FINAL
DRAINAGE REPORT

WILDWOOD ACRES

FRUITA, COLORADO

PREPARED FOR:

DOUG AND JO ANN HALL
1145 18 Road
Grand Junction, CO 81501
(970) 858-3203

PREPARED BY:

BANNER ASSOCIATES, INC.
2777 Crossroads Blvd.
Grand Junction, CO 81506
(970) 243-2242

Original: December, 2000

BAI #40010.01-01

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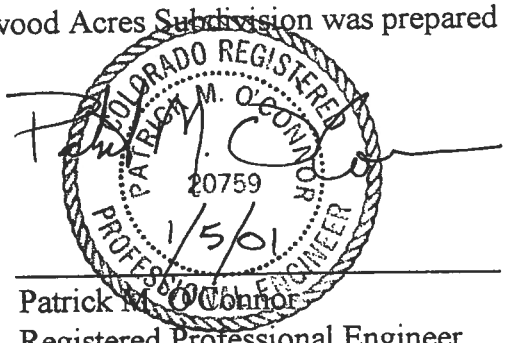
CERTIFICATION

I hereby certify that this Final Drainage Report for Wildwood Acres Subdivision was prepared under my direct supervision.



Patrick M. O'Connor
Registered Professional Engineer
State of Colorado, #20759

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FINAL DRAINAGE REPORT
WILDWOOD ACRES SUBDIVISION

I. LOCATION AND DESCRIPTION OF PROPERTY

PROPERTY LOCATION

Wildwood Acres Subdivision contains approximately 46.36 acres and is located in the City of Fruita, Colorado, between 17 ½ and 18 Roads and south of K 6/10 Road. The project proposes a total of 122 single family lots with Filing 1 consisting of 14 lots (including a lot encompassing the petitioner's home along 18 Road). It is currently the intention to develop the site in 6 Filings of approximately 20 lots each. The site is currently zoned "Community Residential" as is all surrounding property. The cover sheet of the final plans shows the location of the property in relationship to the surrounding vicinity. The project currently consists of two parcels. Tax Parcel numbers for the subject properties are 2697-084-00-095 and 2697-084-00-096.

Existing streets in the vicinity include 18 Road to the east, 17 ½ Road to the west, and K 6/10 Road to the north. A system of urban residential streets is proposed to run through the project providing access and utility corridors in two directions. These streets will create a connection between two designated collectors (17 ½ Road and 18 Road) through existing Wildwood Estates and Hall Minor Subdivisions. A walking trail and pedestrian bridge is anticipated to be constructed by the City (during future filings) below the banks of the Little Salt Wash and for connection to Little Salt Wash Park (a 23 acre community park currently under development by the City of Fruita on the property adjacent to the southeast border of the site). The surrounding land uses in the vicinity include single family dwellings on subdivided tracts and scattered undeveloped residential/rural lands on larger tracts.

DESCRIPTION OF PROPERTY

The site currently contains a residential structure in the southeast corner along 18 Road and is generally being used agriculturally as a small farm containing hay and livestock pasture. A drain ditch (The Denton Drain) borders the property on the north. The Little Salt Wash borders the property on the south. Runoff from the east is diverted by the residential development (Hall Minor Subdivision) currently under construction and by the pavement crown of 18 Road. Topography of the property is relatively "flat" in nature, sloping to the southwest at an average rate of less than one percent. This proposal calls for the ultimate future development of 122 dwelling units with a finished density of 2.65 units per acre.
Based on the "Soil Survey, Grand Junction Area" (by the USDA Soil Conservation Service Series 1940, No. 19), the on-site soils are described as mainly Ravola fine sandy loam(Rc) and Ravola clay loam (Ra) with smaller areas of Billings silty clay loam (Bc) and Fruita very fine sandy loam

(Fp) on 0-2% slopes. These soils are defined mainly within the hydrological soils group "B" having a moderate infiltration rate and relatively low runoff potential.

II. EXISTING DRAINAGE CONDITIONS

MAJOR BASIN

Wildwood Acres is located within the Little Salt Wash Drainage Basin which consists of approximately 60 square miles situated between the other major basins of Adobe Creek and Big Salt Wash. Headwaters for this basin begin in Hunter Canyon on the south face of the Bookcliffs and eventually drain to the Colorado River at approximately 17 ½ Road after passing through the northern and western portions of the current City Limits. A map of this basin is included in the appendix.

No proposed residential lots within Wildwood Acres exist within the 100 year floodplain as delineated by the July 15, 1992 Flood Insurance Rate Maps produced by FEMA (partial copy enclosed in the Appendix). These lots are also outside of the Zone "X" area of the 500 year flood. This was determined by a comparison of the flood contours provided in the FEMA mapping with the ground contours established during topographic mapping of the site during the design phase of this project. After adjustment of vertical datums for both sources, it can be seen that the 100 year flood level is well below the north top-of-bank. This top-of-bank was defined during the data collection for the topo survey and used to establish the southern property boundary for the lots along the wash. The area between this lot-line and the center of the wash is a tract of ground which will be dedicated to the City of Fruita for use as a conservation easement and pathway for pedestrian access along the northern bank.

SITE

Currently, the property is in an agricultural utilization and drains in a sheetflow fashion from east to west at an average slope of approximately 0.8 percent. Runoff and irrigation tailwater from the site is collected by surface ditches existing along the west and south boundaries. These ditches carry on-site runoff to the southwest corner of the site where they then drain directly into the Little Salt Wash.

OFF-SITE IMPACTS TO THE SITE

Because of the elevated roadway surface of 18 Road to the east and the large open drain ditch (Denton Drain) along the north, no offsite impacts are created for the site by areas north or east of these boundaries.

III. PROPOSED DRAINAGE CONDITIONS

CHANGES IN DRAINAGE PATTERNS

No substantial change in the released drainage pattern is proposed for the site. Drainage patterns within the site will be modified to accommodate development and to better control surface flows to designated collection areas. The developed site will consist of three main basins discharging to the south directly into the Little Salt Wash. Un-detained flows will follow the same path as they do now, traveling southwest into the Colorado River. Two of the three developed basins are divided into several sub-basins to determine flows to the proposed storm inlets. These calculated flows are shown in the appendix. The main storm sewer along Hall Street (the westernmost street) is necessary to carry developed flows south to the wash to reduce accumulated flows on the roadway surface and comply with stormwater criteria for maximum allowable half-street flows. This street parallels existing contours and would have been difficult to grade entirely to the south. A series of low points was, therefore, designed along the roadway to provide inlets for the storm sewer and eliminate street accumulation. Overall, the roadway is sloped slightly to the south to provide an emergency release route for surface drainage should the proposed storm sewer fail. The drain pipe is, however, designed to carry the 100 year runoff below the surface of the street.

Detailed design information is only included for storm sewers within filing one for this report. Runoff directions and quantities, however, are calculated and included for all future filings and shown on the stormwater management plan included in the appendix. Discussions with the Grand Junction Drainage District indicate a desire to divert a portion of the existing flows from the Denton Drain (near it's 90 degree turn to the west) southward through the development and into the Little Salt Wash. This could be accomplished by routing a diversion pipeline along the rear or side property lines (in established easements) and roadways of a future filing almost directly south to the wash while utilizing the same pipeline for discharge of the developed runoff for that particular area. Again, the details of this agreement and pipe sizing should be provided in the design process for that particular future filing.

OFFSITE IMPACTS FROM THE SITE

Runoff impacts from this site to downstream properties should not be adverse given the stormwater management concept proposed. Site runoff will be intercepted and prevented from sheet flowing off the site to the west by proposed streets, storm sewers, and elevated building site areas along the western boundary. Direct-discharge is recommended by the Stormwater Management Master Plan for the City of Fruita (June, 1998) for developments discharging to the Little Salt Wash. This project is in accordance with this recommendation which was developed to discharge surface runoff from sites located within the lower portions of the major basin prior to arrival of larger flows developed upstream in the majority of the watershed.

MAINTENANCE

Access to the stormwater management facility will be by existing streets and platted tracts and easements as required. The home owners will provide maintenance responsibility for the surface improvements related to the facility. Operation and maintenance of the underground storm sewers will be the responsibility of the City of Fruita.

