

Table of Contents

File 1983-0056

Project Name Onion Hill – Preliminary Plan

P	S	<p>A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the in some instances, not all entries designated to be scanned by the department are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been provided.</p> <p>Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.</p> <p>Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.</p>	
X	X	Table of Contents	
X	X	Review Sheet Summary	
X		Application form	
X		Review Sheets	
		Receipts for fees paid for anything	
		*Submittal checklist	
		*General project report	
		Reduced copy of final plans or drawings	
X		Reduction of assessor's map	
X		Evidence of title, deeds	
		*Mailing list to adjacent property owners	
		Public notice cards	
		Record of certified mail	
X		Legal description	
		Appraisal of raw land	
		Reduction of any maps – final copy	
		*Final reports for drainage and soils (geotechnical reports)	
		Other bound or nonbound reports	
		Traffic studies	
		Individual review comments from agencies	
X	X	*Petitioner's response to comments	
		*Staff Reports	
		*Planning Commission staff report and exhibits	
		*City Council staff report and exhibits	
		*Summary sheet of final conditions	
		*Letters and correspondence dated after the date of final approval (pertaining to change in conditions or expiration date)	
DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:			
X	X	Action Sheet	X X Letter from Janet Stephens, Planning to Daryl Shrum, Beck, Shrum & Associates, Inc. re: preliminary assessment – 3/9/84
X	X	Hydrology Report	X X Development Plan
X	X	Traffic Analysis	X Boundary Conflict Design
X		Building Permit Guarantee Format – 11/30/83	X X Development Improvements Agreement - **
X		Handwritten Notes to file	X X Preliminary Plat
X		Letter from John Nisley and Frank Nisley to Dale Williams, Realtor Appraiser re: appraisal – 8/31/83	X Utility Composite
X		Development Application – 11/7/83	X Landscape Plan
X		Radiation Survey – No tailings indicated– 11/28/83	X Sanitary Sewer Plan and Profile and Domestic Water Plan
X		Building Permit Guarantee Format – 11/30/83	X Roadway Plan and Profile
X		Subdivision Summary Form – 12/1/83	X Grading and Drainage
X		Public Notice Posting – 12/13/83	
X	X	Planning Commission Minutes - ** - 1/3/84	
X	X	Planning Commission Public Hearing - ** - 1/3/84	
X	X	City Council Minutes - ** - 1/18/84	

MESA COUNTY BRASS CAP
 NW CORNER SE 1/4 NE 1/4 SECTION 1,
 T.1 S., R.1 W., UTE MERIDIAN.

S. 89° 57' 11" E. 1320.84'
CORTLAND AVENUE
 1287.84'

BENCH MARK:
 FOUND ARMSTRONG PIN
 ELEVATION: 4745.28

#5.6 83
 2/2

AREA QUANTITIES

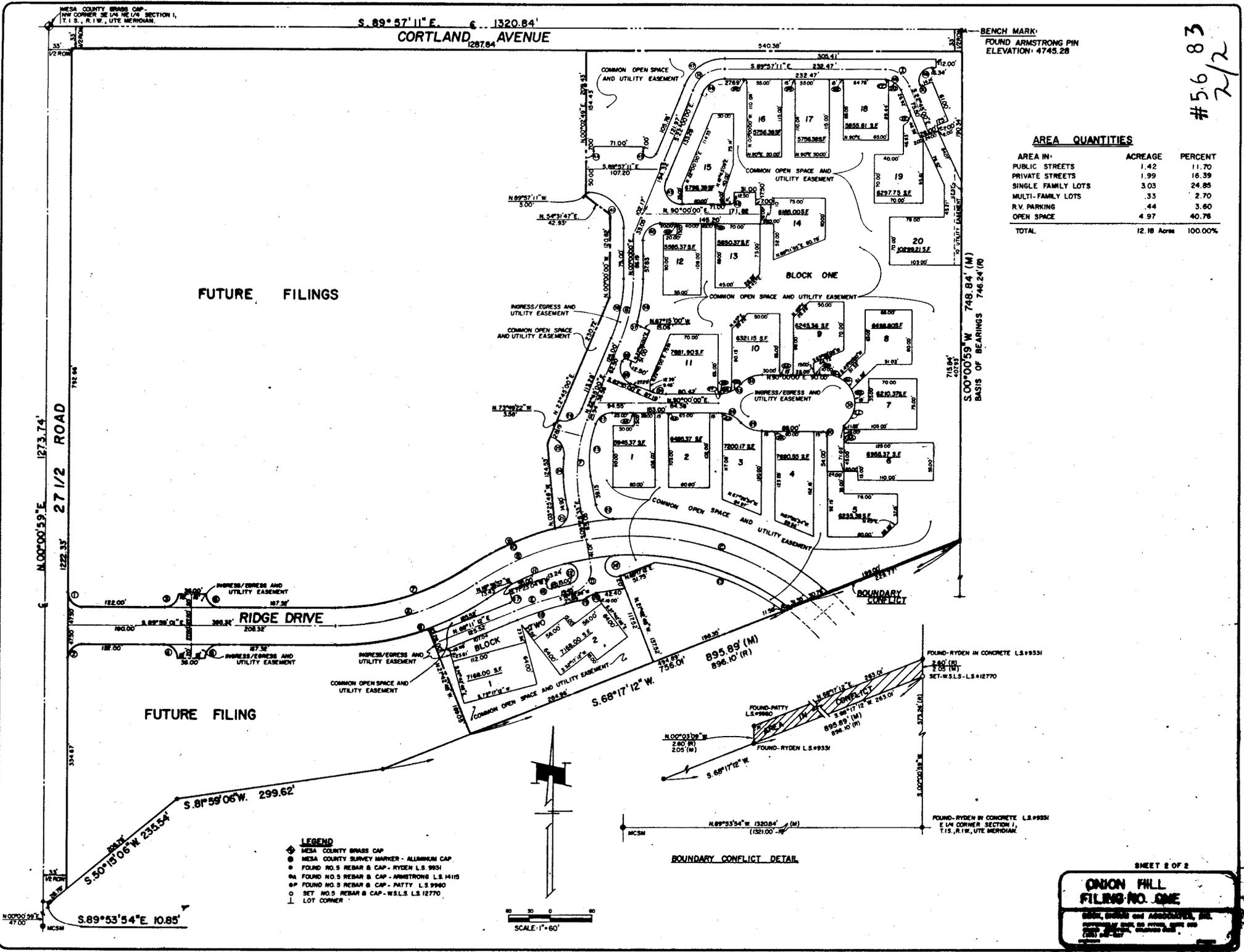
AREA IN	ACREAGE	PERCENT
PUBLIC STREETS	1.42	11.70
PRIVATE STREETS	1.99	16.39
SINGLE FAMILY LOTS	3.03	24.85
MULTI-FAMILY LOTS	.33	2.70
R.V. PARKING	.44	3.60
OPEN SPACE	4.97	40.78
TOTAL	12.18 Acres	100.00%

FUTURE FILINGS

FUTURE FILING

N. 00° 00' 39" E. 1273.74'
27 1/2 ROAD
 1222.33'

S. 00° 00' 59" W. 748.84' (M)
 BASIS OF BEARINGS 746.24' (R)



- LEGEND**
- ◆ MESA COUNTY BRASS CAP
 - MESA COUNTY SURVEY MARKER - ALUMINUM CAP
 - FOUND NO. 5 REBAR & CAP - RYDEN L.S. 9931
 - FOUND NO. 5 REBAR & CAP - ARMSTRONG L.S. 14115
 - FOUND NO. 5 REBAR & CAP - PATTY L.S. 9960
 - SET NO. 5 REBAR & CAP - W.S.L.S. L.S. 12770
 - ┆ LOT CORNER

