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File SPR-1995-070

Date 8/18/99

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, not all entries designated to be scanned, 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 included. **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.** **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.**
X	X	***Summary Sheet – Table of Contents**
		Application form
		Receipts for fees paid for anything
X	X	***Submittal checklist – Change of Use Review**
X	X	***General project report**
		Reduced copy of final plans or drawings
		Reduction of assessor's map
		Evidence of title, deeds
		***Mailing list**
		Public notice cards
		Record of certified mail
		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
X	X	***Final reports for drainage and soils (geotechnical reports)**
		Other bound or nonbound reports
		Traffic studies
X		Individual review comments from agencies
X	X	***Consolidated review comments list**
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	Warranty Deed - **			
X	X	Letter from Michael Drollinger to Steve McCallum – 5/10/95			
X		Policy of Title Insurance from Ticor Title Insurance			
X		Notes to file			
X		Warehouse Storage			
X	X	Wells Commercial Development Site Plan - approved			
X	X	Drainage Plan			
X	X	Site Plan, Landscape, Utilities - approved			
X		Drainage and Grading Map			
X		Drainage Construction Details			
X		Handwritten note marked AP – 4/25/95			
X	X	DEV. IMP. AGREEMENT - **			
X	X	MEMORANDUM OF IMPROVEMENTS AGREEMENT - **			

SUBMITTAL CHECKLIST

SITE PLAN REVIEW

SPR-95-70

Location: 554 25 Rd   Project Name: Office Warehouse

ITEMS: DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City ~~Parks/Recreation~~ Police	● City Fire Department	● City Attorney	○ City Downtown Dev. Auth.	○ County Planning	● County Bldg. Dept.	● Irrigation District	● Drainage District	● Water District - Ute	○ Sewer District	● U.S. West	● Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	○ Walker Field	TOTAL REQ'D.
● Application Fee $145	VII-1	1																				13
● Submittal Checklist*	VII-3	1																				
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Planning Clearance*	VII-3	1																				
● ~~11"x17"~~ Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Evidence of Title /Title Ins. Policy	VII-2	1			1			1														
○ Appraisal of Raw Land	VII-1	1			1	1																
○ Deeds	VII-1	1			1			1														
○ Easements	VII-2	1	1	1	1			1														
○ Avigation Easement	VII-1	1			1			1														
○ ROW	VII-3	1	1	1	1			1														
○ Improvements Agreement/Guarantee	VII-2	1	1	1				1														
○ CDOT Access Permit	VII-3	1	1																			
○ Industrial Pretreatment Sign-off	VII-4	1		1																		
● General Project Report	X-7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Elevation Drawing	IX-13	1	1																			
● Site Plan	IX-29	2	2	1	1																	
○ 11"x17" Reduction of Site Plan	IX-29					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Grading and Drainage Plan - on Site Plan	IX-16	1	2										1							1		
○ Storm Drainage Plan and Profile	IX-30	1	2										1			1	1	1				
○ Water and Sewer Plan and Profile	IX-34	1	2	1			1							1	1	1	1	1				
○ Roadway Plan and Profile	IX-28	1	2										1									
○ Road Cross-Sections	IX-27	1	2																			
○ Detail Sheet	IX-12	1	2																			
● Landscape Plan - on site plan	IX-20	2	1	1																		
○ Geotechnical Report	X-8	1	1								1											
● Final Drainage Report	X-5,6	1	2										1									
○ Stormwater Management Plan	X-14	1	2										1							1		
○ Phase I and II Environmental Report	X-10,11	1	1																			
○ Traffic Impact Study	X-15	1	2																1			

verify accuracy 9/11/95

NOTES:
1) An asterisk in the item description column indicates that a form is supplied by the City.
2) Required submittal items and distribution are indicated by filled in circles, some of which may be filled in during the pre-application conference. Additional items or copies may be subsequently requested in the review process.
3) Each submitted item must be labeled, named, or otherwise identified as described above in the description column.

SPR-95-70

GENERAL PROJECT REPORT

Project Location: 554 25 Road
Grand Junction, CO 81505

Project Name: Wells Enterprises Commercial Project

Date of Report: April 3, 1995

Project is located at 554 25 Road in the City of Grand Junction. The site contains one acre and is to be used for retail and commercial rental spaces of approximately 2,000 square feet each.

Public benefit shall be additional space for service related businesses.

The project will not require re-zones or conditional use permits.

All surrounding properties will be compatible as they are now zoned for and involved in similar use.

Site will access from 25 Road. Traffic patterns will remain the same.

Utilities are presently in 25 Road. Fire hydrant locations are tentatively acceptable with the GJFD. However, any changes requested will be complied with.