IV. DRAINAGE DESIGN CRITERIA AND APPROACH

REGULATIONS

The City of Grand Junction and Mesa County Stormwater Management (SWM) Manual (May 1996) was used as the basis for analysis and facility design criteria. Also utilized was information from the Stormwater Management Master Plan (June, 1998) written for the City of Fruita. Surrounding developments have been approved and constructed within the guidelines of the SWM manual, as will this development, to assure minimal impacts to the downstream properties. Haestad Methods software ("Pondpack" and "Flowmaster") was used to perform the calculations. Copies of all calculations discussed below are included in the appendix of this final report.

HYDROLOGICAL CRITERIA

Because the project is a residential development consisting of several basins ranging in size from less than one acre to approximately five acres, the "Rational Method" was used to calculate the historic and developed flow rates. As required by the "Stormwater Management (SWM) Manual", the minor storm event is considered to be the 2 year frequency storm and the major storm event is considered to be the 100 year frequency event. Historic runoff was determined for the existing 40 acre site (excluding direct runoff from the north bank of the wash comprising approximately 6 acres) and compared with developed peak flows which were calculated for each individual storm inlet basin and collectively for the 3 main developed basins.

Runoff Coefficients and intensity-duration-frequency data used in the computations were based on the most recent SWM Manual criteria defined above. Coefficients were assigned based on land use and existing hydrological soils groups.

HYDRAULIC CRITERIA

All site facilities and conveyance elements (including streets and inlets) were designed in accordance with the City of Grand Junction SWM Manual and the City of Fruita Design Standards and Construction Specifications. Peak flows were analyzed for both sides of the street and corresponding inlets to insure adequate capacity at all design points.

Open channels and pipelines were analyzed using Manning's Equation and roughness coefficients found in the SWM Manual. The storm sewer pipeline along Hall Street to the Little Salt Wash was sized to carry un-detained flows (direct discharge) of the 100 year peak.

V. RESULTS AND CONCLUSIONS

AREAS

Site	- 40.5 Acres (EXCLUDING 6 ACRES NEAR BANK)
Basin 1-A	- 1.55 Acres
Basin 1-B	- 3.18 Acres
Basin 1-C	- 2.67 Acres
Basin 1-D	- 0.33 Acres
Basin 1-E	- 0.55 Acres
Basin 1-F	- 3.69 Acres
Basin 1-G	- 1.77 Acres
Basin 1-H	- 0.55 Acres
Basin 1-I	- 4.28 Acres
Basin 1-J	- 4.82 Acres
Basin 1 (TOTAL)	23.39 Acres
Basin 2-A	- 2.82 Acres (TOTAL - SINGLE BASIN)
Basin 3-A	- 0.78 Acres
Basin 3-B	- 3.87 Acres
Basin 3-C	- 1.03 Acres
Basin 3-D	- 2.95 Acres
Basin 3-E	- 4.53 Acres
Basin 3 (TOTAL)	13.16 Acres

RUNOFF COEFFICIENTS - "C"

Bare / Agricultural	- 0.22 (2 yr.)	0.27 (100 yr.)
Developed (¼ ac./unit)	- 0.33 (2 yr.)	0.42 (100 yr.)

TIMES OF CONCENTRATION

	Minutes
Existing Site -	41
Basin 1-A -	16
Basin 1-B	21
Basin 1-C	19
Basin 1-D	11
Basin 1-E	11
Basin 1-F	19
Basin 1-G	16
Basin 1-H	11
Basin 1-I	21
Basin 1-J	20
Basin 1 (longest)	21
Basin 2-A	17 (SINGLE BASIN)
Basin 3-A	11
Basin 3-B	16
Basin 3-C	12
Basin 3-D	12
Basin 3-E	14
Basin 3 (longest)	16

RUNOFF (All Flows are C.F.S.)

	2 YR	100 YR
Existing Site -	4.01	19.25
Basin 1-A -	0.39	1.97
Basin 1-B	0.70	3.51
Basin 1-C	0.62	3.11
Basin 1-D	0.10	0.49
Basin 1-E	0.16	0.81
Basin 1-F	0.85	4.29
Basin 1-G	0.44	2.25
Basin 1-H	0.16	0.81
Basin 1-I	0.95	4.73
Basin 1-J	1.08	5.47
Basin 1 (indep.)	5.17	25.84
Basin 2-A	0.69	3.47 (SINGLE BASIN)
Basin 3-A	0.23	1.15
Basin 3-B	0.97	4.91
Basin 3-C	0.29	1.48
Basin 3-D	0.84	4.22
Basin 3-E	1.21	6.09
Basin 3 (indep.)	3.30	16.69

CONCLUSION

The developed site will discharge runoff directly to the Little Salt Wash in accordance with recommendations of the City's SWMP. This stormwater management plan is therefore in conformance with criteria established by the City.

APPENDIX

1. **FINAL PLANS**
   SHEET 7A - DRAINAGE AND STORMWATER MANAGEMENT PLAN
   SHEET 8 - STORM DRAIN PLAN AND PROFILE

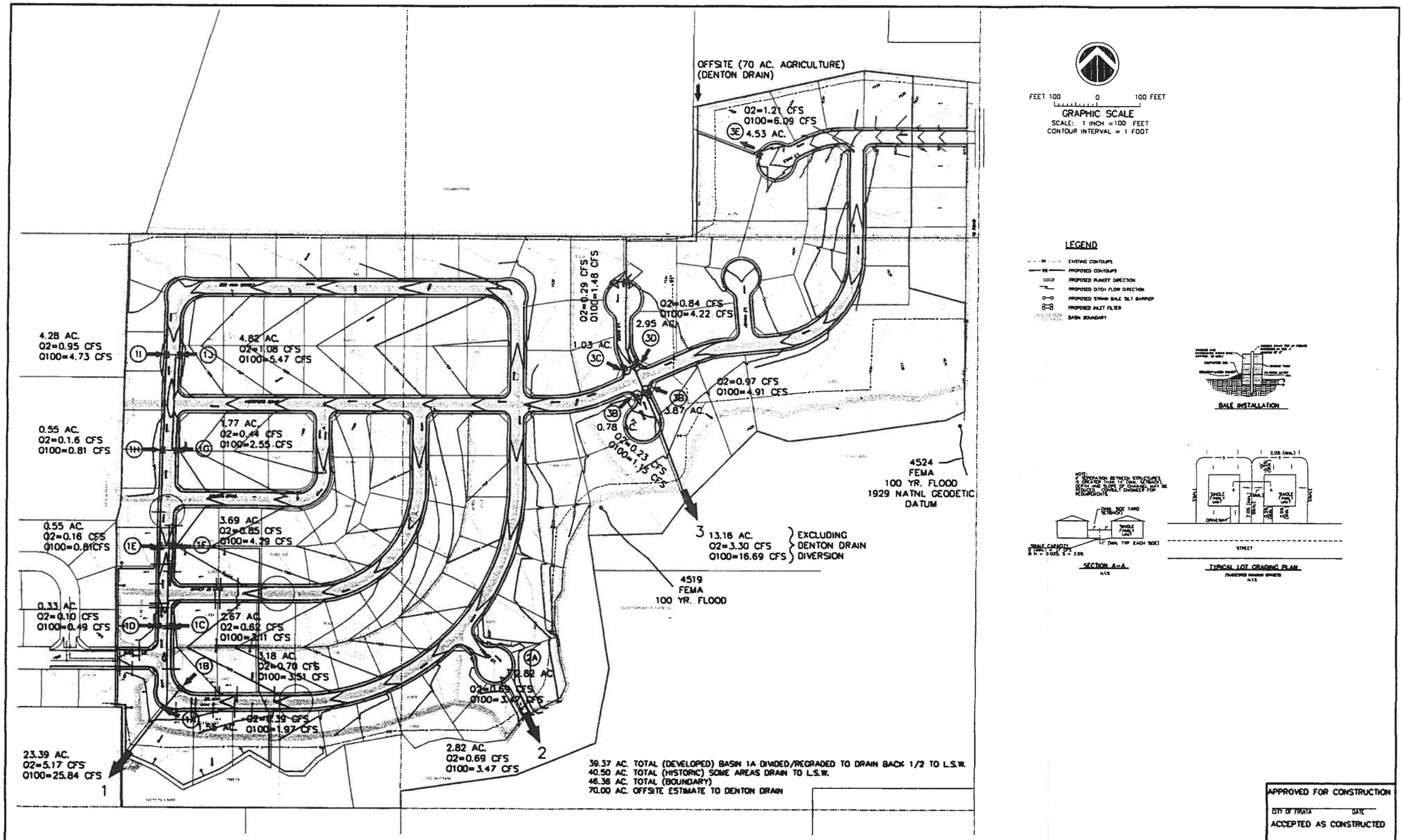
2. **MAJOR BASIN BOUNDARY**

3. **F.E.M.A. FLOOD MAP**

4. **HYDROLOGY**
   "C" VALUES
   TIMES OF CONCENTRATION
   HISTORIC RUNOFF - 2 & 100 YEAR
   DEVELOPED RUNOFF - 2 & 100 YEAR (BASINS 1,2, & 3)
   DEVELOPED RUNOFF - 2 & 100 YEAR (SUB-BASINS)