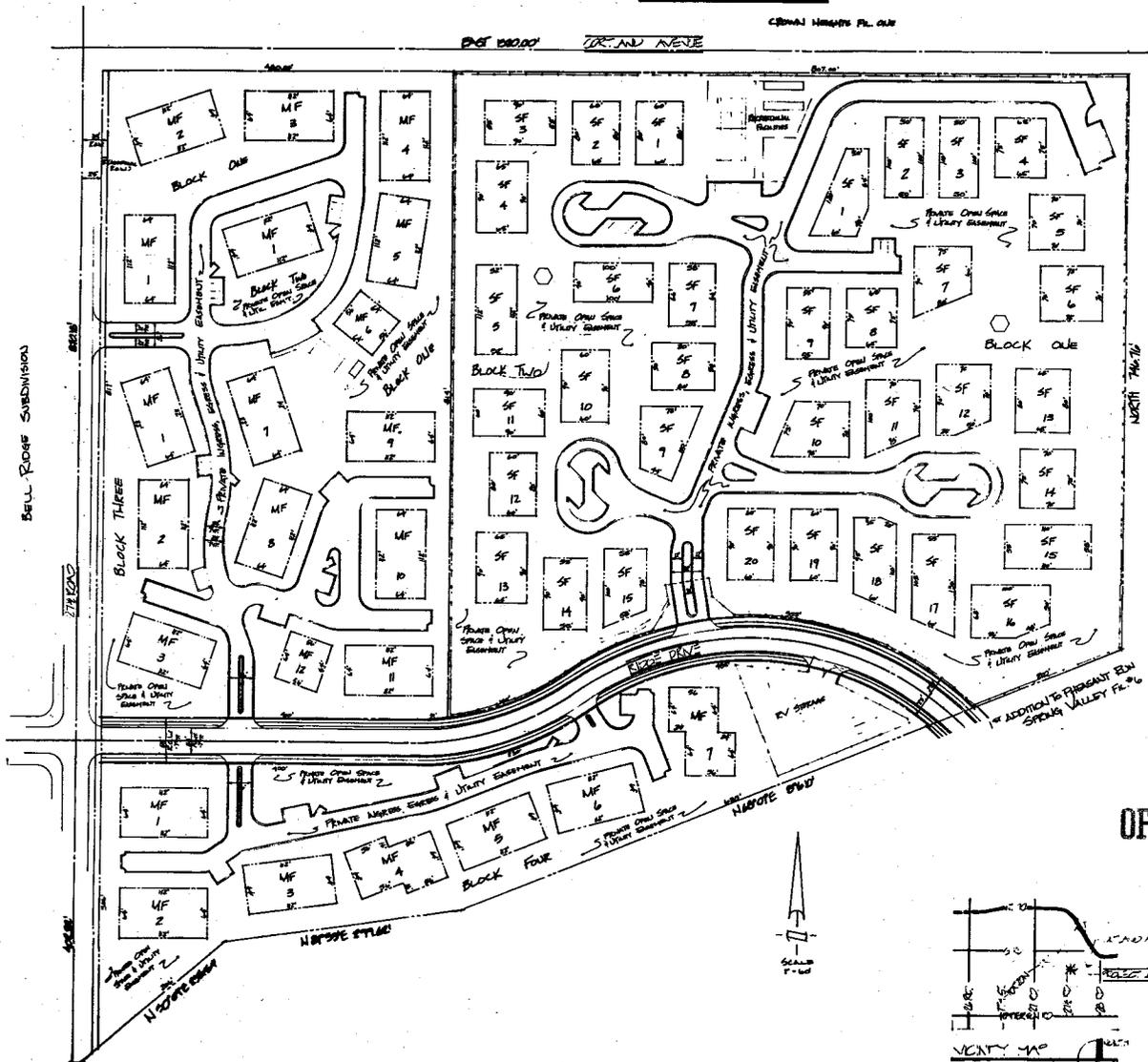
BOUNDARY CONFLICT DETAIL

SHEET 2 OF 2

ONION HILL
FILING NO. ONE
 REAL, ESTATE and ASSOCIATED, INC.
 1000 WEST 10TH AVENUE, SUITE 200
 DENVER, COLORADO 80202

PRELIMINARY PLAT FOR
ONION HILL

CDOMD HIGHLAND PL. 018



SPRUCE RUN SPRUCE RUN PL. 016

IN ADDITION TO PRESENT ERM SPRUCE VALLEY PL. 016

TOTAL AREA: 21.5 AC.		100.0%
SINGLE FAMILY:		
LOTS (5000 SF AVERAGE)	4.0 AC.	18.6%
DRIVEWAYS & PARKING	2.4 AC.	
WALKS & BIKEWAY AREA	0.3 AC.	
PRIVATE OPEN SPACE	2.7 AC.	
	9.4 AC.	43.51%
MULTI-FAMILY:		
LOTS (1772 SF AVERAGE)	8.6 AC.	
DRIVEWAYS & PARKING	2.1 AC.	
WALKS & BIKEWAY AREA	0.5 AC.	
PRIVATE OPEN SPACE	6.5 AC.	
	17.7 AC.	81.58%
R.V. STORAGE ROADWAY:		
	0.1 AC.	0.47%
	1.7 AC.	7.92%

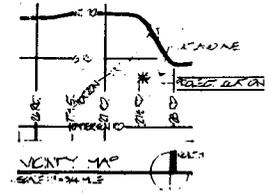
OFFICE COPY

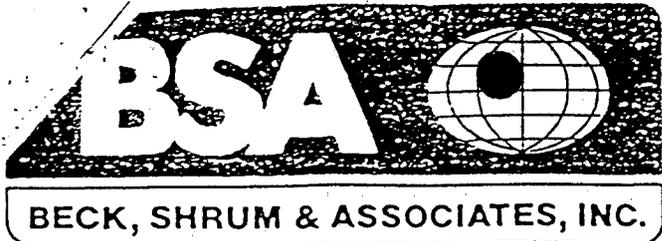
BECK, SHRUM and ASSOCIATES, INC.
PUFFERBELY LAK, 215 PITKIN, SUITE 203
GRAND JUNCTION, COLORADO 81501
engineers

PRELIMINARY PLAT FOR
ONION HILL

9b gray • brener
architects • planners
1244 east thousand ways, suite 1, 200-588, grand junction, color. 81501

date: 8-2-83
drawn: M/D
title:
sheet:
of:





· ENGINEERS · PLANNERS ·

Pufferbelly East
215 Pitkin, Suite 203
Grand Junction, Colorado 81501
(303) 243-1227

Thomas P. Beck, P.E.
Daryl K. Shrum, A.P.A.

December 20, 1983
BSA319/G13.11

Mr. Bill Klapwyk
Grand Valley Water Users
500 South 10th Street
Grand Junction, Colorado 81501

Subject: Response to Review Comments - Onion Hill Subdivision
(City File 56-83)

Dear Mr. Klapwyk:

I met with you on November 29, 1983 to discuss the irrigation requirements for the above referenced subdivision. The major topic of concern was the protection of the existing underground irrigation line along the Northern boundary of the project.

We are currently in the preliminary planning stage of the project and have not surveyed the exact location of the line. However, based on a field investigation, it appears that the line in question is located 26 feet South of the Courtland centerline within the City's street right-of-way. In addition, as shown on the preliminary plat of Onion Hill, all areas within the subdivision with the exception of the building lots will represent a utility easement. In other words, there is approximately a 25 foot easement between the property line and the nearest building as well as the space provided in the public right-of-way for maintenance purposes.

The final engineering drawings for the project concerning the irrigation system will be forwarded to your office for review after the exact location of the line is determined in relationship to the street centerline and the property line. Above all else, care will be taken to insure that the irrigation line is protected and that appropriate easements are recorded on the final plat.

Thank you for your assistance.

Sincerely,
BECK, SHRUM & ASSOCIATES, INC.

Daryl K. Shrum
Principal

cc:Corres./Out
G13.11
City Planning Department
Gray Brenner, Architects

RECEIVED GRAND JUNCTION
PLANNING DEPARTMENT

MAY 10 1984

HYDROLOGY REPORT

FOR

ONION HILL FILING NO. ONE

GRAND JUNCTION PLANNING DEPT.
300 W. 1st Ave. Room 200
Grand Junction, CO 81501

GRAND JUNCTION PLANNING DEPT.
300 W. 1st Ave. Room 200
Grand Junction, CO 81501

#56 83

PREPARED FOR

ONION HILL LTD.

PREPARED BY

BECK, SHRUM AND ASSOCIATES, INC.
215 Pitkin, Suite 203
Grand Junction, CO.

Original
Do NOT Remove
From Office

May 11, 1984

I. PURPOSE

This report has been prepared at the request of the Grand Junction City Engineer and it addresses the following items concerning Onion Hill Filing No. One:

1. 2-year and 10-year hydrologic events
2. Detention of stormwater runoff
3. Hydraulic properties of channels, culverts and improvements within 1/2 mile downstream.
4. Hydrologic effect of stormwater runoff on the pond in Crestview Subdivision.

II. CONCLUSIONS AND RECOMMENDATIONS

The calculated 2-year historic flow entering the existing 16 inch culvert at the southwest corner of the Onion Hill development is 8.5 cfs. This culvert will require a 14 inch diameter orifice to insure that the stormwater leaving the Onion Hill development will not exceed the 2-year historic flow.

The required storage capacity of an on-site detention facility for Onion Hill Filing No. One is 7,215 cu.ft. Existing topographic conditions at the southwest corner of the development will provide this required capacity.

The hydraulic properties of the downstream drainage facilities have been detailed on Figure 1. Because of the detention facilities that are planned for Onion Hill, the hydrologic effect of a 10-year developed storm on the downstream drainage facilities will not be any greater than that from a 2-year historic storm.

As far as the ponds in Crestview Subdivision are concerned, the hydrologic effect of runoff from a 10-year developed storm will be minimal since the ponds are designed to accept runoff up to 150 cfs.

III. DISCUSSION

A. Calculation of Stormwater Runoff:

For this report, the Rational Method of calculating stormwater runoff was used. Properly understood and applied, the Rational Method produces satisfactory results for urban storm drainage design for small and simple drainage systems such as Onion Hill Filing No. One.

The Rational Method is based on the Rational Formula:

$$Q = CiA$$

Where Q = maximum rate of runoff in cubic feet per second, cfs

i = average rate of rainfall intensity in inches per hour

A = area contributing to runoff in acres

The rainfall intensity, i , is defined more specifically as the average rate of rainfall intensity for the period of maximum rainfall of a given frequency of occurrence having a duration equal to the time of concentration. The time of concentration is the time required for water to flow from the most remote point of the area to the point being investigated. In this case, the point being investigated is the entrance to the culvert at the southwest corner of the Onion Hill development (See Figure 1).

To calculate the time of concentration for the historic and the developed conditions, a nomograph relating flow distance, ground roughness and surface slope was used (See Exhibit A). For the historic flows, a time of concentration of 30 minutes was calculated. For the developed flows, a time of concentration of 13 minutes was calculated.

The rainfall intensity was derived from a set of rainfall intensity duration curves for Grand Junction (See Exhibit B). These curves were prepared by Mr. Bruce H. Bradford of Water Management Science, Inc. of Atlanta, Georgia. Using a duration of 30 minutes, the 2-year and 10-year historic rainfall intensities were determined to be 0.9 inches/hour and 1.5 inches/hour respectively. Using a duration of 13 minutes, the 2-year and 10-year developed rainfall intensities were determined to be 1.4 inches/hour and 2.2 inches/hour respectively.

From an orthophoto topography map prepared by the U.S. Bureau of Reclamation, the area contributing to the runoff was determined to be 47.1 acres for the historic runoff and 36.8 acres for the developed runoff. The reduction in drainage area resulted from surface alterations that were made during the construction of Spring Valley Subdivision. These surface alterations now direct a portion of the historic runoff into another drainage basin.

The runoff coefficient, C , represents the integrated effects of infiltration, detention, evaporation, retention, flow routing and interception which all effect the time distribution and peak rate of runoff. For calculation of historic runoffs, a "C" value of 0.20 was used (See Exhibit C). For calculation of the developed runoffs, composite "C" values were calculated for subareas within the drainage area and were combined to give an overall "C" value of 0.33.

