Appendix 10.0

Preliminary Drainage Study for St. Frances Catholic Church

PRELIMINARY DRAINAGE STUDY

FOR

ST. FRANCES CATHOLIC CHURCH

21591 LEMON STREET
WILDOMAR, CA 92595

Prepared For:

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APPENDICES

PRELIMINARY DRAINAGE STUDY
ST. FRANCES CATHOLIC CHURCH

I. PURPOSE AND SCOPE

The following preliminary drainage study has been conducted on behalf of the Diocese of San Bernardino. This drainage study is for the proposed expansion of the existing church site St. Frances of Rome located in Wildomar, CA. The site is currently three separate properties: APN 366-170-005-4, 366-170-058-2, and 366-330-011-3. These three properties are being merged into a single 11.24-acre parcel. The project site is located on the south side of Lemon Street, just east of Orchard Street.

The purpose of this drainage study is to determine the required drainage improvements for the project site. The scope of work consists of the following:

1. Perform undeveloped and developed studies for the 100-year storm event using the rational method.
2. Perform undeveloped and developed studies for the 100-year storm event using the synthetic unit hydrograph method.
3. Analyze the offsite drainage and determine its impact on the job site.
4. Determine the required mitigation and flow values that will enter and exit each of the water quality basins.

The project site will accommodate a proposed church building as well as new office buildings in a future phase. The northeast office building will have changes in order to make it ADA compliant. The southern parking lot is currently a paved area used for overflow parking. This paving will be removed and repaved as a part of this project.

II. EXISTING & ULTIMATE DRAINAGE CONDITIONS

The project site is currently split into three properties: the existing church site (366-170-058-2), an office building in the northeast corner (366-170-005-4), and the overflow parking area to the south (366-330-011-3).

An existing drainage course bisects the project site, running from east to west between the existing church site to the north and the existing parking lot at the south end of the project site. This drainage course bisecting the project site is "Line E" as detailed within the Sedco Master Drainage Plan and exists in the form of a Riverside County Flood Control easement that can be viewed within the undeveloped and developed drainage maps within Appendix E of this report. The portion of the project site north of this existing drainage course (church site and office building) drain from the northeast corner to southwest, with the flows generated by this area being deposited into Line E. The portion of the project site east of the existing drainage course (overflow parking area) generally sheet flows from east to west. The north half of the overflow parking lot also has a slight fall to the north, with the flows from this area also being deposited into Line E.

Offsite flows currently enter the project site at each of the three properties. The existing church site has a slope running along its east boundary. The runoff from the top of this slope, which is comprised of the backyards of 4 residential houses on the west side of Wagon Rim Court, flow down the slope and enter the church's parking lot (Appendix A: Figure 9). These flows are conveyed south through the project site and are deposited into the drainage course bisecting the project site (Line E).

The portion of Lemon Street north of the existing office building at the northeast corner of the site, is currently unimproved (Appendix A: Figure 10). As a result, offsite flows being conveyed from east to west along Lemon Street currently overtop the existing street section and enter the project site east of the office building. These flows are conveyed south through the project site and are deposited into the drainage course bisecting the project site (Line E).

Offsite flows enter the overflow parking lot, at the south end of the project site, along the eastern boundary line. Like the parking lot itself, the offsite area east of the parking lot sheet flows from east to west, with a slight fall to the north towards the natural drainage course.

A. SEDCO MASTER DRAINAGE PLAN

In March of 1982, Kenneth L. Edwards completed the "Master Drainage Plan for the Sedco Area" for the Riverside County Flood Control and Water Conservation District. In the Sedco MDP, Line E, E-1, and E-2 are designed to "accept the flows released from the Freeway culverts between Lime Street and Waite Street."

Within the Sedco MDP, Line E-1 is intended to carry 230 CFS from a 66" CSP and 24" CSP between Lemon Street and Dorothy Lane, south to Line E. It is also designed to carry 205 CFS from the 84" CSP located between Dorothy Lane and Waite Street, north to Line E. Line E-2 is intended to carry 65 CFS discharged from the 2-24" CSPs and the 30" CSP located between Lime and Lemon Street to Line E by way of an 30" RCP storm drain to be located within an existing easement running along the eastern property line of the project site.

Line E is designed to carry the 450 CFS of flows from west to east, along an alignment approximately halfway between Lemon and Waite Street. An existing drainage course along the alignment of Line E exists between Almond Street and the western boundary of the project site, though it is not in the form of the trapezoidal channel outline within the Sedco MDP. The MDP outline the flows from Line E to be carried west, to Mission Trail, where they will then be directed northwest. After crossing Corydon Road, the flows are to be spread out into sheet flow conditions and are then directed into Lake Elsinore. None of these 3 lines currently exist in their ultimate condition.

B. FLOWS EAST OF HIGHWAY 15

As discussed in the EXISTING & ULTIMATE DRAINAGE CONDITION section of this report, offsite flows enter the project site via overtopping of the curb along Lemon Street. These flows originate east of the project site. Approximately 274.15 acres of hillside, houses, and undeveloped area east of Interstate-15 drain from northeast to the southwest, crossing Interstate-15 by way of a 66" CSP, a 30" CSP, and 3-24" CSPs. For the larger storm events, the capacity of these five storm drains limit the amount of runoff generated by the 274.15 acres that can cross the highway.

The bulk of the flows crossing Interstate-15, do so via a 66" CSP located just south of Lemon Street. The flows from this pipe are discharged into a concrete basin west of Interstate-15, that runs parallel to the highway (Appendix A: Figure 11). As outlined within the Sedco MDP, the flows from the 66" CSP are designed to flow southwest to Line E by way of Line E-1. However, due to Line E-1 having not yet been constructed as an outlet for the concrete basin, during large storm events the basin exceeds its capacity and overflows. These flows are directed north into Lemon Street where they are then conveyed west.

Flows also cross Interstate-15 by way of a 24" CSP just north of Lemon Street, a 24" pipe just south of Lime Street, and a 30" CSP also located just south of Lime Street. The flows from these 3 pipes discharge west of Interstate-15 between Lime and Lemon Street and are conveyed southwest to Lemon Street as intended within the Sedco MDP.

C. LEMON STREET FLOWS

These five storm drains outlined in the above section, confluence with approximately 31.85 acres comprised of Interstate-15 and housing west of the freeway.

This runoff drains to Lemon Street in the current drainage condition, where the flows are conveyed west. The flows currently overtop the project site along the western portion of its border with Lemon Street.

Of these 5 storm drains that cross Interstate-15, only the 24" CSP located south of Victorian Lane is designed to flow within Lemon Street. The 66" CSP is designed to discharge into Line E-1 and then Line E as outlined in the Sedco MDP. The flows from the 2-24" CSPs and the 30" CSP located between Lime and Lemon Street are designed to flow to Lemon Street, however, the flows are then intended to be carried out of Lemon Street and into Line E by way of Line E-2. Line E-2 is set to be located along the eastern boundary of the project site.

As Line E-2 is not yet constructed, the flows from these 4 storm drains as well as the 31.85 acres east of Interstate-15 that are designed to enter Line E before reaching the project site, are instead conveyed west via Lemon Street to the project site. As Lemon Street was not designed to carry these flows, they currently overtop the project site along its north boundary and are conveyed south to Line E.

D. OFFSITE EAST FLOWS

As discussed previously, offsite flows enter the overflow parking lot along the eastern boundary line. Like the parking lot itself, the offsite area east of the parking lot sheet flows from east to west, with a slight fall to the north towards the natural drainage course.

The area directly east of the church site between Lemon Street and Dorothy Lane do not enter the project site before entering Line E. Though this area generally sheet flows from east to west, a channel was constructed at the southwest end of Wagon Rim Court that conveys the flows generated by this area, as well as the 24" CSP south of the 66" CSP, directly into Line E.

Flows south of Dorothy Lane and north of Waite Street, sheet flow from east to west across Mojonnier Way.

E. DOWNSTREAM FLOWS

All flows entering Line E are intended to flow west to Mission Trail via a trapezoidal channel located halfway between Lemon Street and Waite Street. Due to this trapezoidal channel having not yet been constructed, the flows instead leave the proposed Line E alignment at the western boundary of the project site. These flows are conveyed southwest to a vacant lot located north of Waite Street. The flows are spread out into sheet flow conditions and conveyed west to Mission Trail.

III. METHODOLOGY / PROPOSED DRAINAGE FACILITIES

A. ONSITE BASINS

The project site will mitigate the developed drainage flows down to 90% of the undeveloped flow values. This will be done by way of three basins that will also be used for Water Quality Management needs. Two basins will be located at the southeastern and southwestern corners of the lot that holds the current church site. A third basin will be located on the southern lot that is currently used for overflow parking. The drainage areas for each of these basins can be found on the Developed Drainage Map located within Appendix E of this report. Additionally, area C_1 as labeled on the Developed Drainage Map, will also accommodate the flows from offsite drainage area F_3. Due to this, the calculations for offsite area F_3 will be included with the onsite calculations.

The rational method will be used in order to determine the flow values that will need to enter into each basin from the project site. Offsite runoff entering the project site along the drive isle entrances on Lemon Street, will also pass through the basins (no mitigation or storage provided for these flows). Due to these flows entering the project site via overflow in excess of the capacity of Lemon Street in addition to the upstream point of these flows being over 2-miles upstream of the basins, the time of concentration at which point these offsite flows will reach the basins is much later than when the runoff from the project site will do so. As such, the greater value between the amount of flow entering the project site and the flow values from the project site as determined by the rational method, will be used as the flow values that will need to enter into each basin.

The Synthetic Unit Hydrograph Method will be used in order to route the storm runoff through the basins in order to assure the flow values are being reduced to 90% of the undeveloped drainage condition. Though areas C_1 and D_1 on the Developed Drainage Map drain to the same area in the undeveloped condition, they will be split up into two separate areas in the undeveloped condition in order to determine the difference in flow generated by the new project development. Additionally, the offsite area F_3 will be mitigated within basin C_1. As such, a combined unit hydrograph for area C_1 and F3 will be conducted and routed through basin C_1. Below is a summary of the required and provided mitigation by each basin:

Mitigation

Area	Storm Event	$Flow_{UNDEVELOPED}$ (CFS)	$Flow_{DEVELOPED}$ (CFS)	$Mitigation_{REQUIRED}$ (CFS)	$Mitigation_{PROVIDED}$ (CFS)
C_1, D_1, & F_3	100 Year - 24 Hour	5.471	5.630	0.706	2.870
E_1	100 Year - 24 Hour	1.785	1.692	0.085	0.711

Figure 1: Mitigation Summary

The values within the $Mitigation_{REQUIRED}$ column of Figure 1 are derived in the Synthetic Unit Hydrograph section of this report. For a further breakdown of the mitigation from each basin (C_1, D_1, and E_1) see the summary within the Routing Analysis section of this report.

A Synthetic Unit Hydrograph will also be completed in order to calculate the flow generated by the offsite areas tributary to the project site. The offsite area will be divided into four areas: the portion east of the freeway (F_1), area west of the freeway tributary to Lemon Street(F_2), the area entering the existing church site (366-170-058-2) by way of the slope along the church's eastern boundary (F_3), and the area entering the overflow parking lot (F_4).

B. OFFSITE FLOWS TO LEMON STREET

In order to accommodate the large offsite flows discussed in the EXISTING & ULTIMATE DRAINAGE CONDITION section of this report, the project proposes the construction of an additional 6-inch concrete curb to be located just north of the existing tubular steel fence which is located at the 10' setback line south of the Lemon Street right-of-way. It is not possible to locate this curb at the street right-of-way line due to the existence of multiple underground utility boxes in this area.

Additionally, there is a parcel of land located at the north east corner of the project 150' wide that is a part of this application. Lemon Street is not improved to its full ½ width along this frontage. The close proximity of the existing building on this side dictates a 2' ± retaining wall to be located south of the ultimate right-of-way line across this parcel. The height of this wall will be extended to 1' above the finished grade of the parkway to preclude the existing flow from Lemon Street from entering this site at this point.

This proposed curb and wall extension serve two main purposes:

1. To prevent the comingling of offsite flows with onsite flows for the 2-year storm events.

2. To assure that the runoff generated by the 100-year storm overtops the street and flows into the project site at specified points so that these flows can be directed through the site. This overtopping will occur at the east and west driveway entrances to the church site, where the street will retain the capacity it currently has in the pre-developed state.

The storm runoff flows along Lemon Street from east to west. These flows will then overtop into the driveway entrances to the south, with these overtopping flows running perpendicular to their original flow path within Lemon Street. This scenario shares many of the same characteristics as stormwater flowing along a gutter and then entering a curb inlet catch basin perpendicular to the original flow path. As such, the driveway entrances were modelled as curb inlet catch basins using the following equation:

$$Q = 0.049W^{1.4}(\frac{D}{S})^{0.155}$$

In order to determine the amount of flow entering the project site at the two driveway entrances during the 100-year storm event, first the cross section of these drive isles must be analyzed. The cross section of each of the driveway entrances will be plotted with the 100 year-storm water surface level shown as a dashed line. The depth of this dashed line above the elevation of the driveway entrance will be used as the depth of the curb inlet catch basin within the model.

C. OFFSITE FLOWS TO OVERFLOW PARKING LOT

The offsite drainage areas tributary to the southeastern portion of the site can be broken up into three categories: the area tributary to the drainage course bisecting the project site (Line E), the area tributary to the southern parking lot, and the area tributary to Mojonnier Way. As the drainage course bisecting the site (Line E) is the ultimate drainage course for most of the area as set by Riverside County's Master Plan of Drainage, all flows tributary to this drainage course in the predeveloped condition will remain so in the developed condition whenever possible.

There is approximately 4.79 acres of offsite drainage area tributary to the parking lot at the southern end of the project site. The flows generated by this area will be intercepted by a rectangular concrete channel at the eastern end of the parking lot and conveyed north. These flows will then be discharged into Line E as this is the ultimate condition of the runoff generated by the offsite area.

South of the 4.79 acres tributary to the parking lot is an offsite area tributary to Mojonnier Way. Due to grade constrains, Mojonnier Way cannot fall from north to south. As such, to prevent these offsite flows from flowing north along Mojonnier Way and comingling with the onsite flows by entering the basin at the south end of the project site, it is necessary to design Mojonnier Way as a tilt section. This section will enable these offsite flows to retain the same flow path they have in the predeveloped condition, sheet flowing from east to west along Mojonnier Way. Additionally, a buffer strip consisting of a 13' wide by 2' deep section of filter material will be added at the west end of the tilt section in order to treat the flows after they cross Mojonnier Way.

IV. RATIONAL METHOD RESULTS

The following is a summary of the rational method calculations that can be found within the Appendix F of this report. A breakdown of each drainage area can be found within the drainage maps located in Appendix E of this report.

Undeveloped

Area	Storm Event	Flow (CFS)	T_C (Minutes)
A_1, A_2, & F_3	100 Year - 1 Hour	22.813	14.02
B_1	100 Year - 1 Hour	9.221	6.201

Figure 2: Undeveloped Rational Summary Table

Developed

Area	Storm Event	Flow (CFS)	T_C (Minutes)
C_1 & F_3	100 Year - 1 Hour	11.214	11.284
D_1	100 Year - 1 Hour	14.356	10.607
E_1	100 Year - 1 Hour	9.327	5.894

Figure 3: Developed Rational Summary Table

As discussed previously in the Methodology section of this report, areas C_1 and D_1 in the developed drainage condition correspond to the combined area A_1 and A_2 in the undeveloped drainage condition. The flow values in Figure 3 represent the amount of flow that will need to enter each basin. Basins D_1 and E_1 will need to accommodate an inlet flow of 14.356 CFS and 9.327 CFS respectively. Basin C_1 will need to accommodate an inlet flow of 16.8 CFS, as the flow overtopping into the project site is greater than the 11.214 determined by the Rational Method.

V. SYNTHETIC UNIT HYDROGRAPH RESULTS

The following is a summary of the synthetic unit hydrograph calculations that can be found within the Appendix G of this report. A breakdown of each drainage area can be found within the drainage maps located in Appendix E of this report.

Undeveloped

Area	Storm Event	Flow (CFS)	Volume (Acre-Ft)
A_1, A_2, & F_3	100 Year - 24 Hour	5.471	2.3258
B_1	100 Year - 24 Hour	1.785	0.9972

Figure 4: Undeveloped Synthetic Unit Hydrograph Summary Table

Developed

Area	Storm Event	Flow (CFS)	Volume (Acre-Ft)
C_1 & F_3	100 Year - 24 Hour	2.480	1.0589
D_1	100 Year - 24 Hour	3.150	1.4978
E_1	100 Year - 24 Hour	1.692	0.9089

Figure 5: Developed Synthetic Unit Hydrograph Summary Table

The required mitigation for the project site was found by subtracting 90% of the flow values within Figure 4 from the respective flow values within Figure 5. These unit hydrographs were used for the routing analysis found in the next section of this report.

VI. ROUTING ANALYSIS RESULTS

The following is a summary of the routing calculations that can be found within the Appendix H of this report.

Routing

Area	Storm Event	Inflow (CFS)	$Outflow_{SD}$ (CFS)	$Outflow_{INFILTRATION}$ (CFS)	Mitigation (CFS)	Volume Required (Acre-Ft)
C_1 & F_3	100 Year - 24 Hour	2.480	1.115	0.158	1.365	0.330
D_1	100 Year - 24 Hour	3.150	1.645	0.242	1.505	0.368
E_1	100 Year - 24 Hour	1.692	0.981	0.167	0.711	0.173

Figure 6: WQMP Basin Routing Summary Table

The basins make use of infiltration using a factor of safety of 2. The soils report supporting the infiltration rate used within this report can be found in the Geotechnical Report within Appendix K of this report. The outflow due to infiltration was subtracted from the outflow values generated from the routing analysis in order to determine the outflow discharged from the project site by each basin. The mitigation provided by each basin is defined as the flowing:

$$\text{Mitigation}_{\text{PROVIDED}} = \text{Inflow} - \text{Outflow}_{\text{STORM DRAIN}}.$$

The configuration of each basin and its outlet structure can be found within Appendix I of this report.

VII. OFFSITE FLOW RESULTS

The offsite Synthetic Unit Hydrographs were conducted for areas F_1 and F_2 for both the 2-year, 10, year, and 100-year storm events over the 1-hour and 24-hour durations, in order to determine when offsite flows will enter the project site. Additionally, the 100-year storm events were conducted for the area F4, in order to determine the maximum amount of flow that will need to be conveyed by the drainage ditch running along the eastern boundary of the overflow parking lot. Below is a summary of these Synthetic Unit Hydrograph calculations that can be found within Appendix G of this report.

Offsite

Area	Storm Event	Flow (CFS)	Volume (Acre-Ft)
F_1	2 Year - 1 Hour	95.798	4.4502
	2 Year - 24 Hour	18.394	11.9659
	10 Year - 1 Hour	252.596	14.3024
	10 Year - 24 Hour	87.760	35.5258
	100 Year - 1 Hour	432.186	25.4624
	100 Year - 24 Hour	164.612	73.2901
F_2	2 Year - 1 Hour	20.312	0.6664
	2 Year - 24 Hour	4.539	2.7580
	10 Year - 1 Hour	44.742	1.4784
	10 Year - 24 Hour	9.299	4.7248
	100 Year - 1 Hour	76.786	2.7652
	100 Year - 24 Hour	18.862	8.5557
F_4	100 Year - 1 Hour	11.605	0.4074
	100 Year - 24 Hour	2.747	1.3010

Figure 7: Offsite Synthetic Unit Hydrograph Summary Table

The flow values from the area east of the freeway are limited by the total storm drain capacity of the CSP pipes that cross the freeway (286.82). All flows originating east of Interstate-15 in excess of this capacity will be reduced to the storm drain capacity. As such, the total flow to Lemon Street will be equal the lesser of the flow generated by area F_1 or 286.82 CFS added to the flow generated by area F_2. The following is a summary of the flow values reaching Lemon Street:

Lemon Street Flows

Storm Event	Flow (CFS)
2 Year - 1 Hour	116.110
2 Year - 24 Hour	22.933
10 Year - 1 Hour	297.338
10 Year - 24 Hour	97.059
100 Year - 1 Hour	363.606
100 Year - 24 Hour	183.474

Figure 8: Offsite Flows Reaching Lemon Street

After plotting profile of this flow from the above storm events with respect to the drive isle entrance cross sections, it was determined that the 100-year storm and 10-year storm events would overtop the drive isle entrances, but the 2-year storm event would not. The 10-year storm event was found to overtop the eastern drive isle entrance at a depth of 0.24 feet above the elevation of the drive isle entrance, however, the flows do not overtop the western drive isle entrance into this site.

The maximum amount of flow entering the project site was found by analyzing the depth of the 100-year storm event above each of the drive isle entrances. The 100-year 1-hour water surface was found to be 0.30 feet above the capacity of the eastern drive isle and 0.05 feet above the capacity of the western drive isle. Using the equation for calculating the capacity of a curb inlet catch basin, it was found that 16.8 CFS and 12.1 CFS would enter the east and west driveway entrances respectively. This is less than the flow capacity of the parking lot (Appendix J), so these flows will be able to be conveyed through the parking lot and to the basins. These flows will not be mitigated by the proposed drainage facilities and will pass through the project site and basins to Line E, their pre-development downstream point.

It was found that a 3-foot-wide by 1.76' deep rectangular gutter would be sufficient to convey 11.605 CFS generated by offsite area F4 north to Line E with 1-foot of freeboard.

VIII. CONCLUSION

The above discussed analysis and proposed improvements will provide that this site will be developed in conformance with applicable regulations.

APPENDICES

APPENDIX "A"

EXISTING DRAINAGE CONDITION PHOTOGRAPHS / EXHIBITS

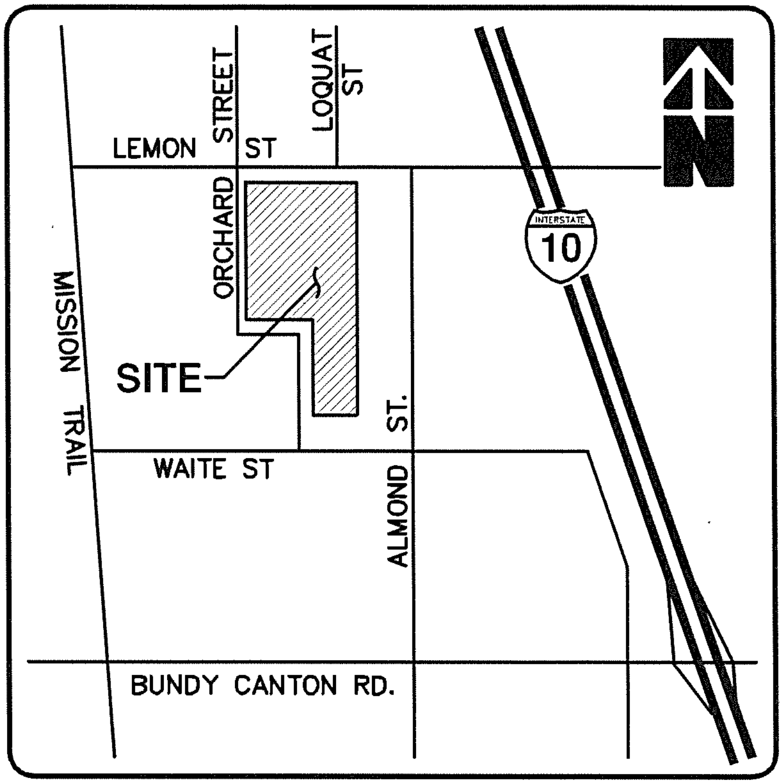
Figure 9: Slope Along East Boundary of Project Site.

Figure 10: Lemon Street North of Existing Office Building

Figure 11: 66" CSP Outlet Basin West of Interstate-15

APPENDIX "B"

VICINITY MAP



VICINITY MAP

APPENDIX "C"

NOAA POINT PRECIPITATION

NOAA Atlas 14, Volume 6, Version 2
Location name: Wildomar, California, USA*
Latitude: 33.6337°, Longitude: -117.2823°
Elevation: 1347.26 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.081 (0.068-0.098)	0.110 (0.092-0.133)	0.150 (0.125-0.181)	0.183 (0.151-0.223)	0.229 (0.183-0.290)	0.266 (0.208-0.344)	0.305 (0.232-0.405)	0.346 (0.256-0.473)	0.403 (0.285-0.576)	0.449 (0.306-0.664)
10-min	0.117 (0.098-0.140)	0.158 (0.132-0.190)	0.214 (0.179-0.259)	0.262 (0.217-0.319)	0.329 (0.263-0.415)	0.382 (0.298-0.494)	0.438 (0.333-0.580)	0.496 (0.367-0.678)	0.578 (0.409-0.825)	0.643 (0.439-0.952)
15-min	0.141 (0.118-0.170)	0.191 (0.160-0.230)	0.259 (0.217-0.314)	0.317 (0.262-0.386)	0.398 (0.318-0.502)	0.462 (0.361-0.597)	0.529 (0.403-0.702)	0.600 (0.444-0.820)	0.699 (0.495-0.998)	0.778 (0.531-1.15)
30-min	0.220 (0.185-0.265)	0.298 (0.250-0.360)	0.405 (0.338-0.490)	0.494 (0.409-0.603)	0.621 (0.496-0.785)	0.721 (0.564-0.932)	0.826 (0.629-1.10)	0.937 (0.693-1.28)	1.09 (0.773-1.56)	1.22 (0.829-1.80)
60-min	0.345 (0.290-0.416)	0.468 (0.392-0.564)	0.635 (0.530-0.768)	0.775 (0.642-0.946)	0.973 (0.778-1.23)	1.13 (0.884-1.46)	1.30 (0.987-1.72)	1.47 (1.09-2.01)	1.71 (1.21-2.44)	1.91 (1.30-2.82)
2-hr	0.521 (0.437-0.627)	0.682 (0.571-0.822)	0.901 (0.752-1.09)	1.08 (0.898-1.32)	1.34 (1.07-1.70)	1.55 (1.21-2.00)	1.76 (1.34-2.34)	1.99 (1.47-2.72)	2.30 (1.63-3.29)	2.55 (1.74-3.77)
3-hr	0.643 (0.540-0.775)	0.835 (0.699-1.01)	1.09 (0.913-1.32)	1.31 (1.09-1.60)	1.61 (1.29-2.04)	1.86 (1.45-2.40)	2.11 (1.60-2.79)	2.37 (1.75-3.24)	2.74 (1.94-3.90)	3.02 (2.06-4.47)
6-hr	0.918 (0.770-1.11)	1.19 (0.997-1.44)	1.56 (1.30-1.88)	1.86 (1.54-2.27)	2.28 (1.82-2.88)	2.61 (2.04-3.38)	2.95 (2.25-3.92)	3.31 (2.44-4.52)	3.80 (2.69-5.42)	4.18 (2.85-6.19)
12-hr	1.19 (1.00-1.44)	1.60 (1.34-1.93)	2.13 (1.78-2.58)	2.57 (2.12-3.13)	3.16 (2.52-3.99)	3.61 (2.82-4.66)	4.06 (3.10-5.39)	4.53 (3.35-6.19)	5.16 (3.65-7.37)	5.65 (3.85-8.36)
24-hr	1.58 (1.40-1.83)	2.23 (1.97-2.58)	3.06 (2.69-3.55)	3.72 (3.25-4.35)	4.61 (3.90-5.56)	5.28 (4.38-6.50)	5.95 (4.82-7.50)	6.63 (5.23-8.58)	7.54 (5.71-10.2)	8.23 (6.03-11.5)
2-day	1.90 (1.68-2.19)	2.76 (2.44-3.19)	3.87 (3.41-4.49)	4.77 (4.17-5.57)	5.98 (5.06-7.21)	6.89 (5.71-8.48)	7.81 (6.33-9.84)	8.75 (6.90-11.3)	10.0 (7.59-13.5)	11.0 (8.04-15.3)
3-day	2.07 (1.83-2.39)	3.06 (2.70-3.54)	4.35 (3.83-5.04)	5.40 (4.72-6.31)	6.82 (5.77-8.22)	7.90 (6.56-9.73)	9.01 (7.30-11.3)	10.1 (8.00-13.1)	11.7 (8.86-15.7)	12.9 (9.45-17.9)
4-day	2.24 (1.98-2.58)	3.33 (2.94-3.85)	4.77 (4.20-5.53)	5.95 (5.20-6.95)	7.55 (6.39-9.10)	8.79 (7.29-10.8)	10.1 (8.15-12.7)	11.4 (8.97-14.7)	13.2 (9.97-17.7)	14.6 (10.7-20.3)
7-day	2.53 (2.23-2.92)	3.77 (3.33-4.36)	5.45 (4.80-6.32)	6.84 (5.98-7.99)	8.77 (7.42-10.6)	10.3 (8.54-12.7)	11.9 (9.61-14.9)	13.5 (10.7-17.5)	15.8 (12.0-21.3)	17.6 (12.9-24.5)
10-day	2.66 (2.35-3.07)	3.97 (3.51-4.59)	5.76 (5.07-6.68)	7.26 (6.35-8.48)	9.38 (7.94-11.3)	11.1 (9.17-13.6)	12.8 (10.4-16.1)	14.7 (11.6-19.0)	17.3 (13.1-23.3)	19.4 (14.2-27.0)
20-day	3.11 (2.75-3.59)	4.67 (4.12-5.40)	6.85 (6.03-7.94)	8.72 (7.62-10.2)	11.4 (9.66-13.8)	13.6 (11.3-16.8)	16.0 (12.9-20.1)	18.5 (14.6-23.9)	22.1 (16.7-29.7)	25.0 (18.3-34.8)
30-day	3.68 (3.25-4.25)	5.48 (4.84-6.33)	8.04 (7.08-9.32)	10.3 (8.97-12.0)	13.5 (11.5-16.3)	16.2 (13.5-20.0)	19.1 (15.5-24.1)	22.3 (17.6-28.8)	26.8 (20.3-36.1)	30.6 (22.4-42.6)
45-day	4.25 (3.75-4.90)	6.25 (5.52-7.23)	9.14 (8.05-10.6)	11.7 (10.2-13.7)	15.5 (13.1-18.7)	18.7 (15.5-23.0)	22.1 (17.9-27.9)	25.9 (20.4-33.5)	31.4 (23.8-42.3)	36.1 (26.4-50.2)
60-day	4.89 (4.32-5.65)	7.08 (6.25-8.19)	10.3 (9.06-11.9)	13.1 (11.5-15.4)	17.4 (14.7-21.0)	21.0 (17.4-25.9)	25.0 (20.3-31.5)	29.4 (23.2-38.0)	35.8 (27.1-48.2)	41.2 (30.2-57.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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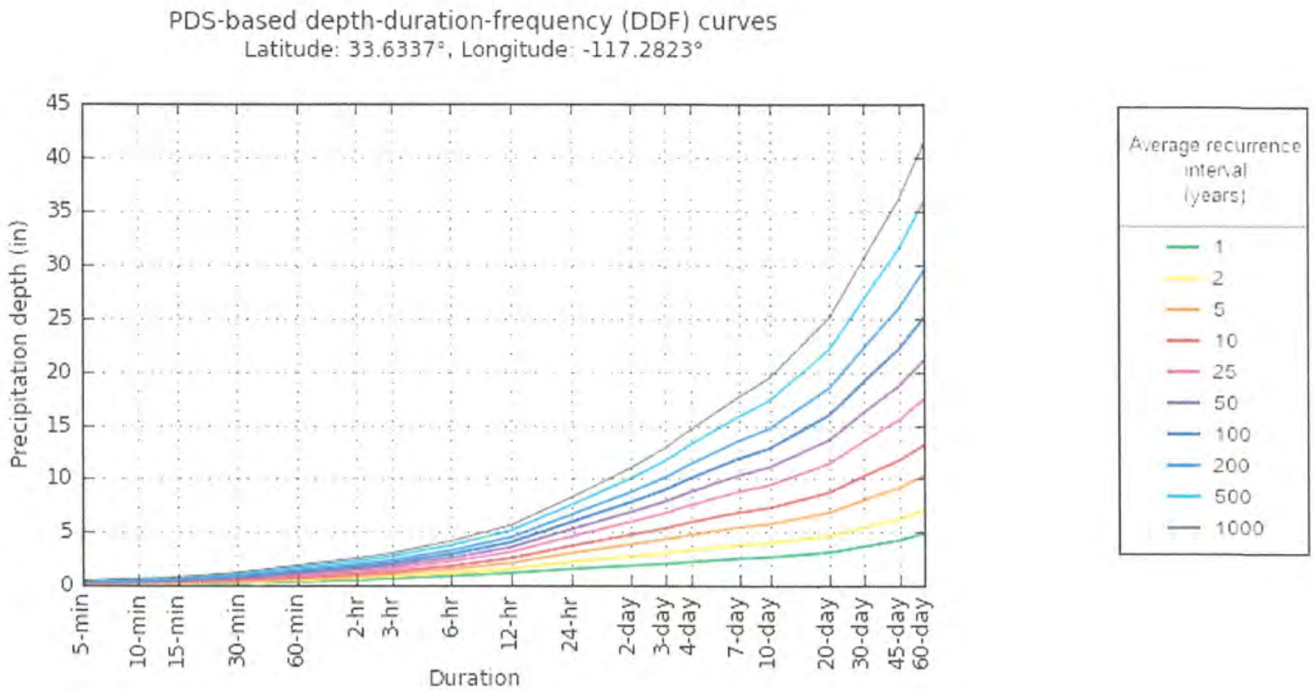
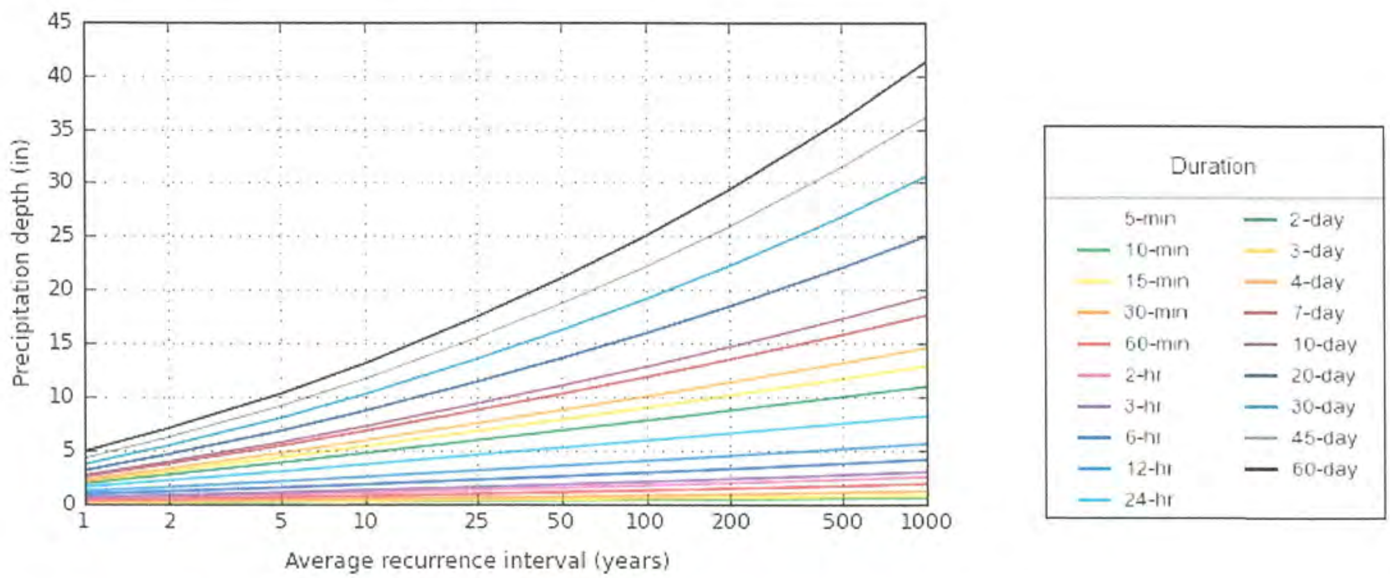
PF graphical





NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Thu Jan 10 23:56:23 2019

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Maps & aerials

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial

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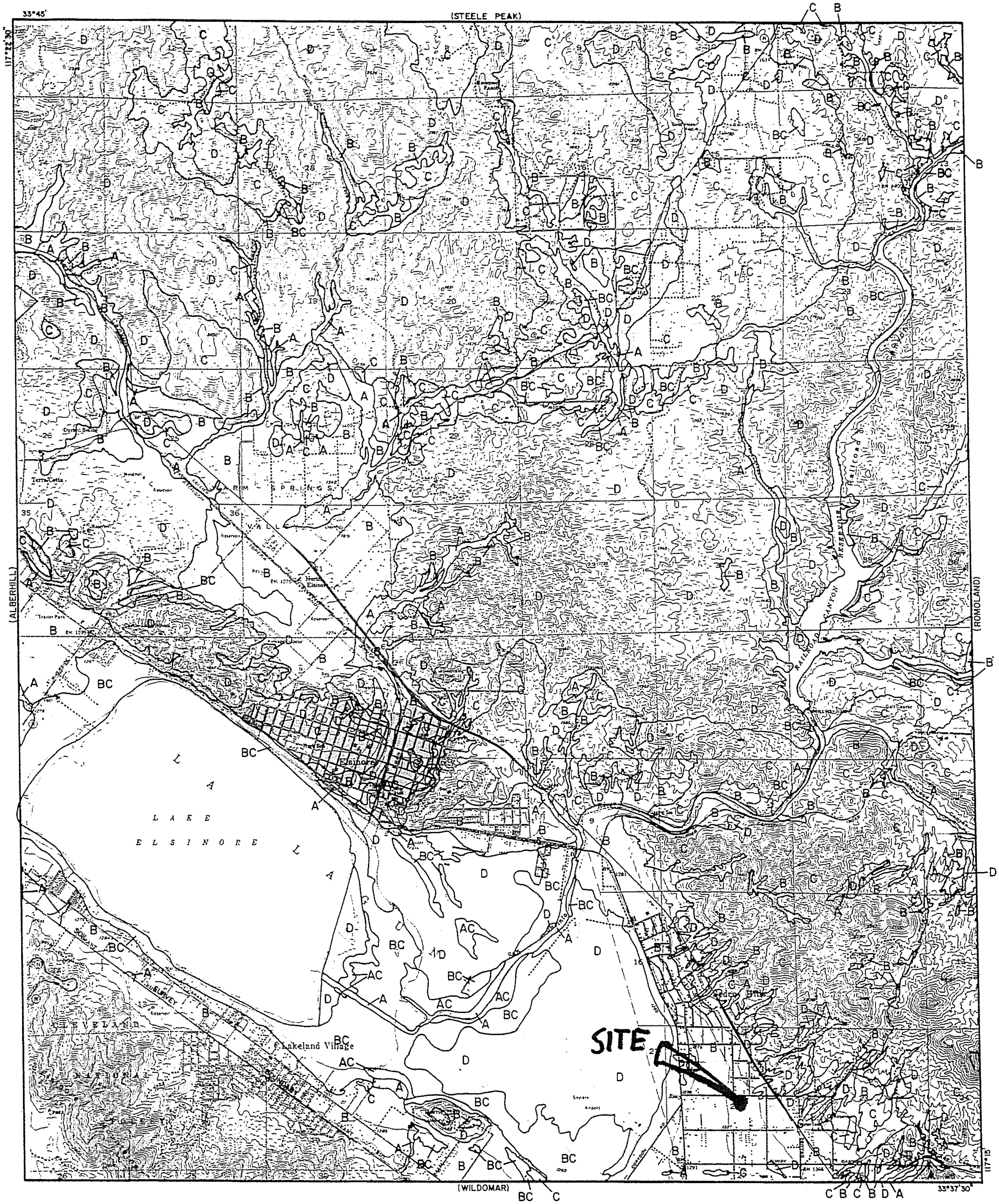
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX "D"

HYDROLOGIC SOIL MAP



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC & WCD

HYDROLOGY MANUAL

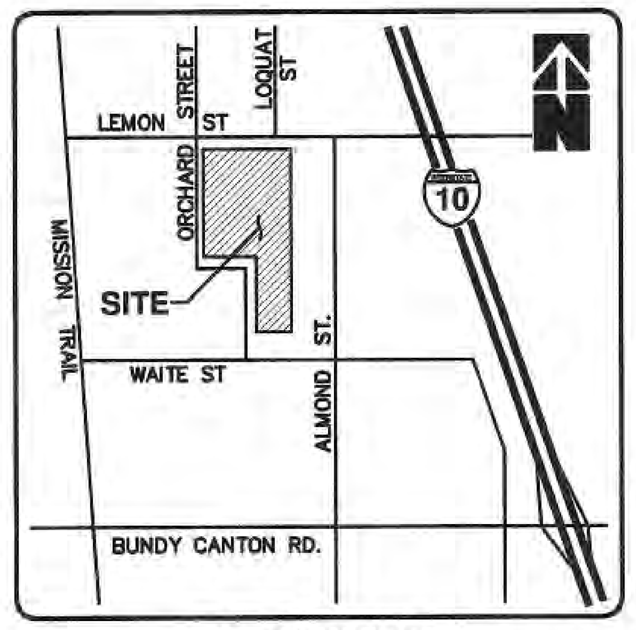
0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR ELSINORE

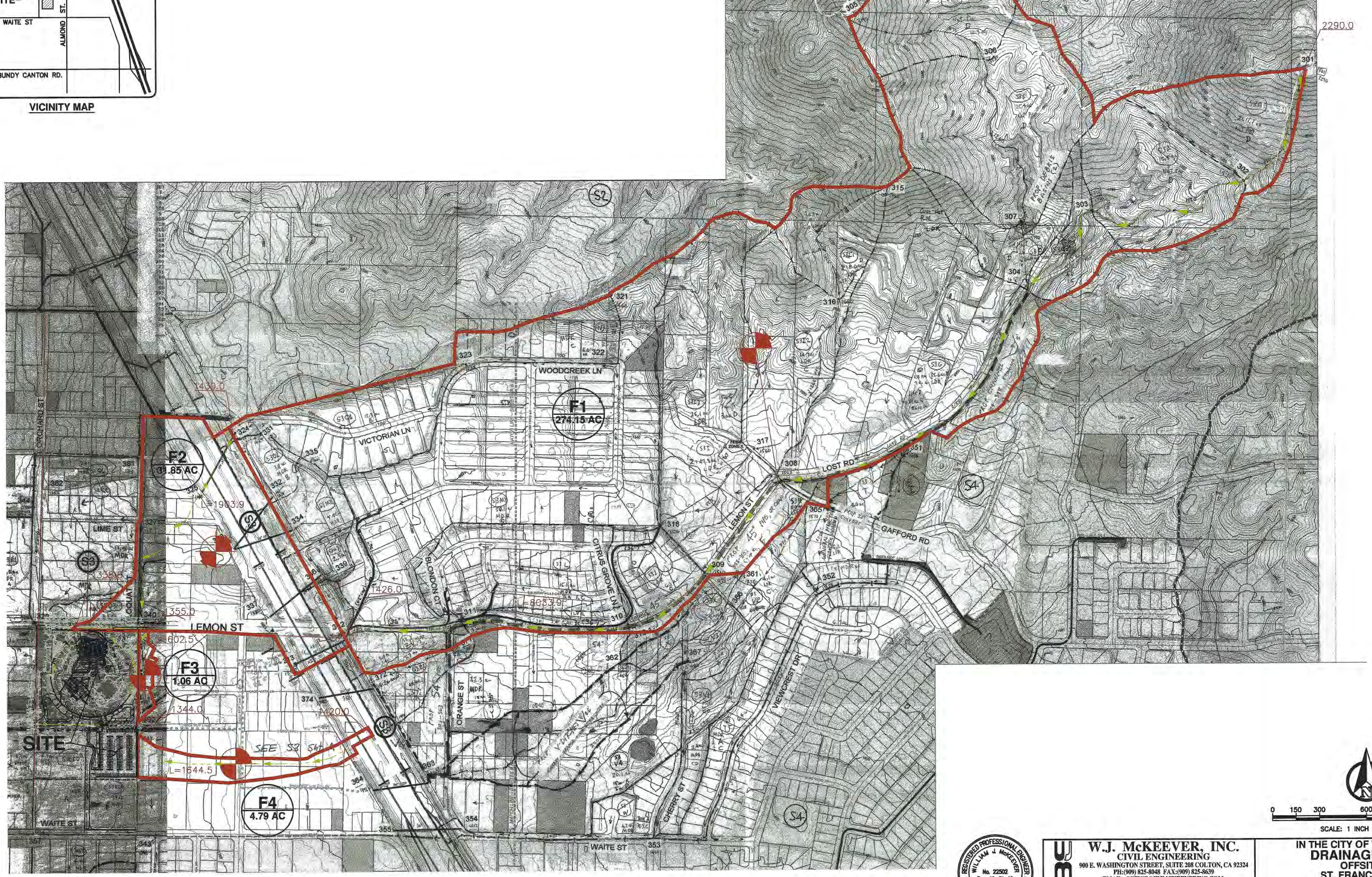
PLATE C-1.41

APPENDIX "E"

DRAINAGE MAPS



VICINITY MAP



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SCALE: 1 INCH = 300 FEET

REGISTERED PROFESSIONAL ENGINEER
WILLIAM J. McKEEVER
No. 22502
Exp. 12-31-19
CIVIL
STATE OF CALIFORNIA

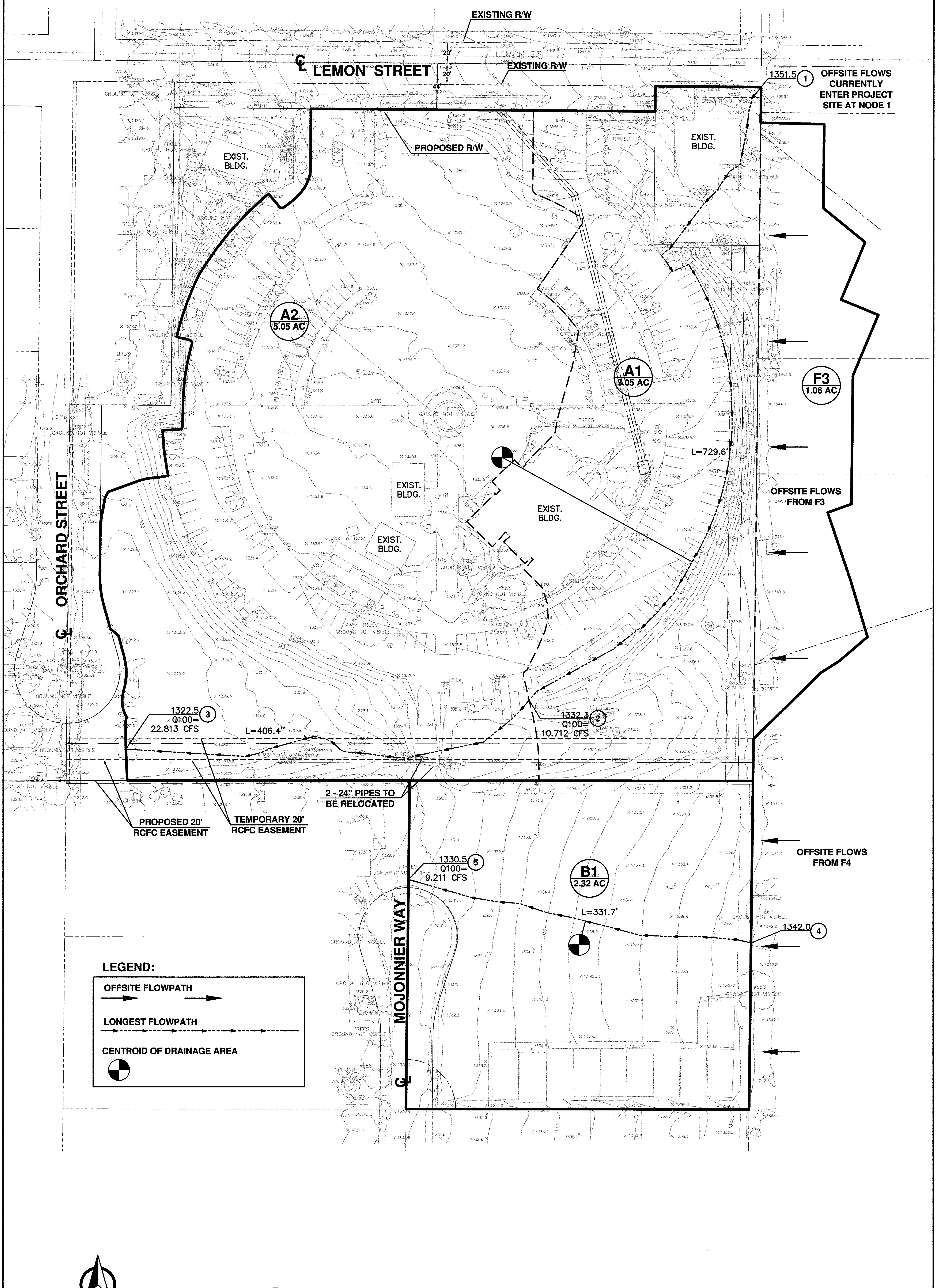
W.J. McKEEVER, INC.
CIVIL ENGINEERING
900 E. WASHINGTON STREET, SUITE 208 COLTON, CA 92324
PH:(909) 825-8048 FAX:(909) 825-8639
EMAIL: OFFICE@WJMCKEEVERINC.COM

PREPARED BY: [signature]
WILLIAM J. McKEEVER
R.C.E. NO. 22502
DATE: 7/24/19

IN THE CITY OF WILDOMAR
DRAINAGE MAP
OFFSITE
ST. FRANCES OF
ROME CATHOLIC CHURCH
21591 LEMON ST.
WILDOMAR, CA 92595

SHEET NO.
1 OF 1

IN THE CITY OF WILDOMAR
DRAINAGE MAP
UNDEVELOPED



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-19 CIVIL STATE OF CALIFORNIA

W.J. McKEEVER, INC.
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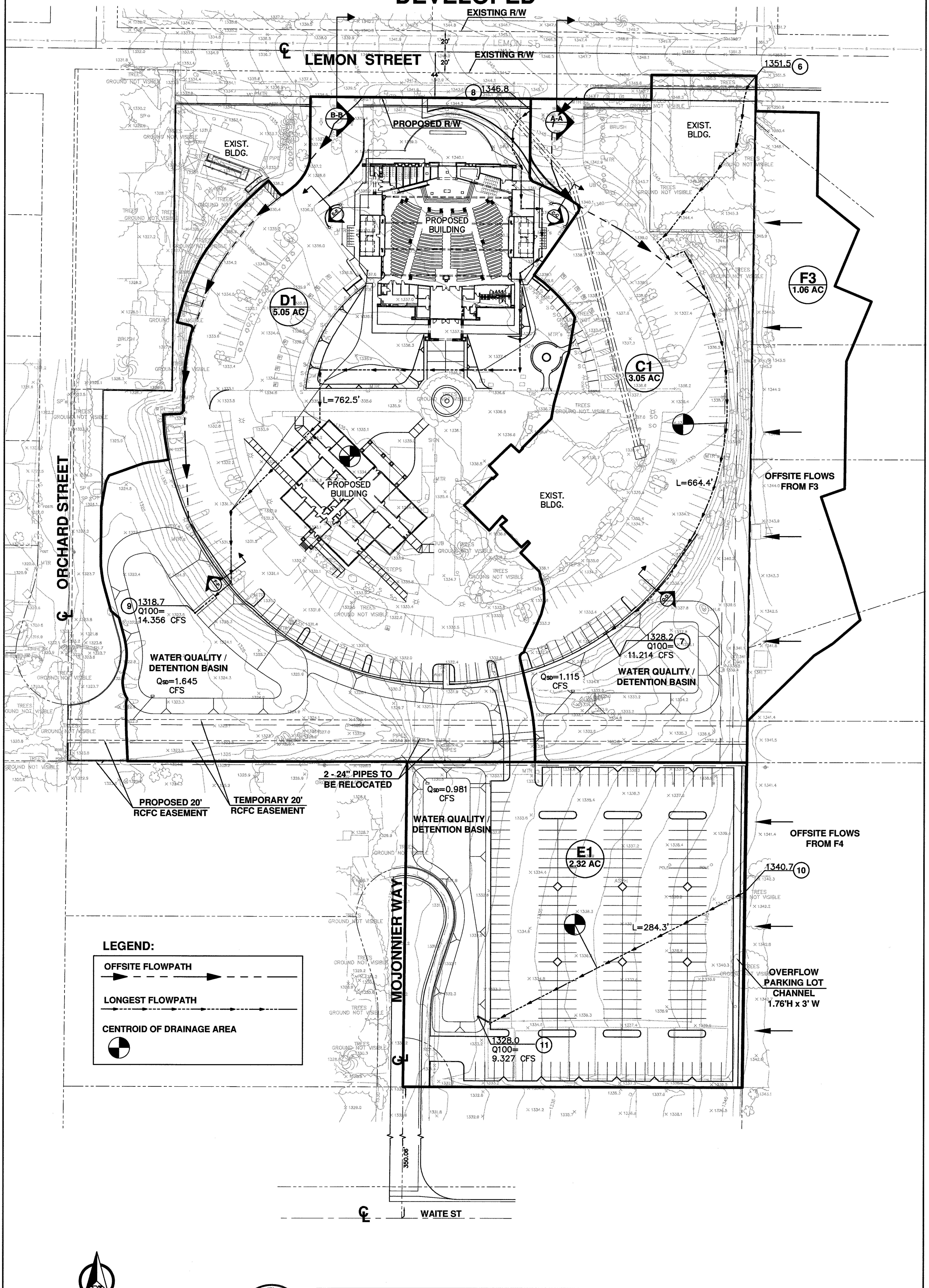
PREPARED BY: WILLIAM J. McKEEVER
R.C.E. NO. 22502
DATE: 7/24/19

IN THE CITY OF WILDOMAR
DRAINAGE MAP
UNDEVELOPED
ST. FRANCES OF ROME CATHOLIC CHURCH
21591 LEMON ST.
WILDOMAR, CA 92595

SHEET NO. 1 OF 1

PLOT DATE: 7/24/19

IN THE CITY OF WILDOMAR
DRAINAGE MAP
DEVELOPED



REGISTERED PROFESSIONAL ENGINEER
WILLIAM J. McKEEVER
No. 22502
Exp. 12-31-19
CIVIL
STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED

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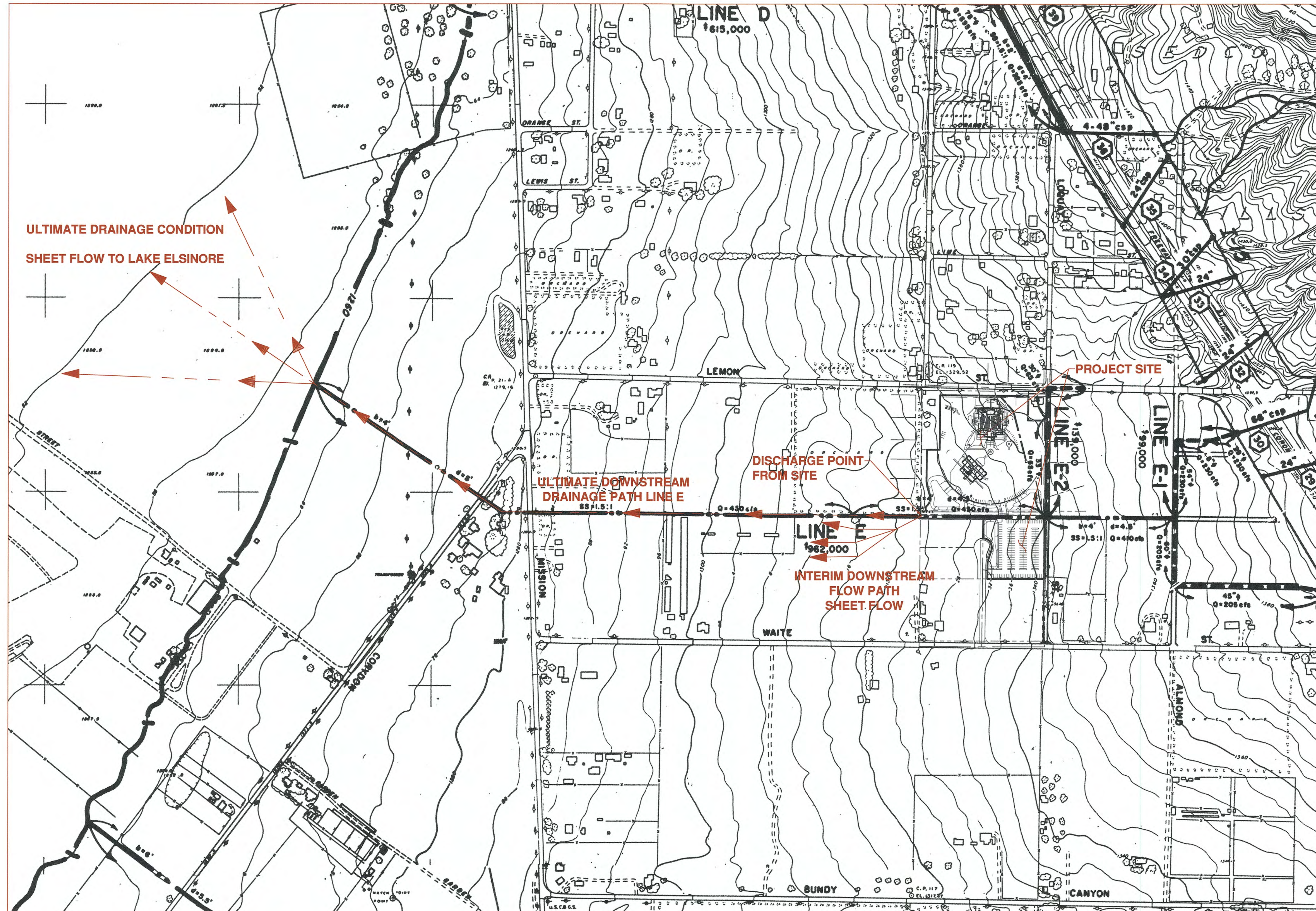
PREPARED BY: WILLIAM J. McKEEVER
R.C.E. NO. 22502
DATE: 7/24/19

IN THE CITY OF WILDOMAR
DRAINAGE MAP
DEVELOPED
ST. FRANCES OF ROME CATHOLIC CHURCH
21591 LEMON ST.
WILDOMAR, CA 92595

SHEET NO. 1 OF 1

PLOT DATE: 7/24/19



VICINITY MAP

SCALE: 1 INCH = 300 FEET

REGISTERED PROFESSIONAL ENGINEER
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No. 22502
Exp. 12-31-19
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PREPARED BY:
WILLIAM J. McKEEVER
R.C.E. NO. 22502
DATE: 7/24/19

IN THE CITY OF WILDOMAR
DRAINAGE MAP
DOWNSTREAM
ST. FRANCES OF
ROME CATHOLIC CHURCH
21591 LEMON ST.
WILDOMAR, CA 92595

SHEET NO.
1
OF
1

APPENDIX "F"

RATIONAL METHOD CALCULATIONS

UNDEVELOPED
100 YEAR – 1 HOUR

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study       Date: 07/23/19  File:c318und.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6222

------------------------------------------------------------------------
St. Frances of Rome - Wildomar
Undeveloped
100-Year 1-Hour
------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.500(In/Hr)
Slope of intensity duration curve = 0.4800




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       1.000 to Point/Station       2.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   729.600(Ft.)
Top (of initial area) elevation =  1351.500(Ft.)
Bottom (of initial area) elevation =  1332.300(Ft.)
Difference in elevation =    19.200(Ft.)
Slope =    0.02632  s(percent)=       2.63
TC = k(0.433)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.511 min.
Rainfall intensity =      3.184(In/Hr) for a   100.0 year storm
USER INPUT of soil data for subarea
Runoff Coefficient = 0.819
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  71.88
Pervious area fraction =  0.642; Impervious fraction =  0.358
Initial subarea runoff =     10.712(CFS)
Total initial stream area =        4.110(Ac.)
Pervious area fraction = 0.642


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       2.000 to Point/Station       3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________
Top of natural channel elevation =   1332.300(Ft.)
End of natural channel elevation =   1322.500(Ft.)
Length of natural channel  =   406.400(Ft.)
Estimated mean flow rate at midpoint of channel =     17.292(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   4.48(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0241
Corrected/adjusted channel slope =  0.0241
Travel time =    1.51 min.     TC =   14.02  min.


 Adding area flow to channel
USER INPUT of soil data for subarea
Runoff Coefficient = 0.795
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  65.97
Pervious area fraction =  0.627; Impervious fraction =  0.373
Rainfall intensity =      3.014(In/Hr) for a   100.0 year storm
Subarea runoff =     12.102(CFS) for      5.050(Ac.)
Total runoff =     22.813(CFS)      Total area =       9.160(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       4.000 to Point/Station       5.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   331.700(Ft.)
Top (of initial area) elevation =  1342.000(Ft.)
Bottom (of initial area) elevation =  1330.500(Ft.)
Difference in elevation =    11.500(Ft.)
Slope =    0.03467  s(percent)=      3.47
TC = k(0.311)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.201 min.
Rainfall intensity =      4.459(In/Hr) for a   100.0 year storm
USER INPUT of soil data for subarea
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  81.09
Pervious area fraction =  0.146; Impervious fraction =  0.854
Initial subarea runoff =      9.221(CFS)
Total initial stream area =       2.320(Ac.)
Pervious area fraction = 0.146
End of computations, total study area =          11.48 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.535
Area averaged RI index number =  71.1
```

DEVELOPED
100 Year – 1 Hour

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study       Date: 07/23/19  File:c318dev.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6222

------------------------------------------------------------------------
St. Frances of Rome - Wildomar
Developed
100-Year 1-Hour
------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.500(In/Hr)
Slope of intensity duration curve = 0.4800




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       6.000 to Point/Station       7.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   664.400(Ft.)
Top (of initial area) elevation =  1351.500(Ft.)
Bottom (of initial area) elevation =  1328.200(Ft.)
Difference in elevation =    23.300(Ft.)
Slope =    0.03507  s(percent)=      3.51
TC = k(0.429)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.284 min.
Rainfall intensity =      3.345(In/Hr) for a   100.0 year storm
USER INPUT of soil data for subarea
Runoff Coefficient = 0.816
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  69.51
Pervious area fraction =  0.630; Impervious fraction =  0.370
Initial subarea runoff =     11.214(CFS)
Total initial stream area =        4.110(Ac.)
Pervious area fraction = 0.630


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       8.000 to Point/Station       9.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________
Initial area flow distance =   762.500(Ft.)
Top (of initial area) elevation =  1346.800(Ft.)
Bottom (of initial area) elevation =  1318.700(Ft.)
Difference in elevation =    28.100(Ft.)
Slope =    0.03685  s(percent)=       3.69
TC = k(0.385)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.607 min.
Rainfall intensity =      3.446(In/Hr) for a   100.0 year storm
USER INPUT of soil data for subarea
Runoff Coefficient = 0.825
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  63.96
Pervious area fraction =  0.466; Impervious fraction =  0.534
Initial subarea runoff =     14.356(CFS)
Total initial stream area =        5.050(Ac.)
Pervious area fraction = 0.466


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      10.000 to Point/Station      11.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________
Initial area flow distance =   284.300(Ft.)
Top (of initial area) elevation =  1340.700(Ft.)
Bottom (of initial area) elevation =  1328.000(Ft.)
Difference in elevation =    12.700(Ft.)
Slope =    0.04467  s(percent)=       4.47
TC = k(0.330)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.894 min.
Rainfall intensity =      4.569(In/Hr) for a   100.0 year storm
USER INPUT of soil data for subarea
Runoff Coefficient = 0.880
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  72.89
Pervious area fraction =  0.228; Impervious fraction =  0.772
Initial subarea runoff =      9.327(CFS)
Total initial stream area =        2.320(Ac.)
Pervious area fraction = 0.228
End of computations, total study area =          11.48 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.477
```

Area averaged RI index number = 67.8

APPENDIX "G"

SYNTHETIC UNIT HYDROGRAPH CALCULATIONS

ONSITE

UNDEVELOPED
100 Year – 24 Hour
AREA A_1, A_2, & F_3

U n i t   H y d r o g r a p h   A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 07/23/19 File: c318undA1A2F324100.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Undeveloped A1, A2, & F3
100-Year 24-Hour

Drainage Area = 9.16(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.16(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 1136.00(Ft.)
Length along longest watercourse measured to centroid = 523.10(Ft.)
Length along longest watercourse = 0.215 Mi.
Length along longest watercourse measured to centroid = 0.099 Mi.
Difference in elevation = 29.00(Ft.)
Slope along watercourse = 134.7887 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.044 Hr.
Lag time = 2.63 Min.
25% of lag time = 0.66 Min.
40% of lag time = 1.05 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
9.16	2.23	20.43

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
9.16	5.95	54.50

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
3.050	67.77	0.483
5.050	65.97	0.373
1.060	78.00	0.000

Total Area Entered = 9.16(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
67.8	67.8	0.386	0.483	0.218	0.333	0.073
66.0	66.0	0.406	0.373	0.269	0.551	0.149
78.0	78.0	0.268	0.000	0.268	0.116	0.031
					Sum (F) =	0.252

Area averaged mean soil loss (F) (In/Hr) = 0.252
Minimum soil loss rate ((In/Hr)) = 0.126
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.607

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period	(hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	190.242	40.394	3.729
2	0.167	380.485	46.243	4.269
3	0.250	570.727	9.403	0.868
4	0.333	760.970	2.999	0.277
5	0.417	951.212	0.961	0.089
			Sum = 100.000	Sum= 9.232

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.447)	0.029	0.019
2	0.17	0.07	0.048	(0.445)	0.029	0.019
3	0.25	0.07	0.048	(0.444)	0.029	0.019
4	0.33	0.10	0.071	(0.442)	0.043	0.028
5	0.42	0.10	0.071	(0.440)	0.043	0.028
6	0.50	0.10	0.071	(0.438)	0.043	0.028
7	0.58	0.10	0.071	(0.437)	0.043	0.028
8	0.67	0.10	0.071	(0.435)	0.043	0.028
9	0.75	0.10	0.071	(0.433)	0.043	0.028
10	0.83	0.13	0.095	(0.432)	0.058	0.037
11	0.92	0.13	0.095	(0.430)	0.058	0.037

12	1.00	0.13	0.095	(0.428)	0.058	0.037
13	1.08	0.10	0.071	(0.426)	0.043	0.028
14	1.17	0.10	0.071	(0.425)	0.043	0.028
15	1.25	0.10	0.071	(0.423)	0.043	0.028
16	1.33	0.10	0.071	(0.421)	0.043	0.028
17	1.42	0.10	0.071	(0.420)	0.043	0.028
18	1.50	0.10	0.071	(0.418)	0.043	0.028
19	1.58	0.10	0.071	(0.416)	0.043	0.028
20	1.67	0.10	0.071	(0.415)	0.043	0.028
21	1.75	0.10	0.071	(0.413)	0.043	0.028
22	1.83	0.13	0.095	(0.411)	0.058	0.037
23	1.92	0.13	0.095	(0.410)	0.058	0.037
24	2.00	0.13	0.095	(0.408)	0.058	0.037
25	2.08	0.13	0.095	(0.406)	0.058	0.037
26	2.17	0.13	0.095	(0.405)	0.058	0.037
27	2.25	0.13	0.095	(0.403)	0.058	0.037
28	2.33	0.13	0.095	(0.402)	0.058	0.037
29	2.42	0.13	0.095	(0.400)	0.058	0.037
30	2.50	0.13	0.095	(0.398)	0.058	0.037
31	2.58	0.17	0.119	(0.397)	0.072	0.047
32	2.67	0.17	0.119	(0.395)	0.072	0.047
33	2.75	0.17	0.119	(0.393)	0.072	0.047
34	2.83	0.17	0.119	(0.392)	0.072	0.047
35	2.92	0.17	0.119	(0.390)	0.072	0.047
36	3.00	0.17	0.119	(0.389)	0.072	0.047
37	3.08	0.17	0.119	(0.387)	0.072	0.047
38	3.17	0.17	0.119	(0.385)	0.072	0.047
39	3.25	0.17	0.119	(0.384)	0.072	0.047
40	3.33	0.17	0.119	(0.382)	0.072	0.047
41	3.42	0.17	0.119	(0.381)	0.072	0.047
42	3.50	0.17	0.119	(0.379)	0.072	0.047
43	3.58	0.17	0.119	(0.377)	0.072	0.047
44	3.67	0.17	0.119	(0.376)	0.072	0.047
45	3.75	0.17	0.119	(0.374)	0.072	0.047
46	3.83	0.20	0.143	(0.373)	0.087	0.056
47	3.92	0.20	0.143	(0.371)	0.087	0.056
48	4.00	0.20	0.143	(0.369)	0.087	0.056
49	4.08	0.20	0.143	(0.368)	0.087	0.056
50	4.17	0.20	0.143	(0.366)	0.087	0.056
51	4.25	0.20	0.143	(0.365)	0.087	0.056
52	4.33	0.23	0.167	(0.363)	0.101	0.065
53	4.42	0.23	0.167	(0.362)	0.101	0.065
54	4.50	0.23	0.167	(0.360)	0.101	0.065
55	4.58	0.23	0.167	(0.359)	0.101	0.065
56	4.67	0.23	0.167	(0.357)	0.101	0.065
57	4.75	0.23	0.167	(0.355)	0.101	0.065
58	4.83	0.27	0.190	(0.354)	0.116	0.075
59	4.92	0.27	0.190	(0.352)	0.116	0.075
60	5.00	0.27	0.190	(0.351)	0.116	0.075
61	5.08	0.20	0.143	(0.349)	0.087	0.056
62	5.17	0.20	0.143	(0.348)	0.087	0.056
63	5.25	0.20	0.143	(0.346)	0.087	0.056
64	5.33	0.23	0.167	(0.345)	0.101	0.065
65	5.42	0.23	0.167	(0.343)	0.101	0.065
66	5.50	0.23	0.167	(0.342)	0.101	0.065
67	5.58	0.27	0.190	(0.340)	0.116	0.075
68	5.67	0.27	0.190	(0.339)	0.116	0.075
69	5.75	0.27	0.190	(0.337)	0.116	0.075
70	5.83	0.27	0.190	(0.336)	0.116	0.075
71	5.92	0.27	0.190	(0.334)	0.116	0.075

72	6.00	0.27	0.190	(0.333)	0.116	0.075
73	6.08	0.30	0.214	(0.331)	0.130	0.084
74	6.17	0.30	0.214	(0.330)	0.130	0.084
75	6.25	0.30	0.214	(0.328)	0.130	0.084
76	6.33	0.30	0.214	(0.327)	0.130	0.084
77	6.42	0.30	0.214	(0.325)	0.130	0.084
78	6.50	0.30	0.214	(0.324)	0.130	0.084
79	6.58	0.33	0.238	(0.323)	0.144	0.094
80	6.67	0.33	0.238	(0.321)	0.144	0.094
81	6.75	0.33	0.238	(0.320)	0.144	0.094
82	6.83	0.33	0.238	(0.318)	0.144	0.094
83	6.92	0.33	0.238	(0.317)	0.144	0.094
84	7.00	0.33	0.238	(0.315)	0.144	0.094
85	7.08	0.33	0.238	(0.314)	0.144	0.094
86	7.17	0.33	0.238	(0.312)	0.144	0.094
87	7.25	0.33	0.238	(0.311)	0.144	0.094
88	7.33	0.37	0.262	(0.310)	0.159	0.103
89	7.42	0.37	0.262	(0.308)	0.159	0.103
90	7.50	0.37	0.262	(0.307)	0.159	0.103
91	7.58	0.40	0.286	(0.305)	0.173	0.112
92	7.67	0.40	0.286	(0.304)	0.173	0.112
93	7.75	0.40	0.286	(0.303)	0.173	0.112
94	7.83	0.43	0.309	(0.301)	0.188	0.122
95	7.92	0.43	0.309	(0.300)	0.188	0.122
96	8.00	0.43	0.309	(0.298)	0.188	0.122
97	8.08	0.50	0.357	(0.297)	0.217	0.140
98	8.17	0.50	0.357	(0.296)	0.217	0.140
99	8.25	0.50	0.357	(0.294)	0.217	0.140
100	8.33	0.50	0.357	(0.293)	0.217	0.140
101	8.42	0.50	0.357	(0.292)	0.217	0.140
102	8.50	0.50	0.357	(0.290)	0.217	0.140
103	8.58	0.53	0.381	(0.289)	0.231	0.150
104	8.67	0.53	0.381	(0.287)	0.231	0.150
105	8.75	0.53	0.381	(0.286)	0.231	0.150
106	8.83	0.57	0.405	(0.285)	0.246	0.159
107	8.92	0.57	0.405	(0.283)	0.246	0.159
108	9.00	0.57	0.405	(0.282)	0.246	0.159
109	9.08	0.63	0.452	(0.281)	0.274	0.178
110	9.17	0.63	0.452	(0.279)	0.274	0.178
111	9.25	0.63	0.452	(0.278)	0.274	0.178
112	9.33	0.67	0.476	0.277	(0.289)	0.199
113	9.42	0.67	0.476	0.275	(0.289)	0.201
114	9.50	0.67	0.476	0.274	(0.289)	0.202
115	9.58	0.70	0.500	0.273	(0.303)	0.227
116	9.67	0.70	0.500	0.271	(0.303)	0.228
117	9.75	0.70	0.500	0.270	(0.303)	0.230
118	9.83	0.73	0.524	0.269	(0.318)	0.255
119	9.92	0.73	0.524	0.268	(0.318)	0.256
120	10.00	0.73	0.524	0.266	(0.318)	0.257
121	10.08	0.50	0.357	(0.265)	0.217	0.140
122	10.17	0.50	0.357	(0.264)	0.217	0.140
123	10.25	0.50	0.357	(0.262)	0.217	0.140
124	10.33	0.50	0.357	(0.261)	0.217	0.140
125	10.42	0.50	0.357	(0.260)	0.217	0.140
126	10.50	0.50	0.357	(0.259)	0.217	0.140
127	10.58	0.67	0.476	0.257	(0.289)	0.219
128	10.67	0.67	0.476	0.256	(0.289)	0.220
129	10.75	0.67	0.476	0.255	(0.289)	0.221
130	10.83	0.67	0.476	0.254	(0.289)	0.222
131	10.92	0.67	0.476	0.252	(0.289)	0.224

132	11.00	0.67	0.476	0.251	(0.289)	0.225
133	11.08	0.63	0.452	0.250	(0.274)	0.202
134	11.17	0.63	0.452	0.249	(0.274)	0.204
135	11.25	0.63	0.452	0.247	(0.274)	0.205
136	11.33	0.63	0.452	0.246	(0.274)	0.206
137	11.42	0.63	0.452	0.245	(0.274)	0.207
138	11.50	0.63	0.452	0.244	(0.274)	0.208
139	11.58	0.57	0.405	0.243	(0.246)	0.162
140	11.67	0.57	0.405	0.241	(0.246)	0.163
141	11.75	0.57	0.405	0.240	(0.246)	0.164
142	11.83	0.60	0.428	0.239	(0.260)	0.189
143	11.92	0.60	0.428	0.238	(0.260)	0.191
144	12.00	0.60	0.428	0.237	(0.260)	0.192
145	12.08	0.83	0.595	0.235	(0.361)	0.360
146	12.17	0.83	0.595	0.234	(0.361)	0.361
147	12.25	0.83	0.595	0.233	(0.361)	0.362
148	12.33	0.87	0.619	0.232	(0.376)	0.387
149	12.42	0.87	0.619	0.231	(0.376)	0.388
150	12.50	0.87	0.619	0.230	(0.376)	0.389
151	12.58	0.93	0.666	0.228	(0.404)	0.438
152	12.67	0.93	0.666	0.227	(0.404)	0.439
153	12.75	0.93	0.666	0.226	(0.404)	0.440
154	12.83	0.97	0.690	0.225	(0.419)	0.465
155	12.92	0.97	0.690	0.224	(0.419)	0.466
156	13.00	0.97	0.690	0.223	(0.419)	0.468
157	13.08	1.13	0.809	0.222	(0.491)	0.588
158	13.17	1.13	0.809	0.220	(0.491)	0.589
159	13.25	1.13	0.809	0.219	(0.491)	0.590
160	13.33	1.13	0.809	0.218	(0.491)	0.591
161	13.42	1.13	0.809	0.217	(0.491)	0.592
162	13.50	1.13	0.809	0.216	(0.491)	0.593
163	13.58	0.77	0.547	0.215	(0.332)	0.333
164	13.67	0.77	0.547	0.214	(0.332)	0.334
165	13.75	0.77	0.547	0.213	(0.332)	0.335
166	13.83	0.77	0.547	0.212	(0.332)	0.336
167	13.92	0.77	0.547	0.211	(0.332)	0.337
168	14.00	0.77	0.547	0.209	(0.332)	0.338
169	14.08	0.90	0.643	0.208	(0.390)	0.434
170	14.17	0.90	0.643	0.207	(0.390)	0.435
171	14.25	0.90	0.643	0.206	(0.390)	0.436
172	14.33	0.87	0.619	0.205	(0.376)	0.414
173	14.42	0.87	0.619	0.204	(0.376)	0.415
174	14.50	0.87	0.619	0.203	(0.376)	0.416
175	14.58	0.87	0.619	0.202	(0.376)	0.417
176	14.67	0.87	0.619	0.201	(0.376)	0.418
177	14.75	0.87	0.619	0.200	(0.376)	0.419
178	14.83	0.83	0.595	0.199	(0.361)	0.396
179	14.92	0.83	0.595	0.198	(0.361)	0.397
180	15.00	0.83	0.595	0.197	(0.361)	0.398
181	15.08	0.80	0.571	0.196	(0.347)	0.375
182	15.17	0.80	0.571	0.195	(0.347)	0.376
183	15.25	0.80	0.571	0.194	(0.347)	0.377
184	15.33	0.77	0.547	0.193	(0.332)	0.354
185	15.42	0.77	0.547	0.192	(0.332)	0.355
186	15.50	0.77	0.547	0.191	(0.332)	0.356
187	15.58	0.63	0.452	0.190	(0.274)	0.262
188	15.67	0.63	0.452	0.189	(0.274)	0.263
189	15.75	0.63	0.452	0.188	(0.274)	0.264
190	15.83	0.63	0.452	0.187	(0.274)	0.265
191	15.92	0.63	0.452	0.186	(0.274)	0.266

192	16.00	0.63	0.452	0.185	(0.274)	0.267
193	16.08	0.13	0.095	(0.184)	0.058	0.037
194	16.17	0.13	0.095	(0.183)	0.058	0.037
195	16.25	0.13	0.095	(0.182)	0.058	0.037
196	16.33	0.13	0.095	(0.181)	0.058	0.037
197	16.42	0.13	0.095	(0.180)	0.058	0.037
198	16.50	0.13	0.095	(0.180)	0.058	0.037
199	16.58	0.10	0.071	(0.179)	0.043	0.028
200	16.67	0.10	0.071	(0.178)	0.043	0.028
201	16.75	0.10	0.071	(0.177)	0.043	0.028
202	16.83	0.10	0.071	(0.176)	0.043	0.028
203	16.92	0.10	0.071	(0.175)	0.043	0.028
204	17.00	0.10	0.071	(0.174)	0.043	0.028
205	17.08	0.17	0.119	(0.173)	0.072	0.047
206	17.17	0.17	0.119	(0.172)	0.072	0.047
207	17.25	0.17	0.119	(0.172)	0.072	0.047
208	17.33	0.17	0.119	(0.171)	0.072	0.047
209	17.42	0.17	0.119	(0.170)	0.072	0.047
210	17.50	0.17	0.119	(0.169)	0.072	0.047
211	17.58	0.17	0.119	(0.168)	0.072	0.047
212	17.67	0.17	0.119	(0.167)	0.072	0.047
213	17.75	0.17	0.119	(0.166)	0.072	0.047
214	17.83	0.13	0.095	(0.166)	0.058	0.037
215	17.92	0.13	0.095	(0.165)	0.058	0.037
216	18.00	0.13	0.095	(0.164)	0.058	0.037
217	18.08	0.13	0.095	(0.163)	0.058	0.037
218	18.17	0.13	0.095	(0.162)	0.058	0.037
219	18.25	0.13	0.095	(0.162)	0.058	0.037
220	18.33	0.13	0.095	(0.161)	0.058	0.037
221	18.42	0.13	0.095	(0.160)	0.058	0.037
222	18.50	0.13	0.095	(0.159)	0.058	0.037
223	18.58	0.10	0.071	(0.158)	0.043	0.028
224	18.67	0.10	0.071	(0.158)	0.043	0.028
225	18.75	0.10	0.071	(0.157)	0.043	0.028
226	18.83	0.07	0.048	(0.156)	0.029	0.019
227	18.92	0.07	0.048	(0.155)	0.029	0.019
228	19.00	0.07	0.048	(0.155)	0.029	0.019
229	19.08	0.10	0.071	(0.154)	0.043	0.028
230	19.17	0.10	0.071	(0.153)	0.043	0.028
231	19.25	0.10	0.071	(0.153)	0.043	0.028
232	19.33	0.13	0.095	(0.152)	0.058	0.037
233	19.42	0.13	0.095	(0.151)	0.058	0.037
234	19.50	0.13	0.095	(0.150)	0.058	0.037
235	19.58	0.10	0.071	(0.150)	0.043	0.028
236	19.67	0.10	0.071	(0.149)	0.043	0.028
237	19.75	0.10	0.071	(0.148)	0.043	0.028
238	19.83	0.07	0.048	(0.148)	0.029	0.019
239	19.92	0.07	0.048	(0.147)	0.029	0.019
240	20.00	0.07	0.048	(0.146)	0.029	0.019
241	20.08	0.10	0.071	(0.146)	0.043	0.028
242	20.17	0.10	0.071	(0.145)	0.043	0.028
243	20.25	0.10	0.071	(0.145)	0.043	0.028
244	20.33	0.10	0.071	(0.144)	0.043	0.028
245	20.42	0.10	0.071	(0.143)	0.043	0.028
246	20.50	0.10	0.071	(0.143)	0.043	0.028
247	20.58	0.10	0.071	(0.142)	0.043	0.028
248	20.67	0.10	0.071	(0.141)	0.043	0.028
249	20.75	0.10	0.071	(0.141)	0.043	0.028
250	20.83	0.07	0.048	(0.140)	0.029	0.019
251	20.92	0.07	0.048	(0.140)	0.029	0.019

252	21.00	0.07	0.048	(0.139)	0.029	0.019
253	21.08	0.10	0.071	(0.139)	0.043	0.028
254	21.17	0.10	0.071	(0.138)	0.043	0.028
255	21.25	0.10	0.071	(0.138)	0.043	0.028
256	21.33	0.07	0.048	(0.137)	0.029	0.019
257	21.42	0.07	0.048	(0.136)	0.029	0.019
258	21.50	0.07	0.048	(0.136)	0.029	0.019
259	21.58	0.10	0.071	(0.135)	0.043	0.028
260	21.67	0.10	0.071	(0.135)	0.043	0.028
261	21.75	0.10	0.071	(0.135)	0.043	0.028
262	21.83	0.07	0.048	(0.134)	0.029	0.019
263	21.92	0.07	0.048	(0.134)	0.029	0.019
264	22.00	0.07	0.048	(0.133)	0.029	0.019
265	22.08	0.10	0.071	(0.133)	0.043	0.028
266	22.17	0.10	0.071	(0.132)	0.043	0.028
267	22.25	0.10	0.071	(0.132)	0.043	0.028
268	22.33	0.07	0.048	(0.131)	0.029	0.019
269	22.42	0.07	0.048	(0.131)	0.029	0.019
270	22.50	0.07	0.048	(0.131)	0.029	0.019
271	22.58	0.07	0.048	(0.130)	0.029	0.019
272	22.67	0.07	0.048	(0.130)	0.029	0.019
273	22.75	0.07	0.048	(0.130)	0.029	0.019
274	22.83	0.07	0.048	(0.129)	0.029	0.019
275	22.92	0.07	0.048	(0.129)	0.029	0.019
276	23.00	0.07	0.048	(0.129)	0.029	0.019
277	23.08	0.07	0.048	(0.128)	0.029	0.019
278	23.17	0.07	0.048	(0.128)	0.029	0.019
279	23.25	0.07	0.048	(0.128)	0.029	0.019
280	23.33	0.07	0.048	(0.127)	0.029	0.019
281	23.42	0.07	0.048	(0.127)	0.029	0.019
282	23.50	0.07	0.048	(0.127)	0.029	0.019
283	23.58	0.07	0.048	(0.127)	0.029	0.019
284	23.67	0.07	0.048	(0.127)	0.029	0.019
285	23.75	0.07	0.048	(0.126)	0.029	0.019
286	23.83	0.07	0.048	(0.126)	0.029	0.019
287	23.92	0.07	0.048	(0.126)	0.029	0.019
288	24.00	0.07	0.048	(0.126)	0.029	0.019

```
          (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    36.6
     Flood volume = Effective rainfall      3.05(In)
      times area       9.2(Ac.)/[(In)/(Ft.)] =       2.3(Ac.Ft)
     Total soil loss =       2.90(In)
     Total soil loss =      2.216(Ac.Ft)
     Total rainfall =       5.95(In)
     Flood volume =      101310.2 Cubic Feet
     Total soil loss =       96528.6 Cubic Feet
     ----------------------------------------------------------------------
      Peak flow rate of this hydrograph =      5.471(CFS)
     ----------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R   S T O R M
                       R u n o f f    H y d r o g r a p h
     ----------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))

     ----------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0005      0.07  Q         |         |         |         |
   0+10       0.0015      0.15  Q         |         |         |         |
```

```
 0+15      0.0027     0.17  Q          |          |          |          |
 0+20      0.0041     0.21  Q          |          |          |          |
 0+25      0.0058     0.25  Q          |          |          |          |
 0+30      0.0075     0.26  VQ         |          |          |          |
 0+35      0.0093     0.26  VQ         |          |          |          |
 0+40      0.0111     0.26  VQ         |          |          |          |
 0+45      0.0129     0.26  VQ         |          |          |          |
 0+50      0.0149     0.29  VQ         |          |          |          |
 0+55      0.0172     0.33  VQ         |          |          |          |
 1+ 0      0.0196     0.34  VQ         |          |          |          |
 1+ 5      0.0217     0.31  VQ         |          |          |          |
 1+10      0.0236     0.27  VQ         |          |          |          |
 1+15      0.0254     0.26  VQ         |          |          |          |
 1+20      0.0272     0.26  VQ         |          |          |          |
 1+25      0.0290     0.26  VQ         |          |          |          |
 1+30      0.0307     0.26  VQ         |          |          |          |
 1+35      0.0325     0.26  VQ         |          |          |          |
 1+40      0.0343     0.26  VQ         |          |          |          |
 1+45      0.0361     0.26  VQ         |          |          |          |
 1+50      0.0381     0.29  VQ         |          |          |          |
 1+55      0.0404     0.33  VQ         |          |          |          |
 2+ 0      0.0428     0.34  VQ         |          |          |          |
 2+ 5      0.0451     0.34  VQ         |          |          |          |
 2+10      0.0475     0.35  VQ         |          |          |          |
 2+15      0.0499     0.35  VQ         |          |          |          |
 2+20      0.0523     0.35  VQ         |          |          |          |
 2+25      0.0547     0.35  VQ         |          |          |          |
 2+30      0.0570     0.35  VQ         |          |          |          |
 2+35      0.0597     0.38   |Q        |          |          |          |
 2+40      0.0626     0.42   |Q        |          |          |          |
 2+45      0.0655     0.43   |Q        |          |          |          |
 2+50      0.0685     0.43   |Q        |          |          |          |
 2+55      0.0715     0.43   |Q        |          |          |          |
 3+ 0      0.0744     0.43   |Q        |          |          |          |
 3+ 5      0.0774     0.43   |Q        |          |          |          |
 3+10      0.0804     0.43   |Q        |          |          |          |
 3+15      0.0834     0.43   |Q        |          |          |          |
 3+20      0.0863     0.43   |Q        |          |          |          |
 3+25      0.0893     0.43   |Q        |          |          |          |
 3+30      0.0923     0.43   |Q        |          |          |          |
 3+35      0.0953     0.43   |Q        |          |          |          |
 3+40      0.0982     0.43   |Q        |          |          |          |
 3+45      0.1012     0.43   |Q        |          |          |          |
 3+50      0.1044     0.47   |Q        |          |          |          |
 3+55      0.1079     0.51   |VQ       |          |          |          |
 4+ 0      0.1115     0.51   |VQ       |          |          |          |
 4+ 5      0.1150     0.52   |VQ       |          |          |          |
 4+10      0.1186     0.52   | Q       |          |          |          |
 4+15      0.1222     0.52   | Q       |          |          |          |
 4+20      0.1260     0.55   | Q       |          |          |          |
 4+25      0.1301     0.59   | Q       |          |          |          |
 4+30      0.1342     0.60   | Q       |          |          |          |
 4+35      0.1384     0.60   | Q       |          |          |          |
 4+40      0.1425     0.60   | Q       |          |          |          |
 4+45      0.1467     0.60   | Q       |          |          |          |
 4+50      0.1511     0.64   | Q       |          |          |          |
 4+55      0.1558     0.68   | Q       |          |          |          |
 5+ 0      0.1605     0.69   | Q       |          |          |          |
 5+ 5      0.1648     0.62   | Q       |          |          |          |
 5+10      0.1685     0.54   | Q       |          |          |          |
```

5+15	0.1721	0.53	Q
5+20	0.1760	0.55	QV
5+25	0.1800	0.59	QV
5+30	0.1842	0.60	QV
5+35	0.1886	0.64	QV
5+40	0.1933	0.68	QV
5+45	0.1980	0.69	QV
5+50	0.2027	0.69	QV
5+55	0.2075	0.69	QV
6+ 0	0.2123	0.69	QV
6+ 5	0.2173	0.73	QV
6+10	0.2225	0.77	Q
6+15	0.2279	0.77	Q
6+20	0.2332	0.78	QV
6+25	0.2386	0.78	QV
6+30	0.2439	0.78	QV
6+35	0.2495	0.81	QV
6+40	0.2554	0.85	QV
6+45	0.2613	0.86	QV
6+50	0.2673	0.86	QV
6+55	0.2732	0.86	QV
7+ 0	0.2792	0.86	QV
7+ 5	0.2851	0.86	QV
7+10	0.2911	0.86	Q V
7+15	0.2970	0.86	Q V
7+20	0.3032	0.90	Q V
7+25	0.3097	0.94	Q V
7+30	0.3162	0.95	Q V
7+35	0.3230	0.98	Q V
7+40	0.3300	1.03	QV
7+45	0.3371	1.03	QV
7+50	0.3445	1.07	QV
7+55	0.3522	1.11	Q V
8+ 0	0.3599	1.12	Q V
8+ 5	0.3681	1.19	Q V
8+10	0.3769	1.27	QV
8+15	0.3857	1.29	QV
8+20	0.3947	1.29	QV
8+25	0.4036	1.30	QV
8+30	0.4125	1.30	Q V
8+35	0.4217	1.33	Q V
8+40	0.4311	1.37	Q V
8+45	0.4406	1.38	Q V
8+50	0.4504	1.42	Q V
8+55	0.4604	1.46	Q V
9+ 0	0.4705	1.47	Q V
9+ 5	0.4811	1.54	Q V
9+10	0.4922	1.62	Q V
9+15	0.5035	1.63	Q V
9+20	0.5153	1.72	Q V
9+25	0.5278	1.82	Q V
9+30	0.5406	1.85	Q V
9+35	0.5540	1.95	Q V
9+40	0.5683	2.07	QV
9+45	0.5828	2.10	Q V
9+50	0.5980	2.21	Q V
9+55	0.6140	2.33	QV
10+ 0	0.6303	2.36	QV
10+ 5	0.6436	1.94	Q V
10+10	0.6535	1.44	Q V

```
10+15       0.6627      1.34  |    Q    |V        |         |         |
10+20       0.6717      1.31  |    Q    |V        |         |         |
10+25       0.6806      1.30  |    Q    |V        |         |         |
10+30       0.6896      1.30  |    Q    |V        |         |         |
10+35       0.7005      1.59  |     Q   | V       |         |         |
10+40       0.7138      1.93  |      Q  | V       |         |         |
10+45       0.7276      2.01  |       Q | V       |         |         |
10+50       0.7416      2.04  |       Q | V       |         |         |
10+55       0.7558      2.06  |       Q | V       |         |         |
11+ 0       0.7700      2.07  |       Q |  V      |         |         |
11+ 5       0.7838      1.99  |      Q  |  V      |         |         |
11+10       0.7968      1.90  |      Q  |  V      |         |         |
11+15       0.8099      1.89  |      Q  |  V      |         |         |
11+20       0.8229      1.90  |      Q  |   V     |         |         |
11+25       0.8360      1.91  |      Q  |   V     |         |         |
11+30       0.8492      1.92  |      Q  |   V     |         |         |
11+35       0.8613      1.75  |      Q  |   V     |         |         |
11+40       0.8720      1.56  |     Q   |   V     |         |         |
11+45       0.8825      1.53  |     Q   |    V    |         |         |
11+50       0.8937      1.61  |     Q   |    V    |         |         |
11+55       0.9055      1.72  |     Q   |    V    |         |         |
12+ 0       0.9176      1.75  |      Q  |    V    |         |         |
12+ 5       0.9341      2.39  |        Q|     V   |         |         |
12+10       0.9556      3.12  |         | Q   V   |         |         |
12+15       0.9781      3.27  |         |  Q  V   |         |         |
12+20       1.0017      3.42  |         |  Q   V  |         |         |
12+25       1.0261      3.55  |         |   Q  V  |         |         |
12+30       1.0507      3.58  |         |   Q   V |         |         |
12+35       1.0767      3.77  |         |    Q  V |         |         |
12+40       1.1042      3.99  |         |    Q  V |         |         |
12+45       1.1320      4.04  |         |     Q  V|         |         |
12+50       1.1606      4.15  |         |     Q  V|         |         |
12+55       1.1900      4.27  |         |      Q  V         |         |
13+ 0       1.2197      4.30  |         |      Q  V         |         |
13+ 5       1.2525      4.76  |         |        Q|V        |         |
13+10       1.2889      5.28  |         |         |QV       |         |
13+15       1.3260      5.40  |         |         |QV       |         |
13+20       1.3635      5.44  |         |         |Q V      |         |
13+25       1.4011      5.46  |         |         |Q  V     |         |
13+30       1.4388      5.47  |         |         |Q  V     |         |
13+35       1.4698      4.50  |         |       Q |    V    |         |
13+40       1.4932      3.40  |         |  Q      |    V    |         |
13+45       1.5151      3.18  |         | Q       |     V   |         |
13+50       1.5366      3.12  |         | Q       |     V   |         |
13+55       1.5579      3.10  |         | Q       |     V   |         |
14+ 0       1.5794      3.11  |         | Q       |      V  |         |
14+ 5       1.6033      3.48  |         |  Q      |      V  |         |
14+10       1.6302      3.90  |         |    Q    |       V |         |
14+15       1.6576      3.99  |         |    Q    |       V |         |
14+20       1.6847      3.93  |         |    Q    |       V |         |
14+25       1.7112      3.85  |         |    Q    |        V|         |
14+30       1.7377      3.84  |         |    Q    |        V|         |
14+35       1.7642      3.84  |         |    Q    |         V         |
14+40       1.7907      3.85  |         |    Q    |         V         |
14+45       1.8173      3.86  |         |    Q    |         |V        |
14+50       1.8433      3.78  |         |    Q    |         |V        |
14+55       1.8687      3.69  |         |   Q     |         | V       |
15+ 0       1.8941      3.68  |         |   Q     |         | V       |
15+ 5       1.9188      3.59  |         |   Q     |         |  V      |
15+10       1.9429      3.50  |         |  Q      |         |  V      |
```

```
15+15       1.9669      3.49  |         |  Q      |         |  V      |
15+20       1.9903      3.40  |         |  Q      |         |   V     |
15+25       2.0131      3.31  |         |  Q      |         |   V     |
15+30       2.0358      3.29  |         |  Q      |         |    V    |
15+35       2.0560      2.94  |         |Q        |         |    V    |
15+40       2.0735      2.54  |         Q         |         |    V    |
15+45       2.0905      2.47  |        Q|         |         |    V    |
15+50       2.1074      2.45  |        Q|         |         |     V   |
15+55       2.1243      2.45  |        Q|         |         |     V   |
16+ 0       2.1412      2.46  |        Q|         |         |     V   |
16+ 5       2.1523      1.61  |     Q   |         |         |      V  |
16+10       2.1566      0.63  | Q       |         |         |      V  |
16+15       2.1596      0.43  |Q        |         |         |      V  |
16+20       2.1621      0.37  |Q        |         |         |      V  |
16+25       2.1645      0.35  |Q        |         |         |      V  |
16+30       2.1668      0.35  |Q        |         |         |      V  |
16+35       2.1690      0.31  |Q        |         |         |      V  |
16+40       2.1708      0.27  |Q        |         |         |      V  |
16+45       2.1726      0.26  |Q        |         |         |      V  |
16+50       2.1744      0.26  |Q        |         |         |      V  |
16+55       2.1762      0.26  |Q        |         |         |      V  |
17+ 0       2.1780      0.26  |Q        |         |         |      V  |
17+ 5       2.1803      0.33  |Q        |         |         |      V  |
17+10       2.1831      0.41  |Q        |         |         |      V  |
17+15       2.1860      0.43  |Q        |         |         |      V  |
17+20       2.1890      0.43  |Q        |         |         |      V  |
17+25       2.1920      0.43  |Q        |         |         |      V  |
17+30       2.1949      0.43  |Q        |         |         |      V  |
17+35       2.1979      0.43  |Q        |         |         |      V  |
17+40       2.2009      0.43  |Q        |         |         |      V  |
17+45       2.2039      0.43  |Q        |         |         |      V  |
17+50       2.2066      0.40  |Q        |         |         |      V  |
17+55       2.2090      0.36  |Q        |         |         |      V  |
18+ 0       2.2115      0.35  |Q        |         |         |       V |
18+ 5       2.2138      0.35  |Q        |         |         |       V |
18+10       2.2162      0.35  |Q        |         |         |       V |
18+15       2.2186      0.35  |Q        |         |         |       V |
18+20       2.2210      0.35  |Q        |         |         |       V |
18+25       2.2234      0.35  |Q        |         |         |       V |
18+30       2.2257      0.35  |Q        |         |         |       V |
18+35       2.2279      0.31  |Q        |         |         |       V |
18+40       2.2297      0.27  |Q        |         |         |       V |
18+45       2.2315      0.26  |Q        |         |         |       V |
18+50       2.2331      0.23  Q         |         |         |       V |
18+55       2.2344      0.18  Q         |         |         |       V |
19+ 0       2.2356      0.18  Q         |         |         |       V |
19+ 5       2.2370      0.21  Q         |         |         |       V |
19+10       2.2387      0.25  Q         |         |         |       V |
19+15       2.2405      0.26  |Q        |         |         |       V |
19+20       2.2425      0.29  |Q        |         |         |       V |
19+25       2.2448      0.33  |Q        |         |         |       V |
19+30       2.2472      0.34  |Q        |         |         |       V |
19+35       2.2493      0.31  |Q        |         |         |       V |
19+40       2.2512      0.27  |Q        |         |         |       V |
19+45       2.2530      0.26  |Q        |         |         |       V |
19+50       2.2545      0.23  Q         |         |         |       V |
19+55       2.2558      0.18  Q         |         |         |       V |
20+ 0       2.2570      0.18  Q         |         |         |       V |
20+ 5       2.2584      0.21  Q         |         |         |       V |
20+10       2.2601      0.25  Q         |         |         |       V |
```

```
 20+15        2.2619       0.26  |Q          |           |           |       V  |
 20+20        2.2637       0.26  |Q          |           |           |       V  |
 20+25        2.2655       0.26  |Q          |           |           |       V  |
 20+30        2.2673       0.26  |Q          |           |           |       V  |
 20+35        2.2690       0.26  |Q          |           |           |        V|
 20+40        2.2708       0.26  |Q          |           |           |        V|
 20+45        2.2726       0.26  |Q          |           |           |        V|
 20+50        2.2742       0.22  Q           |           |           |        V|
 20+55        2.2754       0.18  Q           |           |           |        V|
 21+ 0        2.2766       0.18  Q           |           |           |        V|
 21+ 5        2.2781       0.21  Q           |           |           |        V|
 21+10        2.2798       0.25  Q           |           |           |        V|
 21+15        2.2815       0.26  |Q          |           |           |        V|
 21+20        2.2831       0.22  Q           |           |           |        V|
 21+25        2.2843       0.18  Q           |           |           |        V|
 21+30        2.2856       0.18  Q           |           |           |        V|
 21+35        2.2870       0.21  Q           |           |           |        V|
 21+40        2.2887       0.25  Q           |           |           |        V|
 21+45        2.2905       0.26  |Q          |           |           |        V|
 21+50        2.2920       0.22  Q           |           |           |        V|
 21+55        2.2933       0.18  Q           |           |           |        V|
 22+ 0        2.2945       0.18  Q           |           |           |        V|
 22+ 5        2.2959       0.21  Q           |           |           |        V|
 22+10        2.2976       0.25  Q           |           |           |        V|
 22+15        2.2994       0.26  |Q          |           |           |        V|
 22+20        2.3009       0.22  Q           |           |           |        V|
 22+25        2.3022       0.18  Q           |           |           |        V|
 22+30        2.3034       0.18  Q           |           |           |        V|
 22+35        2.3046       0.17  Q           |           |           |        V|
 22+40        2.3058       0.17  Q           |           |           |        V|
 22+45        2.3070       0.17  Q           |           |           |        V|
 22+50        2.3082       0.17  Q           |           |           |        V|
 22+55        2.3094       0.17  Q           |           |           |        V|
 23+ 0        2.3106       0.17  Q           |           |           |        V|
 23+ 5        2.3117       0.17  Q           |           |           |        V|
 23+10        2.3129       0.17  Q           |           |           |        V|
 23+15        2.3141       0.17  Q           |           |           |        V|
 23+20        2.3153       0.17  Q           |           |           |        V|
 23+25        2.3165       0.17  Q           |           |           |        V|
 23+30        2.3177       0.17  Q           |           |           |        V|
 23+35        2.3189       0.17  Q           |           |           |        V|
 23+40        2.3201       0.17  Q           |           |           |        V|
 23+45        2.3213       0.17  Q           |           |           |        V|
 23+50        2.3225       0.17  Q           |           |           |        V|
 23+55        2.3236       0.17  Q           |           |           |        V|
 24+ 0        2.3248       0.17  Q           |           |           |        V|
 24+ 5        2.3255       0.10  Q           |           |           |        V|
 24+10        2.3257       0.02  Q           |           |           |        V|
 24+15        2.3257       0.01  Q           |           |           |        V|
 24+20        2.3258       0.00  Q           |           |           |          V
-----------------------------------------------------------------------
```