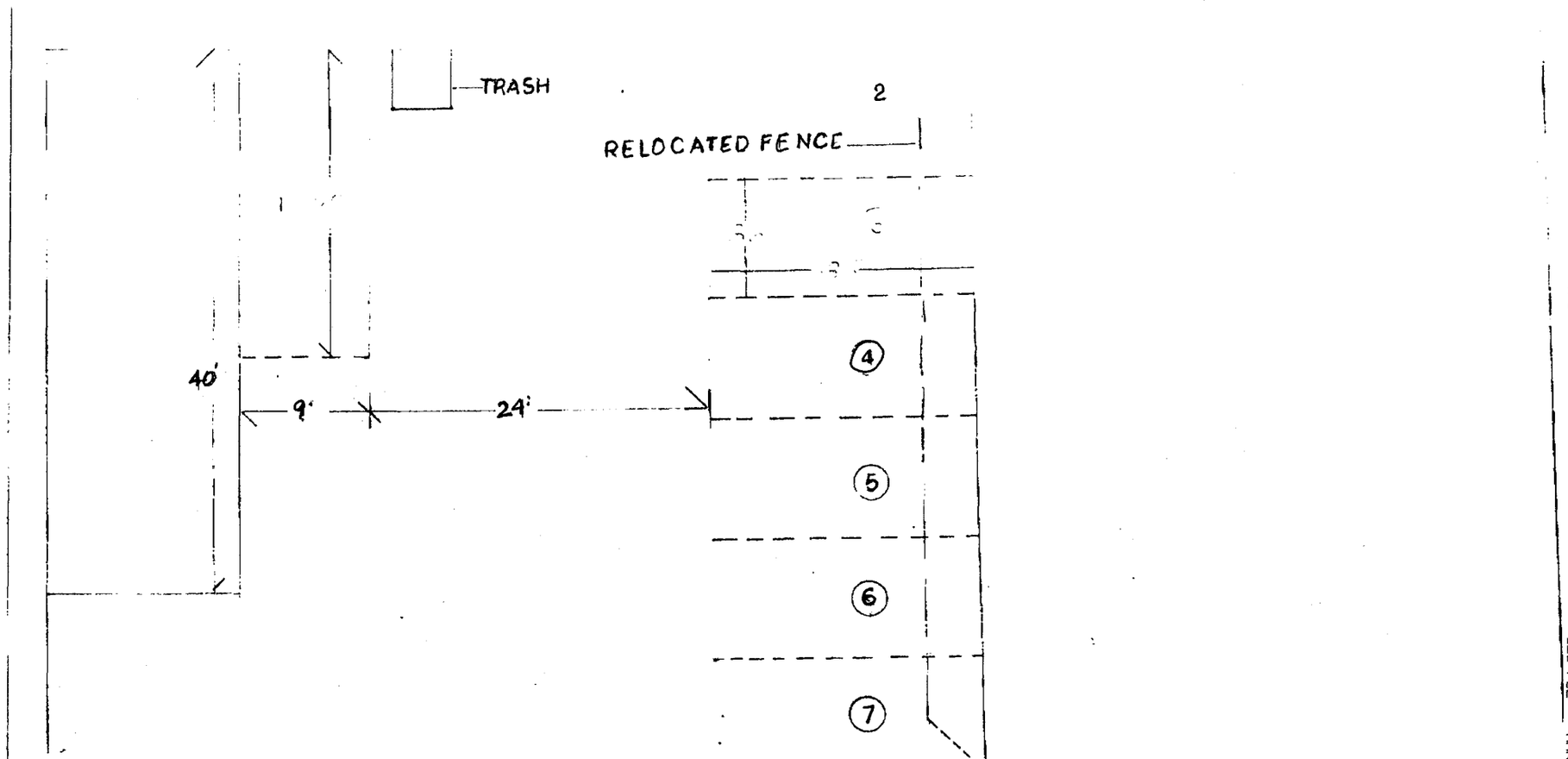
No unusual demands on existing utilities or sewage are anticipated. The effects on Public facilities should be limited to items covered by the TCP.

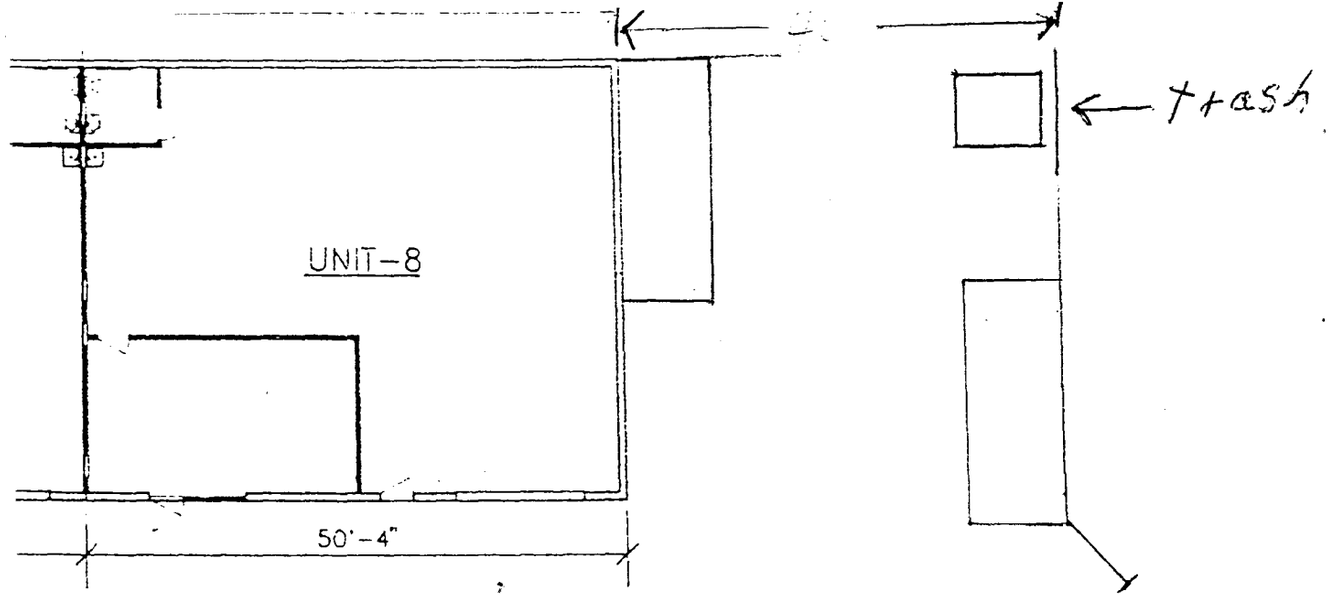
There will be no adverse effects on site geology nor will there be any geological hazards created.

Hours of operation will be in compliance will historically accepted days and times.

A sign permit will be requested if required.

Construction will be in one phase from April 1, 1995 through June 30, 1995.


TRASH
2
RELOCATED FENCE
40'
9'
24'
4
5
6
7
8
ALL PARKING AREAS PAVED & STRIPED

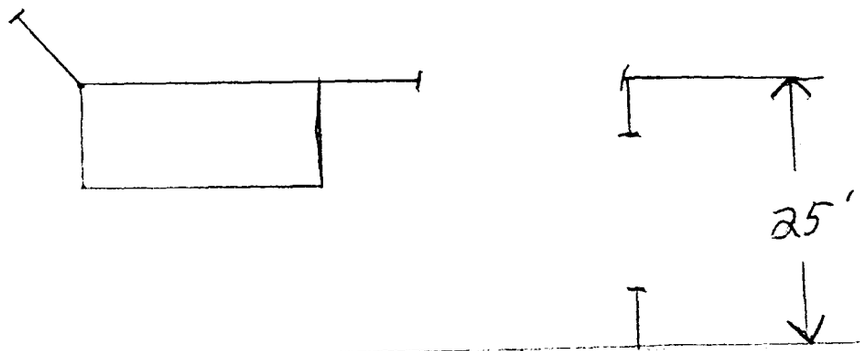


← trash

Fenced yards

3 additional Parking Spaces

ACCEPTED 3-11-95
ANY CHANGE OF SETBACKS MUST BE APPROVED BY THE CITY PLANNING DEPT. IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY LOCATE AND IDENTIFY EASEMENTS AND PROPERTY LINES.