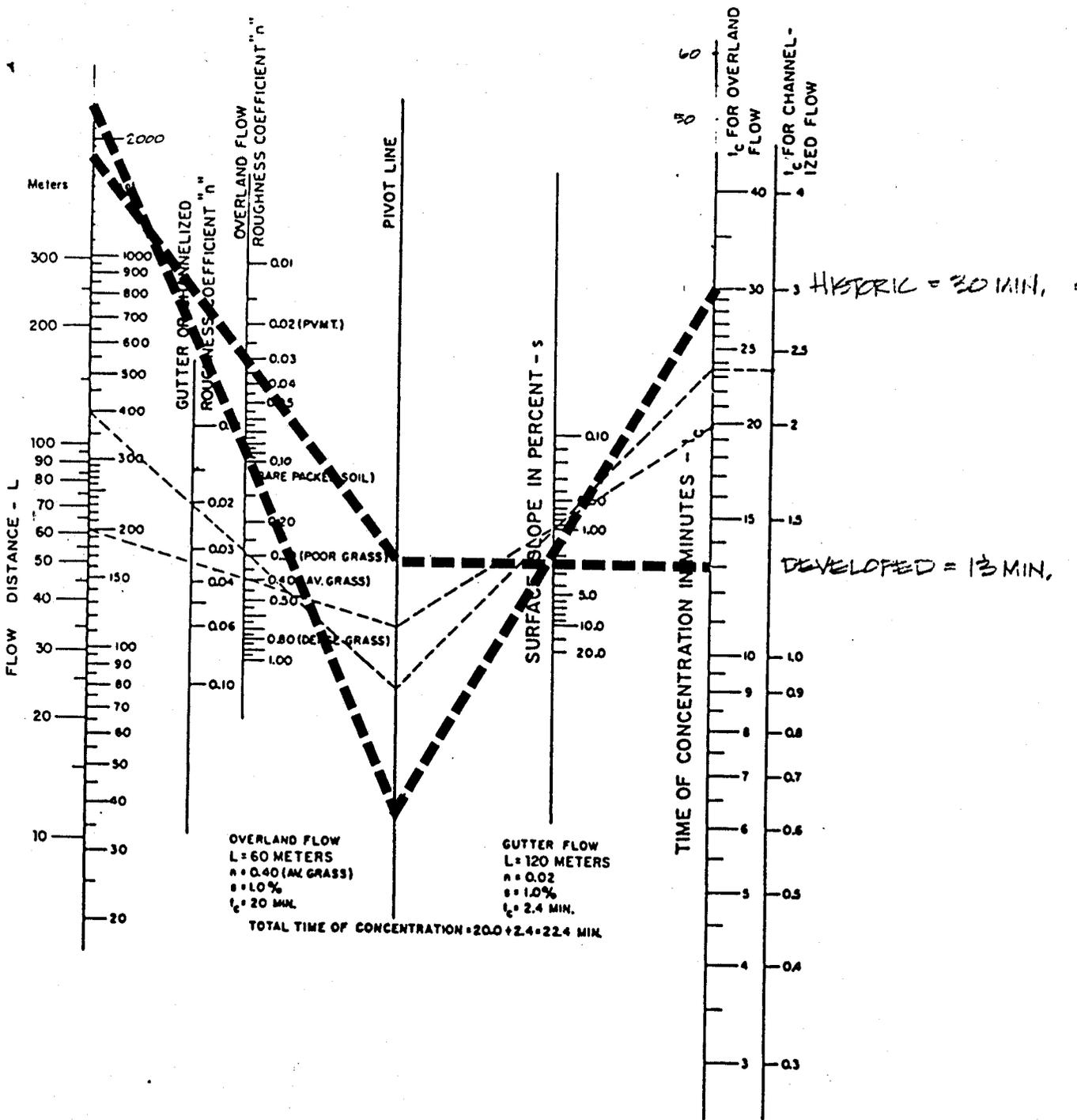
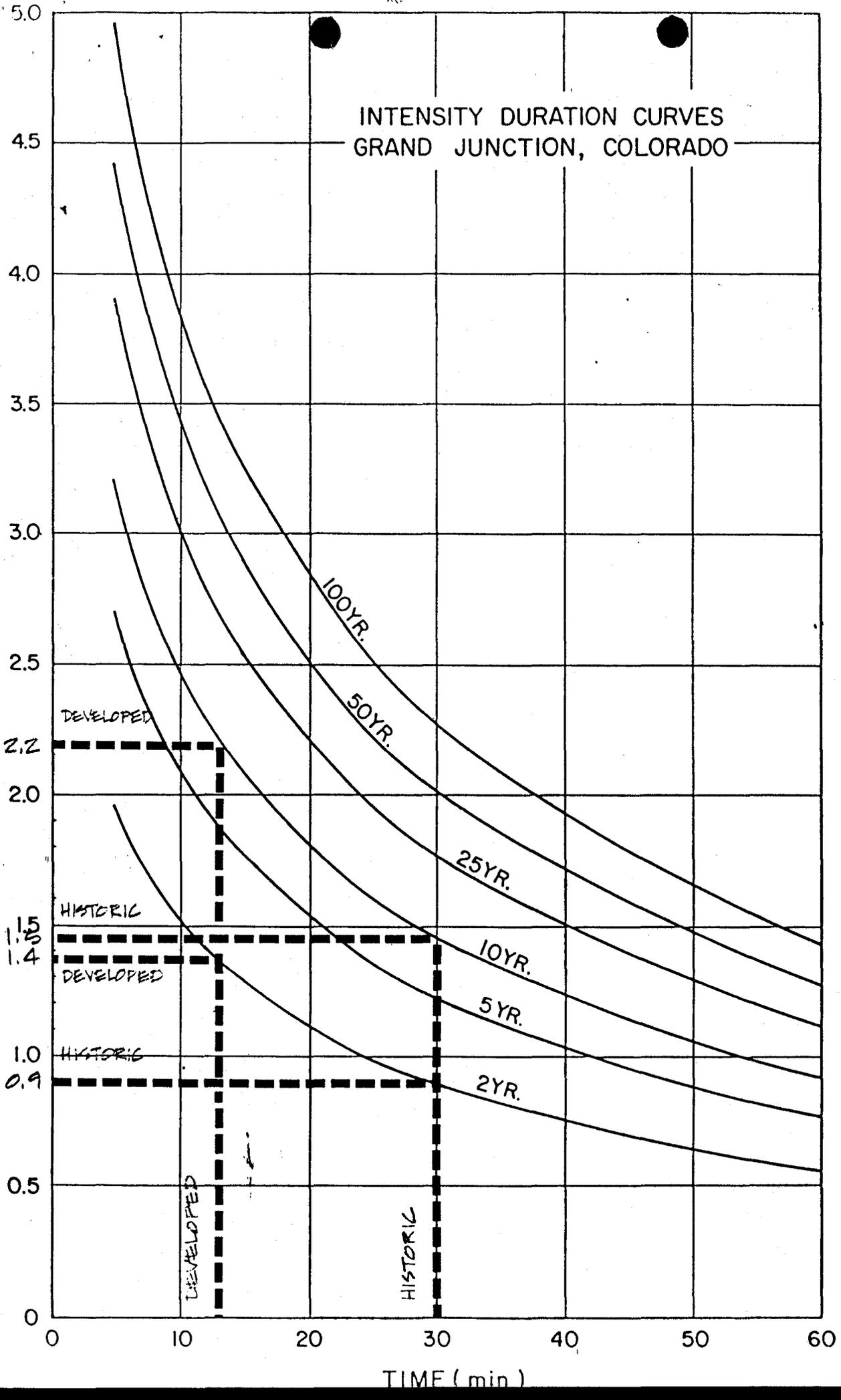


Figure 6.1 Nomograph for time of concentration.

Reprinted from "Urban Storm Drainage Management", Sheaffer, et.al., Marcel Dekker, Inc., 1982

INTENSITY DURATION CURVES
GRAND JUNCTION, COLORADO



For Impervious Surfaces

<u>Character of surface</u>	<u>Runoff coefficient</u>
Streets:	
Asphaltic	0.70-0.95
Concrete	0.80-0.95
Drives and walks	0.75-0.85
Roofs	0.75-0.95

For Pervious Surfaces

<u>Slope</u>	<u>Runoff coefficient</u>			
	<u>A soils</u>	<u>B soils</u>	<u>C soils</u>	<u>D soils</u>
Flat: 0-2%	0.04	0.07	0.11	0.15
Average: 2-6%	0.09	0.12	0.16	0.20
Steep: Over 6%	0.13	0.18	0.23	0.28

Sources: (Top) Reprinted with permission of the American Society of Civil Engineers [3]; (bottom) reprinted with permission of Kurt W. Bauer and The Southeastern Wisconsin Regional Planning Commission [4].

<u>Description of area</u>	<u>Runoff coefficients</u>
Business:	
Central business areas	0.70-0.95
District and local areas	0.50-0.70
Residential:	
Single-family areas	0.35-0.45
Multiunits, detached	0.40-0.60
Multiunits, attached	0.60-0.75
Residential 1/4-hectare (1/2-acre) lots or larger	0.25-0.40
Industrial:	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Parks, cemeteries	0.10-0.25
Playgrounds	0.20-0.35
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30

Source: Reprinted with permission of the American Society of Civil Engineers [3].

Table 1 Summarizes each of the peak runoffs:

Table 1

DESCRIPTION	RUNOFF COEFFICIENT, C	RAINFALL INTENSITY, IN/HOUR	AREA, ACRES	TOTAL PEAK RUNOFF, CFS
2-Year Historic	0.20	0.9	47.1	8.5
10-Year Historic	0.20	1.5	47.1	14.1
2-Year Developed	0.33(approx.)	1.4	36.8	16.7
10-Year Developed	0.33(approx.)	2.2	36.8	26.3

B. Calculation of Runoff Volumes

To determine the size of required detention facilities, the total quantity of runoff from the 2-year historic and the 10-year developed storms must be calculated. The most common method is to use the concept of a triangular hydrograph. This is a generalized method and, as in all generalized procedures, certain criteria have been adopted arbitrarily as applicable to the greatest number of cases. These criteria are as follows:

1. The time-to-peak, T_p , of the triangle (hydrograph) is equal to the time of concentration. ($T_p = T_c$)
2. The peak of the triangle is equivalent to the peak discharge calculated by the Rational Formula.
3. The duration, or time base, of the triangle is equal to 2.67 times the time-to-peak ($T_b = 2.67 T_p$).
4. The use of a triangular hydrograph is adequate only for very small and simple development drainage proposals, particularly when it is involved with on-site storage systems.

