intersection from the east from the 1.63 acre Basin 38. Total combined flows of Q_5 = 8.5 cfs and Q_{100} = 18.3 cfs from Basin 37 and 38 reach the west end of this intersection. Wolf Village Drive at a slope of 1.5% has a 5 year street capacity of 13.8 cfs.

Basin 39 generates flows of Q_5 = 5.3 cfs and Q_{100} = 11.5 cfs resulting in total flows of 13.8 cfs and 29.8 cfs during the 5 year and 100 year storms, respectively, passing through Basin 39. Approximately 14.9 cfs will overtop Wolf Village and enter Basin 60. Including the 100 year flows of 5.1 cfs generated from Basin 60, flows of 17.5 cfs will be flowing westerly along both side of Wolf Village at this point during the 100 year storm.

A 15' inlet will be placed at the west end of Basin 39 that will collect flow rates of Q_5 = 8.6 cfs and Q_{100} = 10.3 cfs. The flow rates of 5.2 cfs and 7.2 cfs bypassing this inlet during the 5 year and 100 year storms will continue westerly as street flows along the north side of Wolf Village Road.

Basin 40, located east of Wolf Center and north of Wolf Village Drive, generate additional flows of Q_5 = 4.1 cfs and Q_{100} = 8.8 cfs. These flows combine with the flows from Basin 33 and bypass flows from the Inlet 36, for total street flows of 15.4 cfs during the 5 year storm and 27.8 cfs during the 100 year storm reaching the south end of Basin 40. A 15' inlet will be placed toward the south end of Basin 40 to collect runoff rates of Q_5 = 8.9 cfs and Q_{100} = 12.3 cfs. Flows of Q_5 = 6.5 cfs and Q_{100} = 15.5 cfs bypassing this inlet will also enter Basin 55 as street flows. The total flows entering Basin 55 during the 5 year and 100 year storms will be 11.7 cfs and 50.5 cfs, respectively. During the 100 year storm, approximately 25.3 cfs will be on both sides of Wolf Village Drive.

Total flows of Q_5 = 77.6 cfs and Q_{100} = 184.8 cfs reach Design Point #2. The majority of these flows will be collected and conveyed within a 36" RCP extending westerly from this point.

The 5 year street capacity of Wolf Village at this point is 15.9 cfs per side. Therefore, a 15' inlet will be placed at the east end of Basin 55 to collect flow rates of Q_5 = 7.3 cfs and Q_{100} = 11.7 cfs (Inlet 55-NE). The remaining flows of Q_5 = 4.4 cfs and Q_{100} = 13.6 cfs will continue through Basin 55.

An additional 15' inlet will be installed along the south side of Wolf Village Drive at the east end of Basin 61 to collect flows overtopping Wolf Village at this point. This inlet will collect flows of 1.0 cfs during the 5 year storm and 11.7 cfs during the 100 year storm. Flows of Q_5 = 0.0 cfs and Q_{100} = 13.6 cfs will bypass this inlet and continue westerly within Wolf Village Drive.

Approximately 2.93 acres just northeast of the Adamants and Sky King Drive intersection comprises Basin 50. As stated above, during the 100 year storm approximately 21 cfs overtops into Basin 50 from the upstream areas. Runoff rates of Q_5 = 9.0 cfs and Q_{100} = 18.8 cfs are generated from this basin. During the 100 year storm, flows of 19.9 cfs will be on both side of Adamants Drive. A 15' inlet will be installed along the north side of Adamants to collect a portion of these flows. This inlet will collect 5.9 cfs during the 5 year storm and 10.3 cfs during the 100 year storm. The remaining flows of Q_5 = 3.1 cfs and Q_{100} = 9.6 cfs will enter Basin 53-A.

Additional flows of 6.5 cfs during the 5 year storm and 12.5 cfs during the 100 year storm are generated from Basin 51. These flows continue southerly within Sky King Drive and also enter Basin 53-A.

Basin 52 consists of approximately 2.17 acres at the northwest corner of Harney Drive and Wolf Center Drive. The runoff rates of Q_5 = 6.5 cfs and Q_{100} = 14.2 cfs generated from this basin will reach a 15' inlet along the south side of Harney Drive. This inlet will collect flows of 4.5 cfs during the 5 year storm and 8.5 cfs during the 100 year storm. The flow rates of Q_5 = 2.0 cfs and Q_{100} = 5.7 cfs bypassing this inlet will enter Basin 53-X as street flows.

Approximately 0.95 acres at the southeast corner of Adamants and Sky King Drive comprise Basin 53-A. This basin generates runoff rates of 3.2 cfs during the 5 year storm and 6.8 cfs during the 100 year storm. Including the bypass flows from the inlet within Basin 50, the flows from Basin 51 and the flows from Basin 53-A results in total street flows of Q_5 = 12.8 cfs and Q_{100} = 28.9 cfs at the south end of Basin 53-A. A 15' inlet will be installed at the south end of Basin 53-A to collect flows of 7.8 cfs during the 5 year storm and 12.6 cfs during the 100 year storm. The remaining flows of Q_5 = 5.0 cfs and Q_{100} = 16.3 cfs bypassing this inlet will enter Basin 53-X as street flows.

Basin 53-X is a 0.35 acre basin which generates flows of 1.3 cfs during the 5 year storm and 2.5 cfs during the 100 year storm. Including the bypass flows from Basins 52 and 53-A results in total street flows of Q_5 = 8.3 cfs and Q_{100} = 24.5 cfs at the south end of Basin 53-X. A 15' inlet at this point will collect flows of Q_5 = 5.2 cfs and Q_{100} = 10.3 cfs. The remaining flows of 3.1 cfs and 14.2 cfs during the 5 and 100 year storms, respectively, bypassing this inlet will enter Basin 53-B as street flows.

Basin 53-B consists of 0.95 acres at the northeast corner of Sky King and Wolf Village Drive. Runoff rates of 3.5 and 6.8 cfs are generated from this basin. Total flows of Q_5 = 6.6 cfs and Q_{100} = 25.0 cfs will approach Inlet 53-B This inlet will collect flows of 4.5 cfs and 11.6 cfs during the 5 year and 100 year storms, respectively. Flow rates of Q_5 = 2.1 cfs and Q_{100} = 13.4 cfs will bypass this inlet and enter Basin 57.

Basin 54 consisting of approximately 1.78 acres along the west side of Sky King Drive generates flows of 5.0 cfs during the 5 year storm and 10.8 cfs during the 100 year storm. These flows reach a proposed 15' inlet along the west side of Sky King just south of Harney. This inlet will collect runoff rates of Q_5 = 3.5 cfs and Q_{100} = 12.2 cfs and flows of 1.5 cfs and 21.1 cfs during the 5 year and 100 year storms will bypass this inlet and reach a second inlet at the south end of Basin 54. This inlet will collect flows of Q_5 = 1.3 cfs and Q_{100} = 9.5 cfs with bypass flows of 0.2 cfs during the 5 year storm and 11.6 cfs during the 100 year storm entering Basin 57 as street flows.

The area north of Wolf Village Drive between Wolf Center Drive and Sky King Drive comprises Basin 55. This 1.64 acre basin generates flows of 5.0 cfs during the 5 year storm and 11.0 cfs during the 100 year storm. Additional flows bypassing Inlet 55-NE results in total flows of 9.4 cfs during the 5 year storm and 24.6 cfs during the 100 year storm reaching the west end of Basin 55. Including the flows of Q_{100} = 5.5 cfs generated from Basin 61, the 100 year flows at this point will be 21.8 on both side of Wolf Village Drive. A 15' inlet will be place at the west end of this basin to collect flows of Q_5 = 6.1 cfs and Q_{100} = 10.8 cfs. Flow rates of Q_5 = 3.3 cfs and Q_{100} = 11.0 cfs will bypass this inlet and enter Basin 57.

Basin 56 consists of the east half of the future school site. At this time, the exact development of this area is unknown, so runoff coefficients were assumed based on 75% impervious area and 25% pervious area. This resulted in flows of Q_5 = 13.0 cfs and Q_{100} = 29.5 cfs being generated from this side of the school site. A 24" RCP will be stubbed into this property at the southwest corner of the school site as an outfall for this parcel.

Prior to construction of the school site, a earthen swale will be constructed at the top of the 3:1 slope to convey the flows westerly to the proposed 24" RCP. Once the school site is developed, it will be the responsibility of the school to collect the flows from the majority of the school site within on-site storm sewer and/or curb and gutter and convey the flows to the 24" RCP. Under both the interim and ultimate development of the school, it is anticipated that rainfall that falls directly on the slope will be conveyed southerly to Wolf Village Drive via side lot line swales.

Basin 57 consists of the lots north of Wolf Village Drive between Sky King Drive and Tutt Boulevard. Flows of Q_5 = 10.0 cfs and Q_{100} = 20.6 cfs are generated from this 3.56 acre basin. Additional flow rates of Q_5 = 5.5 cfs and Q_{100} = 37.6 cfs enter this basin from Basins 53-B, 54 and 55. Durng the 100 year storm, the flows will be split on either side of Wolf Village (18.8 cfs per side). A 15' inlet will be installed at the east end of Basin 57 to collect a portion of these flows. This inlet will collect flows of Q_5 = 3.9 cfs and Q_{100} = 9.9 cfs. Flows of 1.6 cfs during the 5 year storm and 8.9 cfs during the 100 year storm will bypass this inlet. Therefore, total flows of Q_5 = 11.6 cfs and Q_{100} = 29.5 cfs will reach the west end of Basin 57.

An additional inlet will be placed at the east end of Basin 62 to collect the flows overtopping Wolf Center Drive during the 100 year storm. This inlet will collect flows of 1.0 cfs and 9.9 cfs during the 5 year and 100 year storms, respectively. Flows of 0.0 cfs and 8.9 cfs will bypass this inlet during the 5 and 100 year storms.

During the 100 year storm, the total 100 year flows from Basins 57 and 61 will be split evenly on both side of Wolf Village Drive (29.1 cfs per side including the 100 year flows of 10.9 from Basin 62).