5. **HYDRAULICS**
   MAXIMUM HALF-STREET CAPACITIES - GJ SWM MANUAL
   MAXIMUM INLET CAPACITIES - SUMP CONDITION
   MAXIMUM INLET CAPACITIES - ON-GRADE

SECTION 1
FINAL PLANS



APPROVED FOR CONSTRUCTION

CITY OF FRUITA DATE

ACCEPTED AS CONSTRUCTED

CITY OF FRUITA DATE

DRAWN BY: SGS	REVIEWED ____ DATE: ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO BANNER	REVISION	DATE	DESCRIPTION	BY	CH'D
CHECKED BY: PMO	REVIEWED ____ DATE: ____ FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242	1	1/5/01	REVISED GRADING	SGS	PMO

DOUG HALL FRUITA, COLORADO

DRAINAGE & STORMWATER MANAGEMENT PLAN
WILDWOOD ACRES SUBDIVISION

SCALE: Horiz: 1" = 100' Vert: N.A.

Project No: 40010.01-01

DATE: 1/02/01

SHEET NO: 7A of 19

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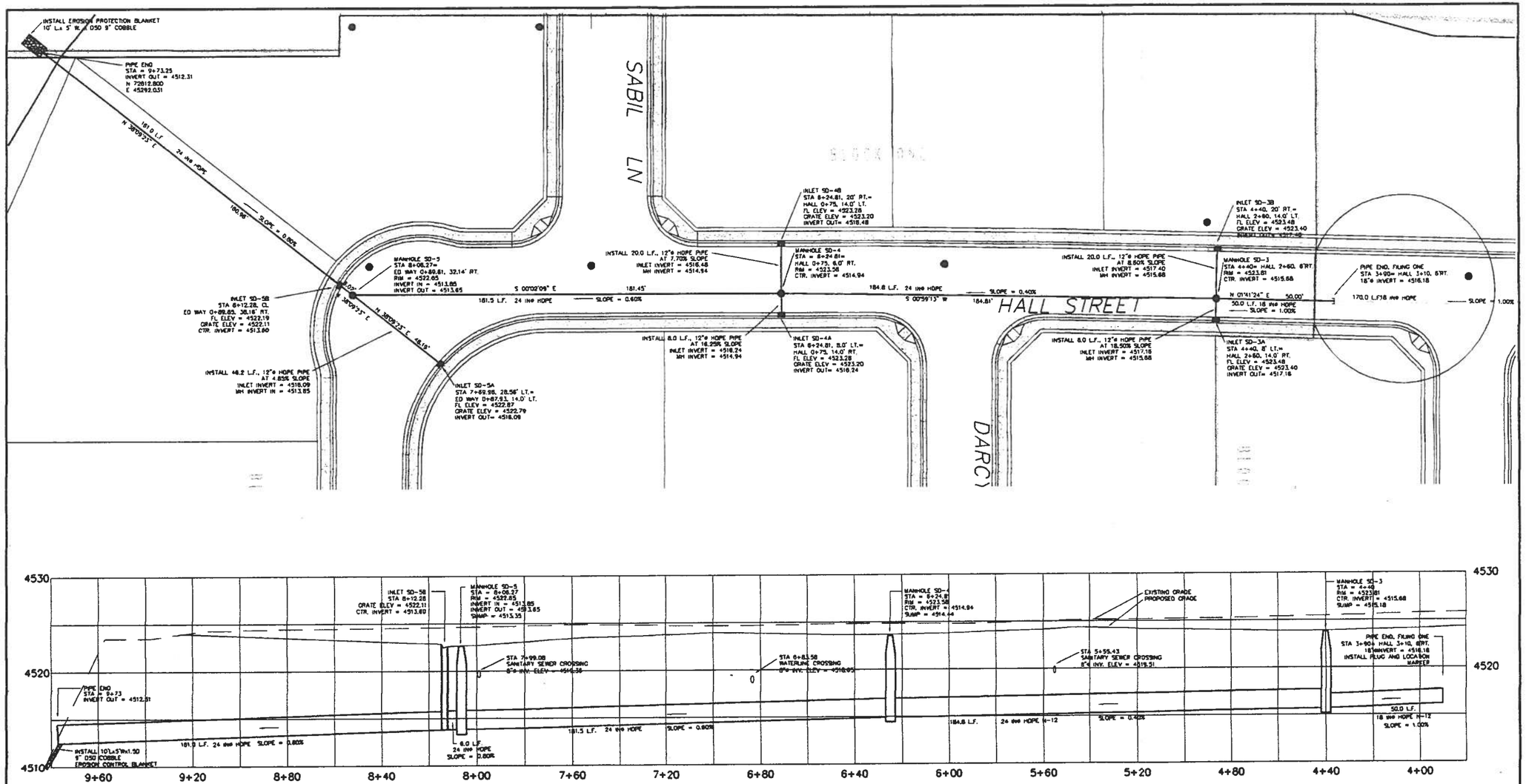

DRAWN BY: BKR	REVIEWED ____ DATE: ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER	REVISION	DATE	DESCRIPTION	BY	CHD	DOUG HALL FRUITA, COLORADO
CHECKED BY: PMO	REVIEWED ____ DATE: ____ FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242		1	1/5/01	REVISED STORM DRAIN ELEVATIONS	SGS	PMO	STORM DRAIN PLAN AND PROFILE WILDWOOD SUBDIVISION

SCALE: Horiz 1" = 20' Vert 1" = 5'	Project No: 40010.01-01
DATE: 12/22/00	SHEET NO: 8 OF 19