Based on the above criteria, the quantities of runoff generated by the 2-year historic and 10-year developed storms were determined. They are summarized in Table 2 below:

Table 2

DESCRIPTION	TIME-TO- PEAK MINUTES	TIME BASE, MINUTES	PEAK FLOW RATE, CFS	QUANTITY OF RUNOFF, CU.FT.
2-Year Historic	30	80	8.5	20,400
10-Year Developed	13	35	26.3	27,615

C. Detention Facilities

The City Engineer requires all new developments within the City limits to provide on-site stormwater detention facilities. Therefore, it is proposed to use the southwest corner of Onion Hill as the detention facility for Filing No. One (See Figure No. 1).

The southwest corner of the development is the lowest point in the Subdivision and has historically acted as a collection point for stormwater runoff. Although dry at the time of this report, the area obviously experiences periods of higher than average moisture as evidenced by the cattails and abundant grasses.

A 16 inch diameter culvert has been installed at this corner and passes approximately 4 feet under 27 1/2 Road. This culvert is fairly free of obstructions on the inlet side. The outlet, however, is completely buried and would restrict all but a small trickle of runoff during a storm. For purposes of this report, it has been assumed that the outlet will be cleaned out.

In designing detention facilities, the City Engineer requires that they be sized to detain the runoff exceeding the 2-year historical flow up to the 10-year developed flow. Accordingly, for Filing No. One, the detention facility must be capable of detaining 7,215 cubic feet of runoff and discharge no more than 8.5 cfs.

Based on a topo map of the proposed detention area, there is sufficient capacity to store the required amount of runoff without the need for additional excavation or the construction of a dike. Specifically, it is estimated that the elevation of the detained water will be approximately 4705.8, or about 21 inches below 27 1/2 Road.

In order to insure that the flow leaving the detention facility will not exceed 8.5 cfs, a restrictive orifice must be placed over the culvert inlet. Our analysis indicates that the orifice should be about 13 inches in diameter. This is based on a headwater depth of approximately 4 feet, a culvert slope of 4.17%, a roughness coefficient of 0.024, the entrance being submerged and the culvert being hydraulically short. Calculations to support our analysis are included at the end of this report.

D. Downstream Hydraulic Properties

A map has been prepared (See Figure 1) which provides a general overview of hydraulic conditions downstream from Onion Hill. As directed by the City Engineer, however, no attempt has been made to determine capacities of existing drainage ways, culverts or ponds. This would require additional study and analysis which is beyond the scope and purpose of this report.

It is apparent, however, that by providing a detention facility for Onion Hill, the hydrologic effect of a 10-year developed storm on the downstream facilities and drainage ways will not be any greater than that from a 2-year historic storm. In particular, there should be no adverse hydrologic effect on the ponds in Crestview Subdivision, since according to a hydrologic report prepared by ARIX in 1979, the ponds have been designed to accept flows up to 150 cfs.

REFERENCES

1. Urban Storm Drainage Management, Sheaffer, et.al., Mercel Dekker, Inc., 1982
2. Open-Channel Hydraulics, V.T. Chow, McGraw-Hill Book Co., 1959
3. Handbook of Hydraulics, King and Brater, McGraw-Hill Book Co., 5th Edition., 1963
4. Procedures for Determining Peak Flows in Colorado, Soil Conservation Service, March, 1980
5. Grand Junction Master Drainage Plan, Nelson, Haley, Patterson & Quirk, Inc., April, 1975

C A L C U L A T I O N S

AREA CALCULATIONS

ONION HILL FILING NUMBER ONE

1. PAVING

A. Single Family (including V-Pan Gutter)

$$[(40 + 112.49 + 25.94 + 36.56 + 62.50 + 93.31 + 66.19 + 33.05 + 94.32 + 59.38 + 232.47 + 45.74 + 75.50) \times 28'] + (51 \times 20)(5.91 \text{sq.in.} \times 3600 \text{s.f./s.i.}) + (0.17 \times 3600) + 1.08 \times 3600 + (1.90 \times 3600) + (61.00 \times 17.5) + (0.3 \times 3600) = 65,952 \text{s.f.}$$

B. Multi-Family = $(2.79 \times 3600) = 10,044 \text{ s.f.}$

C. R-V Parking = $(5.23 \times 3600) = 18,828 \text{ s.f.}$

D. Ridge Drive = $(180 + 385.32 + 215.56 = 173.24 + 350.26) \times 46' + (20 \times 36 \times 2 \text{ea.}) + (1/2 \times 25' \times 10 \times 4 \text{ea.}) = 61,941 \text{ s.f.}$

2. ROOFS AND DRIVEWAYS

A. Single Family Assume 20 homes @ 3000 s.f. roof area and 600 s.f. driveway area.
Total Area = $20 \times 3600 = 72,000 \text{ s.f.}$

B. Multi-Family Assume 8 units @ 1450 s.f. roof area and 400 s.f. driveway area.
Total Area = $8 \times 1850 = 14,800 \text{ s.f.}$

3. PONDS

$$(4.97 \text{ sq.in.} + 0.72 + 0.92 + 0.76 + 1.09) \times 3600 \text{s.f./sq.in.} = 30,456 \text{s.f.}$$

AREA CALCULATIONS

AREA A:

$$(26.77 + 13.07 + 13.00 + 4.80 + 17.13 + 8.08) \times 3600 \text{ s.f. []} = 298,260 \text{ s.f.} = 6.85 \text{ Ac.}$$

AREA B: $(21.48 + 14.21 - 13.63) \times 3600 \text{ s.f. []} = 177,552 \text{ s.f.} = 4.07 \text{ Ac.}$

AREA C: $28.33 \text{ Ac.} - (6.85 = 4.08) = 17.40 \text{ Ac.}$

AREA D: (Remaining Area) = $36.8 \text{ Ac.} - (6.85 + 4.07 + 17.40) = 8.48 \text{ Ac.}$

BREAKDOWN OF AREA CALCS BY LAND TYPE

AREA A:

Paving, Curbs and Gutters: $137,937 \text{ s.f.} = 3.17 \text{ Ac.}$
Driveways: $15,200 \text{ s.f.} = 0.35 \text{ Ac.}$
Roofs: $(6 \text{ homes} \times 3000 \text{ s.f.}) + (7 \text{ homes} \times 1500 \text{ s.f.})$
 $+ (8 \text{ units} \times 725 \text{ s.f.}) = 34,300 \text{ s.f.} = 0.79 \text{ Ac}$
Landscaped Ground: $298,260 - (137,937 + 15,200 + 34,300)$
 $= 110,823 \text{ s.f.} = 2.54 \text{ Ac.}$

AREA B:

Paving, Curbs and Gutters: 0
Driveways: 0
Roofs: $(7 \times 1500) + (7 \text{ homes} \times 3000) = 31,500 \text{ s.f.} = 0.72 \text{ Ac.}$
Ponds: $30,456 \text{ s.f.} = 0.70 \text{ Ac.}$
Landscaped Ground: $177,552 - (31,500 + 30,456) = 115,596 \text{ s.f.} = 2.65 \text{ Ac.}$

AREA C:

R-V Storage: $5.21 \text{ in}^2 \times 3600 = 18,756 \text{ s.f.} = 0.43 \text{ Ac.}$
Driveways: 0
Roofs: $(8 \text{ units} \times 725 \text{ s.f.}) = 5800 \text{ s.f.} = 0.13 \text{ Ac.}$
Landscaped Ground: $3.95 \text{ in}^2 \times 3600 \text{ s.f.} = 14,220 \text{ s.f.} = 0.33 \text{ Ac.}$
Marsh: $40,351 \text{ s.f.} = 0.93 \text{ Ac.}$
Bare Ground: $(17.40 \times 43,560) - (18,756 - 5800 + 14,220 + 40,351) = 678,817 \text{ s.f.} = 15.58 \text{ Ac.}$

RUNOFF CALCULATIONS

1. Estimate Time of Concentration, T_c, for Historic Flows:

Flow Distance, L = 2400ft.
Elev. Differential, H = 4750.0 - 4702.0 = 48.0'
Average surface slope = 48.0 - 2400' = 2.0%
Assume roughness coefficient, n = 0.10

Therefore, from Figure 6.1 (Urban Storm Drainage Management, 1982, 10th Ed.) the estimated Time of Concentration, T_c = 30 min.

2. Estimate Peak Historic Flows for 2-Year and 10-Year Storms:

Area A = (51.28 in² x 40,000s.f./in²) - 43,560 = 47.1 Ac.
Rainfall intensity, i (2-year storm) = 0.9in/hr *
Rainfall intensity, i (10-year storm) = 1.5in/hr*
* From Intensity Duration Curves for Grand Junction, CO.

Runoff coefficient, C = 0.20 (Table 6.2, Urban Storm Drainage Management)

Runoff from the 2-year and 10-year storms are calculated as follows:

$$q_p \text{ (2-year)} = CiA = (0.20)(0.9)(47.1) = \underline{8.5 \text{ cfs}}$$

$$q_p \text{ (10-year)} = CiA = (0.20)(1.5)(47.1) = \underline{14.1 \text{ cfs}}$$

3. Estimate Time of Concentration, T_c, for Developed Flows:

Flow Distance, L = 1850'
Elev. Diff., H, = 4744 - 4702 = 42'
Average Slope = 42 - 1850 = 2.3%
Assume Roughness Coefficient = 0.03

From Figure 6.1 (Urban Storm Drainage Management)
T_c = 13 min.

4. Estimate Developed Rainfall Intensities for 2-Year and 10-Year Storms:

From Intensity Duration Curves for Grand Junction:

$$\begin{aligned} \text{2-Year} &= \underline{1.4 \text{ in/hr}} \\ \text{10-Year} &= \underline{2.2 \text{ in/hr}} \end{aligned}$$

5. Estimate Developed Peak Flows for 2-Year and 10-Year Storms:

a. Flow from Area A: (Area = 6.85 Ac.)