1/16" = 1'

Wells Commercial Dev.
554 25 Rd.

ATTACHMENT TO SITE PLAN - WELLS COMMERCIAL

1. FIRE HYDRANT SHALL BE LOCATED SOUTH TO WITHIN 10 FEET OF SITE DRIVEWAY AS PER FIRE DEPARTMENT

Signature of Petitioner/Representative Steph McCall

DRAINAGE PLAN

April 4, 1995

WELLS COMMERCIAL DEVELOPMENT
554 25 ROAD
GRAND JUNCTION, CO 81505

Prepared For:
TPI
552 25 Road #D
Grand Junction, CO 81505

Prepared By:
Cronk Construction Inc.
1129 -24- Road
Grand Junction, CO 81505
303-245-0577

Table of Contents

I. General Location and Description

The Wells Commercial Development is located approximately 450 ft north of Hwy 6&50 on the east side of 25 Road in Grand Junction, CO. The development fronts along approximately 90' of the east side of 25 Road. The southern boundary of the property lies approximately 400' north of Hwy 6&50. Other commercially developed lots lie to the north and south of the subject property and Ute Water has an open land storage area to the east of the property.

The development is on 1.3 acres of uncultivated native soils. The site is currently bare ground. The soil at the site is classified as SCS type "D" soil, being clay and silty clay. No soil evaluation test pits were excavated at the site; however, the storm sewer located on the west side of 25 Road is open in the bottom of a manhole and exhibits no evidence of a high seasonal water table or standing groundwater to a depth of 12' below ground surface.

II. Existing Drainage Conditions

There is an irrigation delivery ditch along the east side of 25 road which carries water to the south and also serves to conduct excess runoff. There is no irrigation on the property. A twenty four inch storm sewer (Grand Junction Drainage District) lines along the west side of 25 Road and drains south to the Colorado River. Historic drainage from the site is directed to the southwest corner of the parcel and hence south in the irrigation ditch which drains into Blue Heron Lake south of the City Market Warehouse. Historically, the site has not discharged to the storm sewer. No existing drainage concerns are apparent.

III. Drainage Design Criteria

Drainage design criteria are taken from the *Stormwater Management Manual* (Public Works Department, City of Grand Junction, CO; June, 1994) for development of several constitutive design parameters. The Rational Method is used to develop Peak runoff estimate (cfs) for both pre- and post-development conditions. Peak runoff is developed for both the 2 year and 100 year precipitation events for the Mesa City urbanized area. The SCS Type II-A hydrograph (HEC-1, Corps of Engineers - U.S. Army) is used

to develop the *time of critical storm duration, T_d*, for retention basin storage sizing. Two-stage retention basin outflow control is sized using an orifice for first stage discharge and a weir for second stage discharge.

IV. Drainage Design (developed conditions)

Post-development drainage will include construction of a retention basin located in the parking area south of the building. The retention basin will run from west to east across the building parking access area and will contain a maximum volume of 3;100 cubic feet. The basin will discharge through a two stage outlet control structure into a 12" reinforced concrete pipe culvert under 25 Rd discharging into the 24 inch storm sewer. The irrigation ditch that has provided historic drainage for the site will be piped across the parcel from north to south. Although the developed drainage scenario does not include discharge to the irrigation ditch, a curb cut at the southwest corner of the property will direct any unforeseen retention basin overflow into the irrigation ditch (open to the south of the property) for discharge to Blue Heron Lake.

Both historic and developed peak runoff flows are estimated using the *Rational Method*. Peak runoff flows for four site scenarios are calculated. The four scenarios investigated include both historic and developed peak runoff flow for precipitation event frequencies of 2 years and 100 years.

The time of concentration, T_c, worksheets for each of the 4 scenarios investigated are included for reference as Appendix A. The *Rational Method* worksheets used to calculate peak flow runoff for the four scenarios investigated are included for reference as Appendix B. The two-stage retention basin outflow design considerations are addressed in Appendix C. The SCS Type II-A hydrograph for the area (HEC-1) is used to develop the time of critical storm duration, T_d, as shown in Appendix D. The retention basin sizing worksheet is included for reference as Appendix E. Appendix F address culvert sizing considerations.

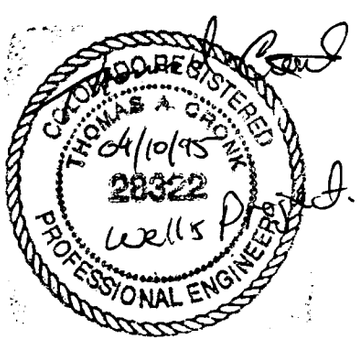
V. Results and Conclusions

The historic peak flow runoff is estimated at 0.32 cfs (2 year event) and 0.99 cfs (100 year event). Post-development peak flow runoff is estimated at 1.03 cfs (2 year event) and 3.34 cfs (100 year event). Development will result in an increased discharge of 0.71 cfs (221%) for the 2 year event and 2.34 cfs (236%) for the 100 year event. If historic drainage flows are to remain unaffected by development, retention basin volumes of 2,891 cubic feet and 6,588 cubic feet are required for the 2 year and 100 year design storms respectively. Because of: 1) the small size of the area, 2) the nearness of the property to the primary drainage outfall (i.e., the Colorado River), and 3) the adequacy of the storm sewer to carry developed runoff flows; it is proposed that the site be granted an exemption from peak discharge control. The proposed developed drainage design for the property will incorporate a partial retention basin with a two stage outflow control structure. The first stage outflow orifice is sized to discharge at the 2 year developed peak discharge rate of 1.0 cfs. Discharge from higher intensity storms (e.g., 10, 25, and 100 year events) will also be held to the 2 year developed rate (1.0 cfs) with excess runoff being ponded in the retention basin. Upon filling the retention basin (maximum capacity of 3,100 cubic feet), the second stage outflow weir will increase design runoff to 3.34 fps (the 100 year developed peak discharge rate). The drainage design as presented effectively limits peak runoff flows from all but the 100 year event to 1.0 cfs (equal to both the 100 year historic and 2 year developed rates). For the 100 year event under developed conditions, the retention basin will retain approximately one-half of the increased development runoff with the remaining unretained volume being discharged at the developed 100 year peak runoff rate of 3.34 cfs. It is felt additional retention will have a detrimental impact on the major drainage course peak discharge and capacity because of the close proximity of the project to the Colorado River.

