Table of Contents

File **FPP-1996-199** Name: Fall Valley – Filing 1 – SE Corner F ½ Road and 25 ½ Road

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, items are found on the list but are not present in the scanned electronic development file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will be found on the ISYS query system in their designated categories. Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page. Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for the contents of each file.
X	X	**Table of Contents**
		***Review Sheet Summary**
X	X	***Application form**
X		Review Sheets
		Receipts for fees paid for anything
X	X	***Submittal checklist**
X	X	***General project report**
		Reduced copy of final plans or drawings
X		Reduction of assessor's map.
		Evidence of title, deeds, easements
X	X	***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
X	X	Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or non-bound reports
		Traffic studies
X	X	***Review Comments**
		***Petitioner's response to comments**
X	X	***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X	X	Correspondence			
X	X	Planning Commission Minutes - ** -			
X	X	City Council Minutes – 10/2/1996 - **			
X	X	Planning Commission Notice of Hearing – 9/25/96			
X		Abstract and Title Co. – Commitment to Insure – 2/1/96			
X		Treasurer's Certificate of Taxes Due – 2/6/96			
X	X	Final Drainage Report – 9/96			
X	X	Geotechnical Investigation – 9/3/96			
X	X	Development Improvements Agreement - **			
X		Declaration of Covenants (not the recorded version)			
X	X	Plans for Construction -- Originals in file			
X		Aerial Photo			
X	X	Plat – GIS Historical Maps - **			
X	X	Landscape Plan			
X	X	Preliminary Plan			

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(970) 244-1430

Receipt _____
Date _____
Rec'd By _____
File No. FPP-96-199

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
❑ Subdivision Plat/Plan	❑ Minor ❑ Major				
❑ Rezone				From: To:	
☒ Planned Development	❑ ODP ❑ Prelim ☒ Final				
❑ Conditional Use					
❑ Zone of Annex					
❑ Variance					
❑ Special Use					
❑ Vacation					❑ Right-of Way ❑ Easement
❑ Revocable Permit					
❑ Site Plan Review					
❑ Property Line Adj.					

Property Owner Name	Developer Name	Representative Name
X FRANK & MARTHA FORAKER	JOHN DAVIS	X WARD SCOTT
Address: 2559 F 1/2 RD.	Address: 1023 24 RD.	Address: C/O RE/MAX 400 1401 N. 1ST
City/State/Zip: GRAND JCT., CO 81505	City/State/Zip: GRAND JCT, CO 81505	City/State/Zip: GRAND JCT, CO 815
Business Phone No.: 243-3562	Business Phone No.: 250-0720	Business Phone No.: 241-4000

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoi information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the revi comments. We recognize that we or our representative(s) must be present at all required hearings. In the event that the petitioner is not represented, the it will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

X _____ 8/21/96
Signature of Person Completing Application — Date

Frank R Foraker — Aug 21, 96
X Martha L Foraker — Aug 21-96
Signature of Property Owner(s) - attach additional sheets if necessary — Date

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(970) 244-1430

Receipt _____
Date _____
Rec'd By _____
File No. FPP-96-199

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
☐ Subdivision Plat/Plan	☐ Minor ☐ Major				
☐ Rezone				From: To:	
☒ Planned Development	☐ ODP ☐ Prelim ☒ Final				
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☐ Special Use					
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					
☐ Site Plan Review					
☐ Property Line Adj.					

Property Owner Name	Developer Name	Representative Name
KENNETH M. HETZEL, ETAL	JOHN DAVIS	WARD SCOTT
Address: 514 RIVERVIEW RD.	Address: 1023 24 RD.	Address: C/O RE/MAX 4000 1401 N. 1ST
City/State/Zip: GRAND JCT., CO 81503	City/State/Zip: GRAND JCT, CO 81505	City/State/Zip: GRAND JCT, CO 8150
Business Phone No.: 243-4356	Business Phone No.: 250-0720	Business Phone No.: 241-4000

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all required hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

Signature of Person Completing Application	Date
Ward Scott	8/22/96
Kenneth M Hetzel	8-21-96
Hilda L Hetzel	8-21-96
Barbara J Nichols	8/21/96
Gordon W. Hetzel	
Gerald L Hetzel by Kenneth M Hetzel	8-21-96

Signature of Property Owner(s) - attach additional sheets if necessary — Date

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(970) 244-1430

Receipt _____
Date _____
Rec'd By _____
File No. FPP-96-199

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
☐ Subdivision Plat/Plan	☐ Minor ☐ Major				
☐ Rezone				From: To:	
☒ Planned Development	☐ ODP ☐ Prelim ☒ Final				
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☐ Special Use					
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					
☐ Site Plan Review					
☐ Property Line Adj.					