Calculate Composite Runoff Coefficient:

Description	Area	% Of Total Area	"C"	Weighted "C"
Paving	3.17Ac.	46.3%	0.90	0.42
Driveways	0.35	5.1	0.95	0.05
Roofs	0.79	11.5	0.80	0.09
Landscaping	2.54	37.1	0.20	0.07
TOTAL:	6.85Ac.	100.0%	--	<u>0.63</u>

$$\therefore q_p (2\text{-Year}) = (0.63)(1.4 \text{ in/hr})(6.85 \text{ Ac.}) = \underline{6.0 \text{ cfs}}$$

$$\therefore q_p (10\text{-Year}) = (0.63)(2.2 \text{ in/hr})(6.85 \text{ Ac.}) = \underline{9.5 \text{ cfs}}$$

b. Flow from Area B: (Area = 4.08 Ac.)

Calculate Composite Runoff Coefficient:

Description	Area	% Of Total Area	"C"	Weighted "C"
Paving	0	0	0.90	0
Driveways	0	0	0.95	0
Roofs	0.72Ac.	17.7	0.80	0.14
Landscaping	2.65	65.1	0.20	0.13
Ponds	0.70	17.2	1.00	0.17
TOTAL:	4.07Ac.	100.0	--	<u>0.44</u>

$$\therefore q_p (2\text{-Year}) = (0.44)(1.4 \text{ in/hr})(4.07 \text{ Ac.}) = \underline{2.5 \text{ cfs}}$$

$$\therefore q_p (10\text{-Year}) = (0.44)(2.2 \text{ in/hr})(4.07 \text{ Ac.}) = \underline{3.9 \text{ cfs}}$$

c. Flow from Area C: (Area = 17.40 Ac.)

Calculate Composite Runoff Coefficient:

Description	Area	% Of Total Area	"C"	Weighted "C"
Paving	0	0	0.90	0
Driveways	0	0	0.95	0
Roofs	0.13Ac.	0.8	0.80	0.01
Landscaping	0.33	1.9	0.20	0.18
R-V Storage	0.43	2.5	0.75	0.02
Natural Ground	15.58	89.5	0.20	0.18
Marsh	0.93	5.3	0.60	0.03
	17.40Ac.	100.0%	--	<u>0.24</u>

$$q_p \text{ (2-Year) } = (0.24)(1.4 \text{ in/hr})(17.40 \text{ Ac.}) = \underline{5.8 \text{ cfs}}$$

$$q_p \text{ (10-Year) } = (0.24)(2.2 \text{ in/hr})(17.40 \text{ Ac.}) = \underline{9.2 \text{ cfs}}$$

d. Flow from Area D (Area Outside Onion Hill Development)

Area = 8.48 Acres

$$q_p \text{ (2-Year) } = (0.20)(1.4)(8.48) = \underline{2.4 \text{ cfs}}$$

$$q_p \text{ (10-Year) } = (0.20)(2.2)(8.48) = \underline{3.7 \text{ cfs}}$$

e. Total Flow as a Result of Filing No. One

$$q_p \text{ (2-Year) } = 6.0 + 2.5 + 5.8 + 2.4 = \underline{16.7 \text{ cfs}}$$

$$q_p \text{ (10-Year) } = 9.5 + 3.9 + 9.2 + 3.7 = \underline{26.3 \text{ cfs}}$$

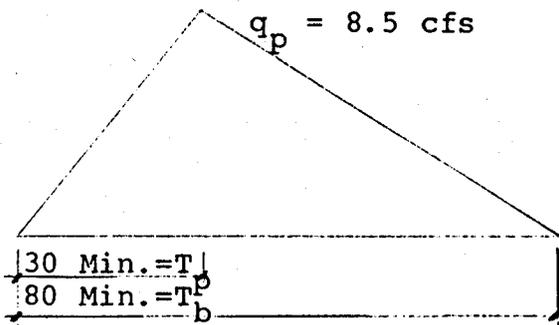
(Composite "C" = 0.33)

6. Estimate Runoff Volumes

a. Assume:

1. Triangular hydrograph describes drainage area response
2. Duration of storm equals time of concentration
3. Peak of hydrograph equals peak discharge calculated by Rational Formula
4. Time to peak equals time of concentration
5. Receding limb of hydrograph equals 2.67 times of concentration

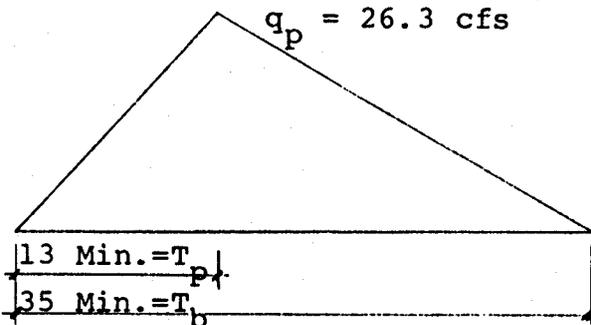
b. Looking at Historic 2-Year Storm:



$$\begin{aligned}
 T_p &= T_c = 30 \text{ Min.} \\
 T_b &= 2.67 T_p \\
 &= (2.67)(30) \\
 &= 80 \text{ Min.}
 \end{aligned}$$

$$\begin{aligned}
 \therefore \text{Total 2-Year Historic Volume} &= \\
 &80 \text{ min} \times 60 \text{ sec/min} \times 5.7 \text{ cfs} \div 2 = \underline{20,400 \text{ cu. ft.}}
 \end{aligned}$$

c. Looking at Developed 10-Year Storm:



$$\begin{aligned}
 T_p &= T_c = 13 \text{ Min.} \\
 T_b &= 2.67 T_p \\
 &= (2.67)(13) \\
 &= 35 \text{ Min.}
 \end{aligned}$$

$$\begin{aligned}
 \therefore \text{Total 10-Year Developed Volume} &= \\
 &35 \text{ min} \times 60 \text{ sec/min} \times 26.3 \text{ cfs} \div 2 = \underline{27,615 \text{ cu.ft.}}
 \end{aligned}$$

7. Estimate Required Detention Volume:

Per City Engineer: The required detention volume must detain all runoff greater than the 2-year historic flow up to, and including, the runoff from the 1-year developed flow:

$$V_D = V_{10D} - V_{2H}$$

Where: V_D = Detention Volume

V_{10D} = Volume of Runoff from 10-Year Developed Storm

V_{2H} = Volume of Runoff from 2-Year Historic Storm

$$\therefore V_D = 27,615 \text{ cu.ft.} - 20,400 \text{ cu.ft.} = \underline{7,215 \text{ cu.ft.}}$$

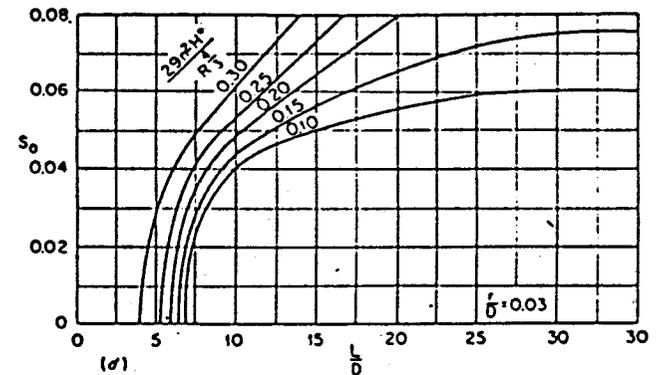
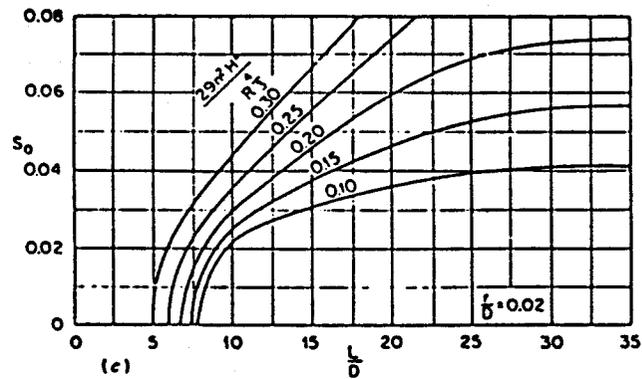
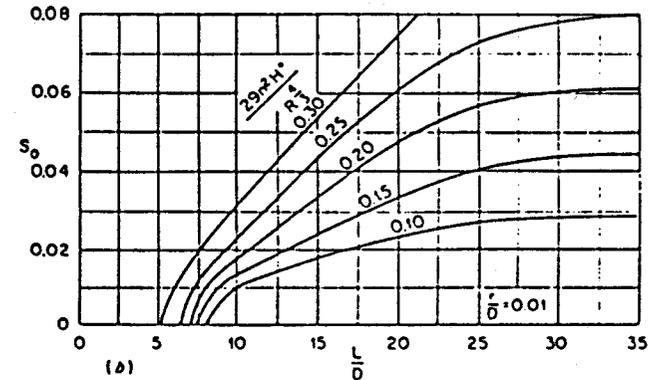
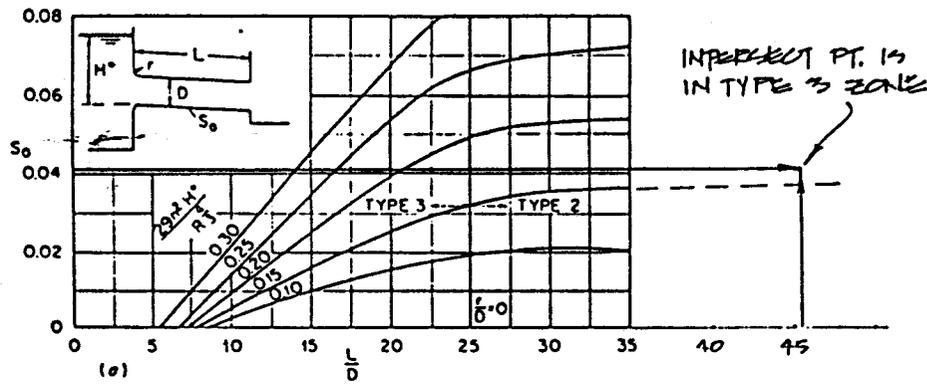


FIG. 17-27. Criteria for hydraulically short and long culverts with rough barrels of corrugated pipes. (U.S. Geological Survey [27].)