VI. Certification

I, Thomas A. Cronk, hereby certify this report was completed by myself or under my direct supervision and has been prepared in accordance with good engineering practices.

Seal



Thomas A. Cronk

Thomas A. Cronk

Date

April 10, 1995.

APPENDIX A

Time of Concentration, T_c, Worksheet

Time of Concentration, T_c, Worksheet

Project: Wells Commercial Development
Site Condition: Pre-development
Prepared by: Tom A. Cronk
Date: April 4, 1995

(The table below is an adaption of a worksheet provided in the SCS TR-55)
This table may be used in subbasin T_c calculations, or for travel time of subbasin runoff through a lower subbasin reach (T_t),
Use only channel flow for T_t calculations

STORM FREQUENCY		2 YEAR	100 YEAR
REACH	AREA IDENTIFIER	no stream	no stream
	SEGMENT IDENTIFICATION		
	T_c OR T_t THROUGH BASIN REACH		
OVERLAND FLOW	SURFACE DESCRIPTION (TABLE E-1)	poor grass on bare surface	poor grass on bare surface
	"N" VALUE (TABLE E-1)	0.3	0.3
	FLOW LENGTH, L (TOTAL < 300 FT.) (ft.)	150	150
	LAND SLOPE, S (ft./ft.)	.012	.012
	To (min.) (TABLE E-2, OR FIGURE E-1)	35	24
SHALLOW CONCENTRATED FLOW	SURFACE DESCRIPTION (FIGURE E-3)	nearly bare and untilled	nearly bare and untilled
	FLOW LENGTH, L (ft.)	150	150
	FLOW SLOPE, S (ft./ft.)	.012	.012
	FLOW VELOCITY, V (FIGURE E-3) (fps)	1.6	1.6
	TRAVEL TIME T_t = L/(60V) (min.)	1.56	1.56
CHANNEL FLOW	CROSS-SECTIONAL FLOW AREA, a (ft^2)	1.5	1.5
	WETTED PERIMETER, Pw (ft.)	3.24	3.24
	HYDRAULIC RADIUS, r = a/Pw (ft.)	0.46	0.46
	CHANNEL SLOPE, S (ft./ft.)	0.01	0.01
	MANNINGS COEFFICIENT, n (APPENDIX F)	0.025	0.025
	$V = 1.49r^{2/3}S^{1/2}/n$ (fps)	3.54	3.54
	ASSUMED VELOCITY (fps)	3.5	3.5
	FLOW LENGTH, L (ft.)	400	400
	TRAVEL TIME T_{ch} = L/(60V) (min.)	1.9	1.9
T_c	$T_c=T_o+T_t+T_{ch}$ (min.)	38	27
T_r	$T_r=T_{ch}$ (min.)	1.9	1.9
T_t	$T_t=0.6(T_c)$ OR FROM FIGURE E-4	23	16

NOTE - Table and all referenced tables, figures, and appendices from Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994

Time of Concentration, T_c, Worksheet

Project: Wells Commercial Development
Site Condition: Post-development
Prepared by: Tom A. Cronk
Date: April 4, 1995

(The table below is an adaption of a worksheet provided in the SCS TR-55)
This table may be used in subbasin T_c calculations, or for travel time of subbasin runoff through a lower subbasin reach (T_t),
Use only channel flow for T_t calculations

STORM FREQUENCY		2 YEAR	100 YEAR
REACH	AREA IDENTIFIER	no stream	no stream
	SEGMENT IDENTIFICATION		
	T_c OR T_t THROUGH BASIN REACH		
OVERLAND FLOW	SURFACE DESCRIPTION (TABLE E-1)	unpacked gravel	unpacked gravel
	"N" VALUE (TABLE E-1)	.15	.15
	FLOW LENGTH, L (TOTAL < 300 FT.) (ft.)	150	150
	LAND SLOPE, S (ft./ft.)	0.01	0.01
	To (min.) (TABLE E-2, OR FIGURE E-1)	24	15
SHALLOW CONCENTRATED FLOW	SURFACE DESCRIPTION (FIGURE E-3)	paved area/roof	paved area/roof
	FLOW LENGTH, L (ft.)	150	150
	FLOW SLOPE, S (ft./ft.)	0.01	0.01
	FLOW VELOCITY, V (FIGURE E-3) (fps)	2	2
	TRAVEL TIME T_t = L/(60V) (min.)	1.25	1.25
CHANNEL FLOW	CROSS-SECTIONAL FLOW AREA, a (ft^2)	37.5	37.5
	WETTED PERIMETER, Pw (ft.)	51.0	51.0
	HYDRAULIC RADIUS, r = a/Pw (ft.)	.74	.74
	CHANNEL SLOPE, S (ft./ft.)	.005	.005
	MANNINGS COEFFICIENT, n (APPENDIX F)	.016	.016
	$V = 1.49r^{2/3}S^{1/2}/n$ (fps)	5.4	5.4
	ASSUMED VELOCITY (fps)	5.5	5.5
	FLOW LENGTH, L (ft.)	400	400
	TRAVEL TIME T_{ch} = L/(60V) (min.)	1.2	1.2
T_c	$T_c=T_o+T_t+T_{ch}$ (min.)	26.5	17.5
T_r	$T_r=T_{ch}$ (min.)	1.2	1.2
T_t	$T_t=0.6(T_c)$ OR FROM FIGURE E-4	16	11