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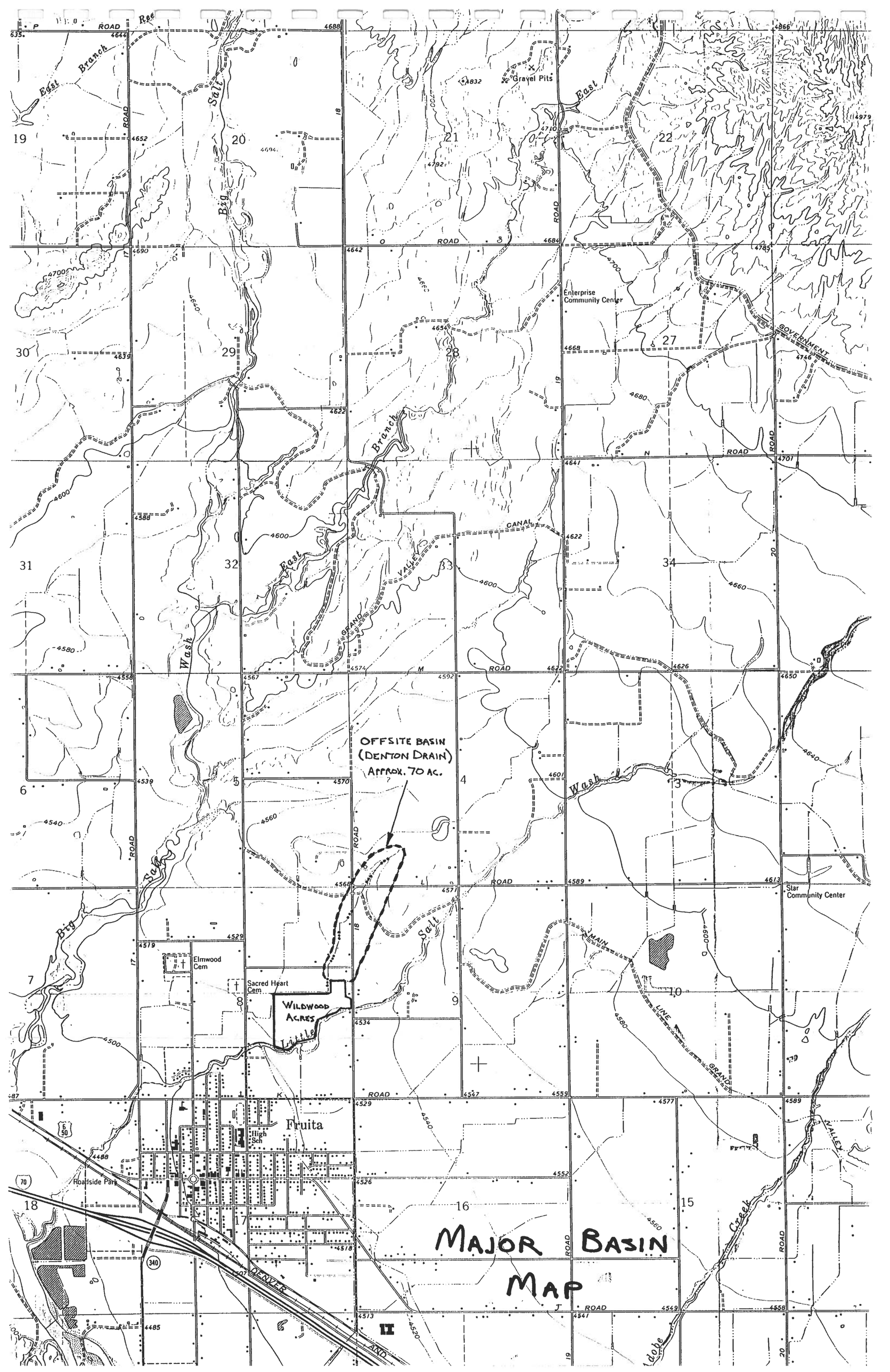
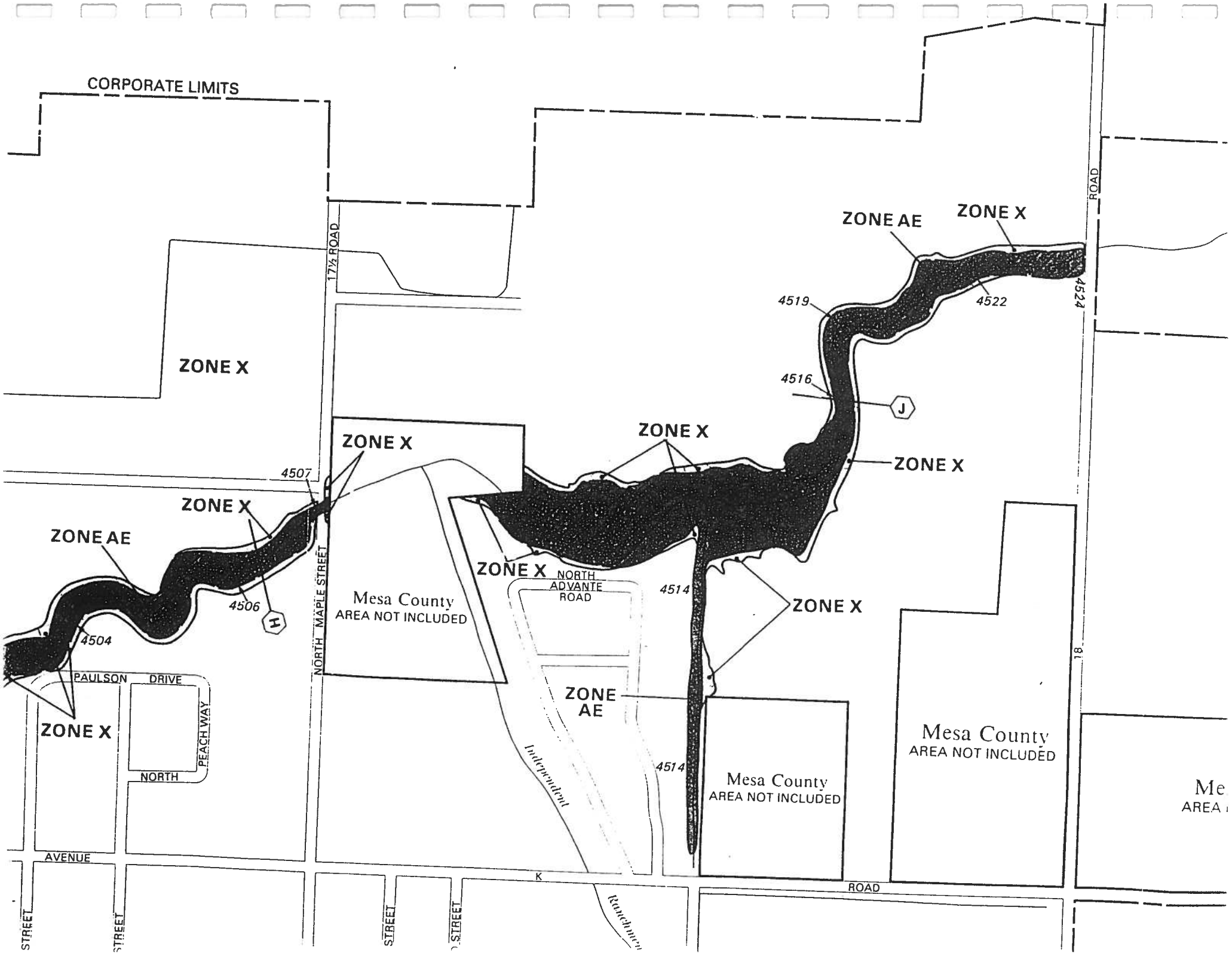
SECTION 2
MAJOR BASIN BOUNDARY



OFFSITE BASIN
(DENTON DRAIN)
APPROX. 70 AC.
WILDWOOD ACRES
Fruita
Elmwood Cem
Sacred Heart Cem
High Sch
Roadside Park
Star Community Center
Enterprise Community Center
Gravel Pits
East Branch
Big Salt Wash
Little Salt Wash
GRAND VALLEY CANAL
MAIN LINE GRAND VALLEY
GOVERNMENT
DENVER AND
Adobe Creek
MAJOR BASIN MAP

SECTION 3
F.E.M.A. FLOOD MAP


CORPORATE LIMITS
ZONE X
ZONE AE
ZONE X
ZONE AE
ZONE X
ZONE X
ZONE X
ZONE X
ZONE X
ZONE X
ZONE X
ZONE AE
ZONE X
4504
4506
4507
4514
4514
4516
4519
4522
4524
H
J
17½ ROAD
NORTH MAPLE STREET
PAULSON DRIVE
PEACH WAY
NORTH
AVENUE
K
ROAD
18
ROAD
NORTH ADVANTE ROAD
Mesa County
AREA NOT INCLUDED
Mesa County
AREA NOT INCLUDED
Mesa County
AREA NOT INCLUDED
Independent
Ranchmen
STREET
STREET
STREET
STREET

SECTION 4
HYDROLOGY

WILDWOOD ACRES 12/00 BAI # 40010

	HISTORIC	DEVELOPED
2YR.	0.22	0.33
100YR.	0.27	0.42

Drainage Impact Fee = $B(C_d - C_h)A^{.7}$
= #7631 Filing #1

B = 12,000 x 1.029 x 1.029 x 1.024
= 13011

A = 7,014

NOTE: DIF waived for direct discharge to LSW.