A 15' inlet at the west end of Basin 57 will collect flows of Q_5 = 7.2 cfs and Q_{100} = 12.7 cfs. The remaining flows of 4.4 cfs and 16.4 cfs during the 5 and 100 year storms will continue westerly along the north side of Wolf Village Drive.

The inlet at the west end of Basin 62 will collect flows of 4.0 and 12.7 cfs during the 5 year and 100 year storms. Flows of 1.6 and 16.4 cfs will bypass this inlet and flows southerly within the east side of Tutt Boulevard.

Basin 58 consists of the west half of the school site and the east side of Tutt Boulevard from Wolf Village Drive to a point approximately 1,200 feet to the north. This 5.34 acre basin generates runoff of Q_5 = 5.5 cfs and Q_{100} = 14.7 cfs. These flows reach the northeast corner of Wolf Village Drive and Tutt Boulevard where a 15' inlet will be installed. This inlet will collect flows of 3.6 cfs during the 5 year storm and 7.2 cfs during the 100 year storm. Runoff rates of Q_5 = 1.4 cfs and Q_{100} = 7.5 cfs will bypass this inlet and will continue westerly along the north side of Wolf Village Road.

Basin 59 is located along the west side of Tutt Boulevard north of Wolf Village Drive. Runoff rates of 3.9 cfs and 7.5 cfs are generated from this basin during the 5 and 100 year storms, respectively. These flows will also reach a 15' inlet at the south side of this basin. This basin will collect flows of 2.7 cfs during the 5 year storm and 4.7 cfs during the 100 year storm. Flows of Q_5 = 1.2 cfs and Q_{100} = 2.8 cfs will bypass this inlet and continue westerly along the north side of Wolf Village Drive.

Basin 60 consist of the south half of Wolf Village Drive from just west of Valemount to Wolf Center Drive. The runoff rates of Q_5 = 2.7 cfs and Q_{100} = 5.1 cfs generated from this basin flow westerly and then turn south into Wolf Center Drive. As stated above, during the 100 year storm 17.5 cfs overtops Wolf Village Drive and enters Basin 60. Therefore, flow rates of Q_5 = 2.7 cfs and Q_{100} = 22.6 cfs will turn south into Wolf Center Drive. Wolf Center Drive at a slope of 2% has a 5 year street capacity of 24.1 cfs per side which is adequate to convey these flows. These flows were accounted for in the Villages at Wolf Ranch Master Drainage Report.

The south side of Wolf Village Drive between Wolf Center and Sky King Dive comprise Basin 61. Like Basin 60, the runoff rates of Q_5 = 4.9 cfs and Q_{100} = 5.5 cfs generated from this basin reach the Wolf Village and Sky King Drive intersection and then turn south into Sky King Drive. Flows of 16.3 cfs overtops from Basin 55 during the 100 year storm. This results in total flows of 4.9 cfs and 21.8 cfs turning south in Sky King Drive from Basin 60. These flows were also accounted for in the Villages at Wolf Ranch Master Drainage Report.

Basin 62 consists of the south side of Wolf Village Drive from Sky King Drive to Tutt Boulevard and generates runoff rates of Q_5 = 5.6 cfs and Q_{100} = 10.9 cfs. As stated above, flows of Q_5 = 1.6 cfs and Q_{100} = 16.4 cfs bypassing the inlet at the west end of this basin will flow southerly in Tutt Boulevard. These flows turn south on Tutt Boulevard as street flows. These flows also were accounted for in the Villages at Wolf Ranch MDDP.

Total flows of Q_5 = 122.6 cfs and Q_{100} = 245.3 cfs reach Design Point #3. A 48" pipe will the majority of these flows (Q_5 = 113.4 cfs and Q_{100} = 189.1 cfs). The remaining flows turn southerly into streets extending southerly from Wolf Village Drive. These flows were anticipated in the Wolf Ranch MDDP.

(Basins 41 through 49 tributary to the Pond A-North Drainage are described below.)

Basins 41 through 43 comprise the north side of Leon Young Drive from Wolf Lake Drive to Tutt Bouleevard. The flows described for these basins are just for the localized flows. The area to the north of these basins are described in the Wolf Ranch MDDP and will be addressed with future development. It is anticipated at this time that a 54" RCP will be required along the north side of Leon Young Drive to convey these flows from the north.

Swales and berms will be constructed along the north side of Leon Young Drive in the interim condition prior to the area north of Leon Young Drive being constructed. The historic flows will be directed westerly into existing downstream swales which have historically handled these flows. During the interim development process, the developer will maintain these swales. The developer will also construct Pond A.

Basin 41 is the easterly stretch between Wolf Lake Drive and Valemount Drive. The local flows generated from this basin are 4.4 cfs during the 5 year storm and 8.6 cfs during the 100 year storm. These flow enter Basin 42 as street flows continuing west along the north side of Leon Young Drive.

Basin 42 consists of the north side of Leon Young between Valemount and Wolf Center Drive and generates runoff rates of Q_5 = 3.9 cfs and Q_{100} = 7.6 cfs. The combined flows of 8.3 cfs and 16.2 cfs during the 5 and 100 year storms, respectively, from Basin 41 and 42 reach the Wolf Center and Leon Young intersection. Leon Young Drive at a slope of 1.5% has a 5 year street capacity of 13.8 cfs per side which is adequate to convey these flows.

These flows will enter Basin 43 as street flows. Basin 43 generates additional flows of 5.3 cfs during the 5 year storm and 10.1 cfs during the 100 year storm. Total flow rates of Q_5 = 13.6 cfs and Q_{100} = 26.3 cfs will reach the west end of Basin 43 as street flows where a 15' inlet will collect a portion of these flows. Flows of Q_5 = 8.1 cfs and Q_{100} = 11.7 cfs will be collected by this inlet. Flow rates of Q_5 = 5.5 cfs and Q_{100} = 14.6 cfs bypassing this inlet will enter Basin 47 as street flows.

Approximtely 2.98 acres at along the north side of Revelstoke Drive between Wolf Center Drive and Sky King Drive comprise Basin 44. Runoff rates of 8.2 cfs and 21.5 cfs are generated from this basin during the 5 year and 100 year storms, respectively. These flows reach the Revelstoke Drive and Thorndike Drive intersection from the east.

Additional flows of Q_5 = 5.0 cfs and Q_{100} = 10.2 cfs reach this same intersection from the north from Basin 45. Revelstoke Drive at a slope of 2% and a 5 year street capacity of 15.9 cfs per side does not have the capacity to convey all these flows; therefore, a 15' inlet will be installed just downstream of this intersection to collect a portion of these flows. Flows of Q_5 = 8.0 cfs and Q_{100} = 9.1 cfs will be collected by this inlet while flows of 5.2 cfs during the 5 year storm and 6.8 cfs during the 100 year storm will bypass this inlet and enter Basin 46.

Basin 46 consist of 2.22 acres along the north side of Revelstoke Drive between Thorndike and Tutt Boulevard. Runoff rates of Q_5 = 6.5 cfs and Q_{100} = 13.9 cfs generated from this basin along with the flows bypassing the upstream inlet results in total flows of Q_5 = 11.7 cfs and Q_{100} = 25.2 cfs reaching the Revelstoke Drive and Tutt Boulevard intersection. This intersection is in a sump condition. A 15' sump inlet will be installed along the north side of Revelstoke Drive just east of Tutt to collect all of these flows.

Runoff rates of 4.2 cfs during the 5 year storm and 8.6 cfs during the 100 year storm reach this same sump inlet from Basin 47. Adding the bypass flows of Q_5 = 5.5 cfs and Q_{100} = 14.6 cfs from Inlet 43 results in total street flows of 9.7 cfs during the 5 year storm and 23.2 cfs during the 100 year storm approaching the sump inlet within Basin 46.

The 2.18 acres along the south side of Revelstoke between Sky King Drive and Tutt comprises Basin 48. The flow rates of Q_5 = 6.7 cfs and Q_{100} = 13.9 cfs generated from this basin will reach the southeast corner of the Revelstoke Drive and Tutt Boulevard intersection. A 10' sump inlet will be placed along the south side of Revelstoke to collect the flows from this basin.

Basins 49-A and 49-B are located along the west side of Tuff Boulevard and both drain to the intersection of Revelstoke Drive and Tutt Boulevard. The flow rates of Q_5 = 1.3 cfs and Q_{100} = 1.9 cfs generated from the 0.32 acre Basin 49-A reach a 5' sump inlet at this location. Additional flow rates of 1.2 cfs during the 5 year storm and 2.3 cfs during the 100 year storm will reach this same sump inlet from the south from Basin 49-B.

Total flows of 32.9 and 57.7 cfs reach Design Point #4 from Basins 41 through 49 during the 5 and 100 year storms, respectively. A 30" RCP will convey these flows westerly to an existing earthern swale. Additional flows will reach this point from upstream areas, but the runoff from those areas will be collected and conveyed to the north and west of this point with future developments. As the area west of Tutt Boulevard develops, this pipe will be extended or the earthen swale will be formalized into a swale to carry the developed flows all the way to Pond A. This earthern swale will also be maintained by the developer until such time that the area is developed.

Detention Pond A is currently under design. The area for Pond A will be platted prior to any conveyance to the City of Colorado Springs.

EROSION CONTROL

Erosion control measures will be installed per the approved grading/erosion control plans.

WATER QUALITY

The proposed detention pond within Westcreek Filing No. 10 includes the water quality measures for this subdivision. These measures have been presented as presented as part of Kiowa Engineering's final detention pond design.

Pond A will also have water quality measures associated with it, even though water quality is not required for single-family residential development.

DRAINAGE, BRIDGE AND POND FEES

The Villages at Wolf Ranch Development is within the Cottonwood Creek Drainage Basin. The 2005 Drainage, Bridge and Pond Fees are listed below. Drainage facilities within these filings are all part of the overall Wolf Ranch Drainage system presented in the Wolf Ranch Master Development Drainage Plan. Therefore, public drainage facilities will be constructed in lieu of paying fees.