10. Calculate Depth of Flow in 27 1/2 Rd. Culvert at 2-Year Historic Flow:

$$Q_{2H} = 8.5 \text{ cfs}$$

$$\text{Slope, } s = 4.17\%$$

$$\text{Diameter, } D = 16 \text{ inches} = 1.33 \text{ ft.}$$

Assume:

1. $n = 0.024$
2. flow is uniform
3. Manning's Formula will apply

$$AR^{2/3} = \frac{nQ}{1.49 s} \quad (\text{Formula 6-8 "Open-Channel Flow", V.T. Chow, 1959})$$

$$= \frac{(0.024)(8.5)}{1.49 \cdot 0.0417} = 0.671$$

$$\frac{AR^{2/3}}{D^{8/3}} = \frac{0.671}{(1.33)^{8/3}} = 0.314$$

From Figure 6.1 ("Open-Channel Flow", V.T. Chow, 1959):

$$\text{if } \frac{AR^{2/3}}{D^{8/3}} = 0.273 \Rightarrow y/d = 0.84$$

$$\therefore \text{depth of flow, } y = D \times 0.84 = 16" \times 0.84 = \underline{13.4"}$$

11. Calculate Size of Restrictive Orifice:

Assume:

1. Submerged orifice
2. Bernoulli's equation will apply
3. Sharp-edged orifice, round
4. Coefficient, $c = 0.6$ (Table 4-6, "Handbook of Hydraulics", King & Brater, 5th Edition, 1963)

8. Calculate Size and Depth of Detention Area:

(See topo map of "Marsh" area by QED Survey)

a. Calculate storage volume available:

Elevation	Area Sq.Ft.	Double End Area	Countour Interval	Volume Between Contours	Cumulative Volume Cu.Ft.
4703	0				
		1,172	1 Ft.	586	586
4704	1,172				
		4,956	1	2,478	3,064
4705	3,784				
		12,156	1	6,078	9,142
4706	8,372				
		22,056	1	11,028	20,170
4707	13,684				

← 7215 @
4705.8+

b. By inspection, the elevation of the detained runoff when it reaches 7,215 cu.ft. (See Item 7 of the Calculations) will be between elevations 4705 and 4706. For design purposes assume maximum surface elevations will be 4705.8.

9. Calculate Type of Culvert Flow:

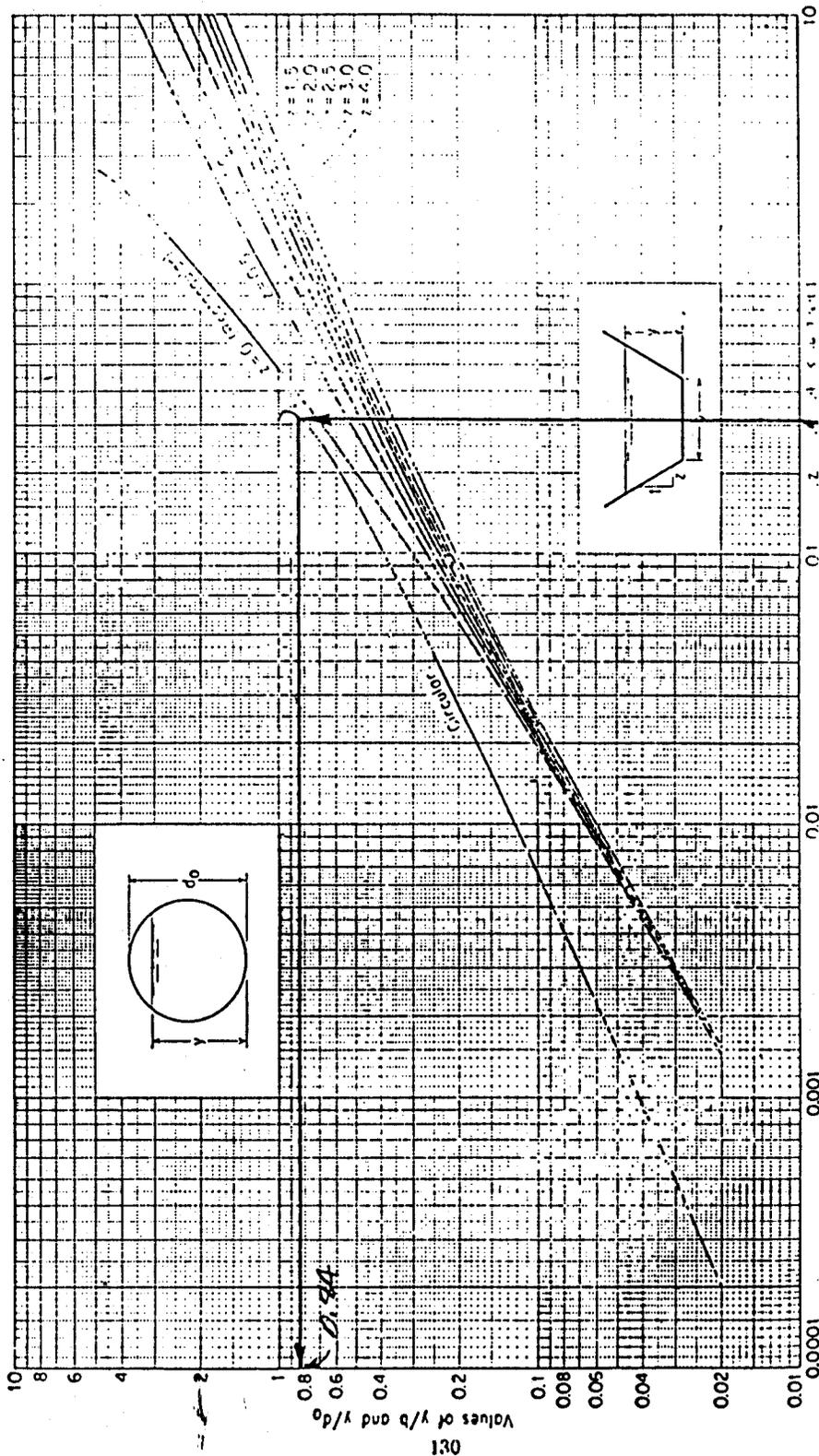
Assume:

n = 0.024
 L = 60 ft.
 d = 16 inches - D = 1.33'
 s = 4.17% = 0.0417
 H* = 2.0 ft.
 square edged entrance

$$\frac{L}{D} = \frac{60}{1.33} = 45.1$$

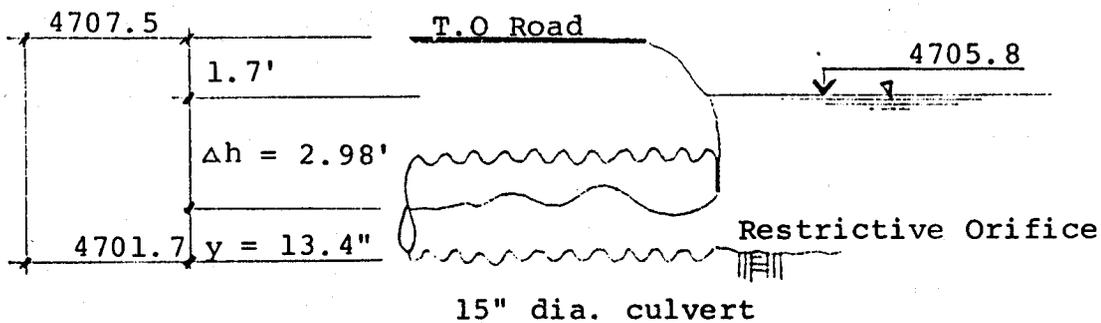
From Figure 17-27 ("Open-Channel Flow", V.T. Chow, 1959):

The nomograph does not have L/D greater than 35. However, by extending the L/D scale, it appears that the culvert would be hydraulically short. Therefore, flow will be Type 3 and will act as open channel flow.



$$Q_{2H} = C_a \sqrt{2g \Delta h} \quad (\text{Formula 4-21, "Handbook of Hydraulics"})$$

$$a = \frac{Q_{2H}}{C \sqrt{2g \Delta h}}$$



$$\Delta h = 4705.8 - \left(4701.77 + \frac{13.4}{12}\right) = 2.98'$$

$$\text{Area of orifice, } a = \frac{8.5 \text{ cfs}}{0.6 \sqrt{(2)(32.2)(2.98)}} = 1.02 \text{ s.f.}$$

$$\therefore d = \frac{4a}{\pi}^{1/2} = \frac{4(1.02)^{1/2}}{(3.14)} = 1.14'$$

Say 1'2" diameter

TRAFFIC ANALYSIS

Onion Hill

Information taken from Institute of Transportation Engineers handbook, land use code #200 Residential.

Single Family Detached - Code #210

Weekday Vehicle Trip Ends Per Unit

Average	Maximum	Minimum
10.0	21.9	4.3

Average is based on: 3.5 units per acre
3.7 persons per unit
1.6 cars per unit

Saturdays are slightly higher and Sundays are lower.

Single Family is 2.4 units per acre. We anticipate a full 2 cars per unit but not 3.7 persons per unit because our market is generally the "over 50" with just 2 at home. Therefore we feel around 8 to 10 trip ends would not be out of line. When built out, all filings will have 35 units, or between 280 and 350 trip ends for the project.

Multifamily

Condominium/Townhouse - Code #230

Weekday Vehicle Trip Ends Per Unit

Average	Maximum	Minimum
5.1	9.4	0.6

No information given on what was average. Our multifamily at around 7 units per acre should be about average since it is a modest density. Therefore we feel around 5 trip ends would be about right. When built out, all filings will have 88 units, or 440 trip ends.

Project total of about 750 trip ends.

BUILDING PERMIT GUARANTEE FORMAT

November 30, 1983

City of Grand Junction
559 White Avenue - Room 60
Grand Junction, Colorado 81501

Guarantee of Improvements as Per Improvements Agreement as required for ONION HILL. The undersigned hereby guarantee not to request building permits within ONION HILL until such time as improvements are complete and a release from Improvements Agreement and Improvements Guarantee has been obtained.

ONION HILL, LTD.

By: J. Peter Williams
General Managing Partner

#56 83

REVI. W SHEET SUMMARY

FILE NO. #56-83 TITLE HEADING Onion Hill DUE DATE 12/12/83

ACTIVITY - PETITIONER - LOCATION - PHASE - ACRES Petitioner: Onion Hill Partnership.