LAND USE OR SURFACE CHARACTERISTICS	SCS HYDROLOGIC SOIL GROUP (SEE APPENDIX "C" FOR DESCRIPTIONS)											
	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
UNDEVELOPED AREAS Bare ground	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .40 - .48	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Cultivated/Agricultural	.08 - .18 .14 - .24	.13 - .23 .18 - .28	.16 - .26 .22 - .32	.11 - .19 .16 - .24	.15 - .23 .21 - .29	.21 - .29 .28 - .36	.14 - .22 .20 - .28	.19 - .27 .25 - .33	.26 - .34 .34 - .42	.18 - .26 .24 - .32	.23 - .31 .29 - .37	.31 - .39 .41 - .49
* Pasture	.12 - .22 .15 - .25	.20 - .30 .25 - .35	.30 - .40 .37 - .47	.18 - .26 .23 - .31	.28 - .36 .34 - .42	.37 - .45 .45 - .53	.24 - .32 .30 - .38	.34 - .42 .42 - .50	.44 - .52 .52 - .60	.30 - .38 .37 - .45	.40 - .48 .50 - .58	.50 - .58 .62 - .70
Meadow	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .44 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Forest	.05 - .15 .08 - .18	.08 - .18 .11 - .21	.11 - .21 .14 - .24	.08 - .16 .10 - .18	.11 - .19 .14 - .22	.14 - .22 .18 - .26	.10 - .18 .12 - .20	.13 - .21 .16 - .24	.16 - .24 .20 - .28	.12 - .20 .15 - .23	.16 - .24 .20 - .28	.20 - .28 .25 - .33
RESIDENTIAL AREAS 1/8 acre per unit	.40 - .50 .48 - .58	.43 - .53 .52 - .62	.46 - .56 .55 - .65	.42 - .50 .50 - .58	.45 - .53 .54 - .62	.50 - .58 .59 - .67	.45 - .53 .53 - .61	.48 - .56 .57 - .65	.53 - .61 .64 - .72	.48 - .56 .56 - .64	.51 - .59 .60 - .68	.57 - .65 .69 - .77
* 1/4 acre per unit	.27 - .37 .35 - .45	.31 - .41 .39 - .49	.34 - .44 .42 - .52	.29 - .37 .38 - .46	.34 - .42 .42 - .50	.38 - .46 .47 - .55	.32 - .40 .41 - .49	.36 - .44 .45 - .53	.41 - .49 .52 - .60	.35 - .43 .43 - .51	.39 - .47 .47 - .55	.45 - .53 .57 - .65
1/3 acre per unit	.22 - .32 .31 - .41	.26 - .36 .35 - .45	.29 - .39 .38 - .48	.25 - .33 .33 - .41	.29 - .37 .38 - .46	.33 - .41 .42 - .50	.28 - .36 .36 - .44	.32 - .40 .41 - .49	.37 - .45 .48 - .56	.31 - .39 .39 - .47	.35 - .43 .43 - .51	.42 - .50 .53 - .61
1/2 acre per unit	.16 - .26 .25 - .35	.20 - .30 .29 - .39	.24 - .34 .32 - .42	.19 - .27 .28 - .36	.23 - .31 .32 - .40	.28 - .36 .36 - .44	.22 - .30 .31 - .39	.27 - .35 .35 - .43	.32 - .40 .42 - .50	.26 - .34 .34 - .42	.30 - .38 .38 - .46	.37 - .45 .48 - .56
1 acre per unit	.14 - .24 .22 - .32	.19 - .29 .26 - .36	.22 - .32 .29 - .39	.17 - .25 .24 - .32	.21 - .29 .28 - .36	.26 - .34 .34 - .42	.20 - .28 .28 - .36	.25 - .33 .32 - .40	.31 - .39 .40 - .48	.24 - .32 .31 - .39	.29 - .37 .35 - .43	.35 - .43 .46 - .54
MISC. SURFACES Pavement and roofs	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97
Traffic areas (soil and gravel)	.55 - .65 .65 - .70	.60 - .70 .70 - .75	.64 - .74 .74 - .79	.60 - .68 .68 - .76	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.69 - .77 .77 - .85	.72 - .80 .79 - .87	.75 - .83 .82 - .90	.77 - .85 .84 - .92
Green landscaping (lawns, parks)	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .42 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Non-green and gravel landscaping	.30 - .40 .34 - .44	.36 - .46 .42 - .52	.45 - .55 .50 - .60	.45 - .55 .50 - .60	.42 - .50 .48 - .56	.50 - .58 .57 - .65	.40 - .48 .46 - .54	.48 - .56 .55 - .63	.56 - .64 .64 - .72	.44 - .52 .50 - .58	.50 - .58 .60 - .68	.60 - .68 .70 - .78
Cemeteries, playgrounds	.20 - .30 .24 - .34	.26 - .36 .32 - .42	.35 - .45 .40 - .50	.35 - .45 .40 - .50	.32 - .40 .38 - .46	.40 - .48 .47 - .55	.30 - .38 .36 - .44	.38 - .44 .45 - .53	.46 - .54 .54 - .62	.34 - .42 .40 - .48	.40 - .48 .50 - .58	.50 - .58 .60 - .68

NOTES:
1. Values above and below pertain to the 2-year and 100-year storms, respectively.
2. The range of values provided allows for engineering judgement of site conditions such as basic shape, homogeneity of surface type, surface depression storage, and storm duration. In general, during shorter duration storms (Tc ≤ 10 minutes), infiltration capacity is higher, allowing use of a "C" value in the low range. Conversely, for longer duration storms (Tc) 30 minutes), use a ""C value in the higher range.
3. For residential development at less than 1/8 acre per unit or greater than 1 acre per unit, and also for commercial and industrial areas, use values under MISC SURFACES to estimate "C" value ranges for use.

RATIONAL METHOD RUNOFF COEFFICIENTS
(Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls)

TABLE "B-1"

Quick TR-55 Ver.5.46 S/N:
Executed: 17:42:03 12-28-2000 WILDWD-1.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Subarea descr.	Tc or Tt	Time (hrs)	MINUTES
HISTORIC SITE	Tc	0.68	41
DEV 1-A	Tc	0.27	16
DEV 1-B	Tc	0.35	21
DEV 1-C	Tc	0.31	19
DEV 1-D	Tc	0.19	11
DEV 1-E	Tc	0.19	11
DEV 1-F	Tc	0.31	19
DEV 1-G	Tc	0.26	16
DEV 1-H	Tc	0.19	11
DEV 1-I	Tc	0.35	21

Quick TR-55 Ver.5.46 S/N:
Executed: 17:55:07 12-28-2000 WILDWD-2.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

Wildwood Subdivision
12/22/00
DEVELOPED BASINS 1J - 3E

Subarea descr.	Tc or Tt	Time (hrs)	MINUTES
DEV 1-J	Tc	0.34	20
DEV 2-A	Tc	0.28	17
DEV 3-A	Tc	0.19	11
DEV 3-B	Tc	0.27	16
DEV 3-C	Tc	0.20	12
DEV 3-D	Tc	0.20	12
DEV 3-E	Tc	0.24	14

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: HISTORIC SITE

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		PASTURE	
Manning's roughness coeff., n		0.0400	
Flow length, L (total < or = 300)	ft	300.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0133	

$$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$$ hrs 0.34 = 0.34

SHALLOW CONCENTRATED FLOW

Segment ID		2	
Surface (paved or unpaved)?		Unpaved	
Flow length, L	ft	1600.0	
Watercourse slope, s	ft/ft	0.0069	

$$Avg.V = Csf * (s)^{0.5}$$ ft/s 1.3402

where: Unpaved Csf = 16.1345
Paved Csf = 20.3282

T = L / (3600*V) hrs 0.33 = 0.33

CHANNEL FLOW

Segment ID		
Cross Sectional Flow Area, a	sq.ft	0.00
Wetted perimeter, Pw	ft	0.00
Hydraulic radius, r = a/Pw	ft	0.000
Channel slope, s	ft/ft	0.0000
Manning's roughness coeff., n		0.0000

$$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$$ ft/s 0.0000

Flow length, L ft 0

T = L / (3600*V) hrs 0.00 = 0.00

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TOTAL TIME (hrs) 0.68

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-A

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		YARD		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	100.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0100		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	=	0.18

SHALLOW CONCENTRATED FLOW

Segment ID				
Surface (paved or unpaved)?				
Flow length, L	ft	0.0		
Watercourse slope, s	ft/ft	0.0000		
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.00	=	0.00

CHANNEL FLOW

Segment ID		2		
Cross Sectional Flow Area, a	sq.ft	2.50		
Wetted perimeter, Pw	ft	14.50		
Hydraulic radius, r = a/Pw	ft	0.172		
Channel slope, s	ft/ft	0.0050		
Manning's roughness coeff., n		0.0160		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399		
Flow length, L	ft	700		
T = L / (3600*V)	hrs	0.10	=	0.10

TOTAL TIME (hrs) 0.27

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-B

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	1250	
T = L / (3600*V)	hrs	0.17	= 0.17

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-C

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	950	
T = L / (3600*V)	hrs	0.13	= 0.13

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Wildwood Subdivision
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HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-D

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n			0.0450
Flow length, L (total < or = 300)		ft	100.0
Two-yr 24-hr rainfall, P2		in	0.700
Land slope, s		ft/ft	0.0100

$$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$$

hrs 0.18 = 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?		ft	0.0
Flow length, L		ft/ft	0.0000
Watercourse slope, s			
Avg.V = Csf * (s)^0.5		ft/s	0.0000
where:	Unpaved Csf = 16.1345		
	Paved Csf = 20.3282		
T = L / (3600*V)		hrs	0.00 = 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a		sq.ft	2.50
Wetted perimeter, Pw		ft	14.50
Hydraulic radius, r = a/Pw		ft	0.172
Channel slope, s		ft/ft	0.0050
Manning's roughness coeff., n			0.0160

$$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$$

ft/s 2.0399

Flow length, L		ft	70
T = L / (3600*V)		hrs	0.01 = 0.01

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HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-E