However, there are still on-going discussions regarding the possibility of excluding Wolf Ranch from the Cottonwood Creek Drainage Basin.

Villages at Wolf Ranch Filing No. 5 Drainage Fee ($8,957/Acre Total)

	Area	$/Acre	Total Fee
Capital Improvements Portion	2.884	$6,629.00	$19,118.04
Land Portion	2.884	$ 1,880.00	$5,421.92
Cash Portion	2.884	$ 448.00	$1,292.03
BRIDGE FEES	2.884	$ 731.00	$2,108.20
			$27,940.19

Villages at Wolf Ranch Filing No. 6 Drainage Fee ($8,957/Acre Total)

	Area	$/Acre	Total Fee
Capital Improvements Portion	10.887	$6,629.00	$72,169.92
Land Portion	10.887	$ 1,880.00	$20,467.56
Cash Portion	10.887	$ 448.00	$4,877.38
BRIDGE FEES	10.887	$ 731.00	$7,958.40
			$105,473.26

Villages at Wolf Ranch Filing No. 7 Drainage Fee ($8,957/Acre Total)

	Area	$/Acre	Total Fee
Capital Improvements Portion	6.323	$6,629.00	$41,915.17
Land Portion	6.323	$ 1,880.00	$11,887.24
Cash Portion	6.323	$ 448.00	$2,832.70
BRIDGE FEES	6.323	$ 731.00	$4,622.11
			$61,257.22

Villages at Wolf Ranch Filing No. 8 Drainage Fee ($8,957/Acre Total)

	Area	$/Acre	Total Fee
Capital Improvements Portion	9.596	$6,629.00	$63,611.88
Land Portion	9.596	$ 1,880.00	$18,040.48
Cash Portion	9.596	$ 448.00	$4,299.01
BRIDGE FEES	9.596	$ 731.00	$7,014.68
			$92,966.05

Villages at Wolf Ranch Filing No. 9 Drainage Fee ($8,957/Acre Total)

	Area	$/Acre	Total Fee
Capital Improvements Portion	9.654	$6,629.00	$63,996.37
Land Portion	9.654	$ 1,880.00	$18,149.52
Cash Portion	9.654	$ 448.00	$4,324.99
BRIDGE FEES	9.654	$ 731.00	$7,057.07
			$93,527.95

DRAINAGE FACILTIES (Public Non Reimbursable)

The following drainage facilities will be required for the various Villages at Wolf Ranch Subdivisions. All these facilities are public non-reimbursable drainage facilities.

Villages at Wolf Ranch Filing No. 5 (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
15' D-10-R Inlets	8	Ea.	$5,400.00	$ 43,200.00
18" RCP	121	L.F.	$29.00	$ 3,509.00
24" RCP	149	L.F.	$37.00	$ 5,513.00
30" RCP	31	L.F.	$44.00	$ 1,364.00
36" RCP	147	L.F.	$56.00	$ 8,232.00
42" RCP	93	L.F.	$75.00	$ 6,975.00
48" RCP	811	L.F.	$85.00	$ 68,935.00
			Sub-Total	$ 137,728.00
10% Engineering and Contingency				$ 13,772.80
			Grand Total	$ 151,500.80

Villages at Wolf Ranch Filing No. 6 (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
24" RCP	140	L.F.	$37.00	$ 5,180.00
			Sub-Total	$ 5,180.00
10% Engineering and Contingency				$ 518.00
			Grand Total	$ 5,698.00

Villages at Wolf Ranch Filing No. 7 (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
15' D-10-R Inlets	3	Ea.	$5,400.00	$ 16,200.00
18" RCP	292	L.F.	$29.00	$ 8,468.00
24" RCP	120	L.F.	$37.00	$ 4,440.00
36" RCP	76	L.F.	$56.00	$ 5,743.32
			Sub-Total	$ 34,851.32
10% Engineering and Contingency				$ 3,485.13
			Grand Total	$ 38,336.45

Villages at Wolf Ranch Filing No. 8 (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
15' D-10-R Inlets	10	Ea.	$5,400.00	$ 54,000.00
18" RCP	1,005	L.F.	$29.00	$ 29,145.00
24" RCP	50	L.F.	$37.00	$ 1,850.00
30" RCP	263	L.F.	$44.00	$ 1,572.00
36" RCP	445	L.F.	$56.00	$ 24,920.00
			Sub-Total	$ 111,487.00
10% Engineering and Contingency				$ 11,148.70
			Grand Total	$ 122,635.70

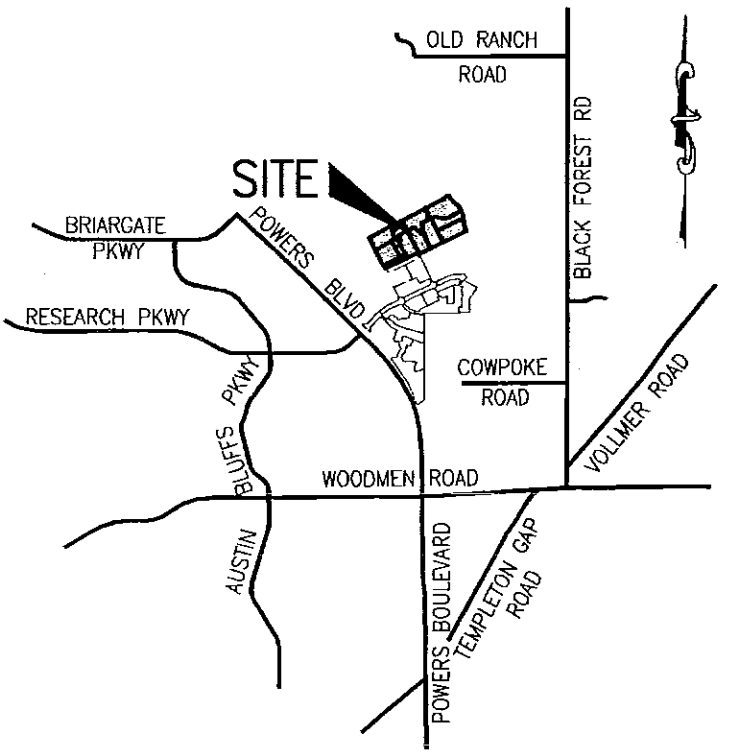
Villages at Wolf Ranch Filing No. 9 (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
15' D-10-R Inlets	5	Ea.	$5,400.00	$ 27,000.00
18" RCP	325	L.F.	$29.00	$ 9,425.00
24" RCP	75	L.F.	$37.00	$ 2,775.00
			Sub-Total	$ 39,200.00
10% Engineering and Contingency				$ 3,920.00
			Grand Total	$ 43,120.00

Future Villages Phase 2 at Wolf Ranch Filings (Public/Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
15' D-10-R Inlets	5	Ea.	$5,400.00	$ 27,000.00
18" RCP	325	L.F.	$29.00	$ 9,425.00
24" RCP	75	L.F.	$37.00	$ 2,775.00
			Sub-Total	$ 39,200.00
10% Engineering and Contingency				$ 3,920.00
			Grand Total	$ 43,120.00

APPENDIX



Vicinity Map

NOT TO SCALE

FIGURE 1

FILE: 05030DEV.DWG
DATE: 5/20/05

JOB NO. 05-030

ROCKWELL CONSULTING, Inc.
ENGINEERING • SURVEYING
1955 N. UNION BLVD., SUITE 200
COLORADO SPRINGS, CO 80909
(719) 475-2575 • FAX (719) 475-9223

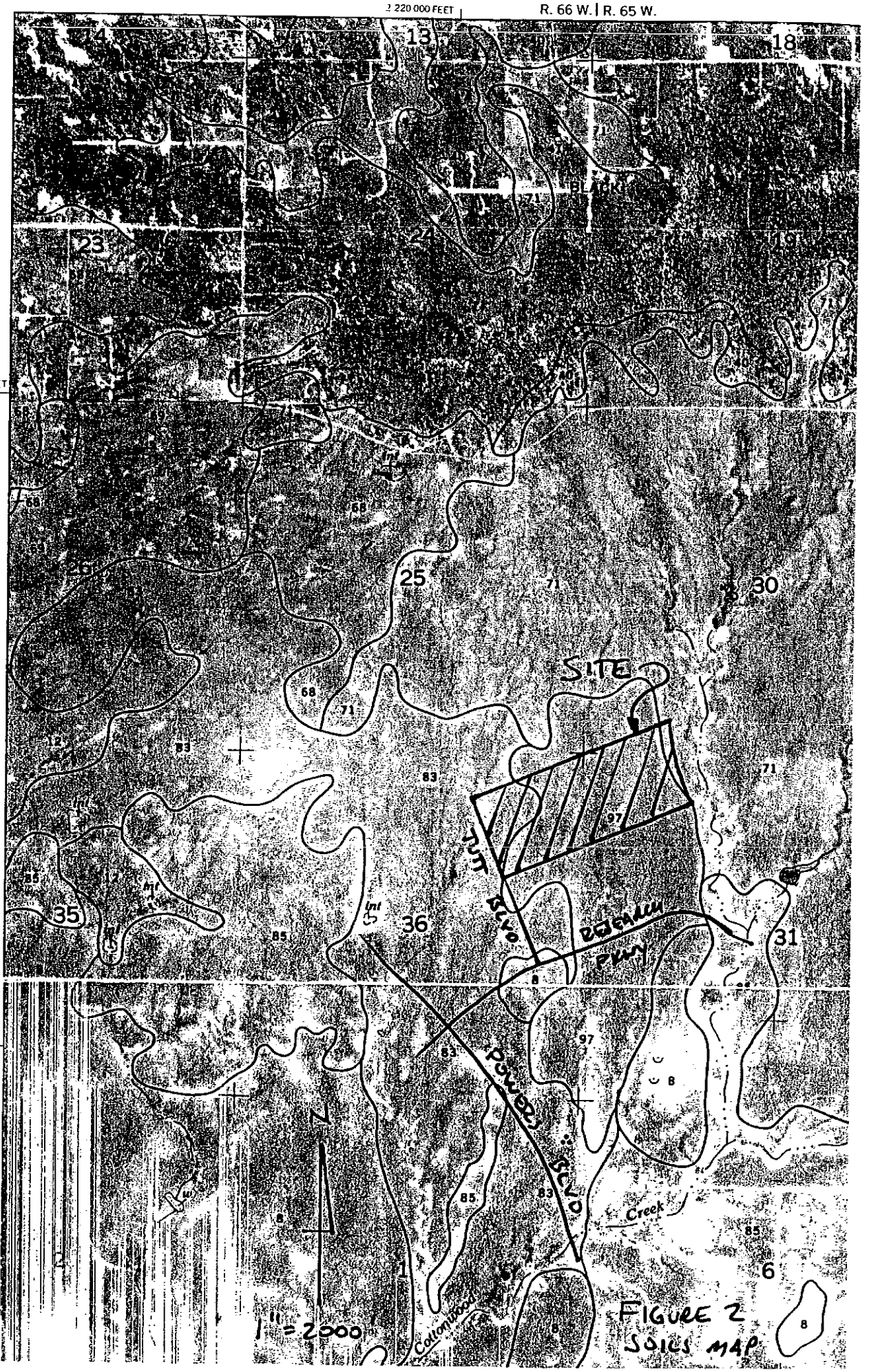


FIGURE 2
SOILS MAP

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: H-1
AREA: 473
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	473	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	473.00			100%