NOTE - Table and all referenced tables, figures, and appendices from Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994

APPENDIX B

RATIONAL METHOD PEAK FLOW RUNOFF FLOW WORKSHEET

Rational Method Peak Flow Runoff Worksheet

Project: Wells Commercial Development
Prepared by: TOM A. CRONK
Date: April 4, 1995

SITE CONDITION: PRE-DEVELOPMENT

BASIN	AREA			RUNOFF COEFFICIENT[1], C	
	SURFACE TYPE	SCS GROUP	ACREAGE, A	C_{02}	C_{100}
All	bare ground	D	1.3	.32	.38

TOTAL ACREAGE, A_T	WEIGHTED RUNOFF COEFFICIENT, C_w		CONCENTRATION TIME[2], T_c (min.)		INTENSITY[3], i (in./hr.)		PEAK RUNOFF $Q=C_wiA_T$ (cfs)	
	C_{02}	C_{100}	T_{C02}	T_{C100}	i_{02}	i_{100}	Q_{02}	Q_{100}
1.3	.32	.38	38	27	.78	2.00	.32	.99

[1] - *Rational Method* runoff coefficients taken from Table B-1, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

[2] - Time of Concentration as derived in attached Appendix A worksheet

[3] - Intensity taken from Table A-1, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

Rational Method Peak Flow Runoff Worksheet

Project: Wells Commercial Development
Prepared by: TOM A. CRONK
Date: April 4, 1995

SITE CONDITION: POST-DEVELOPMENT

BASIN	AREA			RUNOFF COEFFICIENT[1], C							
	SURFACE TYPE	SCS GROUP	ACREAGE, A	C_{02}	C_{100}						
	pavement/roof	D	1.06	.93	.95						
	gravel - unpacked	D	.21	.48	.50						
	Landscape	D	.031	.29	.35						
			TOTAL ACREAGE, A_T	WEIGHTED RUNOFF COEFFICIENT, C_w		CONCENTRATION TIME[2], T_c (min.)		INTENSITY[3], i (in./hr.)		PEAK RUNOFF $Q=C_w i A_T$ (cfs)	
				C_{02}	C_{100}	T_{c02}	T_{c100}	i_{02}	i_{100}	Q_{02}	Q_{100}
			1.30	.84	.86	26.5	17.5	.94	2.99	1.03	3.34

[1] - *Rational Method* runoff coefficients taken from Table B-1, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

[2] - Time of Concentration as derived in attached Appendix A worksheet

[3] - Intensity taken from Table A-1, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

APPENDIX C

RETENTION BASIN OUTFLOW DESIGN WORKSHEET

RETENTION BASIN OUTFLOW DESIGN WORKSHEET
ORIFICE CONTROL

Project: Wells Commercial Development
Prepared by: Tom A. Cronk
Date: April 4, 1995

2 year event				100 year event			
head difference, h[1], (ft.)	design discharge, Q[2], (cfs)	discharge coefficient, C[3]	orifice area, A[4], (ft^2)	head difference, h[1], (ft.)	design discharge, Q[2], (cfs)	discharge coefficient, C[3]	orifice area, A[4], (ft^2)
				0.6	0.99	0.595	0.27

[1] Water depth (ft.), Figure K-6, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

[2] Design discharge = maximum historic discharge, Q_h (cfs) less other discharge sources (i.e., lower stage discharge and/or sheetflows)

[3] Table K-4, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

[4] Area of orifice calculated as, $A = \frac{Q}{C\sqrt{2gh}}$, where g = gravitational constant (32.2 ft/sec^2)

RETENTION BASIN OUTFLOW DESIGN WORKSHEET
WEIR HYDRAULIC CONTROL
(broad crest weir equation)

Project: Wells Commercial Development
Prepared by: Tom A. Cronk
Date: April 4, 1995

2 year event				100 year event			
head difference, h[1], (ft.)	design discharge, Q[2], (cfs)	coefficient of discharge, C[3]	weir width, L[4], (ft.)	head difference, h[1], (ft.)	design discharge, Q[2], (cfs)	coefficient of discharge, C[3]	weir width, L[4], (ft.)
				0.4	2.1	2.6	2.0

[1] Water depth measured from weir crest to flow depth upstream (ft.)

[2] Design discharge = maximum historic discharge, Q_h (cfs) less other discharge sources (i.e., lower stage discharge and/or sheetflows)