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	

$$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$$

hrs 0.18 = 0.18

SHALLOW CONCENTRATED FLOW

Segment ID		
Surface (paved or unpaved)?		
Flow length, L	ft	0.0
Watercourse slope, s	ft/ft	0.0000

$$Avg.V = Csf * (s)^{0.5}$$

where: Unpaved Csf = 16.1345
Paved Csf = 20.3282

ft/s 0.0000

T = L / (3600*V)

hrs 0.00 = 0.00

CHANNEL FLOW

Segment ID		2
Cross Sectional Flow Area, a	sq.ft	2.50
Wetted perimeter, Pw	ft	14.50
Hydraulic radius, r = a/Pw	ft	0.172
Channel slope, s	ft/ft	0.0050
Manning's roughness coeff., n		0.0160

$$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$$

ft/s 2.0399

Flow length, L ft 110

T = L / (3600*V)

hrs 0.01 = 0.01

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Wildwood Subdivision
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HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-F

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n			0.0450
Flow length, L (total < or = 300)	ft		100.0
Two-yr 24-hr rainfall, P2	in		0.700
Land slope, s	ft/ft		0.0100

$$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$$

hrs 0.18 = 0.18

SHALLOW CONCENTRATED FLOW

Segment ID		
Surface (paved or unpaved)?		
Flow length, L	ft	0.0
Watercourse slope, s	ft/ft	0.0000
Avg.V = Csf * (s)^0.5	ft/s	0.0000

where: Unpaved Csf = 16.1345
Paved Csf = 20.3282

T = L / (3600*V)

hrs 0.00 = 0.00

CHANNEL FLOW

Segment ID		2
Cross Sectional Flow Area, a	sq.ft	2.50
Wetted perimeter, Pw	ft	14.50
Hydraulic radius, r = a/Pw	ft	0.172
Channel slope, s	ft/ft	0.0050
Manning's roughness coeff., n		0.0160

$$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$$

ft/s 2.0399

Flow length, L ft 970

T = L / (3600*V) hrs 0.13 = 0.13

TOTAL TIME (hrs) 0.31

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-G

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n			0.0450
Flow length, L (total < or = 300)	ft		100.0
Two-yr 24-hr rainfall, P2	in		0.700
Land slope, s	ft/ft		0.0100

$$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$$

hrs 0.18 = 0.18

SHALLOW CONCENTRATED FLOW

Segment ID		
Surface (paved or unpaved)?		
Flow length, L	ft	0.0
Watercourse slope, s	ft/ft	0.0000

$$Avg.V = Csf * (s)^{0.5}$$

where: Unpaved Csf = 16.1345
Paved Csf = 20.3282

ft/s 0.0000

T = L / (3600*V)

hrs 0.00 = 0.00

CHANNEL FLOW

Segment ID		2
Cross Sectional Flow Area, a	sq.ft	2.50
Wetted perimeter, Pw	ft	14.50
Hydraulic radius, r = a/Pw	ft	0.172
Channel slope, s	ft/ft	0.0050
Manning's roughness coeff., n		0.0160

$$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$$

ft/s 2.0399

Flow length, L ft 600

T = L / (3600*V)

hrs 0.08 = 0.08

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Wildwood Subdivision
12/22/00
HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-H

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	110	
T = L / (3600*V)	hrs	0.01	= 0.01

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Wildwood Subdivision
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HISTORIC BASIN AND DEVELOPED BASINS 1A - 1I

Tc COMPUTATIONS FOR: DEV 1-I

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	1250	
T = L / (3600*V)	hrs	0.17	= 0.17

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Quick TR-55 Ver.5.46 S/N:
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Wildwood Subdivision
12/22/00
DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 1-J

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	1200	
T = L / (3600*V)	hrs	0.16	= 0.16

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Wildwood Subdivision
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DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 2-A

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	800	
T = L / (3600*V)	hrs	0.11	= 0.11

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Quick TR-55 Ver.5.46 S/N:
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Wildwood Subdivision
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DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 3-A

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		YARD		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	100.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0100		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	=	0.18

SHALLOW CONCENTRATED FLOW

Segment ID				
Surface (paved or unpaved)?				
Flow length, L	ft	0.0		
Watercourse slope, s	ft/ft	0.0000		
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.00	=	0.00

CHANNEL FLOW

Segment ID		2		
Cross Sectional Flow Area, a	sq.ft	2.50		
Wetted perimeter, Pw	ft	14.50		
Hydraulic radius, r = a/Pw	ft	0.172		
Channel slope, s	ft/ft	0.0050		
Manning's roughness coeff., n		0.0160		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399		
Flow length, L	ft	140		
T = L / (3600*V)	hrs	0.02	=	0.02

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TOTAL TIME (hrs) 0.19

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Wildwood Subdivision
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DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 3-B

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	700	
T = L / (3600*V)	hrs	0.10	= 0.10

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TOTAL TIME (hrs) 0.27

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Wildwood Subdivision
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DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 3-C

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	200	
T = L / (3600*V)	hrs	0.03	= 0.03

TOTAL TIME (hrs) 0.20

Quick TR-55 Ver.5.46 S/N:
Executed: 17:55:07 12-28-2000 WILDWD-2.TCT

Wildwood Subdivision
12/22/00
DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 3-D

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		YARD		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	100.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0100		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	=	0.18

SHALLOW CONCENTRATED FLOW

Segment ID				
Surface (paved or unpaved)?				
Flow length, L	ft	0.0		
Watercourse slope, s	ft/ft	0.0000		
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.00	=	0.00

CHANNEL FLOW

Segment ID		2		
Cross Sectional Flow Area, a	sq.ft	2.50		
Wetted perimeter, Pw	ft	14.50		
Hydraulic radius, r = a/Pw	ft	0.172		
Channel slope, s	ft/ft	0.0050		
Manning's roughness coeff., n		0.0160		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399		
Flow length, L	ft	200		
T = L / (3600*V)	hrs	0.03	=	0.03

::

TOTAL TIME (hrs) 0.20

Quick TR-55 Ver.5.46 S/N:
Executed: 17:55:07 12-28-2000 WILDWD-2.TCT

Wildwood Subdivision
12/22/00
DEVELOPED BASINS 1J - 3E

Tc COMPUTATIONS FOR: DEV 3-E

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		YARD	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	100.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0100	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.18	= 0.18

SHALLOW CONCENTRATED FLOW

Segment ID			
Surface (paved or unpaved)?			
Flow length, L	ft	0.0	
Watercourse slope, s	ft/ft	0.0000	
$Avg.V = Csf * (s)^{0.5}$	ft/s	0.0000	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

Segment ID		2	
Cross Sectional Flow Area, a	sq.ft	2.50	
Wetted perimeter, Pw	ft	14.50	
Hydraulic radius, r = a/Pw	ft	0.172	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.0399	
Flow length, L	ft	500	
T = L / (3600*V)	hrs	0.07	= 0.07

TOTAL TIME (hrs) 0.24

Quick TR-55 Ver.5.46 S/N:
Executed: 18:18:27 12-28-2000

WILDWOOD ACRES
HISTORIC RUNOFF - SITE
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
HIST. SITE	0.220	40.50						
			41.00	0.220	0.220	0.450	40.50	4.01

Quick TR-55 Ver.5.46 S/N:
Executed: 18:18:27 12-28-2000

WILDWOOD ACRES
HISTORIC RUNOFF - SITE
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2273
Adj. 'C' = Wtd.'C' x 1.2273

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
HIST. SITE	0.220	40.50	41.00	0.220	0.270	1.760	40.50	19.25

Quick TR-55 Ver.5.46 S/N:
Executed: 18:44:29 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 1 (WEST)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-A	0.330	1.55						
1-B	0.330	3.18						
1-C	0.330	2.67						
1-D	0.330	0.33						
1-E	0.330	0.55						
1-F	0.330	3.69						
1-G	0.330	1.77						
1-H	0.330	0.55						
1-I	0.330	4.28						
1-J	0.330	4.82						
			21.00	0.330	0.330	0.670	23.39	5.17