COMPOSITE: C5= 0.30 C100= 0.45

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	1000	6.0		26.19		21.28
Street	6800	4.5	4.2	26.98	4.4	25.76
Tc Total:				53.17		47.04

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
1.6 in/hr	3.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
227.0 cfs	659.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 1
AREA: 2.27
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.27	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.27			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	2.0		5.95		4.46
Street	750	1.5	2.6	4.81	2.8	4.46
Tc Total:				10.76		8.93

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.2 cfs	13.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 2
AREA: 1.00
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.00	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.00			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	4.0		5.80		4.35
Street	120	3.0	3.4	0.59	3.6	0.56
Tc Total:				6.39		4.90

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.1 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.6 cfs	7.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 3
AREA: 5.67
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	5.67	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	5.67			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	120	3.0		5.70		4.28
Street	800	2.0	2.8	4.76	3.0	4.44
Tc Total:				10.46		8.72

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
15.9 cfs	33.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 4
AREA: 1.31
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.31	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.31			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	60	2.0		4.61		3.46
Street	600	2.0	2.8	3.57	3.0	3.33
Tc Total:				8.18		6.79

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.9 cfs	8.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 5
AREA: 1.78
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.78	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.78			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	160	5.0		5.56		4.17
Street	300	3.0	3.4	1.47	3.6	1.39
Tc Total:				7.03		5.56

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.7 cfs	12.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 6
AREA: 2.18
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.18	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.18			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	8.0		4.61		3.46
Street	500	2.0	2.8	2.98	3.0	2.78
Tc Total:				7.59		6.24

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
7.0 cfs	14.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 7
AREA: 1.64
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.64	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.64			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	170	7.0		5.13		3.85
Street	250	3.0	3.4	1.23	3.6	1.16
Tc Total:				6.36		5.01

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.8 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.5 cfs	11.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 8
AREA: 1.13
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.13	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.13			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	720	2.0	2.8	4.29	3.0	4.00
Tc Total:				8.49		7.16

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.3 cfs	7.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 9
AREA: 1.14
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.14	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.14			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	5.0		4.40		3.30
Street	130	3.0	3.4	0.64	3.6	0.60
Tc Total:				5.04		3.90

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.1 cfs	8.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 10
AREA: 3.16
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	3.16	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.16			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	4.7		6.19		4.64
Street	660	2.0	2.8	3.93	3.0	3.67
Tc Total:				10.12		8.31

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
9.0 cfs	19.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 11
AREA: 0.60
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.60	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.60			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	340	2.0	2.8	2.02	3.0	1.89
Tc Total:				6.23		5.04

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.9 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.0 cfs	4.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 12
AREA: 0.37
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.37	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.37			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	6.0		4.14		3.11
Street	140	3.0	3.4	0.69	3.6	0.65
Tc Total:				4.83		3.75

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.3 cfs	2.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 13-A
AREA: 1.76
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.76	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.76			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	160	3.0		6.58		4.94
Street	300	3.0	3.4	1.47	3.6	1.39
Tc Total:				8.05		6.33

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.4 cfs	11.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 13-B
AREA: 2.11
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.11	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.11			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	2.8		7.14		5.36
Street	660	3.0	3.4	3.24	3.6	3.06
Tc Total:				10.38		8.41

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.9 cfs	12.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 14
AREA: 0.54
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.54	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.54			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	80	2.0		5.32		3.99
Street	300	3.3	3.7	1.35	3.9	1.28
Tc Total:				6.67		5.27

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.8 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.8 cfs	3.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 15
AREA: 1.17
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.17	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.17			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	8.0		4.61		3.46
Street	210	2.4	3.0	1.17	3.2	1.09
Tc Total:				5.78		4.55

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.1 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.1 cfs	8.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 16
AREA: 0.45
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.45	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.45			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	80	5.0		3.93		2.95
Street	100	3.0	3.4	0.49	3.6	0.46
Tc Total:				4.42		3.41

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.6 cfs	3.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 17
AREA: 0.97
SOIL TYPE: C & D
0.88

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.97	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.97			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	4.0		6.53		4.89
Street	140	2.0	2.8	0.83	3.0	0.78
Tc Total:				7.36		5.67

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.1 cfs	6.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 18
AREA: 0.42
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.42	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.42			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4.5		6.44		4.83
Tc Total:				6.44		4.83

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.8 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.4 cfs	3.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 19
AREA: 1.16
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.16	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.16			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4.0		6.69		5.02
Street	180	1.5	2.6	1.15	2.8	1.07
Tc Total:				7.85		6.09

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.7 cfs	7.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 20
AREA: 8.25
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	8.25	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	8.25			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3.0		5.21		3.90
Street	1340	3.0	3.4	3.40	3.6	3.60
Tc Total:				8.61		7.50

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
25.4 cfs	53.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 21
AREA: 1.29
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.29	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.29			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	540	2.6	3.2	2.81	3.4	2.65
Tc Total:				7.02		5.80

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.1 cfs	8.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 22
AREA: 0.93
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.93	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.93			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4.0		6.69		5.02
Street	220	2.0	2.8	1.31	3.0	1.22
Tc Total:				8.00		6.24

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.8 cfs	6.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 23
AREA: 1.98
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.98	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.98			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	4.0		7.02		5.27
Street	340	2.6	3.2	1.77	3.4	1.67
Tc Total:				8.79		6.93

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.1 cfs	12.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 24
AREA: 0.85
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.85	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.85			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	700	2.0	2.8	4.17	3	3.89
Tc Total:				8.37		7.04

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	7.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.6 cfs	5.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 25
AREA: 0.12
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.12	0.90	0.90	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.12			100%

COMPOSITE: C5= 0.90 C100= 0.90

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	120	1.5		3.58		3.58
Tc Total:				3.58		3.58

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
0.6 cfs	1.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 26
AREA: 1.51
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.51	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.51			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	3.3		6.77		5.08
Street	300	3.3	3.7	1.35	3.9	1.28
Tc Total:				8.12		6.36

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.7 cfs	10.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 27-A
AREA: 1.45
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.45	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.45			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	600	2.3	3.0	3.33	3.2	3.13
Tc Total:				7.54		6.28

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.6 cfs	9.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 27-B
AREA: 1.94
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.94	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.94			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	3.7		6.70		5.02
Street	380	2.0	2.8	2.26	3.0	2.11
Tc Total:				8.96		7.13

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.7 cfs	12.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 28-A
AREA: 1.54
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.54	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.54			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	620	2.3	3.0	3.44	3.2	3.23
Tc Total:				7.65		6.38

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.8 cfs	10.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 28-B
AREA: 1.70
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.70	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.70			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	4.2		6.42		4.82
Street	380	2.0	2.8	2.26	3.0	2.11
Tc Total:				8.68		6.93

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.2 cfs	10.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 29
AREA: 3.04
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	3.04	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.04			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	1300	2.3	3	7.22	3.2	6.77
Tc Total:				11.43		9.93

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
8.3 cfs	17.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 30-A
AREA: 1.10
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.10	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.10			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	300	3.33		8.71		6.53
Street	120	2.0	2.8	0.71	3.0	0.67
Tc Total:				9.43		7.20

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.2 cfs	6.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 30-B
AREA: 4.29
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	4.29	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	4.29			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	3.6		7.27		5.45
Street	680	2.0	2.8	4.05	3.0	3.78
Tc Total:				11.32		9.23

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
11.9 cfs	25.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 31
AREA: 2.95
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.95	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.95			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	5.5		6.32		4.74
Street	330	1.8	2.7	2.04	2.9	1.90
Tc Total:				8.36		6.64

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.3 in/hr	8.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
8.8 cfs	19.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 32
AREA: 0.63
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.63	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.63			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	60	2.0		4.61		3.46
Street	360	1.8	2.7	2.22	2.9	2.07
Tc Total:				6.83		5.53

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.0 cfs	4.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 33
AREA: 0.45
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.45	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.45			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	3.5		7.00		5.25
Tc Total:				7.00		5.25

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.4 cfs	3.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 34
AREA: 1.50
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.50	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.50			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	60	2.0		4.61		3.46
Street	600	2.3	3	3.33	3.2	3.13
Tc Total:				7.94		6.58

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.7 cfs	10.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 35
AREA: 1.32
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.32	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.32			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	2.5		7.82		5.86
Street	300	2.3	3.0	1.67	3.2	1.56
Tc Total:				9.48		7.43

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.8 cfs	8.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 36
AREA: 2.08
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.08	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.08			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	3.3		6.77		5.08
Street	360	2.0	2.8	2.14	3.0	2.00
Tc Total:				8.91		7.08