Location: SE corner of 27½ Road and Cortland Avenue. A request for 123 units on 28 acres in a planned residential zone - PR 7.2.

PETITIONER ADDRESS 1360 East Sherwood Dr.

ENGINEER Gray-Brenner Architects

<u>DATE REC.</u>	<u>AGENCY</u>	<u>COMMENTS</u>
12/2/83	Comp. Planning	No comment.
12/5/83	City Public Works	None.
12/6/83	City Parks	Appraisal looks okay. A determination of which parcel to use will need to be made for open space calculations. Landscaping okay. I assume since this is a private area City Parks will have no responsibility for planting, trimming, spraying or removing any trees on ROW within the area. If this assumption is incorrect, please advise. I am concerned that at some point in time this is not given back to this department for maintenance of landscaped islands and house frontals.
12/8/83	County Planning	No comments.
12/9/83	City Fire	This office has no objections to this planned development. Fire hydrant spacing is adequate as shown on utility composite plans. The dead end 8 inch line to the multi-family unit may not provide adequate fire protection water. We would recommend that this line be interconnected to the existing 18 inch water line in Cortland Ave., this would provide a loop between the 8 inch in 27½ Rd. and the 18 inch in Cortland Ave.
12/12/83	Grand Valley Water Users	This proposed plan does not address the needs of the G.V. Water Users Assoc. for adequate right-of-way and protection for its "existing underground irrigation" water pipeline located along the north boundary of the proposed development and as now drawn there are several items of concern. Such pipeline serves more than a hundred water users beyond this location and was allowed some 3+ years ago to be relocated from an adjacent open lateral at the request of the then-owners of Onion Hill with the understanding that future development would satisfactorily provide for the Assoc.'s relocated facility. The "Assoc." cannot approve Onion Hill's development until the above stated concerns are resolved and asks that "Planning" not approve it until they are resolved.
12/12/83	Walker Field	Avigation easement required per Section 5-11, City Zoning and Development Code.
12/12/83	Ute Water	No objection to project or concept. The existing water mains indicated on the Utility Composite are correct. The installation of the additional 8" water line in Ridge Dr. would create a "loop" which will provide domestic services and adequate fire flows. Ute would accept and maintain the water line in Ridge Dr. and fire hydrants placed along Ridge Drive, but will assume no responsibility for any part of the water system in the development. Master meters and Fire Line Detectors will be installed at each site entry North of Ridge Drive, and the developer will install and maintain separate fire and domestic systems.

<u>DATE REC.</u>	<u>AGENCY</u>	<u>COMMENTS</u>
12/13/83	City Engineer	<p>Power-of-Attorney should be required for improvement of 27½ Road and Cortland to City Collector standard. Appropriate right-of-way for each should be dedicated prior to plat approval. Private streets shown do not meet City standards for local streets and it is hoped that no future request for acceptance for City maintenance will be requested. The multi-family zone on the west side of the subdivision does not lend itself to private street concept and I feel it should meet City requirements for a dedicated street.</p> <p>If on-site utilities are proposed to be public utilities, they should be designed by a professional engineer and submitted for review and approval by this office prior to construction. Access to utilities in a "security neighborhood" is frequently difficult. The designer should take extra care to allow access to all utilities that will require City maintenance.</p> <p>Generally, I feel it would not be in the best interest of the neighborhood to allow the street system to be installed as shown with only one access and no circulation. If the neighborhood security is an overriding factor to over rule the standard neighborhood design procedure, then adequate safeguards against design that will preclude safe emergency access and proper utility collection and distribution must be included in the final plan.</p>
12/13/83	Transportation Engineer	<p>There will be no medians allowed at the access points on Ridge Drive and 27½ Road. The RV Storage should be accessed from an internal street and not from Ridge Dr., which is a collector. I do not feel that these streets should be "private" but should be built to City standards. However, I will leave this matter to the City Engineer.</p> <p>A single access point for the single-family area is not adequate for traffic circulation or emergency access. There should be an access point on Cortland Avenue. Street improvements on Cortland Ave. and 27½ Rd. adjacent to this project should be required.</p> <p>The street design (whether private or public) is less than adequate. A 24' mat with no parking enforcement capability will become blocked with parked cars. There are dead-ends with no standard cul-de-sac treatment, and the little "bulbed" areas with the 12' one-way lanes could become blocked. This is why we have a standard design for cul-de-sacs.</p> <p>There should be sidewalks on both sides of all streets so that pedestrians will not be forced to walk in the street.</p>
1/3/84	GJPC Minutes	<p>MOTION: (COMMISSIONER O'DWYER) "MADAM CHAIRMAN, ON ITEM #56-83, UNION HILL PRELIMINARY PLAN, I MOVE WE FORWARD THIS ITEM TO CITY COUNCIL WITH THE RECOMMENDATION OF <u>APPROVAL</u> SUBJECT TO:</p> <ol style="list-style-type: none">1. STAFF COMMENTS EXCEPT THOSE PERTAINING TO THE PRIVATE VS PUBLIC STREET ISSUE;2. THE COVENANTS OF THE HOMEOWNER'S ASSOCIATION CONTAINING A STATEMENT THAT INDICATES THE OWNERS OF THE PRIVATE STREETS WILL BE FINANCIALLY RESPONSIBLE FOR BRINGING THE PRIVATE STREETS UP TO CITY STREET STANDARDS IN THE EVENT THE HOMEOWNERS DECIDE THEY WANT PUBLIC STREETS RATHER THAN PRIVATE STREETS.3. AND THAT POWERS OF ATTORNEYS WILL BE OBTAINED ON CORTLAND AND 27.5 ROAD. <p>MOTION CARRIED 5-1 (COMMISSIONER LITTLE OPPOSING)</p>

DATE REC. AGENCY
 Ute Water (cont.)

12/12/83 Dev. Dept.

COMMENTS

A master meter will be placed at the entry of the South site, but a third Fire Line Detector would not be necessary.

IMPACT STATEMENT: The proposed development is bounded by PR-8 zoning to the north (Applecreech), RSF-5 zoning to the east (Spring Valley), RSF-4 zoning to the south (the Episcopal Church) and RSF-4 and RSF-5 zoning to the west. The zoning (PR 7.2) is compatible with adjacent areas.

SITE PLAN:

1. A six-foot masonry fence is proposed to surround the single-family portion of the development. Who will maintain this? Will it be designed to harmonize with the area?
2. A guard-house is proposed at the entrance to the single-family area. How will police, fire, ambulance and trash services perform their duties if the gate keeper is away? Will a crash access be provided?
3. The private roadway within the development measures approximately 24' per the site plan. Is this roadway sufficient for trash and fire truck access? Those specific departments should be contacted for verification.
4. What roadway/driveway will serve pads 19 & 20 (Phase 1 - Single-Family)?
5. What will serve as pedestrian ways - both on the perimeter and in the interior of the development?
6. How has the drainage concern been resolved? (RE: File #27-80)
7. The RV storage shows a 6' wood fence. Have the neighboring properties been contacted for their concerns? Additional screening/buffering may be required. In addition, the gates to the compound appear to swing outward into Ridge Drive. If feasible, the gates may need to be designed to swing inward.
8. If necessary, quit-claim deeds for additional ROW off 27½ Road and Cortland Avenue will be required.
9. Signage must be located out of the right-of-ways and comply with City Sign Regulations.
10. The project narrative references restrictive covenants for this development. If available, a copy is needed.
11. A copy of the appraisal was forwarded to the Parks Dept. An open space fee of 5% of the appraisal value of the gross land area will be due prior to final plat recording. (Grand Junction Zoning & Development Code, Section 5-4-6).
12. The proposed development lies within an airport critical zone. An aviation easement may be required.
13. On-site circulation appears cramped. Overflow parking backs directly into vehicular flow patterns. On-street parking (private drives) may hinder service delivery (fire, ambulance, etc.). Have modifications been considered?
14. Trash pickup locations must be coordinated with the City Sanitation Engineer.
15. Construction must begin within 1 year of final approval.
16. The development timeframe (5 yrs.) is acceptable.
17. Compliance with all fire and building codes is required.
18. All other agency concerns must be resolved.



gray • bronner
architects • planners

December 20, 1983

Grand Junction Planning Commission
City Planning Department
Review Agencies

Ref: Onion Hill - Preliminary

Dear Ladies and Gentlemen:

Onion Hill is a planned development of both single family and multi-family units. Our land plan represented a significant down zone from the existing zone. Contrary to the impression one could get from the number of negative review comments, we feel both the concept and plan of Onion Hill are completely sound. Petitioner has elected to go with a somewhat innovative concept. This should be to their credit. Great care was taken to provide adequate circulation and parking without the car, asphalt and concrete overwhelming the site. For our private interior drives, we chose a scaled down street scene and increased landscaping over the traditional 34 feet of pavement with sidewalks on both sides. We do not want full public improvements and feel we have given up nothing and gained much. Our 123 units are served by fire entrances off 2 public streets. Not one unit takes direct access from a public street.

We ask your consideration of the following and are confident that we will receive approval on our plan essentially as presented.

Comprehensive Planning: No comments offered for our response.

City Public Works: No comments offered for our response.

City Parks: The entire project, except Ridge Drive, will be private property and remain under the control of two Home Owner's Associations.

City Fire: In our opinion, the 8-inch fire line serving the multi-family area does not need to be interconnected to the 18-inch water line in Courtland Avenue.

Our analysis indicates that a fire flow of 1200 gpm (obtained from Insurance Services Office for a 2-story, noncombustible construction,

3300 s.f. building) the increase in pressure, due to the line being interconnected, would be less than 7 psi.

In our opinion, the extra cost of a second mainline tap in Courtland Avenue does not justify the advantage of having slightly greater water pressures.

Grand Valley Water Users: Refer to attached letter.

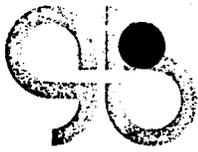
Walker Field: A standard avigation easement will be given at Final.