Quick TR-55 Ver.5.46 S/N:
Executed: 18:44:29 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 1 (WEST)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-A	0.330	1.55						
1-B	0.330	3.18						
1-C	0.330	2.67						
1-D	0.330	0.33						
1-E	0.330	0.55						
1-F	0.330	3.69						
1-G	0.330	1.77						
1-H	0.330	0.55						
1-I	0.330	4.28						
1-J	0.330	4.82						
			21.00	0.330	0.420	2.630	23.39	25.84

Quick TR-55 Ver.5.46 S/N:
Executed: 18:47:31 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 2 (MIDDLE)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
2-A	0.330	2.82						
			17.00	0.330	0.330	0.740	2.82	0.69

Quick TR-55 Ver.5.46 S/N:
Executed: 18:47:31 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 2 (MIDDLE)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
2-A	0.330	2.82						
			17.00	0.330	0.420	2.930	2.82	3.47

Quick TR-55 Ver.5.46 S/N:
Executed: 18:42:03 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 3 (EAST)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-A	0.330	0.78						
3-B	0.330	3.87						
3-C	0.330	1.03						
3-D	0.330	2.95						
3-E	0.330	4.53						
			16.00	0.330	0.330	0.760	13.16	3.30

Quick TR-55 Ver.5.46 S/N:
Executed: 18:42:03 12-28-2000

WILDWOOD ACRES
DEVELOPED RUNOFF - BASIN 3 (EAST)
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-A	0.330	0.78						
3-B	0.330	3.87						
3-C	0.330	1.03						
3-D	0.330	2.95						
3-E	0.330	4.53						
			16.00	0.330	0.420	3.020	13.16	16.69

Quick TR-55 Ver.5.46 S/N:
Executed: 19:05:46 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-A
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-A	0.330	1.55						
			16.00	0.330	0.330	0.760	1.55	0.39

Quick TR-55 Ver.5.46 S/N:
Executed: 19:05:46 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-A
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-A	0.330	1.55	16.00	0.330	0.420	3.020	1.55	1.97

Quick TR-55 Ver.5.46 S/N:
Executed: 19:07:01 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-B
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-B	0.330	3.18						
			21.00	0.330	0.330	0.670	3.18	0.70

Quick TR-55 Ver.5.46 S/N:
Executed: 19:07:01 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-B
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-B	0.330	3.18						
			21.00	0.330	0.420	2.630	3.18	3.51

Quick TR-55 Ver.5.46 S/N:
Executed: 19:07:58 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-C
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-C	0.330	2.67						
			19.00	0.330	0.330	0.700	2.67	0.62

Quick TR-55 Ver.5.46 S/N:
Executed: 19:07:58 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-C
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-C	0.330	2.67						
			19.00	0.330	0.420	2.770	2.67	3.11

Quick TR-55 Ver.5.46 S/N:
Executed: 19:09:17 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-D
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-D	0.330	0.33						
			11.00	0.330	0.330	0.890	0.33	0.10

Quick TR-55 Ver.5.46 S/N:
Executed: 19:09:17 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-D
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-D	0.330	0.33	11.00	0.330	0.420	3.520	0.33	0.49

Quick TR-55 Ver.5.46 S/N:
Executed: 19:10:27 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-E
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-E	0.330	0.55	11.00	0.330	0.330	0.890	0.55	0.16

Quick TR-55 Ver.5.46 S/N:
Executed: 19:10:27 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-E
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-E	0.330	0.55						
			11.00	0.330	0.420	3.520	0.55	0.81

Quick TR-55 Ver.5.46 S/N:
Executed: 19:11:32 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-F
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-F	0.330	3.69	19.00	0.330	0.330	0.700	3.69	0.85

Quick TR-55 Ver.5.46 S/N:
Executed: 19:11:32 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-F
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-F	0.330	3.69	19.00	0.330	0.420	2.770	3.69	4.29

Quick TR-55 Ver.5.46 S/N:
Executed: 19:12:34 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-G
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-G	0.330	1.77						
			16.00	0.330	0.330	0.760	1.77	0.44

Quick TR-55 Ver.5.46 S/N:
Executed: 19:12:34 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-G
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-G	0.330	1.77						
			16.00	0.330	0.420	3.020	1.77	2.25

Quick TR-55 Ver.5.46 S/N:
Executed: 19:13:29 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-H
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-H	0.330	0.55	11.00	0.330	0.330	0.890	0.55	0.16

Quick TR-55 Ver.5.46 S/N:
Executed: 19:13:29 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-H
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-H	0.330	0.55						
			11.00	0.330	0.420	3.520	0.55	0.81

Quick TR-55 Ver.5.46 S/N:
Executed: 19:14:42 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-I
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-I	0.330	4.28						
			21.00	0.330	0.330	0.670	4.28	0.95

Quick TR-55 Ver.5.46 S/N:
Executed: 19:14:42 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-I
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-I	0.330	4.28						
			21.00	0.330	0.420	2.630	4.28	4.73

Quick TR-55 Ver.5.46 S/N:
Executed: 19:16:02 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-J
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-J	0.330	4.82						
			20.00	0.330	0.330	0.680	4.82	1.08

Quick TR-55 Ver.5.46 S/N:
Executed: 19:16:02 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 1-J
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
1-J	0.330	4.82						
			20.00	0.330	0.420	2.700	4.82	5.47

Quick TR-55 Ver.5.46 S/N:
Executed: 19:28:46 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-A
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-A	0.330	0.78	11.00	0.330	0.330	0.890	0.78	0.23

Quick TR-55 Ver.5.46 S/N:
Executed: 19:28:46 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-A
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-A	0.330	0.78						
			11.00	0.330	0.420	3.520	0.78	1.15

Quick TR-55 Ver.5.46 S/N:
Executed: 19:30:00 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-B
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-B	0.330	3.87						
			16.00	0.330	0.330	0.760	3.87	0.97

Quick TR-55 Ver.5.46 S/N:
Executed: 19:30:00 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-B
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-B	0.330	3.87						
			16.00	0.330	0.420	3.020	3.87	4.91

Quick TR-55 Ver.5.46 S/N:
Executed: 19:31:01 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-C
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-C	0.330	1.03						
			12.00	0.330	0.330	0.860	1.03	0.29

Quick TR-55 Ver.5.46 S/N:
Executed: 19:31:01 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-C
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-C	0.330	1.03						
			12.00	0.330	0.420	3.410	1.03	1.48

Quick TR-55 Ver.5.46 S/N:
Executed: 19:34:10 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-D
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-D	0.330	2.95						
			12.00	0.330	0.330	0.860	2.95	0.84

Quick TR-55 Ver.5.46 S/N:
Executed: 19:34:10 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-D
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-D	0.330	2.95						
			12.00	0.330	0.420	3.410	2.95	4.22

Quick TR-55 Ver.5.46 S/N:
Executed: 19:35:14 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-E
12/22/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-E	0.330	4.53						
			14.00	0.330	0.330	0.810	4.53	1.21