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.3 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.2 cfs	13.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 37
AREA: 1.21
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.21	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.21			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	580	2.6	3.2	3.02	3.4	2.84
Tc Total:				7.23		6.00

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.8 cfs	7.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 38
AREA: 1.63
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.63	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.63			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	4.0		7.02		5.27
Street	320	1.5	2.6	2.05	2.8	1.90
Tc Total:				9.07		7.17

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	8.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.7 cfs	10.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 39
AREA: 1.83
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.83	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.83			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	3.6		7.27		5.45
Street	340	1.8	2.7	2.10	2.9	1.95
Tc Total:				9.37		7.41

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.3 cfs	11.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 40
AREA: 1.31
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.31	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.31			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc in Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	600	2.2	3.0	3.33	3.2	3.13
Tc Total:				7.54		6.28

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.1 cfs	8.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 41
AREA: 1.34
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.67	0.70	0.80	50.00%
Stret	0.67	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.34			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	920	1.5	2.6	5.90	2.8	5.48
Tc Total:				9.16		7.92

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.4 cfs	8.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 42
AREA: 1.19
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.59	0.70	0.80	49.58%
Street	0.6	0.90	0.90	50.42%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.19			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	1000	1.8	2.7	6.17	2.9	5.75
Tc Total:				9.43		8.19

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.9 cfs	7.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 43
AREA: 1.70
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.85	0.70	0.80	50.00%
Street	0.85	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.70			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	1360	2.0	2.8	8.10	3.0	7.56
Tc Total:				11.35		10.00

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.3 cfs	10.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 44
AREA: 2.98
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.98	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.98			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	3.0		7.18		5.38
Street	660	2.0	2.8	3.93	3.0	3.67
Tc Total:				11.10		9.05

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
8.2 cfs	21.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 45
AREA: 1.61
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.61	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.61			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	730	2.2	3.0	4.06	3.2	3.80
Tc Total:				8.26		6.96

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.0 cfs	10.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 46
AREA: 2.22
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.22	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.22			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	3.6		6.76		5.07
Street	480	2.5	3.1	2.58	3.3	2.42
Tc Total:				9.34		7.49

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.5 cfs	13.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 47
AREA: 1.37
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.37	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.37			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	720	2.5	3.1	3.87	3.2	3.75
Tc Total:				8.08		6.91

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.2 cfs	8.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 48
AREA: 2.18
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.18	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.18			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	60	2.0		4.61		3.46
Street	720	2.4	3.0	4.00	3.2	3.75
Tc Total:				8.61		7.21

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.7 cfs	13.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 49-A
AREA: 0.32
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.16	0.70	0.80	50.00%
Street	0.16	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.32			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		8.96
Street	260	2.0	2.8	1.55	3.0	1.44
Tc Total:				4.81		10.41

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	6.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.3 cfs	1.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 49-B
AREA: 0.30
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.15	0.70	0.80	50.00%
Street	0.15	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.30			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	300	3.0	3.4	1.47	3.6	1.39
Tc Total:				4.73		3.83

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.2 cfs	2.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 50
AREA: 2.93
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.93	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.93			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	4.5		6.75		5.07
Street	400	2.5	3.1	2.15	3.3	2.02
Tc Total:				8.90		7.09

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
9.0 cfs	18.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 51
AREA: 1.90
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.90	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.90			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	740	2.5	3.1	3.98	3.3	3.74
Tc Total:				8.19		6.89

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.9 in/hr	8.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.5 cfs	12.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 52
AREA: 2.17
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.17	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.17			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	3.0		7.36		5.52
Street	200	2	2.8	1.19	3	1.11
Tc Total:				8.55		6.63

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.3 in/hr	8.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
6.5 cfs	14.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 53-A
AREA: 0.95
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.95	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.95			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2		4.21		3.16
Street	400	2.5	3.2	2.08	3.4	1.96
Tc Total:				6.29		5.12

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.8 in/hr	8.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.2 cfs	6.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 53-X
AREA: 0.35
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.35	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.35			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2		4.21		3.16
Street	100	2.5	3.2	0.52	3.4	0.49
Tc Total:				4.73		3.65

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.3 cfs	2.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 53-B
AREA: 0.95
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.95	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.95			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	150	3	3.4	0.74	3.6	0.69
Tc Total:				4.94		3.85

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.5 cfs	6.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 54
AREA: 1.78
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.78	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.78			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	80	2.0		5.32		3.99
Street	860	2.8	3.2	4.48	3.4	4.22
Tc Total:				9.80		8.21

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	7.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.0 cfs	10.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 55
AREA: 1.64
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.64	0.70	0.80	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.64			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	190	3.7		6.70		5.02
Street	300	2.3	3	1.67	3.2	1.56
Tc Total:				8.36		6.58

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.0 cfs	11.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 56
AREA: 7.32
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
School	5.49	0.70	0.80	75.00%
Playground	1.83	0.30	0.45	25.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	7.32			100%

COMPOSITE: C5= 0.60 C100= 0.71

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	300	4.0		16.40		13.32
Street	620	2.0	2.8	3.69	3.0	3.44
Tc Total:				20.09		16.77

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.0 in/hr	5.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
13.0 cfs	29.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 57
AREA: 3.56
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	3.56	0.70	0.80	100.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.56			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4.5		6.44		4.83
Street	670	2.0	2.8	3.99	3.0	3.72
Tc Total:				10.43		8.55

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
10.0 cfs	20.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 58
AREA: 5.34
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.45	0.90	0.90	8.43%
Park	4.89	0.30	0.45	91.57%
	0	0.00	0,00	0.00%
	0	0.00	0.00	0.00%
	5.34			100%

COMPOSITE: C5= 0.35 C100= 0.49

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	300	4.0		16.40		13.32
Street	620	2.0	2.8	3.69	3.0	3.44
Tc Total:				20.09		16.77

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	3.0 in/hr	5.7 in/hr

PEAK FLOW: Q-CIA in cfs

	Q5	**Q100**
	5.5 cfs	14.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 59
AREA: 0.98
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.48	0.70	0.80	48.98%
Street	0.5	0.90	0.90	51.02%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.98			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	700	3.9	4	2.92	4.2	2.78
Tc Total:				6.18		5.22

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	4.9 in/hr	9.0 in/hr

PEAK FLOW: Q-CIA in cfs

	Q5	**Q100**
	3.9 cfs	7.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 60
AREA: 0.76
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.38	0.70	0.80	50.00%
Street	0.38	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.76			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		3.26		2.44
Street	820	1.5	2.6	5.26	2.8	4.88
Tc Total:				8.52		7.33

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.4 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.7 cfs	5.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 61
AREA: 0.80
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.38	0.70	0.80	47.50%
Street	0.42	0.90	0.90	52.50%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.80			100%

COMPOSITE: C5= 0.81 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	740	2.0	2.8	4.40	3	4.11
Tc Total:				8.61		7.27

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	7.6 in/hr	8.1 in/hr

PEAK FLOW: Q-CIA in cfs

	Q5	**Q100**
	4.9 cfs	5.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: 62
AREA: 1.62
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.81	0.70	0.80	50.00%
Street	0.81	0.90	0.90	50.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.62			100%

COMPOSITE: C5= 0.80 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	720	2.0	2.8	4.29	3	4.00
Tc Total:				8.49		7.16

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	4.4 in/hr	7.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.6 cfs	10.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: DP#1
AREA: 28.93
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	28.93	0.70	0.80	100.00%
	0	0.90	0.90	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	28.93			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	2.0		5.95		4.46
Street	750	1.5	2.6	4.81	2.8	4.46
Pipe Flow	1120	1.5	16	1.17	18	1.04
Tc Total:				11.92		9.96

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	3.8 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
77.0 cfs	162.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: DP#2
AREA: 29.97
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	29.97	0.70	0.80	100.00%
	0	0.90	0.90	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	29.97			100%

COMPOSITE: C5= 0.70 C100= 0.80

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	1300	2.3	3	7.22	3.2	6.77
Pipe Flow	700	1.5	14	0.83	16	0.73
Tc Total:				12.26		10.66

Intensity, I (inches/hr) from Fig 5-1

	I5	**I100**
	3.7 in/hr	7.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
77.6 cfs	184.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: DP#3
AREA: 63.95
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basins 50-55, 57, 60-62I	20.34	0.70	0.80	31.81%
Basin 56	7.32	0.60	0.71	11.45%
Basin 58	5.34	0.35	0.49	8.35%
Basin 59	0.98	0.80	0.85	1.53%
DP#2	29.97	0.70	0.80	46.86%
	63.95			100%

COMPOSITE: C5= 0.66 C100= 0.72

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	2.0		4.21		3.16
Street	2700	2.3	3	15.00	3.2	14.06
Pipe Flow	700	1.5	14	0.83	16	0.73
Tc Total:				20.04		17.95

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
2.9 in/hr	5.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
122.6 cfs	245.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: VILLAGES AT WOLF RANCH PHASE 2

BASIN: DP#4
AREA: 15.21
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basins 41-49B	11.70	0.70	0.80	76.92%
Basin 42	1.19	0.80	0.85	7.82%
Basin 43	1.7	0.80	0.85	11.18%
Basin 49A	0.32	0.80	0.85	2.10%
Basin 49B	0.3	0.70	0.80	1.97%
	15.21			100%

COMPOSITE: C5= 0.72 C100= 0.72

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2.0		2.44		2.04
Street	2760	1.5	2.6	17.69	2.8	16.43
Tc Total:				20.14		18.47

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.0 in/hr	5.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
32.9 cfs	57.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: OS-1
AREA: 3.57
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.75	0.90	0.90	21.01%
Single Family	2.82	0.60	0.70	78.99%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.57			100%

COMPOSITE: C5= 0.66 C100= 0.74

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	4		4.18		3.35
Street	1200	2.5	3	6.67	3.2	6.25
Tc Total:				10.85		9.60

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
9.5 cfs	18.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: OS-2
AREA: 1.47
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.75	0.90	0.90	51.02%
Landscaping	0.72	0.25	0.35	48.98%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.47			100%