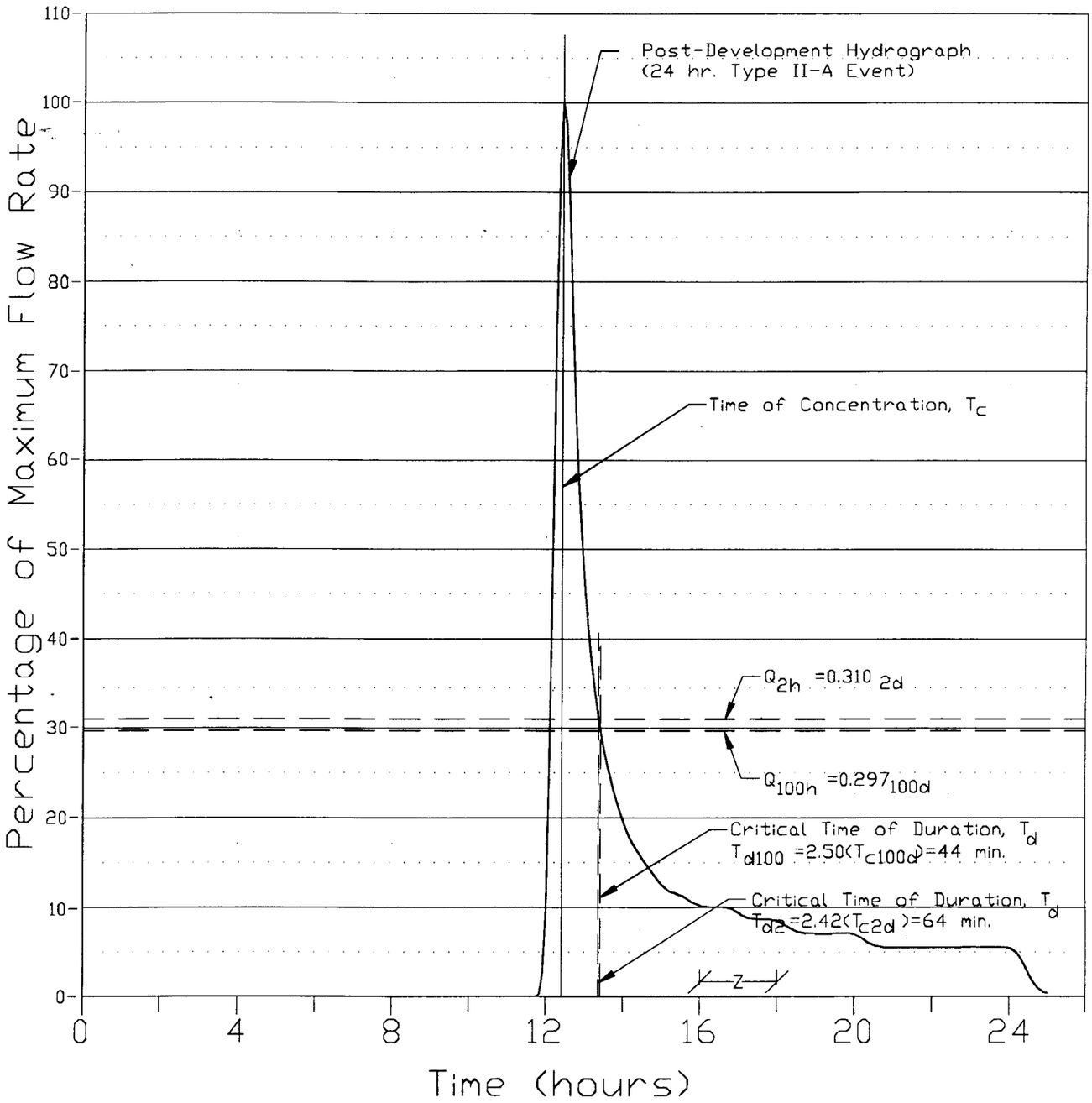
[3] Figure L-5, **Stormwater Management Manual, Public Works Department, City of Grand Junction, June, 1994**

[4] Width of weir calculated from the broad crested weir equation as, $Q = CLh$

APPENDIX D

TIME OF CRITICAL DURATION, T_d, WORKSHEET

Runoff Hydrograph
Post-Construction (Wells Project)
SCS Type II-A Unit Hydrograph (24 hr. event)



APPENDIX E

MODIFIED RATIONAL METHOD RETENTION BASIN SIZING WORKSHEET

MODIFIED RATIONAL METHOD RETENTION BASIN SIZING WORKSHEET

Project: Wells Commercial Development
Prepared by: Tom A. Cronk
Date: April 4, 1995

Basin	Site Hydrology								Retention Basin Sizing					
	Site Condition		2 year event			100 year event			2 year event			100 year event		
			C_{2d}	T_{c2d} (min.)	Q_{2d} (cfs)	C_{100d}	T_{c100d} (min.)	Q_{100d} (cfs)	T_{d2}[1] (min.)	Q_{r2}[2] (cfs)	Storage Volume, V_2[3], (ft^3)	T_{d100}[1] (min.)	Q_{r100}[2] (cfs)	Storage Volume, V_{100}[3], (ft^3)
	Pre-developed		.32	38	.32	.38	27	.99						
	Post-developed		.84	26.5	1.03	.86	17.5	3.34	64	.26	2891	44	.81	6588
	Development Impact	quantity			+.71			+2.34						
		percent			221%			236%						

[1] Time of critical duration, T_d, from Appendix D worksheet

[2] Average rate of discharge, Q_r, = 82% of actual discharge, Q_a, taken from Appendix C plus other discharge sources (i.e., lower stage discharge and/or sheetflows)

[3] Storage volume required, V (ft^3), calculated from:

$$V = 60\left[Q_d T_d - Q_r T_d - Q_r T_{Cd} + \frac{KQ_r T_{Cd}}{2} + \frac{Q_r^2 T_{Cd}}{2Q_d}\right], \text{ where,}$$