Quick TR-55 Ver.5.46 S/N:
Executed: 19:35:14 12-28-2000

WILDWOOD ACRES
DEVELOPED BASIN 3-E
12/22/00

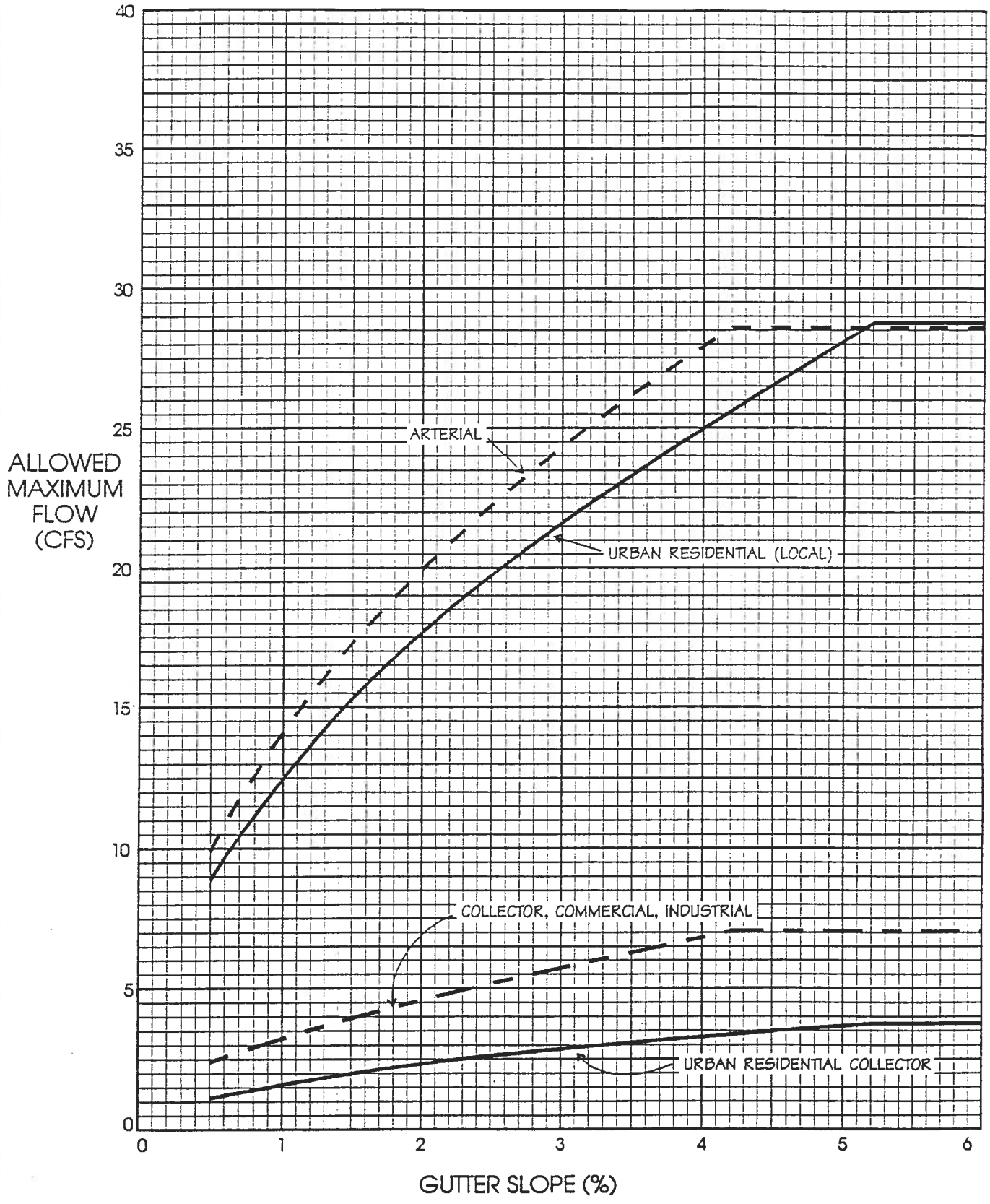
* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.2727
Adj. 'C' = Wtd.'C' x 1.2727

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
3-E	0.330	4.53						
			14.00	0.330	0.420	3.200	4.53	6.09

SECTION 5
HYDRAULICS



MAXIMUM HALF STREET FLOWS (Sx=2%, n=0.016)
(Based upon Figures G-3 and G-4)

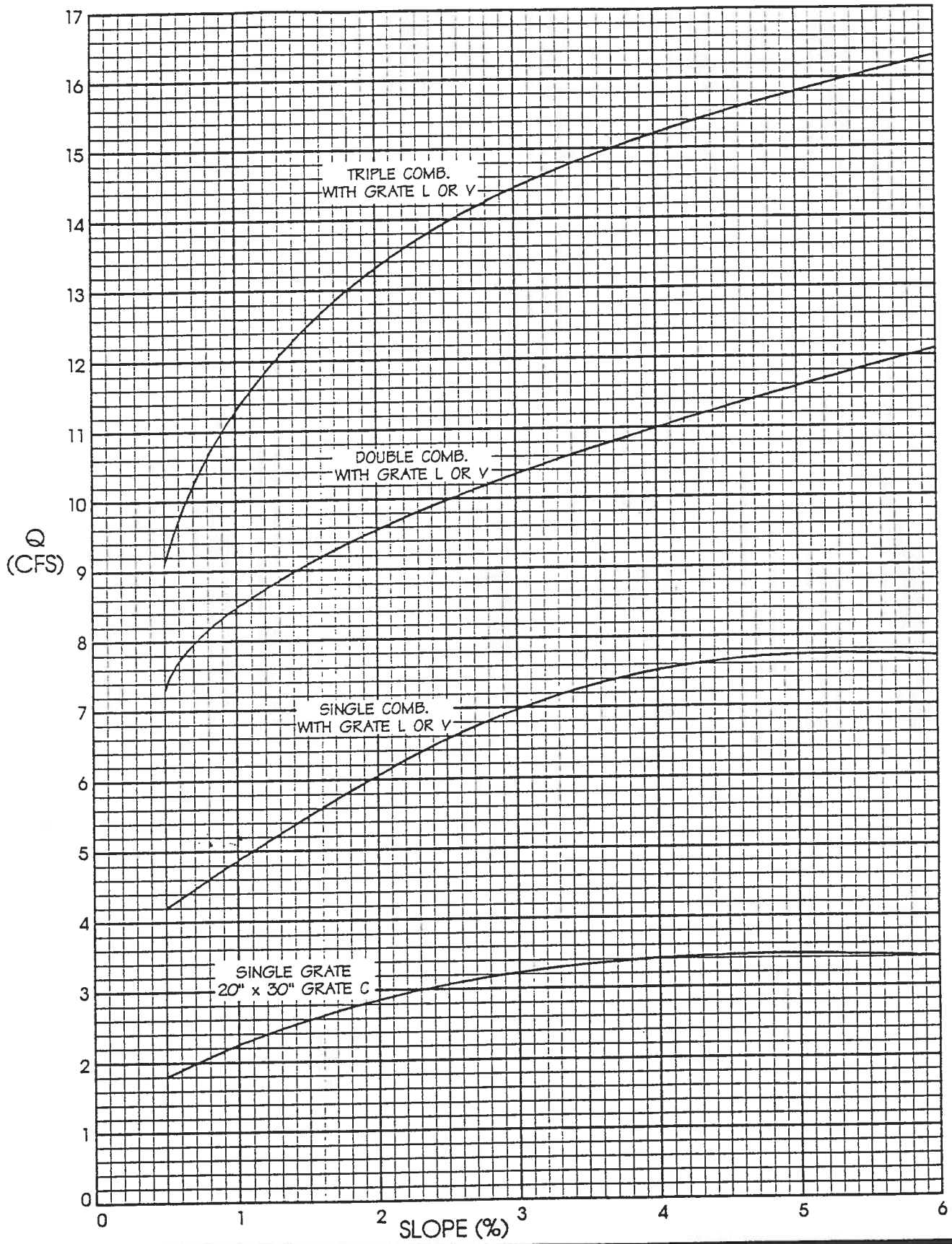
FIGURE "G-5"

ROAD TYPE	COMBINATION INLET CAPACITY (CFS)					
	SINGLE		DOUBLE		TRIPLE	
	2-YR	100-YR	2-YR	100-YR	2-YR	100-YR
Urban Residential (local)	6.4	13	9.5	22	12.7	31
Residential Collector, Commercial and Industrial Streets	3.2	13	4.9	22	6.5	31
Collector Streets (3000 - 8000 ADT)	2.7	13	4.0	22	5.3	31
Principal and Minor Arterials	6.0	13	9.0	22	12.0	31

Inlet capacities shown above are based upon: 1) use of non-curved vane grates (similar to HEC-12 P-1 7/8-4 grates; 2) HEC-12 procedures; 3) clogging factors per Section VI; and 4) City/County standard inlets with 2-inch radius on curb face and type C grates. Capacities shown for 2-year storms are based upon depths allowed by maximum street inundation per Figure "G-3". The 100-year capacities are based upon a ponded depth of 1.0 foot. Note that only combination inlets are allowed in sag or sump conditions.

MAXIMUM INLET CAPACITIES: SUMP OR SAG CONDITION — **TABLE "G-1"**

INLET CAPACITIES PROVIDED ARE BASED UPON FIGURE "G-4", MAXIMUM ALLOWED FLOW CONDITIONS, SMF ENGINEERING CORP.'S HEC-12 SOFTWARE, CLOGGING FACTORS PRESENTED IN SECTION VI, AND CITY\COUNTY STANDARD INLETS.



MAXIMUM INLET CAPACITIES: ON-GRADE
URBAN RESIDENTIAL (LOCAL)

FIGURE "G-7a"