COMPOSITE: C5= 0.58 C100= 0.63

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	4		3.74		2.99
Street	1200	2.5	3	6.67	3.2	6.25
Tc Total:				10.41		9.24

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.4 cfs	6.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: OS-3
AREA: 1.82
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.5	0.90	0.90	27.47%
Single Family	1.32	0.60	0.70	72.53%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.82			100%

COMPOSITE: C5= 0.68 C100= 0.75

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	4		3.74		2.99
Street	660	2.5	3.3	3.33	3.5	3.14
Tc Total:				7.08		6.14

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.1 in/hr	8.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.1 cfs	11.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: OS-4
AREA: 2.35
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.83	0.90	0.90	35.32%
Single Family	1.52	0.60	0.70	64.68%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.35			100%

COMPOSITE: C5= 0.71 C100= 0.77

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	4		3.74		2.99
Street	1200	2.5	3	6.67	3.2	6.25
Tc Total:				10.41		9.24

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
7.6 cfs	15.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-1
AREA: 3.33
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	3.33	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.33			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	4		4.49		3.74
Street	500	3.2	3.6	2.31	3.8	2.19
Tc Total:				6.81		5.94

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.7 in/hr	8.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
7.8 cfs	17.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-2
AREA: 1.68
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.68	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.68			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	5		9.33		7.77
Street	200	3	3.5	0.95	3.7	0.90
Tc Total:				10.28		8.68

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.4 cfs	7.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-3
AREA: 0.58
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	0.58	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.58			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	4		8.70		7.25
Tc Total:				8.70		7.25

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.3 in/hr	8.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.2 cfs	2.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-4
AREA: 0.62
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	0.62	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.62			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2		4.89		4.07
Street	500	3.2	3.6	2.31	3.8	2.19
Tc Total:				7.20		6.27

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.6 in/hr	8.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.4 cfs	3.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-5
AREA: 2.41
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	2.41	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.41			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	6		6.21		5.18
Street	400	4	4	1.67	4.2	1.59
Tc Total:				7.88		6.76

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
5.4 cfs	12.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-6
AREA: 0.99
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	0.99	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.99			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	250	3.2		12.09		10.07
Tc Total:				12.09		10.07

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.8 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.9 cfs	4.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-7
AREA: 1.09
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.09	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.09			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4		10.04		8.37
Tc Total:				10.04		8.37

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.2 cfs	4.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-8
AREA: 1.20
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.20	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.20			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	30	2		4.89		4.07
Street	500	2.4	3.1	2.69	3.3	2.53
Tc Total:				7.58		6.60

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.5 in/hr	8.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.7 cfs	6.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-9
AREA: 1.21
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.21	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.21			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	3		11.04		9.20
Street	150	2.7	3.2	0.78	3.4	0.74
Tc Total:				11.82		9.94

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.8 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.3 cfs	5.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-10
AREA: 1.64
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.64	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.64			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	3.33		10.12		8.43
Street	300	3.3	3.7	1.35	3.8	1.32
Tc Total:				11.47		9.75

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.2 cfs	7.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-13
AREA: 1.66
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.66	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.66			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	4		10.04		8.37
Street	250	2.4	3.1	1.34	3.3	1.26
Tc Total:				11.39		9.63

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.2 cfs	7.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-14
AREA: 1.27
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.27	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.27			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	2		8.93		7.44
Street	350	2.9	3.3	1.77	3.5	1.67
Tc Total:				10.69		9.10

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.5 cfs	5.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-15
AREA: 1.30
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.30	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.30			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	220	3.6		10.90		9.09
Street	150	2	2.8	0.89	3	0.83
Tc Total:				11.80		9.92

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.8 in/hr	7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
2.5 cfs	5.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-16
AREA: 1.56
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	1.56	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.56			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	6		8.78		7.32
Street	300	2	2.8	1.79	3.0	1.67
Tc Total:				10.57		8.99

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.0 in/hr	7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
3.1 cfs	6.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-17
AREA: 0.89
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Acre Residential	0.89	0.50	0.60	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.89			100%

COMPOSITE: C5= 0.50 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		7.81		6.51
Street	250	2.4	3.1	1.34	3.3	1.26
Tc Total:				9.15		7.77

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
4.2 in/hr	7.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
1.9 cfs	4.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: By the Creek at Wolf Ranch

BASIN: BC-18
AREA: 2.09
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.76	0.90	0.95	36.36%
Landscaping	1.33	0.25	0.30	63.64%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.09			100%

COMPOSITE: C5= 0.49 C100= 0.54

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	4		7.26		6.67
Street	700	4	3.1	3.76	4.2	2.78
Tc Total:				11.03		9.45

Intensity, I (inches/hr) from Fig 5-1

I5	**I100**
3.9 in/hr	7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	**Q100**
4.0 cfs	8.1 cfs

Villages at Wolf Ranch Phase 2

INLET 2

Q5 =	9.8	Q100 =	20.6
SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	13.81	T	18.24
FW	2.23	FW	2.36
L1	23.7	L1	33.1
L2	14.3	L2	19.9
L3	50.9	L3	70.9

Li =	15.00		
5 YR Q =	9.8	100 YR Q	20.6
5 YR Qi =	6.0	100 YR Qi	9.3
5 YR Qfb =	3.8	100 YR Qfb	11.3

Villages at Wolf Ranch Phase 2

INLET 3

	Q5 =	15.9	Q100 =	21.3
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	17.86		T	19.93
FW	1.92		FW	1.95
L1	26.3		L1	30.0
L2	15.8		L2	18.0
L3	56.5		L3	64.3

	Li =	15.00		
	5 YR Q =	15.9	100 YR Q	21.3
	5 YR Qi =	9.1	100 YR Qi	10.6
	5 YR Qfb =	6.8	100 YR Qfb	10.7

Villages at Wolf Ranch Phase 2

INLET 4

	Q5 =	14.5	Q100 =	21.7
	SL =	0.03	SO =	0.02

5 YEAR			100 YEAR	
T	15.99		T	18.60
FW	2.30		FW	2.36
L1	28.3		L1	33.9
L2	17.0		L2	20.3
L3	60.6		L3	72.6
	Li =	15.00		
	5 YR Q =	14.5	100 YR Q	21.7
	5 YR Qi =	7.7	100 YR Qi	9.6
	5 YR Qfb =	6.8	100 YR Qfb	12.1

Villages at Wolf Ranch Phase 2

INLET 5

	Q5 =	12.5	Q100 =	24.6
	SL =	0.03	SO =	0.02

5 YEAR			100 YEAR	
T	15.13		T	19.50
FW	2.27		FW	2.38
L1	26.5		L1	35.8
L2	15.9		L2	21.5
L3	56.7		L3	76.7
	Li =	15.00		
	5 YR Q =	12.5	100 YR Q	24.6
	5 YR Qi =	7.1	100 YR Qi	10.3
	5 YR Qfb =	5.4	100 YR Qfb	14.3

Villages at Wolf Ranch Phase 2

INLET 6

	Q5 =	7.0	Q100 =	14.8
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	13.13	T	17.39
FW	1.81	FW	1.91
L1	18.3	L1	25.5
L2	11.0	L2	15.3
L3	39.1	L3	54.7

	Li =	15.00		
	5 YR Q =	7	100 YR Q	14.8
	5 YR Qi =	4.8	100 YR Qi	8.7
	5 YR Qfb =	2.2	100 YR Qfb	6.1

Villages at Wolf Ranch Phase 2

INLET 7

	Q5 =	7.7	Q100 =	17.9
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	13.61		T	18.67
FW	1.82		FW	1.93
L1	19.1		L1	27.8
L2	11.4		L2	16.7
L3	40.8		L3	59.5
	Li =	15.00		
	5 YR Q =	7.7	100 YR Q	17.9
	5 YR Qi =	5.2	100 YR Qi	9.7
	5 YR Qfb =	2.5	100 YR Qfb	8.2

Villages at Wolf Ranch Phase 2

INLET 8

	Q5 =	11.3	Q100 =	22.5
	SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	14.57	T	18.86
FW	2.26	FW	2.37
L1	25.3	L1	34.4
L2	15.2	L2	20.7
L3	54.2	L3	73.7

	Li =	15.00		
	5 YR Q =	11.3	100 YR Q	22.5
	5 YR Qi =	6.7	100 YR Qi	9.8
	5 YR Qfb =	4.6	100 YR Qfb	12.7

Villages at Wolf Ranch Phase 2

INLET 9

Q5 =	8.7	Q100 =	20.6
SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	13.20	T	18.24
FW	2.21	FW	2.36
L1	22.5	L1	33.1
L2	13.5	L2	19.9
L3	48.2	L3	70.9

Li =	15.00		
5 YR Q =	8.7	100 YR Q	20.6
5 YR Qi =	5.5	100 YR Qi	9.3
5 YR Qfb =	3.2	100 YR Qfb	11.3

Villages at Wolf Ranch Phase 2

INLET 10

	Q5 =	9.0	Q100 =	19.2
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	14.43	T	19.17
FW	1.84	FW	1.94
L1	20.4	L1	28.7
L2	12.3	L2	17.2
L3	43.8	L3	61.4

	Li =	15.00		
	5 YR Q =	9	100 YR Q	19.2
	5 YR Qi =	5.9	100 YR Qi	10.1
	5 YR Qfb =	3.1	100 YR Qfb	9.1

Villages at Wolf Ranch Phase 2

INLET 11

Q5 =	8.3	Q100 =	24.7	
SL =	0.02	SO =	0.02	

5 YEAR		100 YEAR	
T	14.00	T	21.07
FW	1.83	FW	1.98
L1	19.7	L1	32.0
L2	11.8	L2	19.2
L3	42.2	L3	68.7

Li =	15.00		
5 YR Q =	8.3	100 YR Q	24.7
5 YR Qi =	5.5	100 YR Qi	11.6
5 YR Qfb =	2.8	100 YR Qfb	13.1