UNDEVELOPED
100 YEAR – 24 HOUR
AREA B_1

U n i t   H y d r o g r a p h   A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 07/23/19 File: c318undB124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Undeveloped B1
100-Year 24-Hour

Drainage Area = 2.32(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.32(Ac.) = 0.004 Sq. Mi.
Length along longest watercourse = 331.70(Ft.)
Length along longest watercourse measured to centroid = 158.90(Ft.)
Length along longest watercourse = 0.063 Mi.
Length along longest watercourse measured to centroid = 0.030 Mi.
Difference in elevation = 11.50(Ft.)
Slope along watercourse = 183.0570 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.012 Hr.
Lag time = 0.74 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.30 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.32	2.23	5.17

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.32	5.95	13.80

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.320	81.09	0.854

Total Area Entered = 2.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
81.1	81.1	0.232	0.854	0.054	1.000	0.054
					Sum (F) =	0.054

Area averaged mean soil loss (F) (In/Hr) = 0.054
Minimum soil loss rate ((In/Hr)) = 0.027
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.217

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	674.993	78.099	1.826
2	0.167	1349.985	21.901	0.512
			Sum = 100.000	Sum= 2.338

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.095)	0.010	0.037
2	0.17	0.07	0.048	(0.095)	0.010	0.037
3	0.25	0.07	0.048	(0.094)	0.010	0.037
4	0.33	0.10	0.071	(0.094)	0.015	0.056
5	0.42	0.10	0.071	(0.094)	0.015	0.056
6	0.50	0.10	0.071	(0.093)	0.015	0.056
7	0.58	0.10	0.071	(0.093)	0.015	0.056
8	0.67	0.10	0.071	(0.092)	0.015	0.056
9	0.75	0.10	0.071	(0.092)	0.015	0.056
10	0.83	0.13	0.095	(0.092)	0.021	0.075
11	0.92	0.13	0.095	(0.091)	0.021	0.075
12	1.00	0.13	0.095	(0.091)	0.021	0.075
13	1.08	0.10	0.071	(0.091)	0.015	0.056
14	1.17	0.10	0.071	(0.090)	0.015	0.056
15	1.25	0.10	0.071	(0.090)	0.015	0.056
16	1.33	0.10	0.071	(0.090)	0.015	0.056
17	1.42	0.10	0.071	(0.089)	0.015	0.056
18	1.50	0.10	0.071	(0.089)	0.015	0.056

19	1.58	0.10	0.071	(0.088)	0.015	0.056
20	1.67	0.10	0.071	(0.088)	0.015	0.056
21	1.75	0.10	0.071	(0.088)	0.015	0.056
22	1.83	0.13	0.095	(0.087)	0.021	0.075
23	1.92	0.13	0.095	(0.087)	0.021	0.075
24	2.00	0.13	0.095	(0.087)	0.021	0.075
25	2.08	0.13	0.095	(0.086)	0.021	0.075
26	2.17	0.13	0.095	(0.086)	0.021	0.075
27	2.25	0.13	0.095	(0.086)	0.021	0.075
28	2.33	0.13	0.095	(0.085)	0.021	0.075
29	2.42	0.13	0.095	(0.085)	0.021	0.075
30	2.50	0.13	0.095	(0.085)	0.021	0.075
31	2.58	0.17	0.119	(0.084)	0.026	0.093
32	2.67	0.17	0.119	(0.084)	0.026	0.093
33	2.75	0.17	0.119	(0.084)	0.026	0.093
34	2.83	0.17	0.119	(0.083)	0.026	0.093
35	2.92	0.17	0.119	(0.083)	0.026	0.093
36	3.00	0.17	0.119	(0.083)	0.026	0.093
37	3.08	0.17	0.119	(0.082)	0.026	0.093
38	3.17	0.17	0.119	(0.082)	0.026	0.093
39	3.25	0.17	0.119	(0.082)	0.026	0.093
40	3.33	0.17	0.119	(0.081)	0.026	0.093
41	3.42	0.17	0.119	(0.081)	0.026	0.093
42	3.50	0.17	0.119	(0.081)	0.026	0.093
43	3.58	0.17	0.119	(0.080)	0.026	0.093
44	3.67	0.17	0.119	(0.080)	0.026	0.093
45	3.75	0.17	0.119	(0.080)	0.026	0.093
46	3.83	0.20	0.143	(0.079)	0.031	0.112
47	3.92	0.20	0.143	(0.079)	0.031	0.112
48	4.00	0.20	0.143	(0.079)	0.031	0.112
49	4.08	0.20	0.143	(0.078)	0.031	0.112
50	4.17	0.20	0.143	(0.078)	0.031	0.112
51	4.25	0.20	0.143	(0.078)	0.031	0.112
52	4.33	0.23	0.167	(0.077)	0.036	0.130
53	4.42	0.23	0.167	(0.077)	0.036	0.130
54	4.50	0.23	0.167	(0.077)	0.036	0.130
55	4.58	0.23	0.167	(0.076)	0.036	0.130
56	4.67	0.23	0.167	(0.076)	0.036	0.130
57	4.75	0.23	0.167	(0.076)	0.036	0.130
58	4.83	0.27	0.190	(0.075)	0.041	0.149
59	4.92	0.27	0.190	(0.075)	0.041	0.149
60	5.00	0.27	0.190	(0.075)	0.041	0.149
61	5.08	0.20	0.143	(0.074)	0.031	0.112
62	5.17	0.20	0.143	(0.074)	0.031	0.112
63	5.25	0.20	0.143	(0.074)	0.031	0.112
64	5.33	0.23	0.167	(0.073)	0.036	0.130
65	5.42	0.23	0.167	(0.073)	0.036	0.130
66	5.50	0.23	0.167	(0.073)	0.036	0.130
67	5.58	0.27	0.190	(0.072)	0.041	0.149
68	5.67	0.27	0.190	(0.072)	0.041	0.149
69	5.75	0.27	0.190	(0.072)	0.041	0.149
70	5.83	0.27	0.190	(0.071)	0.041	0.149
71	5.92	0.27	0.190	(0.071)	0.041	0.149
72	6.00	0.27	0.190	(0.071)	0.041	0.149
73	6.08	0.30	0.214	(0.070)	0.046	0.168
74	6.17	0.30	0.214	(0.070)	0.046	0.168
75	6.25	0.30	0.214	(0.070)	0.046	0.168
76	6.33	0.30	0.214	(0.069)	0.046	0.168
77	6.42	0.30	0.214	(0.069)	0.046	0.168
78	6.50	0.30	0.214	(0.069)	0.046	0.168

79	6.58	0.33	0.238	(0.069)	0.052	0.186
80	6.67	0.33	0.238	(0.068)	0.052	0.186
81	6.75	0.33	0.238	(0.068)	0.052	0.186
82	6.83	0.33	0.238	(0.068)	0.052	0.186
83	6.92	0.33	0.238	(0.067)	0.052	0.186
84	7.00	0.33	0.238	(0.067)	0.052	0.186
85	7.08	0.33	0.238	(0.067)	0.052	0.186
86	7.17	0.33	0.238	(0.066)	0.052	0.186
87	7.25	0.33	0.238	(0.066)	0.052	0.186
88	7.33	0.37	0.262	(0.066)	0.057	0.205
89	7.42	0.37	0.262	(0.066)	0.057	0.205
90	7.50	0.37	0.262	(0.065)	0.057	0.205
91	7.58	0.40	0.286	(0.065)	0.062	0.224
92	7.67	0.40	0.286	(0.065)	0.062	0.224
93	7.75	0.40	0.286	(0.064)	0.062	0.224
94	7.83	0.43	0.309	0.064	(0.067)	0.245
95	7.92	0.43	0.309	0.064	(0.067)	0.246
96	8.00	0.43	0.309	0.063	(0.067)	0.246
97	8.08	0.50	0.357	0.063	(0.077)	0.294
98	8.17	0.50	0.357	0.063	(0.077)	0.294
99	8.25	0.50	0.357	0.063	(0.077)	0.294
100	8.33	0.50	0.357	0.062	(0.077)	0.295
101	8.42	0.50	0.357	0.062	(0.077)	0.295
102	8.50	0.50	0.357	0.062	(0.077)	0.295
103	8.58	0.53	0.381	0.061	(0.083)	0.319
104	8.67	0.53	0.381	0.061	(0.083)	0.320
105	8.75	0.53	0.381	0.061	(0.083)	0.320
106	8.83	0.57	0.405	0.061	(0.088)	0.344
107	8.92	0.57	0.405	0.060	(0.088)	0.344
108	9.00	0.57	0.405	0.060	(0.088)	0.345
109	9.08	0.63	0.452	0.060	(0.098)	0.393
110	9.17	0.63	0.452	0.059	(0.098)	0.393
111	9.25	0.63	0.452	0.059	(0.098)	0.393
112	9.33	0.67	0.476	0.059	(0.103)	0.417
113	9.42	0.67	0.476	0.059	(0.103)	0.417
114	9.50	0.67	0.476	0.058	(0.103)	0.418
115	9.58	0.70	0.500	0.058	(0.108)	0.442
116	9.67	0.70	0.500	0.058	(0.108)	0.442
117	9.75	0.70	0.500	0.057	(0.108)	0.442
118	9.83	0.73	0.524	0.057	(0.114)	0.466
119	9.92	0.73	0.524	0.057	(0.114)	0.467
120	10.00	0.73	0.524	0.057	(0.114)	0.467
121	10.08	0.50	0.357	0.056	(0.077)	0.301
122	10.17	0.50	0.357	0.056	(0.077)	0.301
123	10.25	0.50	0.357	0.056	(0.077)	0.301
124	10.33	0.50	0.357	0.055	(0.077)	0.302
125	10.42	0.50	0.357	0.055	(0.077)	0.302
126	10.50	0.50	0.357	0.055	(0.077)	0.302
127	10.58	0.67	0.476	0.055	(0.103)	0.421
128	10.67	0.67	0.476	0.054	(0.103)	0.422
129	10.75	0.67	0.476	0.054	(0.103)	0.422
130	10.83	0.67	0.476	0.054	(0.103)	0.422
131	10.92	0.67	0.476	0.054	(0.103)	0.422
132	11.00	0.67	0.476	0.053	(0.103)	0.423
133	11.08	0.63	0.452	0.053	(0.098)	0.399
134	11.17	0.63	0.452	0.053	(0.098)	0.399
135	11.25	0.63	0.452	0.053	(0.098)	0.400
136	11.33	0.63	0.452	0.052	(0.098)	0.400
137	11.42	0.63	0.452	0.052	(0.098)	0.400
138	11.50	0.63	0.452	0.052	(0.098)	0.400

139	11.58	0.57	0.405	0.052	(0.088)	0.353
140	11.67	0.57	0.405	0.051	(0.088)	0.353
141	11.75	0.57	0.405	0.051	(0.088)	0.354
142	11.83	0.60	0.428	0.051	(0.093)	0.378
143	11.92	0.60	0.428	0.051	(0.093)	0.378
144	12.00	0.60	0.428	0.050	(0.093)	0.378
145	12.08	0.83	0.595	0.050	(0.129)	0.545
146	12.17	0.83	0.595	0.050	(0.129)	0.545
147	12.25	0.83	0.595	0.050	(0.129)	0.545
148	12.33	0.87	0.619	0.049	(0.134)	0.570
149	12.42	0.87	0.619	0.049	(0.134)	0.570
150	12.50	0.87	0.619	0.049	(0.134)	0.570
151	12.58	0.93	0.666	0.049	(0.145)	0.618
152	12.67	0.93	0.666	0.048	(0.145)	0.618
153	12.75	0.93	0.666	0.048	(0.145)	0.618
154	12.83	0.97	0.690	0.048	(0.150)	0.642
155	12.92	0.97	0.690	0.048	(0.150)	0.643
156	13.00	0.97	0.690	0.047	(0.150)	0.643
157	13.08	1.13	0.809	0.047	(0.176)	0.762
158	13.17	1.13	0.809	0.047	(0.176)	0.762
159	13.25	1.13	0.809	0.047	(0.176)	0.763
160	13.33	1.13	0.809	0.046	(0.176)	0.763
161	13.42	1.13	0.809	0.046	(0.176)	0.763
162	13.50	1.13	0.809	0.046	(0.176)	0.763
163	13.58	0.77	0.547	0.046	(0.119)	0.502
164	13.67	0.77	0.547	0.045	(0.119)	0.502
165	13.75	0.77	0.547	0.045	(0.119)	0.502
166	13.83	0.77	0.547	0.045	(0.119)	0.502
167	13.92	0.77	0.547	0.045	(0.119)	0.503
168	14.00	0.77	0.547	0.045	(0.119)	0.503
169	14.08	0.90	0.643	0.044	(0.139)	0.598
170	14.17	0.90	0.643	0.044	(0.139)	0.599
171	14.25	0.90	0.643	0.044	(0.139)	0.599
172	14.33	0.87	0.619	0.044	(0.134)	0.575
173	14.42	0.87	0.619	0.043	(0.134)	0.575
174	14.50	0.87	0.619	0.043	(0.134)	0.576
175	14.58	0.87	0.619	0.043	(0.134)	0.576
176	14.67	0.87	0.619	0.043	(0.134)	0.576
177	14.75	0.87	0.619	0.043	(0.134)	0.576
178	14.83	0.83	0.595	0.042	(0.129)	0.553
179	14.92	0.83	0.595	0.042	(0.129)	0.553
180	15.00	0.83	0.595	0.042	(0.129)	0.553
181	15.08	0.80	0.571	0.042	(0.124)	0.530
182	15.17	0.80	0.571	0.041	(0.124)	0.530
183	15.25	0.80	0.571	0.041	(0.124)	0.530
184	15.33	0.77	0.547	0.041	(0.119)	0.506
185	15.42	0.77	0.547	0.041	(0.119)	0.507
186	15.50	0.77	0.547	0.041	(0.119)	0.507
187	15.58	0.63	0.452	0.040	(0.098)	0.412
188	15.67	0.63	0.452	0.040	(0.098)	0.412
189	15.75	0.63	0.452	0.040	(0.098)	0.412
190	15.83	0.63	0.452	0.040	(0.098)	0.412
191	15.92	0.63	0.452	0.040	(0.098)	0.413
192	16.00	0.63	0.452	0.039	(0.098)	0.413
193	16.08	0.13	0.095	(0.039)	0.021	0.075
194	16.17	0.13	0.095	(0.039)	0.021	0.075
195	16.25	0.13	0.095	(0.039)	0.021	0.075
196	16.33	0.13	0.095	(0.039)	0.021	0.075
197	16.42	0.13	0.095	(0.038)	0.021	0.075
198	16.50	0.13	0.095	(0.038)	0.021	0.075

199	16.58	0.10	0.071	(0.038)	0.015	0.056
200	16.67	0.10	0.071	(0.038)	0.015	0.056
201	16.75	0.10	0.071	(0.038)	0.015	0.056
202	16.83	0.10	0.071	(0.037)	0.015	0.056
203	16.92	0.10	0.071	(0.037)	0.015	0.056
204	17.00	0.10	0.071	(0.037)	0.015	0.056
205	17.08	0.17	0.119	(0.037)	0.026	0.093
206	17.17	0.17	0.119	(0.037)	0.026	0.093
207	17.25	0.17	0.119	(0.036)	0.026	0.093
208	17.33	0.17	0.119	(0.036)	0.026	0.093
209	17.42	0.17	0.119	(0.036)	0.026	0.093
210	17.50	0.17	0.119	(0.036)	0.026	0.093
211	17.58	0.17	0.119	(0.036)	0.026	0.093
212	17.67	0.17	0.119	(0.036)	0.026	0.093
213	17.75	0.17	0.119	(0.035)	0.026	0.093
214	17.83	0.13	0.095	(0.035)	0.021	0.075
215	17.92	0.13	0.095	(0.035)	0.021	0.075
216	18.00	0.13	0.095	(0.035)	0.021	0.075
217	18.08	0.13	0.095	(0.035)	0.021	0.075
218	18.17	0.13	0.095	(0.035)	0.021	0.075
219	18.25	0.13	0.095	(0.034)	0.021	0.075
220	18.33	0.13	0.095	(0.034)	0.021	0.075
221	18.42	0.13	0.095	(0.034)	0.021	0.075
222	18.50	0.13	0.095	(0.034)	0.021	0.075
223	18.58	0.10	0.071	(0.034)	0.015	0.056
224	18.67	0.10	0.071	(0.034)	0.015	0.056
225	18.75	0.10	0.071	(0.033)	0.015	0.056
226	18.83	0.07	0.048	(0.033)	0.010	0.037
227	18.92	0.07	0.048	(0.033)	0.010	0.037
228	19.00	0.07	0.048	(0.033)	0.010	0.037
229	19.08	0.10	0.071	(0.033)	0.015	0.056
230	19.17	0.10	0.071	(0.033)	0.015	0.056
231	19.25	0.10	0.071	(0.032)	0.015	0.056
232	19.33	0.13	0.095	(0.032)	0.021	0.075
233	19.42	0.13	0.095	(0.032)	0.021	0.075
234	19.50	0.13	0.095	(0.032)	0.021	0.075
235	19.58	0.10	0.071	(0.032)	0.015	0.056
236	19.67	0.10	0.071	(0.032)	0.015	0.056
237	19.75	0.10	0.071	(0.032)	0.015	0.056
238	19.83	0.07	0.048	(0.031)	0.010	0.037
239	19.92	0.07	0.048	(0.031)	0.010	0.037
240	20.00	0.07	0.048	(0.031)	0.010	0.037
241	20.08	0.10	0.071	(0.031)	0.015	0.056
242	20.17	0.10	0.071	(0.031)	0.015	0.056
243	20.25	0.10	0.071	(0.031)	0.015	0.056
244	20.33	0.10	0.071	(0.031)	0.015	0.056
245	20.42	0.10	0.071	(0.030)	0.015	0.056
246	20.50	0.10	0.071	(0.030)	0.015	0.056
247	20.58	0.10	0.071	(0.030)	0.015	0.056
248	20.67	0.10	0.071	(0.030)	0.015	0.056
249	20.75	0.10	0.071	(0.030)	0.015	0.056
250	20.83	0.07	0.048	(0.030)	0.010	0.037
251	20.92	0.07	0.048	(0.030)	0.010	0.037
252	21.00	0.07	0.048	(0.030)	0.010	0.037
253	21.08	0.10	0.071	(0.029)	0.015	0.056
254	21.17	0.10	0.071	(0.029)	0.015	0.056
255	21.25	0.10	0.071	(0.029)	0.015	0.056
256	21.33	0.07	0.048	(0.029)	0.010	0.037
257	21.42	0.07	0.048	(0.029)	0.010	0.037
258	21.50	0.07	0.048	(0.029)	0.010	0.037

259	21.58	0.10	0.071	(0.029)	0.015	0.056
260	21.67	0.10	0.071	(0.029)	0.015	0.056
261	21.75	0.10	0.071	(0.029)	0.015	0.056
262	21.83	0.07	0.048	(0.028)	0.010	0.037
263	21.92	0.07	0.048	(0.028)	0.010	0.037
264	22.00	0.07	0.048	(0.028)	0.010	0.037
265	22.08	0.10	0.071	(0.028)	0.015	0.056
266	22.17	0.10	0.071	(0.028)	0.015	0.056
267	22.25	0.10	0.071	(0.028)	0.015	0.056
268	22.33	0.07	0.048	(0.028)	0.010	0.037
269	22.42	0.07	0.048	(0.028)	0.010	0.037
270	22.50	0.07	0.048	(0.028)	0.010	0.037
271	22.58	0.07	0.048	(0.028)	0.010	0.037
272	22.67	0.07	0.048	(0.028)	0.010	0.037
273	22.75	0.07	0.048	(0.028)	0.010	0.037
274	22.83	0.07	0.048	(0.027)	0.010	0.037
275	22.92	0.07	0.048	(0.027)	0.010	0.037
276	23.00	0.07	0.048	(0.027)	0.010	0.037
277	23.08	0.07	0.048	(0.027)	0.010	0.037
278	23.17	0.07	0.048	(0.027)	0.010	0.037
279	23.25	0.07	0.048	(0.027)	0.010	0.037
280	23.33	0.07	0.048	(0.027)	0.010	0.037
281	23.42	0.07	0.048	(0.027)	0.010	0.037
282	23.50	0.07	0.048	(0.027)	0.010	0.037
283	23.58	0.07	0.048	(0.027)	0.010	0.037
284	23.67	0.07	0.048	(0.027)	0.010	0.037
285	23.75	0.07	0.048	(0.027)	0.010	0.037
286	23.83	0.07	0.048	(0.027)	0.010	0.037
287	23.92	0.07	0.048	(0.027)	0.010	0.037
288	24.00	0.07	0.048	(0.027)	0.010	0.037

```
          (Loss Rate Not Used)
    Sum =     100.0                                    Sum =     61.9
     Flood volume = Effective rainfall      5.16(In)
      times area       2.3(Ac.)/[(In)/(Ft.)] =       1.0(Ac.Ft)
     Total soil loss =      0.79(In)
     Total soil loss =     0.153(Ac.Ft)
     Total rainfall =     5.95(In)
     Flood volume =      43439.1 Cubic Feet
     Total soil loss =       6669.2 Cubic Feet
     --------------------------------------------------------------------
      Peak flow rate of this hydrograph =      1.785(CFS)
     --------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     24 - H O U R   S T O R M
                  R u n o f f     H y d r o g r a p h
     --------------------------------------------------------------------
               Hydrograph in   5   Minute intervals ((CFS))

     --------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 -----------------------------------------------------------------------
   0+ 5       0.0005     0.07  Q         |         |         |         |
   0+10       0.0011     0.09  Q         |         |         |         |
   0+15       0.0017     0.09  Q         |         |         |         |
   0+20       0.0025     0.12  Q         |         |         |         |
   0+25       0.0034     0.13  Q         |         |         |         |
   0+30       0.0043     0.13  Q         |         |         |         |
   0+35       0.0052     0.13  Q         |         |         |         |
   0+40       0.0061     0.13  Q         |         |         |         |
   0+45       0.0070     0.13  Q         |         |         |         |
```

```
 0+50        0.0081       0.16  Q          |          |          |          |
 0+55        0.0093       0.17  Q          |          |          |          |
 1+ 0        0.0105       0.17  Q          |          |          |          |
 1+ 5        0.0115       0.14  Q          |          |          |          |
 1+10        0.0124       0.13  Q          |          |          |          |
 1+15        0.0133       0.13  Q          |          |          |          |
 1+20        0.0142       0.13  Q          |          |          |          |
 1+25        0.0151       0.13  Q          |          |          |          |
 1+30        0.0160       0.13  Q          |          |          |          |
 1+35        0.0169       0.13  Q          |          |          |          |
 1+40        0.0178       0.13  Q          |          |          |          |
 1+45        0.0187       0.13  Q          |          |          |          |
 1+50        0.0199       0.16  Q          |          |          |          |
 1+55        0.0211       0.17  Q          |          |          |          |
 2+ 0        0.0223       0.17  Q          |          |          |          |
 2+ 5        0.0235       0.17  Q          |          |          |          |
 2+10        0.0247       0.17  Q          |          |          |          |
 2+15        0.0259       0.17  QV         |          |          |          |
 2+20        0.0271       0.17  QV         |          |          |          |
 2+25        0.0283       0.17  QV         |          |          |          |
 2+30        0.0295       0.17  QV         |          |          |          |
 2+35        0.0309       0.21  QV         |          |          |          |
 2+40        0.0324       0.22  QV         |          |          |          |
 2+45        0.0339       0.22  QV         |          |          |          |
 2+50        0.0354       0.22  QV         |          |          |          |
 2+55        0.0369       0.22  QV         |          |          |          |
 3+ 0        0.0384       0.22  QV         |          |          |          |
 3+ 5        0.0399       0.22  QV         |          |          |          |
 3+10        0.0414       0.22  QV         |          |          |          |
 3+15        0.0429       0.22  QV         |          |          |          |
 3+20        0.0444       0.22  QV         |          |          |          |
 3+25        0.0459       0.22  QV         |          |          |          |
 3+30        0.0474       0.22  QV         |          |          |          |
 3+35        0.0489       0.22  QV         |          |          |          |
 3+40        0.0504       0.22  Q V        |          |          |          |
 3+45        0.0519       0.22  Q V        |          |          |          |
 3+50        0.0536       0.25  |QV        |          |          |          |
 3+55        0.0554       0.26  |QV        |          |          |          |
 4+ 0        0.0573       0.26  |QV        |          |          |          |
 4+ 5        0.0591       0.26  |QV        |          |          |          |
 4+10        0.0609       0.26  |QV        |          |          |          |
 4+15        0.0627       0.26  |QV        |          |          |          |
 4+20        0.0647       0.30  |QV        |          |          |          |
 4+25        0.0668       0.31  |QV        |          |          |          |
 4+30        0.0689       0.31  |QV        |          |          |          |
 4+35        0.0710       0.31  |QV        |          |          |          |
 4+40        0.0731       0.31  |QV        |          |          |          |
 4+45        0.0752       0.31  |Q V       |          |          |          |
 4+50        0.0775       0.34  |Q V       |          |          |          |
 4+55        0.0799       0.35  |Q V       |          |          |          |
 5+ 0        0.0823       0.35  |Q V       |          |          |          |
 5+ 5        0.0843       0.28  |Q V       |          |          |          |
 5+10        0.0861       0.26  |Q V       |          |          |          |
 5+15        0.0879       0.26  |Q V       |          |          |          |
 5+20        0.0899       0.30  |Q V       |          |          |          |
 5+25        0.0920       0.31  |Q V       |          |          |          |
 5+30        0.0941       0.31  |Q V       |          |          |          |
 5+35        0.0965       0.34  |Q V       |          |          |          |
 5+40        0.0989       0.35  |Q V       |          |          |          |
 5+45        0.1013       0.35  |Q  V      |          |          |          |
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 5+50      0.1037     0.35  |Q  V     |         |         |         |
 5+55      0.1061     0.35  |Q  V     |         |         |         |
 6+ 0      0.1085     0.35  |Q  V     |         |         |         |
 6+ 5      0.1111     0.38  |Q  V     |         |         |         |
 6+10      0.1138     0.39  |Q  V     |         |         |         |
 6+15      0.1165     0.39  |Q  V     |         |         |         |
 6+20      0.1192     0.39  |Q  V     |         |         |         |
 6+25      0.1219     0.39  |Q  V     |         |         |         |
 6+30      0.1246     0.39  |Q  V     |         |         |         |
 6+35      0.1275     0.43  |Q   V    |         |         |         |
 6+40      0.1305     0.44  |Q   V    |         |         |         |
 6+45      0.1335     0.44  |Q   V    |         |         |         |
 6+50      0.1366     0.44  |Q   V    |         |         |         |
 6+55      0.1396     0.44  |Q   V    |         |         |         |
 7+ 0      0.1426     0.44  |Q   V    |         |         |         |
 7+ 5      0.1456     0.44  |Q   V    |         |         |         |
 7+10      0.1486     0.44  |Q   V    |         |         |         |
 7+15      0.1516     0.44  |Q    V   |         |         |         |
 7+20      0.1548     0.47  |Q    V   |         |         |         |
 7+25      0.1581     0.48  |Q    V   |         |         |         |
 7+30      0.1614     0.48  |Q    V   |         |         |         |
 7+35      0.1649     0.51  | Q   V   |         |         |         |
 7+40      0.1685     0.52  | Q   V   |         |         |         |
 7+45      0.1721     0.52  | Q   V   |         |         |         |
 7+50      0.1760     0.56  | Q    V  |         |         |         |
 7+55      0.1800     0.57  | Q    V  |         |         |         |
 8+ 0      0.1839     0.58  | Q    V  |         |         |         |
 8+ 5      0.1885     0.66  | Q    V  |         |         |         |
 8+10      0.1932     0.69  | Q    V  |         |         |         |
 8+15      0.1980     0.69  | Q    V  |         |         |         |
 8+20      0.2027     0.69  | Q     V |         |         |         |
 8+25      0.2075     0.69  | Q     V |         |         |         |
 8+30      0.2122     0.69  | Q     V |         |         |         |
 8+35      0.2173     0.73  | Q     V |         |         |         |
 8+40      0.2225     0.75  | Q     V |         |         |         |
 8+45      0.2276     0.75  | Q      V|         |         |         |
 8+50      0.2331     0.79  |  Q     V|         |         |         |
 8+55      0.2386     0.81  |  Q     V|         |         |         |
 9+ 0      0.2442     0.81  |  Q     V|         |         |         |
 9+ 5      0.2503     0.89  |  Q      V         |         |         |
 9+10      0.2567     0.92  |  Q      V         |         |         |
 9+15      0.2630     0.92  |  Q      V         |         |         |
 9+20      0.2696     0.96  |  Q      V         |         |         |
 9+25      0.2763     0.98  |  Q      |V        |         |         |
 9+30      0.2831     0.98  |  Q      |V        |         |         |
 9+35      0.2901     1.02  |   Q     |V        |         |         |
 9+40      0.2972     1.03  |   Q     |V        |         |         |
 9+45      0.3044     1.03  |   Q     | V       |         |         |
 9+50      0.3118     1.08  |   Q     | V       |         |         |
 9+55      0.3193     1.09  |   Q     | V       |         |         |
10+ 0      0.3268     1.09  |   Q     |  V      |         |         |
10+ 5      0.3323     0.79  |  Q      |  V      |         |         |
10+10      0.3371     0.70  | Q       |  V      |         |         |
10+15      0.3420     0.70  | Q       |  V      |         |         |
10+20      0.3468     0.71  | Q       |  V      |         |         |
10+25      0.3517     0.71  | Q       |   V     |         |         |
10+30      0.3565     0.71  | Q       |   V     |         |         |
10+35      0.3629     0.92  |  Q      |   V     |         |         |
10+40      0.3697     0.99  |  Q      |   V     |         |         |
10+45      0.3765     0.99  |  Q      |    V    |         |         |
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10+50       0.3833      0.99   |  Q      |    V    |         |         |
10+55       0.3901      0.99   |  Q      |    V    |         |         |
11+ 0       0.3969      0.99   |  Q      |    V    |         |         |
11+ 5       0.4034      0.95   |  Q      |     V   |         |         |
11+10       0.4099      0.93   |  Q      |     V   |         |         |
11+15       0.4163      0.93   |  Q      |     V   |         |         |
11+20       0.4227      0.94   |  Q      |     V   |         |         |
11+25       0.4292      0.94   |  Q      |      V  |         |         |
11+30       0.4356      0.94   |  Q      |      V  |         |         |
11+35       0.4415      0.85   |  Q      |      V  |         |         |
11+40       0.4472      0.83   |  Q      |      V  |         |         |
11+45       0.4529      0.83   |  Q      |       V |         |         |
11+50       0.4589      0.87   |  Q      |       V |         |         |
11+55       0.4650      0.88   |  Q      |       V |         |         |
12+ 0       0.4710      0.88   |  Q      |       V |         |         |
12+ 5       0.4792      1.19   |   Q     |        V|         |         |
12+10       0.4880      1.28   |    Q    |        V|         |         |
12+15       0.4968      1.28   |    Q    |        V|         |         |
12+20       0.5059      1.32   |    Q    |         V         |         |
12+25       0.5151      1.33   |    Q    |         V         |         |
12+30       0.5243      1.33   |    Q    |         |V        |         |
12+35       0.5340      1.42   |    Q    |         |V        |         |
12+40       0.5440      1.45   |    Q    |         |V        |         |
12+45       0.5540      1.45   |    Q    |         | V       |         |
12+50       0.5642      1.49   |    Q    |         | V       |         |
12+55       0.5746      1.50   |     Q   |         |  V      |         |
13+ 0       0.5849      1.50   |     Q   |         |  V      |         |
13+ 5       0.5968      1.72   |     Q   |         |  V      |         |
13+10       0.6091      1.78   |      Q  |         |   V     |         |
13+15       0.6214      1.78   |      Q  |         |   V     |         |
13+20       0.6337      1.78   |      Q  |         |    V    |         |
13+25       0.6459      1.78   |      Q  |         |    V    |         |
13+30       0.6582      1.79   |      Q  |         |     V   |         |
13+35       0.6673      1.31   |    Q    |         |     V   |         |
13+40       0.6753      1.17   |   Q     |         |      V  |         |
13+45       0.6834      1.17   |   Q     |         |      V  |         |
13+50       0.6915      1.18   |   Q     |         |      V  |         |
13+55       0.6996      1.18   |   Q     |         |       V |         |
14+ 0       0.7077      1.18   |   Q     |         |       V |         |
14+ 5       0.7170      1.35   |    Q    |         |       V |         |
14+10       0.7267      1.40   |    Q    |         |        V|         |
14+15       0.7363      1.40   |    Q    |         |        V|         |
14+20       0.7457      1.36   |    Q    |         |        V|         |
14+25       0.7549      1.35   |    Q    |         |         V         |
14+30       0.7642      1.35   |    Q    |         |         V         |
14+35       0.7735      1.35   |    Q    |         |         |V        |
14+40       0.7828      1.35   |    Q    |         |         |V        |
14+45       0.7920      1.35   |    Q    |         |         |V        |
14+50       0.8010      1.31   |    Q    |         |         | V       |
14+55       0.8099      1.29   |    Q    |         |         | V       |
15+ 0       0.8189      1.29   |    Q    |         |         | V       |
15+ 5       0.8275      1.25   |    Q    |         |         |  V      |
15+10       0.8360      1.24   |   Q     |         |         |  V      |
15+15       0.8445      1.24   |   Q     |         |         |  V      |
15+20       0.8528      1.20   |   Q     |         |         |   V     |
15+25       0.8609      1.19   |   Q     |         |         |   V     |
15+30       0.8691      1.19   |   Q     |         |         |   V     |
15+35       0.8761      1.01   |   Q     |         |         |    V    |
15+40       0.8827      0.96   |  Q      |         |         |    V    |
15+45       0.8894      0.96   |  Q      |         |         |    V    |
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15+50        0.8960        0.96   |   Q        |          |          |      V     |
15+55        0.9026        0.97   |   Q        |          |          |       V    |
16+ 0        0.9093        0.97   |   Q        |          |          |       V    |
16+ 5        0.9117        0.35   |Q           |          |          |       V    |
16+10        0.9129        0.17   Q            |          |          |       V    |
16+15        0.9141        0.17   Q            |          |          |       V    |
16+20        0.9153        0.17   Q            |          |          |       V    |
16+25        0.9165        0.17   Q            |          |          |       V    |
16+30        0.9177        0.17   Q            |          |          |       V    |
16+35        0.9187        0.14   Q            |          |          |       V    |
16+40        0.9196        0.13   Q            |          |          |       V    |
16+45        0.9205        0.13   Q            |          |          |       V    |
16+50        0.9214        0.13   Q            |          |          |       V    |
16+55        0.9223        0.13   Q            |          |          |       V    |
17+ 0        0.9232        0.13   Q            |          |          |        V   |
17+ 5        0.9245        0.20   Q            |          |          |        V   |
17+10        0.9260        0.22   Q            |          |          |        V   |
17+15        0.9275        0.22   Q            |          |          |        V   |
17+20        0.9290        0.22   Q            |          |          |        V   |
17+25        0.9305        0.22   Q            |          |          |        V   |
17+30        0.9320        0.22   Q            |          |          |        V   |
17+35        0.9335        0.22   Q            |          |          |        V   |
17+40        0.9350        0.22   Q            |          |          |        V   |
17+45        0.9365        0.22   Q            |          |          |        V   |
17+50        0.9378        0.18   Q            |          |          |        V   |
17+55        0.9390        0.17   Q            |          |          |        V   |
18+ 0        0.9402        0.17   Q            |          |          |        V   |
18+ 5        0.9414        0.17   Q            |          |          |        V   |
18+10        0.9426        0.17   Q            |          |          |        V   |
18+15        0.9438        0.17   Q            |          |          |        V   |
18+20        0.9450        0.17   Q            |          |          |        V   |
18+25        0.9462        0.17   Q            |          |          |        V   |
18+30        0.9474        0.17   Q            |          |          |         V  |
18+35        0.9484        0.14   Q            |          |          |         V  |
18+40        0.9493        0.13   Q            |          |          |         V  |
18+45        0.9502        0.13   Q            |          |          |         V  |
18+50        0.9509        0.10   Q            |          |          |         V  |
18+55        0.9515        0.09   Q            |          |          |         V  |
19+ 0        0.9521        0.09   Q            |          |          |         V  |
19+ 5        0.9529        0.12   Q            |          |          |         V  |
19+10        0.9538        0.13   Q            |          |          |         V  |
19+15        0.9547        0.13   Q            |          |          |         V  |
19+20        0.9558        0.16   Q            |          |          |         V  |
19+25        0.9570        0.17   Q            |          |          |         V  |
19+30        0.9582        0.17   Q            |          |          |         V  |
19+35        0.9592        0.14   Q            |          |          |         V  |
19+40        0.9601        0.13   Q            |          |          |         V  |
19+45        0.9610        0.13   Q            |          |          |         V  |
19+50        0.9617        0.10   Q            |          |          |         V  |
19+55        0.9623        0.09   Q            |          |          |         V  |
20+ 0        0.9629        0.09   Q            |          |          |         V  |
20+ 5        0.9637        0.12   Q            |          |          |         V  |
20+10        0.9646        0.13   Q            |          |          |         V  |
20+15        0.9655        0.13   Q            |          |          |         V  |
20+20        0.9664        0.13   Q            |          |          |         V  |
20+25        0.9673        0.13   Q            |          |          |         V  |
20+30        0.9682        0.13   Q            |          |          |         V  |
20+35        0.9691        0.13   Q            |          |          |         V  |
20+40        0.9700        0.13   Q            |          |          |         V  |
20+45        0.9709        0.13   Q            |          |          |         V  |
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20+50	0.9716	0.10	Q	|	|	|	V |
20+55	0.9722	0.09	Q	|	|	|	V |
21+ 0	0.9728	0.09	Q	|	|	|	V|
21+ 5	0.9736	0.12	Q	|	|	|	V|
21+10	0.9745	0.13	Q	|	|	|	V|
21+15	0.9754	0.13	Q	|	|	|	V|
21+20	0.9761	0.10	Q	|	|	|	V|
21+25	0.9767	0.09	Q	|	|	|	V|
21+30	0.9773	0.09	Q	|	|	|	V|
21+35	0.9781	0.12	Q	|	|	|	V|
21+40	0.9790	0.13	Q	|	|	|	V|
21+45	0.9799	0.13	Q	|	|	|	V|
21+50	0.9806	0.10	Q	|	|	|	V|
21+55	0.9812	0.09	Q	|	|	|	V|
22+ 0	0.9818	0.09	Q	|	|	|	V|
22+ 5	0.9826	0.12	Q	|	|	|	V|
22+10	0.9835	0.13	Q	|	|	|	V|
22+15	0.9844	0.13	Q	|	|	|	V|
22+20	0.9851	0.10	Q	|	|	|	V|
22+25	0.9857	0.09	Q	|	|	|	V|
22+30	0.9863	0.09	Q	|	|	|	V|
22+35	0.9869	0.09	Q	|	|	|	V|
22+40	0.9875	0.09	Q	|	|	|	V|
22+45	0.9881	0.09	Q	|	|	|	V|
22+50	0.9887	0.09	Q	|	|	|	V|
22+55	0.9893	0.09	Q	|	|	|	V|
23+ 0	0.9899	0.09	Q	|	|	|	V|
23+ 5	0.9905	0.09	Q	|	|	|	V|
23+10	0.9911	0.09	Q	|	|	|	V|
23+15	0.9917	0.09	Q	|	|	|	V|
23+20	0.9923	0.09	Q	|	|	|	V|
23+25	0.9929	0.09	Q	|	|	|	V|
23+30	0.9935	0.09	Q	|	|	|	V|
23+35	0.9941	0.09	Q	|	|	|	V|
23+40	0.9947	0.09	Q	|	|	|	V|
23+45	0.9953	0.09	Q	|	|	|	V|
23+50	0.9959	0.09	Q	|	|	|	V|
23+55	0.9965	0.09	Q	|	|	|	V|
24+ 0	0.9971	0.09	Q	|	|	|	V|
24+ 5	0.9972	0.02	Q	|	|	|	V|

DEVELOPED
100 YEAR – 24 HOUR
AREA C_1 & F_3

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318devC1F324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Developed C1 & F3
100-Year 24-Hour

Drainage Area = 4.11(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.11(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 664.40(Ft.)
Length along longest watercourse measured to centroid = 398.60(Ft.)
Length along longest watercourse = 0.126 Mi.
Length along longest watercourse measured to centroid = 0.075 Mi.
Difference in elevation = 23.30(Ft.)
Slope along watercourse = 185.1656 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.46 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.11	2.23	9.17

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.11	5.95	24.45

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
3.050	63.61	0.498
1.060	78.00	0.000

Total Area Entered = 4.11(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.6	63.6	0.431	0.498	0.238	0.742	0.176
78.0	78.0	0.268	0.000	0.268	0.258	0.069
					Sum (F) =	0.246

Area averaged mean soil loss (F) (In/Hr) = 0.246
Minimum soil loss rate ((In/Hr)) = 0.123
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.604

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	274.719	53.241	2.205
2	0.167	549.438	40.407	1.674
3	0.250	824.156	6.352	0.263
			Sum = 100.000	Sum= 4.142

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.435)	0.029	0.019
2	0.17	0.07	0.048	(0.434)	0.029	0.019
3	0.25	0.07	0.048	(0.432)	0.029	0.019
4	0.33	0.10	0.071	(0.430)	0.043	0.028
5	0.42	0.10	0.071	(0.429)	0.043	0.028
6	0.50	0.10	0.071	(0.427)	0.043	0.028
7	0.58	0.10	0.071	(0.425)	0.043	0.028
8	0.67	0.10	0.071	(0.424)	0.043	0.028
9	0.75	0.10	0.071	(0.422)	0.043	0.028
10	0.83	0.13	0.095	(0.420)	0.058	0.038
11	0.92	0.13	0.095	(0.419)	0.058	0.038
12	1.00	0.13	0.095	(0.417)	0.058	0.038
13	1.08	0.10	0.071	(0.415)	0.043	0.028
14	1.17	0.10	0.071	(0.414)	0.043	0.028
15	1.25	0.10	0.071	(0.412)	0.043	0.028

16	1.33	0.10	0.071	(0.410)	0.043	0.028
17	1.42	0.10	0.071	(0.409)	0.043	0.028
18	1.50	0.10	0.071	(0.407)	0.043	0.028
19	1.58	0.10	0.071	(0.405)	0.043	0.028
20	1.67	0.10	0.071	(0.404)	0.043	0.028
21	1.75	0.10	0.071	(0.402)	0.043	0.028
22	1.83	0.13	0.095	(0.401)	0.058	0.038
23	1.92	0.13	0.095	(0.399)	0.058	0.038
24	2.00	0.13	0.095	(0.397)	0.058	0.038
25	2.08	0.13	0.095	(0.396)	0.058	0.038
26	2.17	0.13	0.095	(0.394)	0.058	0.038
27	2.25	0.13	0.095	(0.393)	0.058	0.038
28	2.33	0.13	0.095	(0.391)	0.058	0.038
29	2.42	0.13	0.095	(0.389)	0.058	0.038
30	2.50	0.13	0.095	(0.388)	0.058	0.038
31	2.58	0.17	0.119	(0.386)	0.072	0.047
32	2.67	0.17	0.119	(0.385)	0.072	0.047
33	2.75	0.17	0.119	(0.383)	0.072	0.047
34	2.83	0.17	0.119	(0.381)	0.072	0.047
35	2.92	0.17	0.119	(0.380)	0.072	0.047
36	3.00	0.17	0.119	(0.378)	0.072	0.047
37	3.08	0.17	0.119	(0.377)	0.072	0.047
38	3.17	0.17	0.119	(0.375)	0.072	0.047
39	3.25	0.17	0.119	(0.374)	0.072	0.047
40	3.33	0.17	0.119	(0.372)	0.072	0.047
41	3.42	0.17	0.119	(0.370)	0.072	0.047
42	3.50	0.17	0.119	(0.369)	0.072	0.047
43	3.58	0.17	0.119	(0.367)	0.072	0.047
44	3.67	0.17	0.119	(0.366)	0.072	0.047
45	3.75	0.17	0.119	(0.364)	0.072	0.047
46	3.83	0.20	0.143	(0.363)	0.086	0.057
47	3.92	0.20	0.143	(0.361)	0.086	0.057
48	4.00	0.20	0.143	(0.360)	0.086	0.057
49	4.08	0.20	0.143	(0.358)	0.086	0.057
50	4.17	0.20	0.143	(0.357)	0.086	0.057
51	4.25	0.20	0.143	(0.355)	0.086	0.057
52	4.33	0.23	0.167	(0.354)	0.101	0.066
53	4.42	0.23	0.167	(0.352)	0.101	0.066
54	4.50	0.23	0.167	(0.351)	0.101	0.066
55	4.58	0.23	0.167	(0.349)	0.101	0.066
56	4.67	0.23	0.167	(0.348)	0.101	0.066
57	4.75	0.23	0.167	(0.346)	0.101	0.066
58	4.83	0.27	0.190	(0.345)	0.115	0.075
59	4.92	0.27	0.190	(0.343)	0.115	0.075
60	5.00	0.27	0.190	(0.342)	0.115	0.075
61	5.08	0.20	0.143	(0.340)	0.086	0.057
62	5.17	0.20	0.143	(0.339)	0.086	0.057
63	5.25	0.20	0.143	(0.337)	0.086	0.057
64	5.33	0.23	0.167	(0.336)	0.101	0.066
65	5.42	0.23	0.167	(0.334)	0.101	0.066
66	5.50	0.23	0.167	(0.333)	0.101	0.066
67	5.58	0.27	0.190	(0.331)	0.115	0.075
68	5.67	0.27	0.190	(0.330)	0.115	0.075
69	5.75	0.27	0.190	(0.328)	0.115	0.075
70	5.83	0.27	0.190	(0.327)	0.115	0.075
71	5.92	0.27	0.190	(0.326)	0.115	0.075
72	6.00	0.27	0.190	(0.324)	0.115	0.075
73	6.08	0.30	0.214	(0.323)	0.129	0.085
74	6.17	0.30	0.214	(0.321)	0.129	0.085
75	6.25	0.30	0.214	(0.320)	0.129	0.085

76	6.33	0.30	0.214	(0.318)	0.129	0.085
77	6.42	0.30	0.214	(0.317)	0.129	0.085
78	6.50	0.30	0.214	(0.315)	0.129	0.085
79	6.58	0.33	0.238	(0.314)	0.144	0.094
80	6.67	0.33	0.238	(0.313)	0.144	0.094
81	6.75	0.33	0.238	(0.311)	0.144	0.094
82	6.83	0.33	0.238	(0.310)	0.144	0.094
83	6.92	0.33	0.238	(0.308)	0.144	0.094
84	7.00	0.33	0.238	(0.307)	0.144	0.094
85	7.08	0.33	0.238	(0.306)	0.144	0.094
86	7.17	0.33	0.238	(0.304)	0.144	0.094
87	7.25	0.33	0.238	(0.303)	0.144	0.094
88	7.33	0.37	0.262	(0.301)	0.158	0.104
89	7.42	0.37	0.262	(0.300)	0.158	0.104
90	7.50	0.37	0.262	(0.299)	0.158	0.104
91	7.58	0.40	0.286	(0.297)	0.173	0.113
92	7.67	0.40	0.286	(0.296)	0.173	0.113
93	7.75	0.40	0.286	(0.295)	0.173	0.113
94	7.83	0.43	0.309	(0.293)	0.187	0.123
95	7.92	0.43	0.309	(0.292)	0.187	0.123
96	8.00	0.43	0.309	(0.291)	0.187	0.123
97	8.08	0.50	0.357	(0.289)	0.216	0.141
98	8.17	0.50	0.357	(0.288)	0.216	0.141
99	8.25	0.50	0.357	(0.287)	0.216	0.141
100	8.33	0.50	0.357	(0.285)	0.216	0.141
101	8.42	0.50	0.357	(0.284)	0.216	0.141
102	8.50	0.50	0.357	(0.283)	0.216	0.141
103	8.58	0.53	0.381	(0.281)	0.230	0.151
104	8.67	0.53	0.381	(0.280)	0.230	0.151
105	8.75	0.53	0.381	(0.279)	0.230	0.151
106	8.83	0.57	0.405	(0.277)	0.244	0.160
107	8.92	0.57	0.405	(0.276)	0.244	0.160
108	9.00	0.57	0.405	(0.275)	0.244	0.160
109	9.08	0.63	0.452	(0.273)	0.273	0.179
110	9.17	0.63	0.452	0.272	(0.273)	0.180
111	9.25	0.63	0.452	0.271	(0.273)	0.181
112	9.33	0.67	0.476	0.269	(0.288)	0.207
113	9.42	0.67	0.476	0.268	(0.288)	0.208
114	9.50	0.67	0.476	0.267	(0.288)	0.209
115	9.58	0.70	0.500	0.266	(0.302)	0.234
116	9.67	0.70	0.500	0.264	(0.302)	0.235
117	9.75	0.70	0.500	0.263	(0.302)	0.237
118	9.83	0.73	0.524	0.262	(0.316)	0.262
119	9.92	0.73	0.524	0.261	(0.316)	0.263
120	10.00	0.73	0.524	0.259	(0.316)	0.264
121	10.08	0.50	0.357	(0.258)	0.216	0.141
122	10.17	0.50	0.357	(0.257)	0.216	0.141
123	10.25	0.50	0.357	(0.256)	0.216	0.141
124	10.33	0.50	0.357	(0.254)	0.216	0.141
125	10.42	0.50	0.357	(0.253)	0.216	0.141
126	10.50	0.50	0.357	(0.252)	0.216	0.141
127	10.58	0.67	0.476	0.251	(0.288)	0.225
128	10.67	0.67	0.476	0.249	(0.288)	0.227
129	10.75	0.67	0.476	0.248	(0.288)	0.228
130	10.83	0.67	0.476	0.247	(0.288)	0.229
131	10.92	0.67	0.476	0.246	(0.288)	0.230
132	11.00	0.67	0.476	0.244	(0.288)	0.232
133	11.08	0.63	0.452	0.243	(0.273)	0.209
134	11.17	0.63	0.452	0.242	(0.273)	0.210
135	11.25	0.63	0.452	0.241	(0.273)	0.211

136	11.33	0.63	0.452	0.240	(0.273)	0.212
137	11.42	0.63	0.452	0.239	(0.273)	0.214
138	11.50	0.63	0.452	0.237	(0.273)	0.215
139	11.58	0.57	0.405	0.236	(0.244)	0.168
140	11.67	0.57	0.405	0.235	(0.244)	0.170
141	11.75	0.57	0.405	0.234	(0.244)	0.171
142	11.83	0.60	0.428	0.233	(0.259)	0.196
143	11.92	0.60	0.428	0.231	(0.259)	0.197
144	12.00	0.60	0.428	0.230	(0.259)	0.198
145	12.08	0.83	0.595	0.229	(0.359)	0.366
146	12.17	0.83	0.595	0.228	(0.359)	0.367
147	12.25	0.83	0.595	0.227	(0.359)	0.368
148	12.33	0.87	0.619	0.226	(0.374)	0.393
149	12.42	0.87	0.619	0.225	(0.374)	0.394
150	12.50	0.87	0.619	0.223	(0.374)	0.395
151	12.58	0.93	0.666	0.222	(0.403)	0.444
152	12.67	0.93	0.666	0.221	(0.403)	0.445
153	12.75	0.93	0.666	0.220	(0.403)	0.446
154	12.83	0.97	0.690	0.219	(0.417)	0.471
155	12.92	0.97	0.690	0.218	(0.417)	0.472
156	13.00	0.97	0.690	0.217	(0.417)	0.473
157	13.08	1.13	0.809	0.216	(0.489)	0.593
158	13.17	1.13	0.809	0.215	(0.489)	0.595
159	13.25	1.13	0.809	0.214	(0.489)	0.596
160	13.33	1.13	0.809	0.212	(0.489)	0.597
161	13.42	1.13	0.809	0.211	(0.489)	0.598
162	13.50	1.13	0.809	0.210	(0.489)	0.599
163	13.58	0.77	0.547	0.209	(0.331)	0.338
164	13.67	0.77	0.547	0.208	(0.331)	0.339
165	13.75	0.77	0.547	0.207	(0.331)	0.340
166	13.83	0.77	0.547	0.206	(0.331)	0.341
167	13.92	0.77	0.547	0.205	(0.331)	0.342
168	14.00	0.77	0.547	0.204	(0.331)	0.343
169	14.08	0.90	0.643	0.203	(0.388)	0.440
170	14.17	0.90	0.643	0.202	(0.388)	0.441
171	14.25	0.90	0.643	0.201	(0.388)	0.442
172	14.33	0.87	0.619	0.200	(0.374)	0.419
173	14.42	0.87	0.619	0.199	(0.374)	0.420
174	14.50	0.87	0.619	0.198	(0.374)	0.421
175	14.58	0.87	0.619	0.197	(0.374)	0.422
176	14.67	0.87	0.619	0.196	(0.374)	0.423
177	14.75	0.87	0.619	0.195	(0.374)	0.424
178	14.83	0.83	0.595	0.194	(0.359)	0.401
179	14.92	0.83	0.595	0.193	(0.359)	0.402
180	15.00	0.83	0.595	0.192	(0.359)	0.403
181	15.08	0.80	0.571	0.191	(0.345)	0.380
182	15.17	0.80	0.571	0.190	(0.345)	0.381
183	15.25	0.80	0.571	0.189	(0.345)	0.382
184	15.33	0.77	0.547	0.188	(0.331)	0.360
185	15.42	0.77	0.547	0.187	(0.331)	0.361
186	15.50	0.77	0.547	0.186	(0.331)	0.361
187	15.58	0.63	0.452	0.185	(0.273)	0.267
188	15.67	0.63	0.452	0.184	(0.273)	0.268
189	15.75	0.63	0.452	0.183	(0.273)	0.269
190	15.83	0.63	0.452	0.182	(0.273)	0.270
191	15.92	0.63	0.452	0.181	(0.273)	0.271
192	16.00	0.63	0.452	0.180	(0.273)	0.272
193	16.08	0.13	0.095	(0.179)	0.058	0.038
194	16.17	0.13	0.095	(0.178)	0.058	0.038
195	16.25	0.13	0.095	(0.178)	0.058	0.038

196	16.33	0.13	0.095	(0.177)	0.058	0.038
197	16.42	0.13	0.095	(0.176)	0.058	0.038
198	16.50	0.13	0.095	(0.175)	0.058	0.038
199	16.58	0.10	0.071	(0.174)	0.043	0.028
200	16.67	0.10	0.071	(0.173)	0.043	0.028
201	16.75	0.10	0.071	(0.172)	0.043	0.028
202	16.83	0.10	0.071	(0.171)	0.043	0.028
203	16.92	0.10	0.071	(0.170)	0.043	0.028
204	17.00	0.10	0.071	(0.170)	0.043	0.028
205	17.08	0.17	0.119	(0.169)	0.072	0.047
206	17.17	0.17	0.119	(0.168)	0.072	0.047
207	17.25	0.17	0.119	(0.167)	0.072	0.047
208	17.33	0.17	0.119	(0.166)	0.072	0.047
209	17.42	0.17	0.119	(0.165)	0.072	0.047
210	17.50	0.17	0.119	(0.165)	0.072	0.047
211	17.58	0.17	0.119	(0.164)	0.072	0.047
212	17.67	0.17	0.119	(0.163)	0.072	0.047
213	17.75	0.17	0.119	(0.162)	0.072	0.047
214	17.83	0.13	0.095	(0.161)	0.058	0.038
215	17.92	0.13	0.095	(0.160)	0.058	0.038
216	18.00	0.13	0.095	(0.160)	0.058	0.038
217	18.08	0.13	0.095	(0.159)	0.058	0.038
218	18.17	0.13	0.095	(0.158)	0.058	0.038
219	18.25	0.13	0.095	(0.157)	0.058	0.038
220	18.33	0.13	0.095	(0.157)	0.058	0.038
221	18.42	0.13	0.095	(0.156)	0.058	0.038
222	18.50	0.13	0.095	(0.155)	0.058	0.038
223	18.58	0.10	0.071	(0.154)	0.043	0.028
224	18.67	0.10	0.071	(0.154)	0.043	0.028
225	18.75	0.10	0.071	(0.153)	0.043	0.028
226	18.83	0.07	0.048	(0.152)	0.029	0.019
227	18.92	0.07	0.048	(0.151)	0.029	0.019
228	19.00	0.07	0.048	(0.151)	0.029	0.019
229	19.08	0.10	0.071	(0.150)	0.043	0.028
230	19.17	0.10	0.071	(0.149)	0.043	0.028
231	19.25	0.10	0.071	(0.149)	0.043	0.028
232	19.33	0.13	0.095	(0.148)	0.058	0.038
233	19.42	0.13	0.095	(0.147)	0.058	0.038
234	19.50	0.13	0.095	(0.146)	0.058	0.038
235	19.58	0.10	0.071	(0.146)	0.043	0.028
236	19.67	0.10	0.071	(0.145)	0.043	0.028
237	19.75	0.10	0.071	(0.144)	0.043	0.028
238	19.83	0.07	0.048	(0.144)	0.029	0.019
239	19.92	0.07	0.048	(0.143)	0.029	0.019
240	20.00	0.07	0.048	(0.143)	0.029	0.019
241	20.08	0.10	0.071	(0.142)	0.043	0.028
242	20.17	0.10	0.071	(0.141)	0.043	0.028
243	20.25	0.10	0.071	(0.141)	0.043	0.028
244	20.33	0.10	0.071	(0.140)	0.043	0.028
245	20.42	0.10	0.071	(0.139)	0.043	0.028
246	20.50	0.10	0.071	(0.139)	0.043	0.028
247	20.58	0.10	0.071	(0.138)	0.043	0.028
248	20.67	0.10	0.071	(0.138)	0.043	0.028
249	20.75	0.10	0.071	(0.137)	0.043	0.028
250	20.83	0.07	0.048	(0.137)	0.029	0.019
251	20.92	0.07	0.048	(0.136)	0.029	0.019
252	21.00	0.07	0.048	(0.136)	0.029	0.019
253	21.08	0.10	0.071	(0.135)	0.043	0.028
254	21.17	0.10	0.071	(0.134)	0.043	0.028
255	21.25	0.10	0.071	(0.134)	0.043	0.028

256	21.33	0.07	0.048	(0.133)	0.029	0.019
257	21.42	0.07	0.048	(0.133)	0.029	0.019
258	21.50	0.07	0.048	(0.132)	0.029	0.019
259	21.58	0.10	0.071	(0.132)	0.043	0.028
260	21.67	0.10	0.071	(0.131)	0.043	0.028
261	21.75	0.10	0.071	(0.131)	0.043	0.028
262	21.83	0.07	0.048	(0.131)	0.029	0.019
263	21.92	0.07	0.048	(0.130)	0.029	0.019
264	22.00	0.07	0.048	(0.130)	0.029	0.019
265	22.08	0.10	0.071	(0.129)	0.043	0.028
266	22.17	0.10	0.071	(0.129)	0.043	0.028
267	22.25	0.10	0.071	(0.128)	0.043	0.028
268	22.33	0.07	0.048	(0.128)	0.029	0.019
269	22.42	0.07	0.048	(0.128)	0.029	0.019
270	22.50	0.07	0.048	(0.127)	0.029	0.019
271	22.58	0.07	0.048	(0.127)	0.029	0.019
272	22.67	0.07	0.048	(0.126)	0.029	0.019
273	22.75	0.07	0.048	(0.126)	0.029	0.019
274	22.83	0.07	0.048	(0.126)	0.029	0.019
275	22.92	0.07	0.048	(0.125)	0.029	0.019
276	23.00	0.07	0.048	(0.125)	0.029	0.019
277	23.08	0.07	0.048	(0.125)	0.029	0.019
278	23.17	0.07	0.048	(0.125)	0.029	0.019
279	23.25	0.07	0.048	(0.124)	0.029	0.019
280	23.33	0.07	0.048	(0.124)	0.029	0.019
281	23.42	0.07	0.048	(0.124)	0.029	0.019
282	23.50	0.07	0.048	(0.124)	0.029	0.019
283	23.58	0.07	0.048	(0.123)	0.029	0.019
284	23.67	0.07	0.048	(0.123)	0.029	0.019
285	23.75	0.07	0.048	(0.123)	0.029	0.019
286	23.83	0.07	0.048	(0.123)	0.029	0.019
287	23.92	0.07	0.048	(0.123)	0.029	0.019
288	24.00	0.07	0.048	(0.123)	0.029	0.019

(Loss Rate Not Used)

Sum = 100.0 Sum = 37.1

Flood volume = Effective rainfall 3.09(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 1.1(Ac.Ft)
Total soil loss = 2.86(In)
Total soil loss = 0.979(Ac.Ft)
Total rainfall = 5.95(In)
Flood volume = 46126.9 Cubic Feet
Total soil loss = 42642.3 Cubic Feet

Peak flow rate of this hydrograph = 2.480(CFS)

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24 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.04	Q	|	|	|	|
0+10	0.0008	0.07	Q	|	|	|	|
0+15	0.0013	0.08	Q	|	|	|	|
0+20	0.0020	0.10	Q	|	|	|	|
0+25	0.0028	0.11	Q	|	|	|	|
0+30	0.0036	0.12	Q	|	|	|	|

0+35	0.0044	0.12	Q	|	|	|	|
0+40	0.0052	0.12	Q	|	|	|	|
0+45	0.0060	0.12	Q	|	|	|	|
0+50	0.0070	0.14	Q	|	|	|	|
0+55	0.0080	0.15	Q	|	|	|	|
1+ 0	0.0091	0.16	Q	|	|	|	|
1+ 5	0.0100	0.14	Q	|	|	|	|
1+10	0.0109	0.12	Q	|	|	|	|
1+15	0.0117	0.12	Q	|	|	|	|
1+20	0.0125	0.12	Q	|	|	|	|
1+25	0.0133	0.12	Q	|	|	|	|
1+30	0.0141	0.12	Q	|	|	|	|
1+35	0.0149	0.12	Q	|	|	|	|
1+40	0.0157	0.12	Q	|	|	|	|
1+45	0.0165	0.12	Q	|	|	|	|
1+50	0.0175	0.14	Q	|	|	|	|
1+55	0.0185	0.15	Q	|	|	|	|
2+ 0	0.0196	0.16	Q	|	|	|	|
2+ 5	0.0207	0.16	Q	|	|	|	|
2+10	0.0218	0.16	Q	|	|	|	|
2+15	0.0228	0.16	Q	|	|	|	|
2+20	0.0239	0.16	Q	|	|	|	|
2+25	0.0250	0.16	Q	|	|	|	|
2+30	0.0261	0.16	Q	|	|	|	|
2+35	0.0273	0.18	QV	|	|	|	|
2+40	0.0286	0.19	QV	|	|	|	|
2+45	0.0300	0.20	QV	|	|	|	|
2+50	0.0313	0.20	QV	|	|	|	|
2+55	0.0326	0.20	QV	|	|	|	|
3+ 0	0.0340	0.20	QV	|	|	|	|
3+ 5	0.0353	0.20	QV	|	|	|	|
3+10	0.0367	0.20	QV	|	|	|	|
3+15	0.0380	0.20	QV	|	|	|	|
3+20	0.0394	0.20	QV	|	|	|	|
3+25	0.0407	0.20	QV	|	|	|	|
3+30	0.0421	0.20	QV	|	|	|	|
3+35	0.0434	0.20	QV	|	|	|	|
3+40	0.0447	0.20	QV	|	|	|	|
3+45	0.0461	0.20	QV	|	|	|	|
3+50	0.0476	0.22	QV	|	|	|	|
3+55	0.0492	0.23	QV	|	|	|	|
4+ 0	0.0508	0.23	QV	|	|	|	|
4+ 5	0.0524	0.23	QV	|	|	|	|
4+10	0.0540	0.23	Q V	|	|	|	|
4+15	0.0556	0.23	Q V	|	|	|	|
4+20	0.0574	0.26	|QV	|	|	|	|
4+25	0.0593	0.27	|QV	|	|	|	|
4+30	0.0611	0.27	|QV	|	|	|	|
4+35	0.0630	0.27	|QV	|	|	|	|
4+40	0.0649	0.27	|QV	|	|	|	|
4+45	0.0668	0.27	|QV	|	|	|	|
4+50	0.0688	0.29	|QV	|	|	|	|
4+55	0.0709	0.31	|QV	|	|	|	|
5+ 0	0.0731	0.31	|QV	|	|	|	|
5+ 5	0.0750	0.27	|QV	|	|	|	|
5+10	0.0766	0.24	Q V	|	|	|	|
5+15	0.0782	0.23	Q V	|	|	|	|
5+20	0.0800	0.26	|Q V	|	|	|	|
5+25	0.0819	0.27	|Q V	|	|	|	|
5+30	0.0837	0.27	|Q V	|	|	|	|

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 5+35     0.0858     0.29  |Q V      |         |         |         |
 5+40     0.0879     0.31  |Q V      |         |         |         |
 5+45     0.0900     0.31  |Q V      |         |         |         |
 5+50     0.0922     0.31  |Q V      |         |         |         |
 5+55     0.0944     0.31  |Q V      |         |         |         |
 6+ 0     0.0965     0.31  |Q V      |         |         |         |
 6+ 5     0.0988     0.33  |Q V      |         |         |         |
 6+10     0.1012     0.35  |Q V      |         |         |         |
 6+15     0.1036     0.35  |Q V      |         |         |         |
 6+20     0.1060     0.35  |Q  V     |         |         |         |
 6+25     0.1085     0.35  |Q  V     |         |         |         |
 6+30     0.1109     0.35  |Q  V     |         |         |         |
 6+35     0.1135     0.37  |Q  V     |         |         |         |
 6+40     0.1161     0.39  |Q  V     |         |         |         |
 6+45     0.1188     0.39  |Q  V     |         |         |         |
 6+50     0.1215     0.39  |Q  V     |         |         |         |
 6+55     0.1242     0.39  |Q  V     |         |         |         |
 7+ 0     0.1269     0.39  |Q  V     |         |         |         |
 7+ 5     0.1296     0.39  |Q  V     |         |         |         |
 7+10     0.1323     0.39  |Q  V     |         |         |         |
 7+15     0.1350     0.39  |Q   V    |         |         |         |
 7+20     0.1378     0.41  |Q   V    |         |         |         |
 7+25     0.1407     0.43  |Q   V    |         |         |         |
 7+30     0.1437     0.43  |Q   V    |         |         |         |
 7+35     0.1468     0.45  |Q   V    |         |         |         |
 7+40     0.1500     0.47  |Q   V    |         |         |         |
 7+45     0.1532     0.47  |Q   V    |         |         |         |
 7+50     0.1566     0.49  |Q   V    |         |         |         |
 7+55     0.1601     0.51  | Q   V   |         |         |         |
 8+ 0     0.1636     0.51  | Q   V   |         |         |         |
 8+ 5     0.1674     0.55  | Q   V   |         |         |         |
 8+10     0.1714     0.58  | Q   V   |         |         |         |
 8+15     0.1754     0.59  | Q   V   |         |         |         |
 8+20     0.1794     0.59  | Q   V   |         |         |         |
 8+25     0.1835     0.59  | Q   V   |         |         |         |
 8+30     0.1875     0.59  | Q    V  |         |         |         |
 8+35     0.1917     0.61  | Q    V  |         |         |         |
 8+40     0.1960     0.62  | Q    V  |         |         |         |
 8+45     0.2003     0.62  | Q    V  |         |         |         |
 8+50     0.2047     0.65  | Q    V  |         |         |         |
 8+55     0.2093     0.66  | Q    V  |         |         |         |
 9+ 0     0.2138     0.66  | Q     V |         |         |         |
 9+ 5     0.2187     0.71  | Q     V |         |         |         |
 9+10     0.2238     0.74  | Q     V |         |         |         |
 9+15     0.2290     0.75  | Q     V |         |         |         |
 9+20     0.2345     0.81  |  Q    V |         |         |         |
 9+25     0.2404     0.85  |  Q     V|         |         |         |
 9+30     0.2463     0.86  |  Q     V|         |         |         |
 9+35     0.2527     0.92  |  Q     V|         |         |         |
 9+40     0.2593     0.97  |  Q     V|         |         |         |
 9+45     0.2661     0.98  |  Q      V         |         |         |
 9+50     0.2732     1.04  |   Q     V         |         |         |
 9+55     0.2807     1.08  |   Q     V         |         |         |
10+ 0     0.2882     1.09  |   Q     V         |         |         |
10+ 5     0.2939     0.82  |  Q      |V        |         |         |
10+10     0.2981     0.62  | Q       |V        |         |         |
10+15     0.3022     0.59  | Q       |V        |         |         |
10+20     0.3062     0.59  | Q       |V        |         |         |
10+25     0.3102     0.59  | Q       |V        |         |         |
10+30     0.3143     0.59  | Q       |V        |         |         |
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10+35      0.3196      0.77  |  Q      | V       |         |         |
10+40      0.3259      0.91  |  Q      | V       |         |         |
10+45      0.3324      0.94  |  Q      | V       |         |         |
10+50      0.3389      0.95  |  Q      | V       |         |         |
10+55      0.3454      0.95  |  Q      |  V      |         |         |
11+ 0      0.3520      0.96  |  Q      |  V      |         |         |
11+ 5      0.3583      0.91  |  Q      |  V      |         |         |
11+10      0.3643      0.87  |  Q      |  V      |         |         |
11+15      0.3703      0.87  |  Q      |  V      |         |         |
11+20      0.3764      0.88  |  Q      |   V     |         |         |
11+25      0.3824      0.88  |  Q      |   V     |         |         |
11+30      0.3886      0.89  |  Q      |   V     |         |         |
11+35      0.3940      0.79  |  Q      |   V     |         |         |
11+40      0.3989      0.71  | Q       |    V    |         |         |
11+45      0.4038      0.71  | Q       |    V    |         |         |
11+50      0.4090      0.76  |  Q      |    V    |         |         |
11+55      0.4146      0.81  |  Q      |    V    |         |         |
12+ 0      0.4202      0.82  |  Q      |    V    |         |         |
12+ 5      0.4284      1.19  |   Q     |     V   |         |         |
12+10      0.4386      1.47  |    Q    |     V   |         |         |
12+15      0.4490      1.52  |     Q   |     V   |         |         |
12+20      0.4599      1.58  |     Q   |      V  |         |         |
12+25      0.4711      1.62  |     Q   |      V  |         |         |
12+30      0.4824      1.64  |     Q   |       V |         |         |
12+35      0.4944      1.75  |     Q   |       V |         |         |
12+40      0.5070      1.83  |      Q  |        V|         |         |
12+45      0.5197      1.85  |      Q  |        V|         |         |
12+50      0.5328      1.90  |      Q  |         V         |         |
12+55      0.5463      1.95  |      Q  |         V         |         |
13+ 0      0.5598      1.96  |      Q  |         |V        |         |
13+ 5      0.5751      2.23  |       Q |         |V        |         |
13+10      0.5918      2.43  |        Q|         | V       |         |
13+15      0.6088      2.47  |        Q|         | V       |         |
13+20      0.6258      2.47  |        Q|         |  V      |         |
13+25      0.6429      2.48  |        Q|         |   V     |         |
13+30      0.6600      2.48  |        Q|         |   V     |         |
13+35      0.6731      1.91  |      Q  |         |    V    |         |
13+40      0.6832      1.47  |    Q    |         |    V    |         |
13+45      0.6929      1.41  |    Q    |         |     V   |         |
13+50      0.7026      1.41  |    Q    |         |     V   |         |
13+55      0.7124      1.42  |    Q    |         |     V   |         |
14+ 0      0.7222      1.42  |    Q    |         |      V  |         |
14+ 5      0.7335      1.64  |     Q   |         |      V  |         |
14+10      0.7458      1.80  |      Q  |         |       V |         |
14+15      0.7584      1.83  |      Q  |         |       V |         |
14+20      0.7707      1.78  |      Q  |         |        V|         |
14+25      0.7827      1.74  |     Q   |         |        V|         |
14+30      0.7947      1.74  |     Q   |         |         V         |
14+35      0.8067      1.75  |     Q   |         |         V         |
14+40      0.8188      1.75  |      Q  |         |         V         |
14+45      0.8309      1.76  |      Q  |         |         |V        |
14+50      0.8427      1.71  |     Q   |         |         |V        |
14+55      0.8542      1.67  |     Q   |         |         | V       |
15+ 0      0.8657      1.67  |     Q   |         |         | V       |
15+ 5      0.8768      1.62  |     Q   |         |         |  V      |
15+10      0.8877      1.58  |     Q   |         |         |  V      |
15+15      0.8986      1.58  |     Q   |         |         |  V      |
15+20      0.9092      1.53  |     Q   |         |         |   V     |
15+25      0.9195      1.50  |    Q    |         |         |   V     |
15+30      0.9298      1.50  |    Q    |         |         |    V    |
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15+35	0.9387	1.29	Q			V
15+40	0.9465	1.13	Q			V
15+45	0.9542	1.11	Q			V
15+50	0.9619	1.12	Q			V
15+55	0.9696	1.12	Q			V
16+ 0	0.9773	1.12	Q			V
16+ 5	0.9815	0.61	Q			V
16+10	0.9830	0.22	Q			V
16+15	0.9841	0.16	Q			V
16+20	0.9852	0.16	Q			V
16+25	0.9863	0.16	Q			V
16+30	0.9873	0.16	Q			V
16+35	0.9883	0.14	Q			V
16+40	0.9891	0.12	Q			V
16+45	0.9899	0.12	Q			V
16+50	0.9907	0.12	Q			V
16+55	0.9915	0.12	Q			V
17+ 0	0.9923	0.12	Q			V
17+ 5	0.9934	0.16	Q			V
17+10	0.9947	0.19	Q			V
17+15	0.9961	0.20	Q			V
17+20	0.9974	0.20	Q			V
17+25	0.9988	0.20	Q			V
17+30	1.0001	0.20	Q			V
17+35	1.0015	0.20	Q			V
17+40	1.0028	0.20	Q			V
17+45	1.0041	0.20	Q			V
17+50	1.0053	0.17	Q			V
17+55	1.0064	0.16	Q			V
18+ 0	1.0075	0.16	Q			V
18+ 5	1.0086	0.16	Q			V
18+10	1.0097	0.16	Q			V
18+15	1.0107	0.16	Q			V
18+20	1.0118	0.16	Q			V
18+25	1.0129	0.16	Q			V
18+30	1.0140	0.16	Q			V
18+35	1.0149	0.14	Q			V
18+40	1.0157	0.12	Q			V
18+45	1.0165	0.12	Q			V
18+50	1.0172	0.10	Q			V
18+55	1.0178	0.08	Q			V
19+ 0	1.0183	0.08	Q			V
19+ 5	1.0190	0.10	Q			V
19+10	1.0198	0.11	Q			V
19+15	1.0206	0.12	Q			V
19+20	1.0215	0.14	Q			V
19+25	1.0226	0.15	Q			V
19+30	1.0237	0.16	Q			V
19+35	1.0246	0.14	Q			V
19+40	1.0254	0.12	Q			V
19+45	1.0262	0.12	Q			V
19+50	1.0269	0.10	Q			V
19+55	1.0274	0.08	Q			V
20+ 0	1.0280	0.08	Q			V
20+ 5	1.0287	0.10	Q			V
20+10	1.0294	0.11	Q			V
20+15	1.0303	0.12	Q			V
20+20	1.0311	0.12	Q			V
20+25	1.0319	0.12	Q			V
20+30	1.0327	0.12	Q			V

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 20+35      1.0335     0.12  Q       |        |        |      V|
 20+40      1.0343     0.12  Q       |        |        |      V|
 20+45      1.0351     0.12  Q       |        |        |      V|
 20+50      1.0358     0.10  Q       |        |        |      V|
 20+55      1.0363     0.08  Q       |        |        |      V|
 21+ 0      1.0369     0.08  Q       |        |        |      V|
 21+ 5      1.0375     0.10  Q       |        |        |      V|
 21+10      1.0383     0.11  Q       |        |        |      V|
 21+15      1.0391     0.12  Q       |        |        |      V|
 21+20      1.0398     0.10  Q       |        |        |      V|
 21+25      1.0403     0.08  Q       |        |        |      V|
 21+30      1.0409     0.08  Q       |        |        |      V|
 21+35      1.0416     0.10  Q       |        |        |      V|
 21+40      1.0424     0.11  Q       |        |        |      V|
 21+45      1.0432     0.12  Q       |        |        |      V|
 21+50      1.0438     0.10  Q       |        |        |      V|
 21+55      1.0444     0.08  Q       |        |        |      V|
 22+ 0      1.0449     0.08  Q       |        |        |      V|
 22+ 5      1.0456     0.10  Q       |        |        |      V|
 22+10      1.0464     0.11  Q       |        |        |      V|
 22+15      1.0472     0.12  Q       |        |        |      V|
 22+20      1.0479     0.10  Q       |        |        |      V|
 22+25      1.0484     0.08  Q       |        |        |      V|
 22+30      1.0490     0.08  Q       |        |        |      V|
 22+35      1.0495     0.08  Q       |        |        |      V|
 22+40      1.0500     0.08  Q       |        |        |      V|
 22+45      1.0506     0.08  Q       |        |        |      V|
 22+50      1.0511     0.08  Q       |        |        |      V|
 22+55      1.0516     0.08  Q       |        |        |      V|
 23+ 0      1.0522     0.08  Q       |        |        |      V|
 23+ 5      1.0527     0.08  Q       |        |        |      V|
 23+10      1.0533     0.08  Q       |        |        |      V|
 23+15      1.0538     0.08  Q       |        |        |      V|
 23+20      1.0543     0.08  Q       |        |        |      V|
 23+25      1.0549     0.08  Q       |        |        |      V|
 23+30      1.0554     0.08  Q       |        |        |      V|
 23+35      1.0560     0.08  Q       |        |        |      V|
 23+40      1.0565     0.08  Q       |        |        |      V|
 23+45      1.0570     0.08  Q       |        |        |      V|
 23+50      1.0576     0.08  Q       |        |        |      V|
 23+55      1.0581     0.08  Q       |        |        |      V|
 24+ 0      1.0586     0.08  Q       |        |        |      V|
 24+ 5      1.0589     0.04  Q       |        |        |      V|
 24+10      1.0589     0.00  Q       |        |        |       V
-----------------------------------------------------------------------
```

DEVELOPED
100 YEAR – 24 HOUR
AREA D_1

```
      U n i t   H y d r o g r a p h   A n a l y s i s

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            Study date  07/23/19 File: c318devD124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6222

---------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



---------------------------------------------------------------------
St. Frances of Rome - Wildomar
Developed D1
100-Year 24-Hour
--------------------------------------------------------------------
Drainage Area =       5.05(Ac.)  =      0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       5.05(Ac.)  =      0.008 Sq.
Mi.
Length along longest watercourse =     762.50(Ft.)
Length along longest watercourse measured to centroid =     532.10(Ft.)
Length along longest watercourse =      0.144 Mi.
Length along longest watercourse measured to centroid =      0.101 Mi.
Difference in elevation =      28.10(Ft.)
Slope along watercourse =    194.5810 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time =    0.035 Hr.
Lag time =     2.12 Min.
25% of lag time =     0.53 Min.
40% of lag time =     0.85 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.05              2.23                  11.26

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.05              5.95                  30.05

 STORM EVENT (YEAR) =  100.00
```

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.050	63.96	0.534

Total Area Entered = 5.05(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
64.0	64.0	0.427	0.534	0.222	1.000	0.222
					Sum (F) =	0.222

Area averaged mean soil loss (F) (In/Hr) = 0.222
Minimum soil loss rate ((In/Hr)) = 0.111
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.473

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	235.820	48.039	2.445
2	0.167	471.639	43.023	2.190
3	0.250	707.459	7.063	0.359
4	0.333	943.278	1.874	0.095
			Sum = 100.000	Sum= 5.089

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.393)	0.023	0.025
2	0.17	0.07	0.048	(0.392)	0.023	0.025
3	0.25	0.07	0.048	(0.390)	0.023	0.025
4	0.33	0.10	0.071	(0.389)	0.034	0.038
5	0.42	0.10	0.071	(0.387)	0.034	0.038
6	0.50	0.10	0.071	(0.386)	0.034	0.038
7	0.58	0.10	0.071	(0.384)	0.034	0.038
8	0.67	0.10	0.071	(0.383)	0.034	0.038
9	0.75	0.10	0.071	(0.381)	0.034	0.038
10	0.83	0.13	0.095	(0.380)	0.045	0.050
11	0.92	0.13	0.095	(0.378)	0.045	0.050
12	1.00	0.13	0.095	(0.377)	0.045	0.050
13	1.08	0.10	0.071	(0.375)	0.034	0.038
14	1.17	0.10	0.071	(0.374)	0.034	0.038
15	1.25	0.10	0.071	(0.372)	0.034	0.038
16	1.33	0.10	0.071	(0.371)	0.034	0.038

17	1.42	0.10	0.071	(0.369)	0.034	0.038
18	1.50	0.10	0.071	(0.368)	0.034	0.038
19	1.58	0.10	0.071	(0.366)	0.034	0.038
20	1.67	0.10	0.071	(0.365)	0.034	0.038
21	1.75	0.10	0.071	(0.364)	0.034	0.038
22	1.83	0.13	0.095	(0.362)	0.045	0.050
23	1.92	0.13	0.095	(0.361)	0.045	0.050
24	2.00	0.13	0.095	(0.359)	0.045	0.050
25	2.08	0.13	0.095	(0.358)	0.045	0.050
26	2.17	0.13	0.095	(0.356)	0.045	0.050
27	2.25	0.13	0.095	(0.355)	0.045	0.050
28	2.33	0.13	0.095	(0.353)	0.045	0.050
29	2.42	0.13	0.095	(0.352)	0.045	0.050
30	2.50	0.13	0.095	(0.350)	0.045	0.050
31	2.58	0.17	0.119	(0.349)	0.056	0.063
32	2.67	0.17	0.119	(0.348)	0.056	0.063
33	2.75	0.17	0.119	(0.346)	0.056	0.063
34	2.83	0.17	0.119	(0.345)	0.056	0.063
35	2.92	0.17	0.119	(0.343)	0.056	0.063
36	3.00	0.17	0.119	(0.342)	0.056	0.063
37	3.08	0.17	0.119	(0.340)	0.056	0.063
38	3.17	0.17	0.119	(0.339)	0.056	0.063
39	3.25	0.17	0.119	(0.338)	0.056	0.063
40	3.33	0.17	0.119	(0.336)	0.056	0.063
41	3.42	0.17	0.119	(0.335)	0.056	0.063
42	3.50	0.17	0.119	(0.333)	0.056	0.063
43	3.58	0.17	0.119	(0.332)	0.056	0.063
44	3.67	0.17	0.119	(0.331)	0.056	0.063
45	3.75	0.17	0.119	(0.329)	0.056	0.063
46	3.83	0.20	0.143	(0.328)	0.068	0.075
47	3.92	0.20	0.143	(0.326)	0.068	0.075
48	4.00	0.20	0.143	(0.325)	0.068	0.075
49	4.08	0.20	0.143	(0.324)	0.068	0.075
50	4.17	0.20	0.143	(0.322)	0.068	0.075
51	4.25	0.20	0.143	(0.321)	0.068	0.075
52	4.33	0.23	0.167	(0.320)	0.079	0.088
53	4.42	0.23	0.167	(0.318)	0.079	0.088
54	4.50	0.23	0.167	(0.317)	0.079	0.088
55	4.58	0.23	0.167	(0.316)	0.079	0.088
56	4.67	0.23	0.167	(0.314)	0.079	0.088
57	4.75	0.23	0.167	(0.313)	0.079	0.088
58	4.83	0.27	0.190	(0.311)	0.090	0.100
59	4.92	0.27	0.190	(0.310)	0.090	0.100
60	5.00	0.27	0.190	(0.309)	0.090	0.100
61	5.08	0.20	0.143	(0.307)	0.068	0.075
62	5.17	0.20	0.143	(0.306)	0.068	0.075
63	5.25	0.20	0.143	(0.305)	0.068	0.075
64	5.33	0.23	0.167	(0.303)	0.079	0.088
65	5.42	0.23	0.167	(0.302)	0.079	0.088
66	5.50	0.23	0.167	(0.301)	0.079	0.088
67	5.58	0.27	0.190	(0.299)	0.090	0.100
68	5.67	0.27	0.190	(0.298)	0.090	0.100
69	5.75	0.27	0.190	(0.297)	0.090	0.100
70	5.83	0.27	0.190	(0.296)	0.090	0.100
71	5.92	0.27	0.190	(0.294)	0.090	0.100
72	6.00	0.27	0.190	(0.293)	0.090	0.100
73	6.08	0.30	0.214	(0.292)	0.101	0.113
74	6.17	0.30	0.214	(0.290)	0.101	0.113
75	6.25	0.30	0.214	(0.289)	0.101	0.113
76	6.33	0.30	0.214	(0.288)	0.101	0.113

77	6.42	0.30	0.214	(0.286)	0.101	0.113
78	6.50	0.30	0.214	(0.285)	0.101	0.113
79	6.58	0.33	0.238	(0.284)	0.113	0.125
80	6.67	0.33	0.238	(0.283)	0.113	0.125
81	6.75	0.33	0.238	(0.281)	0.113	0.125
82	6.83	0.33	0.238	(0.280)	0.113	0.125
83	6.92	0.33	0.238	(0.279)	0.113	0.125
84	7.00	0.33	0.238	(0.278)	0.113	0.125
85	7.08	0.33	0.238	(0.276)	0.113	0.125
86	7.17	0.33	0.238	(0.275)	0.113	0.125
87	7.25	0.33	0.238	(0.274)	0.113	0.125
88	7.33	0.37	0.262	(0.272)	0.124	0.138
89	7.42	0.37	0.262	(0.271)	0.124	0.138
90	7.50	0.37	0.262	(0.270)	0.124	0.138
91	7.58	0.40	0.286	(0.269)	0.135	0.151
92	7.67	0.40	0.286	(0.268)	0.135	0.151
93	7.75	0.40	0.286	(0.266)	0.135	0.151
94	7.83	0.43	0.309	(0.265)	0.146	0.163
95	7.92	0.43	0.309	(0.264)	0.146	0.163
96	8.00	0.43	0.309	(0.263)	0.146	0.163
97	8.08	0.50	0.357	(0.261)	0.169	0.188
98	8.17	0.50	0.357	(0.260)	0.169	0.188
99	8.25	0.50	0.357	(0.259)	0.169	0.188
100	8.33	0.50	0.357	(0.258)	0.169	0.188
101	8.42	0.50	0.357	(0.257)	0.169	0.188
102	8.50	0.50	0.357	(0.255)	0.169	0.188
103	8.58	0.53	0.381	(0.254)	0.180	0.201
104	8.67	0.53	0.381	(0.253)	0.180	0.201
105	8.75	0.53	0.381	(0.252)	0.180	0.201
106	8.83	0.57	0.405	(0.251)	0.191	0.213
107	8.92	0.57	0.405	(0.249)	0.191	0.213
108	9.00	0.57	0.405	(0.248)	0.191	0.213
109	9.08	0.63	0.452	(0.247)	0.214	0.238
110	9.17	0.63	0.452	(0.246)	0.214	0.238
111	9.25	0.63	0.452	(0.245)	0.214	0.238
112	9.33	0.67	0.476	(0.244)	0.225	0.251
113	9.42	0.67	0.476	(0.242)	0.225	0.251
114	9.50	0.67	0.476	(0.241)	0.225	0.251
115	9.58	0.70	0.500	(0.240)	0.236	0.263
116	9.67	0.70	0.500	(0.239)	0.236	0.263
117	9.75	0.70	0.500	(0.238)	0.236	0.263
118	9.83	0.73	0.524	0.237	(0.248)	0.287
119	9.92	0.73	0.524	0.235	(0.248)	0.288
120	10.00	0.73	0.524	0.234	(0.248)	0.289
121	10.08	0.50	0.357	(0.233)	0.169	0.188
122	10.17	0.50	0.357	(0.232)	0.169	0.188
123	10.25	0.50	0.357	(0.231)	0.169	0.188
124	10.33	0.50	0.357	(0.230)	0.169	0.188
125	10.42	0.50	0.357	(0.229)	0.169	0.188
126	10.50	0.50	0.357	(0.228)	0.169	0.188
127	10.58	0.67	0.476	(0.226)	0.225	0.251
128	10.67	0.67	0.476	(0.225)	0.225	0.251
129	10.75	0.67	0.476	0.224	(0.225)	0.252
130	10.83	0.67	0.476	0.223	(0.225)	0.253
131	10.92	0.67	0.476	0.222	(0.225)	0.254
132	11.00	0.67	0.476	0.221	(0.225)	0.255
133	11.08	0.63	0.452	(0.220)	0.214	0.238
134	11.17	0.63	0.452	(0.219)	0.214	0.238
135	11.25	0.63	0.452	(0.218)	0.214	0.238
136	11.33	0.63	0.452	(0.217)	0.214	0.238

137	11.42	0.63	0.452	(0.216)	0.214	0.238
138	11.50	0.63	0.452	(0.215)	0.214	0.238
139	11.58	0.57	0.405	(0.213)	0.191	0.213
140	11.67	0.57	0.405	(0.212)	0.191	0.213
141	11.75	0.57	0.405	(0.211)	0.191	0.213
142	11.83	0.60	0.428	(0.210)	0.203	0.226
143	11.92	0.60	0.428	(0.209)	0.203	0.226
144	12.00	0.60	0.428	(0.208)	0.203	0.226
145	12.08	0.83	0.595	0.207	(0.281)	0.388
146	12.17	0.83	0.595	0.206	(0.281)	0.389
147	12.25	0.83	0.595	0.205	(0.281)	0.390
148	12.33	0.87	0.619	0.204	(0.293)	0.415
149	12.42	0.87	0.619	0.203	(0.293)	0.416
150	12.50	0.87	0.619	0.202	(0.293)	0.417
151	12.58	0.93	0.666	0.201	(0.315)	0.465
152	12.67	0.93	0.666	0.200	(0.315)	0.466
153	12.75	0.93	0.666	0.199	(0.315)	0.467
154	12.83	0.97	0.690	0.198	(0.326)	0.492
155	12.92	0.97	0.690	0.197	(0.326)	0.493
156	13.00	0.97	0.690	0.196	(0.326)	0.494
157	13.08	1.13	0.809	0.195	(0.383)	0.614
158	13.17	1.13	0.809	0.194	(0.383)	0.615
159	13.25	1.13	0.809	0.193	(0.383)	0.616
160	13.33	1.13	0.809	0.192	(0.383)	0.617
161	13.42	1.13	0.809	0.191	(0.383)	0.618
162	13.50	1.13	0.809	0.190	(0.383)	0.619
163	13.58	0.77	0.547	0.189	(0.259)	0.358
164	13.67	0.77	0.547	0.188	(0.259)	0.359
165	13.75	0.77	0.547	0.187	(0.259)	0.360
166	13.83	0.77	0.547	0.186	(0.259)	0.361
167	13.92	0.77	0.547	0.185	(0.259)	0.362
168	14.00	0.77	0.547	0.184	(0.259)	0.363
169	14.08	0.90	0.643	0.183	(0.304)	0.459
170	14.17	0.90	0.643	0.182	(0.304)	0.460
171	14.25	0.90	0.643	0.182	(0.304)	0.461
172	14.33	0.87	0.619	0.181	(0.293)	0.438
173	14.42	0.87	0.619	0.180	(0.293)	0.439
174	14.50	0.87	0.619	0.179	(0.293)	0.440
175	14.58	0.87	0.619	0.178	(0.293)	0.441
176	14.67	0.87	0.619	0.177	(0.293)	0.442
177	14.75	0.87	0.619	0.176	(0.293)	0.443
178	14.83	0.83	0.595	0.175	(0.281)	0.420
179	14.92	0.83	0.595	0.174	(0.281)	0.421
180	15.00	0.83	0.595	0.173	(0.281)	0.422
181	15.08	0.80	0.571	0.172	(0.270)	0.399
182	15.17	0.80	0.571	0.172	(0.270)	0.400
183	15.25	0.80	0.571	0.171	(0.270)	0.401
184	15.33	0.77	0.547	0.170	(0.259)	0.378
185	15.42	0.77	0.547	0.169	(0.259)	0.378
186	15.50	0.77	0.547	0.168	(0.259)	0.379
187	15.58	0.63	0.452	0.167	(0.214)	0.285
188	15.67	0.63	0.452	0.166	(0.214)	0.286
189	15.75	0.63	0.452	0.165	(0.214)	0.287
190	15.83	0.63	0.452	0.165	(0.214)	0.288
191	15.92	0.63	0.452	0.164	(0.214)	0.288
192	16.00	0.63	0.452	0.163	(0.214)	0.289
193	16.08	0.13	0.095	(0.162)	0.045	0.050
194	16.17	0.13	0.095	(0.161)	0.045	0.050
195	16.25	0.13	0.095	(0.160)	0.045	0.050
196	16.33	0.13	0.095	(0.160)	0.045	0.050

197	16.42	0.13	0.095	(0.159)	0.045	0.050
198	16.50	0.13	0.095	(0.158)	0.045	0.050
199	16.58	0.10	0.071	(0.157)	0.034	0.038
200	16.67	0.10	0.071	(0.156)	0.034	0.038
201	16.75	0.10	0.071	(0.156)	0.034	0.038
202	16.83	0.10	0.071	(0.155)	0.034	0.038
203	16.92	0.10	0.071	(0.154)	0.034	0.038
204	17.00	0.10	0.071	(0.153)	0.034	0.038
205	17.08	0.17	0.119	(0.153)	0.056	0.063
206	17.17	0.17	0.119	(0.152)	0.056	0.063
207	17.25	0.17	0.119	(0.151)	0.056	0.063
208	17.33	0.17	0.119	(0.150)	0.056	0.063
209	17.42	0.17	0.119	(0.149)	0.056	0.063
210	17.50	0.17	0.119	(0.149)	0.056	0.063
211	17.58	0.17	0.119	(0.148)	0.056	0.063
212	17.67	0.17	0.119	(0.147)	0.056	0.063
213	17.75	0.17	0.119	(0.147)	0.056	0.063
214	17.83	0.13	0.095	(0.146)	0.045	0.050
215	17.92	0.13	0.095	(0.145)	0.045	0.050
216	18.00	0.13	0.095	(0.144)	0.045	0.050
217	18.08	0.13	0.095	(0.144)	0.045	0.050
218	18.17	0.13	0.095	(0.143)	0.045	0.050
219	18.25	0.13	0.095	(0.142)	0.045	0.050
220	18.33	0.13	0.095	(0.142)	0.045	0.050
221	18.42	0.13	0.095	(0.141)	0.045	0.050
222	18.50	0.13	0.095	(0.140)	0.045	0.050
223	18.58	0.10	0.071	(0.139)	0.034	0.038
224	18.67	0.10	0.071	(0.139)	0.034	0.038
225	18.75	0.10	0.071	(0.138)	0.034	0.038
226	18.83	0.07	0.048	(0.137)	0.023	0.025
227	18.92	0.07	0.048	(0.137)	0.023	0.025
228	19.00	0.07	0.048	(0.136)	0.023	0.025
229	19.08	0.10	0.071	(0.136)	0.034	0.038
230	19.17	0.10	0.071	(0.135)	0.034	0.038
231	19.25	0.10	0.071	(0.134)	0.034	0.038
232	19.33	0.13	0.095	(0.134)	0.045	0.050
233	19.42	0.13	0.095	(0.133)	0.045	0.050
234	19.50	0.13	0.095	(0.132)	0.045	0.050
235	19.58	0.10	0.071	(0.132)	0.034	0.038
236	19.67	0.10	0.071	(0.131)	0.034	0.038
237	19.75	0.10	0.071	(0.131)	0.034	0.038
238	19.83	0.07	0.048	(0.130)	0.023	0.025
239	19.92	0.07	0.048	(0.129)	0.023	0.025
240	20.00	0.07	0.048	(0.129)	0.023	0.025
241	20.08	0.10	0.071	(0.128)	0.034	0.038
242	20.17	0.10	0.071	(0.128)	0.034	0.038
243	20.25	0.10	0.071	(0.127)	0.034	0.038
244	20.33	0.10	0.071	(0.127)	0.034	0.038
245	20.42	0.10	0.071	(0.126)	0.034	0.038
246	20.50	0.10	0.071	(0.126)	0.034	0.038
247	20.58	0.10	0.071	(0.125)	0.034	0.038
248	20.67	0.10	0.071	(0.124)	0.034	0.038
249	20.75	0.10	0.071	(0.124)	0.034	0.038
250	20.83	0.07	0.048	(0.123)	0.023	0.025
251	20.92	0.07	0.048	(0.123)	0.023	0.025
252	21.00	0.07	0.048	(0.122)	0.023	0.025
253	21.08	0.10	0.071	(0.122)	0.034	0.038
254	21.17	0.10	0.071	(0.122)	0.034	0.038
255	21.25	0.10	0.071	(0.121)	0.034	0.038
256	21.33	0.07	0.048	(0.121)	0.023	0.025