Ute Water: As requested by Ute Water, the Developer will install separate fire and domestic water supply lines for the two sites North of Ridge Drive. This arrangement will consist of an 8-inch fire supply line and a 3-inch domestic water supply line laid side-by-side in a common trench.

A fire flow detector will be installed at the head of each fire line, and a master water meter will be installed at the head of each domestic water supply line.

Development Department:

- 1) The Single Family Homeowner's Association will maintain the masonry fence surrounding the single family area. It will be designed to harmonize with the single family units.
- 2) The gate house was proposed as a possible future addition. The entry gates to the single family will be designed as "crash gates" for emergency access. If the gate house goes in, it will be maned 24 hours a day. Until that time, the full time maintenance man will handle the majority of access. He can be called from the gate. For after hours semi-emergencies, each home can be called from the gate. "Meter readers" and others like them will be given access cards if desired by their respective agency.
- 3) Private driveways are dimensioned as 24 feet and have 2 feet of valley pan each side, providing 28 feet of hard surfaced circulation area. Fire Department took no acception to drive width, the "pod culdesacs" or for that matter the driveway layout. Since circulation functions for the fire truck it is more than adequate for a trash truck.
- 4) Pads 19 and 20 of the single family, as well as all pads will be served by drives similar to those shown on the "Possible Pad Layout-Single Family" as submitted on the site plan sheet.



- 5) The new public street, Ridge Drive will have sidewalks on both sides. In the future as 27½ Road and Cortland are upgraded, they will have sidewalks. The entire perimeter will therefore have sidewalks at every possible location. A path is shown for the single family, serving most of the units. Its purpose is for relaxing walks more than inter-unit access. A very minimum of interior walks may be added at final, but only a limited number are wanted.
- 6) To our knowledge, the drainage problem created by the Apple Crest Subdivision has been solved by the installation of an underground irrigation pipe along the north boundary of Onion Hill. The City Engineer may want to verify the situation. Regardless of the situation, Onion Hill will not accept Apple Crest drainage through its property. The logical drainage course to serve Apple Crest is West along Courtland and South along 27.5 Road to the wash at Bell Ridge.
- 7) Our 6 foot wooden fence around the RV area is at least equal to any existing fence and similar residential fences permitted anywhere. Standard landscaping is proposed. To try and completely screen the screening is not warranted. We will provide bi-parting gates sliding to either side to eliminate the problem caused by swinging gates.
- 8) Proper right-of-ways for 27½ Road and Cortland will be shown on the Final Plat and reflected in the new legal. No quit-claim deeds will be required.
- 9) No signage was shown in public right of ways and naturally will conform to the sign code.
- 10) Restrictive covenants will be written for the Final, they are not available now. Covenants are not required for a Preliminary Submittal.
- 11) We are aware of the open space fee.
- 12) Previously address under Walker Field.
- 13) On site circulation is not cramped and is more than adequate. Other schemes were considered during the design process and the one submitted best represents Petitioner's marketing and design parameters. The standard city street provides for 2-11 foot driving lanes with the parking on the side. Our two-way drives of 24 feet and one-way drives of 12 feet exceed that provided by city streets. Plus the 2 foot valley pan each side provides plenty of traffic clearance. Over flow parking does back into drives. Our density does not warrant the parking lot approach, which is more unsightly and requires more asphalted area. Driveways by the dozens back into public streets. ~~servicing~~

What does this mean?

✓ on Ridge Drive
✓ on corner ROW

POA still required

Process of Rocky Branch

rest of sentence?



- 14) Trash pick up locations will be cleared with Sanitation Engineer for the final submittal.
15, 16, 17, 18) No response necessary.

*see
Ready*

City Engineer: Both the Engineer and Architect meet with Jim Patterson prior to making this submittal. We were told that he would not even comment on the private portions. Please refer to previous responses for our position on having public streets, our circulation and access.

*see
Anglen*

Transportation Engineer: We have no medians in any public ROW. The RV storage is located in the best location from a land plan standpoint. It adjoins the Church parking which is immediately to the south, a minimum of units adjoin it, no existing residential adjoins it and it is located in a difficultly shaped area. All other responses have already been addressed.

Chris Gray

BSA**BECK, SHRUM & ASSOCIATES, INC.****• ENGINEERS • PLANNERS •**

Pufferbelly East
215 Pitkin, Suite 203
Grand Junction, Colorado 81501
(303) 243-1227

Thomas P. Beck, P.E.
Daryl K. Shrum, A.P.A.

December 20, 1983
BSA319/G13.11

Mr. Bill Klapwyk
Grand Valley Water Users
500 South 10th Street
Grand Junction, Colorado 81501

Subject: Response to Review Comments - Onion Hill Subdivision
(City File 56-83)

Dear Mr. Klapwyk:

I met with you on November 29, 1983 to discuss the irrigation requirements for the above referenced subdivision. The major topic of concern was the protection of the existing underground irrigation line along the Northern boundary of the project.

We are currently in the preliminary planning stage of the project and have not surveyed the exact location of the line. However, based on a field investigation, it appears that the line in question is located 26 feet South of the Courtland centerline within the City's street right-of-way. In addition, as shown on the preliminary plat of Onion Hill, all areas within the subdivision with the exception of the building lots will represent a utility easement. In other words, there is approximately a 25 foot easement between the property line and the nearest building as well as the space provided in the public right-of-way for maintenance purposes.

The final engineering drawings for the project concerning the irrigation system will be forwarded to your office for review after the exact location of the line is determined in relationship to the street centerline and the property line. Above all else, care will be taken to insure that the irrigation line is protected and that appropriate easements are recorded on the final plat.

Thank you for your assistance.

Sincerely,
BECK, SHRUM & ASSOCIATES, INC.

Daryl K. Shrum
Principal

cc:Corres./Out
G13.11
City Planning Department
Gray Brenner, Architects

January 3, 1984

Grand Junction Planning Commission
Grand Junction Planning Department

RE: Onion Hill

Dear Ladies and Gentlemen;

The following comments are a result of the meeting held Wednesday December 28, 1983 at the Planning Department. It was attended by Chuck Brenner for Gray Brenner, Ken Reddy from City Engineering, Janet Stevens from Planning and Norm Johnson from the Fire Department.

The points discussed are summarized below:

Fire: There were no objections to the plans as submitted except that the "back-in" at the north east corner of the single family should be increased in depth and posted "No Parking". The fire lines should be looped between the single family and multi-family development. The petitioner agrees to these two items.

City Engineer: Objected to the private streets in the multi-family area and preferred a second access be provided to the single family area. Further wished petitioner provide 6 parking spaces per unit in the multi-family area. The City Engineer expressed personal preference against a secured residential development.

In response: The petitioner prefers the private drive since it enables the development flexibility which increases its visual attractiveness. The private drive provides access only to the owners and their guests. The drive is not a convenient thoroughfare and thus should present no problems of congestion from people not belonging to the development. The 7.3 units per acre is a low multi-family density and should not create an abundance of traffic within the drives. The medians were discussed and since they remain in the private drives they are permissible.

The second entry to the secured area could be provided by a crash gate. However, Norm Johnson did not feel the gate was necessary and as a result we feel no need to provide one.

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CITY ENGINEER
PLANNING DEPARTMENT



Parking for the multi-family is more than twice code requirement. We feel no change should be required from what was presented.

We take issue with the engineers preference against a secured residential area. This is a viable residential community successful in many other parts of the country. This is a concept presently lacking in this area, and the petitioner is filling this void.

General Comments to Planning: Names of private drives and a numbering system will be worked out with the Post Office, Planning and Fire Department and submitted at Final.

It was requested that the Covenants address the private drives and and a procedure for handling fire and police emergencies in regards to the secured area. The gate control was discussed and the fire department agreed to accept a "key" to operate the gate. In most cases the party reporting the emergency will be able to open the gate. The petitioner agrees to provide emergency procedures and regulations governing the private drives in the Covenants.

Power of attorney will be given for street improvements on Courtland.

The remote possibility of a wreck blocking a private drive was discussed. The Fire Department said they would just drive around on the grass if the drive itself was completely blocked. Most accidents would not block the full 28 feet of surfaced width.

This covers most of what was discussed and hopefully all important points.

Sincerely yours;

Chris Gray AIA

jg/cg



CITY - COUNTY PLANNING

grand junction-mesa county 559 white ave. rm. 60 grand jct.,colo. 81501

(303) 244-1628

March 9, 1984

Mr. Daryl Shrum
Beck, Shrum & Associates, Inc.
Pufferbelly East 215 Pitkin, Suite #203
Grand Junction, CO 81501

Dear Daryl:

I am writing this letter in reference to File #56-83, Onion Hill-Preliminary per your request of March 6, 1984. As the planning/engineering representative on the project, you asked that I go through the Preliminary file and assess what was agreed upon and/or approved. From my review, I have been able to ascertain the following:

1. The fire lines will be looped between the single-family and multi-family development.
2. Landscaping will be of such type and size in the medians that a fire truck could possibly use this area as crash access if necessary (i.e. no 20' trees or boulders). This is the result of a request made that a crash access be provided off Cortland Avenue.
3. Crestview Homeowner's will be contacted regarding possible drainage problems/solutions caused by the Onion Hill development that may affect their property.
4. The recreational vehicle site will use sliding doors rather than doors that swing outward into the right-of-way.
5. The covenants will include clauses for upkeep, future upgrade, etc. per the motions of both the Grand Junction Planning Commission and the City Council.
6. All staff comments other than those pertaining to the private street/public street issue were also made a part of the recommendation of approval by the Grand Junction Planning Commission and upheld by City Council.

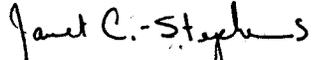
I have enclosed copies of the staff comments, the architect's response to the review agency comments, a letter from the architect in follow-up to a meeting held December 28, 1983, and the minutes from the City Council hearing of January 18, 1984. The motion, including stipulations of approval made by

Mr. Daryl Shrum
March 9, 1984
Page 2

the Grand Junction Planning Commission, is recorded on the staff review sheet.

If there are any further questions, please feel free to contact me at 244-1628.

Sincerely,



Janet C.-Stephens
City Planner

JCS/tt

Enclosures

xc: Chris Gray
Chuck Brenner
Ken Reedy
Wes Painter
Jim Bragdon
File