Villages at Wolf Ranch Phase 2

Sump Inlet 12 & 23

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		12.0	16.5	s(x)=	0.02
	d =	0.50	0.56	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		15.9	32.3		
				L=	15
	d(max)=	0.39	0.72		

Villages at Wolf Ranch Phase 2

INLET 13

Q5 =	9.5		Q100 =	20.6
SL =	0.03		SO =	0.02

5 YEAR		100 YEAR	
T	13.65	T	18.24
FW	2.23	FW	2.36
L1	23.4	L1	33.1
L2	14.1	L2	19.9
L3	50.2	L3	70.9

Li =	15.00		
5 YR Q =	9.5	100 YR Q	20.6
5 YR Qi =	5.9	100 YR Qi	9.3
5 YR Qfb =	3.6	100 YR Qfb	11.3

Villages at Wolf Ranch Phase 2

INLET 15

	Q5 =	11.3	Q100 =	27.5
	SL =	0.03	SO =	0.02

5 YEAR			100 YEAR	
T	14.57		T	20.33
FW	2.26		FW	2.40
L1	25.3		L1	37.6
L2	15.2		L2	22.6
L3	54.2		L3	80.6

	Li =	15.00		
	5 YR Q =	11.3	100 YR Q	27.5
	5 YR Qi =	6.7	100 YR Qi	11.0
	5 YR Qfb =	4.6	100 YR Qfb	16.5

Villages at Wolf Ranch Phase 2

INLET 17

Q5 =	9.3	Q100 =	26.6	
SL =	0.03	SO =	0.02	

5 YEAR		100 YEAR	
T	13.54	T	20.08
FW	2.22	FW	2.40
L1	23.2	L1	37.1
L2	13.9	L2	22.3
L3	49.7	L3	79.4

Li =	15.00		
5 YR Q =	9.3	100 YR Q	26.6
5 YR Qi =	5.8	100 YR Qi	10.8
5 YR Qfb =	3.5	100 YR Qfb	15.8

Villages at Wolf Ranch Phase 2

INLET 18

Q5 =	5.2	Q100 =	19.5
SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	10.89	T	17.87
FW	2.13	FW	2.35
L1	17.9	L1	32.3
L2	10.7	L2	19.4
L3	38.3	L3	69.2

Li =	15.00		
5 YR Q =	5.2	100 YR Q	19.5
5 YR Qi =	3.6	100 YR Qi	9.1
5 YR Qfb =	1.6	100 YR Qfb	10.4

Villages at Wolf Ranch Phase 2

INLET 20

Q5 =	12.7		Q100 =	26.8
SL =	0.03		SO =	0.02

5 YEAR		100 YEAR	
T	15.22	T	20.14
FW	2.28	FW	2.40
L1	26.7	L1	37.2
L2	16.0	L2	22.3
L3	57.1	L3	79.7

Li =	15.00		
5 YR Q =	12.7	100 YR Q	26.8
5 YR Qi =	7.1	100 YR Qi	10.8
5 YR Qfb =	5.6	100 YR Qfb	16.0

Villages at Wolf Ranch Phase 2

INLET 20-2

	Q5 =	18.3	Q100 =	42.8
	SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	17.45	T	24.00
FW	2.34	FW	2.48
L1	31.4	L1	45.8
L2	18.8	L2	27.5
L3	67.3	L3	98.1

	Li =	15.00		
	5 YR Q =	18.3	100 YR Q	42.8
	5 YR Qi =	8.7	100 YR Qi	14.0
	5 YR Qfb =	9.6	100 YR Qfb	28.8

Villages at Wolf Ranch Phase 2

Sump Inlet 24 & 25

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		2.6	16.5	s(x)=	0.02
	d =	0.28	0.56	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		3.2	17.5		
				L=	6
	d(max)=	0.07	0.67		

Villages at Wolf Ranch Phase 2

Sump Inlet 26

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		4.7	17.7	s(x)=	0.02
	d =	0.35	0.57	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		4.7	17.7		
				L=	6
	d(max)=	0.16	0.68		

Villages at Wolf Ranch Phase 2

INLET 27B

	Q5 =	10.3	Q100 =	11.0
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	15.18	T	15.56
FW	1.86	FW	1.87
L1	21.7	L1	22.4
L2	13.0	L2	13.4
L3	46.5	L3	47.9

	Li =	15.00		
	5 YR Q =	10.3	100 YR Q	11
	5 YR Qi =	6.6	100 YR Qi	6.9
	5 YR Qfb =	3.7	100 YR Qfb	4.1

Villages at Wolf Ranch Phase 2

INLET 28B

	Q5 =	8.9	Q100 =	17.0
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	14.37		T	18.32
FW	1.84		FW	1.92
L1	20.3		L1	27.1
L2	12.2		L2	16.3
L3	43.6		L3	58.2
	Li =	15.00		
	5 YR Q =	8.9	100 YR Q	17
	5 YR Qi =	5.8	100 YR Qi	9.4
	5 YR Qfb =	3.1	100 YR Qfb	7.6

Villages at Wolf Ranch Phase 2

INLET 29

	Q5 =	16.2	Q100 =	22.0
	SL =	0.025	SO =	0.02

5 YEAR		100 YEAR	
T	17.25	T	19.35
FW	2.13	FW	2.17
L1	28.3	L1	32.4
L2	17.0	L2	19.4
L3	60.6	L3	69.4

	Li =	15.00		
	5 YR Q =	16.2	100 YR Q	22
	5 YR Qi =	8.6	100 YR Qi	10.2
	5 YR Qfb =	7.6	100 YR Qfb	11.8

Villages at Wolf Ranch Phase 2

INLET 30-B

	Q5 =	15.1	Q100 =	16.7
	SL =	0.018	SO =	0.02

5 YEAR			100 YEAR	
T	17.87		T	18.56
FW	1.82		FW	1.83
L1	25.0		L1	26.2
L2	15.0		L2	15.7
L3	53.6		L3	56.0
	Li =	15.00		
	5 YR Q =	15.1	100 YR Q	16.7
	5 YR Qi =	9.1	100 YR Qi	9.6
	5 YR Qfb =	6.0	100 YR Qfb	7.1

Villages at Wolf Ranch Phase 2

INLET 31

	Q5 =	14.8	Q100 =	23.7
	SL =	0.015	SO =	0.02

5 YEAR			100 YEAR	
T	18.35		T	21.90
FW	1.67		FW	1.72
LI	23.6		L1	29.0
L2	14.1		L2	17.4
L3	50.5		L3	62.2
	Li =	15.00		
	5 YR Q =	14.8	100 YR Q	23.7
	5 YR Qi =	9.1	100 YR Qi	12.2
	5 YR Qfb =	5.7	100 YR Qfb	11.5

Villages at Wolf Ranch Phase 2

INLET 32

	Q5 =	2.0	Q100 =	23.7
	SL =	0.015	SO =	0.02

5 YEAR			100 YEAR	
T	8.66		T	21.90
FW	1.44		FW	1.72
L1	9.6		L1	29.0
L2	5.8		L2	17.4
L3	20.5		L3	62.2
	Li =	15.00		
	5 YR Q =	2	100 YR Q	23.7
	5 YR Qi =	1.8	100 YR Qi	12.2
	5 YR Qfb =	0.2	100 YR Qfb	11.5

Villages at Wolf Ranch Phase 2

INLET 33

	Q5 =	14.9	Q100 =	19.0
	SL =	0.015	SO =	0.02

5 YEAR		100 YEAR	
T	18.40	T	20.16
FW	1.67	FW	1.70
L1	23.6	L1	26.3
L2	14.2	L2	15.8
L3	50.6	L3	56.4

	Li =	15.00		
	5 YR Q =	14.9	100 YR Q	19
	5 YR Qi =	9.2	100 YR Qi	10.8
	5 YR Qfb =	5.7	100 YR Qfb	8.2

Villages at Wolf Ranch Phase 2

INLET 36

	Q5 =	14.7	Q100 =	28.2
	SL =	0.015	SO =	0.02

5 YEAR		100 YEAR	
T	18.31	T	23.37
FW	1.67	FW	1.74
L1	23.5	L1	31.4
L2	14.1	L2	18.8
L3	50.3	L3	67.2

	Li =	15.00		
	5 YR Q =	14.7	100 YR Q	28.2
	5 YR Qi =	9.1	100 YR Qi	13.5
	5 YR Qfb =	5.6	100 YR Qfb	14.7

Villages at Wolf Ranch Phase 2

INLET 39

	Q5 =	13.8	Q100 =	17.5
	SL =	0.015	SO =	0.02

5 YEAR		100 YEAR	
T	17.88	T	19.54
FW	1.66	FW	1.69
L1	22.8	L1	25.4
L2	13.7	L2	15.2
L3	48.9	L3	54.4

	Li =	15.00		
	5 YR Q =	13.8	100 YR Q	17.5
	5 YR Qi =	8.6	100 YR Qi	10.3
	5 YR Qfb =	5.2	100 YR Qfb	7.2

Villages at Wolf Ranch Phase 2

INLET 40

	Q5 =	15.4	Q100 =	27.8
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	17.65		T	22.03
FW	1.91		FW	1.99
L1	26.0		L1	33.8
L2	15.6		L2	20.3
L3	55.7		L3	72.4
	Li =	15.00		
	5 YR Q =	15.4	100 YR Q	27.8
	5 YR Qi =	8.9	100 YR Qi	12.3
	5 YR Qfb =	6.5	100 YR Qfb	15.5

Villages at Wolf Ranch Phase 2

INLET 43

	Q5 =	13.6	Q100 =	26.3
	SL =	0.022	SO =	0.02

5 YEAR		100 YEAR	
T	16.55	T	21.19
FW	1.98	FW	2.07
L1	25.2	L1	33.8
L2	15.2	L2	20.3
L3	54.1	L3	72.5

	Li =	15.00		
	5 YR Q =	13.6	100 YR Q	26.3
	5 YR Qi =	8.1	100 YR Qi	11.7
	5 YR Qfb =	5.5	100 YR Qfb	14.6