257	21.42	0.07	0.048	(0.120)	0.023	0.025
258	21.50	0.07	0.048	(0.120)	0.023	0.025
259	21.58	0.10	0.071	(0.119)	0.034	0.038
260	21.67	0.10	0.071	(0.119)	0.034	0.038
261	21.75	0.10	0.071	(0.118)	0.034	0.038
262	21.83	0.07	0.048	(0.118)	0.023	0.025
263	21.92	0.07	0.048	(0.118)	0.023	0.025
264	22.00	0.07	0.048	(0.117)	0.023	0.025
265	22.08	0.10	0.071	(0.117)	0.034	0.038
266	22.17	0.10	0.071	(0.116)	0.034	0.038
267	22.25	0.10	0.071	(0.116)	0.034	0.038
268	22.33	0.07	0.048	(0.116)	0.023	0.025
269	22.42	0.07	0.048	(0.115)	0.023	0.025
270	22.50	0.07	0.048	(0.115)	0.023	0.025
271	22.58	0.07	0.048	(0.115)	0.023	0.025
272	22.67	0.07	0.048	(0.114)	0.023	0.025
273	22.75	0.07	0.048	(0.114)	0.023	0.025
274	22.83	0.07	0.048	(0.114)	0.023	0.025
275	22.92	0.07	0.048	(0.113)	0.023	0.025
276	23.00	0.07	0.048	(0.113)	0.023	0.025
277	23.08	0.07	0.048	(0.113)	0.023	0.025
278	23.17	0.07	0.048	(0.113)	0.023	0.025
279	23.25	0.07	0.048	(0.112)	0.023	0.025
280	23.33	0.07	0.048	(0.112)	0.023	0.025
281	23.42	0.07	0.048	(0.112)	0.023	0.025
282	23.50	0.07	0.048	(0.112)	0.023	0.025
283	23.58	0.07	0.048	(0.112)	0.023	0.025
284	23.67	0.07	0.048	(0.111)	0.023	0.025
285	23.75	0.07	0.048	(0.111)	0.023	0.025
286	23.83	0.07	0.048	(0.111)	0.023	0.025
287	23.92	0.07	0.048	(0.111)	0.023	0.025
288	24.00	0.07	0.048	(0.111)	0.023	0.025

(Loss Rate Not Used)

Sum = 100.0 Sum = 42.7

Flood volume = Effective rainfall 3.56(In)
times area 5.0(Ac.)/[(In)/(Ft.)] = 1.5(Ac.Ft)
Total soil loss = 2.39(In)
Total soil loss = 1.006(Ac.Ft)
Total rainfall = 5.95(In)
Flood volume = 65244.0 Cubic Feet
Total soil loss = 43827.4 Cubic Feet

Peak flow rate of this hydrograph = 3.150(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0012	0.12	Q				
0+15	0.0021	0.13	Q				
0+20	0.0032	0.16	Q				
0+25	0.0045	0.19	Q				
0+30	0.0058	0.19	Q				
0+35	0.0071	0.19	Q				

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0+40     0.0084   0.19  Q         |         |         |         |
0+45     0.0097   0.19  Q         |         |         |         |
0+50     0.0113   0.22  Q         |         |         |         |
0+55     0.0130   0.25  Q         |         |         |         |
1+ 0     0.0147   0.25  VQ        |         |         |         |
1+ 5     0.0163   0.22  Q         |         |         |         |
1+10     0.0176   0.20  Q         |         |         |         |
1+15     0.0190   0.19  Q         |         |         |         |
1+20     0.0203   0.19  Q         |         |         |         |
1+25     0.0216   0.19  Q         |         |         |         |
1+30     0.0229   0.19  Q         |         |         |         |
1+35     0.0242   0.19  Q         |         |         |         |
1+40     0.0256   0.19  Q         |         |         |         |
1+45     0.0269   0.19  Q         |         |         |         |
1+50     0.0284   0.22  Q         |         |         |         |
1+55     0.0301   0.25  Q         |         |         |         |
2+ 0     0.0319   0.25  VQ        |         |         |         |
2+ 5     0.0336   0.26  VQ        |         |         |         |
2+10     0.0354   0.26  VQ        |         |         |         |
2+15     0.0372   0.26  VQ        |         |         |         |
2+20     0.0389   0.26  |Q        |         |         |         |
2+25     0.0407   0.26  |Q        |         |         |         |
2+30     0.0424   0.26  |Q        |         |         |         |
2+35     0.0444   0.29  |Q        |         |         |         |
2+40     0.0466   0.31  |Q        |         |         |         |
2+45     0.0488   0.32  |Q        |         |         |         |
2+50     0.0510   0.32  |Q        |         |         |         |
2+55     0.0532   0.32  |Q        |         |         |         |
3+ 0     0.0554   0.32  |Q        |         |         |         |
3+ 5     0.0576   0.32  |Q        |         |         |         |
3+10     0.0598   0.32  |Q        |         |         |         |
3+15     0.0620   0.32  |Q        |         |         |         |
3+20     0.0642   0.32  |Q        |         |         |         |
3+25     0.0664   0.32  |Q        |         |         |         |
3+30     0.0686   0.32  |Q        |         |         |         |
3+35     0.0708   0.32  |Q        |         |         |         |
3+40     0.0730   0.32  |Q        |         |         |         |
3+45     0.0752   0.32  |QV       |         |         |         |
3+50     0.0776   0.35  |QV       |         |         |         |
3+55     0.0802   0.38  |QV       |         |         |         |
4+ 0     0.0828   0.38  |QV       |         |         |         |
4+ 5     0.0854   0.38  |QV       |         |         |         |
4+10     0.0881   0.38  |QV       |         |         |         |
4+15     0.0907   0.38  |QV       |         |         |         |
4+20     0.0936   0.41  |QV       |         |         |         |
4+25     0.0966   0.44  |QV       |         |         |         |
4+30     0.0997   0.45  |QV       |         |         |         |
4+35     0.1028   0.45  |QV       |         |         |         |
4+40     0.1058   0.45  |QV       |         |         |         |
4+45     0.1089   0.45  |QV       |         |         |         |
4+50     0.1122   0.48  |QV       |         |         |         |
4+55     0.1157   0.51  | QV      |         |         |         |
5+ 0     0.1192   0.51  | QV      |         |         |         |
5+ 5     0.1223   0.45  |Q V      |         |         |         |
5+10     0.1250   0.39  |Q V      |         |         |         |
5+15     0.1277   0.39  |Q V      |         |         |         |
5+20     0.1305   0.41  |Q V      |         |         |         |
5+25     0.1336   0.44  |Q V      |         |         |         |
5+30     0.1366   0.45  |Q V      |         |         |         |
5+35     0.1399   0.48  |Q V      |         |         |         |
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5+40      0.1434     0.51  | QV      |         |         |         |
5+45      0.1469     0.51  | QV      |         |         |         |
5+50      0.1504     0.51  | Q V     |         |         |         |
5+55      0.1539     0.51  | Q V     |         |         |         |
6+ 0      0.1575     0.51  | Q V     |         |         |         |
6+ 5      0.1612     0.54  | Q V     |         |         |         |
6+10      0.1651     0.57  | Q V     |         |         |         |
6+15      0.1691     0.57  | Q V     |         |         |         |
6+20      0.1730     0.57  | Q V     |         |         |         |
6+25      0.1770     0.57  | Q V     |         |         |         |
6+30      0.1809     0.57  | Q V     |         |         |         |
6+35      0.1851     0.61  | Q V     |         |         |         |
6+40      0.1895     0.63  | Q  V    |         |         |         |
6+45      0.1939     0.64  | Q  V    |         |         |         |
6+50      0.1983     0.64  | Q  V    |         |         |         |
6+55      0.2027     0.64  | Q  V    |         |         |         |
7+ 0      0.2071     0.64  | Q  V    |         |         |         |
7+ 5      0.2114     0.64  | Q  V    |         |         |         |
7+10      0.2158     0.64  | Q  V    |         |         |         |
7+15      0.2202     0.64  | Q  V    |         |         |         |
7+20      0.2249     0.67  | Q   V   |         |         |         |
7+25      0.2297     0.70  | Q   V   |         |         |         |
7+30      0.2345     0.70  | Q   V   |         |         |         |
7+35      0.2395     0.73  | Q   V   |         |         |         |
7+40      0.2448     0.76  |  Q  V   |         |         |         |
7+45      0.2500     0.77  |  Q  V   |         |         |         |
7+50      0.2555     0.80  |  Q  V   |         |         |         |
7+55      0.2612     0.82  |  Q  V   |         |         |         |
8+ 0      0.2669     0.83  |  Q   V  |         |         |         |
8+ 5      0.2731     0.89  |  Q   V  |         |         |         |
8+10      0.2796     0.95  |  Q   V  |         |         |         |
8+15      0.2862     0.96  |  Q   V  |         |         |         |
8+20      0.2928     0.96  |  Q   V  |         |         |         |
8+25      0.2994     0.96  |  Q   V  |         |         |         |
8+30      0.3060     0.96  |  Q    V |         |         |         |
8+35      0.3128     0.99  |  Q    V |         |         |         |
8+40      0.3198     1.02  |   Q   V |         |         |         |
8+45      0.3268     1.02  |   Q   V |         |         |         |
8+50      0.3340     1.05  |   Q   V |         |         |         |
8+55      0.3415     1.08  |   Q    V|         |         |         |
9+ 0      0.3490     1.08  |   Q    V|         |         |         |
9+ 5      0.3569     1.15  |   Q    V|         |         |         |
9+10      0.3651     1.20  |   Q    V|         |         |         |
9+15      0.3735     1.21  |   Q    V|         |         |         |
9+20      0.3820     1.24  |   Q     V         |         |         |
9+25      0.3908     1.27  |    Q    V         |         |         |
9+30      0.3996     1.28  |    Q    V         |         |         |
9+35      0.4086     1.31  |    Q    V         |         |         |
9+40      0.4178     1.34  |    Q    |V        |         |         |
9+45      0.4270     1.34  |    Q    |V        |         |         |
9+50      0.4367     1.40  |    Q    |V        |         |         |
9+55      0.4467     1.45  |    Q    |V        |         |         |
10+ 0     0.4568     1.47  |    Q    | V       |         |         |
10+ 5     0.4652     1.22  |   Q     | V       |         |         |
10+10     0.4721     1.00  |   Q     | V       |         |         |
10+15     0.4788     0.97  |  Q      | V       |         |         |
10+20     0.4854     0.96  |  Q      | V       |         |         |
10+25     0.4920     0.96  |  Q      |  V      |         |         |
10+30     0.4986     0.96  |  Q      |  V      |         |         |
10+35     0.5062     1.11  |   Q     |  V      |         |         |
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10+40     0.5148     1.25  |   Q     |  V      |         |         |
10+45     0.5236     1.27  |    Q    |  V      |         |         |
10+50     0.5324     1.28  |    Q    |   V     |         |         |
10+55     0.5413     1.29  |    Q    |   V     |         |         |
11+ 0     0.5502     1.30  |    Q    |   V     |         |         |
11+ 5     0.5589     1.26  |    Q    |   V     |         |         |
11+10     0.5673     1.22  |   Q     |    V    |         |         |
11+15     0.5757     1.22  |   Q     |    V    |         |         |
11+20     0.5840     1.21  |   Q     |    V    |         |         |
11+25     0.5924     1.21  |   Q     |    V    |         |         |
11+30     0.6008     1.21  |   Q     |     V   |         |         |
11+35     0.6087     1.15  |   Q     |     V   |         |         |
11+40     0.6162     1.10  |   Q     |     V   |         |         |
11+45     0.6237     1.09  |   Q     |     V   |         |         |
11+50     0.6314     1.12  |   Q     |     V   |         |         |
11+55     0.6393     1.14  |   Q     |      V  |         |         |
12+ 0     0.6472     1.15  |   Q     |      V  |         |         |
12+ 5     0.6579     1.55  |     Q   |      V  |         |         |
12+10     0.6710     1.90  |      Q  |      V  |         |         |
12+15     0.6845     1.97  |      Q  |       V |         |         |
12+20     0.6986     2.05  |       Q |       V |         |         |
12+25     0.7131     2.10  |       Q |        V|         |         |
12+30     0.7277     2.12  |       Q |        V|         |         |
12+35     0.7431     2.24  |       Q |        V|         |         |
12+40     0.7593     2.35  |        Q|         V         |         |
12+45     0.7756     2.37  |        Q|         V         |         |
12+50     0.7924     2.44  |        Q|         |V        |         |
12+55     0.8096     2.50  |        Q|         |V        |         |
13+ 0     0.8269     2.51  |         Q         | V       |         |
13+ 5     0.8463     2.81  |         |Q        | V       |         |
13+10     0.8675     3.08  |         | Q       |  V      |         |
13+15     0.8890     3.12  |         | Q       |  V      |         |
13+20     0.9106     3.14  |         | Q       |   V     |         |
13+25     0.9323     3.14  |         | Q       |   V     |         |
13+30     0.9539     3.15  |         | Q       |    V    |         |
13+35     0.9713     2.51  |         Q         |    V    |         |
13+40     0.9847     1.95  |      Q  |         |     V   |         |
13+45     0.9974     1.86  |      Q  |         |     V   |         |
13+50     1.0101     1.84  |      Q  |         |     V   |         |
13+55     1.0228     1.84  |      Q  |         |      V  |         |
14+ 0     1.0355     1.85  |      Q  |         |      V  |         |
14+ 5     1.0498     2.08  |       Q |         |       V |         |
14+10     1.0656     2.30  |        Q|         |       V |         |
14+15     1.0817     2.34  |        Q|         |       V |         |
14+20     1.0975     2.29  |        Q|         |        V|         |
14+25     1.1130     2.24  |       Q |         |        V|         |
14+30     1.1284     2.24  |       Q |         |         V         |
14+35     1.1438     2.24  |       Q |         |         V         |
14+40     1.1593     2.25  |       Q |         |         V         |
14+45     1.1748     2.25  |        Q|         |         |V        |
14+50     1.1900     2.20  |       Q |         |         |V        |
14+55     1.2048     2.15  |       Q |         |         | V       |
15+ 0     1.2196     2.15  |       Q |         |         | V       |
15+ 5     1.2340     2.09  |       Q |         |         | V       |
15+10     1.2480     2.04  |       Q |         |         |  V      |
15+15     1.2621     2.04  |       Q |         |         |  V      |
15+20     1.2757     1.98  |      Q  |         |         |   V     |
15+25     1.2891     1.94  |      Q  |         |         |   V     |
15+30     1.3024     1.93  |      Q  |         |         |   V     |
15+35     1.3141     1.70  |     Q   |         |         |    V    |
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15+40	1.3244	1.50	Q			V
15+45	1.3345	1.47	Q			V
15+50	1.3445	1.46	Q			V
15+55	1.3546	1.47	Q			V
16+ 0	1.3648	1.47	Q			V
16+ 5	1.3709	0.89	Q			V
16+10	1.3734	0.36	Q			V
16+15	1.3753	0.28	Q			V
16+20	1.3770	0.26	Q			V
16+25	1.3788	0.26	Q			V
16+30	1.3806	0.26	Q			V
16+35	1.3821	0.22	Q			V
16+40	1.3835	0.20	Q			V
16+45	1.3848	0.19	Q			V
16+50	1.3861	0.19	Q			V
16+55	1.3874	0.19	Q			V
17+ 0	1.3888	0.19	Q			V
17+ 5	1.3905	0.25	Q			V
17+10	1.3926	0.31	Q			V
17+15	1.3948	0.32	Q			V
17+20	1.3970	0.32	Q			V
17+25	1.3992	0.32	Q			V
17+30	1.4014	0.32	Q			V
17+35	1.4036	0.32	Q			V
17+40	1.4058	0.32	Q			V
17+45	1.4080	0.32	Q			V
17+50	1.4100	0.29	Q			V
17+55	1.4118	0.26	Q			V
18+ 0	1.4136	0.26	Q			V
18+ 5	1.4153	0.26	Q			V
18+10	1.4171	0.26	Q			V
18+15	1.4188	0.26	Q			V
18+20	1.4206	0.26	Q			V
18+25	1.4224	0.26	Q			V
18+30	1.4241	0.26	Q			V
18+35	1.4257	0.22	Q			V
18+40	1.4270	0.20	Q			V
18+45	1.4283	0.19	Q			V
18+50	1.4295	0.16	Q			V
18+55	1.4304	0.13	Q			V
19+ 0	1.4313	0.13	Q			V
19+ 5	1.4324	0.16	Q			V
19+10	1.4336	0.19	Q			V
19+15	1.4349	0.19	Q			V
19+20	1.4365	0.22	Q			V
19+25	1.4382	0.25	Q			V
19+30	1.4399	0.25	Q			V
19+35	1.4415	0.22	Q			V
19+40	1.4429	0.20	Q			V
19+45	1.4442	0.19	Q			V
19+50	1.4453	0.16	Q			V
19+55	1.4462	0.13	Q			V
20+ 0	1.4471	0.13	Q			V
20+ 5	1.4482	0.16	Q			V
20+10	1.4495	0.19	Q			V
20+15	1.4508	0.19	Q			V
20+20	1.4521	0.19	Q			V
20+25	1.4534	0.19	Q			V
20+30	1.4547	0.19	Q			V
20+35	1.4561	0.19	Q			V

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 20+40     1.4574     0.19  Q        |          |          |       V |
 20+45     1.4587     0.19  Q        |          |          |       V |
 20+50     1.4598     0.16  Q        |          |          |       V |
 20+55     1.4607     0.13  Q        |          |          |        V|
 21+ 0     1.4616     0.13  Q        |          |          |        V|
 21+ 5     1.4627     0.16  Q        |          |          |        V|
 21+10     1.4640     0.19  Q        |          |          |        V|
 21+15     1.4653     0.19  Q        |          |          |        V|
 21+20     1.4664     0.16  Q        |          |          |        V|
 21+25     1.4673     0.13  Q        |          |          |        V|
 21+30     1.4682     0.13  Q        |          |          |        V|
 21+35     1.4693     0.16  Q        |          |          |        V|
 21+40     1.4706     0.19  Q        |          |          |        V|
 21+45     1.4719     0.19  Q        |          |          |        V|
 21+50     1.4730     0.16  Q        |          |          |        V|
 21+55     1.4739     0.13  Q        |          |          |        V|
 22+ 0     1.4748     0.13  Q        |          |          |        V|
 22+ 5     1.4759     0.16  Q        |          |          |        V|
 22+10     1.4772     0.19  Q        |          |          |        V|
 22+15     1.4785     0.19  Q        |          |          |        V|
 22+20     1.4796     0.16  Q        |          |          |        V|
 22+25     1.4805     0.13  Q        |          |          |        V|
 22+30     1.4814     0.13  Q        |          |          |        V|
 22+35     1.4823     0.13  Q        |          |          |        V|
 22+40     1.4832     0.13  Q        |          |          |        V|
 22+45     1.4840     0.13  Q        |          |          |        V|
 22+50     1.4849     0.13  Q        |          |          |        V|
 22+55     1.4858     0.13  Q        |          |          |        V|
 23+ 0     1.4867     0.13  Q        |          |          |        V|
 23+ 5     1.4876     0.13  Q        |          |          |        V|
 23+10     1.4884     0.13  Q        |          |          |        V|
 23+15     1.4893     0.13  Q        |          |          |        V|
 23+20     1.4902     0.13  Q        |          |          |        V|
 23+25     1.4911     0.13  Q        |          |          |        V|
 23+30     1.4920     0.13  Q        |          |          |        V|
 23+35     1.4928     0.13  Q        |          |          |        V|
 23+40     1.4937     0.13  Q        |          |          |        V|
 23+45     1.4946     0.13  Q        |          |          |        V|
 23+50     1.4955     0.13  Q        |          |          |        V|
 23+55     1.4964     0.13  Q        |          |          |        V|
 24+ 0     1.4972     0.13  Q        |          |          |        V|
 24+ 5     1.4977     0.07  Q        |          |          |        V|
 24+10     1.4978     0.01  Q        |          |          |        V|
 24+15     1.4978     0.00  Q        |          |          |         V
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DEVELOPED
100 YEAR – 24 HOUR
AREA E_1

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/23/19 File: c318devE124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Developed E1
100-Year 24-Hour

Drainage Area = 2.32(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.32(Ac.) = 0.004 Sq. Mi.
Length along longest watercourse = 284.30(Ft.)
Length along longest watercourse measured to centroid = 156.10(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.030 Mi.
Difference in elevation = 12.70(Ft.)
Slope along watercourse = 235.8635 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.011 Hr.
Lag time = 0.66 Min.
25% of lag time = 0.17 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.32	2.23	5.17

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.32	5.95	13.80

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.320	72.89	0.772

Total Area Entered = 2.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.9	72.9	0.328	0.772	0.100	1.000	0.100
					Sum (F) =	0.100

Area averaged mean soil loss (F) (In/Hr) = 0.100
Minimum soil loss rate ((In/Hr)) = 0.050
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.282

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	756.128	80.403	1.880
2	0.167	1512.256	19.597	0.458
			Sum = 100.000	Sum= 2.338

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.177)	0.013	0.034
2	0.17	0.07	0.048	(0.177)	0.013	0.034
3	0.25	0.07	0.048	(0.176)	0.013	0.034
4	0.33	0.10	0.071	(0.175)	0.020	0.051
5	0.42	0.10	0.071	(0.175)	0.020	0.051
6	0.50	0.10	0.071	(0.174)	0.020	0.051
7	0.58	0.10	0.071	(0.173)	0.020	0.051
8	0.67	0.10	0.071	(0.173)	0.020	0.051
9	0.75	0.10	0.071	(0.172)	0.020	0.051
10	0.83	0.13	0.095	(0.171)	0.027	0.068
11	0.92	0.13	0.095	(0.171)	0.027	0.068
12	1.00	0.13	0.095	(0.170)	0.027	0.068
13	1.08	0.10	0.071	(0.169)	0.020	0.051
14	1.17	0.10	0.071	(0.169)	0.020	0.051
15	1.25	0.10	0.071	(0.168)	0.020	0.051
16	1.33	0.10	0.071	(0.167)	0.020	0.051
17	1.42	0.10	0.071	(0.167)	0.020	0.051
18	1.50	0.10	0.071	(0.166)	0.020	0.051

19	1.58	0.10	0.071	(0.165)	0.020	0.051
20	1.67	0.10	0.071	(0.165)	0.020	0.051
21	1.75	0.10	0.071	(0.164)	0.020	0.051
22	1.83	0.13	0.095	(0.163)	0.027	0.068
23	1.92	0.13	0.095	(0.163)	0.027	0.068
24	2.00	0.13	0.095	(0.162)	0.027	0.068
25	2.08	0.13	0.095	(0.161)	0.027	0.068
26	2.17	0.13	0.095	(0.161)	0.027	0.068
27	2.25	0.13	0.095	(0.160)	0.027	0.068
28	2.33	0.13	0.095	(0.159)	0.027	0.068
29	2.42	0.13	0.095	(0.159)	0.027	0.068
30	2.50	0.13	0.095	(0.158)	0.027	0.068
31	2.58	0.17	0.119	(0.157)	0.034	0.085
32	2.67	0.17	0.119	(0.157)	0.034	0.085
33	2.75	0.17	0.119	(0.156)	0.034	0.085
34	2.83	0.17	0.119	(0.155)	0.034	0.085
35	2.92	0.17	0.119	(0.155)	0.034	0.085
36	3.00	0.17	0.119	(0.154)	0.034	0.085
37	3.08	0.17	0.119	(0.154)	0.034	0.085
38	3.17	0.17	0.119	(0.153)	0.034	0.085
39	3.25	0.17	0.119	(0.152)	0.034	0.085
40	3.33	0.17	0.119	(0.152)	0.034	0.085
41	3.42	0.17	0.119	(0.151)	0.034	0.085
42	3.50	0.17	0.119	(0.150)	0.034	0.085
43	3.58	0.17	0.119	(0.150)	0.034	0.085
44	3.67	0.17	0.119	(0.149)	0.034	0.085
45	3.75	0.17	0.119	(0.148)	0.034	0.085
46	3.83	0.20	0.143	(0.148)	0.040	0.103
47	3.92	0.20	0.143	(0.147)	0.040	0.103
48	4.00	0.20	0.143	(0.147)	0.040	0.103
49	4.08	0.20	0.143	(0.146)	0.040	0.103
50	4.17	0.20	0.143	(0.145)	0.040	0.103
51	4.25	0.20	0.143	(0.145)	0.040	0.103
52	4.33	0.23	0.167	(0.144)	0.047	0.120
53	4.42	0.23	0.167	(0.144)	0.047	0.120
54	4.50	0.23	0.167	(0.143)	0.047	0.120
55	4.58	0.23	0.167	(0.142)	0.047	0.120
56	4.67	0.23	0.167	(0.142)	0.047	0.120
57	4.75	0.23	0.167	(0.141)	0.047	0.120
58	4.83	0.27	0.190	(0.140)	0.054	0.137
59	4.92	0.27	0.190	(0.140)	0.054	0.137
60	5.00	0.27	0.190	(0.139)	0.054	0.137
61	5.08	0.20	0.143	(0.139)	0.040	0.103
62	5.17	0.20	0.143	(0.138)	0.040	0.103
63	5.25	0.20	0.143	(0.137)	0.040	0.103
64	5.33	0.23	0.167	(0.137)	0.047	0.120
65	5.42	0.23	0.167	(0.136)	0.047	0.120
66	5.50	0.23	0.167	(0.136)	0.047	0.120
67	5.58	0.27	0.190	(0.135)	0.054	0.137
68	5.67	0.27	0.190	(0.134)	0.054	0.137
69	5.75	0.27	0.190	(0.134)	0.054	0.137
70	5.83	0.27	0.190	(0.133)	0.054	0.137
71	5.92	0.27	0.190	(0.133)	0.054	0.137
72	6.00	0.27	0.190	(0.132)	0.054	0.137
73	6.08	0.30	0.214	(0.132)	0.060	0.154
74	6.17	0.30	0.214	(0.131)	0.060	0.154
75	6.25	0.30	0.214	(0.130)	0.060	0.154
76	6.33	0.30	0.214	(0.130)	0.060	0.154
77	6.42	0.30	0.214	(0.129)	0.060	0.154
78	6.50	0.30	0.214	(0.129)	0.060	0.154

79	6.58	0.33	0.238	(0.128)	0.067	0.171
80	6.67	0.33	0.238	(0.127)	0.067	0.171
81	6.75	0.33	0.238	(0.127)	0.067	0.171
82	6.83	0.33	0.238	(0.126)	0.067	0.171
83	6.92	0.33	0.238	(0.126)	0.067	0.171
84	7.00	0.33	0.238	(0.125)	0.067	0.171
85	7.08	0.33	0.238	(0.125)	0.067	0.171
86	7.17	0.33	0.238	(0.124)	0.067	0.171
87	7.25	0.33	0.238	(0.123)	0.067	0.171
88	7.33	0.37	0.262	(0.123)	0.074	0.188
89	7.42	0.37	0.262	(0.122)	0.074	0.188
90	7.50	0.37	0.262	(0.122)	0.074	0.188
91	7.58	0.40	0.286	(0.121)	0.081	0.205
92	7.67	0.40	0.286	(0.121)	0.081	0.205
93	7.75	0.40	0.286	(0.120)	0.081	0.205
94	7.83	0.43	0.309	(0.120)	0.087	0.222
95	7.92	0.43	0.309	(0.119)	0.087	0.222
96	8.00	0.43	0.309	(0.118)	0.087	0.222
97	8.08	0.50	0.357	(0.118)	0.101	0.256
98	8.17	0.50	0.357	(0.117)	0.101	0.256
99	8.25	0.50	0.357	(0.117)	0.101	0.256
100	8.33	0.50	0.357	(0.116)	0.101	0.256
101	8.42	0.50	0.357	(0.116)	0.101	0.256
102	8.50	0.50	0.357	(0.115)	0.101	0.256
103	8.58	0.53	0.381	(0.115)	0.107	0.273
104	8.67	0.53	0.381	(0.114)	0.107	0.273
105	8.75	0.53	0.381	(0.114)	0.107	0.273
106	8.83	0.57	0.405	0.113	(0.114)	0.292
107	8.92	0.57	0.405	0.112	(0.114)	0.292
108	9.00	0.57	0.405	0.112	(0.114)	0.293
109	9.08	0.63	0.452	0.111	(0.128)	0.341
110	9.17	0.63	0.452	0.111	(0.128)	0.341
111	9.25	0.63	0.452	0.110	(0.128)	0.342
112	9.33	0.67	0.476	0.110	(0.134)	0.366
113	9.42	0.67	0.476	0.109	(0.134)	0.367
114	9.50	0.67	0.476	0.109	(0.134)	0.367
115	9.58	0.70	0.500	0.108	(0.141)	0.392
116	9.67	0.70	0.500	0.108	(0.141)	0.392
117	9.75	0.70	0.500	0.107	(0.141)	0.393
118	9.83	0.73	0.524	0.107	(0.148)	0.417
119	9.92	0.73	0.524	0.106	(0.148)	0.417
120	10.00	0.73	0.524	0.106	(0.148)	0.418
121	10.08	0.50	0.357	(0.105)	0.101	0.256
122	10.17	0.50	0.357	(0.105)	0.101	0.256
123	10.25	0.50	0.357	(0.104)	0.101	0.256
124	10.33	0.50	0.357	(0.104)	0.101	0.256
125	10.42	0.50	0.357	(0.103)	0.101	0.256
126	10.50	0.50	0.357	(0.103)	0.101	0.256
127	10.58	0.67	0.476	0.102	(0.134)	0.374
128	10.67	0.67	0.476	0.102	(0.134)	0.374
129	10.75	0.67	0.476	0.101	(0.134)	0.375
130	10.83	0.67	0.476	0.101	(0.134)	0.375
131	10.92	0.67	0.476	0.100	(0.134)	0.376
132	11.00	0.67	0.476	0.100	(0.134)	0.376
133	11.08	0.63	0.452	0.099	(0.128)	0.353
134	11.17	0.63	0.452	0.099	(0.128)	0.354
135	11.25	0.63	0.452	0.098	(0.128)	0.354
136	11.33	0.63	0.452	0.098	(0.128)	0.354
137	11.42	0.63	0.452	0.097	(0.128)	0.355
138	11.50	0.63	0.452	0.097	(0.128)	0.355

139	11.58	0.57	0.405	0.096	(0.114)	0.308
140	11.67	0.57	0.405	0.096	(0.114)	0.309
141	11.75	0.57	0.405	0.095	(0.114)	0.309
142	11.83	0.60	0.428	0.095	(0.121)	0.334
143	11.92	0.60	0.428	0.094	(0.121)	0.334
144	12.00	0.60	0.428	0.094	(0.121)	0.335
145	12.08	0.83	0.595	0.093	(0.168)	0.502
146	12.17	0.83	0.595	0.093	(0.168)	0.502
147	12.25	0.83	0.595	0.092	(0.168)	0.503
148	12.33	0.87	0.619	0.092	(0.175)	0.527
149	12.42	0.87	0.619	0.092	(0.175)	0.527
150	12.50	0.87	0.619	0.091	(0.175)	0.528
151	12.58	0.93	0.666	0.091	(0.188)	0.576
152	12.67	0.93	0.666	0.090	(0.188)	0.576
153	12.75	0.93	0.666	0.090	(0.188)	0.577
154	12.83	0.97	0.690	0.089	(0.195)	0.601
155	12.92	0.97	0.690	0.089	(0.195)	0.601
156	13.00	0.97	0.690	0.088	(0.195)	0.602
157	13.08	1.13	0.809	0.088	(0.228)	0.721
158	13.17	1.13	0.809	0.087	(0.228)	0.722
159	13.25	1.13	0.809	0.087	(0.228)	0.722
160	13.33	1.13	0.809	0.087	(0.228)	0.723
161	13.42	1.13	0.809	0.086	(0.228)	0.723
162	13.50	1.13	0.809	0.086	(0.228)	0.723
163	13.58	0.77	0.547	0.085	(0.154)	0.462
164	13.67	0.77	0.547	0.085	(0.154)	0.463
165	13.75	0.77	0.547	0.084	(0.154)	0.463
166	13.83	0.77	0.547	0.084	(0.154)	0.463
167	13.92	0.77	0.547	0.084	(0.154)	0.464
168	14.00	0.77	0.547	0.083	(0.154)	0.464
169	14.08	0.90	0.643	0.083	(0.181)	0.560
170	14.17	0.90	0.643	0.082	(0.181)	0.560
171	14.25	0.90	0.643	0.082	(0.181)	0.561
172	14.33	0.87	0.619	0.081	(0.175)	0.537
173	14.42	0.87	0.619	0.081	(0.175)	0.538
174	14.50	0.87	0.619	0.081	(0.175)	0.538
175	14.58	0.87	0.619	0.080	(0.175)	0.539
176	14.67	0.87	0.619	0.080	(0.175)	0.539
177	14.75	0.87	0.619	0.079	(0.175)	0.539
178	14.83	0.83	0.595	0.079	(0.168)	0.516
179	14.92	0.83	0.595	0.079	(0.168)	0.516
180	15.00	0.83	0.595	0.078	(0.168)	0.517
181	15.08	0.80	0.571	0.078	(0.161)	0.493
182	15.17	0.80	0.571	0.077	(0.161)	0.494
183	15.25	0.80	0.571	0.077	(0.161)	0.494
184	15.33	0.77	0.547	0.077	(0.154)	0.471
185	15.42	0.77	0.547	0.076	(0.154)	0.471
186	15.50	0.77	0.547	0.076	(0.154)	0.472
187	15.58	0.63	0.452	0.075	(0.128)	0.377
188	15.67	0.63	0.452	0.075	(0.128)	0.377
189	15.75	0.63	0.452	0.075	(0.128)	0.378
190	15.83	0.63	0.452	0.074	(0.128)	0.378
191	15.92	0.63	0.452	0.074	(0.128)	0.378
192	16.00	0.63	0.452	0.073	(0.128)	0.379
193	16.08	0.13	0.095	(0.073)	0.027	0.068
194	16.17	0.13	0.095	(0.073)	0.027	0.068
195	16.25	0.13	0.095	(0.072)	0.027	0.068
196	16.33	0.13	0.095	(0.072)	0.027	0.068
197	16.42	0.13	0.095	(0.072)	0.027	0.068
198	16.50	0.13	0.095	(0.071)	0.027	0.068

199	16.58	0.10	0.071	(0.071)	0.020	0.051
200	16.67	0.10	0.071	(0.071)	0.020	0.051
201	16.75	0.10	0.071	(0.070)	0.020	0.051
202	16.83	0.10	0.071	(0.070)	0.020	0.051
203	16.92	0.10	0.071	(0.069)	0.020	0.051
204	17.00	0.10	0.071	(0.069)	0.020	0.051
205	17.08	0.17	0.119	(0.069)	0.034	0.085
206	17.17	0.17	0.119	(0.068)	0.034	0.085
207	17.25	0.17	0.119	(0.068)	0.034	0.085
208	17.33	0.17	0.119	(0.068)	0.034	0.085
209	17.42	0.17	0.119	(0.067)	0.034	0.085
210	17.50	0.17	0.119	(0.067)	0.034	0.085
211	17.58	0.17	0.119	(0.067)	0.034	0.085
212	17.67	0.17	0.119	(0.066)	0.034	0.085
213	17.75	0.17	0.119	(0.066)	0.034	0.085
214	17.83	0.13	0.095	(0.066)	0.027	0.068
215	17.92	0.13	0.095	(0.065)	0.027	0.068
216	18.00	0.13	0.095	(0.065)	0.027	0.068
217	18.08	0.13	0.095	(0.065)	0.027	0.068
218	18.17	0.13	0.095	(0.064)	0.027	0.068
219	18.25	0.13	0.095	(0.064)	0.027	0.068
220	18.33	0.13	0.095	(0.064)	0.027	0.068
221	18.42	0.13	0.095	(0.064)	0.027	0.068
222	18.50	0.13	0.095	(0.063)	0.027	0.068
223	18.58	0.10	0.071	(0.063)	0.020	0.051
224	18.67	0.10	0.071	(0.063)	0.020	0.051
225	18.75	0.10	0.071	(0.062)	0.020	0.051
226	18.83	0.07	0.048	(0.062)	0.013	0.034
227	18.92	0.07	0.048	(0.062)	0.013	0.034
228	19.00	0.07	0.048	(0.061)	0.013	0.034
229	19.08	0.10	0.071	(0.061)	0.020	0.051
230	19.17	0.10	0.071	(0.061)	0.020	0.051
231	19.25	0.10	0.071	(0.061)	0.020	0.051
232	19.33	0.13	0.095	(0.060)	0.027	0.068
233	19.42	0.13	0.095	(0.060)	0.027	0.068
234	19.50	0.13	0.095	(0.060)	0.027	0.068
235	19.58	0.10	0.071	(0.059)	0.020	0.051
236	19.67	0.10	0.071	(0.059)	0.020	0.051
237	19.75	0.10	0.071	(0.059)	0.020	0.051
238	19.83	0.07	0.048	(0.059)	0.013	0.034
239	19.92	0.07	0.048	(0.058)	0.013	0.034
240	20.00	0.07	0.048	(0.058)	0.013	0.034
241	20.08	0.10	0.071	(0.058)	0.020	0.051
242	20.17	0.10	0.071	(0.058)	0.020	0.051
243	20.25	0.10	0.071	(0.057)	0.020	0.051
244	20.33	0.10	0.071	(0.057)	0.020	0.051
245	20.42	0.10	0.071	(0.057)	0.020	0.051
246	20.50	0.10	0.071	(0.057)	0.020	0.051
247	20.58	0.10	0.071	(0.056)	0.020	0.051
248	20.67	0.10	0.071	(0.056)	0.020	0.051
249	20.75	0.10	0.071	(0.056)	0.020	0.051
250	20.83	0.07	0.048	(0.056)	0.013	0.034
251	20.92	0.07	0.048	(0.055)	0.013	0.034
252	21.00	0.07	0.048	(0.055)	0.013	0.034
253	21.08	0.10	0.071	(0.055)	0.020	0.051
254	21.17	0.10	0.071	(0.055)	0.020	0.051
255	21.25	0.10	0.071	(0.055)	0.020	0.051
256	21.33	0.07	0.048	(0.054)	0.013	0.034
257	21.42	0.07	0.048	(0.054)	0.013	0.034
258	21.50	0.07	0.048	(0.054)	0.013	0.034

259	21.58	0.10	0.071	(0.054)	0.020	0.051
260	21.67	0.10	0.071	(0.054)	0.020	0.051
261	21.75	0.10	0.071	(0.053)	0.020	0.051
262	21.83	0.07	0.048	(0.053)	0.013	0.034
263	21.92	0.07	0.048	(0.053)	0.013	0.034
264	22.00	0.07	0.048	(0.053)	0.013	0.034
265	22.08	0.10	0.071	(0.053)	0.020	0.051
266	22.17	0.10	0.071	(0.052)	0.020	0.051
267	22.25	0.10	0.071	(0.052)	0.020	0.051
268	22.33	0.07	0.048	(0.052)	0.013	0.034
269	22.42	0.07	0.048	(0.052)	0.013	0.034
270	22.50	0.07	0.048	(0.052)	0.013	0.034
271	22.58	0.07	0.048	(0.052)	0.013	0.034
272	22.67	0.07	0.048	(0.052)	0.013	0.034
273	22.75	0.07	0.048	(0.051)	0.013	0.034
274	22.83	0.07	0.048	(0.051)	0.013	0.034
275	22.92	0.07	0.048	(0.051)	0.013	0.034
276	23.00	0.07	0.048	(0.051)	0.013	0.034
277	23.08	0.07	0.048	(0.051)	0.013	0.034
278	23.17	0.07	0.048	(0.051)	0.013	0.034
279	23.25	0.07	0.048	(0.051)	0.013	0.034
280	23.33	0.07	0.048	(0.051)	0.013	0.034
281	23.42	0.07	0.048	(0.050)	0.013	0.034
282	23.50	0.07	0.048	(0.050)	0.013	0.034
283	23.58	0.07	0.048	(0.050)	0.013	0.034
284	23.67	0.07	0.048	(0.050)	0.013	0.034
285	23.75	0.07	0.048	(0.050)	0.013	0.034
286	23.83	0.07	0.048	(0.050)	0.013	0.034
287	23.92	0.07	0.048	(0.050)	0.013	0.034
288	24.00	0.07	0.048	(0.050)	0.013	0.034

(Loss Rate Not Used)

Sum = 100.0 Sum = 56.4

Flood volume = Effective rainfall 4.70(In)
times area 2.3(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 1.25(In)
Total soil loss = 0.241(Ac.Ft)
Total rainfall = 5.95(In)
Flood volume = 39593.3 Cubic Feet
Total soil loss = 10515.0 Cubic Feet

Peak flow rate of this hydrograph = 1.692(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q	|	|	|	|
0+10	0.0010	0.08	Q	|	|	|	|
0+15	0.0015	0.08	Q	|	|	|	|
0+20	0.0023	0.11	Q	|	|	|	|
0+25	0.0031	0.12	Q	|	|	|	|
0+30	0.0040	0.12	Q	|	|	|	|
0+35	0.0048	0.12	Q	|	|	|	|
0+40	0.0056	0.12	Q	|	|	|	|
0+45	0.0064	0.12	Q	|	|	|	|

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  0+50      0.0075     0.15  Q          |          |          |          |
  0+55      0.0086     0.16  Q          |          |          |          |
  1+ 0      0.0097     0.16  Q          |          |          |          |
  1+ 5      0.0106     0.13  Q          |          |          |          |
  1+10      0.0114     0.12  Q          |          |          |          |
  1+15      0.0122     0.12  Q          |          |          |          |
  1+20      0.0131     0.12  Q          |          |          |          |
  1+25      0.0139     0.12  Q          |          |          |          |
  1+30      0.0147     0.12  Q          |          |          |          |
  1+35      0.0155     0.12  Q          |          |          |          |
  1+40      0.0164     0.12  Q          |          |          |          |
  1+45      0.0172     0.12  Q          |          |          |          |
  1+50      0.0182     0.15  Q          |          |          |          |
  1+55      0.0193     0.16  Q          |          |          |          |
  2+ 0      0.0204     0.16  Q          |          |          |          |
  2+ 5      0.0215     0.16  Q          |          |          |          |
  2+10      0.0226     0.16  Q          |          |          |          |
  2+15      0.0237     0.16  QV         |          |          |          |
  2+20      0.0248     0.16  QV         |          |          |          |
  2+25      0.0259     0.16  QV         |          |          |          |
  2+30      0.0270     0.16  QV         |          |          |          |
  2+35      0.0284     0.19  QV         |          |          |          |
  2+40      0.0297     0.20  QV         |          |          |          |
  2+45      0.0311     0.20  QV         |          |          |          |
  2+50      0.0325     0.20  QV         |          |          |          |
  2+55      0.0339     0.20  QV         |          |          |          |
  3+ 0      0.0352     0.20  QV         |          |          |          |
  3+ 5      0.0366     0.20  QV         |          |          |          |
  3+10      0.0380     0.20  QV         |          |          |          |
  3+15      0.0394     0.20  QV         |          |          |          |
  3+20      0.0408     0.20  QV         |          |          |          |
  3+25      0.0421     0.20  QV         |          |          |          |
  3+30      0.0435     0.20  QV         |          |          |          |
  3+35      0.0449     0.20  QV         |          |          |          |
  3+40      0.0463     0.20  Q V        |          |          |          |
  3+45      0.0476     0.20  Q V        |          |          |          |
  3+50      0.0492     0.23  Q V        |          |          |          |
  3+55      0.0509     0.24  Q V        |          |          |          |
  4+ 0      0.0525     0.24  Q V        |          |          |          |
  4+ 5      0.0542     0.24  Q V        |          |          |          |
  4+10      0.0558     0.24  Q V        |          |          |          |
  4+15      0.0575     0.24  Q V        |          |          |          |
  4+20      0.0594     0.27   |QV       |          |          |          |
  4+25      0.0613     0.28   |QV       |          |          |          |
  4+30      0.0632     0.28   |QV       |          |          |          |
  4+35      0.0651     0.28   |QV       |          |          |          |
  4+40      0.0671     0.28   |QV       |          |          |          |
  4+45      0.0690     0.28   |Q V      |          |          |          |
  4+50      0.0711     0.31   |Q V      |          |          |          |
  4+55      0.0734     0.32   |Q V      |          |          |          |
  5+ 0      0.0756     0.32   |Q V      |          |          |          |
  5+ 5      0.0773     0.26   |Q V      |          |          |          |
  5+10      0.0790     0.24  Q  V       |          |          |          |
  5+15      0.0806     0.24  Q  V       |          |          |          |
  5+20      0.0825     0.27   |Q V      |          |          |          |
  5+25      0.0844     0.28   |Q V      |          |          |          |
  5+30      0.0863     0.28   |Q V      |          |          |          |
  5+35      0.0885     0.31   |Q V      |          |          |          |
  5+40      0.0907     0.32   |Q V      |          |          |          |
  5+45      0.0929     0.32   |Q  V     |          |          |          |
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 5+50      0.0951      0.32   |Q  V     |         |         |         |
 5+55      0.0973      0.32   |Q  V     |         |         |         |
 6+ 0      0.0995      0.32   |Q  V     |         |         |         |
 6+ 5      0.1019      0.35   |Q  V     |         |         |         |
 6+10      0.1044      0.36   |Q  V     |         |         |         |
 6+15      0.1069      0.36   |Q  V     |         |         |         |
 6+20      0.1094      0.36   |Q  V     |         |         |         |
 6+25      0.1118      0.36   |Q  V     |         |         |         |
 6+30      0.1143      0.36   |Q   V    |         |         |         |
 6+35      0.1170      0.39   |Q   V    |         |         |         |
 6+40      0.1198      0.40   |Q   V    |         |         |         |
 6+45      0.1225      0.40   |Q   V    |         |         |         |
 6+50      0.1253      0.40   |Q   V    |         |         |         |
 6+55      0.1280      0.40   |Q   V    |         |         |         |
 7+ 0      0.1308      0.40   |Q   V    |         |         |         |
 7+ 5      0.1335      0.40   |Q   V    |         |         |         |
 7+10      0.1363      0.40   |Q   V    |         |         |         |
 7+15      0.1390      0.40   |Q    V   |         |         |         |
 7+20      0.1420      0.43   |Q    V   |         |         |         |
 7+25      0.1450      0.44   |Q    V   |         |         |         |
 7+30      0.1481      0.44   |Q    V   |         |         |         |
 7+35      0.1513      0.47   |Q    V   |         |         |         |
 7+40      0.1546      0.48   |Q    V   |         |         |         |
 7+45      0.1579      0.48   |Q    V   |         |         |         |
 7+50      0.1615      0.51   | Q    V  |         |         |         |
 7+55      0.1650      0.52   | Q    V  |         |         |         |
 8+ 0      0.1686      0.52   | Q    V  |         |         |         |
 8+ 5      0.1726      0.58   | Q    V  |         |         |         |
 8+10      0.1768      0.60   | Q    V  |         |         |         |
 8+15      0.1809      0.60   | Q    V  |         |         |         |
 8+20      0.1850      0.60   | Q     V |         |         |         |
 8+25      0.1892      0.60   | Q     V |         |         |         |
 8+30      0.1933      0.60   | Q     V |         |         |         |
 8+35      0.1976      0.63   | Q     V |         |         |         |
 8+40      0.2020      0.64   | Q     V |         |         |         |
 8+45      0.2064      0.64   | Q      V|         |         |         |
 8+50      0.2111      0.67   | Q      V|         |         |         |
 8+55      0.2158      0.68   | Q      V|         |         |         |
 9+ 0      0.2205      0.68   | Q      V|         |         |         |
 9+ 5      0.2258      0.78   |  Q     V|         |         |         |
 9+10      0.2313      0.80   |  Q      V         |         |         |
 9+15      0.2368      0.80   |  Q      V         |         |         |
 9+20      0.2427      0.85   |  Q      V         |         |         |
 9+25      0.2486      0.86   |  Q      V         |         |         |
 9+30      0.2545      0.86   |  Q      |V        |         |         |
 9+35      0.2607      0.90   |  Q      |V        |         |         |
 9+40      0.2670      0.92   |  Q      |V        |         |         |
 9+45      0.2734      0.92   |  Q      | V       |         |         |
 9+50      0.2800      0.96   |  Q      | V       |         |         |
 9+55      0.2867      0.98   |  Q      | V       |         |         |
10+ 0      0.2935      0.98   |  Q      | V       |         |         |
10+ 5      0.2981      0.67   | Q       |  V      |         |         |
10+10      0.3022      0.60   | Q       |  V      |         |         |
10+15      0.3064      0.60   | Q       |  V      |         |         |
10+20      0.3105      0.60   | Q       |  V      |         |         |
10+25      0.3146      0.60   | Q       |  V      |         |         |
10+30      0.3187      0.60   | Q       |   V     |         |         |
10+35      0.3244      0.82   |  Q      |   V     |         |         |
10+40      0.3304      0.88   |  Q      |   V     |         |         |
10+45      0.3365      0.88   |  Q      |   V     |         |         |
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10+50	0.3425	0.88	Q	V		
10+55	0.3486	0.88	Q	V		
11+ 0	0.3546	0.88	Q	V		
11+ 5	0.3604	0.84	Q	V		
11+10	0.3661	0.83	Q	V		
11+15	0.3718	0.83	Q	V		
11+20	0.3775	0.83	Q	V		
11+25	0.3832	0.83	Q	V		
11+30	0.3889	0.83	Q	V		
11+35	0.3940	0.74	Q	V		
11+40	0.3990	0.72	Q	V		
11+45	0.4040	0.72	Q	V		
11+50	0.4093	0.77	Q	V		
11+55	0.4147	0.78	Q	V		
12+ 0	0.4201	0.78	Q	V		
12+ 5	0.4276	1.10	Q	V		
12+10	0.4357	1.17	Q	V		
12+15	0.4438	1.18	Q	V		
12+20	0.4522	1.22	Q	V		
12+25	0.4607	1.23	Q		V	
12+30	0.4692	1.23	Q		V	
12+35	0.4783	1.32	Q		V	
12+40	0.4876	1.35	Q		V	
12+45	0.4969	1.35	Q		V	
12+50	0.5065	1.39	Q		V	
12+55	0.5162	1.41	Q		V	
13+ 0	0.5259	1.41	Q		V	
13+ 5	0.5371	1.63	Q		V	
13+10	0.5488	1.69	Q		V	
13+15	0.5604	1.69	Q		V	
13+20	0.5720	1.69	Q		V	
13+25	0.5837	1.69	Q		V	
13+30	0.5953	1.69	Q		V	
13+35	0.6036	1.20	Q		V	
13+40	0.6111	1.08	Q		V	
13+45	0.6185	1.08	Q		V	
13+50	0.6260	1.08	Q		V	
13+55	0.6335	1.08	Q		V	
14+ 0	0.6409	1.09	Q		V	
14+ 5	0.6497	1.27	Q		V	
14+10	0.6587	1.31	Q		V	
14+15	0.6677	1.31	Q		V	
14+20	0.6764	1.27	Q		V	
14+25	0.6851	1.26	Q			V
14+30	0.6938	1.26	Q			V
14+35	0.7024	1.26	Q			V
14+40	0.7111	1.26	Q			V
14+45	0.7198	1.26	Q			V
14+50	0.7282	1.22	Q			V
14+55	0.7365	1.21	Q			V
15+ 0	0.7449	1.21	Q			V
15+ 5	0.7529	1.17	Q			V
15+10	0.7608	1.16	Q			V
15+15	0.7688	1.16	Q			V
15+20	0.7765	1.11	Q			V
15+25	0.7840	1.10	Q			V
15+30	0.7916	1.10	Q			V
15+35	0.7980	0.92	Q			V
15+40	0.8041	0.88	Q			V
15+45	0.8102	0.88	Q			V

15+50	0.8163	0.88	Q			V
15+55	0.8224	0.88	Q			V
16+ 0	0.8285	0.89	Q			V
16+ 5	0.8305	0.30	Q			V
16+10	0.8316	0.16	Q			V
16+15	0.8327	0.16	Q			V
16+20	0.8338	0.16	Q			V
16+25	0.8349	0.16	Q			V
16+30	0.8360	0.16	Q			V
16+35	0.8369	0.13	Q			V
16+40	0.8377	0.12	Q			V
16+45	0.8386	0.12	Q			V
16+50	0.8394	0.12	Q			V
16+55	0.8402	0.12	Q			V
17+ 0	0.8410	0.12	Q			V
17+ 5	0.8423	0.18	Q			V
17+10	0.8437	0.20	Q			V
17+15	0.8451	0.20	Q			V
17+20	0.8464	0.20	Q			V
17+25	0.8478	0.20	Q			V
17+30	0.8492	0.20	Q			V
17+35	0.8506	0.20	Q			V
17+40	0.8520	0.20	Q			V
17+45	0.8533	0.20	Q			V
17+50	0.8545	0.17	Q			V
17+55	0.8556	0.16	Q			V
18+ 0	0.8567	0.16	Q			V
18+ 5	0.8578	0.16	Q			V
18+10	0.8589	0.16	Q			V
18+15	0.8600	0.16	Q			V
18+20	0.8611	0.16	Q			V
18+25	0.8622	0.16	Q			V
18+30	0.8633	0.16	Q			V
18+35	0.8642	0.13	Q			V
18+40	0.8650	0.12	Q			V
18+45	0.8658	0.12	Q			V
18+50	0.8664	0.09	Q			V
18+55	0.8670	0.08	Q			V
19+ 0	0.8675	0.08	Q			V
19+ 5	0.8683	0.11	Q			V
19+10	0.8691	0.12	Q			V
19+15	0.8700	0.12	Q			V
19+20	0.8710	0.15	Q			V
19+25	0.8721	0.16	Q			V
19+30	0.8732	0.16	Q			V
19+35	0.8741	0.13	Q			V
19+40	0.8749	0.12	Q			V
19+45	0.8757	0.12	Q			V
19+50	0.8763	0.09	Q			V
19+55	0.8769	0.08	Q			V
20+ 0	0.8774	0.08	Q			V
20+ 5	0.8782	0.11	Q			V
20+10	0.8790	0.12	Q			V
20+15	0.8799	0.12	Q			V
20+20	0.8807	0.12	Q			V
20+25	0.8815	0.12	Q			V
20+30	0.8823	0.12	Q			V
20+35	0.8832	0.12	Q			V
20+40	0.8840	0.12	Q			V
20+45	0.8848	0.12	Q			V

20+50	0.8854	0.09	Q				V
20+55	0.8860	0.08	Q				V
21+ 0	0.8865	0.08	Q				V
21+ 5	0.8873	0.11	Q				V
21+10	0.8881	0.12	Q				V
21+15	0.8890	0.12	Q				V
21+20	0.8896	0.09	Q				V
21+25	0.8901	0.08	Q				V
21+30	0.8907	0.08	Q				V
21+35	0.8914	0.11	Q				V
21+40	0.8923	0.12	Q				V
21+45	0.8931	0.12	Q				V
21+50	0.8937	0.09	Q				V
21+55	0.8942	0.08	Q				V
22+ 0	0.8948	0.08	Q				V
22+ 5	0.8956	0.11	Q				V
22+10	0.8964	0.12	Q				V
22+15	0.8972	0.12	Q				V
22+20	0.8978	0.09	Q				V
22+25	0.8984	0.08	Q				V
22+30	0.8989	0.08	Q				V
22+35	0.8995	0.08	Q				V
22+40	0.9000	0.08	Q				V
22+45	0.9006	0.08	Q				V
22+50	0.9011	0.08	Q				V
22+55	0.9017	0.08	Q				V
23+ 0	0.9022	0.08	Q				V
23+ 5	0.9028	0.08	Q				V
23+10	0.9033	0.08	Q				V
23+15	0.9039	0.08	Q				V
23+20	0.9044	0.08	Q				V
23+25	0.9050	0.08	Q				V
23+30	0.9055	0.08	Q				V
23+35	0.9061	0.08	Q				V
23+40	0.9066	0.08	Q				V
23+45	0.9072	0.08	Q				V
23+50	0.9077	0.08	Q				V
23+55	0.9083	0.08	Q				V
24+ 0	0.9088	0.08	Q				V
24+ 5	0.9089	0.02	Q				V

OFFSITE

2 YEAR – 1 HOUR
OFFSITE F_1

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/22/19 File: c318offsiteF112.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F1)
2-Year 1-Hour

Drainage Area = 274.15(Ac.) = 0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 274.15(Ac.) = 0.428 Sq. Mi.
Length along longest watercourse = 8033.90(Ft.)
Length along longest watercourse measured to centroid = 4835.60(Ft.)
Length along longest watercourse = 1.522 Mi.
Length along longest watercourse measured to centroid = 0.916 Mi.
Difference in elevation = 864.00(Ft.)
Slope along watercourse = 567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.326 Hr.
Lag time = 19.58 Min.
25% of lag time = 4.90 Min.
40% of lag time = 7.83 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	0.47	128.30

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	1.30	356.39

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 0.468(In)
Areal adjustment factor = 99.75 %
Adjusted average point rain = 0.467(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	66.6	0.399	0.169	0.338	1.000	0.338
					Sum (F) =	0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit	time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847

28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476
30	2.500	765.966	0.160	0.441
31	2.583	791.498	0.168	0.463
			Sum = 100.000	Sum= 276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	4.40	0.246	(0.338)	0.189	0.058
2	0.17	4.50	0.252	(0.338)	0.193	0.059
3	0.25	5.40	0.303	(0.338)	0.231	0.071
4	0.33	5.40	0.303	(0.338)	0.231	0.071
5	0.42	5.70	0.319	(0.338)	0.244	0.075
6	0.50	6.40	0.359	(0.338)	0.274	0.084
7	0.58	7.90	0.443	0.338	(0.339)	0.104
8	0.67	9.10	0.510	0.338	(0.390)	0.171
9	0.75	12.80	0.717	0.338	(0.549)	0.379
10	0.83	25.60	1.434	0.338	(1.097)	1.096
11	0.92	7.90	0.443	0.338	(0.339)	0.104
12	1.00	4.90	0.275	(0.338)	0.210	0.065
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	2.3

```
Flood volume = Effective rainfall      0.19(In)
 times area     274.1(Ac.)/[(In)/(Ft.)] =       4.5(Ac.Ft)
Total soil loss =       0.27(In)
Total soil loss =      6.215(Ac.Ft)
Total rainfall =      0.47(In)
Flood volume =      193849.5 Cubic Feet
Total soil loss =       270730.3 Cubic Feet
--------------------------------------------------------------------
 Peak flow rate of this hydrograph =      95.798(CFS)
--------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    1 - H O U R   S T O R M
               R u n o f f     H y d r o g r a p h
--------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

--------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       25.0      50.0      75.0      100.0
--------------------------------------------------------------------------
  0+ 5      0.0015      0.22  Q         |         |         |         |
  0+10      0.0091      1.10  Q         |         |         |         |
  0+15      0.0326      3.41  VQ        |         |         |         |
  0+20      0.0817      7.13  V Q       |         |         |         |
  0+25      0.1506     10.00  |V Q      |         |         |         |
  0+30      0.2350     12.26  | V Q     |         |         |         |
  0+35      0.3324     14.14  | V  Q    |         |         |         |
  0+40      0.4450     16.36  |   V Q   |         |         |         |
  0+45      0.5859     20.46  |    V  Q |         |         |         |
  0+50      0.8011     31.24  |      V  | Q       |         |         |
  0+55      1.1587     51.92  |         V         Q         |         |
  1+ 0      1.7165     81.00  |         |    V    |         | Q       |
  1+ 5      2.3763     95.80  |         |         |V        |       Q |
  1+10      2.8510     68.93  |         |         |    V Q  |         |
```

```
    1+15       3.1734      46.81  |         |       Q |       V |         |
    1+20       3.4047      33.59  |         |  Q      |         V         |
    1+25       3.5796      25.39  |         Q         |         | V       |
    1+30       3.7175      20.02  |       Q |         |         |  V      |
    1+35       3.8295      16.26  |     Q   |         |         |   V     |
    1+40       3.9242      13.75  |    Q    |         |         |    V    |
    1+45       4.0035      11.51  |   Q     |         |         |    V    |
    1+50       4.0681       9.39  |  Q      |         |         |     V   |
    1+55       4.1237       8.07  |  Q      |         |         |      V  |
    2+ 0       4.1720       7.01  | Q       |         |         |      V  |
    2+ 5       4.2141       6.12  | Q       |         |         |      V  |
    2+10       4.2498       5.18  | Q       |         |         |       V |
    2+15       4.2816       4.61  |Q        |         |         |       V |
    2+20       4.3085       3.91  |Q        |         |         |       V |
    2+25       4.3322       3.44  |Q        |         |         |       V |
    2+30       4.3513       2.78  |Q        |         |         |        V|
    2+35       4.3677       2.37  Q         |         |         |        V|
    2+40       4.3801       1.81  Q         |         |         |        V|
    2+45       4.3916       1.67  Q         |         |         |        V|
    2+50       4.4032       1.69  Q         |         |         |        V|
    2+55       4.4145       1.64  Q         |         |         |        V|
    3+ 0       4.4250       1.53  Q         |         |         |        V|
    3+ 5       4.4340       1.30  Q         |         |         |        V|
    3+10       4.4402       0.90  Q         |         |         |        V|
    3+15       4.4454       0.76  Q         |         |         |        V|
    3+20       4.4494       0.58  Q         |         |         |        V|
    3+25       4.4500       0.08  Q         |         |         |        V|
    3+30       4.4502       0.03  Q         |         |         |        V|
-----------------------------------------------------------------------
```

2 YEAR – 24 HOUR
OFFSITE F_1

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      U n i t   H y d r o g r a p h   A n a l y s i s

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            Study date  07/22/19 File: c318offsiteF1242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6222

---------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



---------------------------------------------------------------------
St. Frances of Rome - Wildomar
Offsite (F1)
2-Year 24-Hour
--------------------------------------------------------------------
Drainage Area =     274.15(Ac.)  =      0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     274.15(Ac.)  =      0.428 Sq.
Mi.
Length along longest watercourse =    8033.90(Ft.)
Length along longest watercourse measured to centroid =    4835.60(Ft.)
Length along longest watercourse =      1.522 Mi.
Length along longest watercourse measured to centroid =      0.916 Mi.
Difference in elevation =     864.00(Ft.)
Slope along watercourse =    567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.326 Hr.
Lag time =    19.58 Min.
25% of lag time =     4.90 Min.
40% of lag time =     7.83 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      274.15              2.23                  611.35

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      274.15              5.95                 1631.19

STORM EVENT (YEAR) =    2.00
```

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 2.230(In)
Areal adjustment factor = 99.95 %
Adjusted average point rain = 2.229(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	66.6	0.399	0.169	0.338	1.000	0.338
					Sum (F) =	0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847
28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476

30	2.500	765.966	0.160		0.441
31	2.583	791.498	0.168		0.463
			Sum = 100.000	Sum=	276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.600)	0.014	0.004
2	0.17	0.07	0.018	(0.597)	0.014	0.004
3	0.25	0.07	0.018	(0.595)	0.014	0.004
4	0.33	0.10	0.027	(0.593)	0.020	0.006
5	0.42	0.10	0.027	(0.591)	0.020	0.006
6	0.50	0.10	0.027	(0.588)	0.020	0.006
7	0.58	0.10	0.027	(0.586)	0.020	0.006
8	0.67	0.10	0.027	(0.584)	0.020	0.006
9	0.75	0.10	0.027	(0.581)	0.020	0.006
10	0.83	0.13	0.036	(0.579)	0.027	0.008
11	0.92	0.13	0.036	(0.577)	0.027	0.008
12	1.00	0.13	0.036	(0.575)	0.027	0.008
13	1.08	0.10	0.027	(0.572)	0.020	0.006
14	1.17	0.10	0.027	(0.570)	0.020	0.006
15	1.25	0.10	0.027	(0.568)	0.020	0.006
16	1.33	0.10	0.027	(0.565)	0.020	0.006
17	1.42	0.10	0.027	(0.563)	0.020	0.006
18	1.50	0.10	0.027	(0.561)	0.020	0.006
19	1.58	0.10	0.027	(0.559)	0.020	0.006
20	1.67	0.10	0.027	(0.556)	0.020	0.006
21	1.75	0.10	0.027	(0.554)	0.020	0.006
22	1.83	0.13	0.036	(0.552)	0.027	0.008
23	1.92	0.13	0.036	(0.550)	0.027	0.008
24	2.00	0.13	0.036	(0.548)	0.027	0.008
25	2.08	0.13	0.036	(0.545)	0.027	0.008
26	2.17	0.13	0.036	(0.543)	0.027	0.008
27	2.25	0.13	0.036	(0.541)	0.027	0.008
28	2.33	0.13	0.036	(0.539)	0.027	0.008
29	2.42	0.13	0.036	(0.537)	0.027	0.008
30	2.50	0.13	0.036	(0.534)	0.027	0.008
31	2.58	0.17	0.045	(0.532)	0.034	0.010
32	2.67	0.17	0.045	(0.530)	0.034	0.010
33	2.75	0.17	0.045	(0.528)	0.034	0.010
34	2.83	0.17	0.045	(0.526)	0.034	0.010
35	2.92	0.17	0.045	(0.523)	0.034	0.010
36	3.00	0.17	0.045	(0.521)	0.034	0.010
37	3.08	0.17	0.045	(0.519)	0.034	0.010
38	3.17	0.17	0.045	(0.517)	0.034	0.010
39	3.25	0.17	0.045	(0.515)	0.034	0.010
40	3.33	0.17	0.045	(0.513)	0.034	0.010
41	3.42	0.17	0.045	(0.511)	0.034	0.010
42	3.50	0.17	0.045	(0.508)	0.034	0.010
43	3.58	0.17	0.045	(0.506)	0.034	0.010
44	3.67	0.17	0.045	(0.504)	0.034	0.010
45	3.75	0.17	0.045	(0.502)	0.034	0.010
46	3.83	0.20	0.053	(0.500)	0.041	0.013
47	3.92	0.20	0.053	(0.498)	0.041	0.013
48	4.00	0.20	0.053	(0.496)	0.041	0.013
49	4.08	0.20	0.053	(0.494)	0.041	0.013

50	4.17	0.20	0.053	(0.492)	0.041	0.013
51	4.25	0.20	0.053	(0.489)	0.041	0.013
52	4.33	0.23	0.062	(0.487)	0.048	0.015
53	4.42	0.23	0.062	(0.485)	0.048	0.015
54	4.50	0.23	0.062	(0.483)	0.048	0.015
55	4.58	0.23	0.062	(0.481)	0.048	0.015
56	4.67	0.23	0.062	(0.479)	0.048	0.015
57	4.75	0.23	0.062	(0.477)	0.048	0.015
58	4.83	0.27	0.071	(0.475)	0.055	0.017
59	4.92	0.27	0.071	(0.473)	0.055	0.017
60	5.00	0.27	0.071	(0.471)	0.055	0.017
61	5.08	0.20	0.053	(0.469)	0.041	0.013
62	5.17	0.20	0.053	(0.467)	0.041	0.013
63	5.25	0.20	0.053	(0.465)	0.041	0.013
64	5.33	0.23	0.062	(0.463)	0.048	0.015
65	5.42	0.23	0.062	(0.461)	0.048	0.015
66	5.50	0.23	0.062	(0.459)	0.048	0.015
67	5.58	0.27	0.071	(0.457)	0.055	0.017
68	5.67	0.27	0.071	(0.455)	0.055	0.017
69	5.75	0.27	0.071	(0.453)	0.055	0.017
70	5.83	0.27	0.071	(0.451)	0.055	0.017
71	5.92	0.27	0.071	(0.449)	0.055	0.017
72	6.00	0.27	0.071	(0.447)	0.055	0.017
73	6.08	0.30	0.080	(0.445)	0.061	0.019
74	6.17	0.30	0.080	(0.443)	0.061	0.019
75	6.25	0.30	0.080	(0.441)	0.061	0.019
76	6.33	0.30	0.080	(0.439)	0.061	0.019
77	6.42	0.30	0.080	(0.437)	0.061	0.019
78	6.50	0.30	0.080	(0.435)	0.061	0.019
79	6.58	0.33	0.089	(0.433)	0.068	0.021
80	6.67	0.33	0.089	(0.431)	0.068	0.021
81	6.75	0.33	0.089	(0.429)	0.068	0.021
82	6.83	0.33	0.089	(0.427)	0.068	0.021
83	6.92	0.33	0.089	(0.425)	0.068	0.021
84	7.00	0.33	0.089	(0.423)	0.068	0.021
85	7.08	0.33	0.089	(0.421)	0.068	0.021
86	7.17	0.33	0.089	(0.419)	0.068	0.021
87	7.25	0.33	0.089	(0.417)	0.068	0.021
88	7.33	0.37	0.098	(0.415)	0.075	0.023
89	7.42	0.37	0.098	(0.414)	0.075	0.023
90	7.50	0.37	0.098	(0.412)	0.075	0.023
91	7.58	0.40	0.107	(0.410)	0.082	0.025
92	7.67	0.40	0.107	(0.408)	0.082	0.025
93	7.75	0.40	0.107	(0.406)	0.082	0.025
94	7.83	0.43	0.116	(0.404)	0.089	0.027
95	7.92	0.43	0.116	(0.402)	0.089	0.027
96	8.00	0.43	0.116	(0.400)	0.089	0.027
97	8.08	0.50	0.134	(0.399)	0.102	0.031
98	8.17	0.50	0.134	(0.397)	0.102	0.031
99	8.25	0.50	0.134	(0.395)	0.102	0.031
100	8.33	0.50	0.134	(0.393)	0.102	0.031
101	8.42	0.50	0.134	(0.391)	0.102	0.031
102	8.50	0.50	0.134	(0.389)	0.102	0.031
103	8.58	0.53	0.143	(0.388)	0.109	0.034
104	8.67	0.53	0.143	(0.386)	0.109	0.034
105	8.75	0.53	0.143	(0.384)	0.109	0.034
106	8.83	0.57	0.152	(0.382)	0.116	0.036
107	8.92	0.57	0.152	(0.380)	0.116	0.036
108	9.00	0.57	0.152	(0.378)	0.116	0.036
109	9.08	0.63	0.169	(0.377)	0.130	0.040

110	9.17	0.63	0.169	(0.375)	0.130	0.040
111	9.25	0.63	0.169	(0.373)	0.130	0.040
112	9.33	0.67	0.178	(0.371)	0.136	0.042
113	9.42	0.67	0.178	(0.370)	0.136	0.042
114	9.50	0.67	0.178	(0.368)	0.136	0.042
115	9.58	0.70	0.187	(0.366)	0.143	0.044
116	9.67	0.70	0.187	(0.364)	0.143	0.044
117	9.75	0.70	0.187	(0.363)	0.143	0.044
118	9.83	0.73	0.196	(0.361)	0.150	0.046
119	9.92	0.73	0.196	(0.359)	0.150	0.046
120	10.00	0.73	0.196	(0.357)	0.150	0.046
121	10.08	0.50	0.134	(0.356)	0.102	0.031
122	10.17	0.50	0.134	(0.354)	0.102	0.031
123	10.25	0.50	0.134	(0.352)	0.102	0.031
124	10.33	0.50	0.134	(0.350)	0.102	0.031
125	10.42	0.50	0.134	(0.349)	0.102	0.031
126	10.50	0.50	0.134	(0.347)	0.102	0.031
127	10.58	0.67	0.178	(0.345)	0.136	0.042
128	10.67	0.67	0.178	(0.344)	0.136	0.042
129	10.75	0.67	0.178	(0.342)	0.136	0.042
130	10.83	0.67	0.178	(0.340)	0.136	0.042
131	10.92	0.67	0.178	(0.339)	0.136	0.042
132	11.00	0.67	0.178	(0.337)	0.136	0.042
133	11.08	0.63	0.169	(0.335)	0.130	0.040
134	11.17	0.63	0.169	(0.334)	0.130	0.040
135	11.25	0.63	0.169	(0.332)	0.130	0.040
136	11.33	0.63	0.169	(0.330)	0.130	0.040
137	11.42	0.63	0.169	(0.329)	0.130	0.040
138	11.50	0.63	0.169	(0.327)	0.130	0.040
139	11.58	0.57	0.152	(0.325)	0.116	0.036
140	11.67	0.57	0.152	(0.324)	0.116	0.036
141	11.75	0.57	0.152	(0.322)	0.116	0.036
142	11.83	0.60	0.160	(0.321)	0.123	0.038
143	11.92	0.60	0.160	(0.319)	0.123	0.038
144	12.00	0.60	0.160	(0.317)	0.123	0.038
145	12.08	0.83	0.223	(0.316)	0.171	0.052
146	12.17	0.83	0.223	(0.314)	0.171	0.052
147	12.25	0.83	0.223	(0.313)	0.171	0.052
148	12.33	0.87	0.232	(0.311)	0.177	0.054
149	12.42	0.87	0.232	(0.310)	0.177	0.054
150	12.50	0.87	0.232	(0.308)	0.177	0.054
151	12.58	0.93	0.250	(0.306)	0.191	0.059
152	12.67	0.93	0.250	(0.305)	0.191	0.059
153	12.75	0.93	0.250	(0.303)	0.191	0.059
154	12.83	0.97	0.259	(0.302)	0.198	0.061
155	12.92	0.97	0.259	(0.300)	0.198	0.061
156	13.00	0.97	0.259	(0.299)	0.198	0.061
157	13.08	1.13	0.303	(0.297)	0.232	0.071
158	13.17	1.13	0.303	(0.296)	0.232	0.071
159	13.25	1.13	0.303	(0.294)	0.232	0.071
160	13.33	1.13	0.303	(0.293)	0.232	0.071
161	13.42	1.13	0.303	(0.291)	0.232	0.071
162	13.50	1.13	0.303	(0.290)	0.232	0.071
163	13.58	0.77	0.205	(0.288)	0.157	0.048
164	13.67	0.77	0.205	(0.287)	0.157	0.048
165	13.75	0.77	0.205	(0.285)	0.157	0.048
166	13.83	0.77	0.205	(0.284)	0.157	0.048
167	13.92	0.77	0.205	(0.282)	0.157	0.048
168	14.00	0.77	0.205	(0.281)	0.157	0.048
169	14.08	0.90	0.241	(0.280)	0.184	0.057

170	14.17	0.90	0.241	(0.278)	0.184	0.057
171	14.25	0.90	0.241	(0.277)	0.184	0.057
172	14.33	0.87	0.232	(0.275)	0.177	0.054
173	14.42	0.87	0.232	(0.274)	0.177	0.054
174	14.50	0.87	0.232	(0.273)	0.177	0.054
175	14.58	0.87	0.232	(0.271)	0.177	0.054
176	14.67	0.87	0.232	(0.270)	0.177	0.054
177	14.75	0.87	0.232	(0.268)	0.177	0.054
178	14.83	0.83	0.223	(0.267)	0.171	0.052
179	14.92	0.83	0.223	(0.266)	0.171	0.052
180	15.00	0.83	0.223	(0.264)	0.171	0.052
181	15.08	0.80	0.214	(0.263)	0.164	0.050
182	15.17	0.80	0.214	(0.262)	0.164	0.050
183	15.25	0.80	0.214	(0.260)	0.164	0.050
184	15.33	0.77	0.205	(0.259)	0.157	0.048
185	15.42	0.77	0.205	(0.258)	0.157	0.048
186	15.50	0.77	0.205	(0.256)	0.157	0.048
187	15.58	0.63	0.169	(0.255)	0.130	0.040
188	15.67	0.63	0.169	(0.254)	0.130	0.040
189	15.75	0.63	0.169	(0.252)	0.130	0.040
190	15.83	0.63	0.169	(0.251)	0.130	0.040
191	15.92	0.63	0.169	(0.250)	0.130	0.040
192	16.00	0.63	0.169	(0.248)	0.130	0.040
193	16.08	0.13	0.036	(0.247)	0.027	0.008
194	16.17	0.13	0.036	(0.246)	0.027	0.008
195	16.25	0.13	0.036	(0.245)	0.027	0.008
196	16.33	0.13	0.036	(0.243)	0.027	0.008
197	16.42	0.13	0.036	(0.242)	0.027	0.008
198	16.50	0.13	0.036	(0.241)	0.027	0.008
199	16.58	0.10	0.027	(0.240)	0.020	0.006
200	16.67	0.10	0.027	(0.239)	0.020	0.006
201	16.75	0.10	0.027	(0.237)	0.020	0.006
202	16.83	0.10	0.027	(0.236)	0.020	0.006
203	16.92	0.10	0.027	(0.235)	0.020	0.006
204	17.00	0.10	0.027	(0.234)	0.020	0.006
205	17.08	0.17	0.045	(0.233)	0.034	0.010
206	17.17	0.17	0.045	(0.231)	0.034	0.010
207	17.25	0.17	0.045	(0.230)	0.034	0.010
208	17.33	0.17	0.045	(0.229)	0.034	0.010
209	17.42	0.17	0.045	(0.228)	0.034	0.010
210	17.50	0.17	0.045	(0.227)	0.034	0.010
211	17.58	0.17	0.045	(0.226)	0.034	0.010
212	17.67	0.17	0.045	(0.224)	0.034	0.010
213	17.75	0.17	0.045	(0.223)	0.034	0.010
214	17.83	0.13	0.036	(0.222)	0.027	0.008
215	17.92	0.13	0.036	(0.221)	0.027	0.008
216	18.00	0.13	0.036	(0.220)	0.027	0.008
217	18.08	0.13	0.036	(0.219)	0.027	0.008
218	18.17	0.13	0.036	(0.218)	0.027	0.008
219	18.25	0.13	0.036	(0.217)	0.027	0.008
220	18.33	0.13	0.036	(0.216)	0.027	0.008
221	18.42	0.13	0.036	(0.215)	0.027	0.008
222	18.50	0.13	0.036	(0.214)	0.027	0.008
223	18.58	0.10	0.027	(0.213)	0.020	0.006
224	18.67	0.10	0.027	(0.212)	0.020	0.006
225	18.75	0.10	0.027	(0.211)	0.020	0.006
226	18.83	0.07	0.018	(0.210)	0.014	0.004
227	18.92	0.07	0.018	(0.209)	0.014	0.004
228	19.00	0.07	0.018	(0.208)	0.014	0.004
229	19.08	0.10	0.027	(0.207)	0.020	0.006

230	19.17	0.10	0.027	(0.206)	0.020	0.006
231	19.25	0.10	0.027	(0.205)	0.020	0.006
232	19.33	0.13	0.036	(0.204)	0.027	0.008
233	19.42	0.13	0.036	(0.203)	0.027	0.008
234	19.50	0.13	0.036	(0.202)	0.027	0.008
235	19.58	0.10	0.027	(0.201)	0.020	0.006
236	19.67	0.10	0.027	(0.200)	0.020	0.006
237	19.75	0.10	0.027	(0.199)	0.020	0.006
238	19.83	0.07	0.018	(0.198)	0.014	0.004
239	19.92	0.07	0.018	(0.197)	0.014	0.004
240	20.00	0.07	0.018	(0.196)	0.014	0.004
241	20.08	0.10	0.027	(0.196)	0.020	0.006
242	20.17	0.10	0.027	(0.195)	0.020	0.006
243	20.25	0.10	0.027	(0.194)	0.020	0.006
244	20.33	0.10	0.027	(0.193)	0.020	0.006
245	20.42	0.10	0.027	(0.192)	0.020	0.006
246	20.50	0.10	0.027	(0.191)	0.020	0.006
247	20.58	0.10	0.027	(0.191)	0.020	0.006
248	20.67	0.10	0.027	(0.190)	0.020	0.006
249	20.75	0.10	0.027	(0.189)	0.020	0.006
250	20.83	0.07	0.018	(0.188)	0.014	0.004
251	20.92	0.07	0.018	(0.187)	0.014	0.004
252	21.00	0.07	0.018	(0.187)	0.014	0.004
253	21.08	0.10	0.027	(0.186)	0.020	0.006
254	21.17	0.10	0.027	(0.185)	0.020	0.006
255	21.25	0.10	0.027	(0.185)	0.020	0.006
256	21.33	0.07	0.018	(0.184)	0.014	0.004
257	21.42	0.07	0.018	(0.183)	0.014	0.004
258	21.50	0.07	0.018	(0.182)	0.014	0.004
259	21.58	0.10	0.027	(0.182)	0.020	0.006
260	21.67	0.10	0.027	(0.181)	0.020	0.006
261	21.75	0.10	0.027	(0.181)	0.020	0.006
262	21.83	0.07	0.018	(0.180)	0.014	0.004
263	21.92	0.07	0.018	(0.179)	0.014	0.004
264	22.00	0.07	0.018	(0.179)	0.014	0.004
265	22.08	0.10	0.027	(0.178)	0.020	0.006
266	22.17	0.10	0.027	(0.177)	0.020	0.006
267	22.25	0.10	0.027	(0.177)	0.020	0.006
268	22.33	0.07	0.018	(0.176)	0.014	0.004
269	22.42	0.07	0.018	(0.176)	0.014	0.004
270	22.50	0.07	0.018	(0.175)	0.014	0.004
271	22.58	0.07	0.018	(0.175)	0.014	0.004
272	22.67	0.07	0.018	(0.174)	0.014	0.004
273	22.75	0.07	0.018	(0.174)	0.014	0.004
274	22.83	0.07	0.018	(0.173)	0.014	0.004
275	22.92	0.07	0.018	(0.173)	0.014	0.004
276	23.00	0.07	0.018	(0.173)	0.014	0.004
277	23.08	0.07	0.018	(0.172)	0.014	0.004
278	23.17	0.07	0.018	(0.172)	0.014	0.004
279	23.25	0.07	0.018	(0.171)	0.014	0.004
280	23.33	0.07	0.018	(0.171)	0.014	0.004
281	23.42	0.07	0.018	(0.171)	0.014	0.004
282	23.50	0.07	0.018	(0.170)	0.014	0.004
283	23.58	0.07	0.018	(0.170)	0.014	0.004
284	23.67	0.07	0.018	(0.170)	0.014	0.004
285	23.75	0.07	0.018	(0.170)	0.014	0.004
286	23.83	0.07	0.018	(0.169)	0.014	0.004
287	23.92	0.07	0.018	(0.169)	0.014	0.004
288	24.00	0.07	0.018	(0.169)	0.014	0.004

(Loss Rate Not Used)

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 Sum =     100.0                                  Sum =     6.3
  Flood volume = Effective rainfall      0.52(In)
   times area     274.1(Ac.)/[(In)/(Ft.)] =      12.0(Ac.Ft)
  Total soil loss =      1.71(In)
  Total soil loss =    38.953(Ac.Ft)
  Total rainfall =      2.23(In)
  Flood volume =      521236.7 Cubic Feet
  Total soil loss =     1696791.8 Cubic Feet
  --------------------------------------------------------------------
   Peak flow rate of this hydrograph =     18.394(CFS)
  --------------------------------------------------------------------
  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      24 - H O U R   S T O R M
                 R u n o f f     H y d r o g r a p h
  --------------------------------------------------------------------
              Hydrograph in   5   Minute intervals ((CFS))

  --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0         5.0       10.0       15.0       20.0
-----------------------------------------------------------------------
  0+ 5       0.0001      0.02  Q          |         |          |          |
  0+10       0.0007      0.08  Q          |         |          |          |
  0+15       0.0023      0.24  Q          |         |          |          |
  0+20       0.0058      0.50  VQ         |         |          |          |
  0+25       0.0106      0.70  VQ         |         |          |          |
  0+30       0.0167      0.88  VQ         |         |          |          |
  0+35       0.0241      1.08  V Q        |         |          |          |
  0+40       0.0326      1.22  V Q        |         |          |          |
  0+45       0.0416      1.31  V Q        |         |          |          |
  0+50       0.0512      1.39  V Q        |         |          |          |
  0+55       0.0614      1.48  V Q        |         |          |          |
  1+ 0       0.0725      1.61  V  Q       |         |          |          |
  1+ 5       0.0846      1.76  V  Q       |         |          |          |
  1+10       0.0973      1.85  V  Q       |         |          |          |
  1+15       0.1100      1.84  V  Q       |         |          |          |
  1+20       0.1223      1.78  V  Q       |         |          |          |
  1+25       0.1342      1.74  V  Q       |         |          |          |
  1+30       0.1461      1.73  V  Q       |         |          |          |
  1+35       0.1580      1.72  V  Q       |         |          |          |
  1+40       0.1699      1.72  V  Q       |         |          |          |
  1+45       0.1817      1.72  V  Q       |         |          |          |
  1+50       0.1937      1.73  V  Q       |         |          |          |
  1+55       0.2059      1.77  V  Q       |         |          |          |
  2+ 0       0.2186      1.85  V  Q       |         |          |          |
  2+ 5       0.2322      1.98  V  Q       |         |          |          |
  2+10       0.2464      2.06  V   Q      |         |          |          |
  2+15       0.2610      2.12  V   Q      |         |          |          |
  2+20       0.2758      2.16  V   Q      |         |          |          |
  2+25       0.2909      2.19  V   Q      |         |          |          |
  2+30       0.3061      2.21  |V  Q      |         |          |          |
  2+35       0.3215      2.24  |V  Q      |         |          |          |
  2+40       0.3372      2.28  |V  Q      |         |          |          |
  2+45       0.3535      2.37  |V  Q      |         |          |          |
  2+50       0.3708      2.51  |V   Q     |         |          |          |
  2+55       0.3888      2.60  |V   Q     |         |          |          |
  3+ 0       0.4071      2.66  |V   Q     |         |          |          |
  3+ 5       0.4257      2.70  |V   Q     |         |          |          |
  3+10       0.4445      2.73  |V   Q     |         |          |          |
  3+15       0.4635      2.76  |V   Q     |         |          |          |
  3+20       0.4827      2.78  |V   Q     |         |          |          |
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3+25       0.5020       2.80   |V   Q    |         |         |         |
3+30       0.5213       2.81   |V   Q    |         |         |         |
3+35       0.5408       2.82   |V   Q    |         |         |         |
3+40       0.5603       2.83   |V   Q    |         |         |         |
3+45       0.5799       2.84   |V   Q    |         |         |         |
3+50       0.5996       2.86   | V  Q    |         |         |         |
3+55       0.6195       2.90   | V  Q    |         |         |         |
4+ 0       0.6401       2.99   | V  Q    |         |         |         |
4+ 5       0.6616       3.12   | V   Q   |         |         |         |
4+10       0.6836       3.21   | V   Q   |         |         |         |
4+15       0.7061       3.26   | V   Q   |         |         |         |
4+20       0.7289       3.31   | V   Q   |         |         |         |
4+25       0.7521       3.37   | V   Q   |         |         |         |
4+30       0.7760       3.47   | V   Q   |         |         |         |
4+35       0.8009       3.62   | V    Q  |         |         |         |
4+40       0.8265       3.72   | V    Q  |         |         |         |
4+45       0.8526       3.78   | V    Q  |         |         |         |
4+50       0.8790       3.84   | V    Q  |         |         |         |
4+55       0.9059       3.91   |  V   Q  |         |         |         |
5+ 0       0.9336       4.02   |  V    Q |         |         |         |
5+ 5       0.9622       4.15   |  V    Q |         |         |         |
5+10       0.9911       4.19   |  V    Q |         |         |         |
5+15       1.0193       4.10   |  V    Q |         |         |         |
5+20       1.0462       3.90   |  V   Q  |         |         |         |
5+25       1.0725       3.81   |  V   Q  |         |         |         |
5+30       1.0988       3.82   |  V   Q  |         |         |         |
5+35       1.1257       3.91   |  V   Q  |         |         |         |
5+40       1.1532       3.99   |  V   Q  |         |         |         |
5+45       1.1814       4.10   |  V    Q |         |         |         |
5+50       1.2106       4.24   |   V   Q |         |         |         |
5+55       1.2405       4.34   |   V   Q |         |         |         |
6+ 0       1.2707       4.40   |   V   Q |         |         |         |
6+ 5       1.3014       4.45   |   V   Q |         |         |         |
6+10       1.3325       4.51   |   V    Q|         |         |         |
6+15       1.3643       4.62   |   V    Q|         |         |         |
6+20       1.3972       4.77   |   V    Q|         |         |         |
6+25       1.4307       4.87   |   V    Q|         |         |         |
6+30       1.4647       4.94   |   V    Q|         |         |         |
6+35       1.4991       4.99   |    V   Q|         |         |         |
6+40       1.5339       5.06   |    V    Q         |         |         |
6+45       1.5695       5.17   |    V    Q         |         |         |
6+50       1.6062       5.32   |    V    Q         |         |         |
6+55       1.6436       5.43   |    V    Q         |         |         |
7+ 0       1.6815       5.50   |    V    Q         |         |         |
7+ 5       1.7197       5.55   |    V    |Q        |         |         |
7+10       1.7582       5.59   |    V    |Q        |         |         |
7+15       1.7969       5.62   |     V   |Q        |         |         |
7+20       1.8358       5.65   |     V   |Q        |         |         |
7+25       1.8751       5.71   |     V   |Q        |         |         |
7+30       1.9150       5.81   |     V   |Q        |         |         |
7+35       1.9561       5.95   |     V   |Q        |         |         |
7+40       1.9980       6.08   |     V   | Q       |         |         |
7+45       2.0409       6.23   |     V   | Q       |         |         |
7+50       2.0850       6.41   |     V   | Q       |         |         |
7+55       2.1302       6.56   |      V  |  Q      |         |         |
8+ 0       2.1765       6.72   |      V  |  Q      |         |         |
8+ 5       2.2242       6.93   |      V  |  Q      |         |         |
8+10       2.2733       7.12   |      V  |   Q     |         |         |
8+15       2.3240       7.37   |      V  |   Q     |         |         |
8+20       2.3770       7.69   |      V  |    Q    |         |         |
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 8+25     2.4315    7.91  |       V |    Q    |         |         |
 8+30     2.4870    8.06  |       V |     Q   |         |         |
 8+35     2.5433    8.17  |       V |     Q   |         |         |
 8+40     2.6004    8.29  |       V |     Q   |         |         |
 8+45     2.6585    8.44  |       V |     Q   |         |         |
 8+50     2.7179    8.63  |        V|      Q  |         |         |
 8+55     2.7785    8.79  |        V|      Q  |         |         |
 9+ 0     2.8403    8.97  |        V|      Q  |         |         |
 9+ 5     2.9035    9.18  |        V|       Q |         |         |
 9+10     2.9681    9.38  |        V|       Q |         |         |
 9+15     3.0345    9.64  |         V        Q|         |         |
 9+20     3.1032    9.97  |         V        Q|         |         |
 9+25     3.1736   10.23  |         V         Q         |         |
 9+30     3.2457   10.47  |         V         Q         |         |
 9+35     3.3195   10.71  |         |V        |Q        |         |
 9+40     3.3947   10.92  |         |V        |Q        |         |
 9+45     3.4713   11.12  |         |V        | Q       |         |
 9+50     3.5495   11.35  |         |V        | Q       |         |
 9+55     3.6290   11.55  |         | V       |  Q      |         |
10+ 0     3.7099   11.74  |         | V       |  Q      |         |
10+ 5     3.7918   11.90  |         | V       |  Q      |         |
10+10     3.8733   11.84  |         | V       |  Q      |         |
10+15     3.9517   11.38  |         |  V      | Q       |         |
10+20     4.0246   10.58  |         |  V      |Q        |         |
10+25     4.0939   10.06  |         |  V      Q         |         |
10+30     4.1612    9.77  |         |  V     Q|         |         |
10+35     4.2273    9.60  |         |   V    Q|         |         |
10+40     4.2935    9.61  |         |   V    Q|         |         |
10+45     4.3616    9.90  |         |   V    Q|         |         |
10+50     4.4335   10.44  |         |   V     Q         |         |
10+55     4.5077   10.78  |         |    V    |Q        |         |
11+ 0     4.5832   10.96  |         |    V    |Q        |         |
11+ 5     4.6596   11.09  |         |    V    | Q       |         |
11+10     4.7364   11.15  |         |    V    | Q       |         |
11+15     4.8131   11.14  |         |     V   | Q       |         |
11+20     4.8893   11.06  |         |     V   | Q       |         |
11+25     4.9652   11.03  |         |     V   | Q       |         |
11+30     5.0411   11.01  |         |     V   | Q       |         |
11+35     5.1167   10.99  |         |      V  |Q        |         |
11+40     5.1919   10.92  |         |      V  |Q        |         |
11+45     5.2660   10.75  |         |      V  |Q        |         |
11+50     5.3384   10.51  |         |      V  |Q        |         |
11+55     5.4098   10.38  |         |       V Q         |         |
12+ 0     5.4812   10.36  |         |       V Q         |         |
12+ 5     5.5533   10.47  |         |       V Q         |         |
12+10     5.6272   10.72  |         |       V |Q        |         |
12+15     5.7050   11.29  |         |        V| Q       |         |
12+20     5.7889   12.18  |         |        V|   Q     |         |
12+25     5.8770   12.80  |         |        V|    Q    |         |
12+30     5.9681   13.22  |         |        V|     Q   |         |
12+35     6.0618   13.62  |         |         V      Q  |         |
12+40     6.1580   13.96  |         |         V      Q  |         |
12+45     6.2566   14.32  |         |         V       Q |         |
12+50     6.3581   14.74  |         |         |V       Q|         |
12+55     6.4619   15.07  |         |         |V        Q         |
13+ 0     6.5678   15.36  |         |         |V        Q         |
13+ 5     6.6758   15.69  |         |         | V       |Q        |
13+10     6.7864   16.05  |         |         | V       | Q       |
13+15     6.9008   16.62  |         |         |  V      |  Q      |
13+20     7.0204   17.37  |         |         |  V      |   Q     |
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13+25     7.1437    17.89  |         |         |  V      |    Q    |
13+30     7.2692    18.23  |         |         |   V     |     Q   |
13+35     7.3959    18.39  |         |         |   V     |     Q   |
13+40     7.5216    18.25  |         |         |    V    |     Q   |
13+45     7.6422    17.51  |         |         |    V    |    Q    |
13+50     7.7541    16.25  |         |         |    V    | Q       |
13+55     7.8603    15.43  |         |         |     V   Q         |
14+ 0     7.9634    14.97  |         |         |     V  Q|         |
14+ 5     8.0646    14.68  |         |         |     V  Q|         |
14+10     8.1649    14.58  |         |         |      V Q|         |
14+15     8.2664    14.73  |         |         |      V Q|         |
14+20     8.3703    15.09  |         |         |      V  Q         |
14+25     8.4756    15.28  |         |         |       V Q         |
14+30     8.5809    15.30  |         |         |       V Q         |
14+35     8.6860    15.25  |         |         |        VQ         |
14+40     8.7907    15.21  |         |         |        VQ         |
14+45     8.8952    15.18  |         |         |        VQ         |
14+50     8.9996    15.15  |         |         |         Q         |
14+55     9.1036    15.10  |         |         |         Q         |
15+ 0     9.2070    15.01  |         |         |         Q         |
15+ 5     9.3093    14.86  |         |         |        Q|V        |
15+10     9.4108    14.74  |         |         |        Q|V        |
15+15     9.5114    14.60  |         |         |        Q|V        |
15+20     9.6107    14.43  |         |         |       Q | V       |
15+25     9.7091    14.28  |         |         |       Q | V       |
15+30     9.8064    14.13  |         |         |       Q | V       |
15+35     9.9022    13.91  |         |         |      Q  |  V      |
15+40     9.9963    13.65  |         |         |      Q  |  V      |
15+45    10.0874    13.23  |         |         |     Q   |  V      |
15+50    10.1745    12.65  |         |         |    Q    |   V     |
15+55    10.2589    12.26  |         |         |   Q     |   V     |
16+ 0    10.3416    12.01  |         |         |   Q     |   V     |
16+ 5    10.4222    11.70  |         |         |  Q      |   V     |
16+10    10.4986    11.10  |         |         | Q       |    V    |
16+15    10.5659     9.77  |         |        Q|         |    V    |
16+20    10.6196     7.79  |         |    Q    |         |    V    |
16+25    10.6641     6.46  |         | Q       |         |    V    |
16+30    10.7030     5.64  |         |Q        |         |    V    |
16+35    10.7377     5.04  |         Q         |         |    V    |
16+40    10.7690     4.55  |        Q|         |         |    V    |
16+45    10.7973     4.11  |       Q |         |         |     V   |
16+50    10.8228     3.69  |      Q  |         |         |     V   |
16+55    10.8459     3.36  |     Q   |         |         |     V   |
17+ 0    10.8672     3.10  |     Q   |         |         |     V   |
17+ 5    10.8873     2.91  |    Q    |         |         |     V   |
17+10    10.9066     2.80  |    Q    |         |         |     V   |
17+15    10.9260     2.81  |    Q    |         |         |     V   |
17+20    10.9462     2.94  |    Q    |         |         |     V   |
17+25    10.9669     3.00  |     Q   |         |         |     V   |
17+30    10.9876     3.01  |     Q   |         |         |     V   |
17+35    11.0082     3.00  |    Q    |         |         |     V   |
17+40    11.0287     2.98  |    Q    |         |         |     V   |
17+45    11.0492     2.97  |    Q    |         |         |     V   |
17+50    11.0694     2.94  |    Q    |         |         |      V  |
17+55    11.0894     2.90  |    Q    |         |         |      V  |
18+ 0    11.1088     2.82  |    Q    |         |         |      V  |
18+ 5    11.1272     2.67  |    Q    |         |         |      V  |
18+10    11.1449     2.58  |    Q    |         |         |      V  |
18+15    11.1622     2.51  |    Q    |         |         |      V  |
18+20    11.1792     2.46  |   Q     |         |         |      V  |
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18+25	11.1959	2.43	Q				V
18+30	11.2125	2.40	Q				V
18+35	11.2288	2.37	Q				V
18+40	11.2448	2.33	Q				V
18+45	11.2602	2.24	Q				V
18+50	11.2747	2.10	Q				V
18+55	11.2883	1.98	Q				V
19+ 0	11.3009	1.84	Q				V
19+ 5	11.3125	1.68	Q				V
19+10	11.3235	1.60	Q				V
19+15	11.3346	1.61	Q				V
19+20	11.3462	1.69	Q				V
19+25	11.3583	1.76	Q				V
19+30	11.3711	1.86	Q				V
19+35	11.3847	1.98	Q				V
19+40	11.3988	2.04	Q				V
19+45	11.4126	2.01	Q				V
19+50	11.4257	1.91	Q				V
19+55	11.4383	1.82	Q				V
20+ 0	11.4500	1.71	Q				V
20+ 5	11.4608	1.57	Q				V
20+10	11.4711	1.50	Q				V
20+15	11.4816	1.52	Q				V
20+20	11.4926	1.60	Q				V
20+25	11.5040	1.65	Q				V
20+30	11.5156	1.68	Q				V
20+35	11.5272	1.69	Q				V
20+40	11.5390	1.70	Q				V
20+45	11.5507	1.71	Q				V
20+50	11.5625	1.70	Q				V
20+55	11.5740	1.68	Q				V
21+ 0	11.5850	1.60	Q				V
21+ 5	11.5952	1.48	Q				V
21+10	11.6051	1.43	Q				V
21+15	11.6151	1.46	Q				V
21+20	11.6258	1.55	Q				V
21+25	11.6366	1.57	Q				V
21+30	11.6471	1.53	Q				V
21+35	11.6570	1.43	Q				V
21+40	11.6665	1.39	Q				V
21+45	11.6764	1.43	Q				V
21+50	11.6869	1.52	Q				V
21+55	11.6975	1.55	Q				V
22+ 0	11.7079	1.50	Q				V
22+ 5	11.7176	1.40	Q				V
22+10	11.7270	1.37	Q				V
22+15	11.7367	1.41	Q				V
22+20	11.7471	1.50	Q				V
22+25	11.7577	1.54	Q				V
22+30	11.7680	1.49	Q				V
22+35	11.7776	1.39	Q				V
22+40	11.7867	1.33	Q				V
22+45	11.7956	1.29	Q				V
22+50	11.8043	1.26	Q				V
22+55	11.8128	1.24	Q				V
23+ 0	11.8213	1.23	Q				V
23+ 5	11.8297	1.22	Q				V
23+10	11.8380	1.21	Q				V
23+15	11.8463	1.20	Q				V
23+20	11.8545	1.19	Q				V

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 23+25      11.8627      1.19   | Q        |         |         |        V|
 23+30      11.8709      1.18   | Q        |         |         |        V|
 23+35      11.8790      1.18   | Q        |         |         |        V|
 23+40      11.8871      1.18   | Q        |         |         |        V|
 23+45      11.8952      1.18   | Q        |         |         |        V|
 23+50      11.9033      1.17   | Q        |         |         |        V|
 23+55      11.9113      1.17   | Q        |         |         |        V|
 24+ 0      11.9194      1.17   | Q        |         |         |        V|
 24+ 5      11.9273      1.15   | Q        |         |         |        V|
 24+10      11.9348      1.09   | Q        |         |         |        V|
 24+15      11.9411      0.92   |Q         |         |         |        V|
 24+20      11.9457      0.67   |Q         |         |         |        V|
 24+25      11.9492      0.50   |Q         |         |         |        V|
 24+30      11.9519      0.40   Q          |         |         |        V|
 24+35      11.9542      0.33   Q          |         |         |        V|
 24+40      11.9560      0.27   Q          |         |         |        V|
 24+45      11.9576      0.23   Q          |         |         |        V|
 24+50      11.9589      0.19   Q          |         |         |        V|
 24+55      11.9600      0.16   Q          |         |         |        V|
 25+ 0      11.9610      0.14   Q          |         |         |        V|
 25+ 5      11.9618      0.12   Q          |         |         |        V|
 25+10      11.9625      0.10   Q          |         |         |        V|
 25+15      11.9631      0.09   Q          |         |         |        V|
 25+20      11.9636      0.07   Q          |         |         |        V|
 25+25      11.9640      0.06   Q          |         |         |        V|
 25+30      11.9644      0.05   Q          |         |         |        V|
 25+35      11.9647      0.04   Q          |         |         |        V|
 25+40      11.9649      0.04   Q          |         |         |        V|
 25+45      11.9651      0.03   Q          |         |         |        V|
 25+50      11.9653      0.03   Q          |         |         |        V|
 25+55      11.9655      0.02   Q          |         |         |        V|
 26+ 0      11.9656      0.02   Q          |         |         |        V|
 26+ 5      11.9657      0.02   Q          |         |         |        V|
 26+10      11.9658      0.01   Q          |         |         |        V|
 26+15      11.9659      0.01   Q          |         |         |        V|
 26+20      11.9659      0.01   Q          |         |         |        V|
 26+25      11.9659      0.00   Q          |         |         |        V|
 26+30      11.9659      0.00   Q          |         |         |        V|
-----------------------------------------------------------------------
```