K = Ratio of pre- and post-development T_{Cd}

APPENDIX F
CULVERT SIZING WORKSHEET

PROJECT: WELLS COMMERCIAL DEVELOPMENT
554 -25- ROAD
GRAND JUNCTION, CO 81505

STATION: -25- ROAD STORM SEWER
SHEET _____ OF _____

CULVERT DESIGN FORM

DESIGNER/DATE: TOM A. CRONK / 04/10/95
REVIEWER/DATE: _____ / _____

HYDROLOGICAL DATA

DESIGN FLOWS

BASIN: WELLS MEHTOD: RATIONAL

R. I. (years)	FLOWS (cfs)
2 (DEVEL.)	1.00
100 (DEVEL.)	3.34

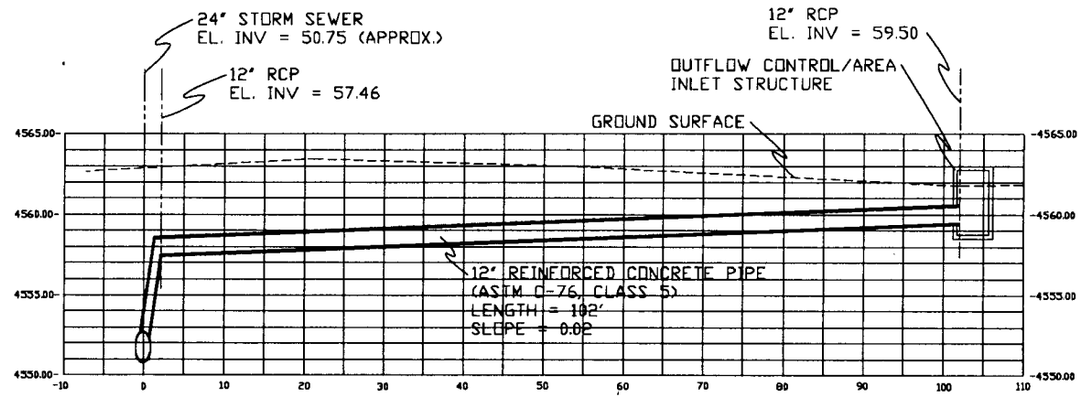
TAIL WATER CHANNEL FLOW

CHANNEL TYPE STORM SEWER (24")
CHANNEL SHAPE ROUND
CHANNEL SLOPE 0.0044 (APPROX.)
FLOW VELOCITY 2.0 - 5.0 fps

R. I. (years)	FLOWS (cfs	TAIL WATER (ft)

CULVERT SIZING

TYPE OF FLOW: PARTIALLY FULL, NO HEAD
MATERIAL: RCP (ASTM C-76) CLASS 5
SHAPE: ROUND
FLOW EQUATION: $Q = A_f \frac{1.49}{n} (r_h)^{2/3} \sqrt{S}$
CULVERT SIZE: 12" I.D.
DESIGN MAXIMUM DISCHARGE (cfs) 4.1 (NO HEAD)
ENTRANCE: SHARP EDGE



CULVERT CROSS SECTION

Q=discharge (cfs)
A_f =cross sectional area in flow (ft)
n=manning roughness coefficient
(0.016 for concrete pipe/rough joints)
r_h =hydraulic radius
S=slope

CULVERT BARREL SELECTED

SHAPE: ROUND
SIZE: 12" I.D. CLASS 5
MATERIAL: REINFORCED CONCRETE ASTM C-76
ENTRANCE: SHARP EDGE

REVIEW COMMENTS

FILE # **SPR-95-70**

TITLE HEADING: Site Plan Review - Office Warehouse

LOCATION: 554 25 Road

PETITIONER: Bill Wells

PETITIONER'S ADDRESS/TELEPHONE: 2156 Buffalo Drive
Grand Junction, CO 81503
243-2337

PETITIONER'S REPRESENTATIVE: Steve McCallum

STAFF REPRESENTATIVE: Kristen Ashbeck

NOTE: WRITTEN RESPONSE (4 COPIES) BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED. A PLANNING CLEARANCE WILL NOT BE ISSUED UNTIL ALL ISSUES HAVE BEEN RESOLVED.

CITY POLICE DEPARTMENT **04/11/95**
Dave Stassen **244-3587**

I would suggest that there be adequate lighting between the businesses (low pressure sodium light would work well here). In addition, the fencing around the storage area (East end) should not be "slated chain" link. The slats would defeat the benefits of "transparent" fencing.

MESA COUNTY BUILDING DEPT. **04/12/95**
Bob Lee **244-1656**

Fire walls must be provided as required by the Building Code. Plans submitted for plan review must be scaled. North wall of building will require a parapet.

CITY ATTORNEY **04/11/95**
Dan Wilson **244-1501**

No Comments.

PUBLIC SERVICE **04/15/95**
Dale Clawson **244-2695**

I find no provisions made for utilities on this project. Petitioner needs to contact Public Service Company about service locations and easements.

GRAND JUNCTION FIRE DEPARTMENT **04/13/95**
Hank Masterson **244-1414**

A Fire Flow Survey is required-submit complete building plans to the Fire Department. Hydrants and water lines are not shown on the Site Plan. Minimum water line size is 8" and must be looped. Because of the 400' length of this building, a hydrant will need to be located along 25 Road and no more than 70' from the southwest corner of the property. This will allow for a maximum distance of 400' from hydrant to a location on the south side of the building that is within 150' of the northeast corner of the building.

A more serious problem for this site plan is the lack of Fire Department access along the north side of the building. Emergency vehicle access is required to withing 150' of all perimeter portions of the building. The submitted site plan does not indicate any dedicated access along the 400' length of the north side. The Fire Code allows for modification of access requirements if the building is protected by an approved fire sprinkler system.

GRAND JUNCTION DRAINAGE DISTRICT **04/18/95**
John Ballagh **242-4343**

The subsurface drain line in the western side of 25 Road is a GJDD facility, it is not a storm drain. It is not "normally dry". Underground, seep water, return flow irrigation water and surface runoff all flow in the pipe. There is not a great deal of unused capacity in the 18" RCP line. The 25 Road drain line empties into the Buthorn Drain just south of Hwy 6 & 50 on the Coldwell Banker property.

The site is definitely in the "lower 1/3" of the basin. While the addition of waters to the 25 Road tile is not desireable, the site location does argue to get rid of surface runoff as quick as possible. Thus the 12" RCP line will be approved. However there must be a 48" manhole installed at the point where the 12" RCP line will discharge to the existing 18" RCP 25 Road tile.

U. S. WEST **04/18/95**
Max Ward **244-4721**

Okay. Building entrance cable.

New or additional telephone facilities necessitated by this project may result in a "contract" and up-front monies required from developer, prior to ordering or placing of said facilities. For more information, please call 1-800-526-3557.

CITY DEVELOPMENT ENGINEER **04/25/95**
Jody Kliska **244-1591**

Dedication of 10' of additional right-of-way along 25 Road is required.
Transportation Capacity Payment - 16,000 sq.ft. X 4.88 trips/1000 sq.ft. X 1/10 X $500 = $3,904 based on warehouse-type use.
Where does the new pipe (12"RCP) tie into the existing storm drain? Is a manhole required?
It appears a single unit vehicle will have difficulty accessing Unit 5 without encroaching on the parking space.

COMMUNITY DEVELOPMENT DEPARTMENT **04/25/95**
Kristen Ashbeck **244-1437**

1. Total sign allowance for site based on building frontage along 25 Road is 80 square feet. This must be divided among all businesses in the building.
2. PARKING: Difficult to determine proposed use. Narrative refers to retail/commercial, yet parking calculations on plan refer to wholesale/warehouse. Worst case scenario for parking requirement should be used in order to accommodate the greatest variety of uses -- say, 50% retail sales area = 40 spaces, 2 of which must be handicap accessible. Since only 20 are shown, at a minimum, the gravelled storage area must be paved and striped in the likely event that it is needed for parking. It appears this area could accommodate at least 16 more spaces (show on revised plan).

   Show with a turning template how a large truck can back into a garage door of one of the bays without encroaching on an adjacent parking space, or on neighboring property (especially in the bays across from the proposed retaining wall).