Villages at Wolf Ranch Phase 2

INLET 44

	Q5 =	13.2	Q100 =	15.9
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	16.66	T	17.86
FW	1.89	FW	1.92
L1	24.2	L1	26.3
L2	14.6	L2	15.8
L3	52.0	L3	56.5

	Li =	15.00		
	5 YR Q =	13.2	100 YR Q	15.9
	5 YR Qi =	8.0	100 YR Qi	9.1
	5 YR Qfb =	5.2	100 YR Qfb	6.8

Villages at Wolf Ranch Phase 2

Sump Inlet 46 & 47

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		11.7	25.2	s(x)=	0.02
	d =	0.49	0.65	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		21.4	48.4		
				L=	15
	d(max)=	0.51	0.97		

Villages at Wolf Ranch Phase 2

Sump Inlet 48

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		5.7	21	s(x)=	0.02
	d =	0.37	0.61	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		6.7	25.2		
				L=	10
	d(max)=	0.19	0.73		

Villages at Wolf Ranch Phase 2

Sump Inlet 49

		5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		1.3	2.3	s(x)=	0.02
	d =	0.22	0.27	s(l)=	0.002
				n=	0.016
TOTAL FLOWS		2.5	4.2		
				L=	5
	d(max)=	0.04	0.16		

Villages at Wolf Ranch Phase 2

INLET 50

	Q5 =	9.0	Q100 =	19.9
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	14.43		T	19.43
FW	1.84		FW	1.95
L1	20.4		L1	29.1
L2	12.3		L2	17.5
L3	43.8		L3	62.4
	Li =	15.00		
	5 YR Q =	9	100 YR Q	19.9
	5 YR Qi =	5.9	100 YR Qi	10.3
	5 YR Qfb =	3.1	100 YR Qfb	9.6

Villages at Wolf Ranch Phase 2

INLET 52

	Q5 =	6.5	Q100 =	14.2
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	12.77	T	17.12
FW	1.80	FW	1.90
L1	17.7	L1	25.1
L2	10.6	L2	15.0
L3	37.8	L3	53.7

	Li =	15.00		
	5 YR Q =	6.5	100 YR Q	14.2
	5 YR Qi =	4.5	100 YR Qi	8.5
	5 YR Qfb =	2.0	100 YR Qfb	5.7

Villages at Wolf Ranch Phase 2

INLET 53-A

	Q5 =	12.8	Q100 =	28.9
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	16.47	T	22.35
FW	1.89	FW	2.00
L1	23.9	L1	34.4
L2	14.4	L2	20.6
L3	51.3	L3	73.6

	Li =	15.00		
	5 YR Q =	12.8	100 YR Q	28.9
	5 YR Qi =	7.8	100 YR Qi	12.6
	5 YR Qfb =	5.0	100 YR Qfb	16.3

Villages at Wolf Ranch Phase 2

INLET 53-X

Q5 =	8.3	Q100 =	24.5
SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	12.97	T	19.47
FW	2.21	FW	2.38
L1	22.0	L1	35.7
L2	13.2	L2	21.5
L3	47.2	L3	76.6

Li =	15.00		
5 YR Q =	8.3	100 YR Q	24.5
5 YR Qi =	5.2	100 YR Qi	10.3
5 YR Qfb =	3.1	100 YR Qfb	14.2

Villages at Wolf Ranch Phase 2

INLET 54-N

Q5 =	5.0	Q100 =	33.3
SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	10.73	T	21.84
FW	2.12	FW	2.44
L1	17.5	L1	41.0
L2	10.5	L2	24.6
L3	37.6	L3	87.8

Li = 15.00

5 YR Q =	5	100 YR Q	33.3
5 YR Qi =	3.5	100 YR Qi	12.2
5 YR Qfb =	1.5	100 YR Qfb	21.1

Villages at Wolf Ranch Phase 2

INLET 54-S

	Q5 =	1.5	Q100 =	21.1
	SL =	0.03	SO =	0.02

5 YEAR		100 YEAR	
T	6.83	T	18.41
FW	1.92	FW	2.36
L1	10.1	L1	33.4
L2	6.1	L2	20.1
L3	21.7	L3	71.7

	Li =	15.00		
	5 YR Q =	1.5	100 YR Q	21.1
	5 YR Qi =	1.3	100 YR Qi	9.5
	5 YR Qfb =	0.2	100 YR Qfb	11.6

Villages at Wolf Ranch Phase 2

INLET 53-B

	Q5 =	6.6	Q100 =	25.0
	SL =	0.02	SO =	0.02

5 YEAR			100 YEAR	
T	12.85		T	21.17
FW	1.80		FW	1.98
L1	17.8		L1	32.2
L2	10.7		L2	19.3
L3	38.1		L3	69.0
	Li =	15.00		
	5 YR Q =	6.6	100 YR Q	25
	5 YR Qi =	4.5	100 YR Qi	11.6
	5 YR Qfb =	2.1	100 YR Qfb	13.4

Villages at Wolf Ranch Phase 2

INLET 55-NE

	Q5 =	11.7	Q100 =	25.3
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	15.92	T	21.26
FW	1.87	FW	1.98
L1	23.0	L1	32.4
L2	13.8	L2	19.5
L3	49.2	L3	69.4

	Li =	15.00		
	5 YR Q =	11.7	100 YR Q	25.3
	5 YR Qi =	7.3	100 YR Qi	11.7
	5 YR Qfb =	4.4	100 YR Qfb	13.6

Villages at Wolf Ranch Phase 2

INLET 61se

	Q5 =	1.0	Q100 =	25.3
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	6.33	T	21.26
FW	1.54	FW	1.98
L1	7.5	L1	32.4
L2	4.5	L2	19.5
L3	16.1	L3	69.4

	Li =	15.00		
	5 YR Q =	1	100 YR Q	25.3
	5 YR Qi =	1.0	100 YR Qi	11.7
	5 YR Qfb =	0.0	100 YR Qfb	13.6

Villages at Wolf Ranch Phase 2

INLET 55

	Q5 =	9.4	Q100 =	21.8
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	14.67	T	20.11
FW	1.84	FW	1.96
L1	20.8	L1	30.3
L2	12.5	L2	18.2
L3	44.6	L3	65.0

	Li =	15.00		
	5 YR Q =	9.4	100 YR Q	21.8
	5 YR Qi =	6.1	100 YR Qi	10.8
	5 YR Qfb =	3.3	100 YR Qfb	11.0

Villages at Wolf Ranch Phase 2

INLET 61

	Q5 =	4.9	Q100 =	21.8
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	11.49	T	20.11
FW	1.76	FW	1.96
L1	15.6	L1	30.3
L2	9.3	L2	18.2
L3	33.3	L3	65.0

	Li =	15.00		
	5 YR Q =	4.9	100 YR Q	21.8
	5 YR Qi =	3.6	100 YR Qi	10.8
	5 YR Qfb =	1.3	100 YR Qfb	11.0

Villages at Wolf Ranch Phase 2

INLET 57-E

	Q5 =	5.5	Q100 =	18.8
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	12.00	T	19.02
FW	1.77	FW	1.94
L1	16.4	L1	28.4
L2	9.8	L2	17.0
L3	35.1	L3	60.8

	Li =	15.00		
	5 YR Q =	5.5	100 YR Q	18.8
	5 YR Qi =	3.9	100 YR Qi	9.9
	5 YR Qfb =	1.6	100 YR Qfb	8.9

Villages at Wolf Ranch Phase 2

INLET 62-E

Q5 =	1.0	Q100 =	18.8
SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	6.33	T	19.02
FW	1.54	FW	1.94
L1	7.5	L1	28.4
L2	4.5	L2	17.0
L3	16.1	L3	60.8

Li =	15.00		
5 YR Q =	1	100 YR Q	18.8
5 YR Qi =	1.0	100 YR Qi	9.9
5 YR Qfb =	0.0	100 YR Qfb	8.9

Villages at Wolf Ranch Phase 2

INLET 57-W

	Q5 =	11.6	Q100 =	29.1
	SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	15.87	T	22.41
FW	1.87	FW	2.00
L1	22.9	L1	34.5
L2	13.7	L2	20.7
L3	49.0	L3	73.9

	Li =	15.00		
	5 YR Q =	11.6	100 YR Q	29.1
	5 YR Qi =	7.2	100 YR Qi	12.7
	5 YR Qfb =	4.4	100 YR Qfb	16.4

Villages at Wolf Ranch Phase 2

INLET 62-W

Q5 =	5.6	Q100 =	29.1
SL =	0.02	SO =	0.02

5 YEAR		100 YEAR	
T	12.08	T	22.41
FW	1.78	FW	2.00
L1	16.5	L1	34.5
L2	9.9	L2	20.7
L3	35.4	L3	73.9

Li =	15.00		
5 YR Q =	5.6	100 YR Q	29.1
5 YR Qi =	4.0	100 YR Qi	12.7
5 YR Qfb =	1.6	100 YR Qfb	16.4

Villages at Wolf Ranch Phase 2

INLET 58

Q5 =	5.5	Q100 =	14.7
SL =	0.04	SO =	0.02

5 YEAR		100 YEAR	
T	10.53	T	15.23
FW	2.44	FW	2.63
L1	19.8	L1	30.8
L2	11.9	L2	18.5
L3	42.5	L3	66.0

Li =	15.00		
5 YR Q =	5.5	100 YR Q	14.7
5 YR Qi =	3.6	100 YR Qi	7.2
5 YR Qfb =	1.9	100 YR Qfb	7.5

Villages at Wolf Ranch Phase 2

INLET 59

Q5 =	3.9		Q100 =	14.7
SL =	0.04		SO =	0.02

5 YEAR		100 YEAR	
T	9.26	T	15.23
FW	2.38	FW	2.63
L1	17.0	L1	30.8
L2	10.2	L2	18.5
L3	36.3	L3	66.0

Li =	15.00		
5 YR Q =	3.9	100 YR Q	14.7
5 YR Qi =	2.7	100 YR Qi	7.2
5 YR Qfb =	1.2	100 YR Qfb	7.5