10 YEAR – 1 HOUR
OFFSITE F_1

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF1110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F1)
10-Year 1-Hour

Drainage Area = 274.15(Ac.) = 0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 274.15(Ac.) = 0.428 Sq. Mi.
Length along longest watercourse = 8033.90(Ft.)
Length along longest watercourse measured to centroid = 4835.60(Ft.)
Length along longest watercourse = 1.522 Mi.
Length along longest watercourse measured to centroid = 0.916 Mi.
Difference in elevation = 864.00(Ft.)
Slope along watercourse = 567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.326 Hr.
Lag time = 19.58 Min.
25% of lag time = 4.90 Min.
40% of lag time = 7.83 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	0.47	128.30

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	1.30	356.39

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 0.810(In)
Areal adjustment factor = 99.75 %
Adjusted average point rain = 0.808(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	82.5	0.215	0.169	0.182	1.000	0.182
					Sum (F) =	0.182

Area averaged mean soil loss (F) (In/Hr) = 0.182
Minimum soil loss rate ((In/Hr)) = 0.091
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period	(hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847

28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476
30	2.500	765.966	0.160	0.441
31	2.583	791.498	0.168	0.463
			Sum = 100.000	Sum= 276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	4.40	0.427	0.182	(0.326)	0.245
2	0.17	4.50	0.436	0.182	(0.334)	0.254
3	0.25	5.40	0.524	0.182	(0.401)	0.342
4	0.33	5.40	0.524	0.182	(0.401)	0.342
5	0.42	5.70	0.553	0.182	(0.423)	0.371
6	0.50	6.40	0.621	0.182	(0.475)	0.439
7	0.58	7.90	0.766	0.182	(0.586)	0.584
8	0.67	9.10	0.883	0.182	(0.675)	0.700
9	0.75	12.80	1.242	0.182	(0.950)	1.059
10	0.83	25.60	2.483	0.182	(1.900)	2.301
11	0.92	7.90	0.766	0.182	(0.586)	0.584
12	1.00	4.90	0.475	0.182	(0.364)	0.293
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	7.5

Flood volume = Effective rainfall 0.63(In)
times area 274.1(Ac.)/[(In)/(Ft.)] = 14.3(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 4.163(Ac.Ft)
Total rainfall = 0.81(In)
Flood volume = 623012.0 Cubic Feet
Total soil loss = 181357.9 Cubic Feet

Peak flow rate of this hydrograph = 252.596(CFS)

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                    1 - H O U R   S T O R M
               R u n o f f     H y d r o g r a p h
--------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

--------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0     150.0     225.0     300.0
----------------------------------------------------------------------
  0+ 5       0.0065       0.94  Q         |         |         |         |
  0+10       0.0385       4.65  Q         |         |         |         |
  0+15       0.1391      14.60  VQ        |         |         |         |
  0+20       0.3529      31.05  V   Q     |         |         |         |
  0+25       0.6622      44.90  |V   Q    |         |         |         |
  0+30       1.0559      57.17  | V     Q |         |         |         |
  0+35       1.5229      67.82  |   V    Q|         |         |         |
  0+40       2.0760      80.31  |    V    Q         |         |         |
  0+45       2.7542      98.46  |      V  |  Q      |         |         |
  0+50       3.6396     128.57  |         V      Q  |         |         |
  0+55       4.8254     172.18  |         |  V     | Q       |         |
  1+ 0       6.3888     227.01  |         |      V |         Q         |
  1+ 5       8.1285     252.60  |         |         | V       |  Q      |
  1+10       9.4915     197.91  |         |         |     Q   |         |
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    1+15      10.4676    141.74  |         |       Q |        V|         |
    1+20      11.1643    101.16  |         |  Q      |         |V        |
    1+25      11.6889     76.16  |         Q         |         | V       |
    1+30      12.1034     60.19  |       Q |         |         |  V      |
    1+35      12.4404     48.93  |     Q   |         |         |   V     |
    1+40      12.7233     41.07  |    Q    |         |         |    V    |
    1+45      12.9607     34.48  |   Q     |         |         |     V   |
    1+50      13.1577     28.60  |  Q      |         |         |     V   |
    1+55      13.3257     24.39  |  Q      |         |         |      V  |
    2+ 0      13.4706     21.04  | Q       |         |         |      V  |
    2+ 5      13.5966     18.29  | Q       |         |         |       V |
    2+10      13.7042     15.63  | Q       |         |         |       V |
    2+15      13.7988     13.73  |Q        |         |         |       V |
    2+20      13.8797     11.75  |Q        |         |         |       V |
    2+25      13.9500     10.21  |Q        |         |         |        V|
    2+30      14.0084      8.48  |Q        |         |         |        V|
    2+35      14.0585      7.27  Q         |         |         |        V|
    2+40      14.0988      5.85  Q         |         |         |        V|
    2+45      14.1351      5.27  Q         |         |         |        V|
    2+50      14.1698      5.04  Q         |         |         |        V|
    2+55      14.2024      4.73  Q         |         |         |        V|
    3+ 0      14.2320      4.30  Q         |         |         |        V|
    3+ 5      14.2569      3.62  Q         |         |         |        V|
    3+10      14.2748      2.59  Q         |         |         |        V|
    3+15      14.2886      2.01  Q         |         |         |        V|
    3+20      14.2987      1.46  Q         |         |         |        V|
    3+25      14.3015      0.40  Q         |         |         |        V|
    3+30      14.3024      0.14  Q         |         |         |         V
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10 YEAR – 24 HOUR
OFFSITE F_1

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/23/19 File: c318offsiteF12410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F1)
10-Year 24-Hour

Drainage Area = 274.15(Ac.) = 0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 274.15(Ac.) = 0.428 Sq. Mi.
Length along longest watercourse = 8033.90(Ft.)
Length along longest watercourse measured to centroid = 4835.60(Ft.)
Length along longest watercourse = 1.522 Mi.
Length along longest watercourse measured to centroid = 0.916 Mi.
Difference in elevation = 864.00(Ft.)
Slope along watercourse = 567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.326 Hr.
Lag time = 19.58 Min.
25% of lag time = 4.90 Min.
40% of lag time = 7.83 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	2.23	611.35

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	5.95	1631.19

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 3.760(In)
Areal adjustment factor = 99.95 %
Adjusted average point rain = 3.758(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	82.5	0.215	0.169	0.182	1.000	0.182
					Sum (F) =	0.182

Area averaged mean soil loss (F) (In/Hr) = 0.182
Minimum soil loss rate ((In/Hr)) = 0.091
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847
28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476

30	2.500	765.966	0.160		0.441
31	2.583	791.498	0.168		0.463
			Sum = 100.000	Sum=	276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.323)	0.023	0.007
2	0.17	0.07	0.030	(0.322)	0.023	0.007
3	0.25	0.07	0.030	(0.321)	0.023	0.007
4	0.33	0.10	0.045	(0.319)	0.035	0.011
5	0.42	0.10	0.045	(0.318)	0.035	0.011
6	0.50	0.10	0.045	(0.317)	0.035	0.011
7	0.58	0.10	0.045	(0.316)	0.035	0.011
8	0.67	0.10	0.045	(0.314)	0.035	0.011
9	0.75	0.10	0.045	(0.313)	0.035	0.011
10	0.83	0.13	0.060	(0.312)	0.046	0.014
11	0.92	0.13	0.060	(0.311)	0.046	0.014
12	1.00	0.13	0.060	(0.309)	0.046	0.014
13	1.08	0.10	0.045	(0.308)	0.035	0.011
14	1.17	0.10	0.045	(0.307)	0.035	0.011
15	1.25	0.10	0.045	(0.306)	0.035	0.011
16	1.33	0.10	0.045	(0.305)	0.035	0.011
17	1.42	0.10	0.045	(0.303)	0.035	0.011
18	1.50	0.10	0.045	(0.302)	0.035	0.011
19	1.58	0.10	0.045	(0.301)	0.035	0.011
20	1.67	0.10	0.045	(0.300)	0.035	0.011
21	1.75	0.10	0.045	(0.299)	0.035	0.011
22	1.83	0.13	0.060	(0.297)	0.046	0.014
23	1.92	0.13	0.060	(0.296)	0.046	0.014
24	2.00	0.13	0.060	(0.295)	0.046	0.014
25	2.08	0.13	0.060	(0.294)	0.046	0.014
26	2.17	0.13	0.060	(0.293)	0.046	0.014
27	2.25	0.13	0.060	(0.291)	0.046	0.014
28	2.33	0.13	0.060	(0.290)	0.046	0.014
29	2.42	0.13	0.060	(0.289)	0.046	0.014
30	2.50	0.13	0.060	(0.288)	0.046	0.014
31	2.58	0.17	0.075	(0.287)	0.058	0.018
32	2.67	0.17	0.075	(0.285)	0.058	0.018
33	2.75	0.17	0.075	(0.284)	0.058	0.018
34	2.83	0.17	0.075	(0.283)	0.058	0.018
35	2.92	0.17	0.075	(0.282)	0.058	0.018
36	3.00	0.17	0.075	(0.281)	0.058	0.018
37	3.08	0.17	0.075	(0.280)	0.058	0.018
38	3.17	0.17	0.075	(0.278)	0.058	0.018
39	3.25	0.17	0.075	(0.277)	0.058	0.018
40	3.33	0.17	0.075	(0.276)	0.058	0.018
41	3.42	0.17	0.075	(0.275)	0.058	0.018
42	3.50	0.17	0.075	(0.274)	0.058	0.018
43	3.58	0.17	0.075	(0.273)	0.058	0.018
44	3.67	0.17	0.075	(0.272)	0.058	0.018
45	3.75	0.17	0.075	(0.270)	0.058	0.018
46	3.83	0.20	0.090	(0.269)	0.069	0.021
47	3.92	0.20	0.090	(0.268)	0.069	0.021
48	4.00	0.20	0.090	(0.267)	0.069	0.021
49	4.08	0.20	0.090	(0.266)	0.069	0.021

50	4.17	0.20	0.090	(0.265)	0.069	0.021
51	4.25	0.20	0.090	(0.264)	0.069	0.021
52	4.33	0.23	0.105	(0.262)	0.081	0.025
53	4.42	0.23	0.105	(0.261)	0.081	0.025
54	4.50	0.23	0.105	(0.260)	0.081	0.025
55	4.58	0.23	0.105	(0.259)	0.081	0.025
56	4.67	0.23	0.105	(0.258)	0.081	0.025
57	4.75	0.23	0.105	(0.257)	0.081	0.025
58	4.83	0.27	0.120	(0.256)	0.092	0.028
59	4.92	0.27	0.120	(0.255)	0.092	0.028
60	5.00	0.27	0.120	(0.254)	0.092	0.028
61	5.08	0.20	0.090	(0.252)	0.069	0.021
62	5.17	0.20	0.090	(0.251)	0.069	0.021
63	5.25	0.20	0.090	(0.250)	0.069	0.021
64	5.33	0.23	0.105	(0.249)	0.081	0.025
65	5.42	0.23	0.105	(0.248)	0.081	0.025
66	5.50	0.23	0.105	(0.247)	0.081	0.025
67	5.58	0.27	0.120	(0.246)	0.092	0.028
68	5.67	0.27	0.120	(0.245)	0.092	0.028
69	5.75	0.27	0.120	(0.244)	0.092	0.028
70	5.83	0.27	0.120	(0.243)	0.092	0.028
71	5.92	0.27	0.120	(0.242)	0.092	0.028
72	6.00	0.27	0.120	(0.241)	0.092	0.028
73	6.08	0.30	0.135	(0.239)	0.104	0.032
74	6.17	0.30	0.135	(0.238)	0.104	0.032
75	6.25	0.30	0.135	(0.237)	0.104	0.032
76	6.33	0.30	0.135	(0.236)	0.104	0.032
77	6.42	0.30	0.135	(0.235)	0.104	0.032
78	6.50	0.30	0.135	(0.234)	0.104	0.032
79	6.58	0.33	0.150	(0.233)	0.115	0.035
80	6.67	0.33	0.150	(0.232)	0.115	0.035
81	6.75	0.33	0.150	(0.231)	0.115	0.035
82	6.83	0.33	0.150	(0.230)	0.115	0.035
83	6.92	0.33	0.150	(0.229)	0.115	0.035
84	7.00	0.33	0.150	(0.228)	0.115	0.035
85	7.08	0.33	0.150	(0.227)	0.115	0.035
86	7.17	0.33	0.150	(0.226)	0.115	0.035
87	7.25	0.33	0.150	(0.225)	0.115	0.035
88	7.33	0.37	0.165	(0.224)	0.127	0.039
89	7.42	0.37	0.165	(0.223)	0.127	0.039
90	7.50	0.37	0.165	(0.222)	0.127	0.039
91	7.58	0.40	0.180	(0.221)	0.138	0.042
92	7.67	0.40	0.180	(0.220)	0.138	0.042
93	7.75	0.40	0.180	(0.219)	0.138	0.042
94	7.83	0.43	0.195	(0.218)	0.150	0.046
95	7.92	0.43	0.195	(0.217)	0.150	0.046
96	8.00	0.43	0.195	(0.216)	0.150	0.046
97	8.08	0.50	0.226	(0.215)	0.173	0.053
98	8.17	0.50	0.226	(0.214)	0.173	0.053
99	8.25	0.50	0.226	(0.213)	0.173	0.053
100	8.33	0.50	0.226	(0.212)	0.173	0.053
101	8.42	0.50	0.226	(0.211)	0.173	0.053
102	8.50	0.50	0.226	(0.210)	0.173	0.053
103	8.58	0.53	0.241	(0.209)	0.184	0.057
104	8.67	0.53	0.241	(0.208)	0.184	0.057
105	8.75	0.53	0.241	(0.207)	0.184	0.057
106	8.83	0.57	0.256	(0.206)	0.196	0.060
107	8.92	0.57	0.256	(0.205)	0.196	0.060
108	9.00	0.57	0.256	(0.204)	0.196	0.060
109	9.08	0.63	0.286	0.203	(0.219)	0.083

110	9.17	0.63	0.286	0.202	(0.219)	0.084
111	9.25	0.63	0.286	0.201	(0.219)	0.085
112	9.33	0.67	0.301	0.200	(0.230)	0.101
113	9.42	0.67	0.301	0.199	(0.230)	0.102
114	9.50	0.67	0.301	0.198	(0.230)	0.103
115	9.58	0.70	0.316	0.197	(0.242)	0.119
116	9.67	0.70	0.316	0.196	(0.242)	0.120
117	9.75	0.70	0.316	0.195	(0.242)	0.120
118	9.83	0.73	0.331	0.194	(0.253)	0.136
119	9.92	0.73	0.331	0.193	(0.253)	0.137
120	10.00	0.73	0.331	0.192	(0.253)	0.138
121	10.08	0.50	0.226	(0.192)	0.173	0.053
122	10.17	0.50	0.226	(0.191)	0.173	0.053
123	10.25	0.50	0.226	(0.190)	0.173	0.053
124	10.33	0.50	0.226	(0.189)	0.173	0.053
125	10.42	0.50	0.226	(0.188)	0.173	0.053
126	10.50	0.50	0.226	(0.187)	0.173	0.053
127	10.58	0.67	0.301	0.186	(0.230)	0.115
128	10.67	0.67	0.301	0.185	(0.230)	0.116
129	10.75	0.67	0.301	0.184	(0.230)	0.116
130	10.83	0.67	0.301	0.183	(0.230)	0.117
131	10.92	0.67	0.301	0.182	(0.230)	0.118
132	11.00	0.67	0.301	0.181	(0.230)	0.119
133	11.08	0.63	0.286	0.181	(0.219)	0.105
134	11.17	0.63	0.286	0.180	(0.219)	0.106
135	11.25	0.63	0.286	0.179	(0.219)	0.107
136	11.33	0.63	0.286	0.178	(0.219)	0.108
137	11.42	0.63	0.286	0.177	(0.219)	0.109
138	11.50	0.63	0.286	0.176	(0.219)	0.109
139	11.58	0.57	0.256	0.175	(0.196)	0.080
140	11.67	0.57	0.256	0.174	(0.196)	0.081
141	11.75	0.57	0.256	0.174	(0.196)	0.082
142	11.83	0.60	0.271	0.173	(0.207)	0.098
143	11.92	0.60	0.271	0.172	(0.207)	0.099
144	12.00	0.60	0.271	0.171	(0.207)	0.100
145	12.08	0.83	0.376	0.170	(0.288)	0.206
146	12.17	0.83	0.376	0.169	(0.288)	0.207
147	12.25	0.83	0.376	0.168	(0.288)	0.207
148	12.33	0.87	0.391	0.168	(0.299)	0.223
149	12.42	0.87	0.391	0.167	(0.299)	0.224
150	12.50	0.87	0.391	0.166	(0.299)	0.225
151	12.58	0.93	0.421	0.165	(0.322)	0.256
152	12.67	0.93	0.421	0.164	(0.322)	0.257
153	12.75	0.93	0.421	0.163	(0.322)	0.258
154	12.83	0.97	0.436	0.163	(0.334)	0.273
155	12.92	0.97	0.436	0.162	(0.334)	0.274
156	13.00	0.97	0.436	0.161	(0.334)	0.275
157	13.08	1.13	0.511	0.160	(0.391)	0.351
158	13.17	1.13	0.511	0.159	(0.391)	0.352
159	13.25	1.13	0.511	0.158	(0.391)	0.353
160	13.33	1.13	0.511	0.158	(0.391)	0.353
161	13.42	1.13	0.511	0.157	(0.391)	0.354
162	13.50	1.13	0.511	0.156	(0.391)	0.355
163	13.58	0.77	0.346	0.155	(0.265)	0.190
164	13.67	0.77	0.346	0.155	(0.265)	0.191
165	13.75	0.77	0.346	0.154	(0.265)	0.192
166	13.83	0.77	0.346	0.153	(0.265)	0.193
167	13.92	0.77	0.346	0.152	(0.265)	0.194
168	14.00	0.77	0.346	0.151	(0.265)	0.194
169	14.08	0.90	0.406	0.151	(0.311)	0.255

170	14.17	0.90	0.406	0.150	(0.311)	0.256
171	14.25	0.90	0.406	0.149	(0.311)	0.257
172	14.33	0.87	0.391	0.148	(0.299)	0.243
173	14.42	0.87	0.391	0.148	(0.299)	0.243
174	14.50	0.87	0.391	0.147	(0.299)	0.244
175	14.58	0.87	0.391	0.146	(0.299)	0.245
176	14.67	0.87	0.391	0.145	(0.299)	0.246
177	14.75	0.87	0.391	0.145	(0.299)	0.246
178	14.83	0.83	0.376	0.144	(0.288)	0.232
179	14.92	0.83	0.376	0.143	(0.288)	0.233
180	15.00	0.83	0.376	0.142	(0.288)	0.234
181	15.08	0.80	0.361	0.142	(0.276)	0.219
182	15.17	0.80	0.361	0.141	(0.276)	0.220
183	15.25	0.80	0.361	0.140	(0.276)	0.221
184	15.33	0.77	0.346	0.139	(0.265)	0.206
185	15.42	0.77	0.346	0.139	(0.265)	0.207
186	15.50	0.77	0.346	0.138	(0.265)	0.208
187	15.58	0.63	0.286	0.137	(0.219)	0.148
188	15.67	0.63	0.286	0.137	(0.219)	0.149
189	15.75	0.63	0.286	0.136	(0.219)	0.150
190	15.83	0.63	0.286	0.135	(0.219)	0.150
191	15.92	0.63	0.286	0.135	(0.219)	0.151
192	16.00	0.63	0.286	0.134	(0.219)	0.152
193	16.08	0.13	0.060	(0.133)	0.046	0.014
194	16.17	0.13	0.060	(0.132)	0.046	0.014
195	16.25	0.13	0.060	(0.132)	0.046	0.014
196	16.33	0.13	0.060	(0.131)	0.046	0.014
197	16.42	0.13	0.060	(0.130)	0.046	0.014
198	16.50	0.13	0.060	(0.130)	0.046	0.014
199	16.58	0.10	0.045	(0.129)	0.035	0.011
200	16.67	0.10	0.045	(0.128)	0.035	0.011
201	16.75	0.10	0.045	(0.128)	0.035	0.011
202	16.83	0.10	0.045	(0.127)	0.035	0.011
203	16.92	0.10	0.045	(0.127)	0.035	0.011
204	17.00	0.10	0.045	(0.126)	0.035	0.011
205	17.08	0.17	0.075	(0.125)	0.058	0.018
206	17.17	0.17	0.075	(0.125)	0.058	0.018
207	17.25	0.17	0.075	(0.124)	0.058	0.018
208	17.33	0.17	0.075	(0.123)	0.058	0.018
209	17.42	0.17	0.075	(0.123)	0.058	0.018
210	17.50	0.17	0.075	(0.122)	0.058	0.018
211	17.58	0.17	0.075	(0.122)	0.058	0.018
212	17.67	0.17	0.075	(0.121)	0.058	0.018
213	17.75	0.17	0.075	(0.120)	0.058	0.018
214	17.83	0.13	0.060	(0.120)	0.046	0.014
215	17.92	0.13	0.060	(0.119)	0.046	0.014
216	18.00	0.13	0.060	(0.119)	0.046	0.014
217	18.08	0.13	0.060	(0.118)	0.046	0.014
218	18.17	0.13	0.060	(0.117)	0.046	0.014
219	18.25	0.13	0.060	(0.117)	0.046	0.014
220	18.33	0.13	0.060	(0.116)	0.046	0.014
221	18.42	0.13	0.060	(0.116)	0.046	0.014
222	18.50	0.13	0.060	(0.115)	0.046	0.014
223	18.58	0.10	0.045	(0.115)	0.035	0.011
224	18.67	0.10	0.045	(0.114)	0.035	0.011
225	18.75	0.10	0.045	(0.113)	0.035	0.011
226	18.83	0.07	0.030	(0.113)	0.023	0.007
227	18.92	0.07	0.030	(0.112)	0.023	0.007
228	19.00	0.07	0.030	(0.112)	0.023	0.007
229	19.08	0.10	0.045	(0.111)	0.035	0.011

230	19.17	0.10	0.045	(0.111)	0.035	0.011
231	19.25	0.10	0.045	(0.110)	0.035	0.011
232	19.33	0.13	0.060	(0.110)	0.046	0.014
233	19.42	0.13	0.060	(0.109)	0.046	0.014
234	19.50	0.13	0.060	(0.109)	0.046	0.014
235	19.58	0.10	0.045	(0.108)	0.035	0.011
236	19.67	0.10	0.045	(0.108)	0.035	0.011
237	19.75	0.10	0.045	(0.107)	0.035	0.011
238	19.83	0.07	0.030	(0.107)	0.023	0.007
239	19.92	0.07	0.030	(0.106)	0.023	0.007
240	20.00	0.07	0.030	(0.106)	0.023	0.007
241	20.08	0.10	0.045	(0.105)	0.035	0.011
242	20.17	0.10	0.045	(0.105)	0.035	0.011
243	20.25	0.10	0.045	(0.104)	0.035	0.011
244	20.33	0.10	0.045	(0.104)	0.035	0.011
245	20.42	0.10	0.045	(0.104)	0.035	0.011
246	20.50	0.10	0.045	(0.103)	0.035	0.011
247	20.58	0.10	0.045	(0.103)	0.035	0.011
248	20.67	0.10	0.045	(0.102)	0.035	0.011
249	20.75	0.10	0.045	(0.102)	0.035	0.011
250	20.83	0.07	0.030	(0.101)	0.023	0.007
251	20.92	0.07	0.030	(0.101)	0.023	0.007
252	21.00	0.07	0.030	(0.101)	0.023	0.007
253	21.08	0.10	0.045	(0.100)	0.035	0.011
254	21.17	0.10	0.045	(0.100)	0.035	0.011
255	21.25	0.10	0.045	(0.099)	0.035	0.011
256	21.33	0.07	0.030	(0.099)	0.023	0.007
257	21.42	0.07	0.030	(0.099)	0.023	0.007
258	21.50	0.07	0.030	(0.098)	0.023	0.007
259	21.58	0.10	0.045	(0.098)	0.035	0.011
260	21.67	0.10	0.045	(0.098)	0.035	0.011
261	21.75	0.10	0.045	(0.097)	0.035	0.011
262	21.83	0.07	0.030	(0.097)	0.023	0.007
263	21.92	0.07	0.030	(0.097)	0.023	0.007
264	22.00	0.07	0.030	(0.096)	0.023	0.007
265	22.08	0.10	0.045	(0.096)	0.035	0.011
266	22.17	0.10	0.045	(0.096)	0.035	0.011
267	22.25	0.10	0.045	(0.095)	0.035	0.011
268	22.33	0.07	0.030	(0.095)	0.023	0.007
269	22.42	0.07	0.030	(0.095)	0.023	0.007
270	22.50	0.07	0.030	(0.094)	0.023	0.007
271	22.58	0.07	0.030	(0.094)	0.023	0.007
272	22.67	0.07	0.030	(0.094)	0.023	0.007
273	22.75	0.07	0.030	(0.094)	0.023	0.007
274	22.83	0.07	0.030	(0.093)	0.023	0.007
275	22.92	0.07	0.030	(0.093)	0.023	0.007
276	23.00	0.07	0.030	(0.093)	0.023	0.007
277	23.08	0.07	0.030	(0.093)	0.023	0.007
278	23.17	0.07	0.030	(0.092)	0.023	0.007
279	23.25	0.07	0.030	(0.092)	0.023	0.007
280	23.33	0.07	0.030	(0.092)	0.023	0.007
281	23.42	0.07	0.030	(0.092)	0.023	0.007
282	23.50	0.07	0.030	(0.092)	0.023	0.007
283	23.58	0.07	0.030	(0.092)	0.023	0.007
284	23.67	0.07	0.030	(0.091)	0.023	0.007
285	23.75	0.07	0.030	(0.091)	0.023	0.007
286	23.83	0.07	0.030	(0.091)	0.023	0.007
287	23.92	0.07	0.030	(0.091)	0.023	0.007
288	24.00	0.07	0.030	(0.091)	0.023	0.007

(Loss Rate Not Used)

```
 Sum =      100.0                                   Sum =     18.7
  Flood volume = Effective rainfall      1.56(In)
   times area     274.1(Ac.)/[(In)/(Ft.)] =      35.5(Ac.Ft)
  Total soil loss =      2.20(In)
  Total soil loss =    50.339(Ac.Ft)
  Total rainfall =      3.76(In)
  Flood volume =     1547502.0 Cubic Feet
  Total soil loss =     2192748.7 Cubic Feet
  --------------------------------------------------------------------
   Peak flow rate of this hydrograph =     87.760(CFS)
  --------------------------------------------------------------------
  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      24 - H O U R   S T O R M
                 R u n o f f     H y d r o g r a p h
  --------------------------------------------------------------------
              Hydrograph in   5   Minute intervals ((CFS))

  --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       22.5      45.0      67.5      90.0
-----------------------------------------------------------------------
  0+ 5       0.0002       0.03  Q         |         |         |         |
  0+10       0.0011       0.13  Q         |         |         |         |
  0+15       0.0039       0.41  Q         |         |         |         |
  0+20       0.0097       0.85  Q         |         |         |         |
  0+25       0.0179       1.18  Q         |         |         |         |
  0+30       0.0281       1.49  Q         |         |         |         |
  0+35       0.0407       1.83  Q         |         |         |         |
  0+40       0.0549       2.06  Q         |         |         |         |
  0+45       0.0702       2.22  Q         |         |         |         |
  0+50       0.0863       2.35  VQ        |         |         |         |
  0+55       0.1035       2.50  VQ        |         |         |         |
  1+ 0       0.1222       2.71  VQ        |         |         |         |
  1+ 5       0.1427       2.97  VQ        |         |         |         |
  1+10       0.1641       3.11  VQ        |         |         |         |
  1+15       0.1856       3.11  VQ        |         |         |         |
  1+20       0.2062       3.00  VQ        |         |         |         |
  1+25       0.2264       2.93  VQ        |         |         |         |
  1+30       0.2464       2.91  VQ        |         |         |         |
  1+35       0.2664       2.90  VQ        |         |         |         |
  1+40       0.2865       2.91  VQ        |         |         |         |
  1+45       0.3065       2.91  VQ        |         |         |         |
  1+50       0.3266       2.92  VQ        |         |         |         |
  1+55       0.3471       2.98  VQ        |         |         |         |
  2+ 0       0.3686       3.12  VQ        |         |         |         |
  2+ 5       0.3916       3.34  VQ        |         |         |         |
  2+10       0.4155       3.48  VQ        |         |         |         |
  2+15       0.4401       3.57  VQ        |         |         |         |
  2+20       0.4652       3.64  VQ        |         |         |         |
  2+25       0.4905       3.68  VQ        |         |         |         |
  2+30       0.5162       3.72  VQ        |         |         |         |
  2+35       0.5421       3.77  VQ        |         |         |         |
  2+40       0.5686       3.85  VQ        |         |         |         |
  2+45       0.5962       4.00  VQ        |         |         |         |
  2+50       0.6253       4.23  VQ        |         |         |         |
  2+55       0.6556       4.39  VQ        |         |         |         |
  3+ 0       0.6865       4.49  VQ        |         |         |         |
  3+ 5       0.7178       4.56  V Q       |         |         |         |
  3+10       0.7496       4.61  V Q       |         |         |         |
  3+15       0.7817       4.65  V Q       |         |         |         |
  3+20       0.8140       4.69  V Q       |         |         |         |
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  3+25       0.8465       4.72  V Q      |         |         |         |
  3+30       0.8791       4.74  V Q      |         |         |         |
  3+35       0.9119       4.76  |VQ      |         |         |         |
  3+40       0.9448       4.78  |VQ      |         |         |         |
  3+45       0.9779       4.79  |VQ      |         |         |         |
  3+50       1.0111       4.82  |VQ      |         |         |         |
  3+55       1.0447       4.89  |VQ      |         |         |         |
  4+ 0       1.0794       5.03  |VQ      |         |         |         |
  4+ 5       1.1156       5.26  |VQ      |         |         |         |
  4+10       1.1528       5.41  |VQ      |         |         |         |
  4+15       1.1907       5.50  |VQ      |         |         |         |
  4+20       1.2291       5.58  |VQ      |         |         |         |
  4+25       1.2683       5.68  |VQ      |         |         |         |
  4+30       1.3086       5.86  |VQ      |         |         |         |
  4+35       1.3506       6.10  |VQ      |         |         |         |
  4+40       1.3938       6.27  |VQ      |         |         |         |
  4+45       1.4377       6.38  |VQ      |         |         |         |
  4+50       1.4823       6.47  |VQ      |         |         |         |
  4+55       1.5277       6.59  |VQ      |         |         |         |
  5+ 0       1.5744       6.78  |V Q     |         |         |         |
  5+ 5       1.6226       7.00  |V Q     |         |         |         |
  5+10       1.6713       7.07  |V Q     |         |         |         |
  5+15       1.7189       6.91  |V Q     |         |         |         |
  5+20       1.7643       6.58  |VQ      |         |         |         |
  5+25       1.8085       6.42  | Q      |         |         |         |
  5+30       1.8528       6.44  | Q      |         |         |         |
  5+35       1.8982       6.59  | Q      |         |         |         |
  5+40       1.9446       6.73  | Q      |         |         |         |
  5+45       1.9922       6.91  |  VQ    |         |         |         |
  5+50       2.0414       7.15  |  VQ    |         |         |         |
  5+55       2.0918       7.31  |  VQ    |         |         |         |
  6+ 0       2.1429       7.41  |  VQ    |         |         |         |
  6+ 5       2.1945       7.50  |  VQ    |         |         |         |
  6+10       2.2470       7.61  |  VQ    |         |         |         |
  6+15       2.3006       7.79  |  VQ    |         |         |         |
  6+20       2.3560       8.04  |  VQ    |         |         |         |
  6+25       2.4126       8.21  |  VQ    |         |         |         |
  6+30       2.4699       8.32  |  VQ    |         |         |         |
  6+35       2.5279       8.42  |  VQ    |         |         |         |
  6+40       2.5866       8.53  |  VQ    |         |         |         |
  6+45       2.6467       8.72  |  VQ    |         |         |         |
  6+50       2.7085       8.98  |   Q    |         |         |         |
  6+55       2.7716       9.16  |   VQ   |         |         |         |
  7+ 0       2.8354       9.27  |   VQ   |         |         |         |
  7+ 5       2.8999       9.36  |   VQ   |         |         |         |
  7+10       2.9648       9.42  |   VQ   |         |         |         |
  7+15       3.0300       9.47  |   VQ   |         |         |         |
  7+20       3.0957       9.53  |   VQ   |         |         |         |
  7+25       3.1619       9.62  |   VQ   |         |         |         |
  7+30       3.2293       9.79  |   VQ   |         |         |         |
  7+35       3.2985      10.04  |   VQ   |         |         |         |
  7+40       3.3692      10.26  |   VQ   |         |         |         |
  7+45       3.4415      10.51  |   VQ   |         |         |         |
  7+50       3.5160      10.81  |   VQ   |         |         |         |
  7+55       3.5922      11.07  |     Q  |         |         |         |
  8+ 0       3.6703      11.34  |    VQ  |         |         |         |
  8+ 5       3.7507      11.68  |    VQ  |         |         |         |
  8+10       3.8334      12.01  |    VQ  |         |         |         |
  8+15       3.9190      12.43  |    VQ  |         |         |         |
  8+20       4.0083      12.97  |    VQ  |         |         |         |
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  8+25     4.1002    13.34  |  VQ     |         |         |         |
  8+30     4.1938    13.59  |  V Q    |         |         |         |
  8+35     4.2887    13.78  |  V Q    |         |         |         |
  8+40     4.3850    13.98  |  V Q    |         |         |         |
  8+45     4.4830    14.23  |   VQ    |         |         |         |
  8+50     4.5832    14.55  |   VQ    |         |         |         |
  8+55     4.6854    14.83  |   VQ    |         |         |         |
  9+ 0     4.7895    15.12  |   VQ    |         |         |         |
  9+ 5     4.8965    15.54  |   VQ    |         |         |         |
  9+10     5.0075    16.12  |   V Q   |         |         |         |
  9+15     5.1258    17.18  |   V Q   |         |         |         |
  9+20     5.2552    18.79  |   V  Q  |         |         |         |
  9+25     5.3939    20.13  |    V Q  |         |         |         |
  9+30     5.5419    21.50  |    V   Q|         |         |         |
  9+35     5.7010    23.10  |    V    Q         |         |         |
  9+40     5.8696    24.47  |    V    Q         |         |         |
  9+45     6.0480    25.90  |    V    |Q        |         |         |
  9+50     6.2378    27.57  |     V   | Q       |         |         |
  9+55     6.4376    29.00  |     V   | Q       |         |         |
 10+ 0     6.6476    30.49  |     V   |  Q      |         |         |
 10+ 5     6.8667    31.81  |     V   |   Q     |         |         |
 10+10     7.0855    31.77  |     V   |   Q     |         |         |
 10+15     7.2876    29.35  |       V |  Q      |         |         |
 10+20     7.4589    24.87  |       V |Q        |         |         |
 10+25     7.6104    21.99  |       VQ|         |         |         |
 10+30     7.7506    20.36  |       VQ|         |         |         |
 10+35     7.8848    19.48  |       Q |         |         |         |
 10+40     8.0198    19.60  |       QV|         |         |         |
 10+45     8.1671    21.39  |        Q|         |         |         |
 10+50     8.3371    24.69  |        VQ         |         |         |
 10+55     8.5220    26.84  |        V|Q        |         |         |
 11+ 0     8.7157    28.12  |        V| Q       |         |         |
 11+ 5     8.9157    29.04  |         V Q       |         |         |
 11+10     9.1193    29.58  |         V  Q      |         |         |
 11+15     9.3233    29.62  |         V  Q      |         |         |
 11+20     9.5247    29.24  |         V Q       |         |         |
 11+25     9.7253    29.13  |         V Q       |         |         |
 11+30     9.9265    29.21  |         |VQ       |         |         |
 11+35    10.1279    29.24  |         |VQ       |         |         |
 11+40    10.3272    28.94  |         |VQ       |         |         |
 11+45    10.5199    27.98  |         |VQ       |         |         |
 11+50    10.7021    26.46  |         |QV       |         |         |
 11+55    10.8792    25.72  |         |QV       |         |         |
 12+ 0    11.0571    25.82  |         |QV       |         |         |
 12+ 5    11.2419    26.84  |         |QV       |         |         |
 12+10    11.4406    28.85  |         | Q       |         |         |
 12+15    11.6692    33.18  |         |  VQ     |         |         |
 12+20    11.9434    39.81  |         |  V   Q  |         |         |
 12+25    12.2493    44.43  |         |  V     Q|         |         |
 12+30    12.5781    47.74  |         |   V     |Q        |         |
 12+35    12.9278    50.77  |         |   V     | Q       |         |
 12+40    13.2958    53.44  |         |   V     |  Q      |         |
 12+45    13.6835    56.29  |         |    V    |    Q    |         |
 12+50    14.0934    59.52  |         |    V    |     Q   |         |
 12+55    14.5212    62.11  |         |     V   |      Q  |         |
 13+ 0    14.9649    64.43  |         |     V   |       Q |         |
 13+ 5    15.4263    66.99  |         |      V  |        Q|         |
 13+10    15.9072    69.84  |         |      V  |         |Q        |
 13+15    16.4175    74.09  |         |       V |         | Q       |
 13+20    16.9667    79.74  |         |        V|         |    Q    |
```

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13+25     17.5432     83.70  |         |        V|         |      Q  |
13+30     18.1380     86.37  |         |         V         |       Q |
13+35     18.7424     87.76  |         |         |V        |        Q|
13+40     19.3411     86.92  |         |         |V        |       Q |
13+45     19.9049     81.86  |         |         | V       |     Q   |
13+50     20.4078     73.02  |         |         | V       | Q       |
13+55     20.8721     67.42  |         |         |  V     Q|         |
14+ 0     21.3149     64.30  |         |         |  V    Q |         |
14+ 5     21.7450     62.45  |         |         |   V  Q  |         |
14+10     22.1715     61.92  |         |         |   V  Q  |         |
14+15     22.6069     63.22  |         |         |    V  Q |         |
14+20     23.0619     66.06  |         |         |    V   Q|         |
14+25     23.5274     67.60  |         |         |     V   Q         |
14+30     23.9957     67.99  |         |         |      V  Q         |
14+35     24.4627     67.81  |         |         |      V  Q         |
14+40     24.9292     67.73  |         |         |       V Q         |
14+45     25.3958     67.76  |         |         |       V Q         |
14+50     25.8624     67.76  |         |         |        VQ         |
14+55     26.3282     67.63  |         |         |        VQ         |
15+ 0     26.7906     67.15  |         |         |        QV         |
15+ 5     27.2473     66.31  |         |         |        QV         |
15+10     27.6991     65.60  |         |         |        Q|V        |
15+15     28.1456     64.83  |         |         |       Q |V        |
15+20     28.5850     63.79  |         |         |       Q | V       |
15+25     29.0186     62.97  |         |         |      Q  | V       |
15+30     29.4462     62.08  |         |         |      Q  |  V      |
15+35     29.8644     60.73  |         |         |     Q   |  V      |
15+40     30.2711     59.05  |         |         |     Q   |   V     |
15+45     30.6583     56.22  |         |         |   Q     |   V     |
15+50     31.0181     52.25  |         |         |  Q      |   V     |
15+55     31.3599     49.63  |         |         | Q       |    V    |
16+ 0     31.6906     48.02  |         |         |Q        |    V    |
16+ 5     32.0100     46.36  |         |         Q         |     V   |
16+10     32.3097     43.53  |         |        Q|         |     V   |
16+15     32.5687     37.60  |         |     Q   |         |     V   |
16+20     32.7670     28.79  |         | Q       |         |     V   |
16+25     32.9243     22.85  |         Q         |         |      V  |
16+30     33.0561     19.13  |       Q |         |         |      V  |
16+35     33.1693     16.44  |      Q  |         |         |      V  |
16+40     33.2678     14.31  |     Q   |         |         |      V  |
16+45     33.3540     12.52  |    Q    |         |         |      V  |
16+50     33.4295     10.96  |   Q     |         |         |      V  |
16+55     33.4961      9.67  |   Q     |         |         |      V  |
17+ 0     33.5554      8.61  |  Q      |         |         |      V  |
17+ 5     33.6091      7.80  |  Q      |         |         |      V  |
17+10     33.6586      7.19  |  Q      |         |         |      V  |
17+15     33.7057      6.84  |  Q      |         |         |      V  |
17+20     33.7520      6.72  | Q       |         |         |       V |
17+25     33.7972      6.56  | Q       |         |         |       V |
17+30     33.8409      6.34  | Q       |         |         |       V |
17+35     33.8830      6.11  | Q       |         |         |       V |
17+40     33.9235      5.89  | Q       |         |         |       V |
17+45     33.9629      5.71  | Q       |         |         |       V |
17+50     34.0010      5.53  | Q       |         |         |       V |
17+55     34.0380      5.38  | Q       |         |         |       V |
18+ 0     34.0736      5.16  | Q       |         |         |       V |
18+ 5     34.1068      4.83  | Q       |         |         |       V |
18+10     34.1385      4.60  | Q       |         |         |       V |
18+15     34.1689      4.42  |Q        |         |         |       V |
18+20     34.1983      4.27  |Q        |         |         |       V |
```

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18+25     34.2270     4.17  |Q        |         |         |      V  |
18+30     34.2552     4.09  |Q        |         |         |      V  |
18+35     34.2827     3.99  |Q        |         |         |      V  |
18+40     34.3097     3.92  |Q        |         |         |      V  |
18+45     34.3357     3.77  |Q        |         |         |      V  |
18+50     34.3600     3.54  |Q        |         |         |      V  |
18+55     34.3830     3.33  |Q        |         |         |      V  |
19+ 0     34.4043     3.10  |Q        |         |         |      V  |
19+ 5     34.4238     2.83  |Q        |         |         |      V  |
19+10     34.4424     2.70  |Q        |         |         |      V  |
19+15     34.4611     2.71  |Q        |         |         |      V  |
19+20     34.4807     2.84  |Q        |         |         |      V  |
19+25     34.5011     2.96  |Q        |         |         |      V  |
19+30     34.5226     3.13  |Q        |         |         |      V  |
19+35     34.5457     3.34  |Q        |         |         |      V  |
19+40     34.5693     3.44  |Q        |         |         |      V  |
19+45     34.5926     3.38  |Q        |         |         |      V  |
19+50     34.6148     3.22  |Q        |         |         |      V  |
19+55     34.6359     3.07  |Q        |         |         |      V  |
20+ 0     34.6557     2.88  |Q        |         |         |        V|
20+ 5     34.6739     2.64  |Q        |         |         |        V|
20+10     34.6913     2.53  |Q        |         |         |        V|
20+15     34.7090     2.56  |Q        |         |         |        V|
20+20     34.7276     2.70  |Q        |         |         |        V|
20+25     34.7468     2.79  |Q        |         |         |        V|
20+30     34.7663     2.83  |Q        |         |         |        V|
20+35     34.7859     2.85  |Q        |         |         |        V|
20+40     34.8057     2.87  |Q        |         |         |        V|
20+45     34.8256     2.88  |Q        |         |         |        V|
20+50     34.8454     2.88  |Q        |         |         |        V|
20+55     34.8648     2.83  |Q        |         |         |        V|
21+ 0     34.8834     2.69  |Q        |         |         |        V|
21+ 5     34.9006     2.50  |Q        |         |         |        V|
21+10     34.9172     2.41  |Q        |         |         |        V|
21+15     34.9342     2.47  |Q        |         |         |        V|
21+20     34.9521     2.61  |Q        |         |         |        V|
21+25     34.9704     2.65  |Q        |         |         |        V|
21+30     34.9881     2.57  |Q        |         |         |        V|
21+35     35.0047     2.41  |Q        |         |         |        V|
21+40     35.0209     2.34  |Q        |         |         |        V|
21+45     35.0375     2.41  |Q        |         |         |        V|
21+50     35.0551     2.56  |Q        |         |         |        V|
21+55     35.0731     2.61  |Q        |         |         |        V|
22+ 0     35.0906     2.53  |Q        |         |         |        V|
22+ 5     35.1069     2.37  |Q        |         |         |        V|
22+10     35.1228     2.31  |Q        |         |         |        V|
22+15     35.1392     2.38  |Q        |         |         |        V|
22+20     35.1567     2.54  |Q        |         |         |        V|
22+25     35.1745     2.59  |Q        |         |         |        V|
22+30     35.1919     2.52  |Q        |         |         |        V|
22+35     35.2081     2.35  |Q        |         |         |        V|
22+40     35.2235     2.24  Q         |         |         |        V|
22+45     35.2385     2.17  Q         |         |         |        V|
22+50     35.2531     2.13  Q         |         |         |        V|
22+55     35.2676     2.10  Q         |         |         |        V|
23+ 0     35.2819     2.07  Q         |         |         |        V|
23+ 5     35.2960     2.05  Q         |         |         |        V|
23+10     35.3100     2.04  Q         |         |         |        V|
23+15     35.3240     2.02  Q         |         |         |        V|
23+20     35.3379     2.02  Q         |         |         |        V|
```

23+25	35.3517	2.01	Q	|	|	|	V|
23+30	35.3654	2.00	Q	|	|	|	V|
23+35	35.3791	1.99	Q	|	|	|	V|
23+40	35.3928	1.99	Q	|	|	|	V|
23+45	35.4065	1.98	Q	|	|	|	V|
23+50	35.4201	1.98	Q	|	|	|	V|
23+55	35.4337	1.97	Q	|	|	|	V|
24+ 0	35.4472	1.97	Q	|	|	|	V|
24+ 5	35.4606	1.94	Q	|	|	|	V|
24+10	35.4732	1.83	Q	|	|	|	V|
24+15	35.4839	1.56	Q	|	|	|	V|
24+20	35.4917	1.13	Q	|	|	|	V|
24+25	35.4975	0.84	Q	|	|	|	V|
24+30	35.5021	0.67	Q	|	|	|	V|
24+35	35.5059	0.55	Q	|	|	|	V|
24+40	35.5091	0.46	Q	|	|	|	V|
24+45	35.5117	0.38	Q	|	|	|	V|
24+50	35.5139	0.32	Q	|	|	|	V|
24+55	35.5158	0.27	Q	|	|	|	V|
25+ 0	35.5174	0.23	Q	|	|	|	V|
25+ 5	35.5187	0.20	Q	|	|	|	V|
25+10	35.5199	0.17	Q	|	|	|	V|
25+15	35.5209	0.15	Q	|	|	|	V|
25+20	35.5218	0.12	Q	|	|	|	V|
25+25	35.5225	0.11	Q	|	|	|	V|
25+30	35.5231	0.09	Q	|	|	|	V|
25+35	35.5236	0.07	Q	|	|	|	V|
25+40	35.5240	0.06	Q	|	|	|	V|
25+45	35.5244	0.05	Q	|	|	|	V|
25+50	35.5247	0.04	Q	|	|	|	V|
25+55	35.5250	0.04	Q	|	|	|	V|
26+ 0	35.5252	0.03	Q	|	|	|	V|
26+ 5	35.5254	0.03	Q	|	|	|	V|
26+10	35.5255	0.02	Q	|	|	|	V|
26+15	35.5256	0.02	Q	|	|	|	V|
26+20	35.5257	0.01	Q	|	|	|	V|
26+25	35.5257	0.01	Q	|	|	|	V|
26+30	35.5258	0.00	Q	|	|	|	V

100 YEAR – 1 HOUR
OFFSITE F_1

```
      U n i t   H y d r o g r a p h   A n a l y s i s

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            Study date  07/23/19 File: c318offsiteF11100.out

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------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6222

---------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



---------------------------------------------------------------------
St. Frances of Rome - Wildomar
Offsite (F1)
100-Year 1-Hour
--------------------------------------------------------------------
Drainage Area =      274.15(Ac.)  =       0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      274.15(Ac.)  =       0.428 Sq.
Mi.
Length along longest watercourse =    8033.90(Ft.)
Length along longest watercourse measured to centroid =    4835.60(Ft.)
Length along longest watercourse =      1.522 Mi.
Length along longest watercourse measured to centroid =      0.916 Mi.
Difference in elevation =     864.00(Ft.)
Slope along watercourse =    567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.326 Hr.
Lag time =    19.58 Min.
25% of lag time =     4.90 Min.
40% of lag time =     7.83 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      274.15              0.47                  128.30

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      274.15              1.30                  356.39

STORM EVENT (YEAR) =  100.00
```

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 1.300(In)
Areal adjustment factor = 99.75 %
Adjusted average point rain = 1.297(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	82.5	0.215	0.169	0.182	1.000	0.182
					Sum (F) =	0.182

Area averaged mean soil loss (F) (In/Hr) = 0.182
Minimum soil loss rate ((In/Hr)) = 0.091
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847

28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476
30	2.500	765.966	0.160	0.441
31	2.583	791.498	0.168	0.463
			Sum = 100.000	Sum= 276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	4.40	0.685	0.182	(0.524)	0.502
2	0.17	4.50	0.700	0.182	(0.536)	0.518
3	0.25	5.40	0.840	0.182	(0.643)	0.658
4	0.33	5.40	0.840	0.182	(0.643)	0.658
5	0.42	5.70	0.887	0.182	(0.679)	0.705
6	0.50	6.40	0.996	0.182	(0.762)	0.814
7	0.58	7.90	1.229	0.182	(0.940)	1.047
8	0.67	9.10	1.416	0.182	(1.083)	1.234
9	0.75	12.80	1.992	0.182	(1.524)	1.810
10	0.83	25.60	3.984	0.182	(3.048)	3.801
11	0.92	7.90	1.229	0.182	(0.940)	1.047
12	1.00	4.90	0.763	0.182	(0.583)	0.580

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.4

Flood volume = Effective rainfall 1.11(In)
times area 274.1(Ac.)/[(In)/(Ft.)] = 25.5(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 4.163(Ac.Ft)
Total rainfall = 1.30(In)
Flood volume = 1109141.7 Cubic Feet
Total soil loss = 181357.9 Cubic Feet

Peak flow rate of this hydrograph = 432.186(CFS)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    1 - H O U R    S T O R M
               R u n o f f      H y d r o g r a p h
--------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

--------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      125.0     250.0     375.0     500.0
-----------------------------------------------------------------------
  0+ 5       0.0133      1.93   Q         |         |         |         |
  0+10       0.0790      9.54   Q         |         |         |         |
  0+15       0.2840     29.77   V Q       |         |         |         |
  0+20       0.7166     62.82   |V   Q    |         |         |         |
  0+25       1.3325     89.42   | V    Q  |         |         |         |
  0+30       2.1023    111.78   |  V    Q |         |         |         |
  0+35       3.0029    130.76   |   V     Q         |         |         |
  0+40       4.0514    152.24   |     V   | Q       |         |         |
  0+45       5.3082    182.49   |       V |   Q     |         |         |
  0+50       6.9038    231.69   |         V       Q |         |         |
  0+55       8.9867    302.43   |         |   V     |   Q     |         |
  1+ 0      11.6799    391.05   |         |       V |         |Q        |
  1+ 5      14.6564    432.19   |         |         |  V      |   Q     |
  1+10      17.0202    343.23   |         |         |     VQ  |         |
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    1+15        18.7367     249.23  |          |         Q|         V|         |
    1+20        19.9615     177.83  |          |    Q     |          |V        |
    1+25        20.8817     133.61  |          Q          |          | V       |
    1+30        21.6088     105.59  |        Q |          |          |  V      |
    1+35        22.2000      85.83  |      Q   |          |          |   V     |
    1+40        22.6956      71.97  |     Q    |          |          |    V    |
    1+45        23.1118      60.43  |    Q     |          |          |     V   |
    1+50        23.4577      50.23  |    Q     |          |          |     V   |
    1+55        23.7525      42.80  |   Q      |          |          |      V  |
    2+ 0        24.0062      36.84  | Q        |          |          |      V  |
    2+ 5        24.2267      32.01  | Q        |          |          |       V |
    2+10        24.4154      27.40  | Q        |          |          |       V |
    2+15        24.5810      24.05  |Q         |          |          |       V |
    2+20        24.7230      20.62  |Q         |          |          |       V |
    2+25        24.8464      17.92  |Q         |          |          |        V|
    2+30        24.9492      14.92  |Q         |          |          |        V|
    2+35        25.0375      12.83  |Q         |          |          |        V|
    2+40        25.1089      10.36  Q          |          |          |        V|
    2+45        25.1728       9.27  Q          |          |          |        V|
    2+50        25.2331       8.76  Q          |          |          |        V|
    2+55        25.2895       8.18  Q          |          |          |        V|
    3+ 0        25.3406       7.42  Q          |          |          |        V|
    3+ 5        25.3835       6.23  Q          |          |          |        V|
    3+10        25.4144       4.49  Q          |          |          |        V|
    3+15        25.4382       3.46  Q          |          |          |        V|
    3+20        25.4554       2.50  Q          |          |          |        V|
    3+25        25.4605       0.74  Q          |          |          |        V|
    3+30        25.4624       0.27  Q          |          |          |         V
-----------------------------------------------------------------------
```

100 YEAR – 24 HOUR
OFFSITE F_1

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F1)
100-Year 24-Hour

Drainage Area = 274.15(Ac.) = 0.428 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 274.15(Ac.) = 0.428 Sq. Mi.
Length along longest watercourse = 8033.90(Ft.)
Length along longest watercourse measured to centroid = 4835.60(Ft.)
Length along longest watercourse = 1.522 Mi.
Length along longest watercourse measured to centroid = 0.916 Mi.
Difference in elevation = 864.00(Ft.)
Slope along watercourse = 567.8338 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.326 Hr.
Lag time = 19.58 Min.
25% of lag time = 4.90 Min.
40% of lag time = 7.83 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	2.23	611.35

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
274.15	5.95	1631.19

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 99.95 %
Adjusted average point rain = 5.947(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
274.150	82.55	0.169

Total Area Entered = 274.15(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
82.5	82.5	0.215	0.169	0.182	1.000	0.182
					Sum (F) =	0.182

Area averaged mean soil loss (F) (In/Hr) = 0.182
Minimum soil loss rate ((In/Hr)) = 0.091
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.765

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	25.532	1.390	3.840
2	0.167	51.064	5.432	15.008
3	0.250	76.597	14.016	38.724
4	0.333	102.129	21.841	60.345
5	0.417	127.661	14.445	39.909
6	0.500	153.193	8.754	24.186
7	0.583	178.725	6.241	17.242
8	0.667	204.258	4.728	13.064
9	0.750	229.790	3.691	10.197
10	0.833	255.322	2.953	8.159
11	0.917	280.854	2.536	7.008
12	1.000	306.386	2.148	5.935
13	1.083	331.919	1.672	4.619
14	1.167	357.451	1.448	4.001
15	1.250	382.983	1.272	3.514
16	1.333	408.515	1.133	3.131
17	1.417	434.047	0.925	2.555
18	1.500	459.580	0.854	2.359
19	1.583	485.112	0.704	1.944
20	1.667	510.644	0.646	1.785
21	1.750	536.176	0.494	1.366
22	1.833	561.708	0.438	1.210
23	1.917	587.240	0.285	0.788
24	2.000	612.773	0.262	0.723
25	2.083	638.305	0.300	0.829
26	2.167	663.837	0.306	0.847
27	2.250	689.369	0.306	0.847
28	2.333	714.901	0.281	0.777
29	2.417	740.434	0.172	0.476

30	2.500	765.966	0.160	0.441
31	2.583	791.498	0.168	0.463
			Sum = 100.000	Sum= 276.292

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.323)	0.036	0.011
2	0.17	0.07	0.048	(0.322)	0.036	0.011
3	0.25	0.07	0.048	(0.321)	0.036	0.011
4	0.33	0.10	0.071	(0.319)	0.055	0.017
5	0.42	0.10	0.071	(0.318)	0.055	0.017
6	0.50	0.10	0.071	(0.317)	0.055	0.017
7	0.58	0.10	0.071	(0.316)	0.055	0.017
8	0.67	0.10	0.071	(0.314)	0.055	0.017
9	0.75	0.10	0.071	(0.313)	0.055	0.017
10	0.83	0.13	0.095	(0.312)	0.073	0.022
11	0.92	0.13	0.095	(0.311)	0.073	0.022
12	1.00	0.13	0.095	(0.309)	0.073	0.022
13	1.08	0.10	0.071	(0.308)	0.055	0.017
14	1.17	0.10	0.071	(0.307)	0.055	0.017
15	1.25	0.10	0.071	(0.306)	0.055	0.017
16	1.33	0.10	0.071	(0.305)	0.055	0.017
17	1.42	0.10	0.071	(0.303)	0.055	0.017
18	1.50	0.10	0.071	(0.302)	0.055	0.017
19	1.58	0.10	0.071	(0.301)	0.055	0.017
20	1.67	0.10	0.071	(0.300)	0.055	0.017
21	1.75	0.10	0.071	(0.299)	0.055	0.017
22	1.83	0.13	0.095	(0.297)	0.073	0.022
23	1.92	0.13	0.095	(0.296)	0.073	0.022
24	2.00	0.13	0.095	(0.295)	0.073	0.022
25	2.08	0.13	0.095	(0.294)	0.073	0.022
26	2.17	0.13	0.095	(0.293)	0.073	0.022
27	2.25	0.13	0.095	(0.291)	0.073	0.022
28	2.33	0.13	0.095	(0.290)	0.073	0.022
29	2.42	0.13	0.095	(0.289)	0.073	0.022
30	2.50	0.13	0.095	(0.288)	0.073	0.022
31	2.58	0.17	0.119	(0.287)	0.091	0.028
32	2.67	0.17	0.119	(0.285)	0.091	0.028
33	2.75	0.17	0.119	(0.284)	0.091	0.028
34	2.83	0.17	0.119	(0.283)	0.091	0.028
35	2.92	0.17	0.119	(0.282)	0.091	0.028
36	3.00	0.17	0.119	(0.281)	0.091	0.028
37	3.08	0.17	0.119	(0.280)	0.091	0.028
38	3.17	0.17	0.119	(0.278)	0.091	0.028
39	3.25	0.17	0.119	(0.277)	0.091	0.028
40	3.33	0.17	0.119	(0.276)	0.091	0.028
41	3.42	0.17	0.119	(0.275)	0.091	0.028
42	3.50	0.17	0.119	(0.274)	0.091	0.028
43	3.58	0.17	0.119	(0.273)	0.091	0.028
44	3.67	0.17	0.119	(0.272)	0.091	0.028
45	3.75	0.17	0.119	(0.270)	0.091	0.028
46	3.83	0.20	0.143	(0.269)	0.109	0.034
47	3.92	0.20	0.143	(0.268)	0.109	0.034
48	4.00	0.20	0.143	(0.267)	0.109	0.034
49	4.08	0.20	0.143	(0.266)	0.109	0.034

50	4.17	0.20	0.143	(0.265)	0.109	0.034
51	4.25	0.20	0.143	(0.264)	0.109	0.034
52	4.33	0.23	0.167	(0.262)	0.127	0.039
53	4.42	0.23	0.167	(0.261)	0.127	0.039
54	4.50	0.23	0.167	(0.260)	0.127	0.039
55	4.58	0.23	0.167	(0.259)	0.127	0.039
56	4.67	0.23	0.167	(0.258)	0.127	0.039
57	4.75	0.23	0.167	(0.257)	0.127	0.039
58	4.83	0.27	0.190	(0.256)	0.146	0.045
59	4.92	0.27	0.190	(0.255)	0.146	0.045
60	5.00	0.27	0.190	(0.254)	0.146	0.045
61	5.08	0.20	0.143	(0.252)	0.109	0.034
62	5.17	0.20	0.143	(0.251)	0.109	0.034
63	5.25	0.20	0.143	(0.250)	0.109	0.034
64	5.33	0.23	0.167	(0.249)	0.127	0.039
65	5.42	0.23	0.167	(0.248)	0.127	0.039
66	5.50	0.23	0.167	(0.247)	0.127	0.039
67	5.58	0.27	0.190	(0.246)	0.146	0.045
68	5.67	0.27	0.190	(0.245)	0.146	0.045
69	5.75	0.27	0.190	(0.244)	0.146	0.045
70	5.83	0.27	0.190	(0.243)	0.146	0.045
71	5.92	0.27	0.190	(0.242)	0.146	0.045
72	6.00	0.27	0.190	(0.241)	0.146	0.045
73	6.08	0.30	0.214	(0.239)	0.164	0.050
74	6.17	0.30	0.214	(0.238)	0.164	0.050
75	6.25	0.30	0.214	(0.237)	0.164	0.050
76	6.33	0.30	0.214	(0.236)	0.164	0.050
77	6.42	0.30	0.214	(0.235)	0.164	0.050
78	6.50	0.30	0.214	(0.234)	0.164	0.050
79	6.58	0.33	0.238	(0.233)	0.182	0.056
80	6.67	0.33	0.238	(0.232)	0.182	0.056
81	6.75	0.33	0.238	(0.231)	0.182	0.056
82	6.83	0.33	0.238	(0.230)	0.182	0.056
83	6.92	0.33	0.238	(0.229)	0.182	0.056
84	7.00	0.33	0.238	(0.228)	0.182	0.056
85	7.08	0.33	0.238	(0.227)	0.182	0.056
86	7.17	0.33	0.238	(0.226)	0.182	0.056
87	7.25	0.33	0.238	(0.225)	0.182	0.056
88	7.33	0.37	0.262	(0.224)	0.200	0.061
89	7.42	0.37	0.262	(0.223)	0.200	0.061
90	7.50	0.37	0.262	(0.222)	0.200	0.061
91	7.58	0.40	0.285	(0.221)	0.218	0.067
92	7.67	0.40	0.285	(0.220)	0.218	0.067
93	7.75	0.40	0.285	(0.219)	0.218	0.067
94	7.83	0.43	0.309	0.218	(0.237)	0.092
95	7.92	0.43	0.309	0.217	(0.237)	0.093
96	8.00	0.43	0.309	0.216	(0.237)	0.094
97	8.08	0.50	0.357	0.215	(0.273)	0.142
98	8.17	0.50	0.357	0.214	(0.273)	0.143
99	8.25	0.50	0.357	0.213	(0.273)	0.144
100	8.33	0.50	0.357	0.212	(0.273)	0.145
101	8.42	0.50	0.357	0.211	(0.273)	0.146
102	8.50	0.50	0.357	0.210	(0.273)	0.147
103	8.58	0.53	0.381	0.209	(0.291)	0.172
104	8.67	0.53	0.381	0.208	(0.291)	0.173
105	8.75	0.53	0.381	0.207	(0.291)	0.174
106	8.83	0.57	0.404	0.206	(0.309)	0.199
107	8.92	0.57	0.404	0.205	(0.309)	0.200
108	9.00	0.57	0.404	0.204	(0.309)	0.201
109	9.08	0.63	0.452	0.203	(0.346)	0.249

110	9.17	0.63	0.452	0.202	(0.346)	0.250
111	9.25	0.63	0.452	0.201	(0.346)	0.251
112	9.33	0.67	0.476	0.200	(0.364)	0.276
113	9.42	0.67	0.476	0.199	(0.364)	0.277
114	9.50	0.67	0.476	0.198	(0.364)	0.278
115	9.58	0.70	0.500	0.197	(0.382)	0.302
116	9.67	0.70	0.500	0.196	(0.382)	0.303
117	9.75	0.70	0.500	0.195	(0.382)	0.304
118	9.83	0.73	0.523	0.194	(0.400)	0.329
119	9.92	0.73	0.523	0.193	(0.400)	0.330
120	10.00	0.73	0.523	0.192	(0.400)	0.331
121	10.08	0.50	0.357	0.192	(0.273)	0.165
122	10.17	0.50	0.357	0.191	(0.273)	0.166
123	10.25	0.50	0.357	0.190	(0.273)	0.167
124	10.33	0.50	0.357	0.189	(0.273)	0.168
125	10.42	0.50	0.357	0.188	(0.273)	0.169
126	10.50	0.50	0.357	0.187	(0.273)	0.170
127	10.58	0.67	0.476	0.186	(0.364)	0.290
128	10.67	0.67	0.476	0.185	(0.364)	0.291
129	10.75	0.67	0.476	0.184	(0.364)	0.292
130	10.83	0.67	0.476	0.183	(0.364)	0.292
131	10.92	0.67	0.476	0.182	(0.364)	0.293
132	11.00	0.67	0.476	0.181	(0.364)	0.294
133	11.08	0.63	0.452	0.181	(0.346)	0.271
134	11.17	0.63	0.452	0.180	(0.346)	0.272
135	11.25	0.63	0.452	0.179	(0.346)	0.273
136	11.33	0.63	0.452	0.178	(0.346)	0.274
137	11.42	0.63	0.452	0.177	(0.346)	0.275
138	11.50	0.63	0.452	0.176	(0.346)	0.276
139	11.58	0.57	0.404	0.175	(0.309)	0.229
140	11.67	0.57	0.404	0.174	(0.309)	0.230
141	11.75	0.57	0.404	0.174	(0.309)	0.231
142	11.83	0.60	0.428	0.173	(0.328)	0.255
143	11.92	0.60	0.428	0.172	(0.328)	0.256
144	12.00	0.60	0.428	0.171	(0.328)	0.257
145	12.08	0.83	0.595	0.170	(0.455)	0.425
146	12.17	0.83	0.595	0.169	(0.455)	0.425
147	12.25	0.83	0.595	0.168	(0.455)	0.426
148	12.33	0.87	0.618	0.168	(0.473)	0.451
149	12.42	0.87	0.618	0.167	(0.473)	0.452
150	12.50	0.87	0.618	0.166	(0.473)	0.453
151	12.58	0.93	0.666	0.165	(0.510)	0.501
152	12.67	0.93	0.666	0.164	(0.510)	0.502
153	12.75	0.93	0.666	0.163	(0.510)	0.503
154	12.83	0.97	0.690	0.163	(0.528)	0.527
155	12.92	0.97	0.690	0.162	(0.528)	0.528
156	13.00	0.97	0.690	0.161	(0.528)	0.529
157	13.08	1.13	0.809	0.160	(0.619)	0.649
158	13.17	1.13	0.809	0.159	(0.619)	0.649
159	13.25	1.13	0.809	0.158	(0.619)	0.650
160	13.33	1.13	0.809	0.158	(0.619)	0.651
161	13.42	1.13	0.809	0.157	(0.619)	0.652
162	13.50	1.13	0.809	0.156	(0.619)	0.653
163	13.58	0.77	0.547	0.155	(0.419)	0.392
164	13.67	0.77	0.547	0.155	(0.419)	0.393
165	13.75	0.77	0.547	0.154	(0.419)	0.393
166	13.83	0.77	0.547	0.153	(0.419)	0.394
167	13.92	0.77	0.547	0.152	(0.419)	0.395
168	14.00	0.77	0.547	0.151	(0.419)	0.396
169	14.08	0.90	0.642	0.151	(0.491)	0.492

170	14.17	0.90	0.642	0.150	(0.491)	0.492
171	14.25	0.90	0.642	0.149	(0.491)	0.493
172	14.33	0.87	0.618	0.148	(0.473)	0.470
173	14.42	0.87	0.618	0.148	(0.473)	0.471
174	14.50	0.87	0.618	0.147	(0.473)	0.472
175	14.58	0.87	0.618	0.146	(0.473)	0.472
176	14.67	0.87	0.618	0.145	(0.473)	0.473
177	14.75	0.87	0.618	0.145	(0.473)	0.474
178	14.83	0.83	0.595	0.144	(0.455)	0.451
179	14.92	0.83	0.595	0.143	(0.455)	0.452
180	15.00	0.83	0.595	0.142	(0.455)	0.452
181	15.08	0.80	0.571	0.142	(0.437)	0.429
182	15.17	0.80	0.571	0.141	(0.437)	0.430
183	15.25	0.80	0.571	0.140	(0.437)	0.431
184	15.33	0.77	0.547	0.139	(0.419)	0.408
185	15.42	0.77	0.547	0.139	(0.419)	0.408
186	15.50	0.77	0.547	0.138	(0.419)	0.409
187	15.58	0.63	0.452	0.137	(0.346)	0.315
188	15.67	0.63	0.452	0.137	(0.346)	0.315
189	15.75	0.63	0.452	0.136	(0.346)	0.316
190	15.83	0.63	0.452	0.135	(0.346)	0.317
191	15.92	0.63	0.452	0.135	(0.346)	0.317
192	16.00	0.63	0.452	0.134	(0.346)	0.318
193	16.08	0.13	0.095	(0.133)	0.073	0.022
194	16.17	0.13	0.095	(0.132)	0.073	0.022
195	16.25	0.13	0.095	(0.132)	0.073	0.022
196	16.33	0.13	0.095	(0.131)	0.073	0.022
197	16.42	0.13	0.095	(0.130)	0.073	0.022
198	16.50	0.13	0.095	(0.130)	0.073	0.022
199	16.58	0.10	0.071	(0.129)	0.055	0.017
200	16.67	0.10	0.071	(0.128)	0.055	0.017
201	16.75	0.10	0.071	(0.128)	0.055	0.017
202	16.83	0.10	0.071	(0.127)	0.055	0.017
203	16.92	0.10	0.071	(0.127)	0.055	0.017
204	17.00	0.10	0.071	(0.126)	0.055	0.017
205	17.08	0.17	0.119	(0.125)	0.091	0.028
206	17.17	0.17	0.119	(0.125)	0.091	0.028
207	17.25	0.17	0.119	(0.124)	0.091	0.028
208	17.33	0.17	0.119	(0.123)	0.091	0.028
209	17.42	0.17	0.119	(0.123)	0.091	0.028
210	17.50	0.17	0.119	(0.122)	0.091	0.028
211	17.58	0.17	0.119	(0.122)	0.091	0.028
212	17.67	0.17	0.119	(0.121)	0.091	0.028
213	17.75	0.17	0.119	(0.120)	0.091	0.028
214	17.83	0.13	0.095	(0.120)	0.073	0.022
215	17.92	0.13	0.095	(0.119)	0.073	0.022
216	18.00	0.13	0.095	(0.119)	0.073	0.022
217	18.08	0.13	0.095	(0.118)	0.073	0.022
218	18.17	0.13	0.095	(0.117)	0.073	0.022
219	18.25	0.13	0.095	(0.117)	0.073	0.022
220	18.33	0.13	0.095	(0.116)	0.073	0.022
221	18.42	0.13	0.095	(0.116)	0.073	0.022
222	18.50	0.13	0.095	(0.115)	0.073	0.022
223	18.58	0.10	0.071	(0.115)	0.055	0.017
224	18.67	0.10	0.071	(0.114)	0.055	0.017
225	18.75	0.10	0.071	(0.113)	0.055	0.017
226	18.83	0.07	0.048	(0.113)	0.036	0.011
227	18.92	0.07	0.048	(0.112)	0.036	0.011
228	19.00	0.07	0.048	(0.112)	0.036	0.011
229	19.08	0.10	0.071	(0.111)	0.055	0.017

230	19.17	0.10	0.071	(0.111)	0.055	0.017
231	19.25	0.10	0.071	(0.110)	0.055	0.017
232	19.33	0.13	0.095	(0.110)	0.073	0.022
233	19.42	0.13	0.095	(0.109)	0.073	0.022
234	19.50	0.13	0.095	(0.109)	0.073	0.022
235	19.58	0.10	0.071	(0.108)	0.055	0.017
236	19.67	0.10	0.071	(0.108)	0.055	0.017
237	19.75	0.10	0.071	(0.107)	0.055	0.017
238	19.83	0.07	0.048	(0.107)	0.036	0.011
239	19.92	0.07	0.048	(0.106)	0.036	0.011
240	20.00	0.07	0.048	(0.106)	0.036	0.011
241	20.08	0.10	0.071	(0.105)	0.055	0.017
242	20.17	0.10	0.071	(0.105)	0.055	0.017
243	20.25	0.10	0.071	(0.104)	0.055	0.017
244	20.33	0.10	0.071	(0.104)	0.055	0.017
245	20.42	0.10	0.071	(0.104)	0.055	0.017
246	20.50	0.10	0.071	(0.103)	0.055	0.017
247	20.58	0.10	0.071	(0.103)	0.055	0.017
248	20.67	0.10	0.071	(0.102)	0.055	0.017
249	20.75	0.10	0.071	(0.102)	0.055	0.017
250	20.83	0.07	0.048	(0.101)	0.036	0.011
251	20.92	0.07	0.048	(0.101)	0.036	0.011
252	21.00	0.07	0.048	(0.101)	0.036	0.011
253	21.08	0.10	0.071	(0.100)	0.055	0.017
254	21.17	0.10	0.071	(0.100)	0.055	0.017
255	21.25	0.10	0.071	(0.099)	0.055	0.017
256	21.33	0.07	0.048	(0.099)	0.036	0.011
257	21.42	0.07	0.048	(0.099)	0.036	0.011
258	21.50	0.07	0.048	(0.098)	0.036	0.011
259	21.58	0.10	0.071	(0.098)	0.055	0.017
260	21.67	0.10	0.071	(0.098)	0.055	0.017
261	21.75	0.10	0.071	(0.097)	0.055	0.017
262	21.83	0.07	0.048	(0.097)	0.036	0.011
263	21.92	0.07	0.048	(0.097)	0.036	0.011
264	22.00	0.07	0.048	(0.096)	0.036	0.011
265	22.08	0.10	0.071	(0.096)	0.055	0.017
266	22.17	0.10	0.071	(0.096)	0.055	0.017
267	22.25	0.10	0.071	(0.095)	0.055	0.017
268	22.33	0.07	0.048	(0.095)	0.036	0.011
269	22.42	0.07	0.048	(0.095)	0.036	0.011
270	22.50	0.07	0.048	(0.094)	0.036	0.011
271	22.58	0.07	0.048	(0.094)	0.036	0.011
272	22.67	0.07	0.048	(0.094)	0.036	0.011
273	22.75	0.07	0.048	(0.094)	0.036	0.011
274	22.83	0.07	0.048	(0.093)	0.036	0.011
275	22.92	0.07	0.048	(0.093)	0.036	0.011
276	23.00	0.07	0.048	(0.093)	0.036	0.011
277	23.08	0.07	0.048	(0.093)	0.036	0.011
278	23.17	0.07	0.048	(0.092)	0.036	0.011
279	23.25	0.07	0.048	(0.092)	0.036	0.011
280	23.33	0.07	0.048	(0.092)	0.036	0.011
281	23.42	0.07	0.048	(0.092)	0.036	0.011
282	23.50	0.07	0.048	(0.092)	0.036	0.011
283	23.58	0.07	0.048	(0.092)	0.036	0.011
284	23.67	0.07	0.048	(0.091)	0.036	0.011
285	23.75	0.07	0.048	(0.091)	0.036	0.011
286	23.83	0.07	0.048	(0.091)	0.036	0.011
287	23.92	0.07	0.048	(0.091)	0.036	0.011
288	24.00	0.07	0.048	(0.091)	0.036	0.011

(Loss Rate Not Used)

```
Sum =     100.0                                             Sum =     38.5
 Flood volume = Effective rainfall      3.21(In)
  times area     274.1(Ac.)/[(In)/(Ft.)] =      73.3(Ac.Ft)
 Total soil loss =      2.74(In)
 Total soil loss =    62.570(Ac.Ft)
 Total rainfall =      5.95(In)
 Flood volume =     3192518.7 Cubic Feet
 Total soil loss =     2725539.5 Cubic Feet
 --------------------------------------------------------------------
  Peak flow rate of this hydrograph =    164.612(CFS)
 --------------------------------------------------------------------
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R   S T O R M
              R u n o f f     H y d r o g r a p h
 --------------------------------------------------------------------
             Hydrograph in   5  Minute intervals ((CFS))

 --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        50.0     100.0     150.0     200.0
----------------------------------------------------------------------
  0+ 5       0.0003       0.04  Q         |         |         |         |
  0+10       0.0017       0.21  Q         |         |         |         |
  0+15       0.0062       0.64  Q         |         |         |         |
  0+20       0.0154       1.34  Q         |         |         |         |
  0+25       0.0283       1.87  Q         |         |         |         |
  0+30       0.0445       2.36  Q         |         |         |         |
  0+35       0.0644       2.89  Q         |         |         |         |
  0+40       0.0869       3.26  Q         |         |         |         |
  0+45       0.1110       3.51  Q         |         |         |         |
  0+50       0.1366       3.72  Q         |         |         |         |
  0+55       0.1638       3.95  Q         |         |         |         |
  1+ 0       0.1934       4.29  Q         |         |         |         |
  1+ 5       0.2258       4.70  Q         |         |         |         |
  1+10       0.2597       4.93  Q         |         |         |         |
  1+15       0.2936       4.92  Q         |         |         |         |
  1+20       0.3262       4.74  Q         |         |         |         |
  1+25       0.3582       4.64  Q         |         |         |         |
  1+30       0.3899       4.61  Q         |         |         |         |
  1+35       0.4216       4.60  Q         |         |         |         |
  1+40       0.4532       4.60  Q         |         |         |         |
  1+45       0.4849       4.60  Q         |         |         |         |
  1+50       0.5168       4.63  Q         |         |         |         |
  1+55       0.5493       4.71  Q         |         |         |         |
  2+ 0       0.5832       4.93  Q         |         |         |         |
  2+ 5       0.6196       5.28  VQ        |         |         |         |
  2+10       0.6575       5.51  VQ        |         |         |         |
  2+15       0.6964       5.65  VQ        |         |         |         |
  2+20       0.7360       5.75  VQ        |         |         |         |
  2+25       0.7762       5.83  VQ        |         |         |         |
  2+30       0.8167       5.89  VQ        |         |         |         |
  2+35       0.8578       5.96  VQ        |         |         |         |
  2+40       0.8997       6.08  VQ        |         |         |         |
  2+45       0.9433       6.33  VQ        |         |         |         |
  2+50       0.9894       6.70  VQ        |         |         |         |
  2+55       1.0373       6.94  VQ        |         |         |         |
  3+ 0       1.0861       7.10  VQ        |         |         |         |
  3+ 5       1.1358       7.21  VQ        |         |         |         |
  3+10       1.1861       7.30  VQ        |         |         |         |
  3+15       1.2368       7.37  VQ        |         |         |         |
  3+20       1.2879       7.42  VQ        |         |         |         |
```

```
 3+25        1.3393      7.47  VQ          |           |           |           |
 3+30        1.3910      7.50  VQ          |           |           |           |
 3+35        1.4429      7.53  VQ          |           |           |           |
 3+40        1.4950      7.56  VQ          |           |           |           |
 3+45        1.5472      7.59  VQ          |           |           |           |
 3+50        1.5998      7.63  VQ          |           |           |           |
 3+55        1.6530      7.73  VQ          |           |           |           |
 4+ 0        1.7079      7.97  VQ          |           |           |           |
 4+ 5        1.7652      8.32  VQ          |           |           |           |
 4+10        1.8241      8.55  VQ          |           |           |           |
 4+15        1.8840      8.70  |Q          |           |           |           |
 4+20        1.9448      8.83  |Q          |           |           |           |
 4+25        2.0067      8.99  |Q          |           |           |           |
 4+30        2.0705      9.27  |Q          |           |           |           |
 4+35        2.1370      9.65  |Q          |           |           |           |
 4+40        2.2054      9.92  |Q          |           |           |           |
 4+45        2.2749     10.09  |VQ         |           |           |           |
 4+50        2.3454     10.24  |VQ         |           |           |           |
 4+55        2.4172     10.42  |VQ         |           |           |           |
 5+ 0        2.4910     10.72  |VQ         |           |           |           |
 5+ 5        2.5674     11.08  |VQ         |           |           |           |
 5+10        2.6444     11.19  |VQ         |           |           |           |
 5+15        2.7198     10.94  |VQ         |           |           |           |
 5+20        2.7915     10.42  |VQ         |           |           |           |
 5+25        2.8615     10.16  |VQ         |           |           |           |
 5+30        2.9317     10.19  |VQ         |           |           |           |
 5+35        3.0035     10.43  |VQ         |           |           |           |
 5+40        3.0768     10.65  |VQ         |           |           |           |
 5+45        3.1521     10.93  |VQ         |           |           |           |
 5+50        3.2301     11.32  |VQ         |           |           |           |
 5+55        3.3098     11.57  |VQ         |           |           |           |
 6+ 0        3.3906     11.73  |VQ         |           |           |           |
 6+ 5        3.4723     11.87  |VQ         |           |           |           |
 6+10        3.5553     12.04  |VQ         |           |           |           |
 6+15        3.6402     12.33  |VQ         |           |           |           |
 6+20        3.7278     12.72  | Q         |           |           |           |
 6+25        3.8173     12.99  | Q         |           |           |           |
 6+30        3.9080     13.17  | Q         |           |           |           |
 6+35        3.9998     13.32  | Q         |           |           |           |
 6+40        4.0927     13.50  | Q         |           |           |           |
 6+45        4.1878     13.80  | Q         |           |           |           |
 6+50        4.2856     14.20  | Q         |           |           |           |
 6+55        4.3853     14.49  | Q         |           |           |           |
 7+ 0        4.4864     14.67  | Q         |           |           |           |
 7+ 5        4.5884     14.81  | Q         |           |           |           |
 7+10        4.6910     14.91  | Q         |           |           |           |
 7+15        4.7943     14.99  | Q         |           |           |           |
 7+20        4.8982     15.08  | VQ        |           |           |           |
 7+25        5.0030     15.22  | VQ        |           |           |           |
 7+30        5.1097     15.49  | VQ        |           |           |           |
 7+35        5.2191     15.89  | VQ        |           |           |           |
 7+40        5.3309     16.24  | VQ        |           |           |           |
 7+45        5.4454     16.62  | VQ        |           |           |           |
 7+50        5.5637     17.18  |  Q        |           |           |           |
 7+55        5.6868     17.87  |  Q        |           |           |           |
 8+ 0        5.8180     19.05  |  Q        |           |           |           |
 8+ 5        5.9621     20.93  |  VQ       |           |           |           |
 8+10        6.1196     22.86  |  VQ       |           |           |           |
 8+15        6.2956     25.56  |  V Q      |           |           |           |
 8+20        6.4961     29.12  |  V Q      |           |           |           |
```

```
 8+25     6.7138     31.61  |  V  Q   |         |         |         |
 8+30     6.9430     33.28  |  V  Q   |         |         |         |
 8+35     7.1818     34.66  |  V  Q   |         |         |         |
 8+40     7.4303     36.08  |   V  Q  |         |         |         |
 8+45     7.6914     37.91  |   V  Q  |         |         |         |
 8+50     7.9683     40.21  |   V   Q |         |         |         |
 8+55     8.2591     42.22  |   V   Q |         |         |         |
 9+ 0     8.5646     44.36  |   V   Q |         |         |         |
 9+ 5     8.8880     46.96  |   V    Q|         |         |         |
 9+10     9.2286     49.45  |    V   Q|         |         |         |
 9+15     9.5909     52.61  |    V    Q         |         |         |
 9+20     9.9809     56.64  |    V    |Q        |         |         |
 9+25    10.3928     59.81  |    V    |Q        |         |         |
 9+30    10.8245     62.68  |    V    | Q       |         |         |
 9+35    11.2771     65.72  |     V   |  Q      |         |         |
 9+40    11.7473     68.28  |     V   |  Q      |         |         |
 9+45    12.2352     70.84  |     V   |   Q     |         |         |
 9+50    12.7427     73.69  |     V   |   Q     |         |         |
 9+55    13.2670     76.12  |      V  |    Q    |         |         |
10+ 0    13.8083     78.60  |      V  |    Q    |         |         |
10+ 5    14.3639     80.66  |      V  |     Q   |         |         |
10+10    14.9162     80.20  |       V |     Q   |         |         |
10+15    15.4346     75.27  |       V |    Q    |         |         |
10+20    15.8923     66.46  |       V |  Q      |         |         |
10+25    16.3114     60.85  |       V | Q       |         |         |
10+30    16.7090     57.73  |        V|Q        |         |         |
10+35    17.0955     56.11  |        V|Q        |         |         |
10+40    17.4841     56.43  |        V|Q        |         |         |
10+45    17.8972     59.98  |        V|Q        |         |         |
10+50    18.3543     66.38  |         V  Q      |         |         |
10+55    18.8397     70.48  |         V   Q     |         |         |
11+ 0    19.3415     72.86  |         V   Q     |         |         |
11+ 5    19.8547     74.52  |         V   Q     |         |         |
11+10    20.3746     75.48  |         |V   Q    |         |         |
11+15    20.8952     75.59  |         |V   Q    |         |         |
11+20    21.4117     75.00  |         |V  Q     |         |         |
11+25    21.9268     74.81  |         |V  Q     |         |         |
11+30    22.4426     74.88  |         | V Q     |         |         |
11+35    22.9581     74.85  |         | V Q     |         |         |
11+40    23.4698     74.30  |         | V Q     |         |         |
11+45    23.9705     72.70  |         |  VQ     |         |         |
11+50    24.4539     70.19  |         |  VQ     |         |         |
11+55    24.9286     68.93  |         |  Q      |         |         |
12+ 0    25.4037     68.99  |         |  Q      |         |         |
12+ 5    25.8892     70.50  |         |   Q     |         |         |
12+10    26.3958     73.55  |         |   Q     |         |         |
12+15    26.9487     80.28  |         |   V Q   |         |         |
12+20    27.5729     90.64  |         |    V  Q |         |         |
12+25    28.2466     97.82  |         |    V   Q|         |         |
12+30    28.9554    102.92  |         |    V    Q         |         |
12+35    29.6964    107.60  |         |     V   |Q        |         |
12+40    30.4658    111.71  |         |     V   | Q       |         |
12+45    31.2654    116.10  |         |      V  |  Q      |         |
12+50    32.0993    121.09  |         |      V  |   Q     |         |
12+55    32.9607    125.07  |         |      V  |    Q    |         |
13+ 0    33.8465    128.61  |         |       V |    Q    |         |
13+ 5    34.7593    132.54  |         |       V |     Q   |         |
13+10    35.7022    136.92  |         |        V|      Q  |         |
13+15    36.6906    143.51  |         |         V       Q |         |
13+20    37.7397    152.32  |         |         V         Q         |
```

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13+25    38.8310   158.46  |         |         |V        |Q        |
13+30    39.9504   162.55  |         |         |V        | Q       |
13+35    41.0841   164.61  |         |         | V       | Q       |
13+40    42.2078   163.16  |         |         |  V      | Q       |
13+45    43.2754   155.02  |         |         |  V      |Q        |
13+50    44.2459   140.91  |         |         |   V   Q |         |
13+55    45.1543   131.90  |         |         |   V Q   |         |
14+ 0    46.0279   126.85  |         |         |    Q    |         |
14+ 5    46.8805   123.80  |         |         |   QV    |         |
14+10    47.7263   122.82  |         |         |   Q V   |         |
14+15    48.5856   124.76  |         |         |   Q V   |         |
14+20    49.4749   129.13  |         |         |    Q V  |         |
14+25    50.3801   131.44  |         |         |     QV  |         |
14+30    51.2887   131.92  |         |         |     QV  |         |
14+35    52.1945   131.52  |         |         |     Q V |         |
14+40    53.0985   131.27  |         |         |     Q V |         |
14+45    54.0020   131.18  |         |         |     Q  V|         |
14+50    54.9046   131.06  |         |         |     Q  V|         |
14+55    55.8050   130.74  |         |         |     Q   V         |
15+ 0    56.6993   129.86  |         |         |    Q    V         |
15+ 5    57.5837   128.41  |         |         |    Q    |V        |
15+10    58.4595   127.17  |         |         |    Q    |V        |
15+15    59.3261   125.83  |         |         |    Q    | V       |
15+20    60.1805   124.07  |         |         |   Q     | V       |
15+25    61.0253   122.65  |         |         |   Q     |  V      |
15+30    61.8594   121.12  |         |         |   Q     |  V      |
15+35    62.6780   118.86  |         |         |  Q      |   V     |
15+40    63.4775   116.09  |         |         |  Q      |   V     |
15+45    64.2454   111.50  |         |         | Q       |    V    |
15+50    64.9693   105.10  |         |         |Q        |    V    |
15+55    65.6638   100.84  |         |         Q         |    V    |
16+ 0    66.3400    98.18  |         |        Q|         |     V   |
16+ 5    66.9953    95.15  |         |        Q|         |     V   |
16+10    67.6108    89.38  |         |      Q  |         |     V   |
16+15    68.1404    76.89  |         |    Q    |         |      V  |
16+20    68.5412    58.19  |         |Q        |         |      V  |
16+25    68.8554    45.62  |        Q|         |         |      V  |
16+30    69.1158    37.82  |      Q  |         |         |      V  |
16+35    69.3375    32.19  |     Q   |         |         |      V  |
16+40    69.5287    27.77  |    Q    |         |         |      V  |
16+45    69.6949    24.12  |   Q     |         |         |       V |
16+50    69.8395    21.00  |   Q     |         |         |       V |
16+55    69.9662    18.40  |  Q      |         |         |       V |
17+ 0    70.0780    16.24  |  Q      |         |         |       V |
17+ 5    70.1785    14.59  | Q       |         |         |       V |
17+10    70.2701    13.29  | Q       |         |         |       V |
17+15    70.3559    12.47  | Q       |         |         |       V |
17+20    70.4387    12.02  | Q       |         |         |       V |
17+25    70.5184    11.57  | Q       |         |         |       V |
17+30    70.5943    11.02  | Q       |         |         |       V |
17+35    70.6667    10.51  | Q       |         |         |       V |
17+40    70.7357    10.02  | Q       |         |         |       V |
17+45    70.8020     9.63  |Q        |         |         |       V |
17+50    70.8657     9.24  |Q        |         |         |       V |
17+55    70.9273     8.95  |Q        |         |         |       V |
18+ 0    70.9860     8.53  |Q        |         |         |       V |
18+ 5    71.0407     7.95  |Q        |         |         |       V |
18+10    71.0925     7.51  |Q        |         |         |       V |
18+15    71.1417     7.16  |Q        |         |         |       V |
18+20    71.1890     6.86  |Q        |         |         |       V |
```

18+25	71.2349	6.67	Q		V
18+30	71.2797	6.51	Q		V
18+35	71.3232	6.32	Q		V
18+40	71.3660	6.21	Q		V
18+45	71.4071	5.97	Q		V
18+50	71.4457	5.60	Q		V
18+55	71.4820	5.27	Q		V
19+ 0	71.5158	4.91	Q		V
19+ 5	71.5466	4.48	Q		V
19+10	71.5760	4.27	Q		V
19+15	71.6055	4.29	Q		V
19+20	71.6365	4.50	Q		V
19+25	71.6688	4.69	Q		V
19+30	71.7029	4.95	Q		V
19+35	71.7394	5.29	Q		V
19+40	71.7768	5.44	Q		V
19+45	71.8137	5.35	Q		V
19+50	71.8487	5.09	Q		V
19+55	71.8822	4.85	Q		V
20+ 0	71.9135	4.55	Q		V
20+ 5	71.9423	4.18	Q		V
20+10	71.9699	4.00	Q		V
20+15	71.9978	4.06	Q		V
20+20	72.0273	4.28	Q		V
20+25	72.0576	4.41	Q		V
20+30	72.0885	4.47	Q		V
20+35	72.1196	4.52	Q		V
20+40	72.1509	4.54	Q		V
20+45	72.1823	4.56	Q		V
20+50	72.2136	4.55	Q		V
20+55	72.2444	4.47	Q		V
21+ 0	72.2738	4.26	Q		V
21+ 5	72.3010	3.95	Q		V
21+10	72.3272	3.81	Q		V
21+15	72.3541	3.90	Q		V
21+20	72.3825	4.13	Q		V
21+25	72.4114	4.20	Q		V
21+30	72.4395	4.07	Q		V
21+35	72.4657	3.81	Q		V
21+40	72.4913	3.71	Q		V
21+45	72.5175	3.82	Q		V
21+50	72.5455	4.06	Q		V
21+55	72.5740	4.14	Q		V
22+ 0	72.6016	4.01	Q		V
22+ 5	72.6274	3.75	Q		V
22+10	72.6525	3.65	Q		V
22+15	72.6785	3.77	Q		V
22+20	72.7061	4.02	Q		V
22+25	72.7344	4.11	Q		V
22+30	72.7619	3.99	Q		V
22+35	72.7875	3.72	Q		V
22+40	72.8119	3.54	Q		V
22+45	72.8356	3.44	Q		V
22+50	72.8588	3.37	Q		V
22+55	72.8816	3.32	Q		V
23+ 0	72.9042	3.28	Q		V
23+ 5	72.9266	3.25	Q		V
23+10	72.9488	3.22	Q		V
23+15	72.9709	3.20	Q		V
23+20	72.9928	3.19	Q		V

23+25	73.0147	3.17	Q	|	|	|	V|
23+30	73.0364	3.16	Q	|	|	|	V|
23+35	73.0581	3.15	Q	|	|	|	V|
23+40	73.0798	3.14	Q	|	|	|	V|
23+45	73.1014	3.14	Q	|	|	|	V|
23+50	73.1229	3.13	Q	|	|	|	V|
23+55	73.1444	3.12	Q	|	|	|	V|
24+ 0	73.1659	3.12	Q	|	|	|	V|
24+ 5	73.1870	3.07	Q	|	|	|	V|
24+10	73.2070	2.90	Q	|	|	|	V|
24+15	73.2239	2.46	Q	|	|	|	V|
24+20	73.2362	1.79	Q	|	|	|	V|
24+25	73.2454	1.34	Q	|	|	|	V|
24+30	73.2528	1.06	Q	|	|	|	V|
24+35	73.2588	0.87	Q	|	|	|	V|
24+40	73.2637	0.72	Q	|	|	|	V|
24+45	73.2679	0.60	Q	|	|	|	V|
24+50	73.2714	0.51	Q	|	|	|	V|
24+55	73.2744	0.43	Q	|	|	|	V|
25+ 0	73.2769	0.37	Q	|	|	|	V|
25+ 5	73.2790	0.31	Q	|	|	|	V|
25+10	73.2809	0.27	Q	|	|	|	V|
25+15	73.2825	0.23	Q	|	|	|	V|
25+20	73.2838	0.19	Q	|	|	|	V|
25+25	73.2850	0.17	Q	|	|	|	V|
25+30	73.2859	0.14	Q	|	|	|	V|
25+35	73.2867	0.12	Q	|	|	|	V|
25+40	73.2874	0.10	Q	|	|	|	V|
25+45	73.2880	0.08	Q	|	|	|	V|
25+50	73.2885	0.07	Q	|	|	|	V|
25+55	73.2889	0.06	Q	|	|	|	V|
26+ 0	73.2892	0.05	Q	|	|	|	V|
26+ 5	73.2895	0.04	Q	|	|	|	V|
26+10	73.2898	0.03	Q	|	|	|	V|
26+15	73.2899	0.02	Q	|	|	|	V|
26+20	73.2900	0.02	Q	|	|	|	V|
26+25	73.2901	0.01	Q	|	|	|	V|
26+30	73.2901	0.01	Q	|	|	|	V

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2 YEAR – 1 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/23/19 File: c318offsiteF212.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
2-Year 1-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	0.47	14.91

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	1.30	41.41

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 0.468(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 0.468(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	43.0	0.641	0.457	0.377	1.000	0.377
					Sum (F) =	0.377

Area averaged mean soil loss (F) (In/Hr) = 0.377
Minimum soil loss rate ((In/Hr)) = 0.189
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.247	(0.377)	0.132	0.115
2	0.17	4.50	0.253	(0.377)	0.135	0.118
3	0.25	5.40	0.303	(0.377)	0.162	0.141
4	0.33	5.40	0.303	(0.377)	0.162	0.141
5	0.42	5.70	0.320	(0.377)	0.171	0.149
6	0.50	6.40	0.359	(0.377)	0.192	0.167
7	0.58	7.90	0.444	(0.377)	0.237	0.207
8	0.67	9.10	0.511	(0.377)	0.273	0.238
9	0.75	12.80	0.719	0.377	(0.384)	0.341
10	0.83	25.60	1.437	0.377	(0.768)	1.060
11	0.92	7.90	0.444	(0.377)	0.237	0.207
12	1.00	4.90	0.275	(0.377)	0.147	0.128