   Move bicycle rack to a more visible/accessible location e.g. along front or 25 Road end of building instead of east end.
3. Fire access along back of building may be required or the building must be properly sprinkled. See Fire Department comments.
4. Landscaping meets requirements, including square footage for gravelled area to be paved.
5. Transportation Capacity Payment (TCP) and drainage fee may be required. Refer to Development Engineer comments.

CITY UTILITY ENGINEER **04/26/95**
Bill Cheney **244-1590**

Water: Ute Water.
Sewer: Show proposed connection to sewer.
There may be a payback on the sewer line in 25 Road. Contact City Utility Billing (244-1513).
Provide information for calculation of sewer Plant Investment Fee.

UTE WATER DISTRICT **04/25/95**
Gary Mathews **242-7491**

Ute Water has a 8" main line on the West side of 25 Road.

Developer needs to contact Ute Water for options in water metering.

POLICIES AND FEES IN EFFECT AT THE TIME OF APPLICATION WILL APPLY.

RESPONSE TO REVIEW COMMENTS

FILE #SPR95-70

Location: 554 25 Road
Petitioner: Bill Wells
Petitioner's Address/Telephone: 2156 Buffalo Drive
Grand Junction, CO 81503
243-2337
Petitioner's Representative: Steve McCallum
243-4642
Staff Representative: Kristen Ashbeck
Response Submitted: April 25, 1995

****City Police Department, Dave Stassen****
Any fencing used will be of the open chain link design to create transparent fencing as per your request. The building will be adequately lighted for security purposes.

****Mesa County Building Department, Bob Lee****
Fire walls and fire protection will be provided. A full set of scaled plans will be provided.

****Public Service, Dale Clawson****
Public Service will be provided with plans and request for service.

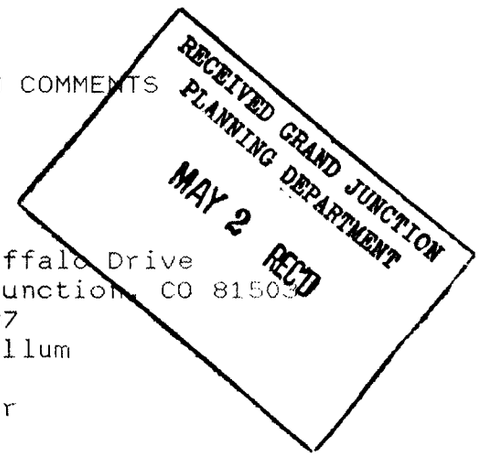
****Grand Junction Fire Department, Hank Masterson****
Complete plans will be provided, as well as a request for the fire flow survey. Hydrants required will be installed along with access to the proposed structure.

****Grand Junction Drainage Dist., John Ballagh****
The 48" manhole requested on 25 Road will be provided as per your request.

Sincerely,

Steve McCallum

RESPONSE TO REVIEW COMMENTS



FILE #SPR95-70

Location: 554 25 Road
Petitioner: Bill Wells
Petitioner's Address/Telephone: 2156 Buffalo Drive
Grand Junction, CO 81505
243-2337
Petitioner's Representative: Steve McCallum
243-4642
Staff Representative: Michael Drollinger
Response Submitted: May 2, 1995

****City Police Department, Dave Stassen****
Any fencing used will be of the open chain link design to create transparent fencing as per your request. The building will be adequately lighted for security purposes.

****Mesa County Building Department, Bob Lee****
Fire walls and fire protection will be provided. A full set of scaled plans will be provided.

****Public Service, Dale Clawson****
Public Service will be provided with plans and request for service.

****Grand Junction fire department, Hank Masterson****
Complete plans will be provided, as well as a request for the fire flow survey. Hydrants required will be installed along with access to the proposed structure.

****Grand Junction Drainage Dist.., John Ballagh****
The 48" manhole requested on 25 Road will be provided as per your request.

****City Development Engineer, Jody Kliska****
Additional ROW as required will be dedicated. We will pay TCP as computed. 12" RCP will be shown on revised drawing. Landscape area will be re-designed at unit #8, to allow accessing by a single unit vehicle.

****Community Development Department, Michael Drollinger****
Total sign allowance of 80 square feet will be complied with. The proposed use was correct as per the engineer and was improperly termed retail/commercial in the project narrative. The additional graveled area will be for storage only. The bicycle rack will be relocated as per your request. The TCP has been completed by Jody Kliska and will be paid.

SPR 95-70 Weiss Commercial Building - 554 25 Road AP
Community Development Dept 4/25/95

1. Total sign allowance for site based on building frontage along 25 Road is 80 square feet. This must be divided among all businesses in the building.

2. PARKING
   - Difficult to determine proposed use. Narrative refers to retail/commercial, yet parking ~~is~~ calculations on plan refer to wholesale/warehouse. Worst case scenario for parking requirement should be used in order to accommodate the greatest variety of uses -- say, 50% retail sales area = 40 spaces, 2 of which must be handicap accessible. Since only 20 are shown, at a minimum, the gravelled storage area must be paved and striped in the likely event that it is needed for parking. It appears this area could accommodate at least 16 more spaces (show on revised plan).

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4. Landscaping meets requirements, including square footage for gravelled area to be paved.

5. Transportation Capacity Payment (TCP) and drainage fee may be required. Refer to Development Engineer comments.

City of Grand Junction, Colorado
250 North Fifth Street
81501-2668
FAX: (303) 244-1599

May 10, 1995

Steve McCallum
552 25 Road
Grand Junction, CO 81505

RE: Wells Commercial Development (Our File # SPR 95-70)

Dear Mr. McCallum,

At this time the City is approving your proposal with the use mix and provided parking which is detailed on the site plan. As you are aware, sufficient parking will not be available for the development should the approved uses change to uses requiring parking above the limited number of spaces which have been provided exceeding the existing parking requirement. The City will approve use change requests which can provide for sufficient parking on a "first come" basis. Future tenants may run the risk of not having sufficient parking available for their proposal.

If you have any questions or require further information please do not hesitate to call.

Sincerely yours,

Michael T. Drollinger
Senior Planner

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