(Loss Rate Not Used)

```
 Sum =     100.0                                   Sum =     3.0
  Flood volume = Effective rainfall      0.25(In)
   times area      31.9(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
  Total soil loss =      0.22(In)
  Total soil loss =     0.575(Ac.Ft)
  Total rainfall =      0.47(In)
  Flood volume =       29028.9 Cubic Feet
  Total soil loss =      25063.6 Cubic Feet
  --------------------------------------------------------------------
   Peak flow rate of this hydrograph =     20.312(CFS)
  --------------------------------------------------------------------
  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      1 - H O U R   S T O R M
                 R u n o f f     H y d r o g r a p h
  --------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

  --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0         7.5      15.0      22.5      30.0
-----------------------------------------------------------------------
  0+ 5       0.0089      1.30  VQ        |         |         |         |
  0+10       0.0303      3.10  |V   Q    |         |         |         |
  0+15       0.0565      3.81  |   V Q   |         |         |         |
  0+20       0.0864      4.33  |     Q   |         |         |         |
  0+25       0.1179      4.58  |      QV |         |         |         |
  0+30       0.1519      4.94  |      Q  V|        |         |         |
  0+35       0.1912      5.71  |       Q |V        |         |         |
  0+40       0.2376      6.74  |        Q|   V     |         |         |
  0+45       0.2965      8.55  |         |Q     V  |         |         |
  0+50       0.4233     18.41  |         |         |   QV    |         |
  0+55       0.5632     20.31  |         |         |      Q  |  V      |
  1+ 0       0.6248      8.94  |         |Q        |         |      V  |
  1+ 5       0.6542      4.27  |    Q    |         |         |        V|
  1+10       0.6638      1.39  |Q        |         |         |        V|
  1+15       0.6658      0.30  Q         |         |         |        V|
  1+20       0.6664      0.08  Q         |         |         |         V
-----------------------------------------------------------------------
```

2 YEAR – 24 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF2242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
2-Year 24-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	2.23	71.03

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	5.95	189.51

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 2.230(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.230(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	43.0	0.641	0.457	0.377	1.000	0.377
					Sum (F) =	0.377

Area averaged mean soil loss (F) (In/Hr) = 0.377
Minimum soil loss rate ((In/Hr)) = 0.189
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period	(hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.669)	0.010	0.008
2	0.17	0.07	0.018	(0.666)	0.010	0.008
3	0.25	0.07	0.018	(0.664)	0.010	0.008
4	0.33	0.10	0.027	(0.661)	0.014	0.012
5	0.42	0.10	0.027	(0.659)	0.014	0.012
6	0.50	0.10	0.027	(0.656)	0.014	0.012
7	0.58	0.10	0.027	(0.653)	0.014	0.012
8	0.67	0.10	0.027	(0.651)	0.014	0.012
9	0.75	0.10	0.027	(0.648)	0.014	0.012
10	0.83	0.13	0.036	(0.646)	0.019	0.017
11	0.92	0.13	0.036	(0.643)	0.019	0.017
12	1.00	0.13	0.036	(0.641)	0.019	0.017
13	1.08	0.10	0.027	(0.638)	0.014	0.012
14	1.17	0.10	0.027	(0.636)	0.014	0.012
15	1.25	0.10	0.027	(0.633)	0.014	0.012

16	1.33	0.10	0.027	(0.631)	0.014	0.012
17	1.42	0.10	0.027	(0.628)	0.014	0.012
18	1.50	0.10	0.027	(0.626)	0.014	0.012
19	1.58	0.10	0.027	(0.623)	0.014	0.012
20	1.67	0.10	0.027	(0.621)	0.014	0.012
21	1.75	0.10	0.027	(0.618)	0.014	0.012
22	1.83	0.13	0.036	(0.616)	0.019	0.017
23	1.92	0.13	0.036	(0.613)	0.019	0.017
24	2.00	0.13	0.036	(0.611)	0.019	0.017
25	2.08	0.13	0.036	(0.608)	0.019	0.017
26	2.17	0.13	0.036	(0.606)	0.019	0.017
27	2.25	0.13	0.036	(0.603)	0.019	0.017
28	2.33	0.13	0.036	(0.601)	0.019	0.017
29	2.42	0.13	0.036	(0.598)	0.019	0.017
30	2.50	0.13	0.036	(0.596)	0.019	0.017
31	2.58	0.17	0.045	(0.593)	0.024	0.021
32	2.67	0.17	0.045	(0.591)	0.024	0.021
33	2.75	0.17	0.045	(0.589)	0.024	0.021
34	2.83	0.17	0.045	(0.586)	0.024	0.021
35	2.92	0.17	0.045	(0.584)	0.024	0.021
36	3.00	0.17	0.045	(0.581)	0.024	0.021
37	3.08	0.17	0.045	(0.579)	0.024	0.021
38	3.17	0.17	0.045	(0.577)	0.024	0.021
39	3.25	0.17	0.045	(0.574)	0.024	0.021
40	3.33	0.17	0.045	(0.572)	0.024	0.021
41	3.42	0.17	0.045	(0.569)	0.024	0.021
42	3.50	0.17	0.045	(0.567)	0.024	0.021
43	3.58	0.17	0.045	(0.565)	0.024	0.021
44	3.67	0.17	0.045	(0.562)	0.024	0.021
45	3.75	0.17	0.045	(0.560)	0.024	0.021
46	3.83	0.20	0.054	(0.557)	0.029	0.025
47	3.92	0.20	0.054	(0.555)	0.029	0.025
48	4.00	0.20	0.054	(0.553)	0.029	0.025
49	4.08	0.20	0.054	(0.550)	0.029	0.025
50	4.17	0.20	0.054	(0.548)	0.029	0.025
51	4.25	0.20	0.054	(0.546)	0.029	0.025
52	4.33	0.23	0.062	(0.543)	0.033	0.029
53	4.42	0.23	0.062	(0.541)	0.033	0.029
54	4.50	0.23	0.062	(0.539)	0.033	0.029
55	4.58	0.23	0.062	(0.536)	0.033	0.029
56	4.67	0.23	0.062	(0.534)	0.033	0.029
57	4.75	0.23	0.062	(0.532)	0.033	0.029
58	4.83	0.27	0.071	(0.530)	0.038	0.033
59	4.92	0.27	0.071	(0.527)	0.038	0.033
60	5.00	0.27	0.071	(0.525)	0.038	0.033
61	5.08	0.20	0.054	(0.523)	0.029	0.025
62	5.17	0.20	0.054	(0.520)	0.029	0.025
63	5.25	0.20	0.054	(0.518)	0.029	0.025
64	5.33	0.23	0.062	(0.516)	0.033	0.029
65	5.42	0.23	0.062	(0.514)	0.033	0.029
66	5.50	0.23	0.062	(0.511)	0.033	0.029
67	5.58	0.27	0.071	(0.509)	0.038	0.033
68	5.67	0.27	0.071	(0.507)	0.038	0.033
69	5.75	0.27	0.071	(0.505)	0.038	0.033
70	5.83	0.27	0.071	(0.502)	0.038	0.033
71	5.92	0.27	0.071	(0.500)	0.038	0.033
72	6.00	0.27	0.071	(0.498)	0.038	0.033
73	6.08	0.30	0.080	(0.496)	0.043	0.037
74	6.17	0.30	0.080	(0.494)	0.043	0.037
75	6.25	0.30	0.080	(0.491)	0.043	0.037

76	6.33	0.30	0.080	(0.489)	0.043	0.037
77	6.42	0.30	0.080	(0.487)	0.043	0.037
78	6.50	0.30	0.080	(0.485)	0.043	0.037
79	6.58	0.33	0.089	(0.483)	0.048	0.042
80	6.67	0.33	0.089	(0.480)	0.048	0.042
81	6.75	0.33	0.089	(0.478)	0.048	0.042
82	6.83	0.33	0.089	(0.476)	0.048	0.042
83	6.92	0.33	0.089	(0.474)	0.048	0.042
84	7.00	0.33	0.089	(0.472)	0.048	0.042
85	7.08	0.33	0.089	(0.470)	0.048	0.042
86	7.17	0.33	0.089	(0.468)	0.048	0.042
87	7.25	0.33	0.089	(0.465)	0.048	0.042
88	7.33	0.37	0.098	(0.463)	0.052	0.046
89	7.42	0.37	0.098	(0.461)	0.052	0.046
90	7.50	0.37	0.098	(0.459)	0.052	0.046
91	7.58	0.40	0.107	(0.457)	0.057	0.050
92	7.67	0.40	0.107	(0.455)	0.057	0.050
93	7.75	0.40	0.107	(0.453)	0.057	0.050
94	7.83	0.43	0.116	(0.451)	0.062	0.054
95	7.92	0.43	0.116	(0.449)	0.062	0.054
96	8.00	0.43	0.116	(0.447)	0.062	0.054
97	8.08	0.50	0.134	(0.444)	0.071	0.062
98	8.17	0.50	0.134	(0.442)	0.071	0.062
99	8.25	0.50	0.134	(0.440)	0.071	0.062
100	8.33	0.50	0.134	(0.438)	0.071	0.062
101	8.42	0.50	0.134	(0.436)	0.071	0.062
102	8.50	0.50	0.134	(0.434)	0.071	0.062
103	8.58	0.53	0.143	(0.432)	0.076	0.067
104	8.67	0.53	0.143	(0.430)	0.076	0.067
105	8.75	0.53	0.143	(0.428)	0.076	0.067
106	8.83	0.57	0.152	(0.426)	0.081	0.071
107	8.92	0.57	0.152	(0.424)	0.081	0.071
108	9.00	0.57	0.152	(0.422)	0.081	0.071
109	9.08	0.63	0.169	(0.420)	0.090	0.079
110	9.17	0.63	0.169	(0.418)	0.090	0.079
111	9.25	0.63	0.169	(0.416)	0.090	0.079
112	9.33	0.67	0.178	(0.414)	0.095	0.083
113	9.42	0.67	0.178	(0.412)	0.095	0.083
114	9.50	0.67	0.178	(0.410)	0.095	0.083
115	9.58	0.70	0.187	(0.408)	0.100	0.087
116	9.67	0.70	0.187	(0.406)	0.100	0.087
117	9.75	0.70	0.187	(0.404)	0.100	0.087
118	9.83	0.73	0.196	(0.402)	0.105	0.091
119	9.92	0.73	0.196	(0.400)	0.105	0.091
120	10.00	0.73	0.196	(0.398)	0.105	0.091
121	10.08	0.50	0.134	(0.396)	0.071	0.062
122	10.17	0.50	0.134	(0.395)	0.071	0.062
123	10.25	0.50	0.134	(0.393)	0.071	0.062
124	10.33	0.50	0.134	(0.391)	0.071	0.062
125	10.42	0.50	0.134	(0.389)	0.071	0.062
126	10.50	0.50	0.134	(0.387)	0.071	0.062
127	10.58	0.67	0.178	(0.385)	0.095	0.083
128	10.67	0.67	0.178	(0.383)	0.095	0.083
129	10.75	0.67	0.178	(0.381)	0.095	0.083
130	10.83	0.67	0.178	(0.379)	0.095	0.083
131	10.92	0.67	0.178	(0.378)	0.095	0.083
132	11.00	0.67	0.178	(0.376)	0.095	0.083
133	11.08	0.63	0.169	(0.374)	0.090	0.079
134	11.17	0.63	0.169	(0.372)	0.090	0.079
135	11.25	0.63	0.169	(0.370)	0.090	0.079

136	11.33	0.63	0.169	(0.368)	0.090	0.079
137	11.42	0.63	0.169	(0.367)	0.090	0.079
138	11.50	0.63	0.169	(0.365)	0.090	0.079
139	11.58	0.57	0.152	(0.363)	0.081	0.071
140	11.67	0.57	0.152	(0.361)	0.081	0.071
141	11.75	0.57	0.152	(0.359)	0.081	0.071
142	11.83	0.60	0.161	(0.358)	0.086	0.075
143	11.92	0.60	0.161	(0.356)	0.086	0.075
144	12.00	0.60	0.161	(0.354)	0.086	0.075
145	12.08	0.83	0.223	(0.352)	0.119	0.104
146	12.17	0.83	0.223	(0.350)	0.119	0.104
147	12.25	0.83	0.223	(0.349)	0.119	0.104
148	12.33	0.87	0.232	(0.347)	0.124	0.108
149	12.42	0.87	0.232	(0.345)	0.124	0.108
150	12.50	0.87	0.232	(0.343)	0.124	0.108
151	12.58	0.93	0.250	(0.342)	0.133	0.116
152	12.67	0.93	0.250	(0.340)	0.133	0.116
153	12.75	0.93	0.250	(0.338)	0.133	0.116
154	12.83	0.97	0.259	(0.337)	0.138	0.121
155	12.92	0.97	0.259	(0.335)	0.138	0.121
156	13.00	0.97	0.259	(0.333)	0.138	0.121
157	13.08	1.13	0.303	(0.331)	0.162	0.141
158	13.17	1.13	0.303	(0.330)	0.162	0.141
159	13.25	1.13	0.303	(0.328)	0.162	0.141
160	13.33	1.13	0.303	(0.326)	0.162	0.141
161	13.42	1.13	0.303	(0.325)	0.162	0.141
162	13.50	1.13	0.303	(0.323)	0.162	0.141
163	13.58	0.77	0.205	(0.322)	0.110	0.096
164	13.67	0.77	0.205	(0.320)	0.110	0.096
165	13.75	0.77	0.205	(0.318)	0.110	0.096
166	13.83	0.77	0.205	(0.317)	0.110	0.096
167	13.92	0.77	0.205	(0.315)	0.110	0.096
168	14.00	0.77	0.205	(0.313)	0.110	0.096
169	14.08	0.90	0.241	(0.312)	0.129	0.112
170	14.17	0.90	0.241	(0.310)	0.129	0.112
171	14.25	0.90	0.241	(0.309)	0.129	0.112
172	14.33	0.87	0.232	(0.307)	0.124	0.108
173	14.42	0.87	0.232	(0.305)	0.124	0.108
174	14.50	0.87	0.232	(0.304)	0.124	0.108
175	14.58	0.87	0.232	(0.302)	0.124	0.108
176	14.67	0.87	0.232	(0.301)	0.124	0.108
177	14.75	0.87	0.232	(0.299)	0.124	0.108
178	14.83	0.83	0.223	(0.298)	0.119	0.104
179	14.92	0.83	0.223	(0.296)	0.119	0.104
180	15.00	0.83	0.223	(0.295)	0.119	0.104
181	15.08	0.80	0.214	(0.293)	0.114	0.100
182	15.17	0.80	0.214	(0.292)	0.114	0.100
183	15.25	0.80	0.214	(0.290)	0.114	0.100
184	15.33	0.77	0.205	(0.289)	0.110	0.096
185	15.42	0.77	0.205	(0.287)	0.110	0.096
186	15.50	0.77	0.205	(0.286)	0.110	0.096
187	15.58	0.63	0.169	(0.284)	0.090	0.079
188	15.67	0.63	0.169	(0.283)	0.090	0.079
189	15.75	0.63	0.169	(0.281)	0.090	0.079
190	15.83	0.63	0.169	(0.280)	0.090	0.079
191	15.92	0.63	0.169	(0.278)	0.090	0.079
192	16.00	0.63	0.169	(0.277)	0.090	0.079
193	16.08	0.13	0.036	(0.276)	0.019	0.017
194	16.17	0.13	0.036	(0.274)	0.019	0.017
195	16.25	0.13	0.036	(0.273)	0.019	0.017

196	16.33	0.13	0.036	(0.271)	0.019	0.017
197	16.42	0.13	0.036	(0.270)	0.019	0.017
198	16.50	0.13	0.036	(0.269)	0.019	0.017
199	16.58	0.10	0.027	(0.267)	0.014	0.012
200	16.67	0.10	0.027	(0.266)	0.014	0.012
201	16.75	0.10	0.027	(0.265)	0.014	0.012
202	16.83	0.10	0.027	(0.263)	0.014	0.012
203	16.92	0.10	0.027	(0.262)	0.014	0.012
204	17.00	0.10	0.027	(0.261)	0.014	0.012
205	17.08	0.17	0.045	(0.259)	0.024	0.021
206	17.17	0.17	0.045	(0.258)	0.024	0.021
207	17.25	0.17	0.045	(0.257)	0.024	0.021
208	17.33	0.17	0.045	(0.255)	0.024	0.021
209	17.42	0.17	0.045	(0.254)	0.024	0.021
210	17.50	0.17	0.045	(0.253)	0.024	0.021
211	17.58	0.17	0.045	(0.252)	0.024	0.021
212	17.67	0.17	0.045	(0.250)	0.024	0.021
213	17.75	0.17	0.045	(0.249)	0.024	0.021
214	17.83	0.13	0.036	(0.248)	0.019	0.017
215	17.92	0.13	0.036	(0.247)	0.019	0.017
216	18.00	0.13	0.036	(0.245)	0.019	0.017
217	18.08	0.13	0.036	(0.244)	0.019	0.017
218	18.17	0.13	0.036	(0.243)	0.019	0.017
219	18.25	0.13	0.036	(0.242)	0.019	0.017
220	18.33	0.13	0.036	(0.241)	0.019	0.017
221	18.42	0.13	0.036	(0.239)	0.019	0.017
222	18.50	0.13	0.036	(0.238)	0.019	0.017
223	18.58	0.10	0.027	(0.237)	0.014	0.012
224	18.67	0.10	0.027	(0.236)	0.014	0.012
225	18.75	0.10	0.027	(0.235)	0.014	0.012
226	18.83	0.07	0.018	(0.234)	0.010	0.008
227	18.92	0.07	0.018	(0.233)	0.010	0.008
228	19.00	0.07	0.018	(0.232)	0.010	0.008
229	19.08	0.10	0.027	(0.230)	0.014	0.012
230	19.17	0.10	0.027	(0.229)	0.014	0.012
231	19.25	0.10	0.027	(0.228)	0.014	0.012
232	19.33	0.13	0.036	(0.227)	0.019	0.017
233	19.42	0.13	0.036	(0.226)	0.019	0.017
234	19.50	0.13	0.036	(0.225)	0.019	0.017
235	19.58	0.10	0.027	(0.224)	0.014	0.012
236	19.67	0.10	0.027	(0.223)	0.014	0.012
237	19.75	0.10	0.027	(0.222)	0.014	0.012
238	19.83	0.07	0.018	(0.221)	0.010	0.008
239	19.92	0.07	0.018	(0.220)	0.010	0.008
240	20.00	0.07	0.018	(0.219)	0.010	0.008
241	20.08	0.10	0.027	(0.218)	0.014	0.012
242	20.17	0.10	0.027	(0.217)	0.014	0.012
243	20.25	0.10	0.027	(0.216)	0.014	0.012
244	20.33	0.10	0.027	(0.215)	0.014	0.012
245	20.42	0.10	0.027	(0.214)	0.014	0.012
246	20.50	0.10	0.027	(0.213)	0.014	0.012
247	20.58	0.10	0.027	(0.213)	0.014	0.012
248	20.67	0.10	0.027	(0.212)	0.014	0.012
249	20.75	0.10	0.027	(0.211)	0.014	0.012
250	20.83	0.07	0.018	(0.210)	0.010	0.008
251	20.92	0.07	0.018	(0.209)	0.010	0.008
252	21.00	0.07	0.018	(0.208)	0.010	0.008
253	21.08	0.10	0.027	(0.207)	0.014	0.012
254	21.17	0.10	0.027	(0.207)	0.014	0.012
255	21.25	0.10	0.027	(0.206)	0.014	0.012

256	21.33	0.07	0.018	(0.205)	0.010	0.008
257	21.42	0.07	0.018	(0.204)	0.010	0.008
258	21.50	0.07	0.018	(0.203)	0.010	0.008
259	21.58	0.10	0.027	(0.203)	0.014	0.012
260	21.67	0.10	0.027	(0.202)	0.014	0.012
261	21.75	0.10	0.027	(0.201)	0.014	0.012
262	21.83	0.07	0.018	(0.201)	0.010	0.008
263	21.92	0.07	0.018	(0.200)	0.010	0.008
264	22.00	0.07	0.018	(0.199)	0.010	0.008
265	22.08	0.10	0.027	(0.199)	0.014	0.012
266	22.17	0.10	0.027	(0.198)	0.014	0.012
267	22.25	0.10	0.027	(0.197)	0.014	0.012
268	22.33	0.07	0.018	(0.197)	0.010	0.008
269	22.42	0.07	0.018	(0.196)	0.010	0.008
270	22.50	0.07	0.018	(0.195)	0.010	0.008
271	22.58	0.07	0.018	(0.195)	0.010	0.008
272	22.67	0.07	0.018	(0.194)	0.010	0.008
273	22.75	0.07	0.018	(0.194)	0.010	0.008
274	22.83	0.07	0.018	(0.193)	0.010	0.008
275	22.92	0.07	0.018	(0.193)	0.010	0.008
276	23.00	0.07	0.018	(0.192)	0.010	0.008
277	23.08	0.07	0.018	(0.192)	0.010	0.008
278	23.17	0.07	0.018	(0.191)	0.010	0.008
279	23.25	0.07	0.018	(0.191)	0.010	0.008
280	23.33	0.07	0.018	(0.191)	0.010	0.008
281	23.42	0.07	0.018	(0.190)	0.010	0.008
282	23.50	0.07	0.018	(0.190)	0.010	0.008
283	23.58	0.07	0.018	(0.190)	0.010	0.008
284	23.67	0.07	0.018	(0.189)	0.010	0.008
285	23.75	0.07	0.018	(0.189)	0.010	0.008
286	23.83	0.07	0.018	(0.189)	0.010	0.008
287	23.92	0.07	0.018	(0.189)	0.010	0.008
288	24.00	0.07	0.018	(0.189)	0.010	0.008

(Loss Rate Not Used)

Sum = 100.0 Sum = 12.5

Flood volume = Effective rainfall 1.04(In)
times area 31.9(Ac.)/[(In)/(Ft.)] = 2.8(Ac.Ft)
Total soil loss = 1.19(In)
Total soil loss = 3.160(Ac.Ft)
Total rainfall = 2.23(In)
Flood volume = 120137.8 Cubic Feet
Total soil loss = 137668.7 Cubic Feet

Peak flow rate of this hydrograph = 4.539(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0006	0.09	Q	|	|	|	|
0+10	0.0022	0.22	Q	|	|	|	|
0+15	0.0039	0.25	VQ	|	|	|	|
0+20	0.0060	0.31	VQ	|	|	|	|
0+25	0.0086	0.38	VQ	|	|	|	|
0+30	0.0113	0.39	VQ	|	|	|	|

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 0+35     0.0141    0.40  VQ        |         |         |         |
 0+40     0.0168    0.40  VQ        |         |         |         |
 0+45     0.0196    0.40  VQ        |         |         |         |
 0+50     0.0227    0.45  VQ        |         |         |         |
 0+55     0.0262    0.51  V Q       |         |         |         |
 1+ 0     0.0298    0.53  V Q       |         |         |         |
 1+ 5     0.0331    0.48  VQ        |         |         |         |
 1+10     0.0361    0.42  VQ        |         |         |         |
 1+15     0.0389    0.41  VQ        |         |         |         |
 1+20     0.0417    0.40  VQ        |         |         |         |
 1+25     0.0444    0.40  VQ        |         |         |         |
 1+30     0.0472    0.40  VQ        |         |         |         |
 1+35     0.0499    0.40  VQ        |         |         |         |
 1+40     0.0527    0.40  VQ        |         |         |         |
 1+45     0.0554    0.40  VQ        |         |         |         |
 1+50     0.0585    0.45  VQ        |         |         |         |
 1+55     0.0620    0.51  V Q       |         |         |         |
 2+ 0     0.0657    0.53  V Q       |         |         |         |
 2+ 5     0.0693    0.53  |VQ       |         |         |         |
 2+10     0.0730    0.53  |VQ       |         |         |         |
 2+15     0.0767    0.53  |VQ       |         |         |         |
 2+20     0.0804    0.53  |VQ       |         |         |         |
 2+25     0.0840    0.53  |VQ       |         |         |         |
 2+30     0.0877    0.53  |VQ       |         |         |         |
 2+35     0.0917    0.58  |VQ       |         |         |         |
 2+40     0.0962    0.64  |VQ       |         |         |         |
 2+45     0.1007    0.66  |VQ       |         |         |         |
 2+50     0.1053    0.66  |VQ       |         |         |         |
 2+55     0.1099    0.67  |VQ       |         |         |         |
 3+ 0     0.1145    0.67  |VQ       |         |         |         |
 3+ 5     0.1191    0.67  |VQ       |         |         |         |
 3+10     0.1237    0.67  |VQ       |         |         |         |
 3+15     0.1283    0.67  |VQ       |         |         |         |
 3+20     0.1329    0.67  |VQ       |         |         |         |
 3+25     0.1375    0.67  |VQ       |         |         |         |
 3+30     0.1420    0.67  | Q       |         |         |         |
 3+35     0.1466    0.67  | Q       |         |         |         |
 3+40     0.1512    0.67  | Q       |         |         |         |
 3+45     0.1558    0.67  | Q       |         |         |         |
 3+50     0.1608    0.71  | Q       |         |         |         |
 3+55     0.1661    0.78  | VQ      |         |         |         |
 4+ 0     0.1716    0.79  | VQ      |         |         |         |
 4+ 5     0.1771    0.80  | VQ      |         |         |         |
 4+10     0.1826    0.80  | VQ      |         |         |         |
 4+15     0.1881    0.80  | VQ      |         |         |         |
 4+20     0.1939    0.85  | VQ      |         |         |         |
 4+25     0.2002    0.91  | VQ      |         |         |         |
 4+30     0.2066    0.93  | VQ      |         |         |         |
 4+35     0.2130    0.93  |   Q     |         |         |         |
 4+40     0.2195    0.93  |   Q     |         |         |         |
 4+45     0.2259    0.93  |   Q     |         |         |         |
 4+50     0.2327    0.98  |   Q     |         |         |         |
 4+55     0.2399    1.05  |   VQ    |         |         |         |
 5+ 0     0.2472    1.06  |   VQ    |         |         |         |
 5+ 5     0.2538    0.97  |   Q     |         |         |         |
 5+10     0.2597    0.85  |   Q     |         |         |         |
 5+15     0.2653    0.82  |   Q     |         |         |         |
 5+20     0.2712    0.85  |   Q     |         |         |         |
 5+25     0.2774    0.91  |   QV    |         |         |         |
 5+30     0.2838    0.93  |   QV    |         |         |         |
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 5+35      0.2906      0.98  | QV      |         |         |         |
 5+40      0.2978      1.05  |   Q     |         |         |         |
 5+45      0.3051      1.06  |   Q     |         |         |         |
 5+50      0.3124      1.07  |   Q     |         |         |         |
 5+55      0.3198      1.07  |   Q     |         |         |         |
 6+ 0      0.3271      1.07  |   Q     |         |         |         |
 6+ 5      0.3348      1.11  |   Q     |         |         |         |
 6+10      0.3429      1.18  |   Q     |         |         |         |
 6+15      0.3511      1.19  |   QV    |         |         |         |
 6+20      0.3594      1.20  |   QV    |         |         |         |
 6+25      0.3677      1.20  |   QV    |         |         |         |
 6+30      0.3759      1.20  |   QV    |         |         |         |
 6+35      0.3845      1.25  |   QV    |         |         |         |
 6+40      0.3936      1.31  |    Q    |         |         |         |
 6+45      0.4027      1.33  |    Q    |         |         |         |
 6+50      0.4119      1.33  |    Q    |         |         |         |
 6+55      0.4211      1.33  |    QV   |         |         |         |
 7+ 0      0.4303      1.33  |    QV   |         |         |         |
 7+ 5      0.4395      1.33  |    QV   |         |         |         |
 7+10      0.4487      1.33  |    QV   |         |         |         |
 7+15      0.4578      1.33  |    QV   |         |         |         |
 7+20      0.4674      1.38  |    QV   |         |         |         |
 7+25      0.4773      1.45  |    QV   |         |         |         |
 7+30      0.4874      1.46  |    Q V  |         |         |         |
 7+35      0.4978      1.51  |     QV  |         |         |         |
 7+40      0.5087      1.58  |     QV  |         |         |         |
 7+45      0.5196      1.59  |     QV  |         |         |         |
 7+50      0.5310      1.65  |     QV  |         |         |         |
 7+55      0.5428      1.71  |     QV  |         |         |         |
 8+ 0      0.5547      1.73  |     Q V |         |         |         |
 8+ 5      0.5673      1.83  |      QV |         |         |         |
 8+10      0.5807      1.96  |      QV |         |         |         |
 8+15      0.5944      1.99  |      QV |         |         |         |
 8+20      0.6082      2.00  |      QV |         |         |         |
 8+25      0.6220      2.00  |       QV|         |         |         |
 8+30      0.6357      2.00  |       QV|         |         |         |
 8+35      0.6499      2.05  |       QV|         |         |         |
 8+40      0.6644      2.11  |       QV|         |         |         |
 8+45      0.6791      2.13  |       QV|         |         |         |
 8+50      0.6941      2.18  |       Q V         |         |         |
 8+55      0.7096      2.25  |       Q V         |         |         |
 9+ 0      0.7251      2.26  |        QV         |         |         |
 9+ 5      0.7414      2.36  |        QV         |         |         |
 9+10      0.7585      2.49  |        Q|V        |         |         |
 9+15      0.7759      2.52  |         QV        |         |         |
 9+20      0.7937      2.58  |         QV        |         |         |
 9+25      0.8119      2.65  |         QV        |         |         |
 9+30      0.8302      2.66  |         Q V       |         |         |
 9+35      0.8489      2.71  |         Q V       |         |         |
 9+40      0.8681      2.78  |         |QV       |         |         |
 9+45      0.8873      2.80  |         |QV       |         |         |
 9+50      0.9069      2.85  |         |Q V      |         |         |
 9+55      0.9270      2.91  |         |Q V      |         |         |
10+ 0      0.9472      2.93  |         |Q V      |         |         |
10+ 5      0.9651      2.61  |         Q  V      |         |         |
10+10      0.9800      2.16  |       Q |   V     |         |         |
10+15      0.9942      2.06  |       Q |   V     |         |         |
10+20      1.0081      2.02  |       Q |   V     |         |         |
10+25      1.0219      2.00  |       Q |   V     |         |         |
10+30      1.0357      2.00  |       Q |    V    |         |         |
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10+35     1.0511     2.24  |       Q |    V    |         |         |
10+40     1.0687     2.56  |         Q    V    |         |         |
10+45     1.0868     2.63  |         Q    V    |         |         |
10+50     1.1051     2.66  |         Q     V   |         |         |
10+55     1.1235     2.67  |         Q     V   |         |         |
11+ 0     1.1418     2.67  |         Q     V   |         |         |
11+ 5     1.1599     2.62  |         Q     V   |         |         |
11+10     1.1775     2.56  |         Q      V  |         |         |
11+15     1.1951     2.54  |         Q      V  |         |         |
11+20     1.2125     2.54  |         Q      V  |         |         |
11+25     1.2300     2.54  |         Q      V  |         |         |
11+30     1.2475     2.54  |         Q       V |         |         |
11+35     1.2643     2.44  |        Q|       V |         |         |
11+40     1.2802     2.31  |        Q|       V |         |         |
11+45     1.2960     2.29  |        Q|       V |         |         |
11+50     1.3120     2.32  |        Q|        V|         |         |
11+55     1.3284     2.38  |        Q|        V|         |         |
12+ 0     1.3448     2.39  |        Q|        V|         |         |
12+ 5     1.3636     2.73  |         Q        V|         |         |
12+10     1.3855     3.18  |         | Q       V         |         |
12+15     1.4081     3.28  |         |  Q      V         |         |
12+20     1.4313     3.37  |         |  Q      V         |         |
12+25     1.4551     3.45  |         |  Q      |V        |         |
12+30     1.4789     3.46  |         |  Q      |V        |         |
12+35     1.5034     3.56  |         |   Q     |V        |         |
12+40     1.5289     3.69  |         |   Q     | V       |         |
12+45     1.5545     3.72  |         |   Q     | V       |         |
12+50     1.5805     3.78  |         |    Q    | V       |         |
12+55     1.6070     3.85  |         |    Q    |  V      |         |
13+ 0     1.6336     3.86  |         |    Q    |  V      |         |
13+ 5     1.6619     4.10  |         |     Q   |   V     |         |
13+10     1.6924     4.43  |         |      Q  |   V     |         |
13+15     1.7234     4.50  |         |      Q  |   V     |         |
13+20     1.7545     4.53  |         |       Q |    V    |         |
13+25     1.7858     4.54  |         |       Q |    V    |         |
13+30     1.8170     4.54  |         |       Q |     V   |         |
13+35     1.8447     4.02  |         |     Q   |     V   |         |
13+40     1.8676     3.32  |         |  Q      |      V  |         |
13+45     1.8893     3.16  |         | Q       |      V  |         |
13+50     1.9107     3.10  |         | Q       |      V  |         |
13+55     1.9318     3.07  |         | Q       |       V |         |
14+ 0     1.9530     3.07  |         | Q       |       V |         |
14+ 5     1.9754     3.26  |         |  Q      |       V |         |
14+10     1.9996     3.51  |         |   Q     |        V|         |
14+15     2.0242     3.57  |         |   Q     |        V|         |
14+20     2.0486     3.55  |         |   Q     |        V|         |
14+25     2.0727     3.49  |         |  Q      |         V         |
14+30     2.0967     3.48  |         |  Q      |         V         |
14+35     2.1206     3.47  |         |  Q      |         V         |
14+40     2.1445     3.47  |         |  Q      |         |V        |
14+45     2.1684     3.47  |         |  Q      |         |V        |
14+50     2.1920     3.42  |         |  Q      |         |V        |
14+55     2.2151     3.36  |         |  Q      |         | V       |
15+ 0     2.2381     3.35  |         |  Q      |         | V       |
15+ 5     2.2608     3.29  |         |  Q      |         | V       |
15+10     2.2830     3.23  |         | Q       |         |  V      |
15+15     2.3052     3.21  |         | Q       |         |  V      |
15+20     2.3269     3.16  |         | Q       |         |  V      |
15+25     2.3482     3.09  |         | Q       |         |   V     |
15+30     2.3694     3.08  |         | Q       |         |   V     |
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15+35    2.3893    2.89  |          |Q         |          |   V      |
15+40    2.4074    2.63  |          Q          |          |   V      |
15+45    2.4251    2.57  |          Q          |          |    V     |
15+50    2.4426    2.55  |          Q          |          |    V     |
15+55    2.4601    2.54  |          Q          |          |    V     |
16+ 0    2.4775    2.54  |          Q          |          |    V     |
16+ 5    2.4902    1.83  |      Q   |          |          |     V    |
16+10    2.4962    0.87  |  Q       |          |          |     V    |
16+15    2.5007    0.65  | Q        |          |          |     V    |
16+20    2.5046    0.57  | Q        |          |          |     V    |
16+25    2.5083    0.53  | Q        |          |          |     V    |
16+30    2.5120    0.53  | Q        |          |          |     V    |
16+35    2.5153    0.49  |Q         |          |          |     V    |
16+40    2.5182    0.42  |Q         |          |          |     V    |
16+45    2.5211    0.41  |Q         |          |          |     V    |
16+50    2.5238    0.40  |Q         |          |          |     V    |
16+55    2.5266    0.40  |Q         |          |          |     V    |
17+ 0    2.5294    0.40  |Q         |          |          |     V    |
17+ 5    2.5328    0.49  |Q         |          |          |     V    |
17+10    2.5370    0.62  | Q        |          |          |     V    |
17+15    2.5415    0.65  | Q        |          |          |     V    |
17+20    2.5461    0.66  | Q        |          |          |     V    |
17+25    2.5507    0.67  | Q        |          |          |     V    |
17+30    2.5553    0.67  | Q        |          |          |      V   |
17+35    2.5599    0.67  | Q        |          |          |      V   |
17+40    2.5645    0.67  | Q        |          |          |      V   |
17+45    2.5691    0.67  | Q        |          |          |      V   |
17+50    2.5733    0.62  | Q        |          |          |      V   |
17+55    2.5772    0.56  | Q        |          |          |      V   |
18+ 0    2.5809    0.54  | Q        |          |          |      V   |
18+ 5    2.5846    0.54  | Q        |          |          |      V   |
18+10    2.5883    0.53  | Q        |          |          |      V   |
18+15    2.5920    0.53  | Q        |          |          |      V   |
18+20    2.5956    0.53  | Q        |          |          |      V   |
18+25    2.5993    0.53  | Q        |          |          |      V   |
18+30    2.6030    0.53  | Q        |          |          |      V   |
18+35    2.6063    0.49  |Q         |          |          |      V   |
18+40    2.6093    0.42  |Q         |          |          |      V   |
18+45    2.6121    0.41  |Q         |          |          |      V   |
18+50    2.6145    0.36  |Q         |          |          |      V   |
18+55    2.6165    0.29  |Q         |          |          |      V   |
19+ 0    2.6184    0.27  |Q         |          |          |      V   |
19+ 5    2.6206    0.32  |Q         |          |          |       V  |
19+10    2.6232    0.38  |Q         |          |          |       V  |
19+15    2.6259    0.39  |Q         |          |          |       V  |
19+20    2.6290    0.44  |Q         |          |          |       V  |
19+25    2.6325    0.51  | Q        |          |          |       V  |
19+30    2.6361    0.53  | Q        |          |          |       V  |
19+35    2.6394    0.48  |Q         |          |          |       V  |
19+40    2.6424    0.42  |Q         |          |          |       V  |
19+45    2.6452    0.41  |Q         |          |          |       V  |
19+50    2.6476    0.36  |Q         |          |          |       V  |
19+55    2.6496    0.29  |Q         |          |          |       V  |
20+ 0    2.6515    0.27  |Q         |          |          |       V  |
20+ 5    2.6537    0.32  |Q         |          |          |       V  |
20+10    2.6563    0.38  |Q         |          |          |       V  |
20+15    2.6590    0.39  |Q         |          |          |       V  |
20+20    2.6617    0.40  |Q         |          |          |       V  |
20+25    2.6645    0.40  |Q         |          |          |       V  |
20+30    2.6673    0.40  |Q         |          |          |       V  |
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20+35	2.6700	0.40	Q				V
20+40	2.6728	0.40	Q				V
20+45	2.6755	0.40	Q				V
20+50	2.6780	0.35	Q				V
20+55	2.6800	0.29	Q				V
21+ 0	2.6819	0.27	Q				V
21+ 5	2.6840	0.32	Q				V
21+10	2.6866	0.38	Q				V
21+15	2.6893	0.39	Q				V
21+20	2.6918	0.35	Q				V
21+25	2.6937	0.29	Q				V
21+30	2.6956	0.27	Q				V
21+35	2.6978	0.32	Q				V
21+40	2.7004	0.38	Q				V
21+45	2.7031	0.39	Q				V
21+50	2.7055	0.35	Q				V
21+55	2.7075	0.29	Q				V
22+ 0	2.7094	0.27	Q				V
22+ 5	2.7116	0.32	Q				V
22+10	2.7142	0.38	Q				V
22+15	2.7169	0.39	Q				V
22+20	2.7193	0.35	Q				V
22+25	2.7213	0.29	Q				V
22+30	2.7232	0.27	Q				V
22+35	2.7251	0.27	Q				V
22+40	2.7269	0.27	Q				V
22+45	2.7288	0.27	Q				V
22+50	2.7306	0.27	Q				V
22+55	2.7324	0.27	Q				V
23+ 0	2.7343	0.27	Q				V
23+ 5	2.7361	0.27	Q				V
23+10	2.7379	0.27	Q				V
23+15	2.7398	0.27	Q				V
23+20	2.7416	0.27	Q				V
23+25	2.7435	0.27	Q				V
23+30	2.7453	0.27	Q				V
23+35	2.7471	0.27	Q				V
23+40	2.7490	0.27	Q				V
23+45	2.7508	0.27	Q				V
23+50	2.7527	0.27	Q				V
23+55	2.7545	0.27	Q				V
24+ 0	2.7563	0.27	Q				V
24+ 5	2.7575	0.17	Q				V
24+10	2.7578	0.05	Q				V
24+15	2.7579	0.02	Q				V
24+20	2.7580	0.01	Q				V

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10 YEAR – 1 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF2110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
10-Year 1-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	0.47	14.91

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	1.30	41.41

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 0.810(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 0.810(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	63.0	0.438	0.457	0.258	1.000	0.258
					Sum (F) =	0.258

Area averaged mean soil loss (F) (In/Hr) = 0.258
Minimum soil loss rate ((In/Hr)) = 0.129
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	4.40	0.428	(0.258)	0.228	0.199
2	0.17	4.50	0.437	(0.258)	0.234	0.204
3	0.25	5.40	0.525	0.258	(0.280)	0.267
4	0.33	5.40	0.525	0.258	(0.280)	0.267
5	0.42	5.70	0.554	0.258	(0.296)	0.296
6	0.50	6.40	0.622	0.258	(0.332)	0.364
7	0.58	7.90	0.768	0.258	(0.410)	0.510
8	0.67	9.10	0.885	0.258	(0.472)	0.627
9	0.75	12.80	1.244	0.258	(0.664)	0.986
10	0.83	25.60	2.488	0.258	(1.329)	2.231
11	0.92	7.90	0.768	0.258	(0.410)	0.510
12	1.00	4.90	0.476	(0.258)	0.254	0.222

(Loss Rate Not Used)

```
     Sum =     100.0                                   Sum =     6.7
      Flood volume = Effective rainfall      0.56(In)
       times area      31.9(Ac.)/[(In)/(Ft.)] =      1.5(Ac.Ft)
      Total soil loss =      0.25(In)
      Total soil loss =     0.672(Ac.Ft)
      Total rainfall =      0.81(In)
      Flood volume =       64398.8 Cubic Feet
      Total soil loss =      29256.4 Cubic Feet
      --------------------------------------------------------------------
       Peak flow rate of this hydrograph =      44.742(CFS)
      --------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R   S T O R M
                     R u n o f f     H y d r o g r a p h
      --------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      --------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        12.5      25.0      37.5      50.0
  -----------------------------------------------------------------------
    0+ 5      0.0155       2.25  VQ        |         |         |         |
    0+10      0.0525       5.37  |V  Q     |         |         |         |
    0+15      0.0997       6.85  | V  Q    |         |         |         |
    0+20      0.1554       8.10  |   V Q   |         |         |         |
    0+25      0.2159       8.78  |    V Q  |         |         |         |
    0+30      0.2854      10.08  |      VQ |         |         |         |
    0+35      0.3743      12.92  |         Q         |         |         |
    0+40      0.4897      16.76  |         |  Q      |         |         |
    0+45      0.6497      23.23  |         |      VQ |         |         |
    0+50      0.9488      43.43  |         |         |    V    |   Q     |
    0+55      1.2569      44.74  |         |         |         |   VQ    |
    1+ 0      1.3937      19.86  |         |    Q    |         |      V  |
    1+ 5      1.4535       8.68  |     Q   |         |         |        V|
    1+10      1.4732       2.86  | Q       |         |         |        V|
    1+15      1.4774       0.61  Q         |         |         |        V|
    1+20      1.4784       0.14  Q         |         |         |         V
-----------------------------------------------------------------------
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10 YEAR – 24 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/23/19 File: c318offsiteF22410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
10-Year 24-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	2.23	71.03

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	5.95	189.51

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 3.760(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 3.760(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	63.0	0.438	0.457	0.258	1.000	0.258
					Sum (F) =	0.258

Area averaged mean soil loss (F) (In/Hr) = 0.258
Minimum soil loss rate ((In/Hr)) = 0.129
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.457)	0.016	0.014
2	0.17	0.07	0.030	(0.455)	0.016	0.014
3	0.25	0.07	0.030	(0.453)	0.016	0.014
4	0.33	0.10	0.045	(0.452)	0.024	0.021
5	0.42	0.10	0.045	(0.450)	0.024	0.021
6	0.50	0.10	0.045	(0.448)	0.024	0.021
7	0.58	0.10	0.045	(0.446)	0.024	0.021
8	0.67	0.10	0.045	(0.445)	0.024	0.021
9	0.75	0.10	0.045	(0.443)	0.024	0.021
10	0.83	0.13	0.060	(0.441)	0.032	0.028
11	0.92	0.13	0.060	(0.439)	0.032	0.028
12	1.00	0.13	0.060	(0.438)	0.032	0.028
13	1.08	0.10	0.045	(0.436)	0.024	0.021
14	1.17	0.10	0.045	(0.434)	0.024	0.021
15	1.25	0.10	0.045	(0.433)	0.024	0.021

16	1.33	0.10	0.045	(0.431)	0.024	0.021
17	1.42	0.10	0.045	(0.429)	0.024	0.021
18	1.50	0.10	0.045	(0.427)	0.024	0.021
19	1.58	0.10	0.045	(0.426)	0.024	0.021
20	1.67	0.10	0.045	(0.424)	0.024	0.021
21	1.75	0.10	0.045	(0.422)	0.024	0.021
22	1.83	0.13	0.060	(0.421)	0.032	0.028
23	1.92	0.13	0.060	(0.419)	0.032	0.028
24	2.00	0.13	0.060	(0.417)	0.032	0.028
25	2.08	0.13	0.060	(0.416)	0.032	0.028
26	2.17	0.13	0.060	(0.414)	0.032	0.028
27	2.25	0.13	0.060	(0.412)	0.032	0.028
28	2.33	0.13	0.060	(0.411)	0.032	0.028
29	2.42	0.13	0.060	(0.409)	0.032	0.028
30	2.50	0.13	0.060	(0.407)	0.032	0.028
31	2.58	0.17	0.075	(0.405)	0.040	0.035
32	2.67	0.17	0.075	(0.404)	0.040	0.035
33	2.75	0.17	0.075	(0.402)	0.040	0.035
34	2.83	0.17	0.075	(0.401)	0.040	0.035
35	2.92	0.17	0.075	(0.399)	0.040	0.035
36	3.00	0.17	0.075	(0.397)	0.040	0.035
37	3.08	0.17	0.075	(0.396)	0.040	0.035
38	3.17	0.17	0.075	(0.394)	0.040	0.035
39	3.25	0.17	0.075	(0.392)	0.040	0.035
40	3.33	0.17	0.075	(0.391)	0.040	0.035
41	3.42	0.17	0.075	(0.389)	0.040	0.035
42	3.50	0.17	0.075	(0.387)	0.040	0.035
43	3.58	0.17	0.075	(0.386)	0.040	0.035
44	3.67	0.17	0.075	(0.384)	0.040	0.035
45	3.75	0.17	0.075	(0.383)	0.040	0.035
46	3.83	0.20	0.090	(0.381)	0.048	0.042
47	3.92	0.20	0.090	(0.379)	0.048	0.042
48	4.00	0.20	0.090	(0.378)	0.048	0.042
49	4.08	0.20	0.090	(0.376)	0.048	0.042
50	4.17	0.20	0.090	(0.375)	0.048	0.042
51	4.25	0.20	0.090	(0.373)	0.048	0.042
52	4.33	0.23	0.105	(0.371)	0.056	0.049
53	4.42	0.23	0.105	(0.370)	0.056	0.049
54	4.50	0.23	0.105	(0.368)	0.056	0.049
55	4.58	0.23	0.105	(0.367)	0.056	0.049
56	4.67	0.23	0.105	(0.365)	0.056	0.049
57	4.75	0.23	0.105	(0.363)	0.056	0.049
58	4.83	0.27	0.120	(0.362)	0.064	0.056
59	4.92	0.27	0.120	(0.360)	0.064	0.056
60	5.00	0.27	0.120	(0.359)	0.064	0.056
61	5.08	0.20	0.090	(0.357)	0.048	0.042
62	5.17	0.20	0.090	(0.356)	0.048	0.042
63	5.25	0.20	0.090	(0.354)	0.048	0.042
64	5.33	0.23	0.105	(0.353)	0.056	0.049
65	5.42	0.23	0.105	(0.351)	0.056	0.049
66	5.50	0.23	0.105	(0.349)	0.056	0.049
67	5.58	0.27	0.120	(0.348)	0.064	0.056
68	5.67	0.27	0.120	(0.346)	0.064	0.056
69	5.75	0.27	0.120	(0.345)	0.064	0.056
70	5.83	0.27	0.120	(0.343)	0.064	0.056
71	5.92	0.27	0.120	(0.342)	0.064	0.056
72	6.00	0.27	0.120	(0.340)	0.064	0.056
73	6.08	0.30	0.135	(0.339)	0.072	0.063
74	6.17	0.30	0.135	(0.337)	0.072	0.063
75	6.25	0.30	0.135	(0.336)	0.072	0.063

76	6.33	0.30	0.135	(0.334)	0.072	0.063
77	6.42	0.30	0.135	(0.333)	0.072	0.063
78	6.50	0.30	0.135	(0.331)	0.072	0.063
79	6.58	0.33	0.150	(0.330)	0.080	0.070
80	6.67	0.33	0.150	(0.328)	0.080	0.070
81	6.75	0.33	0.150	(0.327)	0.080	0.070
82	6.83	0.33	0.150	(0.325)	0.080	0.070
83	6.92	0.33	0.150	(0.324)	0.080	0.070
84	7.00	0.33	0.150	(0.322)	0.080	0.070
85	7.08	0.33	0.150	(0.321)	0.080	0.070
86	7.17	0.33	0.150	(0.319)	0.080	0.070
87	7.25	0.33	0.150	(0.318)	0.080	0.070
88	7.33	0.37	0.165	(0.317)	0.088	0.077
89	7.42	0.37	0.165	(0.315)	0.088	0.077
90	7.50	0.37	0.165	(0.314)	0.088	0.077
91	7.58	0.40	0.180	(0.312)	0.096	0.084
92	7.67	0.40	0.180	(0.311)	0.096	0.084
93	7.75	0.40	0.180	(0.309)	0.096	0.084
94	7.83	0.43	0.196	(0.308)	0.104	0.091
95	7.92	0.43	0.196	(0.307)	0.104	0.091
96	8.00	0.43	0.196	(0.305)	0.104	0.091
97	8.08	0.50	0.226	(0.304)	0.120	0.105
98	8.17	0.50	0.226	(0.302)	0.120	0.105
99	8.25	0.50	0.226	(0.301)	0.120	0.105
100	8.33	0.50	0.226	(0.299)	0.120	0.105
101	8.42	0.50	0.226	(0.298)	0.120	0.105
102	8.50	0.50	0.226	(0.297)	0.120	0.105
103	8.58	0.53	0.241	(0.295)	0.129	0.112
104	8.67	0.53	0.241	(0.294)	0.129	0.112
105	8.75	0.53	0.241	(0.292)	0.129	0.112
106	8.83	0.57	0.256	(0.291)	0.137	0.119
107	8.92	0.57	0.256	(0.290)	0.137	0.119
108	9.00	0.57	0.256	(0.288)	0.137	0.119
109	9.08	0.63	0.286	(0.287)	0.153	0.133
110	9.17	0.63	0.286	(0.286)	0.153	0.133
111	9.25	0.63	0.286	(0.284)	0.153	0.133
112	9.33	0.67	0.301	(0.283)	0.161	0.140
113	9.42	0.67	0.301	(0.282)	0.161	0.140
114	9.50	0.67	0.301	(0.280)	0.161	0.140
115	9.58	0.70	0.316	(0.279)	0.169	0.147
116	9.67	0.70	0.316	(0.278)	0.169	0.147
117	9.75	0.70	0.316	(0.276)	0.169	0.147
118	9.83	0.73	0.331	(0.275)	0.177	0.154
119	9.92	0.73	0.331	(0.274)	0.177	0.154
120	10.00	0.73	0.331	(0.272)	0.177	0.154
121	10.08	0.50	0.226	(0.271)	0.120	0.105
122	10.17	0.50	0.226	(0.270)	0.120	0.105
123	10.25	0.50	0.226	(0.268)	0.120	0.105
124	10.33	0.50	0.226	(0.267)	0.120	0.105
125	10.42	0.50	0.226	(0.266)	0.120	0.105
126	10.50	0.50	0.226	(0.264)	0.120	0.105
127	10.58	0.67	0.301	(0.263)	0.161	0.140
128	10.67	0.67	0.301	(0.262)	0.161	0.140
129	10.75	0.67	0.301	(0.261)	0.161	0.140
130	10.83	0.67	0.301	(0.259)	0.161	0.140
131	10.92	0.67	0.301	(0.258)	0.161	0.140
132	11.00	0.67	0.301	(0.257)	0.161	0.140
133	11.08	0.63	0.286	(0.255)	0.153	0.133
134	11.17	0.63	0.286	(0.254)	0.153	0.133
135	11.25	0.63	0.286	(0.253)	0.153	0.133

136	11.33	0.63	0.286	(0.252)	0.153	0.133
137	11.42	0.63	0.286	(0.250)	0.153	0.133
138	11.50	0.63	0.286	(0.249)	0.153	0.133
139	11.58	0.57	0.256	(0.248)	0.137	0.119
140	11.67	0.57	0.256	(0.247)	0.137	0.119
141	11.75	0.57	0.256	(0.246)	0.137	0.119
142	11.83	0.60	0.271	(0.244)	0.145	0.126
143	11.92	0.60	0.271	(0.243)	0.145	0.126
144	12.00	0.60	0.271	(0.242)	0.145	0.126
145	12.08	0.83	0.376	(0.241)	0.201	0.175
146	12.17	0.83	0.376	(0.239)	0.201	0.175
147	12.25	0.83	0.376	(0.238)	0.201	0.175
148	12.33	0.87	0.391	(0.237)	0.209	0.182
149	12.42	0.87	0.391	(0.236)	0.209	0.182
150	12.50	0.87	0.391	(0.235)	0.209	0.182
151	12.58	0.93	0.421	(0.233)	0.225	0.196
152	12.67	0.93	0.421	(0.232)	0.225	0.196
153	12.75	0.93	0.421	(0.231)	0.225	0.196
154	12.83	0.97	0.436	0.230	(0.233)	0.206
155	12.92	0.97	0.436	0.229	(0.233)	0.207
156	13.00	0.97	0.436	0.228	(0.233)	0.209
157	13.08	1.13	0.511	0.227	(0.273)	0.285
158	13.17	1.13	0.511	0.225	(0.273)	0.286
159	13.25	1.13	0.511	0.224	(0.273)	0.287
160	13.33	1.13	0.511	0.223	(0.273)	0.288
161	13.42	1.13	0.511	0.222	(0.273)	0.289
162	13.50	1.13	0.511	0.221	(0.273)	0.291
163	13.58	0.77	0.346	(0.220)	0.185	0.161
164	13.67	0.77	0.346	(0.219)	0.185	0.161
165	13.75	0.77	0.346	(0.217)	0.185	0.161
166	13.83	0.77	0.346	(0.216)	0.185	0.161
167	13.92	0.77	0.346	(0.215)	0.185	0.161
168	14.00	0.77	0.346	(0.214)	0.185	0.161
169	14.08	0.90	0.406	0.213	(0.217)	0.193
170	14.17	0.90	0.406	0.212	(0.217)	0.194
171	14.25	0.90	0.406	0.211	(0.217)	0.195
172	14.33	0.87	0.391	(0.210)	0.209	0.182
173	14.42	0.87	0.391	0.209	(0.209)	0.182
174	14.50	0.87	0.391	0.208	(0.209)	0.183
175	14.58	0.87	0.391	0.207	(0.209)	0.184
176	14.67	0.87	0.391	0.206	(0.209)	0.186
177	14.75	0.87	0.391	0.204	(0.209)	0.187
178	14.83	0.83	0.376	(0.203)	0.201	0.175
179	14.92	0.83	0.376	(0.202)	0.201	0.175
180	15.00	0.83	0.376	(0.201)	0.201	0.175
181	15.08	0.80	0.361	(0.200)	0.193	0.168
182	15.17	0.80	0.361	(0.199)	0.193	0.168
183	15.25	0.80	0.361	(0.198)	0.193	0.168
184	15.33	0.77	0.346	(0.197)	0.185	0.161
185	15.42	0.77	0.346	(0.196)	0.185	0.161
186	15.50	0.77	0.346	(0.195)	0.185	0.161
187	15.58	0.63	0.286	(0.194)	0.153	0.133
188	15.67	0.63	0.286	(0.193)	0.153	0.133
189	15.75	0.63	0.286	(0.192)	0.153	0.133
190	15.83	0.63	0.286	(0.191)	0.153	0.133
191	15.92	0.63	0.286	(0.190)	0.153	0.133
192	16.00	0.63	0.286	(0.189)	0.153	0.133
193	16.08	0.13	0.060	(0.188)	0.032	0.028
194	16.17	0.13	0.060	(0.187)	0.032	0.028
195	16.25	0.13	0.060	(0.186)	0.032	0.028

196	16.33	0.13	0.060	(0.185)	0.032	0.028
197	16.42	0.13	0.060	(0.185)	0.032	0.028
198	16.50	0.13	0.060	(0.184)	0.032	0.028
199	16.58	0.10	0.045	(0.183)	0.024	0.021
200	16.67	0.10	0.045	(0.182)	0.024	0.021
201	16.75	0.10	0.045	(0.181)	0.024	0.021
202	16.83	0.10	0.045	(0.180)	0.024	0.021
203	16.92	0.10	0.045	(0.179)	0.024	0.021
204	17.00	0.10	0.045	(0.178)	0.024	0.021
205	17.08	0.17	0.075	(0.177)	0.040	0.035
206	17.17	0.17	0.075	(0.176)	0.040	0.035
207	17.25	0.17	0.075	(0.175)	0.040	0.035
208	17.33	0.17	0.075	(0.175)	0.040	0.035
209	17.42	0.17	0.075	(0.174)	0.040	0.035
210	17.50	0.17	0.075	(0.173)	0.040	0.035
211	17.58	0.17	0.075	(0.172)	0.040	0.035
212	17.67	0.17	0.075	(0.171)	0.040	0.035
213	17.75	0.17	0.075	(0.170)	0.040	0.035
214	17.83	0.13	0.060	(0.169)	0.032	0.028
215	17.92	0.13	0.060	(0.169)	0.032	0.028
216	18.00	0.13	0.060	(0.168)	0.032	0.028
217	18.08	0.13	0.060	(0.167)	0.032	0.028
218	18.17	0.13	0.060	(0.166)	0.032	0.028
219	18.25	0.13	0.060	(0.165)	0.032	0.028
220	18.33	0.13	0.060	(0.164)	0.032	0.028
221	18.42	0.13	0.060	(0.164)	0.032	0.028
222	18.50	0.13	0.060	(0.163)	0.032	0.028
223	18.58	0.10	0.045	(0.162)	0.024	0.021
224	18.67	0.10	0.045	(0.161)	0.024	0.021
225	18.75	0.10	0.045	(0.160)	0.024	0.021
226	18.83	0.07	0.030	(0.160)	0.016	0.014
227	18.92	0.07	0.030	(0.159)	0.016	0.014
228	19.00	0.07	0.030	(0.158)	0.016	0.014
229	19.08	0.10	0.045	(0.157)	0.024	0.021
230	19.17	0.10	0.045	(0.157)	0.024	0.021
231	19.25	0.10	0.045	(0.156)	0.024	0.021
232	19.33	0.13	0.060	(0.155)	0.032	0.028
233	19.42	0.13	0.060	(0.155)	0.032	0.028
234	19.50	0.13	0.060	(0.154)	0.032	0.028
235	19.58	0.10	0.045	(0.153)	0.024	0.021
236	19.67	0.10	0.045	(0.152)	0.024	0.021
237	19.75	0.10	0.045	(0.152)	0.024	0.021
238	19.83	0.07	0.030	(0.151)	0.016	0.014
239	19.92	0.07	0.030	(0.150)	0.016	0.014
240	20.00	0.07	0.030	(0.150)	0.016	0.014
241	20.08	0.10	0.045	(0.149)	0.024	0.021
242	20.17	0.10	0.045	(0.148)	0.024	0.021
243	20.25	0.10	0.045	(0.148)	0.024	0.021
244	20.33	0.10	0.045	(0.147)	0.024	0.021
245	20.42	0.10	0.045	(0.146)	0.024	0.021
246	20.50	0.10	0.045	(0.146)	0.024	0.021
247	20.58	0.10	0.045	(0.145)	0.024	0.021
248	20.67	0.10	0.045	(0.145)	0.024	0.021
249	20.75	0.10	0.045	(0.144)	0.024	0.021
250	20.83	0.07	0.030	(0.143)	0.016	0.014
251	20.92	0.07	0.030	(0.143)	0.016	0.014
252	21.00	0.07	0.030	(0.142)	0.016	0.014
253	21.08	0.10	0.045	(0.142)	0.024	0.021
254	21.17	0.10	0.045	(0.141)	0.024	0.021
255	21.25	0.10	0.045	(0.141)	0.024	0.021

256	21.33	0.07	0.030	(0.140)	0.016	0.014
257	21.42	0.07	0.030	(0.140)	0.016	0.014
258	21.50	0.07	0.030	(0.139)	0.016	0.014
259	21.58	0.10	0.045	(0.139)	0.024	0.021
260	21.67	0.10	0.045	(0.138)	0.024	0.021
261	21.75	0.10	0.045	(0.138)	0.024	0.021
262	21.83	0.07	0.030	(0.137)	0.016	0.014
263	21.92	0.07	0.030	(0.137)	0.016	0.014
264	22.00	0.07	0.030	(0.136)	0.016	0.014
265	22.08	0.10	0.045	(0.136)	0.024	0.021
266	22.17	0.10	0.045	(0.135)	0.024	0.021
267	22.25	0.10	0.045	(0.135)	0.024	0.021
268	22.33	0.07	0.030	(0.134)	0.016	0.014
269	22.42	0.07	0.030	(0.134)	0.016	0.014
270	22.50	0.07	0.030	(0.134)	0.016	0.014
271	22.58	0.07	0.030	(0.133)	0.016	0.014
272	22.67	0.07	0.030	(0.133)	0.016	0.014
273	22.75	0.07	0.030	(0.132)	0.016	0.014
274	22.83	0.07	0.030	(0.132)	0.016	0.014
275	22.92	0.07	0.030	(0.132)	0.016	0.014
276	23.00	0.07	0.030	(0.131)	0.016	0.014
277	23.08	0.07	0.030	(0.131)	0.016	0.014
278	23.17	0.07	0.030	(0.131)	0.016	0.014
279	23.25	0.07	0.030	(0.131)	0.016	0.014
280	23.33	0.07	0.030	(0.130)	0.016	0.014
281	23.42	0.07	0.030	(0.130)	0.016	0.014
282	23.50	0.07	0.030	(0.130)	0.016	0.014
283	23.58	0.07	0.030	(0.130)	0.016	0.014
284	23.67	0.07	0.030	(0.129)	0.016	0.014
285	23.75	0.07	0.030	(0.129)	0.016	0.014
286	23.83	0.07	0.030	(0.129)	0.016	0.014
287	23.92	0.07	0.030	(0.129)	0.016	0.014
288	24.00	0.07	0.030	(0.129)	0.016	0.014
			(Loss Rate Not Used)			
	Sum =	100.0			Sum =	21.4

Flood volume = Effective rainfall 1.78(In)
times area 31.9(Ac.)/[(In)/(Ft.)] = 4.7(Ac.Ft)
Total soil loss = 1.98(In)
Total soil loss = 5.255(Ac.Ft)
Total rainfall = 3.76(In)
Flood volume = 205812.3 Cubic Feet
Total soil loss = 228925.6 Cubic Feet

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----------------------------------------------------------------------
 Peak flow rate of this hydrograph =      9.299(CFS)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R   S T O R M
                 R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

----------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-----------------------------------------------------------------------
  0+ 5      0.0011       0.16  Q         |         |         |         |
  0+10      0.0037       0.37  VQ        |         |         |         |
  0+15      0.0066       0.42  VQ        |         |         |         |
  0+20      0.0102       0.52  V Q       |         |         |         |
  0+25      0.0146       0.64  V Q       |         |         |         |
  0+30      0.0191       0.66  V Q       |         |         |         |
```

0+35	0.0237	0.67	V Q
0+40	0.0284	0.68	V Q
0+45	0.0330	0.68	V Q
0+50	0.0382	0.75	V Q
0+55	0.0442	0.86	V Q
1+ 0	0.0503	0.89	V Q
1+ 5	0.0559	0.82	V Q
1+10	0.0608	0.71	V Q
1+15	0.0656	0.69	V Q
1+20	0.0702	0.68	V Q
1+25	0.0749	0.68	V Q
1+30	0.0795	0.68	V Q
1+35	0.0842	0.68	V Q
1+40	0.0888	0.68	V Q
1+45	0.0935	0.68	V Q
1+50	0.0987	0.75	V Q
1+55	0.1046	0.86	V Q
2+ 0	0.1107	0.89	V Q
2+ 5	0.1169	0.90	V Q
2+10	0.1231	0.90	V Q
2+15	0.1293	0.90	V Q
2+20	0.1355	0.90	V Q
2+25	0.1417	0.90	V Q
2+30	0.1479	0.90	V Q
2+35	0.1547	0.98	V Q
2+40	0.1621	1.09	V Q
2+45	0.1698	1.11	V Q
2+50	0.1775	1.12	V Q
2+55	0.1853	1.13	V Q
3+ 0	0.1930	1.13	V Q
3+ 5	0.2008	1.13	V Q
3+10	0.2085	1.13	V Q
3+15	0.2163	1.13	V Q
3+20	0.2240	1.13	V Q
3+25	0.2318	1.13	V Q
3+30	0.2395	1.13	V Q
3+35	0.2473	1.13	V Q
3+40	0.2550	1.13	V Q
3+45	0.2628	1.13	V Q
3+50	0.2711	1.20	V Q
3+55	0.2801	1.31	V Q
4+ 0	0.2893	1.34	V Q
4+ 5	0.2986	1.35	V Q
4+10	0.3079	1.35	V Q
4+15	0.3172	1.35	V Q
4+20	0.3270	1.43	V Q
4+25	0.3376	1.54	V Q
4+30	0.3484	1.56	V Q
4+35	0.3592	1.57	V Q
4+40	0.3701	1.58	V Q
4+45	0.3809	1.58	V Q
4+50	0.3923	1.65	V Q
4+55	0.4045	1.76	V Q
5+ 0	0.4168	1.79	V Q
5+ 5	0.4281	1.64	V Q
5+10	0.4379	1.43	V Q
5+15	0.4474	1.38	V Q
5+20	0.4573	1.44	V Q
5+25	0.4679	1.54	V Q
5+30	0.4786	1.56	V Q

```
 5+35    0.4900    1.65  |   V Q   |         |         |         |
 5+40    0.5021    1.76  |   V  Q  |         |         |         |
 5+45    0.5144    1.79  |   V  Q  |         |         |         |
 5+50    0.5268    1.80  |   V  Q  |         |         |         |
 5+55    0.5392    1.80  |   V  Q  |         |         |         |
 6+ 0    0.5516    1.80  |   V  Q  |         |         |         |
 6+ 5    0.5646    1.88  |   V  Q  |         |         |         |
 6+10    0.5782    1.99  |   V  Q  |         |         |         |
 6+15    0.5921    2.01  |    V  Q |         |         |         |
 6+20    0.6060    2.02  |    V  Q |         |         |         |
 6+25    0.6200    2.03  |    V  Q |         |         |         |
 6+30    0.6339    2.03  |    V  Q |         |         |         |
 6+35    0.6484    2.10  |    V  Q |         |         |         |
 6+40    0.6637    2.21  |    V  Q |         |         |         |
 6+45    0.6791    2.24  |    V  Q |         |         |         |
 6+50    0.6946    2.25  |    V  Q |         |         |         |
 6+55    0.7101    2.25  |     V  Q|         |         |         |
 7+ 0    0.7256    2.25  |     V  Q|         |         |         |
 7+ 5    0.7411    2.25  |     V  Q|         |         |         |
 7+10    0.7566    2.25  |     V  Q|         |         |         |
 7+15    0.7721    2.25  |     V  Q|         |         |         |
 7+20    0.7881    2.33  |     V  Q|         |         |         |
 7+25    0.8049    2.44  |     V  Q|         |         |         |
 7+30    0.8219    2.46  |     V  Q|         |         |         |
 7+35    0.8394    2.55  |      V  Q         |         |         |
 7+40    0.8578    2.66  |      V  Q         |         |         |
 7+45    0.8763    2.69  |      V  Q         |         |         |
 7+50    0.8954    2.78  |      V  |Q        |         |         |
 7+55    0.9153    2.89  |      V  |Q        |         |         |
 8+ 0    0.9353    2.91  |      V  |Q        |         |         |
 8+ 5    0.9566    3.08  |       V | Q       |         |         |
 8+10    0.9793    3.30  |       V |  Q      |         |         |
 8+15    1.0024    3.35  |       V |  Q      |         |         |
 8+20    1.0255    3.37  |       V |  Q      |         |         |
 8+25    1.0488    3.38  |       V |  Q      |         |         |
 8+30    1.0721    3.38  |        V|  Q      |         |         |
 8+35    1.0959    3.46  |        V|  Q      |         |         |
 8+40    1.1204    3.56  |        V|   Q     |         |         |
 8+45    1.1451    3.59  |        V|   Q     |         |         |
 8+50    1.1704    3.68  |        V|   Q     |         |         |
 8+55    1.1965    3.79  |         V    Q    |         |         |
 9+ 0    1.2228    3.81  |         V    Q    |         |         |
 9+ 5    1.2502    3.98  |         V    Q    |         |         |
 9+10    1.2791    4.20  |         V     Q   |         |         |
 9+15    1.3084    4.25  |         |V     Q  |         |         |
 9+20    1.3383    4.35  |         |V     Q  |         |         |
 9+25    1.3691    4.46  |         |V     Q  |         |         |
 9+30    1.4000    4.49  |         |V     Q  |         |         |
 9+35    1.4315    4.58  |         | V     Q |         |         |
 9+40    1.4638    4.69  |         | V     Q |         |         |
 9+45    1.4963    4.71  |         | V     Q |         |         |
 9+50    1.5293    4.80  |         | V      Q|         |         |
 9+55    1.5632    4.91  |         |  V     Q|         |         |
10+ 0    1.5972    4.94  |         |  V     Q|         |         |
10+ 5    1.6275    4.39  |         |  V   Q  |         |         |
10+10    1.6525    3.64  |         |  VQ     |         |         |
10+15    1.6764    3.47  |         |  QV     |         |         |
10+20    1.6999    3.41  |         |  QV     |         |         |
10+25    1.7232    3.38  |         |  QV     |         |         |
10+30    1.7464    3.38  |         |  QV     |         |         |
```

```
10+35     1.7724     3.77  |         |    Q    |         |         |
10+40     1.8021     4.31  |         |    V Q  |         |         |
10+45     1.8326     4.43  |         |    V Q  |         |         |
10+50     1.8635     4.48  |         |    V Q  |         |         |
10+55     1.8945     4.50  |         |     V Q |         |         |
11+ 0     1.9255     4.50  |         |     V Q |         |         |
11+ 5     1.9560     4.42  |         |     VQ  |         |         |
11+10     1.9857     4.31  |         |     VQ  |         |         |
11+15     2.0152     4.29  |         |      Q  |         |         |
11+20     2.0447     4.28  |         |      Q  |         |         |
11+25     2.0742     4.28  |         |      Q  |         |         |
11+30     2.1036     4.28  |         |      Q  |         |         |
11+35     2.1320     4.12  |         |     Q V |         |         |
11+40     2.1589     3.90  |         |    Q  V |         |         |
11+45     2.1854     3.85  |         |    Q  V |         |         |
11+50     2.2124     3.91  |         |    Q  V |         |         |
11+55     2.2400     4.01  |         |     Q V |         |         |
12+ 0     2.2678     4.04  |         |     Q  V|         |         |
12+ 5     2.2995     4.60  |         |       QV|         |         |
12+10     2.3364     5.36  |         |        V|Q        |         |
12+15     2.3745     5.53  |         |         V Q       |         |
12+20     2.4136     5.67  |         |         V Q       |         |
12+25     2.4537     5.81  |         |         V  Q      |         |
12+30     2.4939     5.84  |         |         |V Q      |         |
12+35     2.5352     6.01  |         |         |V  Q     |         |
12+40     2.5781     6.23  |         |         |V  Q     |         |
12+45     2.6213     6.28  |         |         | V  Q    |         |
12+50     2.6655     6.41  |         |         | V  Q    |         |
12+55     2.7108     6.58  |         |         | V   Q   |         |
13+ 0     2.7566     6.65  |         |         |  V  Q   |         |
13+ 5     2.8085     7.54  |         |         |  V      Q         |
13+10     2.8687     8.74  |         |         |   V     |   Q     |
13+15     2.9310     9.05  |         |         |   V     |     Q   |
13+20     2.9942     9.18  |         |         |    V    |     Q   |
13+25     3.0580     9.26  |         |         |    V    |      Q  |
13+30     3.1221     9.30  |         |         |     V   |      Q  |
13+35     3.1762     7.87  |         |         |     V   |Q        |
13+40     3.2167     5.88  |         |         |  Q   V  |         |
13+45     3.2541     5.42  |         |         |Q     V  |         |
13+50     3.2903     5.26  |         |         |Q     V  |         |
13+55     3.3260     5.18  |         |         Q       V |         |
14+ 0     3.3616     5.18  |         |         Q       V |         |
14+ 5     3.3997     5.54  |         |         | Q     V |         |
14+10     3.4413     6.04  |         |         |   Q    V|         |
14+15     3.4839     6.18  |         |         |   Q    V|         |
14+20     3.5259     6.09  |         |         |   Q    V|         |
14+25     3.5667     5.92  |         |         |  Q      V         |
14+30     3.6072     5.89  |         |         |  Q      V         |
14+35     3.6479     5.90  |         |         |  Q      V         |
14+40     3.6887     5.93  |         |         |  Q      |V        |
14+45     3.7298     5.96  |         |         |  Q      |V        |
14+50     3.7701     5.86  |         |         |  Q      |V        |
14+55     3.8093     5.69  |         |         | Q       | V       |
15+ 0     3.8482     5.65  |         |         | Q       | V       |
15+ 5     3.8864     5.56  |         |         | Q       | V       |
15+10     3.9239     5.44  |         |         |Q        |  V      |
15+15     3.9612     5.42  |         |         |Q        |  V      |
15+20     3.9979     5.33  |         |         |Q        |  V      |
15+25     4.0338     5.22  |         |         Q         |   V     |
15+30     4.0696     5.19  |         |         Q         |   V     |
```

15+35	4.1031	4.87		Q		V
15+40	4.1336	4.43		Q		V
15+45	4.1634	4.33		Q		V
15+50	4.1930	4.29		Q		V
15+55	4.2224	4.28		Q		V
16+ 0	4.2519	4.28		Q		V
16+ 5	4.2732	3.09		Q		V
16+10	4.2833	1.47	Q			V
16+15	4.2909	1.10	Q			V
16+20	4.2976	0.97	Q			V
16+25	4.3038	0.90	Q			V
16+30	4.3100	0.90	Q			V
16+35	4.3156	0.82	Q			V
16+40	4.3205	0.71	Q			V
16+45	4.3253	0.69	Q			V
16+50	4.3300	0.68	Q			V
16+55	4.3346	0.68	Q			V
17+ 0	4.3393	0.68	Q			V
17+ 5	4.3450	0.83	Q			V
17+10	4.3522	1.05	Q			V
17+15	4.3598	1.10	Q			V
17+20	4.3675	1.12	Q			V
17+25	4.3752	1.13	Q			V
17+30	4.3830	1.13	Q			V
17+35	4.3907	1.13	Q			V
17+40	4.3985	1.13	Q			V
17+45	4.4062	1.13	Q			V
17+50	4.4134	1.05	Q			V
17+55	4.4199	0.94	Q			V
18+ 0	4.4262	0.91	Q			V
18+ 5	4.4324	0.90	Q			V
18+10	4.4386	0.90	Q			V
18+15	4.4448	0.90	Q			V
18+20	4.4510	0.90	Q			V
18+25	4.4572	0.90	Q			V
18+30	4.4634	0.90	Q			V
18+35	4.4691	0.82	Q			V
18+40	4.4740	0.71	Q			V
18+45	4.4788	0.69	Q			V
18+50	4.4829	0.60	Q			V
18+55	4.4863	0.49	Q			V
19+ 0	4.4894	0.46	Q			V
19+ 5	4.4931	0.53	Q			V
19+10	4.4975	0.64	Q			V
19+15	4.5021	0.66	Q			V
19+20	4.5072	0.75	Q			V
19+25	4.5132	0.86	Q			V
19+30	4.5193	0.89	Q			V
19+35	4.5249	0.82	Q			V
19+40	4.5298	0.71	Q			V
19+45	4.5346	0.69	Q			V
19+50	4.5387	0.60	Q			V
19+55	4.5421	0.49	Q			V
20+ 0	4.5453	0.46	Q			V
20+ 5	4.5489	0.53	Q			V
20+10	4.5533	0.64	Q			V
20+15	4.5579	0.66	Q			V
20+20	4.5625	0.67	Q			V
20+25	4.5671	0.68	Q			V
20+30	4.5718	0.68	Q			V

```
 20+35      4.5765      0.68  | Q        |          |          |       V  |
 20+40      4.5811      0.68  | Q        |          |          |       V  |
 20+45      4.5858      0.68  | Q        |          |          |       V  |
 20+50      4.5899      0.60  | Q        |          |          |       V  |
 20+55      4.5932      0.49  |Q         |          |          |       V  |
 21+ 0      4.5964      0.46  |Q         |          |          |       V  |
 21+ 5      4.6001      0.53  | Q        |          |          |       V  |
 21+10      4.6045      0.64  | Q        |          |          |       V  |
 21+15      4.6090      0.66  | Q        |          |          |        V|
 21+20      4.6131      0.59  | Q        |          |          |        V|
 21+25      4.6165      0.49  |Q         |          |          |        V|
 21+30      4.6197      0.46  |Q         |          |          |        V|
 21+35      4.6233      0.53  | Q        |          |          |        V|
 21+40      4.6277      0.64  | Q        |          |          |        V|
 21+45      4.6323      0.66  | Q        |          |          |        V|
 21+50      4.6364      0.59  | Q        |          |          |        V|
 21+55      4.6397      0.49  |Q         |          |          |        V|
 22+ 0      4.6429      0.46  |Q         |          |          |        V|
 22+ 5      4.6466      0.53  | Q        |          |          |        V|
 22+10      4.6510      0.64  | Q        |          |          |        V|
 22+15      4.6555      0.66  | Q        |          |          |        V|
 22+20      4.6596      0.59  | Q        |          |          |        V|
 22+25      4.6630      0.49  |Q         |          |          |        V|
 22+30      4.6662      0.46  |Q         |          |          |        V|
 22+35      4.6693      0.45  |Q         |          |          |        V|
 22+40      4.6724      0.45  |Q         |          |          |        V|
 22+45      4.6755      0.45  |Q         |          |          |        V|
 22+50      4.6786      0.45  |Q         |          |          |        V|
 22+55      4.6817      0.45  |Q         |          |          |        V|
 23+ 0      4.6848      0.45  |Q         |          |          |        V|
 23+ 5      4.6879      0.45  |Q         |          |          |        V|
 23+10      4.6910      0.45  |Q         |          |          |        V|
 23+15      4.6941      0.45  |Q         |          |          |        V|
 23+20      4.6972      0.45  |Q         |          |          |        V|
 23+25      4.7003      0.45  |Q         |          |          |        V|
 23+30      4.7034      0.45  |Q         |          |          |        V|
 23+35      4.7065      0.45  |Q         |          |          |        V|
 23+40      4.7096      0.45  |Q         |          |          |        V|
 23+45      4.7127      0.45  |Q         |          |          |        V|
 23+50      4.7158      0.45  |Q         |          |          |        V|
 23+55      4.7189      0.45  |Q         |          |          |        V|
 24+ 0      4.7220      0.45  |Q         |          |          |        V|
 24+ 5      4.7240      0.29  |Q         |          |          |        V|
 24+10      4.7246      0.08  Q          |          |          |        V|
 24+15      4.7247      0.03  Q          |          |          |        V|
 24+20      4.7248      0.01  Q          |          |          |         V
-----------------------------------------------------------------------
```

100 YEAR – 1 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF21100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
100-Year 1-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	0.47	14.91

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	1.30	41.41

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 1.300(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.300(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	63.0	0.438	0.457	0.258	1.000	0.258
					Sum (F) =	0.258

Area averaged mean soil loss (F) (In/Hr) = 0.258
Minimum soil loss rate ((In/Hr)) = 0.129
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period	(hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.686	0.258	(0.366)	0.428
2	0.17	4.50	0.702	0.258	(0.375)	0.444
3	0.25	5.40	0.842	0.258	(0.450)	0.584
4	0.33	5.40	0.842	0.258	(0.450)	0.584
5	0.42	5.70	0.889	0.258	(0.475)	0.631
6	0.50	6.40	0.998	0.258	(0.533)	0.740
7	0.58	7.90	1.232	0.258	(0.658)	0.974
8	0.67	9.10	1.419	0.258	(0.758)	1.161
9	0.75	12.80	1.996	0.258	(1.066)	1.738
10	0.83	25.60	3.992	0.258	(2.132)	3.735
11	0.92	7.90	1.232	0.258	(0.658)	0.974
12	1.00	4.90	0.764	0.258	(0.408)	0.506

(Loss Rate Not Used)

```
     Sum =     100.0                                  Sum =    12.5
      Flood volume = Effective rainfall      1.04(In)
       times area      31.9(Ac.)/[(In)/(Ft.)] =      2.8(Ac.Ft)
      Total soil loss =      0.26(In)
      Total soil loss =     0.684(Ac.Ft)
      Total rainfall =     1.30(In)
      Flood volume =     120450.4 Cubic Feet
      Total soil loss =      29806.4 Cubic Feet
      --------------------------------------------------------------------
       Peak flow rate of this hydrograph =     76.786(CFS)
      --------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R   S T O R M
                     R u n o f f     H y d r o g r a p h
      --------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      --------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       20.0      40.0      60.0      80.0
  -----------------------------------------------------------------------
    0+ 5       0.0332      4.83   V Q       |         |         |         |
    0+10       0.1132     11.61   |V   Q    |         |         |         |
    0+15       0.2161     14.94   |  V   Q  |         |         |         |
    0+20       0.3380     17.70   |   V   Q |         |         |         |
    0+25       0.4689     19.02   |     V  Q|         |         |         |
    0+30       0.6146     21.16   |       V Q         |         |         |
    0+35       0.7918     25.73   |         |VQ       |         |         |
    0+40       1.0114     31.89   |         |   VQ    |         |         |
    0+45       1.3025     42.27   |         |       V |Q        |         |
    0+50       1.8168     74.68   |         |         |     V   |      Q  |
    0+55       2.3457     76.79   |         |         |         |  V    Q |
    1+ 0       2.5992     36.81   |         |       Q |         |      V  |
    1+ 5       2.7169     17.09   |       Q |         |         |        V|
    1+10       2.7542      5.42   | Q       |         |         |        V|
    1+15       2.7629      1.27   Q         |         |         |        V|
    1+20       2.7652      0.33   Q         |         |         |        V|
-----------------------------------------------------------------------
```

100 YEAR – 24 HOUR
OFFSITE F_2

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 07/23/19 File: c318offsiteF224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F2)
100-Year 24-Hour

Drainage Area = 31.85(Ac.) = 0.050 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 31.85(Ac.) = 0.050 Sq. Mi.
Length along longest watercourse = 1903.90(Ft.)
Length along longest watercourse measured to centroid = 626.80(Ft.)
Length along longest watercourse = 0.361 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 91.20(Ft.)
Slope along watercourse = 252.9208 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.051 Hr.
Lag time = 3.04 Min.
25% of lag time = 0.76 Min.
40% of lag time = 1.22 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	2.23	71.03

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
31.85	5.95	189.51

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
31.850	62.97	0.457

Total Area Entered = 31.85(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	63.0	0.438	0.457	0.258	1.000	0.258
					Sum (F) =	0.258

Area averaged mean soil loss (F) (In/Hr) = 0.258
Minimum soil loss rate ((In/Hr)) = 0.129
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.534

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	164.503	35.078	11.260
2	0.167	329.005	48.025	15.415
3	0.250	493.508	10.944	3.513
4	0.333	658.010	3.952	1.269
5	0.417	822.513	2.001	0.642
			Sum = 100.000	Sum= 32.099

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.457)	0.025	0.022
2	0.17	0.07	0.048	(0.455)	0.025	0.022
3	0.25	0.07	0.048	(0.453)	0.025	0.022
4	0.33	0.10	0.071	(0.452)	0.038	0.033
5	0.42	0.10	0.071	(0.450)	0.038	0.033
6	0.50	0.10	0.071	(0.448)	0.038	0.033
7	0.58	0.10	0.071	(0.446)	0.038	0.033
8	0.67	0.10	0.071	(0.445)	0.038	0.033
9	0.75	0.10	0.071	(0.443)	0.038	0.033
10	0.83	0.13	0.095	(0.441)	0.051	0.044
11	0.92	0.13	0.095	(0.439)	0.051	0.044
12	1.00	0.13	0.095	(0.438)	0.051	0.044
13	1.08	0.10	0.071	(0.436)	0.038	0.033
14	1.17	0.10	0.071	(0.434)	0.038	0.033
15	1.25	0.10	0.071	(0.433)	0.038	0.033

16	1.33	0.10	0.071	(0.431)	0.038	0.033
17	1.42	0.10	0.071	(0.429)	0.038	0.033
18	1.50	0.10	0.071	(0.427)	0.038	0.033
19	1.58	0.10	0.071	(0.426)	0.038	0.033
20	1.67	0.10	0.071	(0.424)	0.038	0.033
21	1.75	0.10	0.071	(0.422)	0.038	0.033
22	1.83	0.13	0.095	(0.421)	0.051	0.044
23	1.92	0.13	0.095	(0.419)	0.051	0.044
24	2.00	0.13	0.095	(0.417)	0.051	0.044
25	2.08	0.13	0.095	(0.416)	0.051	0.044
26	2.17	0.13	0.095	(0.414)	0.051	0.044
27	2.25	0.13	0.095	(0.412)	0.051	0.044
28	2.33	0.13	0.095	(0.411)	0.051	0.044
29	2.42	0.13	0.095	(0.409)	0.051	0.044
30	2.50	0.13	0.095	(0.407)	0.051	0.044
31	2.58	0.17	0.119	(0.405)	0.064	0.055
32	2.67	0.17	0.119	(0.404)	0.064	0.055
33	2.75	0.17	0.119	(0.402)	0.064	0.055
34	2.83	0.17	0.119	(0.401)	0.064	0.055
35	2.92	0.17	0.119	(0.399)	0.064	0.055
36	3.00	0.17	0.119	(0.397)	0.064	0.055
37	3.08	0.17	0.119	(0.396)	0.064	0.055
38	3.17	0.17	0.119	(0.394)	0.064	0.055
39	3.25	0.17	0.119	(0.392)	0.064	0.055
40	3.33	0.17	0.119	(0.391)	0.064	0.055
41	3.42	0.17	0.119	(0.389)	0.064	0.055
42	3.50	0.17	0.119	(0.387)	0.064	0.055
43	3.58	0.17	0.119	(0.386)	0.064	0.055
44	3.67	0.17	0.119	(0.384)	0.064	0.055
45	3.75	0.17	0.119	(0.383)	0.064	0.055
46	3.83	0.20	0.143	(0.381)	0.076	0.067
47	3.92	0.20	0.143	(0.379)	0.076	0.067
48	4.00	0.20	0.143	(0.378)	0.076	0.067
49	4.08	0.20	0.143	(0.376)	0.076	0.067
50	4.17	0.20	0.143	(0.375)	0.076	0.067
51	4.25	0.20	0.143	(0.373)	0.076	0.067
52	4.33	0.23	0.167	(0.371)	0.089	0.078
53	4.42	0.23	0.167	(0.370)	0.089	0.078
54	4.50	0.23	0.167	(0.368)	0.089	0.078
55	4.58	0.23	0.167	(0.367)	0.089	0.078
56	4.67	0.23	0.167	(0.365)	0.089	0.078
57	4.75	0.23	0.167	(0.363)	0.089	0.078
58	4.83	0.27	0.190	(0.362)	0.102	0.089
59	4.92	0.27	0.190	(0.360)	0.102	0.089
60	5.00	0.27	0.190	(0.359)	0.102	0.089
61	5.08	0.20	0.143	(0.357)	0.076	0.067
62	5.17	0.20	0.143	(0.356)	0.076	0.067
63	5.25	0.20	0.143	(0.354)	0.076	0.067
64	5.33	0.23	0.167	(0.353)	0.089	0.078
65	5.42	0.23	0.167	(0.351)	0.089	0.078
66	5.50	0.23	0.167	(0.349)	0.089	0.078
67	5.58	0.27	0.190	(0.348)	0.102	0.089
68	5.67	0.27	0.190	(0.346)	0.102	0.089
69	5.75	0.27	0.190	(0.345)	0.102	0.089
70	5.83	0.27	0.190	(0.343)	0.102	0.089
71	5.92	0.27	0.190	(0.342)	0.102	0.089
72	6.00	0.27	0.190	(0.340)	0.102	0.089
73	6.08	0.30	0.214	(0.339)	0.114	0.100
74	6.17	0.30	0.214	(0.337)	0.114	0.100
75	6.25	0.30	0.214	(0.336)	0.114	0.100

76	6.33	0.30	0.214	(0.334)	0.114	0.100
77	6.42	0.30	0.214	(0.333)	0.114	0.100
78	6.50	0.30	0.214	(0.331)	0.114	0.100
79	6.58	0.33	0.238	(0.330)	0.127	0.111
80	6.67	0.33	0.238	(0.328)	0.127	0.111
81	6.75	0.33	0.238	(0.327)	0.127	0.111
82	6.83	0.33	0.238	(0.325)	0.127	0.111
83	6.92	0.33	0.238	(0.324)	0.127	0.111
84	7.00	0.33	0.238	(0.322)	0.127	0.111
85	7.08	0.33	0.238	(0.321)	0.127	0.111
86	7.17	0.33	0.238	(0.319)	0.127	0.111
87	7.25	0.33	0.238	(0.318)	0.127	0.111
88	7.33	0.37	0.262	(0.317)	0.140	0.122
89	7.42	0.37	0.262	(0.315)	0.140	0.122
90	7.50	0.37	0.262	(0.314)	0.140	0.122
91	7.58	0.40	0.286	(0.312)	0.153	0.133
92	7.67	0.40	0.286	(0.311)	0.153	0.133
93	7.75	0.40	0.286	(0.309)	0.153	0.133
94	7.83	0.43	0.309	(0.308)	0.165	0.144
95	7.92	0.43	0.309	(0.307)	0.165	0.144
96	8.00	0.43	0.309	(0.305)	0.165	0.144
97	8.08	0.50	0.357	(0.304)	0.191	0.166
98	8.17	0.50	0.357	(0.302)	0.191	0.166
99	8.25	0.50	0.357	(0.301)	0.191	0.166
100	8.33	0.50	0.357	(0.299)	0.191	0.166
101	8.42	0.50	0.357	(0.298)	0.191	0.166
102	8.50	0.50	0.357	(0.297)	0.191	0.166
103	8.58	0.53	0.381	(0.295)	0.203	0.177
104	8.67	0.53	0.381	(0.294)	0.203	0.177
105	8.75	0.53	0.381	(0.292)	0.203	0.177
106	8.83	0.57	0.405	(0.291)	0.216	0.189
107	8.92	0.57	0.405	(0.290)	0.216	0.189
108	9.00	0.57	0.405	(0.288)	0.216	0.189
109	9.08	0.63	0.452	(0.287)	0.241	0.211
110	9.17	0.63	0.452	(0.286)	0.241	0.211
111	9.25	0.63	0.452	(0.284)	0.241	0.211
112	9.33	0.67	0.476	(0.283)	0.254	0.222
113	9.42	0.67	0.476	(0.282)	0.254	0.222
114	9.50	0.67	0.476	(0.280)	0.254	0.222
115	9.58	0.70	0.500	(0.279)	0.267	0.233
116	9.67	0.70	0.500	(0.278)	0.267	0.233
117	9.75	0.70	0.500	(0.276)	0.267	0.233
118	9.83	0.73	0.524	0.275	(0.280)	0.249
119	9.92	0.73	0.524	0.274	(0.280)	0.250
120	10.00	0.73	0.524	0.272	(0.280)	0.251
121	10.08	0.50	0.357	(0.271)	0.191	0.166
122	10.17	0.50	0.357	(0.270)	0.191	0.166
123	10.25	0.50	0.357	(0.268)	0.191	0.166
124	10.33	0.50	0.357	(0.267)	0.191	0.166
125	10.42	0.50	0.357	(0.266)	0.191	0.166
126	10.50	0.50	0.357	(0.264)	0.191	0.166
127	10.58	0.67	0.476	(0.263)	0.254	0.222
128	10.67	0.67	0.476	(0.262)	0.254	0.222
129	10.75	0.67	0.476	(0.261)	0.254	0.222
130	10.83	0.67	0.476	(0.259)	0.254	0.222
131	10.92	0.67	0.476	(0.258)	0.254	0.222
132	11.00	0.67	0.476	(0.257)	0.254	0.222
133	11.08	0.63	0.452	(0.255)	0.241	0.211
134	11.17	0.63	0.452	(0.254)	0.241	0.211
135	11.25	0.63	0.452	(0.253)	0.241	0.211

136	11.33	0.63	0.452	(0.252)	0.241	0.211
137	11.42	0.63	0.452	(0.250)	0.241	0.211
138	11.50	0.63	0.452	(0.249)	0.241	0.211
139	11.58	0.57	0.405	(0.248)	0.216	0.189
140	11.67	0.57	0.405	(0.247)	0.216	0.189
141	11.75	0.57	0.405	(0.246)	0.216	0.189
142	11.83	0.60	0.428	(0.244)	0.229	0.200
143	11.92	0.60	0.428	(0.243)	0.229	0.200
144	12.00	0.60	0.428	(0.242)	0.229	0.200
145	12.08	0.83	0.595	0.241	(0.318)	0.354
146	12.17	0.83	0.595	0.239	(0.318)	0.356
147	12.25	0.83	0.595	0.238	(0.318)	0.357
148	12.33	0.87	0.619	0.237	(0.330)	0.382
149	12.42	0.87	0.619	0.236	(0.330)	0.383
150	12.50	0.87	0.619	0.235	(0.330)	0.384
151	12.58	0.93	0.666	0.233	(0.356)	0.433
152	12.67	0.93	0.666	0.232	(0.356)	0.434
153	12.75	0.93	0.666	0.231	(0.356)	0.435
154	12.83	0.97	0.690	0.230	(0.369)	0.460
155	12.92	0.97	0.690	0.229	(0.369)	0.461
156	13.00	0.97	0.690	0.228	(0.369)	0.462
157	13.08	1.13	0.809	0.227	(0.432)	0.583
158	13.17	1.13	0.809	0.225	(0.432)	0.584
159	13.25	1.13	0.809	0.224	(0.432)	0.585
160	13.33	1.13	0.809	0.223	(0.432)	0.586
161	13.42	1.13	0.809	0.222	(0.432)	0.587
162	13.50	1.13	0.809	0.221	(0.432)	0.588
163	13.58	0.77	0.547	0.220	(0.292)	0.328
164	13.67	0.77	0.547	0.219	(0.292)	0.329
165	13.75	0.77	0.547	0.217	(0.292)	0.330
166	13.83	0.77	0.547	0.216	(0.292)	0.331
167	13.92	0.77	0.547	0.215	(0.292)	0.332
168	14.00	0.77	0.547	0.214	(0.292)	0.333
169	14.08	0.90	0.643	0.213	(0.343)	0.430
170	14.17	0.90	0.643	0.212	(0.343)	0.431
171	14.25	0.90	0.643	0.211	(0.343)	0.432
172	14.33	0.87	0.619	0.210	(0.330)	0.409
173	14.42	0.87	0.619	0.209	(0.330)	0.410
174	14.50	0.87	0.619	0.208	(0.330)	0.411
175	14.58	0.87	0.619	0.207	(0.330)	0.412
176	14.67	0.87	0.619	0.206	(0.330)	0.413
177	14.75	0.87	0.619	0.204	(0.330)	0.414
178	14.83	0.83	0.595	0.203	(0.318)	0.392
179	14.92	0.83	0.595	0.202	(0.318)	0.393
180	15.00	0.83	0.595	0.201	(0.318)	0.394
181	15.08	0.80	0.571	0.200	(0.305)	0.371
182	15.17	0.80	0.571	0.199	(0.305)	0.372
183	15.25	0.80	0.571	0.198	(0.305)	0.373
184	15.33	0.77	0.547	0.197	(0.292)	0.350
185	15.42	0.77	0.547	0.196	(0.292)	0.351
186	15.50	0.77	0.547	0.195	(0.292)	0.352
187	15.58	0.63	0.452	0.194	(0.241)	0.258
188	15.67	0.63	0.452	0.193	(0.241)	0.259
189	15.75	0.63	0.452	0.192	(0.241)	0.260
190	15.83	0.63	0.452	0.191	(0.241)	0.261
191	15.92	0.63	0.452	0.190	(0.241)	0.262
192	16.00	0.63	0.452	0.189	(0.241)	0.263
193	16.08	0.13	0.095	(0.188)	0.051	0.044
194	16.17	0.13	0.095	(0.187)	0.051	0.044
195	16.25	0.13	0.095	(0.186)	0.051	0.044

196	16.33	0.13	0.095	(0.185)	0.051	0.044
197	16.42	0.13	0.095	(0.185)	0.051	0.044
198	16.50	0.13	0.095	(0.184)	0.051	0.044
199	16.58	0.10	0.071	(0.183)	0.038	0.033
200	16.67	0.10	0.071	(0.182)	0.038	0.033
201	16.75	0.10	0.071	(0.181)	0.038	0.033
202	16.83	0.10	0.071	(0.180)	0.038	0.033
203	16.92	0.10	0.071	(0.179)	0.038	0.033
204	17.00	0.10	0.071	(0.178)	0.038	0.033
205	17.08	0.17	0.119	(0.177)	0.064	0.055
206	17.17	0.17	0.119	(0.176)	0.064	0.055
207	17.25	0.17	0.119	(0.175)	0.064	0.055
208	17.33	0.17	0.119	(0.175)	0.064	0.055
209	17.42	0.17	0.119	(0.174)	0.064	0.055
210	17.50	0.17	0.119	(0.173)	0.064	0.055
211	17.58	0.17	0.119	(0.172)	0.064	0.055
212	17.67	0.17	0.119	(0.171)	0.064	0.055
213	17.75	0.17	0.119	(0.170)	0.064	0.055
214	17.83	0.13	0.095	(0.169)	0.051	0.044
215	17.92	0.13	0.095	(0.169)	0.051	0.044
216	18.00	0.13	0.095	(0.168)	0.051	0.044
217	18.08	0.13	0.095	(0.167)	0.051	0.044
218	18.17	0.13	0.095	(0.166)	0.051	0.044
219	18.25	0.13	0.095	(0.165)	0.051	0.044
220	18.33	0.13	0.095	(0.164)	0.051	0.044
221	18.42	0.13	0.095	(0.164)	0.051	0.044
222	18.50	0.13	0.095	(0.163)	0.051	0.044
223	18.58	0.10	0.071	(0.162)	0.038	0.033
224	18.67	0.10	0.071	(0.161)	0.038	0.033
225	18.75	0.10	0.071	(0.160)	0.038	0.033
226	18.83	0.07	0.048	(0.160)	0.025	0.022
227	18.92	0.07	0.048	(0.159)	0.025	0.022
228	19.00	0.07	0.048	(0.158)	0.025	0.022
229	19.08	0.10	0.071	(0.157)	0.038	0.033
230	19.17	0.10	0.071	(0.157)	0.038	0.033
231	19.25	0.10	0.071	(0.156)	0.038	0.033
232	19.33	0.13	0.095	(0.155)	0.051	0.044
233	19.42	0.13	0.095	(0.155)	0.051	0.044
234	19.50	0.13	0.095	(0.154)	0.051	0.044
235	19.58	0.10	0.071	(0.153)	0.038	0.033
236	19.67	0.10	0.071	(0.152)	0.038	0.033
237	19.75	0.10	0.071	(0.152)	0.038	0.033
238	19.83	0.07	0.048	(0.151)	0.025	0.022
239	19.92	0.07	0.048	(0.150)	0.025	0.022
240	20.00	0.07	0.048	(0.150)	0.025	0.022
241	20.08	0.10	0.071	(0.149)	0.038	0.033
242	20.17	0.10	0.071	(0.148)	0.038	0.033
243	20.25	0.10	0.071	(0.148)	0.038	0.033
244	20.33	0.10	0.071	(0.147)	0.038	0.033
245	20.42	0.10	0.071	(0.146)	0.038	0.033
246	20.50	0.10	0.071	(0.146)	0.038	0.033
247	20.58	0.10	0.071	(0.145)	0.038	0.033
248	20.67	0.10	0.071	(0.145)	0.038	0.033
249	20.75	0.10	0.071	(0.144)	0.038	0.033
250	20.83	0.07	0.048	(0.143)	0.025	0.022
251	20.92	0.07	0.048	(0.143)	0.025	0.022
252	21.00	0.07	0.048	(0.142)	0.025	0.022
253	21.08	0.10	0.071	(0.142)	0.038	0.033
254	21.17	0.10	0.071	(0.141)	0.038	0.033
255	21.25	0.10	0.071	(0.141)	0.038	0.033

256	21.33	0.07	0.048	(0.140)	0.025	0.022
257	21.42	0.07	0.048	(0.140)	0.025	0.022
258	21.50	0.07	0.048	(0.139)	0.025	0.022
259	21.58	0.10	0.071	(0.139)	0.038	0.033
260	21.67	0.10	0.071	(0.138)	0.038	0.033
261	21.75	0.10	0.071	(0.138)	0.038	0.033
262	21.83	0.07	0.048	(0.137)	0.025	0.022
263	21.92	0.07	0.048	(0.137)	0.025	0.022
264	22.00	0.07	0.048	(0.136)	0.025	0.022
265	22.08	0.10	0.071	(0.136)	0.038	0.033
266	22.17	0.10	0.071	(0.135)	0.038	0.033
267	22.25	0.10	0.071	(0.135)	0.038	0.033
268	22.33	0.07	0.048	(0.134)	0.025	0.022
269	22.42	0.07	0.048	(0.134)	0.025	0.022
270	22.50	0.07	0.048	(0.134)	0.025	0.022
271	22.58	0.07	0.048	(0.133)	0.025	0.022
272	22.67	0.07	0.048	(0.133)	0.025	0.022
273	22.75	0.07	0.048	(0.132)	0.025	0.022
274	22.83	0.07	0.048	(0.132)	0.025	0.022
275	22.92	0.07	0.048	(0.132)	0.025	0.022
276	23.00	0.07	0.048	(0.131)	0.025	0.022
277	23.08	0.07	0.048	(0.131)	0.025	0.022
278	23.17	0.07	0.048	(0.131)	0.025	0.022
279	23.25	0.07	0.048	(0.131)	0.025	0.022
280	23.33	0.07	0.048	(0.130)	0.025	0.022
281	23.42	0.07	0.048	(0.130)	0.025	0.022
282	23.50	0.07	0.048	(0.130)	0.025	0.022
283	23.58	0.07	0.048	(0.130)	0.025	0.022
284	23.67	0.07	0.048	(0.129)	0.025	0.022
285	23.75	0.07	0.048	(0.129)	0.025	0.022
286	23.83	0.07	0.048	(0.129)	0.025	0.022
287	23.92	0.07	0.048	(0.129)	0.025	0.022
288	24.00	0.07	0.048	(0.129)	0.025	0.022

(Loss Rate Not Used)

Sum = 100.0 Sum = 38.7

Flood volume = Effective rainfall 3.22(In)
times area 31.9(Ac.)/[(In)/(Ft.)] = 8.6(Ac.Ft)
Total soil loss = 2.73(In)
Total soil loss = 7.236(Ac.Ft)
Total rainfall = 5.95(In)
Flood volume = 372685.9 Cubic Feet
Total soil loss = 315183.6 Cubic Feet

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----------------------------------------------------------------------
 Peak flow rate of this hydrograph =     18.862(CFS)
----------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                 R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
              Hydrograph in   5   Minute intervals ((CFS))

----------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0         5.0       10.0      15.0      20.0
-----------------------------------------------------------------------
  0+ 5      0.0017      0.25  Q          |         |         |         |
  0+10      0.0058      0.59  VQ         |         |         |         |
  0+15      0.0104      0.67  VQ         |         |         |         |
  0+20      0.0161      0.82  VQ         |         |         |         |
  0+25      0.0230      1.01  V Q        |         |         |         |
  0+30      0.0302      1.05  V Q        |         |         |         |
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0+35       0.0375      1.06  V Q           |          |          |          |
0+40       0.0449      1.07  V Q           |          |          |          |
0+45       0.0523      1.07  V Q           |          |          |          |
0+50       0.0605      1.19  V Q           |          |          |          |
0+55       0.0699      1.36  V Q           |          |          |          |
1+ 0       0.0795      1.40  V Q           |          |          |          |
1+ 5       0.0884      1.29  V Q           |          |          |          |
1+10       0.0962      1.13  V Q           |          |          |          |
1+15       0.1037      1.09  V Q           |          |          |          |
1+20       0.1111      1.08  V Q           |          |          |          |
1+25       0.1185      1.07  V Q           |          |          |          |
1+30       0.1259      1.07  V Q           |          |          |          |
1+35       0.1332      1.07  V Q           |          |          |          |
1+40       0.1406      1.07  V Q           |          |          |          |
1+45       0.1479      1.07  V Q           |          |          |          |
1+50       0.1561      1.19  V Q           |          |          |          |
1+55       0.1655      1.36  V Q           |          |          |          |
2+ 0       0.1752      1.40  V Q           |          |          |          |
2+ 5       0.1850      1.42  V Q           |          |          |          |
2+10       0.1948      1.42  V Q           |          |          |          |
2+15       0.2046      1.42  V Q           |          |          |          |
2+20       0.2144      1.42  |VQ           |          |          |          |
2+25       0.2242      1.42  |VQ           |          |          |          |
2+30       0.2340      1.42  |VQ           |          |          |          |
2+35       0.2447      1.55  |V Q          |          |          |          |
2+40       0.2566      1.72  |V Q          |          |          |          |
2+45       0.2687      1.76  |V Q          |          |          |          |
2+50       0.2809      1.77  |V Q          |          |          |          |
2+55       0.2932      1.78  |V Q          |          |          |          |
3+ 0       0.3054      1.78  |V Q          |          |          |          |
3+ 5       0.3177      1.78  |V Q          |          |          |          |
3+10       0.3299      1.78  |V Q          |          |          |          |
3+15       0.3422      1.78  |V Q          |          |          |          |
3+20       0.3545      1.78  |V Q          |          |          |          |
3+25       0.3667      1.78  |V Q          |          |          |          |
3+30       0.3790      1.78  |V Q          |          |          |          |
3+35       0.3913      1.78  |V Q          |          |          |          |
3+40       0.4035      1.78  |V Q          |          |          |          |
3+45       0.4158      1.78  |V Q          |          |          |          |
3+50       0.4289      1.91  | VQ          |          |          |          |
3+55       0.4432      2.08  | V Q         |          |          |          |
4+ 0       0.4578      2.12  | V Q         |          |          |          |
4+ 5       0.4725      2.13  | V Q         |          |          |          |
4+10       0.4872      2.14  | V Q         |          |          |          |
4+15       0.5019      2.14  | V Q         |          |          |          |
4+20       0.5175      2.26  | V Q         |          |          |          |
4+25       0.5342      2.43  | V Q         |          |          |          |
4+30       0.5513      2.47  | V Q         |          |          |          |
4+35       0.5684      2.49  | V Q         |          |          |          |
4+40       0.5856      2.49  | V Q         |          |          |          |
4+45       0.6027      2.49  | V Q         |          |          |          |
4+50       0.6208      2.62  | V  Q        |          |          |          |
4+55       0.6400      2.79  | V  Q        |          |          |          |
5+ 0       0.6594      2.83  |  V Q        |          |          |          |
5+ 5       0.6773      2.59  |  V Q        |          |          |          |
5+10       0.6928      2.26  |  VQ         |          |          |          |
5+15       0.7078      2.18  |  VQ         |          |          |          |
5+20       0.7235      2.28  |  VQ         |          |          |          |
5+25       0.7403      2.43  |  VQ         |          |          |          |
5+30       0.7573      2.47  |  VQ         |          |          |          |
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 5+35     0.7753     2.61  |  V Q     |         |         |         |
 5+40     0.7945     2.79  |  V Q     |         |         |         |
 5+45     0.8140     2.83  |  V Q     |         |         |         |
 5+50     0.8335     2.84  |  V Q     |         |         |         |
 5+55     0.8532     2.85  |  V Q     |         |         |         |
 6+ 0     0.8728     2.85  |   VQ     |         |         |         |
 6+ 5     0.8933     2.97  |   VQ     |         |         |         |
 6+10     0.9149     3.15  |   V Q    |         |         |         |
 6+15     0.9369     3.18  |   V Q    |         |         |         |
 6+20     0.9589     3.20  |   V Q    |         |         |         |
 6+25     0.9810     3.21  |   V Q    |         |         |         |
 6+30     1.0030     3.21  |   V Q    |         |         |         |
 6+35     1.0260     3.33  |   V Q    |         |         |         |
 6+40     1.0501     3.50  |   V  Q   |         |         |         |
 6+45     1.0745     3.54  |    V Q   |         |         |         |
 6+50     1.0990     3.55  |    V Q   |         |         |         |
 6+55     1.1235     3.56  |    V Q   |         |         |         |
 7+ 0     1.1480     3.56  |    V Q   |         |         |         |
 7+ 5     1.1725     3.56  |    V Q   |         |         |         |
 7+10     1.1971     3.56  |    V Q   |         |         |         |
 7+15     1.2216     3.56  |    V Q   |         |         |         |
 7+20     1.2470     3.69  |    V Q   |         |         |         |
 7+25     1.2736     3.86  |    V Q   |         |         |         |
 7+30     1.3004     3.90  |     VQ   |         |         |         |
 7+35     1.3282     4.04  |     V Q  |         |         |         |
 7+40     1.3572     4.21  |     V Q  |         |         |         |
 7+45     1.3865     4.25  |     V Q  |         |         |         |
 7+50     1.4168     4.39  |     V Q  |         |         |         |
 7+55     1.4482     4.57  |     V  Q |         |         |         |
 8+ 0     1.4800     4.61  |     V  Q |         |         |         |
 8+ 5     1.5135     4.87  |      V Q |         |         |         |
 8+10     1.5495     5.22  |      V   Q         |         |         |
 8+15     1.5860     5.30  |      V   Q         |         |         |
 8+20     1.6227     5.33  |      V   Q         |         |         |
 8+25     1.6595     5.34  |      V   Q         |         |         |
 8+30     1.6963     5.34  |      V   Q         |         |         |
 8+35     1.7339     5.47  |       V  Q         |         |         |
 8+40     1.7728     5.64  |       V  |Q        |         |         |
 8+45     1.8119     5.68  |       V  |Q        |         |         |
 8+50     1.8519     5.82  |       V  |Q        |         |         |
 8+55     1.8932     5.99  |       V  |Q        |         |         |
 9+ 0     1.9348     6.03  |        V | Q       |         |         |
 9+ 5     1.9781     6.30  |        V | Q       |         |         |
 9+10     2.0239     6.65  |        V |  Q      |         |         |
 9+15     2.0702     6.72  |        V |  Q      |         |         |
 9+20     2.1176     6.88  |        V |  Q      |         |         |
 9+25     2.1662     7.06  |          V   Q     |         |         |
 9+30     2.2151     7.10  |          V   Q     |         |         |
 9+35     2.2650     7.24  |          V   Q     |         |         |
 9+40     2.3161     7.42  |          V   Q     |         |         |
 9+45     2.3675     7.46  |          |V  Q     |         |         |
 9+50     2.4202     7.65  |          |V   Q    |         |         |
 9+55     2.4747     7.92  |          |V   Q    |         |         |
10+ 0     2.5298     8.01  |          |V    Q   |         |         |
10+ 5     2.5787     7.09  |          | V Q     |         |         |
10+10     2.6186     5.80  |          |QV       |         |         |
10+15     2.6565     5.50  |          |QV       |         |         |
10+20     2.6937     5.40  |          Q V       |         |         |
10+25     2.7305     5.34  |          Q V       |         |         |
10+30     2.7673     5.34  |          Q V       |         |         |
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10+35       2.8084      5.97  |         |Q V      |         |         |
10+40       2.8554      6.82  |         |  Q      |         |         |
10+45       2.9037      7.02  |         |  VQ     |         |         |
10+50       2.9525      7.09  |         |  VQ     |         |         |
10+55       3.0016      7.12  |         |   Q     |         |         |
11+ 0       3.0506      7.12  |         |   Q     |         |         |
11+ 5       3.0988      7.00  |         |  QV     |         |         |
11+10       3.1458      6.83  |         |  QV     |         |         |
11+15       3.1926      6.79  |         |  QV     |         |         |
11+20       3.2393      6.77  |         |  Q V    |         |         |
11+25       3.2859      6.77  |         |  Q V    |         |         |
11+30       3.3325      6.77  |         |  Q V    |         |         |
11+35       3.3773      6.52  |         |  Q V    |         |         |
11+40       3.4199      6.18  |         | Q  V    |         |         |
11+45       3.4619      6.10  |         | Q   V   |         |         |
11+50       3.5045      6.19  |         | Q   V   |         |         |
11+55       3.5483      6.35  |         | Q   V   |         |         |
12+ 0       3.5923      6.39  |         | Q   V   |         |         |
12+ 5       3.6484      8.15  |         |     QV  |         |         |
12+10       3.7211     10.55  |         |      V  |Q        |         |
12+15       3.7977     11.13  |         |      V  | Q       |         |
12+20       3.8778     11.63  |         |       V |  Q      |         |
12+25       3.9614     12.13  |         |       V |   Q     |         |
12+30       4.0458     12.26  |         |       V |   Q     |         |
12+35       4.1343     12.86  |         |        V|    Q    |         |
12+40       4.2283     13.65  |         |        V|      Q  |         |
12+45       4.3237     13.85  |         |         V      Q  |         |
12+50       4.4216     14.22  |         |         V       Q |         |
12+55       4.5225     14.65  |         |         |V       Q|         |
13+ 0       4.6243     14.77  |         |         |V       Q|         |
13+ 5       4.7357     16.18  |         |         | V       | Q       |
13+10       4.8602     18.07  |         |         | V       |     Q   |
13+15       4.9878     18.52  |         |         |  V      |      Q  |
13+20       5.1167     18.71  |         |         |  V      |      Q  |
13+25       5.2463     18.83  |         |         |   V     |      Q  |
13+30       5.3762     18.86  |         |         |    V    |      Q  |
13+35       5.4861     15.95  |         |         |    V    |Q        |
13+40       5.5683     11.95  |         |         |  Q  V   |         |
13+45       5.6445     11.06  |         |         | Q   V   |         |
13+50       5.7187     10.77  |         |         |Q    V   |         |
13+55       5.7919     10.63  |         |         |Q     V  |         |
14+ 0       5.8654     10.67  |         |         |Q     V  |         |
14+ 5       5.9465     11.78  |         |         |  Q   V  |         |
14+10       6.0380     13.28  |         |         |     Q V |         |
14+15       6.1320     13.65  |         |         |      QV |         |
14+20       6.2252     13.54  |         |         |      Q V|         |
14+25       6.3166     13.27  |         |         |     Q  V|         |
14+30       6.4076     13.22  |         |         |     Q  V|         |
14+35       6.4987     13.22  |         |         |     Q   V         |
14+40       6.5899     13.24  |         |         |     Q   V         |
14+45       6.6813     13.27  |         |         |     Q   |V        |
14+50       6.7711     13.04  |         |         |     Q   |V        |
14+55       6.8586     12.71  |         |         |    Q    | V       |
15+ 0       6.9458     12.66  |         |         |    Q    | V       |
15+ 5       7.0311     12.39  |         |         |   Q     | V       |
15+10       7.1140     12.04  |         |         |   Q     |  V      |
15+15       7.1966     11.99  |         |         |  Q      |  V      |
15+20       7.2774     11.73  |         |         |  Q      |   V     |
15+25       7.3557     11.38  |         |         | Q       |   V     |
15+30       7.4337     11.33  |         |         | Q       |   V     |
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15+35    7.5044   10.25   |                |                Q                |       V        |
15+40    7.5650    8.80   |                |          Q     |                |       V        |
15+45    7.6235    8.50   |                |          Q     |                |       V        |
15+50    7.6815    8.41   |                |        Q       |                |       V        |
15+55    7.7392    8.38   |                |        Q       |                |         V      |
16+ 0    7.7971    8.41   |                |        Q       |                |         V      |
16+ 5    7.8383    5.97   |                |Q               |                |         V      |
16+10    7.8562    2.61   |       Q        |                |                |         V      |
16+15    7.8689    1.84   |    Q           |                |                |         V      |
16+20    7.8797    1.57   |    Q           |                |                |         V      |
16+25    7.8895    1.42   |  Q             |                |                |         V      |
16+30    7.8993    1.42   |  Q             |                |                |         V      |
16+35    7.9083    1.30   |  Q             |                |                |         V      |
16+40    7.9160    1.13   |  Q             |                |                |           V    |
16+45    7.9235    1.09   |  Q             |                |                |           V    |
16+50    7.9309    1.08   |  Q             |                |                |           V    |
16+55    7.9383    1.07   |  Q             |                |                |           V    |
17+ 0    7.9457    1.07   |  Q             |                |                |           V    |
17+ 5    7.9547    1.32   |  Q             |                |                |           V    |
17+10    7.9662    1.66   |    Q           |                |                |           V    |
17+15    7.9782    1.74   |    Q           |                |                |           V    |
17+20    7.9903    1.77   |    Q           |                |                |           V    |
17+25    8.0026    1.78   |    Q           |                |                |           V    |
17+30    8.0148    1.78   |    Q           |                |                |           V    |
17+35    8.0271    1.78   |    Q           |                |                |           V    |
17+40    8.0394    1.78   |    Q           |                |                |           V    |
17+45    8.0516    1.78   |    Q           |                |                |           V    |
17+50    8.0630    1.66   |    Q           |                |                |           V    |
17+55    8.0733    1.48   |  Q             |                |                |           V    |
18+ 0    8.0832    1.45   |  Q             |                |                |           V    |
18+ 5    8.0931    1.43   |  Q             |                |                |           V    |
18+10    8.1029    1.42   |  Q             |                |                |           V    |
18+15    8.1127    1.42   |  Q             |                |                |           V    |
18+20    8.1225    1.42   |  Q             |                |                |           V    |
18+25    8.1323    1.42   |  Q             |                |                |             V  |
18+30    8.1422    1.42   |  Q             |                |                |             V  |
18+35    8.1511    1.30   |  Q             |                |                |             V  |
18+40    8.1589    1.13   |  Q             |                |                |             V  |
18+45    8.1664    1.09   |  Q             |                |                |             V  |
18+50    8.1729    0.95   |Q               |                |                |             V  |
18+55    8.1782    0.77   |Q               |                |                |             V  |
19+ 0    8.1833    0.73   |Q               |                |                |             V  |
19+ 5    8.1891    0.84   |Q               |                |                |             V  |
19+10    8.1961    1.01   |  Q             |                |                |             V  |
19+15    8.2033    1.05   |  Q             |                |                |             V  |
19+20    8.2114    1.19   |  Q             |                |                |             V  |
19+25    8.2208    1.36   |  Q             |                |                |             V  |
19+30    8.2305    1.40   |  Q             |                |                |             V  |
19+35    8.2394    1.29   |  Q             |                |                |             V  |
19+40    8.2472    1.13   |  Q             |                |                |             V  |
19+45    8.2547    1.09   |  Q             |                |                |             V  |
19+50    8.2612    0.95   |Q               |                |                |             V  |
19+55    8.2666    0.77   |Q               |                |                |             V  |
20+ 0    8.2716    0.73   |Q               |                |                |             V  |
20+ 5    8.2774    0.84   |Q               |                |                |             V  |
20+10    8.2844    1.01   |  Q             |                |                |             V  |
20+15    8.2916    1.05   |  Q             |                |                |             V  |
20+20    8.2989    1.06   |  Q             |                |                |             V  |
20+25    8.3062    1.07   |  Q             |                |                |             V  |
20+30    8.3136    1.07   |  Q             |                |                |             V  |
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 20+35      8.3210      1.07  | Q       |         |         |      V |
 20+40      8.3283      1.07  | Q       |         |         |      V |
 20+45      8.3357      1.07  | Q       |         |         |      V |
 20+50      8.3422      0.94  |Q        |         |         |       V|
 20+55      8.3475      0.77  |Q        |         |         |       V|
 21+ 0      8.3526      0.73  |Q        |         |         |       V|
 21+ 5      8.3584      0.84  |Q        |         |         |       V|
 21+10      8.3653      1.01  | Q       |         |         |       V|
 21+15      8.3725      1.05  | Q       |         |         |       V|
 21+20      8.3790      0.94  |Q        |         |         |       V|
 21+25      8.3843      0.77  |Q        |         |         |       V|
 21+30      8.3893      0.73  |Q        |         |         |       V|
 21+35      8.3952      0.84  |Q        |         |         |       V|
 21+40      8.4021      1.01  | Q       |         |         |       V|
 21+45      8.4093      1.05  | Q       |         |         |       V|
 21+50      8.4158      0.94  |Q        |         |         |       V|
 21+55      8.4211      0.77  |Q        |         |         |       V|
 22+ 0      8.4261      0.73  |Q        |         |         |       V|
 22+ 5      8.4320      0.84  |Q        |         |         |       V|
 22+10      8.4389      1.01  | Q       |         |         |       V|
 22+15      8.4461      1.05  | Q       |         |         |       V|
 22+20      8.4526      0.94  |Q        |         |         |       V|
 22+25      8.4579      0.77  |Q        |         |         |       V|
 22+30      8.4629      0.73  |Q        |         |         |       V|
 22+35      8.4679      0.72  |Q        |         |         |       V|
 22+40      8.4728      0.71  |Q        |         |         |       V|
 22+45      8.4777      0.71  |Q        |         |         |       V|
 22+50      8.4826      0.71  |Q        |         |         |       V|
 22+55      8.4875      0.71  |Q        |         |         |       V|
 23+ 0      8.4924      0.71  |Q        |         |         |       V|
 23+ 5      8.4973      0.71  |Q        |         |         |       V|
 23+10      8.5022      0.71  |Q        |         |         |       V|
 23+15      8.5071      0.71  |Q        |         |         |       V|
 23+20      8.5120      0.71  |Q        |         |         |       V|
 23+25      8.5169      0.71  |Q        |         |         |       V|
 23+30      8.5219      0.71  |Q        |         |         |       V|
 23+35      8.5268      0.71  |Q        |         |         |       V|
 23+40      8.5317      0.71  |Q        |         |         |       V|
 23+45      8.5366      0.71  |Q        |         |         |       V|
 23+50      8.5415      0.71  |Q        |         |         |       V|
 23+55      8.5464      0.71  |Q        |         |         |       V|
 24+ 0      8.5513      0.71  |Q        |         |         |       V|
 24+ 5      8.5545      0.46  Q         |         |         |       V|
 24+10      8.5553      0.12  Q         |         |         |       V|
 24+15      8.5556      0.04  Q         |         |         |       V|
 24+20      8.5557      0.01  Q         |         |         |        V
-----------------------------------------------------------------------
```

100 YEAR – 1 HOUR
OFFSITE F_4

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U n i t   H y d r o g r a p h   A n a l y s i s

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     Study date  07/23/19 File: c318offsiteF41100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6222

---------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



---------------------------------------------------------------------
St. Frances of Rome - Wildomar
Offsite (F4)
100-Year 1-Hour
--------------------------------------------------------------------
Drainage Area =       4.79(Ac.)  =      0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      4.79(Ac.)  =      0.007 Sq.
Mi.
Length along longest watercourse =    1644.50(Ft.)
Length along longest watercourse measured to centroid =     913.10(Ft.)
Length along longest watercourse =      0.311 Mi.
Length along longest watercourse measured to centroid =     0.173 Mi.
Difference in elevation =      76.00(Ft.)
Slope along watercourse =    244.0134 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time =    0.056 Hr.
Lag time =     3.34 Min.
25% of lag time =     0.83 Min.
40% of lag time =     1.34 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.79              0.47                    2.24

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.79              1.30                    6.23

STORM EVENT (YEAR) =  100.00
```

Area Averaged 2-Year Rainfall = 0.468(In)
Area Averaged 100-Year Rainfall = 1.300(In)

Point rain (area averaged) = 1.300(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.300(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.790	56.61	0.496

Total Area Entered = 4.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.6	56.6	0.505	0.496	0.279	1.000	0.279
					Sum (F) =	0.279

Area averaged mean soil loss (F) (In/Hr) = 0.279
Minimum soil loss rate ((In/Hr)) = 0.140
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.503

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	149.726	31.612	1.526
2	0.167	299.453	48.945	2.363
3	0.250	449.179	11.979	0.578
4	0.333	598.905	4.664	0.225
5	0.417	748.631	1.940	0.094
6	0.500	898.358	0.860	0.042
			Sum = 100.000	Sum= 4.827

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.686	0.279	(0.345)	0.407
2	0.17	4.50	0.702	0.279	(0.353)	0.423
3	0.25	5.40	0.842	0.279	(0.424)	0.563
4	0.33	5.40	0.842	0.279	(0.424)	0.563
5	0.42	5.70	0.889	0.279	(0.447)	0.610
6	0.50	6.40	0.998	0.279	(0.502)	0.719
7	0.58	7.90	1.232	0.279	(0.620)	0.953
8	0.67	9.10	1.420	0.279	(0.714)	1.140
9	0.75	12.80	1.997	0.279	(1.004)	1.717
10	0.83	25.60	3.993	0.279	(2.009)	3.714
11	0.92	7.90	1.232	0.279	(0.620)	0.953
12	1.00	4.90	0.764	0.279	(0.384)	0.485

```
          (Loss Rate Not Used)
   Sum =     100.0                                     Sum =     12.2
    Flood volume = Effective rainfall      1.02(In)
     times area       4.8(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
    Total soil loss =      0.28(In)
    Total soil loss =     0.112(Ac.Ft)
    Total rainfall =      1.30(In)
    Flood volume =       17746.0 Cubic Feet
    Total soil loss =        4857.0 Cubic Feet
    --------------------------------------------------------------------
     Peak flow rate of this hydrograph =     11.605(CFS)
    --------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                       1 - H O U R    S T O R M
                  R u n o f f     H y d r o g r a p h
    --------------------------------------------------------------------
               Hydrograph in   5   Minute intervals ((CFS))

    --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0         5.0       10.0      15.0      20.0
-----------------------------------------------------------------------
  0+ 5      0.0043      0.62  VQ        |         |         |         |
  0+10      0.0154      1.61  |V Q      |         |         |         |
  0+15      0.0298      2.09  | V Q     |         |         |         |
  0+20      0.0472      2.53  |   VQ    |         |         |         |
  0+25      0.0659      2.72  |    QV   |         |         |         |
  0+30      0.0869      3.05  |     Q V |         |         |         |
  0+35      0.1124      3.70  |      Q  |V        |         |         |
  0+40      0.1443      4.62  |        Q|   V     |         |         |
  0+45      0.1864      6.11  |         | Q     V |         |         |
  0+50      0.2600     10.70  |         |         |Q   V    |         |
  0+55      0.3400     11.60  |         |         |  Q      |  V      |
  1+ 0      0.3790      5.68  |         |Q        |         |      V  |
  1+ 5      0.3979      2.74  |    Q    |         |         |        V|
  1+10      0.4042      0.91  |Q        |         |         |        V|
  1+15      0.4067      0.35  Q         |         |         |        V|
  1+20      0.4073      0.09  Q         |         |         |        V|
  1+25      0.4074      0.02  Q         |         |         |        V|
-----------------------------------------------------------------------
```

100 YEAR – 24 HOUR
OFFSITE F_4

U n i t   H y d r o g r a p h   A n a l y s i s

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Study date 07/23/19 File: c318offsiteF424100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6222

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

St. Frances of Rome - Wildomar
Offsite (F4)
100-Year 24-Hour

Drainage Area = 4.79(Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.79(Ac.) = 0.007 Sq. Mi.
Length along longest watercourse = 1644.50(Ft.)
Length along longest watercourse measured to centroid = 913.10(Ft.)
Length along longest watercourse = 0.311 Mi.
Length along longest watercourse measured to centroid = 0.173 Mi.
Difference in elevation = 76.00(Ft.)
Slope along watercourse = 244.0134 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.056 Hr.
Lag time = 3.34 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.34 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.79	2.23	10.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.79	5.95	28.50

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 2.230(In)
Area Averaged 100-Year Rainfall = 5.950(In)

Point rain (area averaged) = 5.950(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.950(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.790	56.61	0.496

Total Area Entered = 4.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.6	56.6	0.505	0.496	0.279	1.000	0.279
					Sum (F) =	0.279

Area averaged mean soil loss (F) (In/Hr) = 0.279
Minimum soil loss rate ((In/Hr)) = 0.140
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.503

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	149.726	31.612	1.526
2	0.167	299.453	48.945	2.363
3	0.250	449.179	11.979	0.578
4	0.333	598.905	4.664	0.225
5	0.417	748.631	1.940	0.094
6	0.500	898.358	0.860	0.042
			Sum = 100.000	Sum= 4.827

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.495)	0.024	0.024
2	0.17	0.07	0.048	(0.493)	0.024	0.024
3	0.25	0.07	0.048	(0.491)	0.024	0.024
4	0.33	0.10	0.071	(0.489)	0.036	0.035
5	0.42	0.10	0.071	(0.488)	0.036	0.035
6	0.50	0.10	0.071	(0.486)	0.036	0.035
7	0.58	0.10	0.071	(0.484)	0.036	0.035
8	0.67	0.10	0.071	(0.482)	0.036	0.035
9	0.75	0.10	0.071	(0.480)	0.036	0.035
10	0.83	0.13	0.095	(0.478)	0.048	0.047
11	0.92	0.13	0.095	(0.476)	0.048	0.047
12	1.00	0.13	0.095	(0.474)	0.048	0.047
13	1.08	0.10	0.071	(0.472)	0.036	0.035
14	1.17	0.10	0.071	(0.471)	0.036	0.035

15	1.25	0.10	0.071	(0.469)	0.036	0.035
16	1.33	0.10	0.071	(0.467)	0.036	0.035
17	1.42	0.10	0.071	(0.465)	0.036	0.035
18	1.50	0.10	0.071	(0.463)	0.036	0.035
19	1.58	0.10	0.071	(0.461)	0.036	0.035
20	1.67	0.10	0.071	(0.459)	0.036	0.035
21	1.75	0.10	0.071	(0.458)	0.036	0.035
22	1.83	0.13	0.095	(0.456)	0.048	0.047
23	1.92	0.13	0.095	(0.454)	0.048	0.047
24	2.00	0.13	0.095	(0.452)	0.048	0.047
25	2.08	0.13	0.095	(0.450)	0.048	0.047
26	2.17	0.13	0.095	(0.448)	0.048	0.047
27	2.25	0.13	0.095	(0.447)	0.048	0.047
28	2.33	0.13	0.095	(0.445)	0.048	0.047
29	2.42	0.13	0.095	(0.443)	0.048	0.047
30	2.50	0.13	0.095	(0.441)	0.048	0.047
31	2.58	0.17	0.119	(0.439)	0.060	0.059
32	2.67	0.17	0.119	(0.438)	0.060	0.059
33	2.75	0.17	0.119	(0.436)	0.060	0.059
34	2.83	0.17	0.119	(0.434)	0.060	0.059
35	2.92	0.17	0.119	(0.432)	0.060	0.059
36	3.00	0.17	0.119	(0.430)	0.060	0.059
37	3.08	0.17	0.119	(0.429)	0.060	0.059
38	3.17	0.17	0.119	(0.427)	0.060	0.059
39	3.25	0.17	0.119	(0.425)	0.060	0.059
40	3.33	0.17	0.119	(0.423)	0.060	0.059
41	3.42	0.17	0.119	(0.422)	0.060	0.059
42	3.50	0.17	0.119	(0.420)	0.060	0.059
43	3.58	0.17	0.119	(0.418)	0.060	0.059
44	3.67	0.17	0.119	(0.416)	0.060	0.059
45	3.75	0.17	0.119	(0.414)	0.060	0.059
46	3.83	0.20	0.143	(0.413)	0.072	0.071
47	3.92	0.20	0.143	(0.411)	0.072	0.071
48	4.00	0.20	0.143	(0.409)	0.072	0.071
49	4.08	0.20	0.143	(0.408)	0.072	0.071
50	4.17	0.20	0.143	(0.406)	0.072	0.071
51	4.25	0.20	0.143	(0.404)	0.072	0.071
52	4.33	0.23	0.167	(0.402)	0.084	0.083
53	4.42	0.23	0.167	(0.401)	0.084	0.083
54	4.50	0.23	0.167	(0.399)	0.084	0.083
55	4.58	0.23	0.167	(0.397)	0.084	0.083
56	4.67	0.23	0.167	(0.395)	0.084	0.083
57	4.75	0.23	0.167	(0.394)	0.084	0.083
58	4.83	0.27	0.190	(0.392)	0.096	0.095
59	4.92	0.27	0.190	(0.390)	0.096	0.095
60	5.00	0.27	0.190	(0.389)	0.096	0.095
61	5.08	0.20	0.143	(0.387)	0.072	0.071
62	5.17	0.20	0.143	(0.385)	0.072	0.071
63	5.25	0.20	0.143	(0.384)	0.072	0.071
64	5.33	0.23	0.167	(0.382)	0.084	0.083
65	5.42	0.23	0.167	(0.380)	0.084	0.083
66	5.50	0.23	0.167	(0.379)	0.084	0.083
67	5.58	0.27	0.190	(0.377)	0.096	0.095
68	5.67	0.27	0.190	(0.375)	0.096	0.095
69	5.75	0.27	0.190	(0.374)	0.096	0.095
70	5.83	0.27	0.190	(0.372)	0.096	0.095
71	5.92	0.27	0.190	(0.370)	0.096	0.095
72	6.00	0.27	0.190	(0.369)	0.096	0.095
73	6.08	0.30	0.214	(0.367)	0.108	0.106
74	6.17	0.30	0.214	(0.365)	0.108	0.106

75	6.25	0.30	0.214	(0.364)	0.108	0.106
76	6.33	0.30	0.214	(0.362)	0.108	0.106
77	6.42	0.30	0.214	(0.361)	0.108	0.106
78	6.50	0.30	0.214	(0.359)	0.108	0.106
79	6.58	0.33	0.238	(0.357)	0.120	0.118
80	6.67	0.33	0.238	(0.356)	0.120	0.118
81	6.75	0.33	0.238	(0.354)	0.120	0.118
82	6.83	0.33	0.238	(0.353)	0.120	0.118
83	6.92	0.33	0.238	(0.351)	0.120	0.118
84	7.00	0.33	0.238	(0.349)	0.120	0.118
85	7.08	0.33	0.238	(0.348)	0.120	0.118
86	7.17	0.33	0.238	(0.346)	0.120	0.118
87	7.25	0.33	0.238	(0.345)	0.120	0.118
88	7.33	0.37	0.262	(0.343)	0.132	0.130
89	7.42	0.37	0.262	(0.341)	0.132	0.130
90	7.50	0.37	0.262	(0.340)	0.132	0.130
91	7.58	0.40	0.286	(0.338)	0.144	0.142
92	7.67	0.40	0.286	(0.337)	0.144	0.142
93	7.75	0.40	0.286	(0.335)	0.144	0.142
94	7.83	0.43	0.309	(0.334)	0.156	0.154
95	7.92	0.43	0.309	(0.332)	0.156	0.154
96	8.00	0.43	0.309	(0.331)	0.156	0.154
97	8.08	0.50	0.357	(0.329)	0.180	0.177
98	8.17	0.50	0.357	(0.328)	0.180	0.177
99	8.25	0.50	0.357	(0.326)	0.180	0.177
100	8.33	0.50	0.357	(0.324)	0.180	0.177
101	8.42	0.50	0.357	(0.323)	0.180	0.177
102	8.50	0.50	0.357	(0.321)	0.180	0.177
103	8.58	0.53	0.381	(0.320)	0.192	0.189
104	8.67	0.53	0.381	(0.318)	0.192	0.189
105	8.75	0.53	0.381	(0.317)	0.192	0.189
106	8.83	0.57	0.405	(0.315)	0.204	0.201
107	8.92	0.57	0.405	(0.314)	0.204	0.201
108	9.00	0.57	0.405	(0.312)	0.204	0.201
109	9.08	0.63	0.452	(0.311)	0.227	0.225
110	9.17	0.63	0.452	(0.309)	0.227	0.225
111	9.25	0.63	0.452	(0.308)	0.227	0.225
112	9.33	0.67	0.476	(0.307)	0.239	0.237
113	9.42	0.67	0.476	(0.305)	0.239	0.237
114	9.50	0.67	0.476	(0.304)	0.239	0.237
115	9.58	0.70	0.500	(0.302)	0.251	0.248
116	9.67	0.70	0.500	(0.301)	0.251	0.248
117	9.75	0.70	0.500	(0.299)	0.251	0.248
118	9.83	0.73	0.524	(0.298)	0.263	0.260
119	9.92	0.73	0.524	(0.296)	0.263	0.260
120	10.00	0.73	0.524	(0.295)	0.263	0.260
121	10.08	0.50	0.357	(0.294)	0.180	0.177
122	10.17	0.50	0.357	(0.292)	0.180	0.177
123	10.25	0.50	0.357	(0.291)	0.180	0.177
124	10.33	0.50	0.357	(0.289)	0.180	0.177
125	10.42	0.50	0.357	(0.288)	0.180	0.177
126	10.50	0.50	0.357	(0.286)	0.180	0.177
127	10.58	0.67	0.476	(0.285)	0.239	0.237
128	10.67	0.67	0.476	(0.284)	0.239	0.237
129	10.75	0.67	0.476	(0.282)	0.239	0.237
130	10.83	0.67	0.476	(0.281)	0.239	0.237
131	10.92	0.67	0.476	(0.280)	0.239	0.237
132	11.00	0.67	0.476	(0.278)	0.239	0.237
133	11.08	0.63	0.452	(0.277)	0.227	0.225
134	11.17	0.63	0.452	(0.275)	0.227	0.225

135	11.25	0.63	0.452	(0.274)	0.227	0.225
136	11.33	0.63	0.452	(0.273)	0.227	0.225
137	11.42	0.63	0.452	(0.271)	0.227	0.225
138	11.50	0.63	0.452	(0.270)	0.227	0.225
139	11.58	0.57	0.405	(0.269)	0.204	0.201
140	11.67	0.57	0.405	(0.267)	0.204	0.201
141	11.75	0.57	0.405	(0.266)	0.204	0.201
142	11.83	0.60	0.428	(0.265)	0.215	0.213
143	11.92	0.60	0.428	(0.263)	0.215	0.213
144	12.00	0.60	0.428	(0.262)	0.215	0.213
145	12.08	0.83	0.595	0.261	(0.299)	0.334
146	12.17	0.83	0.595	0.259	(0.299)	0.336
147	12.25	0.83	0.595	0.258	(0.299)	0.337
148	12.33	0.87	0.619	0.257	(0.311)	0.362
149	12.42	0.87	0.619	0.256	(0.311)	0.363
150	12.50	0.87	0.619	0.254	(0.311)	0.365
151	12.58	0.93	0.666	0.253	(0.335)	0.413
152	12.67	0.93	0.666	0.252	(0.335)	0.415
153	12.75	0.93	0.666	0.250	(0.335)	0.416
154	12.83	0.97	0.690	0.249	(0.347)	0.441
155	12.92	0.97	0.690	0.248	(0.347)	0.442
156	13.00	0.97	0.690	0.247	(0.347)	0.444
157	13.08	1.13	0.809	0.245	(0.407)	0.564
158	13.17	1.13	0.809	0.244	(0.407)	0.565
159	13.25	1.13	0.809	0.243	(0.407)	0.566
160	13.33	1.13	0.809	0.242	(0.407)	0.567
161	13.42	1.13	0.809	0.240	(0.407)	0.569
162	13.50	1.13	0.809	0.239	(0.407)	0.570
163	13.58	0.77	0.547	0.238	(0.275)	0.309
164	13.67	0.77	0.547	0.237	(0.275)	0.311
165	13.75	0.77	0.547	0.236	(0.275)	0.312
166	13.83	0.77	0.547	0.234	(0.275)	0.313
167	13.92	0.77	0.547	0.233	(0.275)	0.314
168	14.00	0.77	0.547	0.232	(0.275)	0.315
169	14.08	0.90	0.643	0.231	(0.323)	0.412
170	14.17	0.90	0.643	0.230	(0.323)	0.413
171	14.25	0.90	0.643	0.228	(0.323)	0.414
172	14.33	0.87	0.619	0.227	(0.311)	0.391
173	14.42	0.87	0.619	0.226	(0.311)	0.393
174	14.50	0.87	0.619	0.225	(0.311)	0.394
175	14.58	0.87	0.619	0.224	(0.311)	0.395
176	14.67	0.87	0.619	0.223	(0.311)	0.396
177	14.75	0.87	0.619	0.222	(0.311)	0.397
178	14.83	0.83	0.595	0.220	(0.299)	0.375
179	14.92	0.83	0.595	0.219	(0.299)	0.376
180	15.00	0.83	0.595	0.218	(0.299)	0.377
181	15.08	0.80	0.571	0.217	(0.287)	0.354
182	15.17	0.80	0.571	0.216	(0.287)	0.355
183	15.25	0.80	0.571	0.215	(0.287)	0.356
184	15.33	0.77	0.547	0.214	(0.275)	0.334
185	15.42	0.77	0.547	0.213	(0.275)	0.335
186	15.50	0.77	0.547	0.212	(0.275)	0.336
187	15.58	0.63	0.452	0.210	(0.227)	0.242
188	15.67	0.63	0.452	0.209	(0.227)	0.243
189	15.75	0.63	0.452	0.208	(0.227)	0.244
190	15.83	0.63	0.452	0.207	(0.227)	0.245
191	15.92	0.63	0.452	0.206	(0.227)	0.246
192	16.00	0.63	0.452	0.205	(0.227)	0.247
193	16.08	0.13	0.095	(0.204)	0.048	0.047
194	16.17	0.13	0.095	(0.203)	0.048	0.047

195	16.25	0.13	0.095	(0.202)	0.048	0.047
196	16.33	0.13	0.095	(0.201)	0.048	0.047
197	16.42	0.13	0.095	(0.200)	0.048	0.047
198	16.50	0.13	0.095	(0.199)	0.048	0.047
199	16.58	0.10	0.071	(0.198)	0.036	0.035
200	16.67	0.10	0.071	(0.197)	0.036	0.035
201	16.75	0.10	0.071	(0.196)	0.036	0.035
202	16.83	0.10	0.071	(0.195)	0.036	0.035
203	16.92	0.10	0.071	(0.194)	0.036	0.035
204	17.00	0.10	0.071	(0.193)	0.036	0.035
205	17.08	0.17	0.119	(0.192)	0.060	0.059
206	17.17	0.17	0.119	(0.191)	0.060	0.059
207	17.25	0.17	0.119	(0.190)	0.060	0.059
208	17.33	0.17	0.119	(0.189)	0.060	0.059
209	17.42	0.17	0.119	(0.188)	0.060	0.059
210	17.50	0.17	0.119	(0.187)	0.060	0.059
211	17.58	0.17	0.119	(0.186)	0.060	0.059
212	17.67	0.17	0.119	(0.185)	0.060	0.059
213	17.75	0.17	0.119	(0.184)	0.060	0.059
214	17.83	0.13	0.095	(0.184)	0.048	0.047
215	17.92	0.13	0.095	(0.183)	0.048	0.047
216	18.00	0.13	0.095	(0.182)	0.048	0.047
217	18.08	0.13	0.095	(0.181)	0.048	0.047
218	18.17	0.13	0.095	(0.180)	0.048	0.047
219	18.25	0.13	0.095	(0.179)	0.048	0.047
220	18.33	0.13	0.095	(0.178)	0.048	0.047
221	18.42	0.13	0.095	(0.177)	0.048	0.047
222	18.50	0.13	0.095	(0.176)	0.048	0.047
223	18.58	0.10	0.071	(0.176)	0.036	0.035
224	18.67	0.10	0.071	(0.175)	0.036	0.035
225	18.75	0.10	0.071	(0.174)	0.036	0.035
226	18.83	0.07	0.048	(0.173)	0.024	0.024
227	18.92	0.07	0.048	(0.172)	0.024	0.024
228	19.00	0.07	0.048	(0.171)	0.024	0.024
229	19.08	0.10	0.071	(0.171)	0.036	0.035
230	19.17	0.10	0.071	(0.170)	0.036	0.035
231	19.25	0.10	0.071	(0.169)	0.036	0.035
232	19.33	0.13	0.095	(0.168)	0.048	0.047
233	19.42	0.13	0.095	(0.167)	0.048	0.047
234	19.50	0.13	0.095	(0.167)	0.048	0.047
235	19.58	0.10	0.071	(0.166)	0.036	0.035
236	19.67	0.10	0.071	(0.165)	0.036	0.035
237	19.75	0.10	0.071	(0.164)	0.036	0.035
238	19.83	0.07	0.048	(0.164)	0.024	0.024
239	19.92	0.07	0.048	(0.163)	0.024	0.024
240	20.00	0.07	0.048	(0.162)	0.024	0.024
241	20.08	0.10	0.071	(0.161)	0.036	0.035
242	20.17	0.10	0.071	(0.161)	0.036	0.035
243	20.25	0.10	0.071	(0.160)	0.036	0.035
244	20.33	0.10	0.071	(0.159)	0.036	0.035
245	20.42	0.10	0.071	(0.159)	0.036	0.035
246	20.50	0.10	0.071	(0.158)	0.036	0.035
247	20.58	0.10	0.071	(0.157)	0.036	0.035
248	20.67	0.10	0.071	(0.157)	0.036	0.035
249	20.75	0.10	0.071	(0.156)	0.036	0.035
250	20.83	0.07	0.048	(0.155)	0.024	0.024
251	20.92	0.07	0.048	(0.155)	0.024	0.024
252	21.00	0.07	0.048	(0.154)	0.024	0.024
253	21.08	0.10	0.071	(0.154)	0.036	0.035
254	21.17	0.10	0.071	(0.153)	0.036	0.035

255	21.25	0.10	0.071	(0.152)	0.036	0.035
256	21.33	0.07	0.048	(0.152)	0.024	0.024
257	21.42	0.07	0.048	(0.151)	0.024	0.024
258	21.50	0.07	0.048	(0.151)	0.024	0.024
259	21.58	0.10	0.071	(0.150)	0.036	0.035
260	21.67	0.10	0.071	(0.150)	0.036	0.035
261	21.75	0.10	0.071	(0.149)	0.036	0.035
262	21.83	0.07	0.048	(0.148)	0.024	0.024
263	21.92	0.07	0.048	(0.148)	0.024	0.024
264	22.00	0.07	0.048	(0.147)	0.024	0.024
265	22.08	0.10	0.071	(0.147)	0.036	0.035
266	22.17	0.10	0.071	(0.147)	0.036	0.035
267	22.25	0.10	0.071	(0.146)	0.036	0.035
268	22.33	0.07	0.048	(0.146)	0.024	0.024
269	22.42	0.07	0.048	(0.145)	0.024	0.024
270	22.50	0.07	0.048	(0.145)	0.024	0.024
271	22.58	0.07	0.048	(0.144)	0.024	0.024
272	22.67	0.07	0.048	(0.144)	0.024	0.024
273	22.75	0.07	0.048	(0.144)	0.024	0.024
274	22.83	0.07	0.048	(0.143)	0.024	0.024
275	22.92	0.07	0.048	(0.143)	0.024	0.024
276	23.00	0.07	0.048	(0.142)	0.024	0.024
277	23.08	0.07	0.048	(0.142)	0.024	0.024
278	23.17	0.07	0.048	(0.142)	0.024	0.024
279	23.25	0.07	0.048	(0.141)	0.024	0.024
280	23.33	0.07	0.048	(0.141)	0.024	0.024
281	23.42	0.07	0.048	(0.141)	0.024	0.024
282	23.50	0.07	0.048	(0.141)	0.024	0.024
283	23.58	0.07	0.048	(0.140)	0.024	0.024
284	23.67	0.07	0.048	(0.140)	0.024	0.024
285	23.75	0.07	0.048	(0.140)	0.024	0.024
286	23.83	0.07	0.048	(0.140)	0.024	0.024
287	23.92	0.07	0.048	(0.140)	0.024	0.024
288	24.00	0.07	0.048	(0.140)	0.024	0.024

(Loss Rate Not Used)

Sum = 100.0 Sum = 39.1

Flood volume = Effective rainfall 3.26(In)
times area 4.8(Ac.)/[(In)/(Ft.)] = 1.3(Ac.Ft)
Total soil loss = 2.69(In)
Total soil loss = 1.074(Ac.Ft)
Total rainfall = 5.95(In)
Flood volume = 56672.3 Cubic Feet
Total soil loss = 46783.5 Cubic Feet

Peak flow rate of this hydrograph = 2.747(CFS)

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24 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.04	Q	|	|	|	|
0+10	0.0009	0.09	Q	|	|	|	|
0+15	0.0016	0.11	Q	|	|	|	|
0+20	0.0025	0.13	Q	|	|	|	|
0+25	0.0036	0.16	Q	|	|	|	|

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0+30     0.0047   0.17  Q          |          |          |          |
0+35     0.0059   0.17  Q          |          |          |          |
0+40     0.0071   0.17  Q          |          |          |          |
0+45     0.0083   0.17  Q          |          |          |          |
0+50     0.0096   0.19  Q          |          |          |          |
0+55     0.0111   0.22  Q          |          |          |          |
1+ 0     0.0126   0.22  Q          |          |          |          |
1+ 5     0.0141   0.21  Q          |          |          |          |
1+10     0.0153   0.18  Q          |          |          |          |
1+15     0.0165   0.18  Q          |          |          |          |
1+20     0.0177   0.17  Q          |          |          |          |
1+25     0.0189   0.17  Q          |          |          |          |
1+30     0.0201   0.17  Q          |          |          |          |
1+35     0.0213   0.17  Q          |          |          |          |
1+40     0.0224   0.17  Q          |          |          |          |
1+45     0.0236   0.17  Q          |          |          |          |
1+50     0.0249   0.19  Q          |          |          |          |
1+55     0.0264   0.22  Q          |          |          |          |
2+ 0     0.0280   0.22  Q          |          |          |          |
2+ 5     0.0295   0.23  Q          |          |          |          |
2+10     0.0311   0.23  Q          |          |          |          |
2+15     0.0327   0.23  QV         |          |          |          |
2+20     0.0342   0.23  QV         |          |          |          |
2+25     0.0358   0.23  QV         |          |          |          |
2+30     0.0374   0.23  QV         |          |          |          |
2+35     0.0391   0.25  QV         |          |          |          |
2+40     0.0410   0.27  |Q         |          |          |          |
2+45     0.0429   0.28  |Q         |          |          |          |
2+50     0.0449   0.28  |Q         |          |          |          |
2+55     0.0468   0.29  |Q         |          |          |          |
3+ 0     0.0488   0.29  |Q         |          |          |          |
3+ 5     0.0508   0.29  |Q         |          |          |          |
3+10     0.0527   0.29  |Q         |          |          |          |
3+15     0.0547   0.29  |Q         |          |          |          |
3+20     0.0567   0.29  |Q         |          |          |          |
3+25     0.0586   0.29  |Q         |          |          |          |
3+30     0.0606   0.29  |Q         |          |          |          |
3+35     0.0626   0.29  |Q         |          |          |          |
3+40     0.0645   0.29  |Q         |          |          |          |
3+45     0.0665   0.29  |QV        |          |          |          |
3+50     0.0686   0.30  |QV        |          |          |          |
3+55     0.0709   0.33  |QV        |          |          |          |
4+ 0     0.0732   0.34  |QV        |          |          |          |
4+ 5     0.0756   0.34  |QV        |          |          |          |
4+10     0.0779   0.34  |QV        |          |          |          |
4+15     0.0803   0.34  |QV        |          |          |          |
4+20     0.0828   0.36  |QV        |          |          |          |
4+25     0.0855   0.39  |QV        |          |          |          |
4+30     0.0882   0.40  |QV        |          |          |          |
4+35     0.0909   0.40  |QV        |          |          |          |
4+40     0.0937   0.40  |QV        |          |          |          |
4+45     0.0964   0.40  |QV        |          |          |          |
4+50     0.0993   0.42  |Q V       |          |          |          |
4+55     0.1024   0.45  |Q V       |          |          |          |
5+ 0     0.1055   0.45  |Q V       |          |          |          |
5+ 5     0.1084   0.42  |Q V       |          |          |          |
5+10     0.1109   0.36  |Q V       |          |          |          |
5+15     0.1133   0.35  |Q V       |          |          |          |
5+20     0.1158   0.36  |Q V       |          |          |          |
5+25     0.1185   0.39  |Q V       |          |          |          |
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  5+30       0.1212      0.40  |Q V      |         |         |         |
  5+35       0.1241      0.42  |Q V      |         |         |         |
  5+40       0.1272      0.45  |Q V      |         |         |         |
  5+45       0.1303      0.45  |Q  V     |         |         |         |
  5+50       0.1334      0.46  |Q  V     |         |         |         |
  5+55       0.1366      0.46  |Q  V     |         |         |         |
  6+ 0       0.1397      0.46  |Q  V     |         |         |         |
  6+ 5       0.1430      0.48  |Q  V     |         |         |         |
  6+10       0.1464      0.50  | Q V     |         |         |         |
  6+15       0.1500      0.51  | Q V     |         |         |         |
  6+20       0.1535      0.51  | Q V     |         |         |         |
  6+25       0.1570      0.51  | Q V     |         |         |         |
  6+30       0.1606      0.51  | Q V     |         |         |         |
  6+35       0.1642      0.53  | Q  V    |         |         |         |
  6+40       0.1681      0.56  | Q  V    |         |         |         |
  6+45       0.1720      0.57  | Q  V    |         |         |         |
  6+50       0.1759      0.57  | Q  V    |         |         |         |
  6+55       0.1799      0.57  | Q  V    |         |         |         |
  7+ 0       0.1838      0.57  | Q  V    |         |         |         |
  7+ 5       0.1877      0.57  | Q  V    |         |         |         |
  7+10       0.1917      0.57  | Q  V    |         |         |         |
  7+15       0.1956      0.57  | Q   V   |         |         |         |
  7+20       0.1997      0.59  | Q   V   |         |         |         |
  7+25       0.2039      0.62  | Q   V   |         |         |         |
  7+30       0.2082      0.62  | Q   V   |         |         |         |
  7+35       0.2126      0.64  | Q   V   |         |         |         |
  7+40       0.2173      0.67  | Q   V   |         |         |         |
  7+45       0.2220      0.68  | Q   V   |         |         |         |
  7+50       0.2268      0.70  | Q   V   |         |         |         |
  7+55       0.2318      0.73  | Q    V  |         |         |         |
  8+ 0       0.2369      0.74  | Q    V  |         |         |         |
  8+ 5       0.2423      0.78  |  Q   V  |         |         |         |
  8+10       0.2480      0.83  |  Q   V  |         |         |         |
  8+15       0.2539      0.85  |  Q   V  |         |         |         |
  8+20       0.2598      0.85  |  Q   V  |         |         |         |
  8+25       0.2656      0.86  |  Q    V |         |         |         |
  8+30       0.2716      0.86  |  Q    V |         |         |         |
  8+35       0.2776      0.88  |  Q    V |         |         |         |
  8+40       0.2838      0.90  |  Q    V |         |         |         |
  8+45       0.2901      0.91  |  Q    V |         |         |         |
  8+50       0.2965      0.93  |  Q     V|         |         |         |
  8+55       0.3031      0.96  |  Q     V|         |         |         |
  9+ 0       0.3097      0.97  |  Q     V|         |         |         |
  9+ 5       0.3167      1.01  |   Q    V|         |         |         |
  9+10       0.3240      1.06  |   Q    V|         |         |         |
  9+15       0.3314      1.08  |   Q     V         |         |         |
  9+20       0.3390      1.10  |   Q     V         |         |         |
  9+25       0.3468      1.13  |   Q     V         |         |         |
  9+30       0.3546      1.14  |   Q     V         |         |         |
  9+35       0.3626      1.16  |   Q     |V        |         |         |
  9+40       0.3708      1.19  |   Q     |V        |         |         |
  9+45       0.3790      1.20  |   Q     |V        |         |         |
  9+50       0.3874      1.22  |   Q     |V        |         |         |
  9+55       0.3960      1.25  |   Q     | V       |         |         |
 10+ 0       0.4046      1.25  |    Q    | V       |         |         |
 10+ 5       0.4124      1.13  |   Q     | V       |         |         |
 10+10       0.4188      0.93  |  Q      | V       |         |         |
 10+15       0.4249      0.89  |  Q      |  V      |         |         |
 10+20       0.4309      0.87  |  Q      |  V      |         |         |
 10+25       0.4368      0.86  |  Q      |  V      |         |         |
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10+30       0.4427      0.86  |  Q      |  V      |         |         |
10+35       0.4492      0.95  |  Q      |  V      |         |         |
10+40       0.4567      1.09  |   Q     |   V     |         |         |
10+45       0.4644      1.12  |   Q     |   V     |         |         |
10+50       0.4723      1.13  |   Q     |   V     |         |         |
10+55       0.4801      1.14  |   Q     |   V     |         |         |
11+ 0       0.4880      1.14  |   Q     |    V    |         |         |
11+ 5       0.4957      1.12  |   Q     |    V    |         |         |
11+10       0.5033      1.10  |   Q     |    V    |         |         |
11+15       0.5108      1.09  |   Q     |    V    |         |         |
11+20       0.5183      1.09  |   Q     |    V    |         |         |
11+25       0.5257      1.09  |   Q     |     V   |         |         |
11+30       0.5332      1.09  |   Q     |     V   |         |         |
11+35       0.5404      1.05  |   Q     |     V   |         |         |
11+40       0.5473      0.99  |  Q      |     V   |         |         |
11+45       0.5540      0.98  |  Q      |      V  |         |         |
11+50       0.5609      0.99  |  Q      |      V  |         |         |
11+55       0.5679      1.02  |   Q     |      V  |         |         |
12+ 0       0.5749      1.02  |   Q     |      V  |         |         |
12+ 5       0.5833      1.21  |   Q     |      V  |         |         |
12+10       0.5936      1.50  |     Q   |       V |         |         |
12+15       0.6045      1.58  |     Q   |       V |         |         |
12+20       0.6158      1.65  |     Q   |       V |         |         |
12+25       0.6277      1.72  |     Q   |        V|         |         |
12+30       0.6397      1.75  |     Q   |        V|         |         |
12+35       0.6523      1.83  |      Q  |         V         |         |
12+40       0.6658      1.95  |      Q  |         V         |         |
12+45       0.6794      1.99  |      Q  |         V         |         |
12+50       0.6935      2.04  |       Q |         |V        |         |
12+55       0.7080      2.11  |       Q |         |V        |         |
13+ 0       0.7226      2.13  |       Q |         | V       |         |
13+ 5       0.7386      2.32  |        Q|         | V       |         |
13+10       0.7566      2.61  |         Q         |  V      |         |
13+15       0.7751      2.69  |         Q         |  V      |         |
13+20       0.7938      2.72  |         Q         |   V     |         |
13+25       0.8127      2.74  |         Q         |   V     |         |
13+30       0.8316      2.75  |         Q         |    V    |         |
13+35       0.8478      2.35  |        Q|         |     V   |         |
13+40       0.8598      1.74  |     Q   |         |     V   |         |
13+45       0.8707      1.59  |     Q   |         |     V   |         |
13+50       0.8814      1.54  |     Q   |         |      V  |         |
13+55       0.8918      1.52  |     Q   |         |      V  |         |
14+ 0       0.9023      1.52  |     Q   |         |      V  |         |
14+ 5       0.9138      1.67  |     Q   |         |       V |         |
14+10       0.9269      1.90  |      Q  |         |       V |         |
14+15       0.9404      1.96  |      Q  |         |       V |         |
14+20       0.9538      1.95  |      Q  |         |        V|         |
14+25       0.9670      1.91  |      Q  |         |        V|         |
14+30       0.9801      1.91  |      Q  |         |         V         |
14+35       0.9932      1.91  |      Q  |         |         V         |
14+40       1.0063      1.91  |      Q  |         |         V         |
14+45       1.0195      1.91  |      Q  |         |         |V        |
14+50       1.0325      1.88  |      Q  |         |         |V        |
14+55       1.0451      1.83  |      Q  |         |         | V       |
15+ 0       1.0576      1.82  |      Q  |         |         | V       |
15+ 5       1.0700      1.79  |      Q  |         |         | V       |
15+10       1.0819      1.73  |     Q   |         |         |  V      |
15+15       1.0938      1.72  |     Q   |         |         |  V      |
15+20       1.1054      1.69  |     Q   |         |         |  V      |
15+25       1.1167      1.63  |     Q   |         |         |   V     |
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15+30      1.1279      1.63  |     Q   |         |         |   V     |
15+35      1.1380      1.48  |    Q    |         |         |   V     |
15+40      1.1467      1.26  |    Q    |         |         |    V    |
15+45      1.1550      1.21  |   Q     |         |         |    V    |
15+50      1.1632      1.19  |   Q     |         |         |    V    |
15+55      1.1714      1.19  |   Q     |         |         |     V   |
16+ 0      1.1796      1.19  |   Q     |         |         |     V   |
16+ 5      1.1857      0.89  |  Q      |         |         |     V   |
16+10      1.1886      0.42  |Q        |         |         |     V   |
16+15      1.1906      0.30  |Q        |         |         |     V   |
16+20      1.1924      0.26  |Q        |         |         |     V   |
16+25      1.1940      0.24  Q         |         |         |     V   |
16+30      1.1956      0.23  Q         |         |         |     V   |
16+35      1.1970      0.21  Q         |         |         |     V   |
16+40      1.1983      0.18  Q         |         |         |     V   |
16+45      1.1995      0.18  Q         |         |         |     V   |
16+50      1.2007      0.17  Q         |         |         |     V   |
16+55      1.2019      0.17  Q         |         |         |     V   |
17+ 0      1.2031      0.17  Q         |         |         |     V   |
17+ 5      1.2045      0.21  Q         |         |         |      V  |
17+10      1.2063      0.26  |Q        |         |         |      V  |
17+15      1.2082      0.28  |Q        |         |         |      V  |
17+20      1.2102      0.28  |Q        |         |         |      V  |
17+25      1.2121      0.28  |Q        |         |         |      V  |
17+30      1.2141      0.29  |Q        |         |         |      V  |
17+35      1.2161      0.29  |Q        |         |         |      V  |
17+40      1.2180      0.29  |Q        |         |         |      V  |
17+45      1.2200      0.29  |Q        |         |         |      V  |
17+50      1.2218      0.27  |Q        |         |         |      V  |
17+55      1.2235      0.24  Q         |         |         |      V  |
18+ 0      1.2251      0.23  Q         |         |         |      V  |
18+ 5      1.2267      0.23  Q         |         |         |      V  |
18+10      1.2282      0.23  Q         |         |         |      V  |
18+15      1.2298      0.23  Q         |         |         |      V  |
18+20      1.2314      0.23  Q         |         |         |      V  |
18+25      1.2330      0.23  Q         |         |         |      V  |
18+30      1.2345      0.23  Q         |         |         |      V  |
18+35      1.2360      0.21  Q         |         |         |       V |
18+40      1.2372      0.18  Q         |         |         |       V |
18+45      1.2385      0.18  Q         |         |         |       V |
18+50      1.2395      0.15  Q         |         |         |       V |
18+55      1.2404      0.13  Q         |         |         |       V |
19+ 0      1.2412      0.12  Q         |         |         |       V |
19+ 5      1.2421      0.13  Q         |         |         |       V |
19+10      1.2432      0.16  Q         |         |         |       V |
19+15      1.2444      0.17  Q         |         |         |       V |
19+20      1.2457      0.19  Q         |         |         |       V |
19+25      1.2472      0.22  Q         |         |         |       V |
19+30      1.2487      0.22  Q         |         |         |       V |
19+35      1.2502      0.21  Q         |         |         |       V |
19+40      1.2514      0.18  Q         |         |         |       V |
19+45      1.2526      0.18  Q         |         |         |       V |
19+50      1.2537      0.15  Q         |         |         |       V |
19+55      1.2546      0.13  Q         |         |         |       V |
20+ 0      1.2554      0.12  Q         |         |         |       V |
20+ 5      1.2563      0.13  Q         |         |         |       V |
20+10      1.2574      0.16  Q         |         |         |       V |
20+15      1.2586      0.17  Q         |         |         |       V |
20+20      1.2597      0.17  Q         |         |         |       V |
20+25      1.2609      0.17  Q         |         |         |       V |
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20+30	1.2621	0.17	Q	V
20+35	1.2633	0.17	Q	V
20+40	1.2644	0.17	Q	V
20+45	1.2656	0.17	Q	V
20+50	1.2667	0.15	Q	V
20+55	1.2675	0.13	Q	V
21+ 0	1.2684	0.12	Q	V
21+ 5	1.2693	0.13	Q	V
21+10	1.2704	0.16	Q	V
21+15	1.2715	0.17	Q	V
21+20	1.2726	0.15	Q	V
21+25	1.2734	0.12	Q	V
21+30	1.2743	0.12	Q	V
21+35	1.2752	0.13	Q	V
21+40	1.2763	0.16	Q	V
21+45	1.2774	0.17	Q	V
21+50	1.2785	0.15	Q	V
21+55	1.2793	0.12	Q	V
22+ 0	1.2802	0.12	Q	V
22+ 5	1.2811	0.13	Q	V
22+10	1.2822	0.16	Q	V
22+15	1.2833	0.17	Q	V
22+20	1.2844	0.15	Q	V
22+25	1.2852	0.12	Q	V
22+30	1.2861	0.12	Q	V
22+35	1.2869	0.12	Q	V
22+40	1.2876	0.11	Q	V
22+45	1.2884	0.11	Q	V
22+50	1.2892	0.11	Q	V
22+55	1.2900	0.11	Q	V
23+ 0	1.2908	0.11	Q	V
23+ 5	1.2916	0.11	Q	V
23+10	1.2924	0.11	Q	V
23+15	1.2932	0.11	Q	V
23+20	1.2939	0.11	Q	V
23+25	1.2947	0.11	Q	V
23+30	1.2955	0.11	Q	V
23+35	1.2963	0.11	Q	V
23+40	1.2971	0.11	Q	V
23+45	1.2979	0.11	Q	V
23+50	1.2987	0.11	Q	V
23+55	1.2995	0.11	Q	V
24+ 0	1.3002	0.11	Q	V
24+ 5	1.3008	0.08	Q	V
24+10	1.3009	0.02	Q	V
24+15	1.3010	0.01	Q	V
24+20	1.3010	0.00	Q	V
24+25	1.3010	0.00	Q	V

APPENDIX "H"

ROUTING ANALYSIS

DEVELOPED
100 YEAR – 24 HOUR
AREA C_1 & F_3

FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 07/23/19

Program License Serial Number 6222

St. Frances of Rome - Wildomar
Developed C1 & F3
100-Year 24-Hour

******************** HYDROGRAPH INFORMATION ********************

From study/file name: c318devC1F324100.rte

*************************HYDROGRAPH DATA*************************

Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.480 (CFS)
Total volume = 1.059 (Ac.Ft)
Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

++
Process from Point/Station 6.000 to Point/Station 7.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.141	0.794	0.138	0.144
2.000	0.316	1.251	0.312	0.320
3.000	0.526	1.584	0.521	0.531
4.000	0.775	1.864	0.769	0.781

```
     5.000       1.063       2.113       1.056        1.070
    ----------------------------------------------------------------------
              Hydrograph Detention Basin Routing
    ----------------------------------------------------------------------

    Graph values: 'I'= unit inflow; 'O'=outflow at time shown
    ----------------------------------------------------------------------
 Time    Inflow  Outflow     Storage                                      Depth
(Hours)  (CFS)   (CFS)      (Ac.Ft) .0        0.6     1.24     1.86     2.48 (Ft.)
 0.083    0.04    0.00       0.000  O          |        |        |        |    0.00
 0.167    0.07    0.00       0.001  O          |        |        |        |    0.00
 0.250    0.08    0.01       0.001  OI         |        |        |        |    0.01
 0.333    0.10    0.01       0.002  OI         |        |        |        |    0.01
 0.417    0.11    0.01       0.002  OI         |        |        |        |    0.02
 0.500    0.12    0.02       0.003  OI         |        |        |        |    0.02
 0.583    0.12    0.02       0.004  OI         |        |        |        |    0.03
 0.667    0.12    0.02       0.004  OI         |        |        |        |    0.03
 0.750    0.12    0.03       0.005  OI         |        |        |        |    0.03
 0.833    0.14    0.03       0.006  OI         |        |        |        |    0.04
 0.917    0.15    0.04       0.006  OI         |        |        |        |    0.05
 1.000    0.16    0.04       0.007  O I        |        |        |        |    0.05
 1.083    0.14    0.04       0.008  OI         |        |        |        |    0.06
 1.167    0.12    0.05       0.008  OI         |        |        |        |    0.06
 1.250    0.12    0.05       0.009  OI         |        |        |        |    0.06
 1.333    0.12    0.05       0.009  OI         |        |        |        |    0.07
 1.417    0.12    0.06       0.010  OI         |        |        |        |    0.07
 1.500    0.12    0.06       0.010  OI         |        |        |        |    0.07
 1.583    0.12    0.06       0.011  OI         |        |        |        |    0.08
 1.667    0.12    0.06       0.011  OI         |        |        |        |    0.08
 1.750    0.12    0.06       0.011  OI         |        |        |        |    0.08
 1.833    0.14    0.07       0.012  OI         |        |        |        |    0.08
 1.917    0.15    0.07       0.012  OI         |        |        |        |    0.09
 2.000    0.16    0.07       0.013  O I        |        |        |        |    0.09
 2.083    0.16    0.08       0.013  O I        |        |        |        |    0.10
 2.167    0.16    0.08       0.014  |OI        |        |        |        |    0.10
 2.250    0.16    0.08       0.015  |OI        |        |        |        |    0.10
 2.333    0.16    0.08       0.015  |OI        |        |        |        |    0.11
 2.417    0.16    0.09       0.016  |OI        |        |        |        |    0.11
 2.500    0.16    0.09       0.016  |OI        |        |        |        |    0.11
 2.583    0.18    0.09       0.017  |OI        |        |        |        |    0.12
 2.667    0.19    0.10       0.017  |OI        |        |        |        |    0.12
 2.750    0.20    0.10       0.018  |OI        |        |        |        |    0.13
 2.833    0.20    0.10       0.018  |OI        |        |        |        |    0.13
 2.917    0.20    0.11       0.019  |OI        |        |        |        |    0.14
 3.000    0.20    0.11       0.020  |OI        |        |        |        |    0.14
 3.083    0.20    0.11       0.020  |OI        |        |        |        |    0.14
 3.167    0.20    0.12       0.021  |OI        |        |        |        |    0.15
 3.250    0.20    0.12       0.021  |OI        |        |        |        |    0.15
 3.333    0.20    0.12       0.022  |OI        |        |        |        |    0.15
 3.417    0.20    0.13       0.022  |OI        |        |        |        |    0.16
 3.500    0.20    0.13       0.023  |OI        |        |        |        |    0.16
 3.583    0.20    0.13       0.023  |OI        |        |        |        |    0.16
 3.667    0.20    0.13       0.024  |OI        |        |        |        |    0.17
 3.750    0.20    0.14       0.024  |OI        |        |        |        |    0.17
 3.833    0.22    0.14       0.025  |OI        |        |        |        |    0.17
 3.917    0.23    0.14       0.025  |OI        |        |        |        |    0.18
 4.000    0.23    0.15       0.026  |O I       |        |        |        |    0.18
 4.083    0.23    0.15       0.026  |O I       |        |        |        |    0.19
 4.167    0.23    0.15       0.027  |O I       |        |        |        |    0.19
 4.250    0.23    0.15       0.027  |O I       |        |        |        |    0.19
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4.333   0.26   0.16   0.028  | OI    |       |       |       |   0.20
4.417   0.27   0.16   0.029  | OI    |       |       |       |   0.20
4.500   0.27   0.17   0.030  | OI    |       |       |       |   0.21
4.583   0.27   0.17   0.030  | OI    |       |       |       |   0.21
4.667   0.27   0.17   0.031  | OI    |       |       |       |   0.22
4.750   0.27   0.18   0.032  | OI    |       |       |       |   0.22
4.833   0.29   0.18   0.032  | OI    |       |       |       |   0.23
4.917   0.31   0.19   0.033  | O I   |       |       |       |   0.24
5.000   0.31   0.19   0.034  | O I   |       |       |       |   0.24
5.083   0.27   0.20   0.035  | OI    |       |       |       |   0.25
5.167   0.24   0.20   0.035  | OI    |       |       |       |   0.25
5.250   0.23   0.20   0.035  | OI    |       |       |       |   0.25
5.333   0.26   0.20   0.036  | OI    |       |       |       |   0.25
5.417   0.27   0.20   0.036  | OI    |       |       |       |   0.26
5.500   0.27   0.21   0.037  | OI    |       |       |       |   0.26
5.583   0.29   0.21   0.037  | OI    |       |       |       |   0.26
5.667   0.31   0.21   0.038  | O I   |       |       |       |   0.27
5.750   0.31   0.22   0.038  | O I   |       |       |       |   0.27
5.833   0.31   0.22   0.039  | O I   |       |       |       |   0.28
5.917   0.31   0.22   0.040  | O I   |       |       |       |   0.28
6.000   0.31   0.23   0.040  | O I   |       |       |       |   0.29
6.083   0.33   0.23   0.041  | O I   |       |       |       |   0.29
6.167   0.35   0.23   0.042  |  OI   |       |       |       |   0.30
6.250   0.35   0.24   0.042  |  OI   |       |       |       |   0.30
6.333   0.35   0.24   0.043  |  OI   |       |       |       |   0.31
6.417   0.35   0.25   0.044  |  OI   |       |       |       |   0.31
6.500   0.35   0.25   0.045  |  OI   |       |       |       |   0.32
6.583   0.37   0.26   0.045  |  OI   |       |       |       |   0.32
6.667   0.39   0.26   0.046  |  O I  |       |       |       |   0.33
6.750   0.39   0.27   0.047  |  O I  |       |       |       |   0.33
6.833   0.39   0.27   0.048  |  O I  |       |       |       |   0.34
6.917   0.39   0.27   0.049  |  O I  |       |       |       |   0.35
7.000   0.39   0.28   0.050  |  O I  |       |       |       |   0.35
7.083   0.39   0.28   0.050  |  O I  |       |       |       |   0.36
7.167   0.39   0.29   0.051  |  O I  |       |       |       |   0.36
7.250   0.39   0.29   0.052  |  O I  |       |       |       |   0.37
7.333   0.41   0.30   0.052  |  O I  |       |       |       |   0.37
7.417   0.43   0.30   0.053  |  O I  |       |       |       |   0.38
7.500   0.43   0.30   0.054  |  O I  |       |       |       |   0.38
7.583   0.45   0.31   0.055  |   OI  |       |       |       |   0.39
7.667   0.47   0.32   0.056  |   O I |       |       |       |   0.40
7.750   0.47   0.32   0.057  |   O I |       |       |       |   0.40
7.833   0.49   0.33   0.058  |   O I |       |       |       |   0.41
7.917   0.51   0.33   0.059  |   O I |       |       |       |   0.42
8.000   0.51   0.34   0.060  |   O I |       |       |       |   0.43
8.083   0.55   0.35   0.062  |   O  I|       |       |       |   0.44
8.167   0.58   0.36   0.063  |   O  I|       |       |       |   0.45
8.250   0.59   0.36   0.065  |   O  I|       |       |       |   0.46
8.333   0.59   0.37   0.066  |   O  I|       |       |       |   0.47
8.417   0.59   0.38   0.068  |   O  I|       |       |       |   0.48
8.500   0.59   0.39   0.069  |    O I|       |       |       |   0.49
8.583   0.61   0.40   0.070  |    O I|       |       |       |   0.50
8.667   0.62   0.41   0.072  |    O  I       |       |       |   0.51
8.750   0.62   0.41   0.073  |    O  I       |       |       |   0.52
8.833   0.65   0.42   0.075  |    O  I       |       |       |   0.53
8.917   0.66   0.43   0.076  |    O  I       |       |       |   0.54
9.000   0.66   0.44   0.078  |    O  I       |       |       |   0.55
9.083   0.71   0.45   0.080  |    O  |I      |       |       |   0.57
9.167   0.74   0.46   0.082  |    O  |I      |       |       |   0.58
9.250   0.75   0.47   0.083  |     O |I      |       |       |   0.59
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  9.333   0.81   0.48   0.086  |     O | I     |       |       |   0.61
  9.417   0.85   0.50   0.088  |     O | I     |       |       |   0.62
  9.500   0.86   0.51   0.090  |     O |  I    |       |       |   0.64
  9.583   0.92   0.52   0.093  |     O |  I    |       |       |   0.66
  9.667   0.97   0.54   0.096  |     O |   I   |       |       |   0.68
  9.750   0.98   0.56   0.099  |      O|   I   |       |       |   0.70
  9.833   1.04   0.57   0.102  |      O|    I  |       |       |   0.72
  9.917   1.08   0.59   0.105  |      O|    I  |       |       |   0.75
 10.000   1.09   0.61   0.108  |      O|     I |       |       |   0.77
 10.083   0.82   0.62   0.111  |       O I     |       |       |   0.79
 10.167   0.62   0.63   0.111  |      IO       |       |       |   0.79
 10.250   0.59   0.63   0.111  |      IO       |       |       |   0.79
 10.333   0.59   0.62   0.111  |      IO       |       |       |   0.79
 10.417   0.59   0.62   0.111  |      IO       |       |       |   0.79
 10.500   0.59   0.62   0.110  |      IO       |       |       |   0.78
 10.583   0.77   0.62   0.111  |       OI      |       |       |   0.79
 10.667   0.91   0.63   0.112  |       O  I    |       |       |   0.80
 10.750   0.94   0.64   0.114  |       O   I   |       |       |   0.81
 10.833   0.95   0.66   0.116  |       O   I   |       |       |   0.83
 10.917   0.95   0.67   0.118  |       O   I   |       |       |   0.84
 11.000   0.96   0.68   0.120  |       O   I   |       |       |   0.85
 11.083   0.91   0.69   0.122  |       O  I    |       |       |   0.87
 11.167   0.87   0.69   0.123  |       O  I    |       |       |   0.88
 11.250   0.87   0.70   0.125  |       |O I    |       |       |   0.88
 11.333   0.88   0.71   0.126  |       |O I    |       |       |   0.89
 11.417   0.88   0.71   0.127  |       |O I    |       |       |   0.90
 11.500   0.89   0.72   0.128  |       |O I    |       |       |   0.91
 11.583   0.79   0.73   0.129  |       |OI     |       |       |   0.91
 11.667   0.71   0.73   0.129  |       |O      |       |       |   0.92
 11.750   0.71   0.73   0.129  |       |O      |       |       |   0.91
 11.833   0.76   0.73   0.129  |       |O      |       |       |   0.91
 11.917   0.81   0.73   0.129  |       |OI     |       |       |   0.92
 12.000   0.82   0.73   0.130  |       |OI     |       |       |   0.92
 12.083   1.19   0.74   0.132  |       |O     I|       |       |   0.93
 12.167   1.47   0.76   0.136  |       |O      |  I    |       |   0.96
 12.250   1.52   0.79   0.141  |       | O     |  I    |       |   1.00
 12.333   1.58   0.81   0.146  |       | O     |   I   |       |   1.03
 12.417   1.62   0.82   0.151  |       | O     |   I   |       |   1.06
 12.500   1.64   0.84   0.157  |       | O     |    I  |       |   1.09
 12.583   1.75   0.85   0.163  |       | O     |     I |       |   1.12
 12.667   1.83   0.87   0.169  |       |  O    |      I|       |   1.16
 12.750   1.85   0.88   0.176  |       |  O    |      I|       |   1.20
 12.833   1.90   0.90   0.182  |       |  O    |       I       |   1.24
 12.917   1.95   0.92   0.189  |       |  O    |       |I      |   1.28
 13.000   1.96   0.94   0.197  |       |   O   |       |I      |   1.32
 13.083   2.23   0.96   0.204  |       |   O   |       |   I   |   1.36
 13.167   2.43   0.98   0.214  |       |   O   |       |      I|   1.42
 13.250   2.47   1.01   0.224  |       |    O  |       |      I|   1.47
 13.333   2.47   1.04   0.234  |       |    O  |       |      I|   1.53
 13.417   2.48   1.06   0.244  |       |    O  |       |      I|   1.59
 13.500   2.48   1.09   0.253  |       |     O |       |       I   1.64
 13.583   1.91   1.11   0.261  |       |     O |       I       |   1.68
 13.667   1.47   1.12   0.265  |       |     O |  I    |       |   1.71
 13.750   1.41   1.12   0.267  |       |     O | I     |       |   1.72
 13.833   1.41   1.13   0.269  |       |     O | I     |       |   1.73
 13.917   1.42   1.13   0.271  |       |     O | I     |       |   1.74
 14.000   1.42   1.14   0.273  |       |     O | I     |       |   1.75
 14.083   1.64   1.15   0.275  |       |     O |    I  |       |   1.77
 14.167   1.80   1.16   0.279  |       |     O |      I|       |   1.79
 14.250   1.83   1.17   0.284  |       |      O|      I|       |   1.82
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14.333   1.78   1.18   0.288  |       |      O|     I |       |   1.84
14.417   1.74   1.19   0.292  |       |      O|     I |       |   1.86
14.500   1.74   1.20   0.296  |       |      O|     I |       |   1.89
14.583   1.75   1.21   0.300  |       |      O|     I |       |   1.91
14.667   1.75   1.22   0.303  |       |      O|     I |       |   1.93
14.750   1.76   1.23   0.307  |       |      O|     I |       |   1.95
14.833   1.71   1.24   0.310  |       |      O|     I |       |   1.97
14.917   1.67   1.24   0.314  |       |       O    I  |       |   1.99
15.000   1.67   1.25   0.316  |       |       O    I  |       |   2.00
15.083   1.62   1.26   0.319  |       |       O   I   |       |   2.02
15.167   1.58   1.26   0.322  |       |       O   I   |       |   2.03
15.250   1.58   1.26   0.324  |       |       O   I   |       |   2.04
15.333   1.53   1.27   0.326  |       |       O  I    |       |   2.05
15.417   1.50   1.27   0.327  |       |       O  I    |       |   2.05
15.500   1.50   1.27   0.329  |       |       O  I    |       |   2.06
15.583   1.29   1.27   0.330  |       |       O       |       |   2.07
15.667   1.13   1.27   0.329  |       |     I O       |       |   2.06
15.750   1.11   1.27   0.328  |       |     I O       |       |   2.06
15.833   1.12   1.27   0.327  |       |     I O       |       |   2.05
15.917   1.12   1.27   0.326  |       |     I O       |       |   2.05
16.000   1.12   1.27   0.325  |       |     I O       |       |   2.04
16.083   0.61   1.26   0.323  |      I|       O       |       |   2.03
16.167   0.22   1.25   0.317  | I     |       O       |       |   2.00
16.250   0.16   1.23   0.310  | I     |      O|       |       |   1.96
16.333   0.16   1.21   0.302  | I     |      O|       |       |   1.92
16.417   0.16   1.20   0.295  | I     |      O|       |       |   1.88
16.500   0.16   1.18   0.288  | I     |      O|       |       |   1.84
16.583   0.14   1.16   0.281  |I      |     O |       |       |   1.80
16.667   0.12   1.14   0.274  |I      |     O |       |       |   1.76
16.750   0.12   1.12   0.267  |I      |     O |       |       |   1.72
16.833   0.12   1.10   0.260  |I      |     O |       |       |   1.68
16.917   0.12   1.09   0.253  |I      |     O |       |       |   1.64
17.000   0.12   1.07   0.247  |I      |    O  |       |       |   1.60
17.083   0.16   1.05   0.240  | I     |    O  |       |       |   1.57
17.167   0.19   1.04   0.234  | I     |    O  |       |       |   1.53
17.250   0.20   1.02   0.228  | I     |    O  |       |       |   1.50
17.333   0.20   1.01   0.223  | I     |    O  |       |       |   1.47
17.417   0.20   0.99   0.217  | I     |   O   |       |       |   1.44
17.500   0.20   0.98   0.212  | I     |   O   |       |       |   1.40
17.583   0.20   0.96   0.206  | I     |   O   |       |       |   1.37
17.667   0.20   0.95   0.201  | I     |   O   |       |       |   1.34
17.750   0.20   0.94   0.196  | I     |   O   |       |       |   1.31
17.833   0.17   0.92   0.191  | I     |  O    |       |       |   1.29
17.917   0.16   0.91   0.186  | I     |  O    |       |       |   1.26
18.000   0.16   0.90   0.181  | I     |  O    |       |       |   1.23
18.083   0.16   0.88   0.176  | I     |  O    |       |       |   1.20
18.167   0.16   0.87   0.171  | I     |  O    |       |       |   1.17
18.250   0.16   0.86   0.166  | I     |  O    |       |       |   1.14
18.333   0.16   0.85   0.161  | I     | O     |       |       |   1.11
18.417   0.16   0.83   0.156  | I     | O     |       |       |   1.09
18.500   0.16   0.82   0.152  | I     | O     |       |       |   1.06
18.583   0.14   0.81   0.147  |I      | O     |       |       |   1.03
18.667   0.12   0.80   0.142  |I      | O     |       |       |   1.01
18.750   0.12   0.78   0.138  |I      | O     |       |       |   0.98
18.833   0.10   0.75   0.133  |I      |O      |       |       |   0.94
18.917   0.08   0.72   0.129  |I      |O      |       |       |   0.91
19.000   0.08   0.70   0.124  |I      |O      |       |       |   0.88
19.083   0.10   0.68   0.120  |I      O       |       |       |   0.85
19.167   0.11   0.66   0.116  |I      O       |       |       |   0.83
19.250   0.12   0.63   0.113  |I      O       |       |       |   0.80
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19.333   0.14   0.62   0.109  |I     O|       |       |       |   0.78
19.417   0.15   0.60   0.106  |I     O|       |       |       |   0.75
19.500   0.16   0.58   0.103  | I    O|       |       |       |   0.73
19.583   0.14   0.56   0.100  |I     O|       |       |       |   0.71
19.667   0.12   0.55   0.097  |I     O|       |       |       |   0.69
19.750   0.12   0.53   0.094  |I    O |       |       |       |   0.67
19.833   0.10   0.52   0.091  |I    O |       |       |       |   0.65
19.917   0.08   0.50   0.089  |I    O |       |       |       |   0.63
20.000   0.08   0.48   0.086  |I    O |       |       |       |   0.61
20.083   0.10   0.47   0.083  |I    O |       |       |       |   0.59
20.167   0.11   0.45   0.081  |I   O  |       |       |       |   0.57
20.250   0.12   0.44   0.078  |I   O  |       |       |       |   0.56
20.333   0.12   0.43   0.076  |I   O  |       |       |       |   0.54
20.417   0.12   0.42   0.074  |I   O  |       |       |       |   0.53
20.500   0.12   0.41   0.072  |I   O  |       |       |       |   0.51
20.583   0.12   0.39   0.070  |I   O  |       |       |       |   0.50
20.667   0.12   0.38   0.068  |I  O   |       |       |       |   0.48
20.750   0.12   0.37   0.066  |I  O   |       |       |       |   0.47
20.833   0.10   0.36   0.065  |I  O   |       |       |       |   0.46
20.917   0.08   0.35   0.063  |I  O   |       |       |       |   0.45
21.000   0.08   0.34   0.061  |I  O   |       |       |       |   0.43
21.083   0.10   0.33   0.059  |I  O   |       |       |       |   0.42
21.167   0.11   0.32   0.058  |I  O   |       |       |       |   0.41
21.250   0.12   0.32   0.056  |I  O   |       |       |       |   0.40
21.333   0.10   0.31   0.055  |I O    |       |       |       |   0.39
21.417   0.08   0.30   0.053  |I O    |       |       |       |   0.38
21.500   0.08   0.29   0.052  |I O    |       |       |       |   0.37
21.583   0.10   0.28   0.050  |I O    |       |       |       |   0.36
21.667   0.11   0.28   0.049  |I O    |       |       |       |   0.35
21.750   0.12   0.27   0.048  |I O    |       |       |       |   0.34
21.833   0.10   0.27   0.047  |I O    |       |       |       |   0.33
21.917   0.08   0.26   0.046  |I O    |       |       |       |   0.33
22.000   0.08   0.25   0.045  |I O    |       |       |       |   0.32
22.083   0.10   0.25   0.044  |I O    |       |       |       |   0.31
22.167   0.11   0.24   0.043  |I O    |       |       |       |   0.30
22.250   0.12   0.24   0.042  |I O    |       |       |       |   0.30
22.333   0.10   0.23   0.041  |IO     |       |       |       |   0.29
22.417   0.08   0.23   0.040  |IO     |       |       |       |   0.28
22.500   0.08   0.22   0.039  |IO     |       |       |       |   0.28
22.583   0.08   0.21   0.038  |IO     |       |       |       |   0.27
22.667   0.08   0.21   0.037  |IO     |       |       |       |   0.26
22.750   0.08   0.20   0.036  |IO     |       |       |       |   0.26
22.833   0.08   0.20   0.035  |IO     |       |       |       |   0.25
22.917   0.08   0.19   0.035  |IO     |       |       |       |   0.25
23.000   0.08   0.19   0.034  |IO     |       |       |       |   0.24
23.083   0.08   0.19   0.033  |IO     |       |       |       |   0.23
23.167   0.08   0.18   0.032  |IO     |       |       |       |   0.23
23.250   0.08   0.18   0.032  |IO     |       |       |       |   0.22
23.333   0.08   0.17   0.031  |IO     |       |       |       |   0.22
23.417   0.08   0.17   0.030  |IO     |       |       |       |   0.21
23.500   0.08   0.17   0.030  |IO     |       |       |       |   0.21
23.583   0.08   0.16   0.029  |IO     |       |       |       |   0.21
23.667   0.08   0.16   0.028  |IO     |       |       |       |   0.20
23.750   0.08   0.16   0.028  |IO     |       |       |       |   0.20
23.833   0.08   0.15   0.027  |O      |       |       |       |   0.19
23.917   0.08   0.15   0.027  |O      |       |       |       |   0.19
24.000   0.08   0.15   0.026  |O      |       |       |       |   0.19
24.083   0.04   0.14   0.026  IO      |       |       |       |   0.18
24.167   0.00   0.14   0.025  IO      |       |       |       |   0.18
24.250   0.00   0.14   0.024  IO      |       |       |       |   0.17
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24.333	0.00	0.13	0.023	IO	0.16
24.417	0.00	0.12	0.022	IO	0.16
24.500	0.00	0.12	0.021	IO	0.15
24.583	0.00	0.12	0.021	IO	0.15
24.667	0.00	0.11	0.020	IO	0.14
24.750	0.00	0.11	0.019	IO	0.13
24.833	0.00	0.10	0.018	IO	0.13
24.917	0.00	0.10	0.018	IO	0.12
25.000	0.00	0.10	0.017	IO	0.12
25.083	0.00	0.09	0.016	IO	0.12
25.167	0.00	0.09	0.016	IO	0.11
25.250	0.00	0.08	0.015	IO	0.11
25.333	0.00	0.08	0.014	IO	0.10
25.417	0.00	0.08	0.014	IO	0.10
25.500	0.00	0.08	0.013	O	0.10
25.583	0.00	0.07	0.013	O	0.09
25.667	0.00	0.07	0.012	O	0.09
25.750	0.00	0.07	0.012	O	0.08
25.833	0.00	0.06	0.011	O	0.08
25.917	0.00	0.06	0.011	O	0.08
26.000	0.00	0.06	0.011	O	0.08
26.083	0.00	0.06	0.010	O	0.07
26.167	0.00	0.06	0.010	O	0.07
26.250	0.00	0.05	0.009	O	0.07
26.333	0.00	0.05	0.009	O	0.06
26.417	0.00	0.05	0.009	O	0.06
26.500	0.00	0.05	0.008	O	0.06
26.583	0.00	0.05	0.008	O	0.06
26.667	0.00	0.04	0.008	O	0.06
26.750	0.00	0.04	0.007	O	0.05
26.833	0.00	0.04	0.007	O	0.05
26.917	0.00	0.04	0.007	O	0.05
27.000	0.00	0.04	0.007	O	0.05
27.083	0.00	0.04	0.006	O	0.05
27.167	0.00	0.03	0.006	O	0.04
27.250	0.00	0.03	0.006	O	0.04
27.333	0.00	0.03	0.006	O	0.04
27.417	0.00	0.03	0.005	O	0.04
27.500	0.00	0.03	0.005	O	0.04
27.583	0.00	0.03	0.005	O	0.04
27.667	0.00	0.03	0.005	O	0.03
27.750	0.00	0.03	0.005	O	0.03
27.833	0.00	0.03	0.005	O	0.03
27.917	0.00	0.02	0.004	O	0.03
28.000	0.00	0.02	0.004	O	0.03
28.083	0.00	0.02	0.004	O	0.03
28.167	0.00	0.02	0.004	O	0.03
28.250	0.00	0.02	0.004	O	0.03
28.333	0.00	0.02	0.004	O	0.03
28.417	0.00	0.02	0.003	O	0.02
28.500	0.00	0.02	0.003	O	0.02
28.583	0.00	0.02	0.003	O	0.02
28.667	0.00	0.02	0.003	O	0.02
28.750	0.00	0.02	0.003	O	0.02
28.833	0.00	0.02	0.003	O	0.02
28.917	0.00	0.02	0.003	O	0.02
29.000	0.00	0.01	0.003	O	0.02
29.083	0.00	0.01	0.003	O	0.02
29.167	0.00	0.01	0.002	O	0.02
29.250	0.00	0.01	0.002	O	0.02

29.333	0.00	0.01	0.002	O	0.02
29.417	0.00	0.01	0.002	O	0.02
29.500	0.00	0.01	0.002	O	0.01
29.583	0.00	0.01	0.002	O	0.01
29.667	0.00	0.01	0.002	O	0.01
29.750	0.00	0.01	0.002	O	0.01
29.833	0.00	0.01	0.002	O	0.01
29.917	0.00	0.01	0.002	O	0.01
30.000	0.00	0.01	0.002	O	0.01
30.083	0.00	0.01	0.002	O	0.01
30.167	0.00	0.01	0.002	O	0.01
30.250	0.00	0.01	0.001	O	0.01
30.333	0.00	0.01	0.001	O	0.01
30.417	0.00	0.01	0.001	O	0.01
30.500	0.00	0.01	0.001	O	0.01
30.583	0.00	0.01	0.001	O	0.01
30.667	0.00	0.01	0.001	O	0.01
30.750	0.00	0.01	0.001	O	0.01
30.833	0.00	0.01	0.001	O	0.01
30.917	0.00	0.01	0.001	O	0.01
31.000	0.00	0.01	0.001	O	0.01
31.083	0.00	0.01	0.001	O	0.01
31.167	0.00	0.01	0.001	O	0.01
31.250	0.00	0.01	0.001	O	0.01
31.333	0.00	0.00	0.001	O	0.01
31.417	0.00	0.00	0.001	O	0.01
31.500	0.00	0.00	0.001	O	0.01
31.583	0.00	0.00	0.001	O	0.01
31.667	0.00	0.00	0.001	O	0.01
31.750	0.00	0.00	0.001	O	0.01
31.833	0.00	0.00	0.001	O	0.00
31.917	0.00	0.00	0.001	O	0.00
32.000	0.00	0.00	0.001	O	0.00
32.083	0.00	0.00	0.001	O	0.00
32.167	0.00	0.00	0.001	O	0.00
32.250	0.00	0.00	0.001	O	0.00
32.333	0.00	0.00	0.001	O	0.00
32.417	0.00	0.00	0.001	O	0.00
32.500	0.00	0.00	0.001	O	0.00
32.583	0.00	0.00	0.000	O	0.00
32.667	0.00	0.00	0.000	O	0.00
32.750	0.00	0.00	0.000	O	0.00
32.833	0.00	0.00	0.000	O	0.00
32.917	0.00	0.00	0.000	O	0.00
33.000	0.00	0.00	0.000	O	0.00
33.083	0.00	0.00	0.000	O	0.00
33.167	0.00	0.00	0.000	O	0.00
33.250	0.00	0.00	0.000	O	0.00
33.333	0.00	0.00	0.000	O	0.00
33.417	0.00	0.00	0.000	O	0.00
33.500	0.00	0.00	0.000	O	0.00
33.583	0.00	0.00	0.000	O	0.00
33.667	0.00	0.00	0.000	O	0.00
33.750	0.00	0.00	0.000	O	0.00
33.833	0.00	0.00	0.000	O	0.00
33.917	0.00	0.00	0.000	O	0.00
34.000	0.00	0.00	0.000	O	0.00
34.083	0.00	0.00	0.000	O	0.00
34.167	0.00	0.00	0.000	O	0.00
34.250	0.00	0.00	0.000	O	0.00

```
34.333     0.00     0.00      0.000  O       |       |       |       |      0.00
34.417     0.00     0.00      0.000  O       |       |       |       |      0.00
34.500     0.00     0.00      0.000  O       |       |       |       |      0.00
34.583     0.00     0.00      0.000  O       |       |       |       |      0.00
34.667     0.00     0.00      0.000  O       |       |       |       |      0.00
34.750     0.00     0.00      0.000  O       |       |       |       |      0.00
34.833     0.00     0.00      0.000  O       |       |       |       |      0.00

     ****************************HYDROGRAPH DATA****************************
                 Number of intervals =    418
                 Time interval =     5.0 (Min.)
                 Maximum/Peak flow rate =        1.273 (CFS)
                 Total volume =       1.059 (Ac.Ft)
           Status of hydrographs being held in storage
                      Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)      0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ***********************************************************************

     --------------------------------------------------------------------
```

DEVELOPED
100 YEAR – 24 HOUR
AREA D_1

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 07/23/19

Program License Serial Number 6222

St. Frances of Rome - Wildomar
Developed D1
100-Year 24-Hour

******************** HYDROGRAPH INFORMATION ********************

From study/file name: c318devD124100.rte

***************************HYDROGRAPH DATA***************************

Number of intervals = 291
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.150 (CFS)
Total volume = 1.498 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

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Process from Point/Station 8.000 to Point/Station 9.000

**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 291
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.750	0.189	1.160	0.185	0.193
1.750	0.482	2.351	0.474	0.490
2.750	0.822	3.105	0.811	0.833
3.750	1.212	3.713	1.199	1.225

```
          ----------------------------------------------------------------
                    Hydrograph Detention Basin Routing
          ----------------------------------------------------------------

          Graph values: 'I'= unit inflow; 'O'=outflow at time shown
          ----------------------------------------------------------------
 Time    Inflow  Outflow    Storage                                     Depth
(Hours)   (CFS)   (CFS)    (Ac.Ft) .0        0.8      1.57     2.36     3.15 (Ft.)
 0.083    0.06    0.00      0.000  O          |        |        |        |      0.00
 0.167    0.12    0.00      0.001  OI         |        |        |        |      0.00
 0.250    0.13    0.01      0.002  OI         |        |        |        |      0.01
 0.333    0.16    0.02      0.002  OI         |        |        |        |      0.01
 0.417    0.19    0.02      0.004  OI         |        |        |        |      0.01
 0.500    0.19    0.03      0.005  OI         |        |        |        |      0.02
 0.583    0.19    0.04      0.006  OI         |        |        |        |      0.02
 0.667    0.19    0.04      0.007  OI         |        |        |        |      0.03
 0.750    0.19    0.05      0.008  OI         |        |        |        |      0.03
 0.833    0.22    0.05      0.009  O I        |        |        |        |      0.04
 0.917    0.25    0.06      0.010  O I        |        |        |        |      0.04
 1.000    0.25    0.07      0.011  O I        |        |        |        |      0.05
 1.083    0.22    0.08      0.013  O I        |        |        |        |      0.05
 1.167    0.20    0.08      0.013  O I        |        |        |        |      0.05
 1.250    0.19    0.09      0.014  OI         |        |        |        |      0.06
 1.333    0.19    0.09      0.015  OI         |        |        |        |      0.06
 1.417    0.19    0.10      0.016  OI         |        |        |        |      0.06
 1.500    0.19    0.10      0.016  |O         |        |        |        |      0.06
 1.583    0.19    0.10      0.017  |O         |        |        |        |      0.07
 1.667    0.19    0.11      0.017  |O         |        |        |        |      0.07
 1.750    0.19    0.11      0.018  |O         |        |        |        |      0.07
 1.833    0.22    0.11      0.019  |OI        |        |        |        |      0.07
 1.917    0.25    0.12      0.019  |OI        |        |        |        |      0.08
 2.000    0.25    0.13      0.020  |OI        |        |        |        |      0.08
 2.083    0.26    0.13      0.021  |OI        |        |        |        |      0.08
 2.167    0.26    0.14      0.022  |OI        |        |        |        |      0.09
 2.250    0.26    0.14      0.023  |OI        |        |        |        |      0.09
 2.333    0.26    0.15      0.024  |OI        |        |        |        |      0.09
 2.417    0.26    0.15      0.024  |OI        |        |        |        |      0.10
 2.500    0.26    0.15      0.025  |OI        |        |        |        |      0.10
 2.583    0.29    0.16      0.026  |OI        |        |        |        |      0.10
 2.667    0.31    0.16      0.027  |O I       |        |        |        |      0.11
 2.750    0.32    0.17      0.028  |O I       |        |        |        |      0.11
 2.833    0.32    0.18      0.029  |O I       |        |        |        |      0.11
 2.917    0.32    0.18      0.030  |O I       |        |        |        |      0.12
 3.000    0.32    0.19      0.031  |O I       |        |        |        |      0.12
 3.083    0.32    0.19      0.032  |O I       |        |        |        |      0.13
 3.167    0.32    0.20      0.032  | OI       |        |        |        |      0.13
 3.250    0.32    0.20      0.033  | OI       |        |        |        |      0.13
 3.333    0.32    0.21      0.034  | OI       |        |        |        |      0.14
 3.417    0.32    0.21      0.035  | OI       |        |        |        |      0.14
 3.500    0.32    0.22      0.036  | OI       |        |        |        |      0.14
 3.583    0.32    0.22      0.036  | OI       |        |        |        |      0.14
 3.667    0.32    0.23      0.037  | OI       |        |        |        |      0.15
 3.750    0.32    0.23      0.037  | OI       |        |        |        |      0.15
 3.833    0.35    0.23      0.038  | OI       |        |        |        |      0.15
 3.917    0.38    0.24      0.039  | OI       |        |        |        |      0.16
 4.000    0.38    0.25      0.040  | OI       |        |        |        |      0.16
 4.083    0.38    0.25      0.041  | OI       |        |        |        |      0.16
 4.167    0.38    0.26      0.042  | OI       |        |        |        |      0.17
 4.250    0.38    0.26      0.043  | OI       |        |        |        |      0.17
 4.333    0.41    0.27      0.044  | O I      |        |        |        |      0.17
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4.417    0.44    0.27      0.045  | O I   |       |       |       |    0.18
4.500    0.45    0.28      0.046  | O I   |       |       |       |    0.18
4.583    0.45    0.29      0.047  | O I   |       |       |       |    0.19
4.667    0.45    0.29      0.048  | O I   |       |       |       |    0.19
4.750    0.45    0.30      0.049  |  OI   |       |       |       |    0.19
4.833    0.48    0.31      0.050  |  OI   |       |       |       |    0.20
4.917    0.51    0.32      0.051  |  O I  |       |       |       |    0.20
5.000    0.51    0.32      0.053  |  O I  |       |       |       |    0.21
5.083    0.45    0.33      0.054  |  OI   |       |       |       |    0.21
5.167    0.39    0.33      0.054  |  OI   |       |       |       |    0.22
5.250    0.39    0.34      0.055  |  O    |       |       |       |    0.22
5.333    0.41    0.34      0.055  |  OI   |       |       |       |    0.22
5.417    0.44    0.34      0.056  |  OI   |       |       |       |    0.22
5.500    0.45    0.35      0.056  |  OI   |       |       |       |    0.22
5.583    0.48    0.35      0.057  |  OI   |       |       |       |    0.23
5.667    0.51    0.36      0.058  |  O I  |       |       |       |    0.23
5.750    0.51    0.36      0.059  |  O I  |       |       |       |    0.23
5.833    0.51    0.37      0.060  |  O I  |       |       |       |    0.24
5.917    0.51    0.38      0.061  |  O I  |       |       |       |    0.24
6.000    0.51    0.38      0.062  |  O I  |       |       |       |    0.25
6.083    0.54    0.39      0.063  |  O I  |       |       |       |    0.25
6.167    0.57    0.39      0.064  |   OI  |       |       |       |    0.25
6.250    0.57    0.40      0.065  |   OI  |       |       |       |    0.26
6.333    0.57    0.41      0.067  |   OI  |       |       |       |    0.26
6.417    0.57    0.42      0.068  |   OI  |       |       |       |    0.27
6.500    0.57    0.42      0.069  |   OI  |       |       |       |    0.27
6.583    0.61    0.43      0.070  |   O I |       |       |       |    0.28
6.667    0.63    0.44      0.071  |   O I |       |       |       |    0.28
6.750    0.64    0.44      0.072  |   O I |       |       |       |    0.29
6.833    0.64    0.45      0.074  |   O I |       |       |       |    0.29
6.917    0.64    0.46      0.075  |   O I |       |       |       |    0.30
7.000    0.64    0.47      0.076  |   O I |       |       |       |    0.30
7.083    0.64    0.48      0.077  |   O I |       |       |       |    0.31
7.167    0.64    0.48      0.078  |   O I |       |       |       |    0.31
7.250    0.64    0.49      0.080  |   O I |       |       |       |    0.32
7.333    0.67    0.50      0.081  |    OI |       |       |       |    0.32
7.417    0.70    0.50      0.082  |    O I|       |       |       |    0.33
7.500    0.70    0.51      0.083  |    O I|       |       |       |    0.33
7.583    0.73    0.52      0.085  |    O I|       |       |       |    0.34
7.667    0.76    0.53      0.086  |    O I|       |       |       |    0.34
7.750    0.77    0.54      0.088  |    O I|       |       |       |    0.35
7.833    0.80    0.55      0.089  |    O  I       |       |       |    0.35
7.917    0.82    0.56      0.091  |    O  I       |       |       |    0.36
8.000    0.83    0.57      0.093  |    O  I       |       |       |    0.37
8.083    0.89    0.58      0.095  |    O  |I      |       |       |    0.38
8.167    0.95    0.60      0.097  |     O |I      |       |       |    0.39
8.250    0.96    0.61      0.100  |     O |I      |       |       |    0.40
8.333    0.96    0.63      0.102  |     O |I      |       |       |    0.40
8.417    0.96    0.64      0.104  |     O |I      |       |       |    0.41
8.500    0.96    0.65      0.106  |     O |I      |       |       |    0.42
8.583    0.99    0.67      0.108  |     O | I     |       |       |    0.43
8.667    1.02    0.68      0.111  |     O | I     |       |       |    0.44
8.750    1.02    0.69      0.113  |      O| I     |       |       |    0.45
8.833    1.05    0.71      0.115  |      O| I     |       |       |    0.46
8.917    1.08    0.72      0.118  |      O| I     |       |       |    0.47
9.000    1.08    0.74      0.120  |      O|  I    |       |       |    0.48
9.083    1.15    0.75      0.123  |      O|  I    |       |       |    0.49
9.167    1.20    0.77      0.126  |      O|   I   |       |       |    0.50
9.250    1.21    0.79      0.129  |       O   I   |       |       |    0.51
9.333    1.24    0.81      0.131  |       O   I   |       |       |    0.52
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  9.417     1.27     0.83      0.135   |       O   I   |       |       |     0.53
  9.500     1.28     0.84      0.138   |       O   I   |       |       |     0.55
  9.583     1.31     0.86      0.141   |       O    I  |       |       |     0.56
  9.667     1.34     0.88      0.144   |       O    I  |       |       |     0.57
  9.750     1.34     0.90      0.147   |       |O   I  |       |       |     0.58
  9.833     1.40     0.92      0.150   |       |O    I |       |       |     0.59
  9.917     1.45     0.94      0.153   |       |O    I |       |       |     0.61
 10.000     1.47     0.96      0.157   |       |O    I |       |       |     0.62
 10.083     1.22     0.98      0.159   |       |O  I   |       |       |     0.63
 10.167     1.00     0.98      0.160   |       |OI     |       |       |     0.64
 10.250     0.97     0.98      0.160   |       |O      |       |       |     0.64
 10.333     0.96     0.98      0.160   |       |O      |       |       |     0.64
 10.417     0.96     0.98      0.160   |       |O      |       |       |     0.63
 10.500     0.96     0.98      0.160   |       |O      |       |       |     0.63
 10.583     1.11     0.98      0.160   |       |O I    |       |       |     0.64
 10.667     1.25     0.99      0.162   |       | O I   |       |       |     0.64
 10.750     1.27     1.00      0.163   |       | O I   |       |       |     0.65
 10.833     1.28     1.01      0.165   |       | O  I  |       |       |     0.66
 10.917     1.29     1.03      0.167   |       | O  I  |       |       |     0.66
 11.000     1.30     1.04      0.169   |       | O  I  |       |       |     0.67
 11.083     1.26     1.05      0.170   |       | O I   |       |       |     0.68
 11.167     1.22     1.05      0.172   |       | O I   |       |       |     0.68
 11.250     1.22     1.06      0.173   |       | O I   |       |       |     0.69
 11.333     1.21     1.07      0.174   |       | O I   |       |       |     0.69
 11.417     1.21     1.07      0.175   |       | O I   |       |       |     0.69
 11.500     1.21     1.08      0.176   |       | O I   |       |       |     0.70
 11.583     1.15     1.08      0.177   |       |  O    |       |       |     0.70
 11.667     1.10     1.09      0.177   |       |  O    |       |       |     0.70
 11.750     1.09     1.09      0.177   |       |  O    |       |       |     0.70
 11.833     1.12     1.09      0.177   |       |  O    |       |       |     0.70
 11.917     1.14     1.09      0.177   |       |  O    |       |       |     0.70
 12.000     1.15     1.09      0.178   |       |  O    |       |       |     0.71
 12.083     1.55     1.10      0.179   |       |  O   I|       |       |     0.71
 12.167     1.90     1.13      0.184   |       |  O    |  I    |       |     0.73
 12.250     1.97     1.16      0.189   |       |  O    |  I    |       |     0.75
 12.333     2.05     1.18      0.195   |       |   O   |   I   |       |     0.77
 12.417     2.10     1.21      0.201   |       |   O   |    I  |       |     0.79
 12.500     2.12     1.23      0.207   |       |   O   |    I  |       |     0.81
 12.583     2.24     1.26      0.213   |       |   O   |     I |       |     0.83
 12.667     2.35     1.29      0.220   |       |    O  |      I|       |     0.86
 12.750     2.37     1.32      0.228   |       |    O  |       I       |     0.88
 12.833     2.44     1.35      0.235   |       |    O  |       I       |     0.91
 12.917     2.50     1.38      0.243   |       |     O |       |I      |     0.93
 13.000     2.51     1.41      0.250   |       |     O |       |I      |     0.96
 13.083     2.81     1.44      0.259   |       |     O |       |   I   |     0.99
 13.167     3.08     1.49      0.269   |       |      O|       |      I|     1.02
 13.250     3.12     1.53      0.280   |       |      O|       |      I|     1.06
 13.333     3.14     1.57      0.291   |       |      O|       |      I|     1.10
 13.417     3.14     1.62      0.302   |       |       O       |      I|     1.13
 13.500     3.15     1.66      0.312   |       |       O       |      I|     1.17
 13.583     2.51     1.69      0.320   |       |       |O      |I      |     1.20
 13.667     1.95     1.71      0.324   |       |       |O I    |       |     1.21
 13.750     1.86     1.71      0.325   |       |       |OI     |       |     1.21
 13.833     1.84     1.72      0.326   |       |       |OI     |       |     1.22
 13.917     1.84     1.72      0.327   |       |       |OI     |       |     1.22
 14.000     1.85     1.72      0.327   |       |       |OI     |       |     1.22
 14.083     2.08     1.73      0.329   |       |       |O   I  |       |     1.23
 14.167     2.30     1.74      0.332   |       |       |O     I|       |     1.24
 14.250     2.34     1.76      0.336   |       |       |O     I|       |     1.25
 14.333     2.29     1.77      0.340   |       |       | O    I|       |     1.27
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14.417    2.24    1.79      0.343  |       |       | O   I |       |     1.28
14.500    2.24    1.80      0.346  |       |       | O   I |       |     1.29
14.583    2.24    1.81      0.349  |       |       | O   I |       |     1.30
14.667    2.25    1.82      0.352  |       |       | O   I |       |     1.31
14.750    2.25    1.84      0.355  |       |       | O   I |       |     1.32
14.833    2.20    1.85      0.358  |       |       | O   I |       |     1.33
14.917    2.15    1.86      0.360  |       |       | O  I  |       |     1.33
15.000    2.15    1.86      0.362  |       |       | O  I  |       |     1.34
15.083    2.09    1.87      0.364  |       |       |  O I  |       |     1.35
15.167    2.04    1.88      0.365  |       |       |  OI   |       |     1.35
15.250    2.04    1.88      0.366  |       |       |  OI   |       |     1.35
15.333    1.98    1.88      0.367  |       |       |  OI   |       |     1.36
15.417    1.94    1.89      0.368  |       |       |  O    |       |     1.36
15.500    1.93    1.89      0.368  |       |       |  O    |       |     1.36
15.583    1.70    1.89      0.367  |       |       |I O    |       |     1.36
15.667    1.50    1.88      0.366  |       |      I|  O    |       |     1.35
15.750    1.47    1.87      0.363  |       |     I | O     |       |     1.34
15.833    1.46    1.86      0.360  |       |     I | O     |       |     1.33
15.917    1.47    1.84      0.357  |       |     I | O     |       |     1.32
16.000    1.47    1.83      0.355  |       |     I | O     |       |     1.32
16.083    0.89    1.82      0.350  |       |I      | O     |       |     1.30
16.167    0.36    1.78      0.342  |  I    |       | O     |       |     1.27
16.250    0.28    1.74      0.332  | I     |       |O      |       |     1.24
16.333    0.26    1.70      0.322  | I     |       |O      |       |     1.21
16.417    0.26    1.66      0.313  | I     |       O       |       |     1.17
16.500    0.26    1.62      0.303  | I     |       O       |       |     1.14
16.583    0.22    1.59      0.294  | I     |       O       |       |     1.11
16.667    0.20    1.55      0.284  | I     |      O|       |       |     1.08
16.750    0.19    1.51      0.275  |I      |      O|       |       |     1.04
16.833    0.19    1.47      0.266  |I      |     O |       |       |     1.01
16.917    0.19    1.44      0.257  |I      |     O |       |       |     0.98
17.000    0.19    1.40      0.249  |I      |     O |       |       |     0.95
17.083    0.25    1.37      0.241  | I     |    O  |       |       |     0.93
17.167    0.31    1.34      0.234  |  I    |    O  |       |       |     0.90
17.250    0.32    1.31      0.227  |  I    |    O  |       |       |     0.88
17.333    0.32    1.29      0.220  |  I    |    O  |       |       |     0.86
17.417    0.32    1.26      0.213  |  I    |   O   |       |       |     0.83
17.500    0.32    1.23      0.207  |  I    |   O   |       |       |     0.81
17.583    0.32    1.21      0.201  |  I    |   O   |       |       |     0.79
17.667    0.32    1.18      0.195  |  I    |   O   |       |       |     0.77
17.750    0.32    1.16      0.189  |  I    |  O    |       |       |     0.75
17.833    0.29    1.12      0.183  | I     |  O    |       |       |     0.73
17.917    0.26    1.09      0.177  | I     |  O    |       |       |     0.70
18.000    0.26    1.05      0.172  | I     | O     |       |       |     0.68
18.083    0.26    1.02      0.166  | I     | O     |       |       |     0.66
18.167    0.26    0.99      0.161  | I     | O     |       |       |     0.64
18.250    0.26    0.96      0.156  | I     |O      |       |       |     0.62
18.333    0.26    0.93      0.151  | I     |O      |       |       |     0.60
18.417    0.26    0.90      0.147  | I     |O      |       |       |     0.58
18.500    0.26    0.87      0.143  | I     O       |       |       |     0.57
18.583    0.22    0.85      0.138  | I     O       |       |       |     0.55
18.667    0.20    0.82      0.134  | I     O       |       |       |     0.53
18.750    0.19    0.80      0.130  |I      O       |       |       |     0.51
18.833    0.16    0.77      0.126  |I     O|       |       |       |     0.50
18.917    0.13    0.74      0.121  |I     O|       |       |       |     0.48
19.000    0.13    0.72      0.117  |I     O|       |       |       |     0.47
19.083    0.16    0.70      0.113  |I     O|       |       |       |     0.45
19.167    0.19    0.67      0.110  |I    O |       |       |       |     0.44
19.250    0.19    0.65      0.107  |I    O |       |       |       |     0.42
19.333    0.22    0.64      0.104  | I   O |       |       |       |     0.41
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19.417	0.25	0.62	0.101	I O	0.40
19.500	0.25	0.60	0.098	I O	0.39
19.583	0.22	0.59	0.096	I O	0.38
19.667	0.20	0.57	0.093	I O	0.37
19.750	0.19	0.56	0.091	I O	0.36
19.833	0.16	0.54	0.088	I O	0.35
19.917	0.13	0.53	0.086	I O	0.34
20.000	0.13	0.51	0.083	I O	0.33
20.083	0.16	0.49	0.080	I O	0.32
20.167	0.19	0.48	0.078	I O	0.31
20.250	0.19	0.47	0.076	I O	0.30
20.333	0.19	0.46	0.074	I O	0.30
20.417	0.19	0.45	0.073	I O	0.29
20.500	0.19	0.44	0.071	I O	0.28
20.583	0.19	0.43	0.069	I O	0.27
20.667	0.19	0.42	0.068	I O	0.27
20.750	0.19	0.41	0.066	I O	0.26
20.833	0.16	0.40	0.065	I O	0.26
20.917	0.13	0.39	0.063	I O	0.25
21.000	0.13	0.38	0.061	I O	0.24
21.083	0.16	0.37	0.060	I O	0.24
21.167	0.19	0.36	0.058	I O	0.23
21.250	0.19	0.35	0.057	I O	0.23
21.333	0.16	0.34	0.056	I O	0.22
21.417	0.13	0.34	0.055	I O	0.22
21.500	0.13	0.33	0.053	I O	0.21
21.583	0.16	0.32	0.052	I O	0.21
21.667	0.19	0.31	0.051	I O	0.20
21.750	0.19	0.31	0.050	I O	0.20
21.833	0.16	0.30	0.049	I O	0.20
21.917	0.13	0.30	0.048	I O	0.19
22.000	0.13	0.29	0.047	IO	0.19
22.083	0.16	0.28	0.046	IO	0.18
22.167	0.19	0.28	0.045	IO	0.18
22.250	0.19	0.28	0.045	IO	0.18
22.333	0.16	0.27	0.044	IO	0.18
22.417	0.13	0.27	0.043	IO	0.17
22.500	0.13	0.26	0.042	IO	0.17
22.583	0.13	0.25	0.042	IO	0.16
22.667	0.13	0.25	0.041	IO	0.16
22.750	0.13	0.24	0.040	IO	0.16
22.833	0.13	0.24	0.039	IO	0.16
22.917	0.13	0.24	0.038	IO	0.15
23.000	0.13	0.23	0.038	IO	0.15
23.083	0.13	0.23	0.037	IO	0.15
23.167	0.13	0.22	0.036	IO	0.14
23.250	0.13	0.22	0.036	IO	0.14
23.333	0.13	0.21	0.035	IO	0.14
23.417	0.13	0.21	0.034	IO	0.14
23.500	0.13	0.21	0.034	IO	0.13
23.583	0.13	0.20	0.033	IO	0.13
23.667	0.13	0.20	0.033	IO	0.13
23.750	0.13	0.20	0.032	IO	0.13
23.833	0.13	0.20	0.032	O	0.13
23.917	0.13	0.19	0.031	O	0.12
24.000	0.13	0.19	0.031	O	0.12
24.083	0.07	0.19	0.030	IO	0.12
24.167	0.01	0.18	0.029	IO	0.12
24.250	0.00	0.17	0.028	IO	0.11
24.333	0.00	0.17	0.027	IO	0.11

24.417	0.00	0.16	0.026	IO	0.10
24.500	0.00	0.15	0.025	IO	0.10
24.583	0.00	0.15	0.024	IO	0.09
24.667	0.00	0.14	0.023	IO	0.09
24.750	0.00	0.13	0.022	IO	0.09
24.833	0.00	0.13	0.021	IO	0.08
24.917	0.00	0.12	0.020	IO	0.08
25.000	0.00	0.12	0.019	IO	0.08
25.083	0.00	0.11	0.018	IO	0.07
25.167	0.00	0.11	0.018	IO	0.07
25.250	0.00	0.10	0.017	IO	0.07
25.333	0.00	0.10	0.016	IO	0.06
25.417	0.00	0.10	0.016	O	0.06
25.500	0.00	0.09	0.015	O	0.06
25.583	0.00	0.09	0.014	O	0.06
25.667	0.00	0.08	0.014	O	0.05
25.750	0.00	0.08	0.013	O	0.05
25.833	0.00	0.08	0.013	O	0.05
25.917	0.00	0.07	0.012	O	0.05
26.000	0.00	0.07	0.012	O	0.05
26.083	0.00	0.07	0.011	O	0.04
26.167	0.00	0.07	0.011	O	0.04
26.250	0.00	0.06	0.010	O	0.04
26.333	0.00	0.06	0.010	O	0.04
26.417	0.00	0.06	0.009	O	0.04
26.500	0.00	0.06	0.009	O	0.04
26.583	0.00	0.05	0.009	O	0.03
26.667	0.00	0.05	0.008	O	0.03
26.750	0.00	0.05	0.008	O	0.03
26.833	0.00	0.05	0.008	O	0.03
26.917	0.00	0.04	0.007	O	0.03
27.000	0.00	0.04	0.007	O	0.03
27.083	0.00	0.04	0.007	O	0.03
27.167	0.00	0.04	0.006	O	0.03
27.250	0.00	0.04	0.006	O	0.02
27.333	0.00	0.04	0.006	O	0.02
27.417	0.00	0.03	0.006	O	0.02
27.500	0.00	0.03	0.005	O	0.02
27.583	0.00	0.03	0.005	O	0.02
27.667	0.00	0.03	0.005	O	0.02
27.750	0.00	0.03	0.005	O	0.02
27.833	0.00	0.03	0.005	O	0.02
27.917	0.00	0.03	0.004	O	0.02
28.000	0.00	0.03	0.004	O	0.02
28.083	0.00	0.02	0.004	O	0.02
28.167	0.00	0.02	0.004	O	0.02
28.250	0.00	0.02	0.004	O	0.01
28.333	0.00	0.02	0.004	O	0.01
28.417	0.00	0.02	0.003	O	0.01
28.500	0.00	0.02	0.003	O	0.01
28.583	0.00	0.02	0.003	O	0.01
28.667	0.00	0.02	0.003	O	0.01
28.750	0.00	0.02	0.003	O	0.01
28.833	0.00	0.02	0.003	O	0.01
28.917	0.00	0.02	0.003	O	0.01
29.000	0.00	0.02	0.003	O	0.01
29.083	0.00	0.01	0.002	O	0.01
29.167	0.00	0.01	0.002	O	0.01
29.250	0.00	0.01	0.002	O	0.01
29.333	0.00	0.01	0.002	O	0.01

29.417	0.00	0.01	0.002	O	|	|	|	|	0.01
29.500	0.00	0.01	0.002	O	|	|	|	|	0.01
29.583	0.00	0.01	0.002	O	|	|	|	|	0.01
29.667	0.00	0.01	0.002	O	|	|	|	|	0.01
29.750	0.00	0.01	0.002	O	|	|	|	|	0.01
29.833	0.00	0.01	0.002	O	|	|	|	|	0.01
29.917	0.00	0.01	0.002	O	|	|	|	|	0.01
30.000	0.00	0.01	0.002	O	|	|	|	|	0.01
30.083	0.00	0.01	0.001	O	|	|	|	|	0.01
30.167	0.00	0.01	0.001	O	|	|	|	|	0.01
30.250	0.00	0.01	0.001	O	|	|	|	|	0.01
30.333	0.00	0.01	0.001	O	|	|	|	|	0.01
30.417	0.00	0.01	0.001	O	|	|	|	|	0.00
30.500	0.00	0.01	0.001	O	|	|	|	|	0.00
30.583	0.00	0.01	0.001	O	|	|	|	|	0.00
30.667	0.00	0.01	0.001	O	|	|	|	|	0.00
30.750	0.00	0.01	0.001	O	|	|	|	|	0.00
30.833	0.00	0.01	0.001	O	|	|	|	|	0.00
30.917	0.00	0.01	0.001	O	|	|	|	|	0.00
31.000	0.00	0.01	0.001	O	|	|	|	|	0.00
31.083	0.00	0.01	0.001	O	|	|	|	|	0.00
31.167	0.00	0.01	0.001	O	|	|	|	|	0.00
31.250	0.00	0.00	0.001	O	|	|	|	|	0.00
31.333	0.00	0.00	0.001	O	|	|	|	|	0.00
31.417	0.00	0.00	0.001	O	|	|	|	|	0.00
31.500	0.00	0.00	0.001	O	|	|	|	|	0.00
31.583	0.00	0.00	0.001	O	|	|	|	|	0.00
31.667	0.00	0.00	0.001	O	|	|	|	|	0.00
31.750	0.00	0.00	0.001	O	|	|	|	|	0.00
31.833	0.00	0.00	0.001	O	|	|	|	|	0.00
31.917	0.00	0.00	0.001	O	|	|	|	|	0.00
32.000	0.00	0.00	0.001	O	|	|	|	|	0.00
32.083	0.00	0.00	0.001	O	|	|	|	|	0.00
32.167	0.00	0.00	0.001	O	|	|	|	|	0.00
32.250	0.00	0.00	0.000	O	|	|	|	|	0.00
32.333	0.00	0.00	0.000	O	|	|	|	|	0.00
32.417	0.00	0.00	0.000	O	|	|	|	|	0.00
32.500	0.00	0.00	0.000	O	|	|	|	|	0.00
32.583	0.00	0.00	0.000	O	|	|	|	|	0.00
32.667	0.00	0.00	0.000	O	|	|	|	|	0.00
32.750	0.00	0.00	0.000	O	|	|	|	|	0.00
32.833	0.00	0.00	0.000	O	|	|	|	|	0.00
32.917	0.00	0.00	0.000	O	|	|	|	|	0.00
33.000	0.00	0.00	0.000	O	|	|	|	|	0.00
33.083	0.00	0.00	0.000	O	|	|	|	|	0.00
33.167	0.00	0.00	0.000	O	|	|	|	|	0.00
33.250	0.00	0.00	0.000	O	|	|	|	|	0.00
33.333	0.00	0.00	0.000	O	|	|	|	|	0.00
33.417	0.00	0.00	0.000	O	|	|	|	|	0.00
33.500	0.00	0.00	0.000	O	|	|	|	|	0.00
33.583	0.00	0.00	0.000	O	|	|	|	|	0.00

```
***************************HYDROGRAPH DATA****************************
          Number of intervals =   403
          Time interval =    5.0 (Min.)
          Maximum/Peak flow rate =        1.887 (CFS)
          Total volume =       1.498 (Ac.Ft)
      Status of hydrographs being held in storage
               Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)     0.000     0.000     0.000     0.000     0.000
```

Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

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DEVELOPED
100 YEAR – 24 HOUR
AREA E_1

FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 07/23/19

Program License Serial Number 6222

St. Frances of Rome - Wildomar
Developed E1
100-Year 24-Hour

******************** HYDROGRAPH INFORMATION ********************

From study/file name: c318devE124100.rte
**************************HYDROGRAPH DATA**************************
Number of intervals = 289
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.692 (CFS)
Total volume = 0.909 (Ac.Ft)
Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

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Process from Point/Station 10.000 to Point/Station 11.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 289
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.085	0.679	0.083	0.087
1.500	0.295	1.796	0.289	0.301
2.500	0.560	2.504	0.551	0.569

Hydrograph Detention Basin Routing

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              Hydrograph Detention Basin Routing
      ------------------------------------------------------------------

      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      ------------------------------------------------------------------
   Time    Inflow  Outflow     Storage                                           Depth
 (Hours)   (CFS)    (CFS)      (Ac.Ft) .0         0.4     0.85      1.27      1.69 (Ft.)
  0.083     0.06     0.00       0.000  OI          |        |         |         |       0.00
  0.167     0.08     0.01       0.001  OI          |        |         |         |       0.00
  0.250     0.08     0.01       0.001  OI          |        |         |         |       0.01
  0.333     0.11     0.01       0.002  O I         |        |         |         |       0.01
  0.417     0.12     0.02       0.002  O I         |        |         |         |       0.01
  0.500     0.12     0.02       0.003  O I         |        |         |         |       0.02
  0.583     0.12     0.03       0.004  O I         |        |         |         |       0.02
  0.667     0.12     0.03       0.004  O I         |        |         |         |       0.03
  0.750     0.12     0.04       0.005  O I         |        |         |         |       0.03
  0.833     0.15     0.04       0.006  O I         |        |         |         |       0.03
  0.917     0.16     0.05       0.006  O  I        |        |         |         |       0.04
  1.000     0.16     0.06       0.007  |O I        |        |         |         |       0.04
  1.083     0.13     0.06       0.008  |OI         |        |         |         |       0.04
  1.167     0.12     0.06       0.008  |OI         |        |         |         |       0.05
  1.250     0.12     0.07       0.008  |OI         |        |         |         |       0.05
  1.333     0.12     0.07       0.009  |OI         |        |         |         |       0.05
  1.417     0.12     0.07       0.009  |OI         |        |         |         |       0.05
  1.500     0.12     0.08       0.009  |OI         |        |         |         |       0.06
  1.583     0.12     0.08       0.010  |OI         |        |         |         |       0.06
  1.667     0.12     0.08       0.010  |OI         |        |         |         |       0.06
  1.750     0.12     0.08       0.010  |OI         |        |         |         |       0.06
  1.833     0.15     0.09       0.011  |OI         |        |         |         |       0.06
  1.917     0.16     0.09       0.011  |O I        |        |         |         |       0.07
  2.000     0.16     0.09       0.012  |O I        |        |         |         |       0.07
  2.083     0.16     0.10       0.012  |O I        |        |         |         |       0.07
  2.167     0.16     0.10       0.012  |O I        |        |         |         |       0.07
  2.250     0.16     0.10       0.013  |O I        |        |         |         |       0.08
  2.333     0.16     0.11       0.013  | OI        |        |         |         |       0.08
  2.417     0.16     0.11       0.014  | OI        |        |         |         |       0.08
  2.500     0.16     0.11       0.014  | OI        |        |         |         |       0.08
  2.583     0.19     0.12       0.014  | OI        |        |         |         |       0.08
  2.667     0.20     0.12       0.015  | OI        |        |         |         |       0.09
  2.750     0.20     0.12       0.015  | OI        |        |         |         |       0.09
  2.833     0.20     0.13       0.016  | OI        |        |         |         |       0.09
  2.917     0.20     0.13       0.016  | OI        |        |         |         |       0.10
  3.000     0.20     0.14       0.017  | OI        |        |         |         |       0.10
  3.083     0.20     0.14       0.017  | OI        |        |         |         |       0.10
  3.167     0.20     0.14       0.018  | OI        |        |         |         |       0.10
  3.250     0.20     0.15       0.018  | OI        |        |         |         |       0.11
  3.333     0.20     0.15       0.019  | OI        |        |         |         |       0.11
  3.417     0.20     0.15       0.019  | OI        |        |         |         |       0.11
  3.500     0.20     0.15       0.019  | OI        |        |         |         |       0.11
  3.583     0.20     0.16       0.020  | OI        |        |         |         |       0.11
  3.667     0.20     0.16       0.020  | OI        |        |         |         |       0.12
  3.750     0.20     0.16       0.020  |  O        |        |         |         |       0.12
  3.833     0.23     0.16       0.020  |  OI       |        |         |         |       0.12
  3.917     0.24     0.17       0.021  |  OI       |        |         |         |       0.12
  4.000     0.24     0.17       0.021  |  OI       |        |         |         |       0.13
  4.083     0.24     0.17       0.022  |  OI       |        |         |         |       0.13
  4.167     0.24     0.18       0.022  |  OI       |        |         |         |       0.13
  4.250     0.24     0.18       0.023  |  OI       |        |         |         |       0.13
  4.333     0.27     0.19       0.023  |  O I      |        |         |         |       0.14
  4.417     0.28     0.19       0.024  |  O I      |        |         |         |       0.14
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4.500    0.28    0.20      0.024  |  O I  |       |       |       |     0.14
4.583    0.28    0.20      0.025  |  O I  |       |       |       |     0.15
4.667    0.28    0.20      0.026  |  O I  |       |       |       |     0.15
4.750    0.28    0.21      0.026  |  O I  |       |       |       |     0.15
4.833    0.31    0.21      0.027  |   OI  |       |       |       |     0.16
4.917    0.32    0.22      0.027  |   O I |       |       |       |     0.16
5.000    0.32    0.22      0.028  |   O I |       |       |       |     0.16
5.083    0.26    0.23      0.028  |   O   |       |       |       |     0.17
5.167    0.24    0.23      0.029  |   O   |       |       |       |     0.17
5.250    0.24    0.23      0.029  |   O   |       |       |       |     0.17
5.333    0.27    0.23      0.029  |   OI  |       |       |       |     0.17
5.417    0.28    0.23      0.029  |   OI  |       |       |       |     0.17
5.500    0.28    0.24      0.029  |   OI  |       |       |       |     0.17
5.583    0.31    0.24      0.030  |   OI  |       |       |       |     0.18
5.667    0.32    0.24      0.030  |   O I |       |       |       |     0.18
5.750    0.32    0.25      0.031  |   O I |       |       |       |     0.18
5.833    0.32    0.25      0.031  |   O I |       |       |       |     0.18
5.917    0.32    0.25      0.032  |   O I |       |       |       |     0.19
6.000    0.32    0.26      0.032  |   O I |       |       |       |     0.19
6.083    0.35    0.26      0.033  |   O I |       |       |       |     0.19
6.167    0.36    0.27      0.033  |    OI |       |       |       |     0.20
6.250    0.36    0.27      0.034  |    OI |       |       |       |     0.20
6.333    0.36    0.28      0.035  |    OI |       |       |       |     0.20
6.417    0.36    0.28      0.035  |    OI |       |       |       |     0.21
6.500    0.36    0.29      0.036  |    OI |       |       |       |     0.21
6.583    0.39    0.29      0.036  |    O I|       |       |       |     0.21
6.667    0.40    0.30      0.037  |    O I|       |       |       |     0.22
6.750    0.40    0.30      0.038  |    O I|       |       |       |     0.22
6.833    0.40    0.31      0.038  |    O I|       |       |       |     0.23
6.917    0.40    0.31      0.039  |    O I|       |       |       |     0.23
7.000    0.40    0.32      0.040  |    O I|       |       |       |     0.23
7.083    0.40    0.32      0.040  |     OI|       |       |       |     0.24
7.167    0.40    0.33      0.041  |     OI|       |       |       |     0.24
7.250    0.40    0.33      0.041  |     OI|       |       |       |     0.24
7.333    0.43    0.33      0.042  |     O I       |       |       |     0.25
7.417    0.44    0.34      0.042  |     O I       |       |       |     0.25
7.500    0.44    0.34      0.043  |     O I       |       |       |     0.25
7.583    0.47    0.35      0.044  |     O I       |       |       |     0.26
7.667    0.48    0.36      0.045  |     O |I      |       |       |     0.26
7.750    0.48    0.36      0.046  |     O |I      |       |       |     0.27
7.833    0.51    0.37      0.046  |      O|I      |       |       |     0.27
7.917    0.52    0.38      0.047  |      O|I      |       |       |     0.28
8.000    0.52    0.39      0.048  |      O|I      |       |       |     0.28
8.083    0.58    0.40      0.049  |      O|  I    |       |       |     0.29
8.167    0.60    0.41      0.051  |      O|  I    |       |       |     0.30
8.250    0.60    0.42      0.052  |      O|  I    |       |       |     0.31
8.333    0.60    0.43      0.053  |       O  I    |       |       |     0.31
8.417    0.60    0.44      0.054  |       O  I    |       |       |     0.32
8.500    0.60    0.44      0.056  |       O  I    |       |       |     0.33
8.583    0.63    0.45      0.057  |       O  I    |       |       |     0.33
8.667    0.64    0.46      0.058  |       O   I   |       |       |     0.34
8.750    0.64    0.47      0.059  |       O   I   |       |       |     0.35
8.833    0.67    0.48      0.060  |       |O  I   |       |       |     0.36
8.917    0.68    0.49      0.062  |       |O  I   |       |       |     0.36
9.000    0.68    0.50      0.063  |       |O  I   |       |       |     0.37
9.083    0.78    0.52      0.064  |       |O    I |       |       |     0.38
9.167    0.80    0.53      0.066  |       | O    I|       |       |     0.39
9.250    0.80    0.54      0.068  |       | O    I|       |       |     0.40
9.333    0.85    0.56      0.070  |       | O    I|       |       |     0.41
9.417    0.86    0.57      0.072  |       | O     I       |       |     0.42
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 9.500    0.86    0.59      0.074  |       |  O    I       |       |     0.43
 9.583    0.90    0.61      0.076  |       |  O    |I      |       |     0.45
 9.667    0.92    0.62      0.078  |       |  O    |I      |       |     0.46
 9.750    0.92    0.64      0.080  |       |   O   |I      |       |     0.47
 9.833    0.96    0.65      0.082  |       |   O   | I     |       |     0.48
 9.917    0.98    0.67      0.084  |       |   O   | I     |       |     0.49
10.000    0.98    0.68      0.086  |       |   O   | I     |       |     0.50
10.083    0.67    0.69      0.087  |       |   IO  |       |       |     0.51
10.167    0.60    0.69      0.087  |       |  I O  |       |       |     0.51
10.250    0.60    0.68      0.086  |       |  IO   |       |       |     0.50
10.333    0.60    0.68      0.085  |       |  IO   |       |       |     0.50
10.417    0.60    0.68      0.085  |       |  IO   |       |       |     0.50
10.500    0.60    0.67      0.084  |       |  IO   |       |       |     0.50
10.583    0.82    0.68      0.085  |       |   O  I|       |       |     0.50
10.667    0.88    0.68      0.086  |       |   O   I       |       |     0.50
10.750    0.88    0.69      0.087  |       |    O  I       |       |     0.51
10.833    0.88    0.70      0.088  |       |    O  I       |       |     0.52
10.917    0.88    0.70      0.090  |       |    O  I       |       |     0.52
11.000    0.88    0.71      0.091  |       |    O  I       |       |     0.53
11.083    0.84    0.72      0.092  |       |    O I|       |       |     0.53
11.167    0.83    0.72      0.093  |       |    O I|       |       |     0.54
11.250    0.83    0.72      0.093  |       |    O I|       |       |     0.54
11.333    0.83    0.73      0.094  |       |    O I|       |       |     0.54
11.417    0.83    0.73      0.095  |       |    O I|       |       |     0.55
11.500    0.83    0.73      0.095  |       |    O I|       |       |     0.55
11.583    0.74    0.74      0.096  |       |    OI |       |       |     0.55
11.667    0.72    0.74      0.096  |       |    O  |       |       |     0.55
11.750    0.72    0.74      0.096  |       |    O  |       |       |     0.55
11.833    0.77    0.74      0.096  |       |    OI |       |       |     0.55
11.917    0.78    0.74      0.096  |       |    OI |       |       |     0.55
12.000    0.78    0.74      0.096  |       |    OI |       |       |     0.55
12.083    1.10    0.75      0.098  |       |     O |   I   |       |     0.56
12.167    1.17    0.76      0.100  |       |     O |     I |       |     0.57
12.250    1.18    0.78      0.103  |       |     O |     I |       |     0.59
12.333    1.22    0.79      0.106  |       |     O |      I|       |     0.60
12.417    1.23    0.81      0.109  |       |      O|      I|       |     0.61
12.500    1.23    0.82      0.112  |       |      O|      I|       |     0.63
12.583    1.32    0.84      0.115  |       |      O|       |I      |     0.64
12.667    1.35    0.86      0.118  |       |       O       |I      |     0.66
12.750    1.35    0.87      0.122  |       |       O       |I      |     0.67
12.833    1.39    0.89      0.125  |       |       O       | I     |     0.69
12.917    1.41    0.91      0.128  |       |       |O      | I     |     0.71
13.000    1.41    0.93      0.132  |       |       |O      | I     |     0.72
13.083    1.63    0.95      0.136  |       |       |O      |     I |     0.74
13.167    1.69    0.97      0.141  |       |       | O     |      I|     0.76
13.250    1.69    1.00      0.145  |       |       | O     |      I|     0.79
13.333    1.69    1.03      0.150  |       |       |  O    |      I|     0.81
13.417    1.69    1.05      0.155  |       |       |  O    |      I|     0.83
13.500    1.69    1.07      0.159  |       |       |   O   |      I|     0.85
13.583    1.20    1.09      0.161  |       |       |   O I |       |     0.86
13.667    1.08    1.09      0.162  |       |       |   O   |       |     0.87
13.750    1.08    1.09      0.162  |       |       |   O   |       |     0.87
13.833    1.08    1.09      0.162  |       |       |   O   |       |     0.87
13.917    1.08    1.09      0.162  |       |       |   O   |       |     0.87
14.000    1.09    1.09      0.162  |       |       |   O   |       |     0.87
14.083    1.27    1.09      0.162  |       |       |   O  I|       |     0.87
14.167    1.31    1.10      0.164  |       |       |   O   I       |     0.87
14.250    1.31    1.11      0.165  |       |       |   O   I       |     0.88
14.333    1.27    1.11      0.166  |       |       |    O I|       |     0.89
14.417    1.26    1.12      0.167  |       |       |    O I|       |     0.89
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14.500   1.26   1.12   0.168   |       |       |    O I|       |   0.90
14.583   1.26   1.13   0.169   |       |       |    O I|       |   0.90
14.667   1.26   1.13   0.170   |       |       |    O I|       |   0.91
14.750   1.26   1.14   0.171   |       |       |    O I|       |   0.91
14.833   1.22   1.14   0.172   |       |       |    O I|       |   0.91
14.917   1.21   1.14   0.172   |       |       |    OI |       |   0.92
15.000   1.21   1.15   0.173   |       |       |    OI |       |   0.92
15.083   1.17   1.15   0.173   |       |       |    OI |       |   0.92
15.167   1.16   1.15   0.173   |       |       |    O  |       |   0.92
15.250   1.16   1.15   0.173   |       |       |    O  |       |   0.92
15.333   1.11   1.15   0.173   |       |       |    O  |       |   0.92
15.417   1.10   1.15   0.173   |       |       |   IO  |       |   0.92
15.500   1.10   1.14   0.172   |       |       |   IO  |       |   0.92
15.583   0.92   1.14   0.172   |       |       |I   O  |       |   0.91
15.667   0.88   1.13   0.170   |       |       I    O  |       |   0.90
15.750   0.88   1.12   0.168   |       |       I    O  |       |   0.90
15.833   0.88   1.11   0.167   |       |       I    O  |       |   0.89
15.917   0.88   1.11   0.165   |       |       I   O   |       |   0.88
16.000   0.89   1.10   0.164   |       |       I   O   |       |   0.87
16.083   0.30   1.08   0.160   |    I  |       |   O   |       |   0.86
16.167   0.16   1.05   0.154   |  I    |       |  O    |       |   0.83
16.250   0.16   1.02   0.148   |  I    |       |  O    |       |   0.80
16.333   0.16   0.99   0.143   |  I    |       | O     |       |   0.77
16.417   0.16   0.96   0.137   |  I    |       | O     |       |   0.75
16.500   0.16   0.93   0.132   |  I    |       |O      |       |   0.72
16.583   0.13   0.90   0.126   | I     |       |O      |       |   0.70
16.667   0.12   0.87   0.121   | I     |       O       |       |   0.67
16.750   0.12   0.84   0.116   | I     |      O|       |       |   0.65
16.833   0.12   0.82   0.111   | I     |      O|       |       |   0.62
16.917   0.12   0.79   0.106   | I     |     O |       |       |   0.60
17.000   0.12   0.77   0.102   | I     |     O |       |       |   0.58
17.083   0.18   0.75   0.098   |  I    |     O |       |       |   0.56
17.167   0.20   0.73   0.094   |  I    |    O  |       |       |   0.54
17.250   0.20   0.71   0.090   |  I    |    O  |       |       |   0.53
17.333   0.20   0.69   0.087   |  I    |    O  |       |       |   0.51
17.417   0.20   0.67   0.084   |  I    |   O   |       |       |   0.49
17.500   0.20   0.64   0.081   |  I    |   O   |       |       |   0.47
17.583   0.20   0.62   0.078   |  I    |  O    |       |       |   0.46
17.667   0.20   0.60   0.075   |  I    |  O    |       |       |   0.44
17.750   0.20   0.58   0.072   |  I    | O     |       |       |   0.42
17.833   0.17   0.55   0.069   |  I    | O     |       |       |   0.41
17.917   0.16   0.53   0.067   |  I    | O     |       |       |   0.39
18.000   0.16   0.51   0.064   |  I    |O      |       |       |   0.38
18.083   0.16   0.50   0.062   |  I    |O      |       |       |   0.36
18.167   0.16   0.48   0.060   |  I    |O      |       |       |   0.35
18.250   0.16   0.46   0.058   |  I    O       |       |       |   0.34
18.333   0.16   0.44   0.056   |  I    O       |       |       |   0.33
18.417   0.16   0.43   0.054   |  I    O       |       |       |   0.32
18.500   0.16   0.41   0.052   |  I   O|       |       |       |   0.31
18.583   0.13   0.40   0.050   | I    O|       |       |       |   0.29
18.667   0.12   0.39   0.048   | I    O|       |       |       |   0.28
18.750   0.12   0.37   0.046   | I    O|       |       |       |   0.27
18.833   0.09   0.36   0.045   |I    O |       |       |       |   0.26
18.917   0.08   0.34   0.043   |I    O |       |       |       |   0.25
19.000   0.08   0.33   0.041   |I    O |       |       |       |   0.24
19.083   0.11   0.32   0.040   | I  O  |       |       |       |   0.23
19.167   0.12   0.30   0.038   | I  O  |       |       |       |   0.22
19.250   0.12   0.29   0.037   | I  O  |       |       |       |   0.22
19.333   0.15   0.29   0.036   | I  O  |       |       |       |   0.21
19.417   0.16   0.28   0.035   |  I O  |       |       |       |   0.21
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19.500	0.16	0.27	0.034	I O	0.20
19.583	0.13	0.27	0.033	I O	0.20
19.667	0.12	0.26	0.032	I O	0.19
19.750	0.12	0.25	0.031	I O	0.18
19.833	0.09	0.24	0.030	I O	0.18
19.917	0.08	0.23	0.029	I O	0.17
20.000	0.08	0.23	0.028	I O	0.17
20.083	0.11	0.22	0.027	I O	0.16
20.167	0.12	0.21	0.027	I O	0.16
20.250	0.12	0.21	0.026	IO	0.15
20.333	0.12	0.20	0.026	IO	0.15
20.417	0.12	0.20	0.025	IO	0.15
20.500	0.12	0.20	0.024	IO	0.14
20.583	0.12	0.19	0.024	IO	0.14
20.667	0.12	0.19	0.023	IO	0.14
20.750	0.12	0.18	0.023	IO	0.14
20.833	0.09	0.18	0.022	I O	0.13
20.917	0.08	0.17	0.022	I O	0.13
21.000	0.08	0.17	0.021	I O	0.12
21.083	0.11	0.17	0.021	IO	0.12
21.167	0.12	0.16	0.020	IO	0.12
21.250	0.12	0.16	0.020	IO	0.12
21.333	0.09	0.16	0.020	IO	0.12
21.417	0.08	0.15	0.019	IO	0.11
21.500	0.08	0.15	0.019	IO	0.11
21.583	0.11	0.15	0.018	O	0.11
21.667	0.12	0.15	0.018	O	0.11
21.750	0.12	0.14	0.018	O	0.11
21.833	0.09	0.14	0.018	IO	0.10
21.917	0.08	0.14	0.017	IO	0.10
22.000	0.08	0.14	0.017	IO	0.10
22.083	0.11	0.13	0.017	O	0.10
22.167	0.12	0.13	0.017	O	0.10
22.250	0.12	0.13	0.016	O	0.10
22.333	0.09	0.13	0.016	IO	0.10
22.417	0.08	0.13	0.016	IO	0.09
22.500	0.08	0.13	0.016	IO	0.09
22.583	0.08	0.12	0.015	IO	0.09
22.667	0.08	0.12	0.015	IO	0.09
22.750	0.08	0.12	0.015	IO	0.09
22.833	0.08	0.12	0.015	IO	0.09
22.917	0.08	0.11	0.014	IO	0.08
23.000	0.08	0.11	0.014	IO	0.08
23.083	0.08	0.11	0.014	IO	0.08
23.167	0.08	0.11	0.014	IO	0.08
23.250	0.08	0.11	0.013	IO	0.08
23.333	0.08	0.11	0.013	IO	0.08
23.417	0.08	0.10	0.013	O	0.08
23.500	0.08	0.10	0.013	O	0.08
23.583	0.08	0.10	0.013	O	0.08
23.667	0.08	0.10	0.013	O	0.07
23.750	0.08	0.10	0.012	O	0.07
23.833	0.08	0.10	0.012	O	0.07
23.917	0.08	0.10	0.012	O	0.07
24.000	0.08	0.10	0.012	O	0.07
24.083	0.02	0.09	0.012	IO	0.07
24.167	0.00	0.09	0.011	IO	0.07
24.250	0.00	0.08	0.011	IO	0.06
24.333	0.00	0.08	0.010	IO	0.06
24.417	0.00	0.08	0.009	IO	0.06

```
24.500    0.00    0.07    0.009  IO     |       |       |       |    0.05
24.583    0.00    0.07    0.009  IO     |       |       |       |    0.05
24.667    0.00    0.06    0.008  IO     |       |       |       |    0.05
24.750    0.00    0.06    0.008  IO     |       |       |       |    0.04
24.833    0.00    0.06    0.007  IO     |       |       |       |    0.04
24.917    0.00    0.05    0.007  IO     |       |       |       |    0.04
25.000    0.00    0.05    0.006  O      |       |       |       |    0.04
25.083    0.00    0.05    0.006  O      |       |       |       |    0.04
25.167    0.00    0.05    0.006  O      |       |       |       |    0.03
25.250    0.00    0.04    0.005  O      |       |       |       |    0.03
25.333    0.00    0.04    0.005  O      |       |       |       |    0.03
25.417    0.00    0.04    0.005  O      |       |       |       |    0.03
25.500    0.00    0.04    0.005  O      |       |       |       |    0.03
25.583    0.00    0.04    0.004  O      |       |       |       |    0.03
25.667    0.00    0.03    0.004  O      |       |       |       |    0.02
25.750    0.00    0.03    0.004  O      |       |       |       |    0.02
25.833    0.00    0.03    0.004  O      |       |       |       |    0.02
25.917    0.00    0.03    0.004  O      |       |       |       |    0.02
26.000    0.00    0.03    0.003  O      |       |       |       |    0.02
26.083    0.00    0.03    0.003  O      |       |       |       |    0.02
26.167    0.00    0.02    0.003  O      |       |       |       |    0.02
26.250    0.00    0.02    0.003  O      |       |       |       |    0.02
26.333    0.00    0.02    0.003  O      |       |       |       |    0.02
26.417    0.00    0.02    0.003  O      |       |       |       |    0.01
26.500    0.00    0.02    0.002  O      |       |       |       |    0.01
26.583    0.00    0.02    0.002  O      |       |       |       |    0.01
26.667    0.00    0.02    0.002  O      |       |       |       |    0.01
26.750    0.00    0.02    0.002  O      |       |       |       |    0.01
26.833    0.00    0.02    0.002  O      |       |       |       |    0.01
26.917    0.00    0.01    0.002  O      |       |       |       |    0.01
27.000    0.00    0.01    0.002  O      |       |       |       |    0.01
27.083    0.00    0.01    0.002  O      |       |       |       |    0.01
27.167    0.00    0.01    0.002  O      |       |       |       |    0.01
27.250    0.00    0.01    0.001  O      |       |       |       |    0.01
27.333    0.00    0.01    0.001  O      |       |       |       |    0.01
27.417    0.00    0.01    0.001  O      |       |       |       |    0.01
27.500    0.00    0.01    0.001  O      |       |       |       |    0.01
27.583    0.00    0.01    0.001  O      |       |       |       |    0.01
27.667    0.00    0.01    0.001  O      |       |       |       |    0.01
27.750    0.00    0.01    0.001  O      |       |       |       |    0.01
27.833    0.00    0.01    0.001  O      |       |       |       |    0.01
27.917    0.00    0.01    0.001  O      |       |       |       |    0.01
28.000    0.00    0.01    0.001  O      |       |       |       |    0.01
28.083    0.00    0.01    0.001  O      |       |       |       |    0.00
28.167    0.00    0.01    0.001  O      |       |       |       |    0.00
28.250    0.00    0.01    0.001  O      |       |       |       |    0.00
28.333    0.00    0.01    0.001  O      |       |       |       |    0.00
28.417    0.00    0.01    0.001  O      |       |       |       |    0.00
28.500    0.00    0.01    0.001  O      |       |       |       |    0.00
28.583    0.00    0.00    0.001  O      |       |       |       |    0.00
28.667    0.00    0.00    0.001  O      |       |       |       |    0.00
28.750    0.00    0.00    0.001  O      |       |       |       |    0.00
28.833    0.00    0.00    0.001  O      |       |       |       |    0.00
28.917    0.00    0.00    0.000  O      |       |       |       |    0.00
29.000    0.00    0.00    0.000  O      |       |       |       |    0.00
29.083    0.00    0.00    0.000  O      |       |       |       |    0.00
29.167    0.00    0.00    0.000  O      |       |       |       |    0.00
29.250    0.00    0.00    0.000  O      |       |       |       |    0.00
29.333    0.00    0.00    0.000  O      |       |       |       |    0.00
29.417    0.00    0.00    0.000  O      |       |       |       |    0.00
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29.500    0.00    0.00      0.000  O        |       |       |       |      0.00
29.583    0.00    0.00      0.000  O        |       |       |       |      0.00
29.667    0.00    0.00      0.000  O        |       |       |       |      0.00
29.750    0.00    0.00      0.000  O        |       |       |       |      0.00
29.833    0.00    0.00      0.000  O        |       |       |       |      0.00
29.917    0.00    0.00      0.000  O        |       |       |       |      0.00
30.000    0.00    0.00      0.000  O        |       |       |       |      0.00
30.083    0.00    0.00      0.000  O        |       |       |       |      0.00
30.167    0.00    0.00      0.000  O        |       |       |       |      0.00
30.250    0.00    0.00      0.000  O        |       |       |       |      0.00
30.333    0.00    0.00      0.000  O        |       |       |       |      0.00
30.417    0.00    0.00      0.000  O        |       |       |       |      0.00
30.500    0.00    0.00      0.000  O        |       |       |       |      0.00
30.583    0.00    0.00      0.000  O        |       |       |       |      0.00

     ****************************HYDROGRAPH DATA****************************
                 Number of intervals =   367
                 Time interval =    5.0 (Min.)
                 Maximum/Peak flow rate =        1.148 (CFS)
                 Total volume =       0.909 (Ac.Ft)
           Status of hydrographs being held in storage
                      Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)      0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ***********************************************************************

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APPENDIX "I"

BASIN, STORM DRAIN, & CHANNEL CALCULATIONS

BASIN C_1 VOLUME

Basin C_1

Depth (Feet)	Area ($Feet^2$)	Volume ($Feet^3$)	Σ Volume ($Feet^3$)	Σ Volume (Acre-Ft)
0.0	5457	0	0	0.000
1.0	6859	6158	6158	0.141
2.0	8362	7610	13768	0.316
3.0	9965	9163	22931	0.526
4.0	11669	10817	33748	0.775
5.0	13473	12571	46319	1.063

BASIN C_1 OUTLET

Basin C_1

	Outlet	Infiltration	Total Outflow
Depth (Feet)	Flow (CFS)	Flow (CFS)	Flow (CFS)
0	0	0	0.1
1	0.666	0.128	0.794
2	1.095	0.156	1.251
3	1.398	0.186	1.584
4	1.647	0.217	1.864
5	1.862	0.251	2.113

Basin C1
Outlet - 5" ø

INPUT INFORMATION

This is a Round Culvert

Pipe diameter = 0.417 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.700
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 1.000 ft

Output:

Flow Capacity 'Q' = 0.666 cfs
Flow Velocity 'V' = 4.876 fps

Under Pressure

Basin C1
Outlet - 5" ø

INPUT INFORMATION

This is a Round Culvert

Pipe diameter = 0.417 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.700
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 2.000 ft

Output:

Flow Capacity 'Q' = 1.095 cfs
Flow Velocity 'V' = 8.020 fps

Under Pressure

Basin C1
Outlet - 5" ø

INPUT INFORMATION

This is a Round Culvert

Pipe diameter = 0.417 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.700
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 3.000 ft

Output:

Flow Capacity 'Q' = 1.398 cfs
Flow Velocity 'V' = 10.24 fps

Under Pressure

Basin C1
Outlet - 5" ø

INPUT INFORMATION

This is a Round Culvert

Pipe diameter = 0.417 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.700
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 4.000 ft

Output:

Flow Capacity 'Q' = 1.647 cfs
Flow Velocity 'V' = 12.06 fps

Under Pressure

Basin C1
Outlet - 5" ø

INPUT INFORMATION

This is a Round Culvert

Pipe diameter = 0.417 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.700
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 5.000 ft

Output:

Flow Capacity 'Q' = 1.862 cfs
Flow Velocity 'V' = 13.64 fps

Under Pressure

BASIN D_1 VOLUME

Basin D_1

Depth (Feet)	Area (Feet^2)	Volume (Feet^3)	Σ Volume (Feet^3)	Σ Volume (Acre-Ft)
0.00	10254	0	0	0.000
0.75	11717	8239	8239	0.189
1.75	13755	12736	20975	0.482
2.75	15894	14824	35799	0.822
3.75	18133	17013	52813	1.212

BASIN D_1 OUTLET

Basin D_1

Depth (Feet)	Outlet Flow (CFS)	Infiltration Flow (CFS)	Total Outflow Flow (CFS)
0	0	0	0.2
0.75	0.942	0.218	1.160
1.75	2.095	0.256	2.351
2.75	2.809	0.296	3.105
3.75	3.375	0.338	3.713

Basin D1
Outlet - 6" x 7"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.583 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 0.750 ft

Output:

Flow Capacity 'Q' = 0.942 cfs
Flow Velocity 'V' = 3.231 fps

Under Pressure

Basin D1
Outlet - 6" x 7"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.583 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 1.750 ft

Output:

Flow Capacity 'Q' = 2.095 cfs
Flow Velocity 'V' = 7.186 fps

Under Pressure

Basin D1
Outlet - 6" x 7"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.583 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 2.750 ft

Output:

Flow Capacity 'Q' = 2.809 cfs
Flow Velocity 'V' = 9.636 fps

Under Pressure

Basin D1
Outlet - 6" x 7"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.583 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 3.750 ft

Output:

Flow Capacity 'Q' = 3.375 cfs
Flow Velocity 'V' = 11.58 fps

Under Pressure

BASIN E_1 VOLUME

Basin E_1

Depth (Feet)	Area ($Feet^2$)	Volume ($Feet^3$)	Σ Volume ($Feet^3$)	Σ Volume (Acre-Ft)
0.0	6863	0	0	0.000
0.5	7988	3713	3713	0.085
1.5	10313	9150	12863	0.295
2.5	12738	11525	24388	0.560

BASIN E_1 OUTLET

Basin E_1

	Outlet	Infiltration	Total Outflow
Depth (Feet)	Flow (CFS)	Flow (CFS)	Flow (CFS)
0	0	0	0.1
0.5	0.530	0.149	0.679
1.5	1.604	0.192	1.796
2.5	2.267	0.237	2.504

Basin E1
Outlet - 6" x 6"

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 0.530 cfs
The flow velocity is 2.121 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 5.00E-03 ft/ft

'Rect.' Shaped Channel:

Width = 0.500ft
Height = 0.500ft
Flow Area = 0.250 sq-ft
Wetted perimiter = 1.500 ft
Hydraulic radius = 0.167 ft

Basin E1
Outlet - 6" x 6"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.500 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 1.500 ft

Output:

Flow Capacity 'Q' = 1.604 cfs
Flow Velocity 'V' = 6.416 fps

Under Pressure

Basin E1
Outlet - 6" x 6"

INPUT INFORMATION

This is a Box Culvert!

Width = 0.500 ft
Height = 0.500 ft

Entrance Shape:

Sharp Flush

Culvert Length = 0.667 ft
Culvert Slope = 5.00E-03 ft/ft
Roughness Coef. = 0.0150
Orifice Coef. of Discharge = 0.660
Entry Loss Coef. 'Ke' = 0.500

Water Head above bottom of Culv. at entrance = 2.500 ft

Output:

Flow Capacity 'Q' = 2.267 cfs
Flow Velocity 'V' = 9.067 fps

Under Pressure

OFFSITE STORM DRAIN CAPACITIES

Freeway Crossing
Existing 24" CSP
Pipe Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 14.59 cfs
The flow velocity is 4.643 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0255
The channel slope = 0.0160 ft/ft

Round Channel:

Diameter = 2.000 ft
Flow Area = 3.142 sq-ft
Wetted perimiter = 6.283 ft
Hydraulic radius = 0.500 ft

Freeway Crossing
Existing 30" CSP
Pipe Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 26.45 cfs
The flow velocity is 5.388 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0255
The channel slope = 0.0160 ft/ft

Round Channel:

Diameter = 2.500 ft
Flow Area = 4.909 sq-ft
Wetted perimiter = 7.854 ft
Hydraulic radius = 0.625 ft

Freeway Crossing
Existing 66" CSP
Pipe Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 216.6 cfs
The flow velocity is 9.115 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0255
The channel slope = 0.0160 ft/ft

Round Channel:

Diameter = 5.500 ft
Flow Area = 23.76 sq-ft
Wetted perimiter = 17.28 ft
Hydraulic radius = 1.375 ft

OVERFLOW PARKING LOT
CHANNEL C-C
FLOW CAPACITY

Overflow Parking Lot Channel
Channel C-C: Runoff From Offsite Area F4
Rectuangular Channel: 0.76' Deep x 3' Wide

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 11.97 cfs
The flow velocity is 5.252 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 7.00E-03 ft/ft

'Rect.' Shaped Channel:

Width = 3.000ft
Height = 0.760ft
Flow Area = 2.280 sq-ft
Wetted perimiter = 4.520 ft
Hydraulic radius = 0.504 ft

APPENDIX "J"

LEMON STREET OVERTOPPING CALCULATIONS

OFFSITE & LEMON STREET DRAINAGE SUMMARY

Lemon Street Flow Calculations

Storm Drain	Flow (CFS)
24" CSP	14.59
30" CSP	26.45
66" CSP	216.6

Storm Drain	Flow (CFS)
3-24" CSP	43.77
1-30" CSP	26.45
1-66" CSP	216.6
Total SD Capacity	286.82

Storm Event	F_1 Flow (CFS)	F_2 Flow (CFS)	F1 Flow Reaching Lemon (CFS)	Total Flow Reaching Lemon (CFS)
2 Year - 1 Hour	95.798	20.312	95.798	116.11
2 Year - 24 Hour	18.394	4.539	18.394	22.933
10 Year - 1 Hour	252.596	44.742	252.596	297.338
10 Year - 24 Hour	87.8	9.299	87.76	97.059
100 Year - 1 Hour	432.2	76.786	286.82	363.606
100 Year - 24 Hour	164.6	18.862	164.612	183.474

Overflow Calculation

$$Q = 0.049W^{1.4}(\frac{D}{S})^{0.155}$$

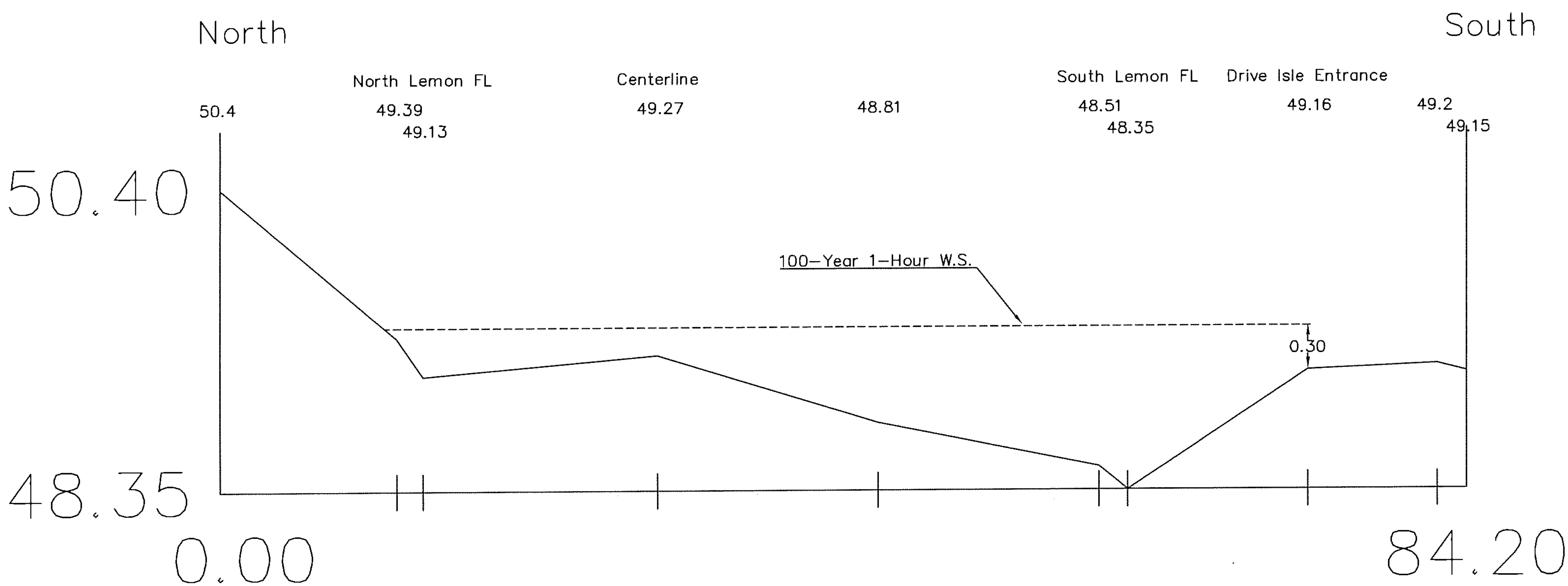
Section A-A 100-Year 1-Hour	Width (Feet)	50
	Depth (Feet)	0.30
	Slope (Ft/Ft)	0.0295
	Q (CFS)	16.8

Section A-A 10-Year 1-Hour	Width (Feet)	50
	Depth (Feet)	0.24
	Slope (Ft/Ft)	0.0295
	Q (CFS)	16.2

Section B-B 100-Year 1-Hour	Width (Feet)	50
	Depth (Feet)	0.05
	Slope (Ft/Ft)	0.0409
	Q (CFS)	12.1

LEMON STREET CAPACITY
A-A
EAST DRIVE ISLE ENTRANCE

Cross Section A–A East Drive Isle



Vertical Scale 1'=1"
Horizontal Scale 1'=10"

Lemon Street Capacity
Section A-A: East Drive Isle Entrance
North Lemon Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 3.399 cfs
The flow velocity is 2.889 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0295 ft/ft

Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0.950,0.140) LEN = 0.960
SIDE 2 ,(0.950,0.140)-(16.81,0) LEN = 15.86

Flow Area = 1.177 sq-ft
Wetted perimiter = 16.82 ft
Hydraulic radius = 0.0700 ft

Lemon Street Capacity
Section A-A: East Drive Isle Entrance
South Lemon Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 143.5 cfs
The flow velocity is 9.090 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0295 ft/ft

Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(11.40,0.350) LEN = 11.41
SIDE 2 ,(11.40,0.350)-(26.34,0.650) LEN = 14.94
SIDE 3 ,(26.34,0.650)-(28.29,0.810) LEN = 1.957
SIDE 4 ,(28.29,0.810)-(40.38,0) LEN = 12.12

Flow Area = 15.78 sq-ft
Wetted perimiter = 40.42 ft
Hydraulic radius = 0.391 ft

Lemon Street Capacity
Section A-A: East Drive Isle Entrance
100-Year 1-Hour Storm Depth - 0.30'

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 370.9 cfs
The flow velocity is 11.15 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0295 ft/ft

Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0.820,0.0700) LEN = 0.823
SIDE 2 ,(0.820,0.0700)-(2.580,0.330) LEN = 1.779
SIDE 3 ,(2.580,0.330)-(18.44,0.190) LEN = 15.86
SIDE 4 ,(18.44,0.190)-(33.42,0.650) LEN = 14.99
SIDE 5 ,(33.42,0.650)-(48.36,0.950) LEN = 14.94
SIDE 6 ,(48.36,0.950)-(50.31,1.110) LEN = 1.957
SIDE 7 ,(50.31,1.110)-(62.40,0.300) LEN = 12.12
SIDE 8 ,(62.40,0.300)-(62.40,0) LEN = 0.300

Flow Area = 33.28 sq-ft
Wetted perimiter = 62.77 ft
Hydraulic radius = 0.530 ft

Lemon Street Capacity
Section A-A: East Drive Isle Entrance
10-Year 1-Hour Storm Depth - 0.24'

OUTPUT INFORMATION

This report is for a channel with a specified flow rate.

The input flow rate is 297.3 cfs
The flow velocity is 10.38 fps
The flow depth is 1.050 ft

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0295 ft/ft

Custom Channel:

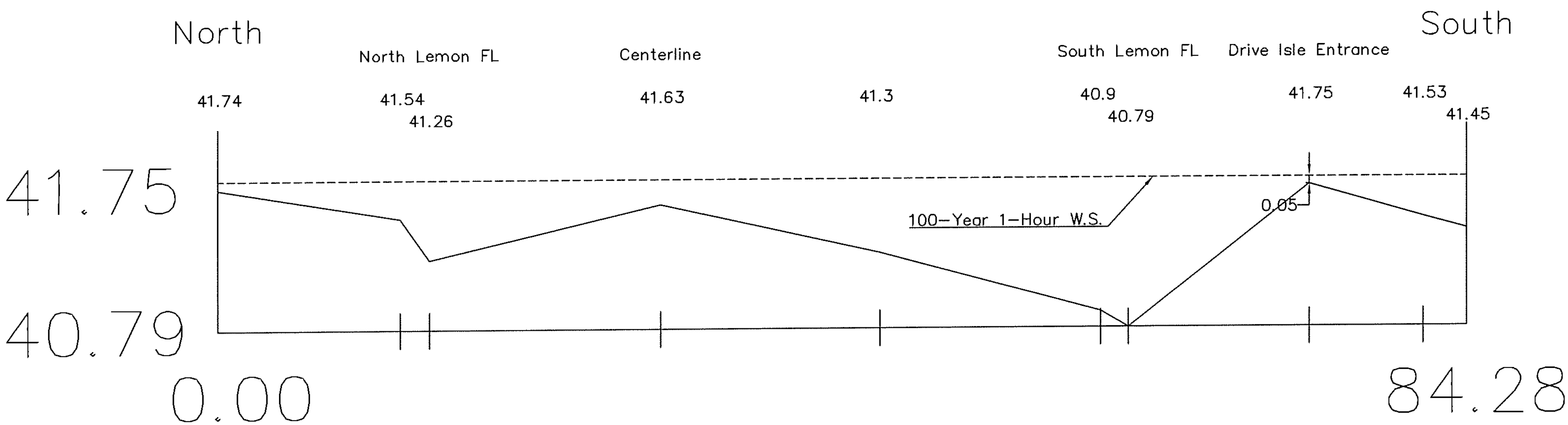
Geom. Information:

SIDE 1 ,(0,0)-(0.820,0.0700) LEN = 0.823
SIDE 2 ,(0.820,0.0700)-(2.580,0.330) LEN = 1.779
SIDE 3 ,(2.580,0.330)-(18.44,0.190) LEN = 15.86
SIDE 4 ,(18.44,0.190)-(33.42,0.650) LEN = 14.99
SIDE 5 ,(33.42,0.650)-(48.36,0.950) LEN = 14.94
SIDE 6 ,(48.36,0.950)-(50.31,1.110) LEN = 1.957
SIDE 7 ,(50.31,1.110)-(62.40,0.300) LEN = 12.12
SIDE 8 ,(62.40,0.300)-(62.40,0) LEN = 0.300

Flow Area = 29.56 sq-ft
Wetted perimiter = 62.00 ft
Hydraulic radius = 0.477 ft

LEMON STREET CAPACITY
SECTION B-B
WEST DRIVE ISLE ENTRANCE

Cross Section B–B West Drive Isle



Vertical Scale 1'=1"
Horizontal Scale 1'=10"

Lemon Street Capacity
Section B-B: West Drive Isle Entrance
Lemon Street Capacity

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 298.4 cfs
The flow velocity is 10.57 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0409 ft/ft

Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0,0.0100) LEN = 0.0100
SIDE 2 ,(0,0.0100)-(12.26,0.210) LEN = 12.26
SIDE 3 ,(12.26,0.210)-(14.22,0.490) LEN = 1.980
SIDE 4 ,(14.22,0.490)-(29.80,0.120) LEN = 15.58
SIDE 5 ,(29.80,0.120)-(44.70,0.450) LEN = 14.90
SIDE 6 ,(44.70,0.450)-(59.63,0.850) LEN = 14.94
SIDE 7 ,(59.63,0.850)-(61.48,0.960) LEN = 1.853
SIDE 8 ,(61.48,0.960)-(73.62,0) LEN = 12.18

Flow Area = 28.24 sq-ft
Wetted perimiter = 73.71 ft
Hydraulic radius = 0.383 ft

Lemon Street Capacity
Section B-B: West Drive Isle Entrance
100-Year 1-Hour Depth - 0.05'

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 365.7 cfs
The flow velocity is 11.46 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0409 ft/ft

Custom Channel:

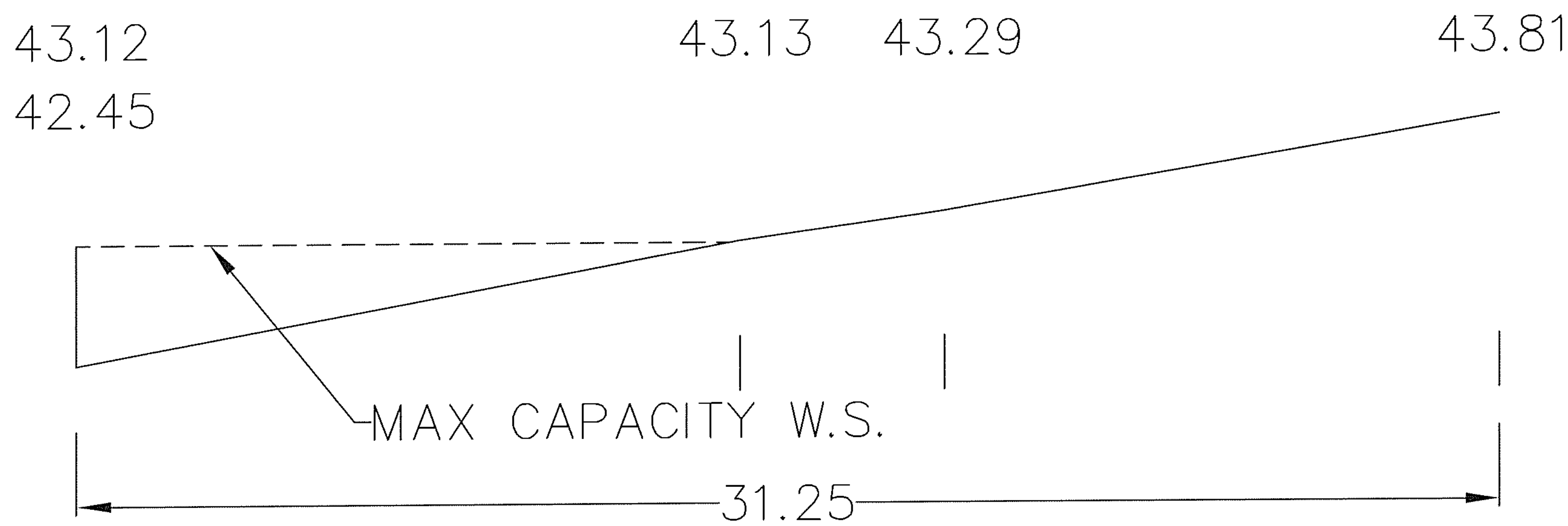
Geom. Information:

SIDE 1 ,(0,0)-(0,0.0600) LEN = 0.0600
SIDE 2 ,(0,0.0600)-(12.26,0.260) LEN = 12.26
SIDE 3 ,(12.26,0.260)-(14.22,0.540) LEN = 1.980
SIDE 4 ,(14.22,0.540)-(29.80,0.170) LEN = 15.58
SIDE 5 ,(29.80,0.170)-(44.70,0.500) LEN = 14.90
SIDE 6 ,(44.70,0.500)-(59.63,0.900) LEN = 14.94
SIDE 7 ,(59.63,0.900)-(61.48,1.010) LEN = 1.853
SIDE 8 ,(61.48,1.010)-(73.62,0.0500) LEN = 12.18
SIDE 9 ,(73.62,0.0500)-(73.62,0) LEN = 0.0500

Flow Area = 31.92 sq-ft
Wetted perimiter = 73.81 ft
Hydraulic radius = 0.432 ft

PARKING LOT FLOW CAPACITIES

Cross Section C–C Parking Lot



Vertical Scale 1'=1"

Horizontal Scale 1'=4"

Parking Lot Capacity
Cross Section C-C
16.8 CFS Overflow From Lemon

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 32.75 cfs
The flow velocity is 6.808 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0216 ft/ft

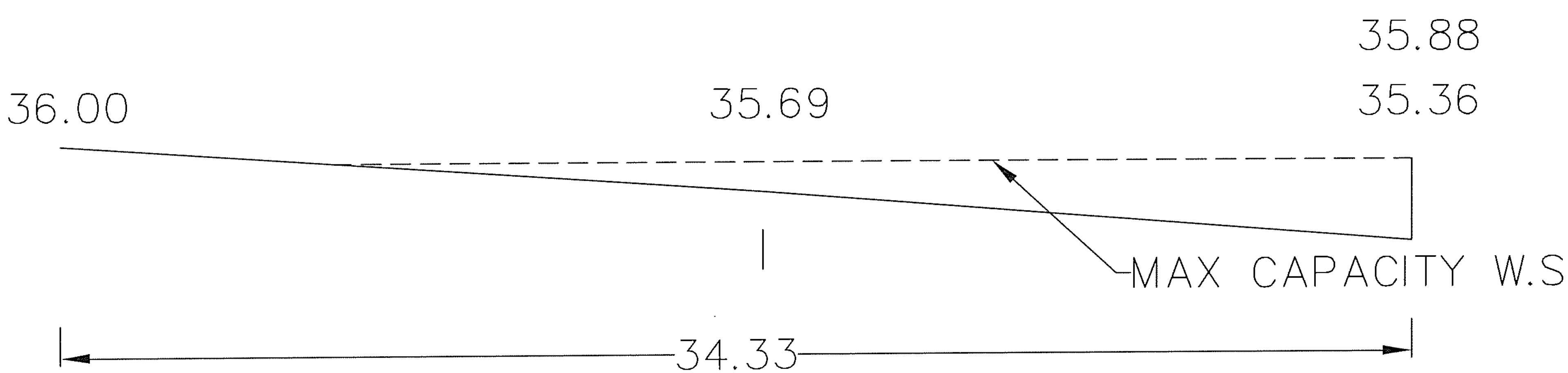
Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0,0.670) LEN = 0.670
SIDE 2 ,(0,0.670)-(14.36,0) LEN = 14.38

Flow Area = 4.811 sq-ft
Wetted perimiter = 15.05 ft
Hydraulic radius = 0.320 ft

Cross Section D-D Parklin Lot



Vertical Scale 1'=1"

Horizontal Scale 1'=4"

Parking Lot Capacity
Cross Section D-D
16.8 CFS Overflow From Lemon

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 28.03 cfs
The flow velocity is 4.068 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0109 ft/ft

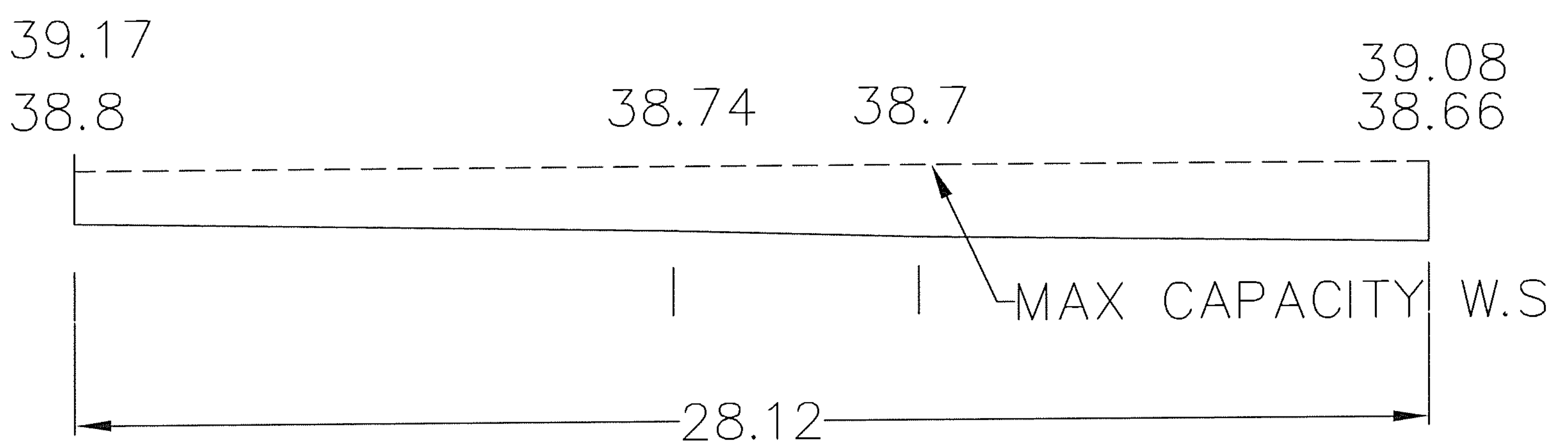
Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(10.93,0.190) LEN = 10.93
SIDE 2 ,(10.93,0.190)-(27.42,0.520) LEN = 16.49
SIDE 3 ,(27.42,0.520)-(27.42,0) LEN = 0.520

Flow Area = 6.892 sq-ft
Wetted perimiter = 27.94 ft
Hydraulic radius = 0.247 ft

Cross Section E–E Parking Lot



Vertical Scale 1'=1"
Horizontal Scale 1'=4"

Parking Lot Capacity
Cross Section E-E
12.1 CFS Overflow From Lemon

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 81.69 cfs
The flow velocity is 8.231 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 0.0286 ft/ft

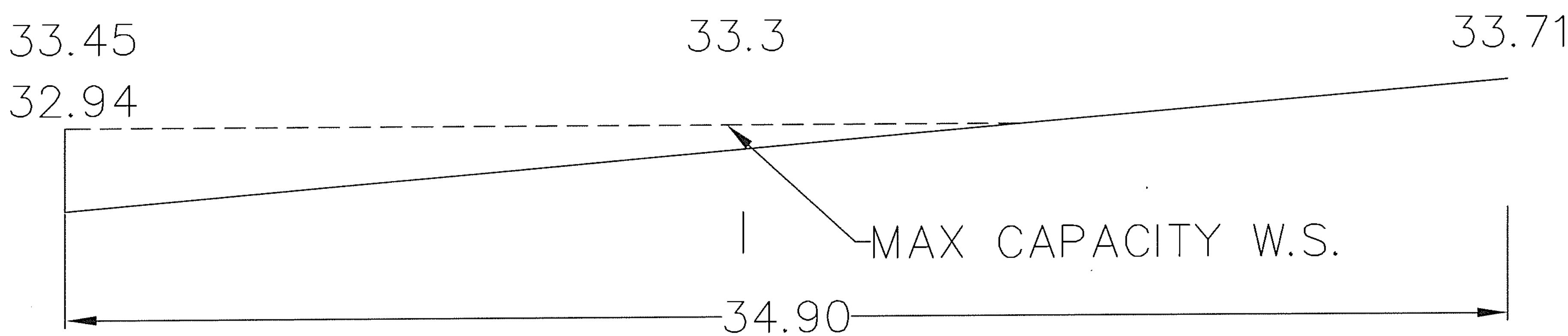
Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0,0.280) LEN = 0.280
SIDE 2 ,(0,0.280)-(12.42,0.340) LEN = 12.42
SIDE 3 ,(12.42,0.340)-(17.56,0.380) LEN = 5.140
SIDE 4 ,(17.56,0.380)-(28.12,0.420) LEN = 10.56
SIDE 5 ,(28.12,0.420)-(28.12,0) LEN = 0.420

Flow Area = 9.925 sq-ft
Wetted perimiter = 28.82 ft
Hydraulic radius = 0.344 ft

Cross Section F-F Parking Lot



Vertical Scale 1'=1"
Horizontal Scale 1'=4"

Parking Lot Capacity
Cross Section F-F
12.1 CFS Overflow From Lemon

OUTPUT INFORMATION

This report is for a channel running full.

The Flow Capacity is 16.44 cfs
The flow velocity is 2.779 fps

CHANNEL PROPERTIES

The friction factor 'n' = 0.0150
The channel slope = 5.00E-03 ft/ft

Custom Channel:

Geom. Information:

SIDE 1 ,(0,0)-(0,0.510) LEN = 0.510
SIDE 2 ,(0,0.510)-(16.39,0.150) LEN = 16.39
SIDE 3 ,(16.39,0.150)-(23.16,0) LEN = 6.772

Flow Area = 5.916 sq-ft
Wetted perimiter = 23.68 ft
Hydraulic radius = 0.250 ft

APPENDIX "K"

GEOTECHNICAL REPORT

Geotechnical Report

New Church @ St. Frances of Rome

Wildomar, California

Prepared for:

Diocese of San Bernardino
1201 E Highland Avenue
San Bernardino, CA 92404

LANDMARK
Geo-Engineers and Geologists

Prepared by:

LandMark Consultants, Inc.
77-948 Wildcat Drive
Palm Desert, CA 92211
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April 2016

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April 25, 2016

Mr. David E. Meir
Diocese of San Bernardino
1201 E. Highland Avenue
San Bernardino, CA 92404

Geotechnical Report
New Church @ St Frances of Rome
Wildomar, California
LCI Report No. LP16027

Dear Mr. Meir:

The attached geotechnical report is provided for design and construction of the proposed new church at St Frances of Rome, 21591 Lemon Street, Wildomar, California. Our geotechnical investigation was conducted in response to your request for our services. The enclosed report describes our soil engineering investigation and presents our professional opinions regarding geotechnical conditions at the site.

The findings of this study indicate the site is underlain by interbedded silty sands with traces of gravels and silty sands, with near surface silty sands with traces of gravels. The near surface, silty sands are expected to be low to non-expansive. The subsurface soils are loose to medium dense in nature. Groundwater was not encountered in the borings (51.5 feet) during the time of exploration.

Elevated sulfate and chloride levels were not encountered in the soil samples tested for this study. However, the soil is severely corrosive to metal. We recommend a minimum of 2,500 psi concrete of Type II Portland Cement with a maximum water/cement ratio of 0.60 (by weight) should be used for concrete placed in contact with native soils of this project.

Evaluation of liquefaction potential at the site indicates that it is unlikely that the subsurface soil will liquefy under seismically induced ground shaking since groundwater is believed to be deeper than 50 feet. No mitigation is required for liquefaction effects at this site.

Seismic settlements of the dry sands have been calculated to be approximately ½ to 1 inch based on the field exploration data. Total seismic settlements are not expected to exceed an inch with differential settlements approximately ¼ to ½ inch.

We did not encounter soil conditions that would preclude developing the new church at the site provided the professional opinions contained in this report are implemented in the design and construction of this project. Our findings, professional opinions, and application options are related ***only through reading the full report***, and are best evaluated with the active participation of the engineer of record who developed them.

We appreciate the opportunity to provide our findings and professional opinions regarding geotechnical conditions at the site. If you have any questions or comments regarding our findings, please call our office at (760) 360-0665.

Respectfully Submitted,
LandMark Consultants, Inc.

REGISTERED PROFESSIONAL ENGINEER
GREG M. CHANDRA
No. C 34432
CIVIL
STATE OF CALIFORNIA

Greg M. Chandra, P.E., M.ASCE
Principal Engineer

Distribution:
Client (electronic copy)

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Section 1
INTRODUCTION

1.1 Project Description

This report presents the findings of our geotechnical exploration and laboratory evaluation of recovered soils for the proposed new church building located in northern portion of St Frances of Rome, 21591 Lemon Street, Wildomar, California (See Vicinity Map, Plate A-1). The proposed development will consist of 1,200 seats new church building, additional car parking areas and other on-site improvements on the existing complex. A site plan for the proposed development was provided by W.J. Mckeever Inc.

The structure is planned to consist of wood and metal frame construction founded on shallow concrete footings and concrete slabs-on-grade. Footing loads at exterior bearing walls are estimated at 2 to 10 kips per lineal foot. Column loads are estimated to range from 5 to 60 kips. If structural loads exceed those stated above, we should be notified so we may evaluate their impact on foundation settlement and bearing capacity. Site development will include mass grading, building pad preparation, underground utility installation, parking lots construction, sidewalk placement, landscape areas and retention basins.

1.2 Purpose and Scope of Work

The purpose of this geotechnical study was to investigate the upper 11.5 to 51.5 feet of subsurface soil at selected locations within the site for evaluation of in-situ soil strength and physical/engineering properties. Professional opinions report regarding geotechnical conditions at this site and the effect on design and construction were developed from field exploration and laboratory evaluation of recovered soils. The scope of our services consisted of the following:

- Field exploration and in-situ testing of the site soils at selected locations and depths.
- Laboratory testing for physical and/or chemical properties of selected recovered soil samples.
- Review of literature and publications pertaining to local geology, faulting, and seismicity.
- Engineering analysis and evaluation of the data collected.

< Preparation of this report presenting our findings and professional opinion regarding the geotechnical aspects of project design and construction.

This report addresses the following geotechnical parameters:

< Subsurface soil and groundwater conditions
< Site geology, regional faulting and seismicity, near-source seismic factors, and site seismic accelerations
< Liquefaction potential
< Hydro-Collapse potential
< Expansive soil and methods of mitigation
< Aggressive soil conditions to metals and concrete
< Soil percolation rates of the native soil for retention basin areas

Professional opinions with regard to the above parameters are presented for the following:

< Mass grading and earthwork
< Building pad and foundation subgrade preparation
< Allowable soil bearing pressures and expected settlements
< Deep Foundations (drilled piers)
< Concrete slabs-on-grade
< Mitigation of the potential effects of salt concentrations in native soil to concrete mixes and steel reinforcement
< Excavation conditions and buried utility installations
< Lateral earth pressures
< Seismic design parameters
< Preliminary Pavement structural sections

Our scope of work for this report did not include an evaluation of the site for the presence of environmentally hazardous materials or conditions.

1.3 Authorization

Mr. David E. Meir of the Diocese of San Bernardino provided authorization by written agreement to proceed with our work on February 19, 2016. We conducted our work according to our written proposal dated January 27, 2016.

Section 2
METHODS OF INVESTIGATION

2.1 Field Exploration

Subsurface exploration was performed on March 15, 2016 using 2R Drilling of Ontario California to advance five (5) borings to depths of 11.5 to 51.5 feet below existing ground surface. The borings were advanced with a truck-mounted, CME 75 drill rig using 8-inch diameter, hollow-stem, continuous-flight augers. The approximate boring locations were established in the field and plotted on the site map by sighting to discernable site features. The boring locations are shown on the Site and Exploration Plan (Plate A-2).

A staff engineer observed the drilling operations and maintained a log of the soil encountered and sampling depths, visually classified the soil encountered during drilling in accordance with the Unified Soil Classification System, and obtained drive tube and bulk samples of the subsurface materials at selected intervals. Relatively undisturbed soil samples were retrieved using a 2-inch outside diameter (OD) split-spoon sampler or a 3-inch OD Modified California Split-Barrel (ring) sampler. The samples were obtained by driving the sampler ahead of the auger tip at selected depths.

The drill rig was equipped with a 140-pound CME automatic hammer with a 30-inch drop for conducting Standard Penetration Tests (SPT) in accordance with ASTM D1586. The number of blows required to drive the samplers the last 12 inches of an 18 inch drive length into the soil is recorded on the boring logs as "blows per foot". Blow count reported on the boring logs represent the field blow counts. No corrections have been applied for effects of overburden pressure, automatic hammer drive energy, drill rod lengths, liners, and sampler diameter.

After logging and sampling the soil, the exploratory borings were backfilled with the excavated material. The backfill was loosely placed and was not compacted to the requirements specified for engineered fill.

The subsurface logs are presented on Plates B-1 through B-6 in Appendix B. A key to the log symbols is presented on Plate B-7. The stratification lines shown on the subsurface logs represent the approximate boundaries between the various strata. However, the transition from one stratum to another may be gradual over some range of depth.

2.2 Laboratory Testing

Laboratory tests were conducted on selected bulk and relatively undisturbed soil samples to aid in classification and evaluation of selected engineering properties of the site soils. The tests were conducted in general conformance to the procedures of the American Society for Testing and Materials (ASTM) or other standardized methods as referenced below. The laboratory testing program consisted of the following tests:

< Particle Size Analyses (ASTM D422) – used for soil classification and liquefaction evaluation.

< Unit Dry Densities (ASTM D2937) and Moisture Contents (ASTM D2216) – used for insitu soil parameters.

< Moisture-Density Relationship (ASTM D1557) – used for soil compaction determinations.

< Direct Shear (ASTM D3080) – used for soil strength determination.

< Chemical Analyses (soluble sulfates & chlorides, pH, and resistivity) (Caltrans Methods) – used for concrete mix evaluations and corrosion protection requirements.

The laboratory test results are presented on the subsurface logs and on Plates C-1 through C-4 in Appendix C.

Engineering parameters of soil strength, compressibility and relative density utilized for developing design criteria provided within this report were either extrapolated from data obtained from the field and laboratory testing program.

Section 3
DISCUSSION

3.1 Site Conditions

The project site is rectangular-shaped in plan view, is relatively flat-lying slopes gently to the north, and consists of approximately 9.5 acres of existing St Frances of Rome wordship complex. The site is bounded by Lemon Street to the north and Orchird Street to the west. Residential homes are surrounding the complex and these properties are flat-lying and are approximately at the same elevation with this site.

The project site lies at an elevation between approximately 1,330 and 1,345 feet above mean sea level (MSL) in the French Valley of Southern California. Annual average rainfall in this region is approximately 11 inches with average summertime temperature highs above 90ºF and lows in the mid 50's to low 60's. Average winter temperature highs are in the high 60's with lows in mid 30's to low 40's.

3.2 Geologic Setting

The project site is located within the French Valley, which is located to the east/northeast of the Elsinore-Temecula Trough and to the south of the Perris Plain within the Peninsular Ranges geomorphic province. The Peninsular Ranges are one of the largest geologic units in western North America. They extend 200 kilometers (125 miles) from the Transverse Ranges and the Los Angeles Basin south to the Mexican border and beyond another 1,250 kilometers (775 miles) to the tip of Baja California. The total province varies in width from 48 to 160 Kilometers (30-100 miles) (Norris & Webb, 1976).

The Peninsular Ranges are a northwest-southeast oriented complex of blocks separated by similarly trending faults (Norris & Webb, 1976). Major faults of the Peninsular Ranges are the San Jacinto and related branches within the San Jacinto zone and the Elsinore and associated faults within the Elsinore zone.

The Elsinore-Temecula trough, located to the west/southwest of the project site, is a linear, low-lying block northeast of the Santa Ana Mountains and southwest of the Perris Plain. It extends from

Corona on the northwest about 30 miles (48 km) southeast and has a maximum width of 3 miles (4.8 km). The Perris Plain, located to the north of the project site, is a major topographic feature between the San Jacinto (northeast) and Elsinore (southwest) fault zones. The plain is a broad, nearly flat surface dotted with bedrock hills extending from near Corona southeasterly to Hemet. The average elevation of the Perris Plain is 520 meters (1,700 feet) (Norris & Webb, 1976). The nearby hills to the project site are composed of Mesozoic granitic rocks, Mesozoic intrusive rocks, and upper Jurassic marine rocks. Figure 1 shows the location of the site in relation to regional faults and physiographic features.

The surrounding regional geology includes the San Jacinto and Santa Rosa Mountains to the east/southeast, the Santa Ana Mountains to the west/northwest, the Elsinore Fault zone to the southwest, and the San Jacinto Fault zone to the northeast. Lake Elsinore is located to the west of the project site.

3.3 Subsurface Soil

Subsurface soils encountered during the field exploration conducted on March 15, 2016 consist of dominantly medium dense to dense, silty sands (SM) to a depth of 51.5 feet, the maximum depth of exploration. The near surface soils are granular and non-expansive in nature. The subsurface logs (Plates B-1 through B-6) depict the stratigraphic relationships of the various soil types.

3.4 Groundwater

Groundwater was not encountered in the borings during the time of exploration. Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading. The groundwater level noted should not be interpreted to represent an accurate or permanent condition. Based on the regional topography, groundwater flow is assumed to be generally towards the east to southeast within the site area. Flow directions may vary locally in the vicinity of the site.

Historic groundwater records in the vicinity of the project site indicate that groundwater has fluctuated between 10 to 31 feet below the ground surface within the past 40 years according to The California Department of Water Resources, Division of Planning and Local Assistance web site.

3.5 Faulting

The project site is located in the seismically active French Valley of southern California with numerous mapped faults of the Elsinore Fault Zone traversing the region. We have performed a computer-aided search of known faults or seismic zones that lie within a 62 mile (100 kilometer) radius of the project site (Table 1).

A fault map illustrating known active faults relative to the site is presented on Figure 1, *Regional Fault Map*. Figure 2 shows the project site in relation to local faults. The criterion for fault classification adopted by the California Geological Survey defines Earthquake Fault Zones along active or potentially active faults. An active fault is one that has ruptured during Holocene time (roughly within the last 11,000 years). A fault that has ruptured during the last 1.8 million years (Quaternary time), but has not been proven by direct evidence to have not moved within Holocene time is considered to be potentially active. A fault that has not moved during Quaternary time is considered to be inactive.

Review of the current Alquist-Priolo Earthquake Fault Zone maps (CGS, 2000a) indicates that the nearest mapped Earthquake Fault Zone is the Elsinore-Temecula fault located approximately 1.5 miles southwest of the project site. Riverside County fault maps indicate that the nearest Riverside County mapped fault is the Glen Ivy segment of the Elsinore Fault Zone located approximately 0.2 miles southwest of the project site. A portion of the project site lies within the County Fault Zone boundary and may require additional evaluation.

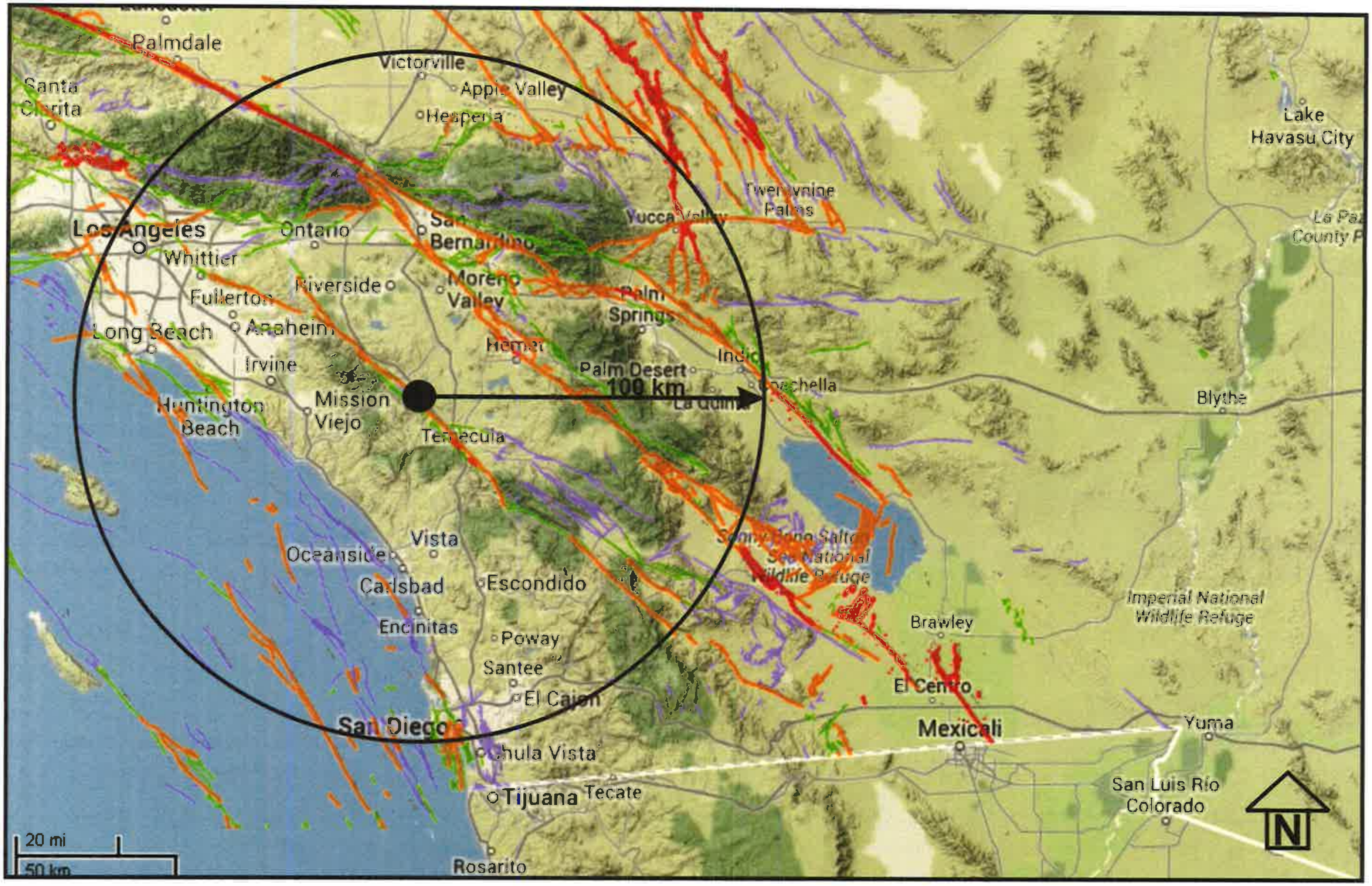
3.6 General Ground Motion Analysis

The project site is considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. Ground motions are dependent primarily on the earthquake magnitude and distance to the seismogenic (rupture) zone. Acceleration magnitudes also are dependent upon attenuation by rock and soil deposits, direction of rupture and type of fault; therefore, ground motions may vary considerably in the same general area.

Table 1
Summary of Characteristics of Closest Known Active Faults

Fault Name	Approximate Distance (miles)	Approximate Distance (km)	Maximum Moment Magnitude (Mw)	Fault Length (km)	Slip Rate (mm/yr)
Elsinore - Glen Ivy	0.2	0.3	6.8	36 ± 4	5 ± 2
Elsinore - Temecula	1.5	2.4	6.8	43 ± 4	5 ± 2
Whittier	16.8	26.9	6.8	38 ± 4	2.5 ± 1
Chino Avenue	18.5	29.6	6.7	28 ± 3	1 ± 1
San Jacinto - San Jacinto Valley	22.0	35.1	6.9	43 ± 4	12 ± 6
San Jacinto - Anza	22.1	35.4	7.2	91 ± 9	12 ± 6
San Joaquin Hills	22.4	35.8	6.6	28 ± 3	0.5 ± 0.2
Elsinore - Julian	24.0	38.5	7.1	76 ± 8	5 ± 2
San Jacinto - San Bernardino	26.8	42.9	6.7	36 ± 4	12 ± 6
Newport-Inglewood (offshore)	28.8	46.0	7.1	66 ± 7	1.5 ± 0.5
San Andreas - San Bernardino (South)	34.1	54.6	7.4	103 ± 10	30 ± 7
Rose Canyon	35.1	56.1	7.2	70 ± 7	1.5 ± 0.5
Newport-Inglewood	36.7	58.7	7.1	66 ± 7	1 ± 0.5
Cucamonga	39.0	62.4	6.9	28 ± 3	5 ± 2
Puente Hills Blind Thrust	39.4	63.1	7.1	44 ± 4	0.7 ± 0.4
Garnet Hill *	40.0	64.1			
San Jose	40.4	64.6	6.4	20 ± 2	0.5 ± 0.5
Sierra Madre	42.7	68.4	7.2	57 ± 6	2 ± 1
Pinto Mtn.	43.7	69.9	7.2	74 ± 7	2.5 ± 2
Cleghorn	44.4	71.0	6.5	25 ± 3	3 ± 2
Coronado Bank	44.9	71.9	7.6	185 ± 19	3 ± 1
Palos Verdes	45.0	72.1	7.3	96 ± 10	3 ± 1

* Note: Faults not included in CGS database.



Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

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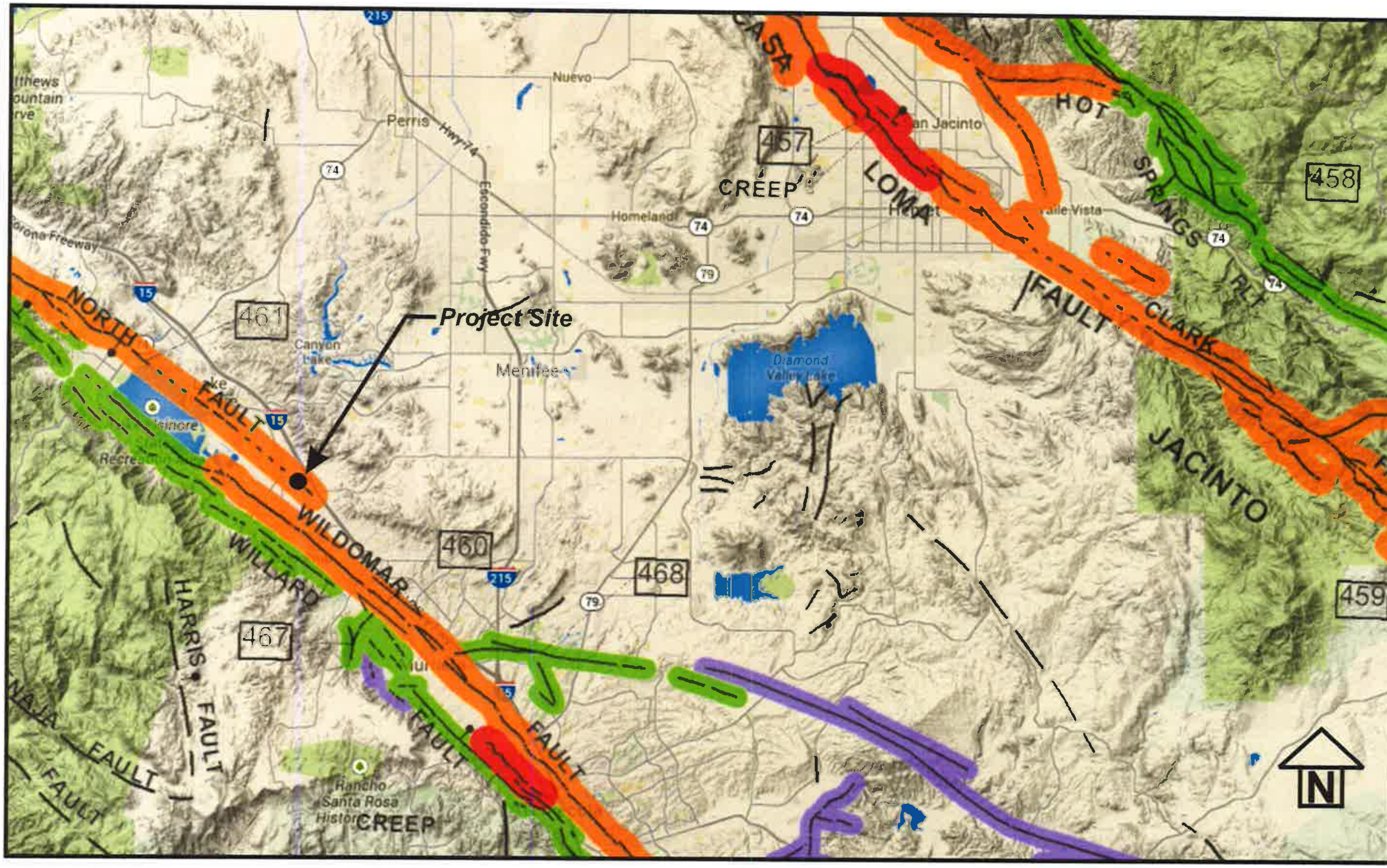
Regional Fault Map

Figure 1



Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

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Project No.: LP16027

Map of Local Faults

Figure 2

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.

(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.

(c) displaced survey lines.

A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

Date bracketed by triangles indicates local fault break.

No triangle by date indicates an intermediate point along fault break.

Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.

Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.

Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS

Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass faults with Holocene displacement.

Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate discontinuities between basement rocks.

Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults.

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION: ON LAND	DESCRIPTION: OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906) Includes areas of known fault creep.	
		Holocene	200			Displacement during Holocene time	Fault offsets seafloor sediments or strata of Holocene age
		Pleistocene	11,700			Faults showing evidence of displacement during late Quaternary time	Fault cuts strata of Late Pleistocene age
	Early Quaternary		700,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years, possible exceptions are faults which displace rocks of undifferentiated Plio Pleistocene age	Fault cuts strata of Quaternary age
Pre-Quaternary			1,600,000* – 4.5 billion (Age of Earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive	Fault cuts strata of Pliocene or older age

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

CBC General Ground Motion Parameters: The 2013 CBC general ground motion parameters are based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The U.S. Geological Survey "U.S. Seismic Design Maps Web Application" (USGS, 2014) was used to obtain the site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters. The site soils have been classified as Site Class D (stiff soil profile). Design spectral response acceleration parameters are defined as the earthquake ground motions that are two-thirds (2/3) of the corresponding MCE_R ground motions. Design earthquake ground motion parameters are provided in Table 2. ***A Risk Category II was determined using Table 1604.5 and the Seismic Design Category is E since S_1 is greater than 0.75.***

The Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration (PGA_M) value was determined from the "U.S. Seismic Design Maps Web Application" (USGS, 2013) for liquefaction and seismic settlement analysis in accordance with 2013 CBC Section 1803.5.12 and CGS Note 48 ($PGA_M = F_{PGA}*PGA$). ***A PGA_M value of 0.94g has been determined for the project site.***

3.7 Seismic and Other Hazards

▸ **Groundshaking.** The primary seismic hazard at the project site is the potential for strong groundshaking during earthquakes along the Temecula Segment of the Elsinore Fault Zone. A further discussion of groundshaking follows in Section 3.4.

▸ **Surface Rupture.** The project site does not lie within a State of California, Alquist-Priolo Earthquake Fault Zone. The project site lies within the Riverside County designated fault zone for the Glen Ivy fault segment of the Elsinore Fault. Surface fault rupture is considered to be unlikely at the project site because of the well-delineated fault lines through the French Valley as shown on USGS, CDMG, and Riverside County maps. However, because of the high tectonic activity and deep alluvium of the region, we cannot preclude the potential for surface rupture on undiscovered or new faults that may underlie the site.

▸ **Liquefaction.** Liquefaction is unlikely to be a potential hazard at the site, due to groundwater deeper than 50 feet (the maximum depth that liquefaction is known to occur).

Table 2
2013 California Building Code (CBC) and ASCE 7-10 Seismic Parameters

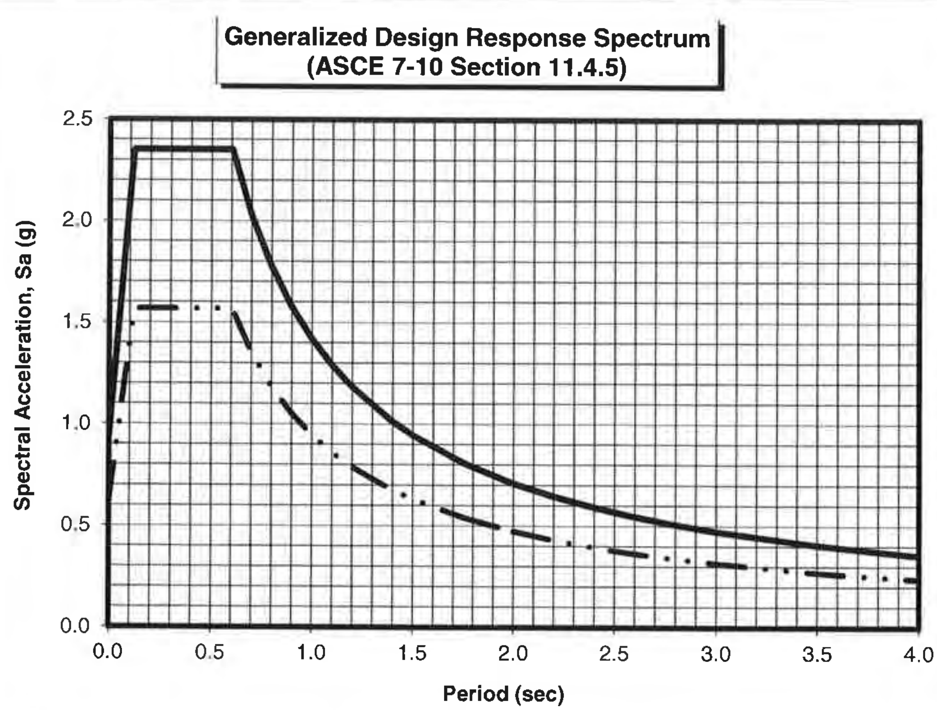
			CBC Reference
Soil Site Class:	**D**		Table 20.3-1
Latitude:	33.6333	N	
Longitude:	-117.2828	W	
Risk Category:	II		
Seismic Design Category:	E		

Maximum Considered Earthquake (MCE) Ground Motion

Mapped $\text{MCE}_{\odot}$ Short Period Spectral Response	$\mathbf{S_s}$	2.351 g	Figure 1613.3.1(1)	
Mapped MCE_R 1 second Spectral Response	$\mathbf{S_1}$	0.946 g	Figure 1613.3.1(2)	
Short Period (0.2 s) Site Coefficient	$\mathbf{F_a}$	1.00	Table 1613.3.3(1)	
Long Period (1.0 s) Site Coefficient	$\mathbf{F_v}$	1.50	Table 1613.3.3(2)	
$\text{MCE}_{\odot}$ Spectral Response Acceleration Parameter (0.2 s)	$\mathbf{S_{MS}}$	2.351 g	$= F_a * S_s$	Equation 16-37
$\text{MCE}_{\odot}$ Spectral Response Acceleration Parameter (1.0 s)	$\mathbf{S_{M1}}$	1.419 g	$= F_v * S_1$	Equation 16-38

Design Earthquake Ground Motion

Design Spectral Response Acceleration Parameter (0.2 s)	$\mathbf{S_{DS}}$	1.567 g	$= 2/3*S_{MS}$	Equation 16-39
Design Spectral Response Acceleration Parameter (1.0 s)	$\mathbf{S_{D1}}$	0.946 g	$= 2/3*S_{M1}$	Equation 16-40
	$\mathbf{T_L}$	8.00 sec		ASCE Figure 22-12
	$\mathbf{T_O}$	0.12 sec	$=0.2*S_{D1}/S_{DS}$	
	$\mathbf{T_S}$	0.60 sec	$=S_{D1}/S_{DS}$	
Peak Ground Acceleration	$\mathbf{PGA_M}$	0.94 g		ASCE Equation 11.8-1



Period T (sec)	Sa (g)	MCE_R Sa (g)
0.00	0.63	0.94
0.12	1.57	2.35
0.60	1.57	2.35
0.70	1.35	2.03
0.80	1.18	1.77
0.90	1.05	1.58
1.00	0.95	1.42
1.10	0.86	1.29
1.20	0.79	1.18
1.20	0.79	1.18
1.40	0.68	1.01
1.50	0.63	0.95
1.75	0.54	0.81
2.00	0.47	0.71
2.20	0.43	0.65
2.40	0.39	0.59
2.60	0.36	0.55
2.80	0.34	0.51
3.00	0.32	0.47
3.50	0.27	0.41
4.00	0.24	0.35

Design Response Spectra
MCE_R Response Spectra

Other Potential Geologic Hazards.

▸ **Landsliding.** The hazard of landsliding is unlikely due to the regional planar topography. No ancient landslides are shown on geologic maps of the region and no indications of landslides were observed during our site investigation.

▸ **Volcanic hazards.** The site is not located in proximity to any known volcanically active area and the risk of volcanic hazards is considered very low.

▸ **Tsunamis, sieches, and flooding.** The site does not lie near any large bodies of water, so the threat of tsunami, sieches, or other seismically-induced flooding is unlikely.

▸ **Expansive soil.** The near surface soils at the project site consist of silty sands which are non-expansive.

3.8 Seismic Settlement

An evaluation of the non-liquefaction seismic settlement potential was performed using the relationships developed by Tokimatsu and Seed (1984, 1987) for dry sands. This method is an empirical approach to quantify seismic settlement using SPT blow counts and PGA estimates from the probabilistic seismic hazard analysis.

The soils beneath the site consist primarily of loose to medium dense silty sands to maximum penetrated. Based on the empirical relationships, total induced settlements are estimated to be on the order or ½ to1 inch in the event of a MCE_G earthquake (0.94g peak ground acceleration). Should settlement occur, buried utility lines and the buildings may not settle equally. Therefore we recommend that utilities, especially at the points of entry to the buildings, be designed to accommodate differential movement.

The computer printouts for the estimates of induced settlement are included in Appendix D.

3.9 Hydroconsolidation

In arid climatic regions, granular soils have a potential to collapse upon wetting. This collapse (hydroconsolidation) phenomena is the result of the lubrication of soluble cements (carbonates) in the soil matrix causing the soil to densify from its loose configuration during deposition.

Based on our experience in the vicinity of the project site, there is a slight risk of collapse upon inundation from at the site. Therefore, development of building foundation is not required to include provisions for mitigating the hydroconsolidation caused by soil saturation from landscape irrigation or broken utility lines.

3.10 Soil Infiltration Rate

A total of four (4) infiltration tests were conducted on March 18, 2016 at the proposed location for the on-site storm-water retention basins as shown on the Site and Exploration Plan (Plate A-2). The infiltration tests were performed to the guideline from Design Handbook for Low Impact Development Best Management Practices, prepared by Riverside County Flood Control and Water Conservation District, Appendix A, Section 2.3, dated September 2011.

The tests were performed using perforated pipes inside an 8-inch diameter flight auger borehole made to depths of approximately 5.0 feet below the existing ground surface, corresponding to the anticipated bottom depth of the stormwater retention basin. The pipes were filled with water and successive readings of drop in water levels were made every 10 minutes for a total elapsed time of 60 minutes, until a stabilization drop was recorded.

The test results indicate that the stabilized soil infiltration rate for the soil ranges from 1.61 to 1.98 inches per hour. A maximum soil infiltration rate of 1.61 inches per hour may be used for the on-site storm-water retention basin design. An oil/water separator should be installed at inlets to the stormwater retention basin to prevent sealing of the basin bottom with silt and oil residues. The field and conversion calculation worksheets are included in Appendix E.

We recommend additional testing should be performed after the completion of rough grading operations, to verify the soil infiltration rate.

Section 4
DESIGN CRITERIA

4.1 Site Preparation

Pre-grade Meeting: Prior to site preparation, a meeting should be held at the site with as a minimum, the owner's representative, grading contractor and geotechnical engineer in attendance.

Clearing and Grubbing: All surface improvements, debris and/or vegetation including grass, trees, and weeds on the site at the time of construction should be removed from the construction area. Root balls should be completely excavated. Organic stripping should be hauled from the site and not used as fill. Any trash, construction debris, concrete slabs, old pavement, landfill, and buried obstructions such as old foundations and utility lines exposed during rough grading should be traced to the limits of the foreign materials and removed. Any excavations resulting from site clearing and grubbing should be dish-shaped to the lowest depth of disturbance and backfilled with engineered fill.

Mass Grading: Prior to placing any fills, the surface 12 inches of soil should be removed, the exposed surface uniformly moisture conditioned to a depth of 8 inches by discing and wetting to ±2% of optimum moisture, and re-compacted to at least 90% of ASTM D1557 maximum density. Native soils may be used for mass grading, placed in 6 inch maximum lifts, uniformly moisture conditioned to a depth of 8 inches by discing and wetting to ±2% of optimum moisture, and re-compacted to at least 90% of ASTM D1557 maximum density.

Building Pad Preparation: The exposed surface soil within the proposed building pad areas should be removed to 30 inches below the lowest foundation grades, or 60 inches below the original grade (whichever is deeper), extending five feet beyond all exterior wall/column lines (including adjacent concrete areas). The exposed sub-grade shall be saturated to a minimum depth of 5 feet and compacted with a vibratory steel drum roller to achieve a minimum compaction of 95% of the maximum dry density. Moisture penetration and compaction should be verified prior to construction of the engineered fill pad.

After achieving the recommended compaction, the engineered building pad may be constructed by placing the removed soils in uniformly moisture conditioned to ±2% of optimum moisture, and re-compacted to at least 90% of ASTM D1557 maximum density.

The on-site soils are suitable for use as compacted fill and utility trench backfill. Imported fill soil (if required) should similar to onsite soil or non-expansive, granular soil meeting the USCS classifications of SM, SP-SM, or SW-SM with a maximum rock size of 3 inches. ***The geotechnical engineer should approve imported fill soil sources before hauling material to the site***. Native and imported materials should be placed in lifts no greater than 8 inches in loose thickness, uniformly moisture conditioned to ±2% of optimum moisture, and re-compacted to at least 90% of ASTM D1557 maximum density.

In areas other than the building pad which are to receive concrete slabs and asphalt concrete pavement, the ground surface should be over-excavated to a depth of 12 inches, uniformly moisture conditioned to ±2% of optimum moisture, and re-compacted to at least 90% of ASTM D1557 maximum density.

Trench Backfill: On-site soil free of debris, vegetation, and other deleterious matter may be suitable for use as utility trench backfill. Backfill within roadways should be placed in layers not more that 6 inches in thickness, uniformly moisture conditioned to ±2% of optimum moisture and mechanically compacted to a minimum of 90% of the ASTM D1557 maximum dry density except for the top 12 inches of the trench which shall be compacted to at least 95%. Native backfill should only be placed and compacted after encapsulating buried pipes with suitable bedding and pipe envelope material.

Pipe envelope/bedding should either be clean sand (Sand Equivalent SE>30) or crushed rock when encountering groundwater. A geotextile filter fabric (Mirafi 140N or equivalent) should be used to encapsulate the crushed rock to reduce the potential for in-washing of fines into the gravel void space. Precautions should be taken in the compaction of the backfill to avoid damage to the pipes and structures.

Adequate site drainage is essential to future performance of the project. Infiltration of excess irrigation water and stormwaters can adversely affect the performance of the subsurface soil at the site. Positive drainage should be maintained away from all structures (5% for 5 feet minimum across unpaved areas) to prevent ponding and subsequent saturation of the native soil. Gutters and downspouts may be considered as a means to convey water away from foundations. If landscape irrigation is allowed next to the building, drip irrigation systems or lined planter boxes should be used. The subgrade soil should be maintained in a moist, but not saturated state, and not allowed to dry out. Drainage should be maintained without ponding.

Observation and Density Testing: All site preparation and fill placement should be continuously observed and tested by a representative of a qualified geotechnical engineering firm. Full-time observation services during the excavation and scarification process is necessary to detect undesirable materials or conditions and soft areas that may be encountered in the construction area. The geotechnical firm that provides observation and testing during construction shall assume the responsibility of "***geotechnical engineer of record***" and, as such, shall perform additional tests and investigation as necessary to satisfy themselves as to the site conditions and the recommendations for site development.

Auxiliary Structures Foundation Preparation: Auxiliary structures such as free standing or retaining walls should have the existing soil beneath the structure foundation prepared in the manner recommended for the building pad except the preparation needed only to extend 30 inches below and beyond the footing.

4.2 Foundations and Settlements

Shallow column footings and continuous wall footings are suitable to support the structures provided they are founded on a layer of properly prepared and compacted soil as described in Section 4.1. The foundations may be designed using an allowable soil bearing pressure of 2,000 psf. The allowable soil pressure may be increased by 20% for each foot of embedment depth in excess of 18 inches and by one-third for short term loads induced by winds or seismic events. The maximum allowable soil pressure at increased embedment depths shall not exceed 2,800 psf.

All exterior and interior] foundations should be embedded a minimum of 18 inches below the building support pad or lowest adjacent final grade, whichever is deeper. Continuous wall footings should have a minimum width of 12 inches. Isolated column footings should have a minimum width of 24 inches. ***Recommended concrete reinforcement and sizing for all footings should be provided by the structural engineer.***

Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 300 pcf to resist lateral loadings. The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.35 may also be used at the base of the footings to resist lateral loading.

Foundation movement under the estimated static loadings and seismic site conditions are estimated to not exceed ¾ inch with differential movement of about two-thirds of total movement for the loading assumptions stated above when the subgrade preparation guidelines given above are followed. Foundation movements under the seismic loading due to dry settlement are provided in Section 3.8 of this report.

4.3 Slabs-On-Grade

Concrete slabs and flatwork should be a minimum of 5 inches thick. Concrete floor slabs may either be monolithically placed with the foundation or dowelled after footing placement. The concrete slabs may be placed on granular subgrade that has been compacted at least 90% relative compaction (ASTM D1557).

American Concrete Institute (ACI) guidelines (ACI 302.1R-04 Chapter 3, Section 3.2.3) provide recommendations regarding the use of moisture barriers beneath concrete slabs. The concrete floor slabs should be underlain by a 10-mil polyethylene vapor retarder that works as a capillary break to reduce moisture migration into the slab section. All laps and seams should be overlapped 6-inches or as recommended by the manufacturer. The vapor retarder should be protected from puncture. The joints and penetrations should be sealed with the manufacturer's recommended adhesive, pressure-sensitive tape, or both. The vapor retarder should extend a minimum of 12 inches into the footing excavations. The vapor retarder should be covered by 4 inches of clean sand (Sand Equivalent SE>30) unless placed on 2.5 feet of granular fill, in which case, the vapor retarder may lie directly on the granular fill with 2 inches of clean sand cover.

Placing sand over the vapor retarder may increase moisture transmission through the slab, because it provides a reservoir for bleed water from the concrete to collect. The sand placed over the vapor retarder may also move and mound prior to concrete placement, resulting in an irregular slab thickness. For areas with moisture sensitive flooring materials, ACI recommends that concrete slabs be placed without a sand cover directly over the vapor retarder, provided that the concrete mix uses a low-water cement ratio and concrete curing methods are employed to compensate for release of bleed water through the top of the slab. The vapor retarder should have a minimum thickness of 15-mil (Stego-Wrap or equivalent).

Concrete slab and flatwork reinforcement should consist of chaired rebar slab reinforcement (minimum of No. 4 bars at 18-inch centers, both horizontal directions) placed at slab mid-height to resist potential swell forces and cracking. ***Slab thickness and steel reinforcement are minimums only and should be verified by the structural engineer/designer knowing the actual project loadings.*** The construction joint between the foundation and any mowstrips/sidewalks placed adjacent to foundations should be sealed with a polyurethane based non-hardening sealant to prevent moisture migration between the joint.

Control joints should be provided in all concrete slabs-on-grade at a maximum spacing (in feet) of 2 to 3 times the slab thickness (in inches) as recommended by American Concrete Institute (ACI) guidelines. All joints should form approximately square patterns to reduce randomly oriented contraction cracks. Contraction joints in the slabs should be tooled at the time of the pour or sawcut (¼ of slab depth) within 6 to 8 hours of concrete placement. Construction (cold) joints in foundations and area flatwork should either be thickened butt-joints with dowels or a thickened keyed-joint designed to resist vertical deflection at the joint. All joints in flatwork should be sealed to prevent moisture, vermin, or foreign material intrusion. Precautions should be taken to prevent curling of slabs in this arid desert region (refer to ACI guidelines).

All independent concrete flatworks should be underlain by 12 inches of moisture conditioned and compacted soils. All flatwork should be jointed in square patterns and at irregularities in shape at a maximum spacing of 10 feet or the least width of the sidewalk.

4.4 Concrete Mixes and Corrosivity

Selected chemical analyses for corrosivity were conducted on bulk samples of the near surface soil from the project site (Plate C-4). The native soils tested were shown to have low levels of sulfate and chloride ion concentrations. Resistivity determinations on the soil indicate severely potential for metal loss because of electrochemical corrosion processes.

A minimum of 2,500 psi concrete of Type II Portland Cement with a maximum water/cement ratio of 0.60 (by weight) should be used for concrete placed in contact with native soil on this project (sitework including streets, sidewalks, driveways, patios, and foundations).

A minimum concrete cover of three (3) inches is recommended around steel reinforcing or embedded components (anchor bolts, hold-downs, etc.) exposed to native soil or landscape water (to 18 inches above grade). The concrete should also be thoroughly vibrated during placement.

Landmark does not practice corrosion engineering. We recommend that a qualified corrosion engineer evaluate the corrosion potential on metal construction materials and concrete at the site.

4.5 Excavations

All trench excavations should conform to CalOSHA requirements for Type C soil. The contractor is solely responsible for the safety of workers entering trenches. Temporary excavations with depths of 4 feet or less may be cut nearly vertical for short duration. Temporary slopes should be no steeper than 1.5:1 (horizontal:vertical). Sandy soil slopes should be kept moist, but not saturated, to reduce the potential of raveling or sloughing.

Trench excavations deeper than 4 feet will require shoring or slope inclinations in conformance to CAL/OSHA regulations for Type C soil. Surcharge loads of stockpiled soil or construction materials should be set back from the top of the slope a minimum distance equal to the height of the slope. All permanent slopes should not be steeper than 3:1 to reduce wind and rain erosion. Protected slopes with ground cover may be as steep as 2:1. However, maintenance with motorized equipment may not be possible at this inclination.

4.6 Lateral Earth Pressures

Earth retaining structures, such as retaining walls, should be designed to resist the soil pressure imposed by the retained soil mass. Walls with granular drained backfill may be designed for an assumed static earth pressure equivalent to that exerted by a fluid weighing 38 pcf for unrestrained (active) conditions (able to rotate 0.1% of wall height), and 52 pcf for restrained (at-rest) conditions. These values should be verified at the actual wall locations during construction.

4.7 Seismic Design

This site is located in the seismically active southern California area and the site structures are subject to strong ground shaking due to potential fault movements along the San Andreas Fault. Engineered design and earthquake-resistant construction are the common solutions to increase safety and development of seismic areas. Designs should comply with the latest edition of the CBC for Site Class D using the seismic coefficients given in Section 3.6 of this report.

4.8 Pavements

Pavements should be designed according to CALTRANS or other acceptable methods. Traffic indices were not provided by the project engineer or owner; therefore, we have provided structural sections for several traffic indices for comparative evaluation. The public agency or design engineer should determine the appropriate traffic index for the site. Maintenance of proper drainage is necessary to prolong the service life of the pavements. Based on the current State of California CALTRANS method, an estimated R-value of 30 for the subgrade soil and assumed traffic indices, the following table provides structure thicknesses for asphaltic concrete (AC) pavement sections.

PAVEMENT STUCTURAL SECTIONS

R-Value of Subgrade Soil - 30 (estimated) Design Method - CALTRANS 2006

Traffic Index (assumed)	Flexible Pavements	
	Asphaltic Concrete Thickness (in.)	Aggregate Base Thickness (in.)
5.0	3.0	6.0
6.0	3.5	8.5
7.0	4.5	9.5
8.0	5.0	11.5

Notes:

1) Asphaltic concrete shall be Caltrans, Type B, ¾ inch maximum medium grading, (½ inch for parking areas) compacted to a minimum of 95% of the 50-blow Marshall density (ASTM D1559).
2) Aggregate base shall conform to Caltrans Class 2 (¾ in. maximum), compacted to a minimum of 95% of ASTM D1557 maximum dry density.
3) Place pavements on 12 inches of moisture conditioned (at least 2% of over optimum) native soil compacted to a minimum of 95% of the maximum dry density determined by ASTM D1557, or the governing agency requirements.

Final pavement sections may need to be determined by sampling and R-Value testing during grading operations when actual subgrade soils are exposed.

Section 5
LIMITATIONS AND ADDITIONAL SERVICES

5.1 Limitations

The findings and professional opinions within this report are based on current information regarding the proposed new church at St Frances of Rome, 21591 Lemon Street, Wildomar, California. The conclusions and professional opinions of this report are invalid if:

< Proposed building(s) location and size are changed from those shown in this report

< Structural loads change from those stated or the structures are relocated.

< The Additional Services section of this report is not followed.

< This report is used for adjacent or other property.

< Changes of grade or groundwater occur between the issuance of this report and construction other than those anticipated in this report.

< Any other change that materially alters the project from that proposed at the time this report was prepared.

Findings and professional opinions in this report are based on selected points of field exploration, geologic literature, laboratory testing, and our understanding of the proposed project. Our analysis of data and professional opinions presented herein are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil conditions can exist between and beyond the exploration points or groundwater elevations may change. If detected, these conditions may require additional studies, consultation, and possible design revisions.

This report contains information that may be useful in the preparation of contract specifications. However, the report is not worded is such a manner that we recommend its use as a construction specification document without proper modification. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

This report was prepared according to the generally accepted *geotechnical engineering standards of practice* that existed in Riverside County at the time the report was prepared. No express or implied warranties are made in connection with our services. This report should be considered invalid for periods after two years from the report date without a review of the validity of the findings and professional opinions by our firm, because of potential changes in the Geotechnical Engineering Standards of Practice.

The client has responsibility to see that all parties to the project including, designer, contractor, and subcontractor are made aware of this entire report. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

5.2 Additional Services

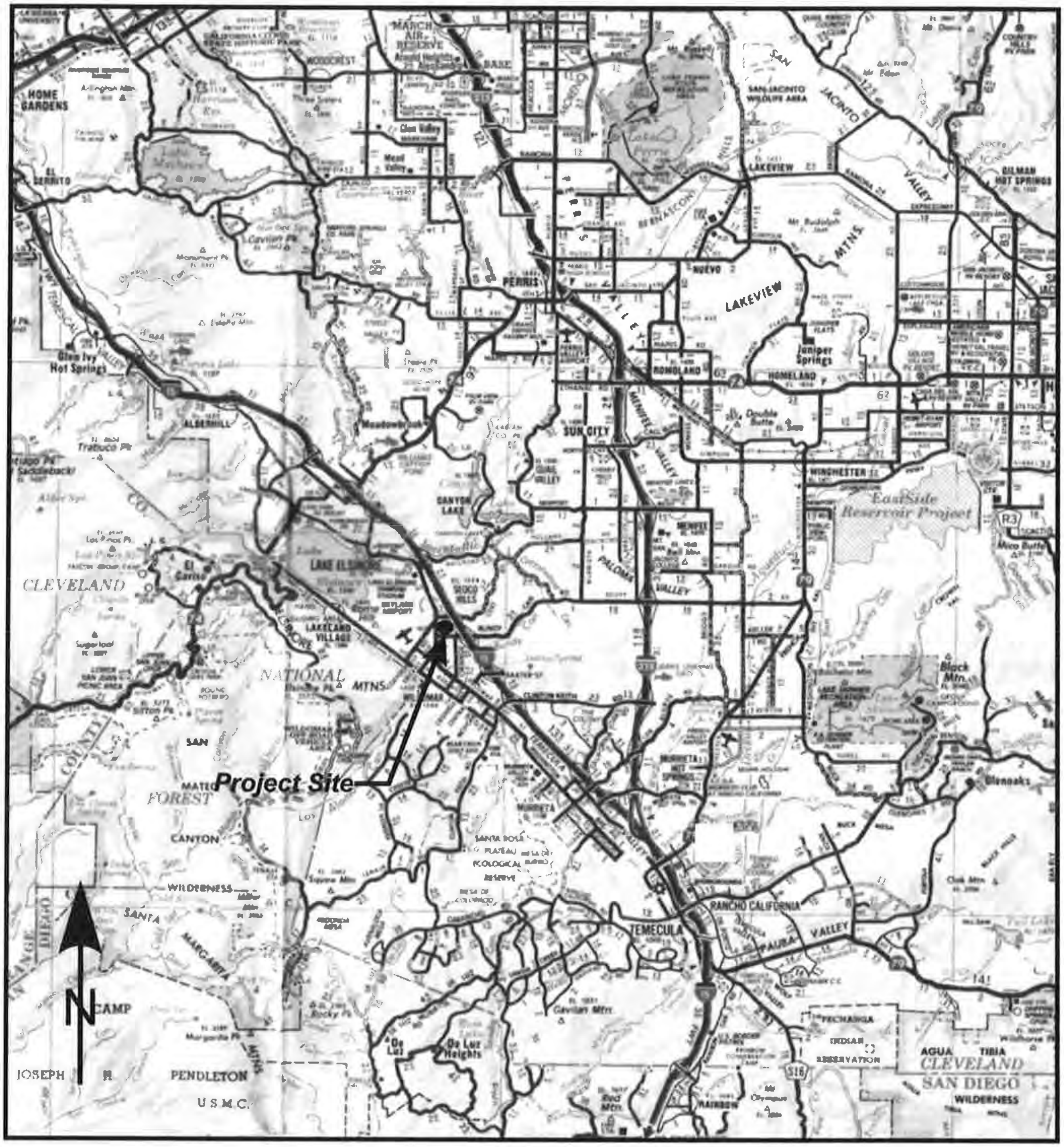
We recommend that a qualified geotechnical consultant be retained to provide the tests and observations services during construction. ***The geotechnical engineering firm providing such tests and observations shall become the geotechnical engineer of record and assume responsibility for the project.***

The professional opinions presented in this report are based on the assumption that:

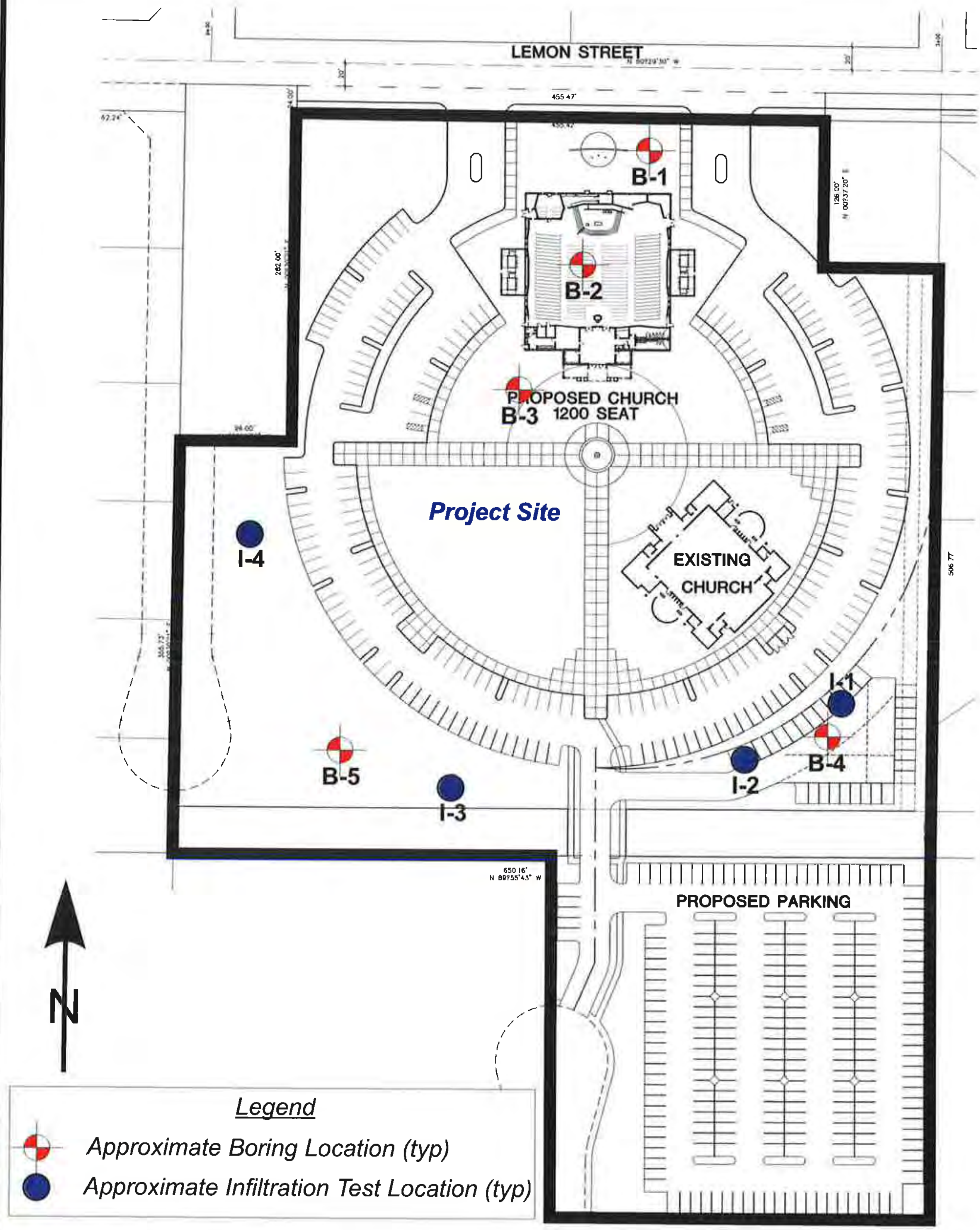
- Consultation during development of design and construction documents to check that the geotechnical professional opinions are appropriate for the proposed project and that the geotechnical professional opinions are properly interpreted and incorporated into the documents.
- ***LandMark Consultants, Inc.*** will have the opportunity to review and comment on the plans and specifications for the project prior to the issuance of such for bidding.
- Continuous observation, inspection, and testing by the geotechnical consultant of record during site clearing, grading, excavation, placement of fills, building pad and subgrade preparation, and backfilling of utility trenches.
- Observation of foundation excavations and reinforcing steel before concrete placement.
- Other consultation as necessary during design and construction.

We emphasize our review of the project plans and specifications to check for compatibility with our professional opinions and conclusions. Additional information concerning the scope and cost of these services can be obtained from our office.

APPENDIX A



LANDMARK Geo-Engineers and Geologists Project No.: LP16027	Vicinity Map	Plate A-1



LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Site Map

Plate A-2

117° 17'9"W

Map Scale: 1:4,350 if printed on A portrait (8.5" x 11") sheet.

N

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

USDA Soil Conservation
Soil Service Map

Plate
A-3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 8, Sep 22, 2015

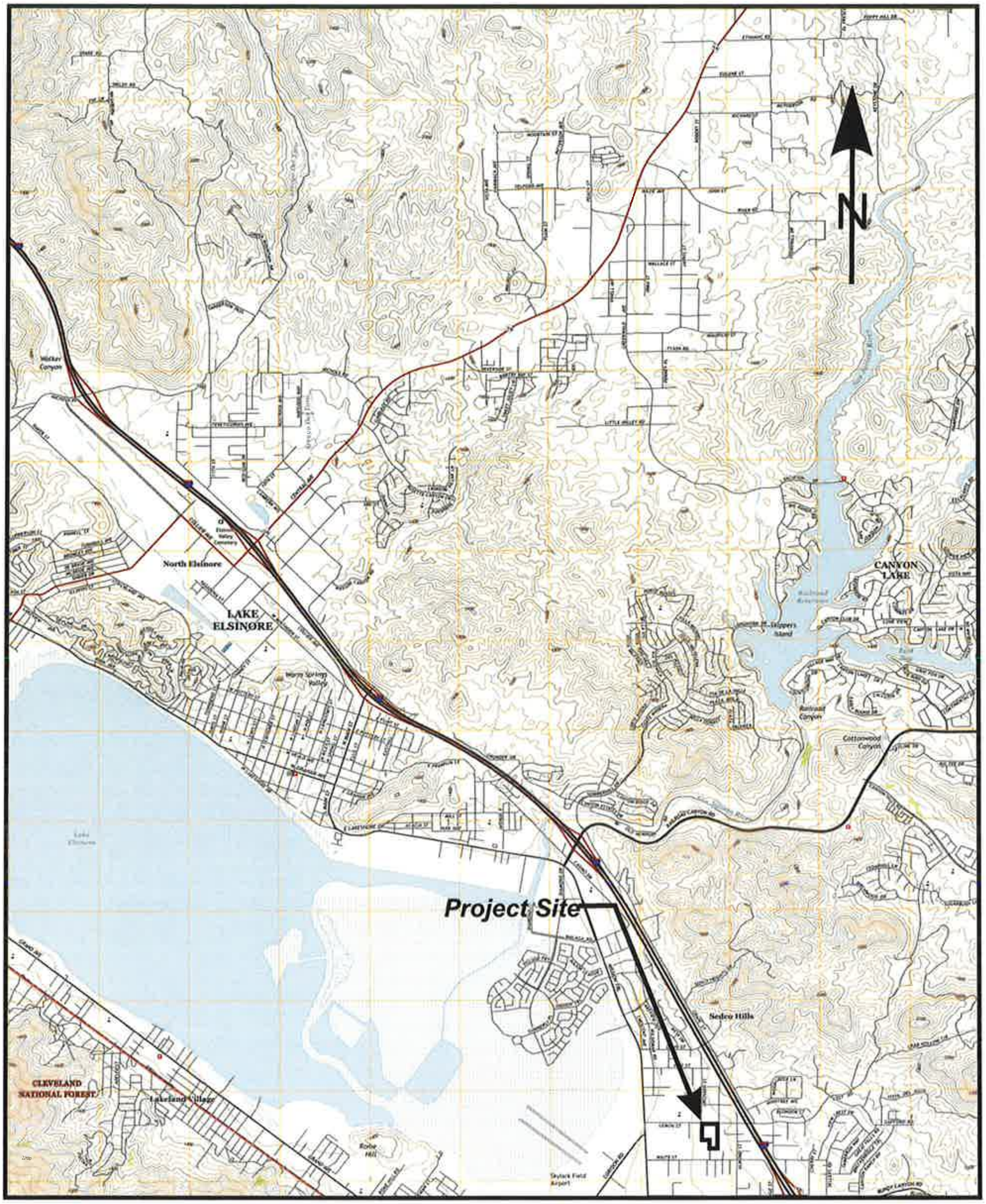
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 24, 2015—Feb 26, 2015

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

Map Unit Legend

Western Riverside Area, California (CA679)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	77.5	79.8%
GyD2	Greenfield sandy loam, 8 to 15 percent slopes, eroded	0.3	0.3%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	16.8	17.2%
ReC2	Ramona very fine sandy loam, 0 to 8 percent slopes, ero ded	0.9	1.0%
TeG	Terrace escarpments	1.7	1.7%
Totals for Area of Interest		**97.2**	**100.0%**



Lake Elsinore Quadrangle
California - Riverside Co.
7.5 Minute Series

Site Coordinates
Lat: 33.6333 N
Long: 117.2828 W

LANDMARK Geo-Engineers and Geologists **Project No.: LP16027**	USGS U.S. Department of the Interior U.S. Gelogical Survey **Topographic Map**	**Plate** **A-4**

Reference: Federal Emergency Management Agency (FEMA)
Wildomar, California - Riverside County
Community-Panel Numbers 06065C 2043G

LANDMARK Geo-Engineers and Geologists **Project No.: LP16027**	**Flood Insurance Rate Map (FIRM)**	**Plate A-5**

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

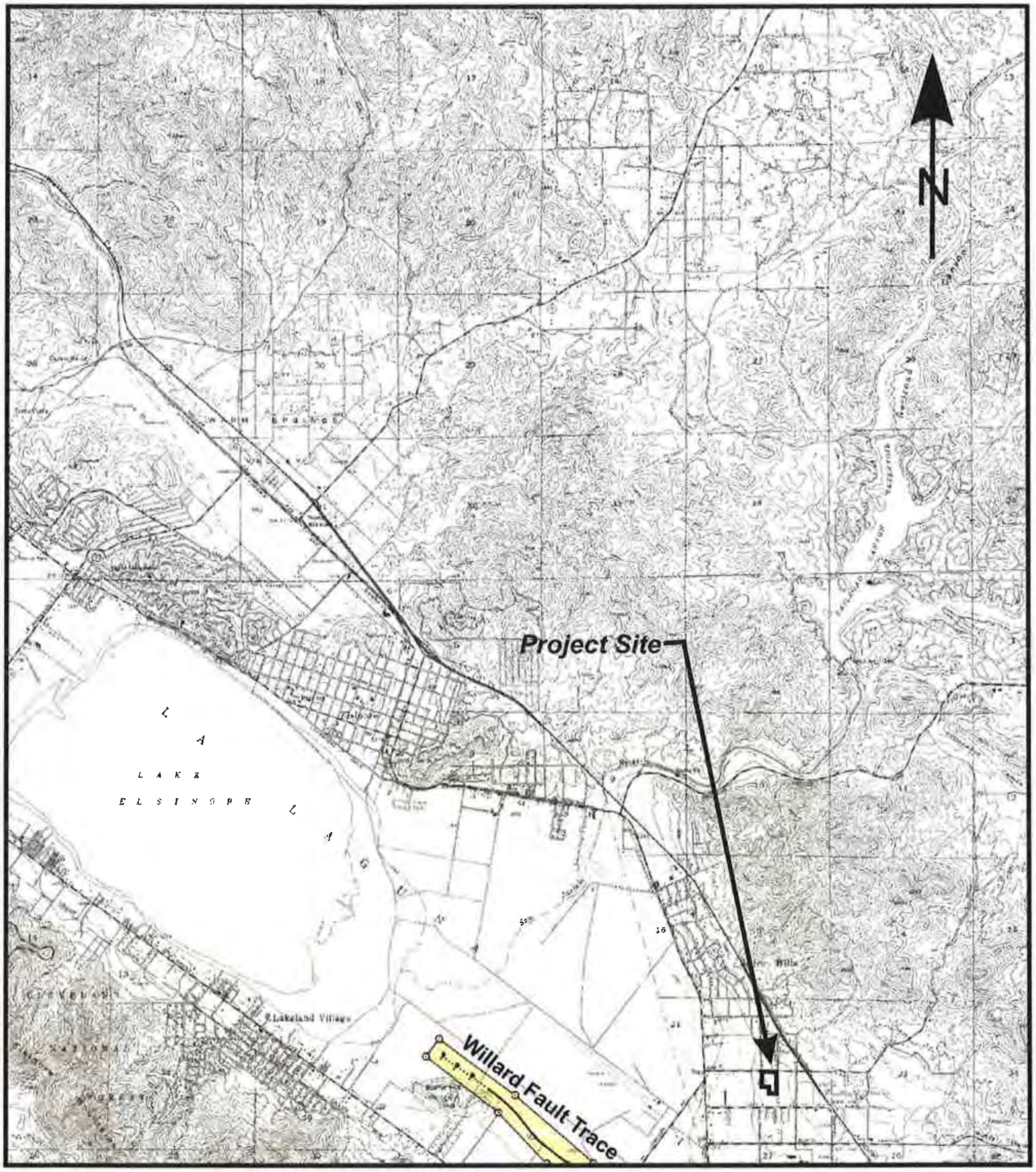
OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - - - - 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
$^{24}76^{000m}$N	1000-meter Universal Transverse Mercator grid values, zone 11N
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile



Lake Elsinore Quadrangle
California - Riverside Co.
7.5 Minute Series

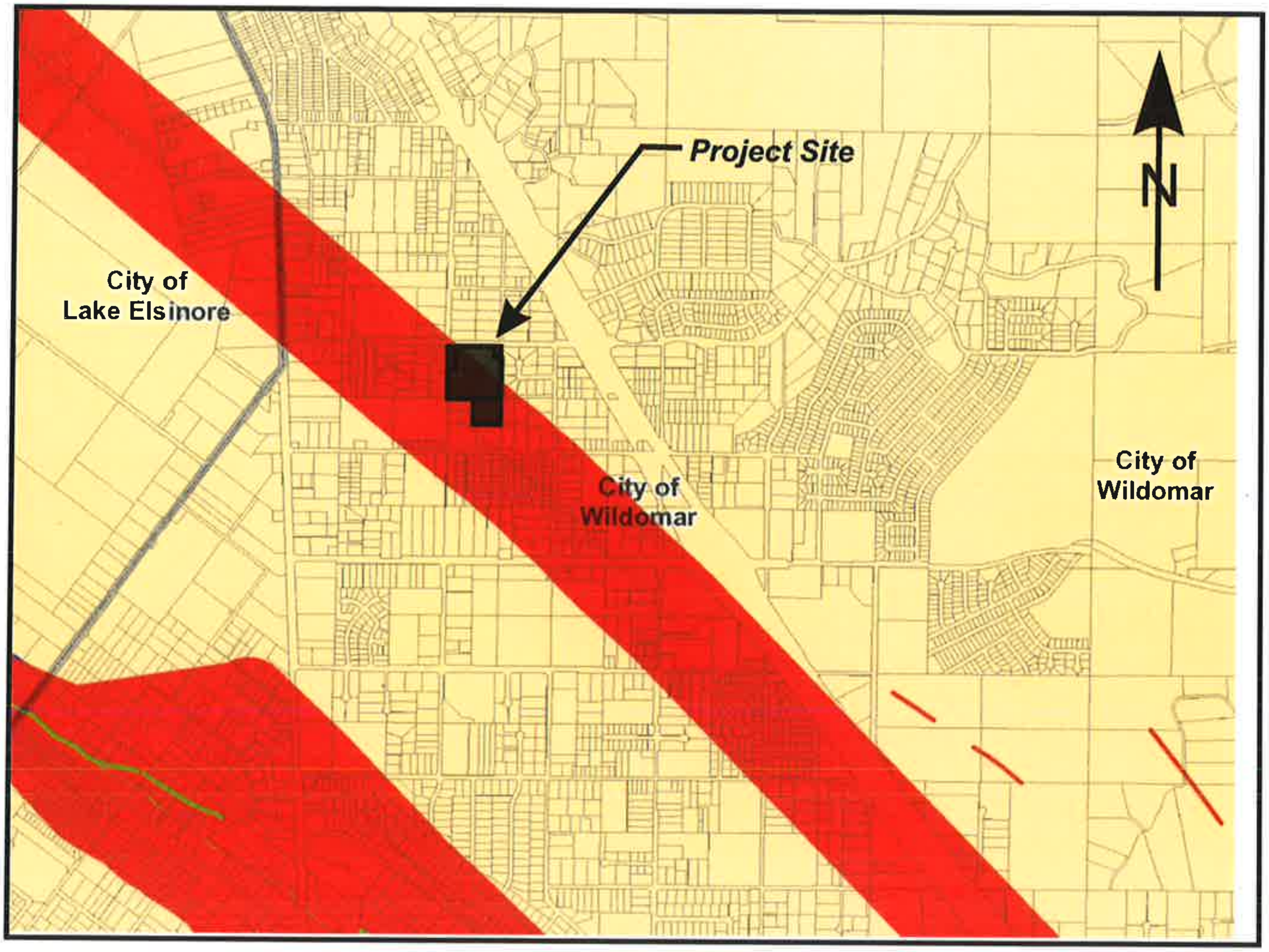
0 ½ 1
Scale in Miles

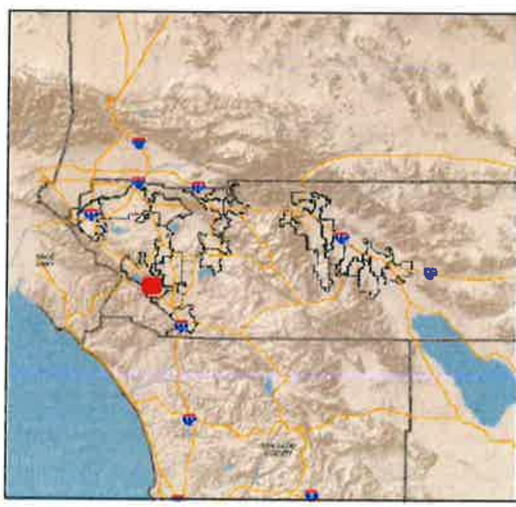
Site Coordinates
Lat: 33.6333 N
Long:117.2828 W

LANDMARK
Geo-Engineers and Geologists
Project No.: LP16027

State of California
The Resources Agency
Department of Conservation
A-P Earthquake Fault Zone Map

Plate
A-6





Legend

City Boundaries

Cities

Faults

<all other values>

ALQUIST-PRIOLO

RIVERSIDE COUNTY

Fault Zones

<all other values>

COUNTY FAULT ZONE

ELSINORE FAULT ZONE

LANDMARK Geo-Engineers and Geologists **Project No.: LP16027**	Riverside County Information Technology (RCIT) Geographic Information Services **Fault Map**	**Plate A-7**

APPENDIX B

CLIENT: Diosis of San Bernardino
METHOD OF DRILLING: CME 75 w/autohammer
PROJECT: St. Frances of Rome Catholic Church
DATE OBSERVED: 3/15/2016
LOCATION: 21591 Lemon Street, Wildomar, CA
LOGGED BY: G. Chandra

LOG OF BORING: B-1

DEPTH (FT)	CLASSIFICATION	SAMPLE TYPE	BLOW COUNT	POCKET PEN. (TSF)	DESCRIPTION OF MATERIAL	MOISTURE CONTENT	DRY UNIT WT. (PCF)	UNCONFINED COMPRESSION (TSF)	LIQUID LIMIT	PLASTICITY INDEX	PASSING #200
					SILTYSAND (SM): Brown, with traces of gravel moist and dense with depth						40
5			23			3.5	118.9				
10			55			8.5	131.3				
15			47		SILTY SAND (SM): Dark brown. moist and medium dense	10.3	134.5				
											40
20			24			9.2					
25			20		SILTY SAND (SM): Brown. moist and medium dense	11.0					34
30			22			8.1					24
35											
40											

SURFACE ELEVATION: 1334 ft TOTAL DEPTH: 31.5 ft DEPTH TO WATER: N/A

PROJECT NO.: LP16027

LANDMARK
Geo-Engineers and Geologists

PLATE B-1

CLIENT: Diocese of San Bernardino
PROJECT: St. Francis of Rome Catholic Church
LOCATION: 21591 Lemon Street, Wildomar, CA

METHOD OF DRILLING: CME 75 w/autohammer
DATE OBSERVED: 3/15/2016
LOGGED BY: G. Chandra

LOG OF BORING: B-2

DEPTH (FT)	FIELD: CLASSIFICATION	FIELD: SAMPLE TYPE	FIELD: BLOW COUNT	FIELD: POCKET PEN. (TSF) PP	DESCRIPTION OF MATERIAL	LABORATORY: MOISTURE CONTENT	LABORATORY: DRY UNIT WT. (PCF)	LABORATORY: UNCONFINED COMPRESSION (TSF)	LABORATORY: LIQUID LIMIT	LABORATORY: PLASTICITY INDEX	LABORATORY: PASSING #200
5			15		SILTY SAND (SM): Brown, with traces of gravel.	7.3	123.5				30
10			21			4.9	113.0				
15			29			3.0	110.9				
20			21		SILTY SAND (SM): Brown.	9.3					24
25			25		SILTY SAND (SM): Dark brown.	10.2					31
30			25			8.1					21
35			22								41
40			34								27

SURFACE ELEVATION: 1331 ft
TOTAL DEPTH: 51.5 ft
DEPTH TO WATER: N/A

PROJECT NO.: LP16027

LANDMARK
Geo-Engineers and Geologists

PLATE B-2

CLIENT: Diosis of San Bernardino
PROJECT: St. Frances of Rome Catholic Church
LOCATION: 21591 Lemon Street, Wildomar, CA

METHOD OF DRILLING: CME 75 w/autohammer
DATE OBSERVED: 3/15/2016
LOGGED BY: G. Chandra

LOG OF BORING: B-2

DEPTH (FT)	FIELD: CLASSIFICATION	FIELD: SAMPLE TYPE	FIELD: BLOW COUNT	FIELD: POCKET PEN. (TSF)	DESCRIPTION OF MATERIAL	LABORATORY: MOISTURE CONTENT	LABORATORY: DRY UNIT WT. (PCF)	LABORATORY: UNCONFINED COMPRESSION (TSF)	LABORATORY: LIQUID LIMIT	LABORATORY: PLASTICITY INDEX	LABORATORY: PASSING #200
					SILTY SAND (SM): Brown.						
45			47		dense with depth						15
50			41								13
55											
60											
65											
70											
75											
80											

SURFACE ELEVATION: 1331 ft TOTAL DEPTH: 51.5 ft DEPTH TO WATER: N/A

PROJECT NO.: LP16027

LANDMARK
Geo-Engineers and Geologists

PLATE B-3

CLIENT: Diosis of San Bernardino
METHOD OF DRILLING: CME 75 w/autohammer
PROJECT: St. Frances of Rome Catholic Church
DATE OBSERVED: 3/15/2016
LOCATION: 21591 Lemon Street, Wildomar, CA
LOGGED BY: G. Chandra

LOG OF BORING: B-3

DEPTH (FT)	FIELD: CLASSIFICATION	FIELD: SAMPLE TYPE	FIELD: BLOW COUNT	FIELD: POCKET PEN. (TSF)	DESCRIPTION OF MATERIAL	LABORATORY: MOISTURE CONTENT	LABORATORY: DRY UNIT WT. (PCF)	LABORATORY: UNCONFINED COMPRESSION (TSF)	LABORATORY: LIQUID LIMIT	LABORATORY: PLASTICITY INDEX	LABORATORY: PASSING #200
					SILTY SAND (SM): Brown, with traces of gravel.						
5			23		moist and medium dense	5.5	123.0				32
10			15			5.2	119.5				
15			49		SILTY SAND (SM): Brown. moist and dense	7.0	135.5				20
20			23		SILTY SAND (SM): Dark brown. moist and medium dense	11.0					
25			22			9.0					23
30			21			11.1					
35											
40											

SURFACE ELEVATION: 1307 ft TOTAL DEPTH: 31.5 ft DEPTH TO WATER: N/A

PROJECT NO.: LP16027

LANDMARK
Geo-Engineers and Geologists

PLATE B-4

CLIENT: Diosis of San Bernardino	**METHOD OF DRILLING:** CME 75 w/autohammer
PROJECT: St. Francis of Rome Catholic Church	**DATE OBSERVED:** 3/15/2016
LOCATION: 21591 Lemon Street, Wildomar, CA	**LOGGED BY:** G. Chandra

LOG OF BORING: B-4

DEPTH (FT)	FIELD: CLASSIFICATION	FIELD: SAMPLE TYPE	FIELD: BLOW COUNT	FIELD: POCKET PEN. (TSF) PP	DESCRIPTION OF MATERIAL	LABORATORY: MOISTURE CONTENT	LABORATORY: DRY UNIT WT. (PCF)	LABORATORY: UNCONFINED COMPRESSION (TSF)	LABORATORY: LIQUID LIMIT	LABORATORY: PLASTICITY INDEX	LABORATORY: PASSING #200
					SILTY SAND (SM): Brown, with traces of gravel.						
5			6		moist and loose	10.1					39
10			10			10.1					
15											
20											
25											
30											
35											
40											

SURFACE ELEVATION: 1329 ft TOTAL DEPTH: 11.5 ft DEPTH TO WATER: N/A

PROJECT NO.: **LP16027**

LANDMARK Geo-Engineers and Geologists

PLATE B-5

CLIENT: Diosis of San Bernardino		**METHOD OF DRILLING:** CME 75 w/autohammer	
PROJECT: St. Frances of Rome Catholic Church		**DATE OBSERVED:** 3/15/2016	
LOCATION: 21591 Lemon Street, Wildomar, CA		**LOGGED BY:** G. Chandra	

LOG OF BORING: B-5

DEPTH (FT)	FIELD: CLASSIFICATION	FIELD: SAMPLE TYPE	FIELD: BLOW COUNT	FIELD: POCKET PEN. (TSF) PI	DESCRIPTION OF MATERIAL	LABORATORY: MOISTURE CONTENT	LABORATORY: DRY UNIT WT. (PCF)	LABORATORY: UNCONFINED COMPRESSION (TSF)	LABORATORY: LIQUID LIMIT	LABORATORY: PLASTICITY INDEX	LABORATORY: PASSING #200
0					SILTY SAND (SM): Brown, with traces of gravel						
5			14		moist and medium dense	9.8					
10			15			11.4					32
15											
20											
25											
30											
35											
40											

SURFACE ELEVATION: 1328 ft TOTAL DEPTH: 11.5 ft DEPTH TO WATER: N/A

PROJECT NO.: LP16027

LANDMARK
Geo-Engineers and Geologists

PLATE B-6

DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS		SECONDARY DIVISIONS
Coarse grained soils More than half of material is larger that No. 200 sieve	**Gravels** More than half of coarse fraction is larger than No. 4 sieve	Clean gravels (less than 5% fines)		GW	Well graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly graded gravels, or gravel-sand mixtures, little or no fines
		Gravel with fines		GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
				GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	Sands More than half of coarse fraction is smaller than No. 4 sieve	Clean sands (less than 5% fines)		SW	Well graded sands, gravelly sands, little or no fines
				SP	Poorly graded sands or gravelly sands, little or no fines
		Sands with fines		SM	Silty sands, sand-silt mixtures, non-plastic fines
				SC	Clayey sands, sand-clay mixtures, plastic fines
Fine grained soils More than half of material is smaller than No. 200 sieve	**Silts and clays** Liquid limit is less than 50%			ML	Inorganic silts, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticily, gravely, sandy, or lean clays
				OL	Organic silts and organic clays of low plasticity
	Silts and clays Liquid limit is more than 50%			MH	Inorganic silts, micaceous or diatomaceous silty soils, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
Highly organic soils				PT	Peat and other highly organic soils

GRAIN SIZES

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

200 40 10 4 3/4" 3" 12"

US Standard Series Sieve — Clear Square Openings

Sands, Gravels, etc.	Blows/ft. *
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Clays & Plastic Silts	Strength **	Blows/ft. *
Very Soft	0-0.25	0-2
Soft	0.25-0.5	2-4
Firm	0.5-1.0	4-8
Stiff	1.0-2.0	8-16
Very Stiff	2.0-4.0	16-32
Hard	Over 4.0	Over 32

* Number of blows of 140 lb. hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 in. I.D.) split spoon (ASTM D1586).

** Unconfined compressive strength in tons/s.f. as determined by laboratory testing or approximated by the Standard Penetration Test (ASTM D1586), Pocket Penetrometer, Torvane, or visual observation.

Type of Samples:

Ring Sample — Standard Penetration Test — Shelby Tube — Bulk (Bag) Sample

Drilling Notes:

1. Sampling and Blow Counts
   Ring Sampler - Number of blows per foot of a 140 lb. hammer falling 30 inches.
   Standard Penetration Test - Number of blows per foot.
   Shelby Tube - Three (3) inch nominal diameter tube hydraulically pushed.
2. P. P. = Pocket Penetrometer (tons/s.f.).
3. NR = No recovery.
4. GWT = Ground Water Table observed @ specified time.

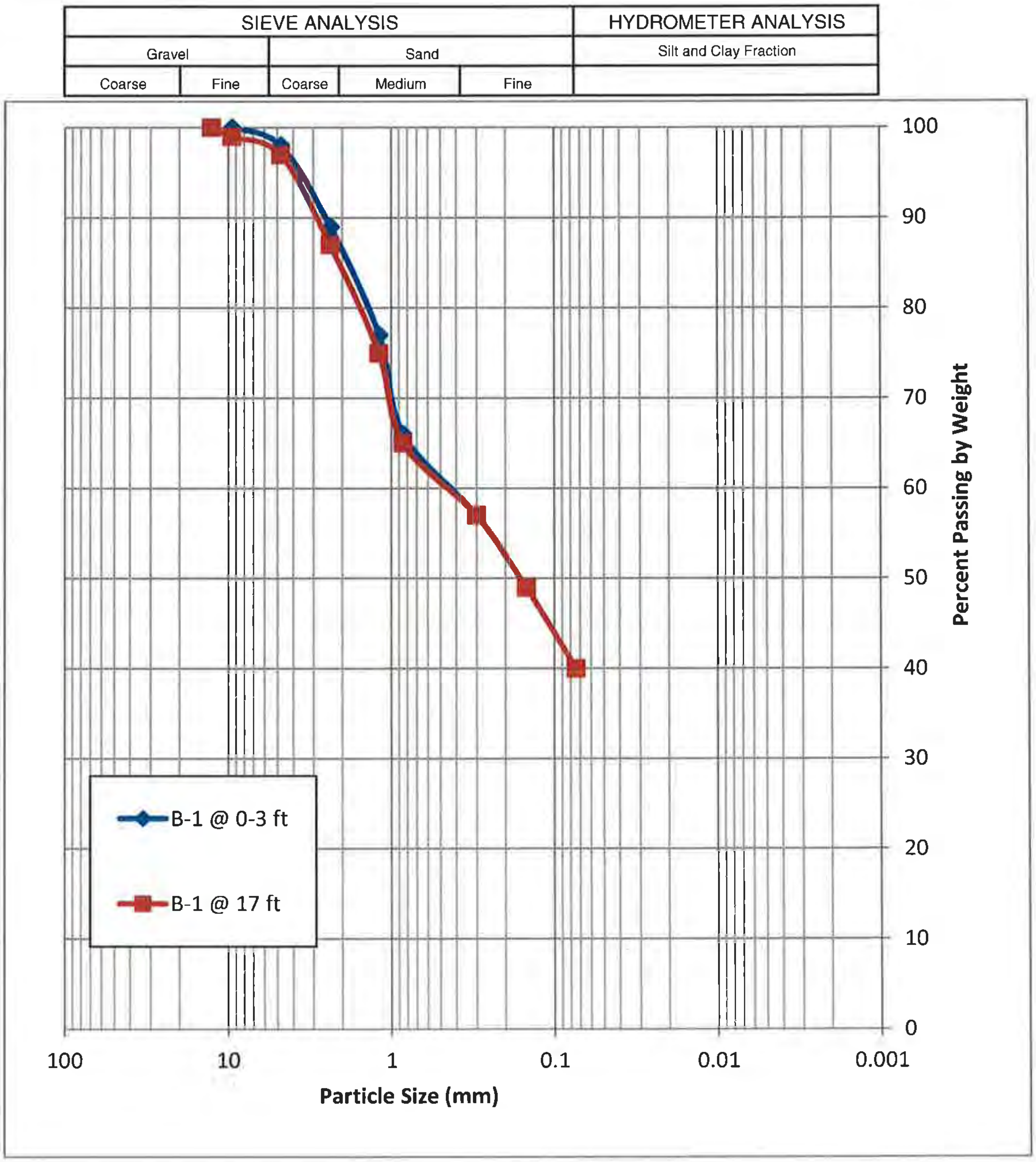
LANDMARK Geo-Engineers and Geologists

Project No.: LP16027

Key to Logs

Plate B-7

APPENDIX C



LANDMARK
Geo-Engineers and Geologists

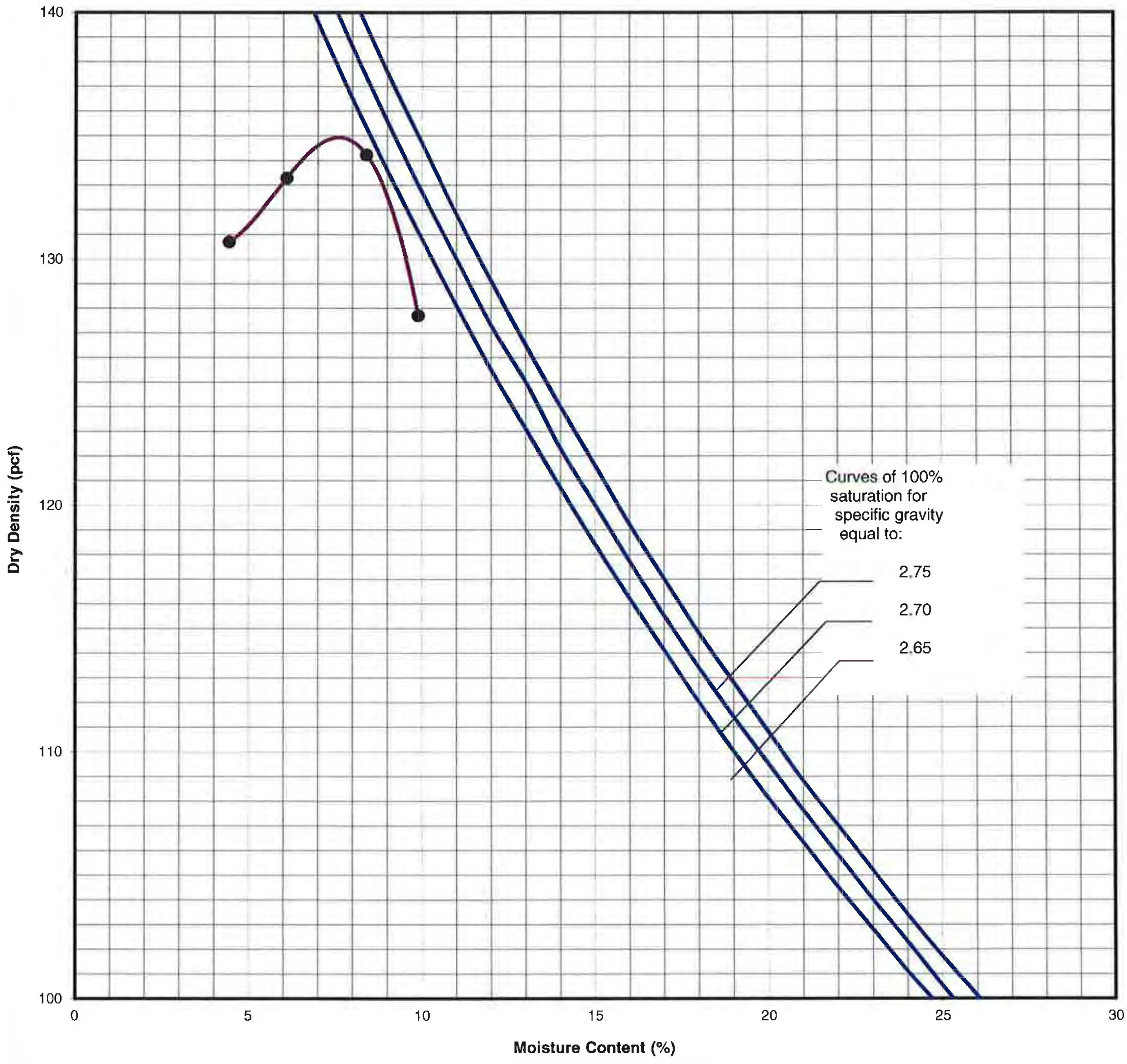
Project No.: LP16027

Grain Size Analysis

Plate C-1

Client: Diocese of San Bernadino
Project: St. Francis of Rome Catholic Church
Project No.: LP16027
Date: 3/23/2016
Lab. No.: N/A

Soil Description: Brown Silty Sand (SM)
Sample Location: B1 @ 0-3'
Test Method: ASTM D-1557 A
Maximum Dry Density (pcf): 135.0
Optimum Moisture Content (%): 7.5



LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Moisture Density Relationship

Plate C-2

LANDMARK CONSULTANTS, INC.

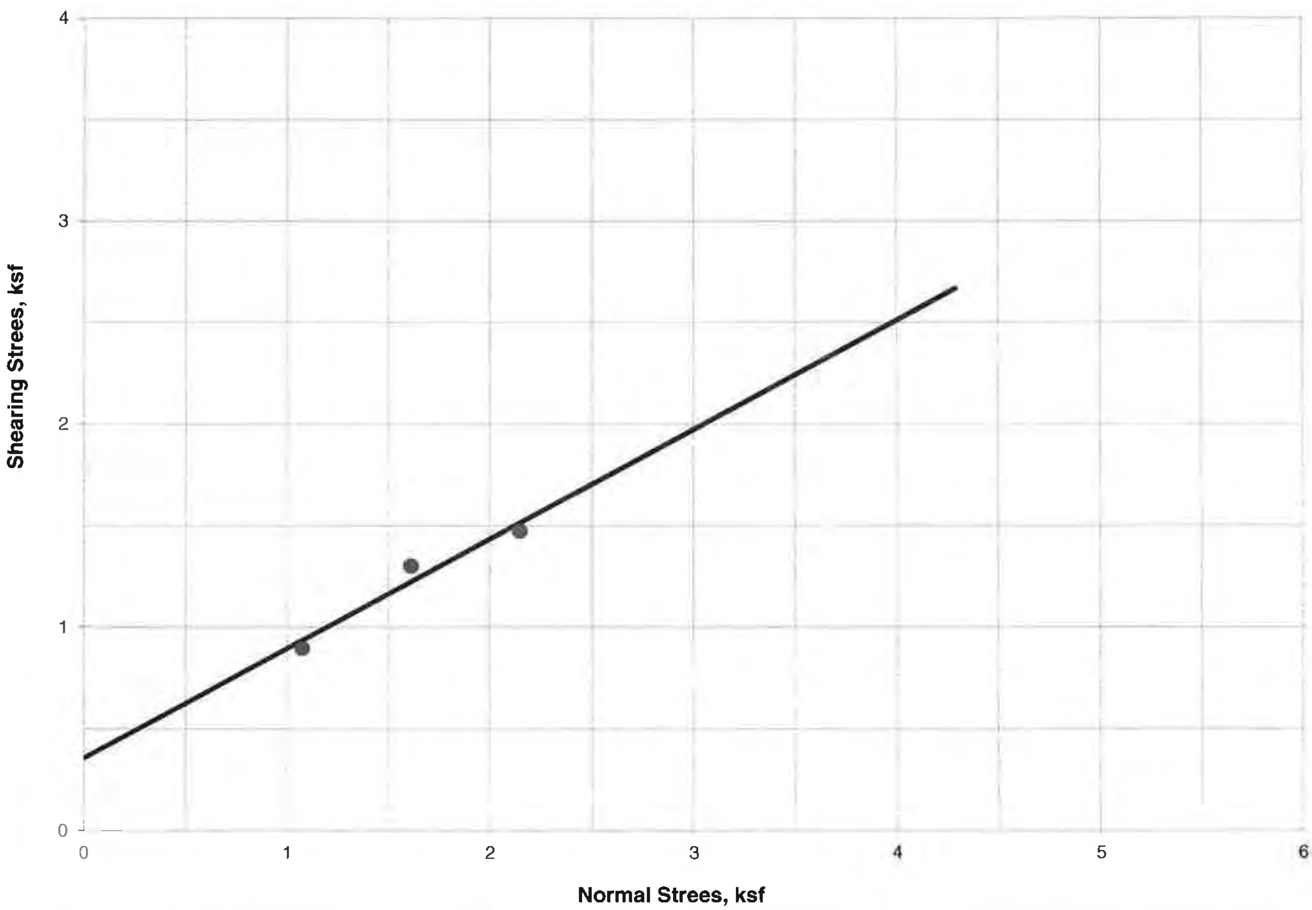
CLIENT: Diocese of San Bernardino
PROJECT: St. Frances of Rome Catholic Church
PROJECT No: LP16027 **DATE:** 3/28/2016

DIRECT SHEAR TEST - REMOLDED (ASTM D3080)

SAMPLE LOCATION: B-1 @ 0 to 3 ft
SAMPLE DESCRIPTION: Brown Silty Sand (SM)

Angle of Internal Friction:	**28°**	**Initial Dry Density:**	**121.2 pcf**
Cohesion:	**0.36 ksf**	**Initial Moisture Content:**	**7.6%**

DIRECT SHEAR TEST RESULTS



LANDMARK
Geo-Engineers and Geologists
PROJECT No: LP16027

Direct Shear Test Results

Plate
C-3

LANDMARK CONSULTANTS, INC.

CLIENT: Diocese Of San Bernardino
PROJECT: St. Frances of Rome Catholic Church
JOB No.: LP16027
DATE: 04/16/16

CHEMICAL ANALYSIS

Boring:	B-1	**Caltrans**
Sample Depth, ft:	0-3	**Method**
pH:	7.25	643
Electrical Conductivity (mmhos):	---	424
Resistivity (ohm-cm):	1500	643
Chloride (Cl), ppm:	130	422
Sulfate (SO4), ppm:	126	417

General Guidelines for Soil Corrosivity

Material Affected	Chemical Agent	Amount in Soil (ppm)	Degree of Corrosivity
Concrete	Soluble Sulfates	0 - 1,000	Low
		1,000 - 2,000	Moderate
		2,000 - 20,000	Severe
		> 20,000	Very Severe
Normal Grade Steel	Soluble Chlorides	0 - 200	Low
		200 - 700	Moderate
		700 - 1,500	Severe
		> 1,500	Very Severe
Normal Grade Steel	Resistivity	1 - 1,000	Very Severe
		1,000 - 2,000	Severe
		2,000 - 10,000	Moderate
		> 10,000	Low

LANDMARK
Geo-Engineers and Geologists
Project No.: LP16027

Selected Chemical Test Results

Plate C-4

APPENDIX D

Seismic Settlement Calculation

Project Name: St Frances of Rome
Project No.: LP16027
Location: B-1

Maximum Credible Earthquake	6.8	
Design Ground Motion	0.94	g
Total Unit Weight,	120	pcf
Water Unit Weight,	62.4	pcf
Depth to Groundwater	60	ft
Hammer Effenciency	90	
Rod Length	3	

Nc
9.3

Mod. Cal	SPT	DEPTH (ft.)	THICKNESS (ft.)	Susceptible	O-PRESS	N1(60)	Fine Content	$N_{1(60)CS}$	p	Gmax	Shear Strain Gam-eff	E15	Enc	Settlement (in.)	TOTAL (in.)
23		5	5	0	0.30	27.7	40	38	0.201	675					
55		10	5	0	0.60	52.3	40	68	0.402	1155					
47		15	5	1	0.90	41.6	40	55	0.603	1320	2.07E-03	6.15E-04	4.97E-04	0.06	
	24	20	5	1	1.20	34.7	40	47	0.804	1443	2.69E-03	9.73E-04	7.86E-04	0.09	
	20	25	5	1	1.50	27.3	34	37	1.005	1498	3.69E-03	1.75E-03	1.41E-03	0.17	
	22	30	5	1	1.80	27.8	24	35	1.206	1606	3.93E-03	2.01E-03	1.62E-03	0.19	
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
															0.52

REFERENCES

(1) Tokimatsu and Seed, 1984. Simplified Procedures for the Evaluation of Settlements in Clean Sands.
(2) Seed and Idriss, 1982. Ground Motion and Soil Liquefaction During Earthquakes, EERI Monograph.
(3) Youd, Leslie, 1997. Proceeding of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils
(4) Pradel, Daniel, 1998. JGEE, Vol. 124, No. 4, ASCE
(5) Seed, et.al., 2003, Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework. University of California, Earthquake Engineering Research Center Report 2003-06, 71 p.

Seismic Settlement Calculation

Project Name: St Frances of Rome
Project No.: LP16027
Location: B-2

Maximum Credible Earthquake	6.8
Design Ground Motion	0.94 g
Total Unit Weight,	120 pcf
Water Unit Weight,	62.4 pcf
Depth to Groundwater	60 ft
Hammer Effenciency	90
Rod Length	3

Nc
9.3

Mod. Cal	SPT	DEPTH (ft.)	THICKNESS (ft.)	Susceptible	O-PRESS	N1(60)	Fine Content	$N_{1(60)CS}$	p	Gmax	Shear Strain Gam-eff	E15	Enc	Settlement (in.)	TOTAL (in.)
15		5	5	0	0.30	18.1	30	26	0.201	590					
21		10	5	0	0.60	20.0	30	28	0.402	858					
29		15	5	1	0.90	25.7	30	34	0.603	1128	4.04E-03	2.11E-03	1.71E-03	0.20	
	21	20	5	1	1.20	30.4	24	38	0.804	1345	3.60E-03	1.67E-03	1.35E-03	0.16	
	25	25	5	1	1.50	34.1	31	44	1.005	1587	2.92E-03	1.12E-03	9.07E-04	0.11	
	25	30	5	1	1.80	31.6	21	38	1.206	1652	3.50E-03	1.61E-03	1.30E-03	0.16	
	22	35	5	1	2.10	25.8	41	36	1.407	1749	3.54E-03	1.75E-03	1.42E-03	0.17	
	34	40	5	1	2.40	37.2	27	47	1.608	2039	2.34E-03	8.50E-04	6.87E-04	0.08	
	47	45	5	1	2.70	48.5	15	53	1.809	2264	1.81E-03	5.57E-04	4.50E-04	0.05	
	41	50	5	1	3.00	40.2	13	44	2.010	2230	1.92E-03	7.56E-04	6.11E-04	0.07	
															1.01

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Seismic Settlement Calculation

Project Name: St Frances of Rome
Project No.: LP16027
Location: B-3

Maximum Credible Earthquake	6.8	
Design Ground Motion	0.94 g	
Total Unit Weight,	120 pcf	Nc
Water Unit Weight,	62.4 pcf	9.3
Depth to Groundwater	60 ft	
Hammer Effenciency	90	
Rod Length	3	

Mod. Cal	SPT	DEPTH (ft.)	THICKNESS (ft.)	Susceptible	O-PRESS	N1(60)	Fine Content	$N_{1(60)CS}$	p	Gmax	Shear Strain Gam-eff	E15	Enc	Settlement (in.)	TOTAL (in.)
23		5	5	0	0.30	27.7	32	37	0.201	669					
15		10	5	0	0.60	14.3	32	22	0.402	788					
49		15	5	1	0.90	43.4	20	50	0.603	1283	2.32E-03	7.63E-04	6.16E-04	0.07	
	23	20	5	1	1.20	33.3	23	41	0.804	1378	3.25E-03	1.38E-03	1.12E-03	0.13	
	22	25	5	1	1.50	30.0	23	37	1.005	1494	3.73E-03	1.78E-03	1.44E-03	0.17	
	21	30	5	1	1.80	26.6	23	33	1.206	1579	4.21E-03	2.28E-03	1.85E-03	0.22	
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
					0.00	#DIV/0!		#DIV/0!	0.000	#DIV/0!					
															0.60

REFERENCES

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(3) Youd, Leslie, 1997. Proceeding of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils

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APPENDIX E

LANDMARK CONSULTANTS, INC

Project:	St Francis of Rome		Project No:	LP16027		Date:	3/18/16
Test Hole No:		I-1	Tested By:	Alex A			
Depth of Test Hole, D_T:		5'	USCS Soil Classification:				
Test Hole Dimensions (inches)					Length	Width	
Diameter (if round)=		6"	Sides (if rectangular)=				

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	8:50	9:15	25.00	29.00	55.00	26.00	y
2	9:15	9:40	25.00	30.00	50.00	20.00	y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	9:42	9:52	10.00	18.00	27.00	9.00	1.11
2	9:52	10:02	10.00	27.00	35.00	8.00	1.25
3	10:02	10:12	10.00	35.00	43.00	8.00	1.25
4	10:12	10:22	10.00	19.00	27.00	8.00	1.25
5	10:22	10:32	10.00	27.00	35.00	8.00	1.25
6	10:32	10:42	10.00	20.00	27.00	7.00	1.43
7							
8							
9							
10							
11							
12							

COMMENTS:

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Percolation Test Results

Plate
E-1

PERCOLATION RATE CONVERSION

CLIENT: **Diocese of San Bernardino**
PROJECT: **St Frances of Rome**
PROJECT NO.: **LP16027**
DATE: **3/18/2016**

TEST HOLE NO: I-1

Time interval, **Δt** = 10 minutes

Initial Depth to Water, D_0 = 20 inches

Final Depth to Water, D_f = 27 inches

Total Depth of Test Hole, D_T = 60 inches

[2]Test Hole Radius, **r** = 3 inches

The conversion equation is used:

$$I_t = \frac{\Delta H \, 60 \, r}{\Delta t(r+2H_{avg}}$$

"H_o" is the initial height of water at the selected time interval

$H_o = D_T - D_0$ = 60 - 20 = 40 inches

"H_f" is the final height of water at the selected time interval

$H_f = D_T - D_f$ = 60 - 27 = 33 inches

"ΔH" is the change in height over the time interval

$\Delta H = \Delta D = H_o - H_f$ = 40 - 33= 7 inches

"H_{avg}" is the average head height over the time interval

$H_{avg} = (H_o + H_f)/2$ = (40 + 33)/2 = 36.5 inches

"I_t" is the tested infiltration rate

$$I_t = \frac{\Delta H \, 60 \, r}{\Delta t\,(r+2H_{avg})} = \frac{(7 \text{ in})(60\text{min/hr})>3\text{in})}{(10 \text{ min})((3 \text{ in}) + 2\,(36.5 \text{ in}))} = 1.66 \text{ in/hr}$$

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Percolation Rate Conversion

Plate E-1A

LANDMARK CONSULTANTS, INC

Project:	St Francis of Rome		Project No:	LP16027		Date:	3/18/16
Test Hole No:		I-2	Tested By:	Alex A			
Depth of Test Hole, D_T:		5'	USCS Soil Classification:				
Test Hole Dimensions (inches)				Length	Width		
Diameter (if round)=		6"	Sides (if rectangular)=				
Sandy Soil Criteria Test*							

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	8:51	9:16	25.00	20.00	45.00	25.00	y
2	9:16	9:41	25.00	20.00	44.00	24.00	y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	9:43	9:53	10.00	18.00	25.00	7.00	1.43
2	9:53	10:03	10.00	25.00	33.00	8.00	1.25
3	10:03	10:13	10.00	16.00	23.00	7.00	1.43
4	10:13	10:23	10.00	19.00	25.00	6.00	1.67
5	10:23	10:33	10.00	25.00	32.00	7.00	1.43
6	10:33	10:43	10.00	32.00	38.00	6.00	1.67
7							
8							
9							
10							
11							
12							

COMMENTS:

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Percolation Test Results

Plate
E-2

PERCOLATION RATE CONVERSION

CLIENT: **Diocese of San Bernardino**
PROJECT: **St Frances of Rome**
PROJECT NO.: **LP16027**
DATE: **3/18/2016**

TEST HOLE NO: I-2

Time interval, **Δt** = 10 minutes

Initial Depth to Water, D_0 = 32 inches

Final Depth to Water, D_f = 38 inches

Total Depth of Test Hole, D_T = 60 inches

[2]Test Hole Radius, **r** = 3 inches

The conversion equation is used:

$$I_t = \frac{\Delta H \, 60 \, r}{\Delta t(r+2H_{avg}}$$

"H_o" is the initial height of water at the selected time interval

$H_o = D_T - D_0$ $= 60 - 32 = 28$ inches

"H_f" is the final height of water at the selected time interval

$H_f = D_T - D_f$ $= 60 - 38 = 22$ inches

"ΔH" is the change in height over the time interval

$\Delta H = \Delta D = H_o - H_f$ $= 28 - 22 = 6$ inches

"H_{avg}" is the average head height over the time interval

$H_{avg} = (H_o + H_f)/2$ $= (28 + 22)/2 =$ 25 inches

"I_t" is the tested infiltration rate

$$I_t = \frac{\Delta H \, 60 \, r}{\Delta t \left(r+2H_{avg}\right)} = \frac{\text{(6 in)(60min/hr)>3in)}}{\text{(10 min)((3 in) + 2 (25 in))}} = 1.98 \text{ in/hr}$$

LANDMARK Geo-Engineers and Geologists **Project No.: LP16027**	**Percolation Rate Conversion**	**Plate E-2A**

LANDMARK CONSULTANTS, INC

Project:	St Francis of Rome		**Project No:**	LP16027		**Date:**	3/18/16
Test Hole No:		I-3	**Tested By:**	Alex A			
Depth of Test Hole, D_T:		5'	**USCS Soil Classification:**				
Test Hole Dimensions (inches)					**Length**	**Width**	
Diameter (if round)=		6"	**Sides (if rectangular)=**				

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	10:51	11:16	25.00	25.00	40.00	15.00	y
2	11:16	11:41	25.00	22.00	34.00	12.00	y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	11:43	11:53	10.00	7.00	13.00	6.00	1.67
2	11:53	12:03	10.00	13.00	18.00	6.00	1.67
3	12:03	12:13	10.00	18.00	23.00	5.00	2.00
4	12:13	12:23	10.00	19.00	25.00	6.00	1.67
5	12:23	12:33	10.00	25.00	31.00	6.00	1.67
6	12:33	12:43	10.00	31.00	36.00	5.00	2.00
7							
8							
9							
10							
11							
12							

COMMENTS:

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Percolation Test Results

Plate
E-3

PERCOLATION RATE CONVERSION

CLIENT: Diocese of San Bernardino
PROJECT: St Frances of Rome
PROJECT NO.: LP16027
DATE: 3/18/2016

TEST HOLE NO: I-3

Time interval, Δt = 10 minutes

Initial Depth to Water, D_0 = 31 inches

Final Depth to Water, D_f = 36 inches

Total Depth of Test Hole, D_T = 60 inches

[2]Test Hole Radius, **r** = 3 inches

The conversion equation is used:

$$I_t = \frac{\Delta H\ 60\ r}{\Delta t(r+2H_{avg}}$$

"H_o" is the initial height of water at the selected time interval

$$H_o = D_T - D_0 \qquad = 60 - 31 = 29 \text{ inches}$$

"H_f" is the final height of water at the selected time interval

$$H_f = D_T - D_f \qquad = 60 - 36 = 24 \text{ inches}$$

"ΔH" is the change in height over the time interval

$$\Delta H = \Delta D = H_o - H_f \qquad = 29 - 24 = 5 \text{ inches}$$

"H_{avg}" is the average head height over the time interval

$$H_{avg} = (H_o + H_f)/2 \qquad = (29 + 24)/2 = 26.5 \text{ inches}$$

"I_t" is the tested infiltration rate

$$I_t = \frac{\Delta H\ 60\ r}{\Delta t\left(r+2H_{avg}\right)} = \frac{(5\text{ in})(60\text{min/hr})>3\text{in})}{(10\text{ min})((3\text{ in}) + 2\ (26.5\text{ in}))} = 1.61 \text{ in/hr}$$

LANDMARK Geo-Engineers and Geologists

Project No.: LP16027

Percolation Rate Conversion

Plate E-3A

LANDMARK CONSULTANTS, INC

Project:	St Francis of Rome		Project No:	LP16027		Date:	3/18/16
Test Hole No:		I-4	Tested By:	Alex A			
Depth of Test Hole, D_T:		5'	USCS Soil Classification:				
Test Hole Dimensions (inches)					Length	Width	
Diameter (if round)=		6"	Sides (if rectangular)=				

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	10:54	11:19	25.00	28.00	38.00	10.00	y
2	11:19	11:44	25.00	25.00	37.00	12.00	y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_0 Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	11:45	11:55	10.00	23.00	30.00	7.00	1.43
2	11:55	12:05	10.00	30.00	38.00	8.00	1.25
3	12:05	12:15	10.00	38.00	45.00	7.00	1.43
4	12:15	12:25	10.00	19.00	25.00	6.00	1.67
5	12:25	12:35	10.00	25.00	31.00	6.00	1.67
6	12:35	12:45	10.00	31.00	37.00	6.00	1.67
7							
8							
9							
10							
11							
12							

COMMENTS:

LANDMARK
Geo-Engineers and Geologists

Project No.: LP16027

Percolation Test Results

Plate
E-4

PERCOLATION RATE CONVERSION

CLIENT: Diocese of San Bernardino
PROJECT: St Frances of Rome
PROJECT NO.: LP16027
DATE: 3/18/2016

TEST HOLE NO: I-4

Time interval, Δt = 10 minutes

Initial Depth to Water, D_0 = 31 inches

Final Depth to Water, D_f = 37 inches

Total Depth of Test Hole, D_T = 60 inches

[2]Test Hole Radius, **r** = 3 inches

The conversion equation is used:

$$I_t = \frac{\Delta H\ 60\ r}{\Delta t(r + 2H_{avg}}$$

"H_o" is the initial height of water at the selected time interval

$$H_o = D_T - D_0 \qquad = 60 - 31 = 29 \text{ inches}$$

"H_f" is the final height of water at the selected time interval

$$H_f = D_T - D_f \qquad = 60 - 37 = 23 \text{ inches}$$

"ΔH" is the change in height over the time interval

$$\Delta H = \Delta D = H_o - H_f \qquad = 29 - 23 = 6 \text{ inches}$$

"H_{avg}" is the average head height over the time interval

$$H_{avg} = (H_o + H_f)/2 \qquad = (29 + 23)/2 = 26 \text{ inches}$$

"I_t" is the tested infiltration rate

$$I_t = \frac{\Delta H\ 60\ r}{\Delta t\left(r + 2H_{avg}\right)} = \frac{(6\text{ in})(60\text{min/hr})(3\text{in})}{(10\text{ min})((3\text{ in}) + 2\ (26\text{ in}))} = 1.96\text{ in/hr}$$

LANDMARK
Geo-Engineers and Geologists
Project No.: LP16027

Percolation Rate Conversion

Plate
E-4A

APPENDIX F

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