Property Owner Name	Developer Name	Representative Name
X KENNETH M. HETZEL, ETAL	JOHN DAVIS	X WARD SCOTT
Address: 514 RIVERVIEW RD.	Address: 1023 24 RD.	Address: C/O RE/MAX 4000 1401 N. 1ST
City/State/Zip: GRAND JCT., CO 81503	City/State/Zip: GRAND JCT, CO 81505	City/State/Zip: GRAND JCT, CO 81501
Business Phone No.: 243-4356	Business Phone No.: 250-0720	Business Phone No.: 241-4000

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all required hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

X Glen E. Hetzel Ward Scott — 8/22/96 — 8/22/96
Signature of Person Completing Application — Date

X Glen E. Hetzel — 8/22/96
Signature of Property Owner(s) attach additional sheets if necessary — Date

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(970) 244-1430

Receipt _____
Date _____
Rec'd By _____
File No. _____

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
☒ Subdivision Plat/Plan	☐ Minor ☒ Major				
☒ Rezone				From: To:	
☒ Planned Development	☐ ODP ☒ Prelim ☒ Final				
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☒ Special Use					
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					
☐ Site Plan Review					
☐ Property Line Adj.					

Property Owner Name	Developer Name	Representative Name
O.P. Development Co., LLC	O.P. Development Co., LLC	Robert C. Knapple
2421 Applewood Circle	2421 Applewood Circle	2421 Applewood Circle
Address	Address	Address
Grand Junction, CO 81506	Grand Junction, CO 81506	Grand Junction, CO 81506
City/State/Zip	City/State/Zip	City/State/Zip
(970)241-2373	(970)241-2373	(970)241-2373
Business Phone No.	Business Phone No.	Business Phone No.

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all required hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

Signature of Person Completing Application (Bonner Assoc.) — Date 10-1-96

X _____ — Date 10/1/96
For St. Matthews Episcopal Church

X _____ Managing Director — Date 10-1-96
Signature of Property Owner(s) - attach additional sheets if necessary

SUBMITTAL CHECKLIST

MAJOR SUBDIVISION: FINAL PLAN / PLAT

Location: SE Corner F½ Rd & 25½ Rd Project Name: FALL VALLEY

Date Received _____

Receipt # 4531

File # FPP-96-199

ITEMS		DISTRIBUTION																												
DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City Parks/Recreation	● City Fire Department	● City Attorney	● City G.J.P.C. (8 sets)	○ City Downtown Dev. Auth.	● City Police	● County Planning	○ County Building Department	● County Surveyor	○ Walker Field	● School Dist. #51	● Irrigation District - GVIC	● Drainage District - GJDD	● Water District - UTE	○ Sewer District	● U.S. West	● Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	● Colorado Geologic Survey	● U.S. Postal Service	● Persigo WWTF	● TCI Cable			TOTAL REQ'D.
● Application Fee	VII-1	1																												
● 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	1	1	1	1	1	1			
● Application Form*	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
● Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
● Evidence of Title	VII-2	1			1			1																							
○ Appraisal of Raw Land	VII-1	1			1	1																									
● Names and Addresses*	VII-2	1																													
● Legal Description*	VII-2	1			1																										
○ Deeds	VII-1	1			1			1																							
○ Easements	VII-2	1	1	1	1			1													1	1	1					1			
○ Avigation Easement	VII-1	1			1			1							1																
○ ROW	VII-2	1	1	1	1			1													1	1	1					1			
● Covenants, Conditions & Restrictions	VII-1	1	1					1																							
○ Common Space Agreements	VII-1	1	1					1																							
● County Treasurer's Tax Cert.	VII-1	1																													
● Improvements Agreement/Guarantee*	VII-2	1	1	1				1																							
○ CDOT Access Permit	VII-3	1	1																												
○ 404 Permit	VII-3	1	1																												
○ Floodplain Permit*	VII-4	1	1																												
● General Project Report	X-7	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1			
● Composite Plan	IX-10	1	2	1	1																										
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	8	1	1	1	1				1	1	1	1	1	1	1	1	1	1		1	1		
● Final Plat	IX-15	1	2	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
○ 11"X17" Reduction of Final Plat	IX-15	1							8	1	1	1			1	1	1	1	1	1	1	1	1				1		1		
● Cover Sheet	IX-11	1	2																												
● Grading & Stormwater Mgmt Plan	IX-17	1	2															1							1	1			1		
○ Storm Drainage Plan and Profile	IX-30	1	2															1			1	1	1						1		
● Water and Sewer Plan and Profile	IX-34	1	2	1			1												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 – for open space	IX-20	2	1	1					8																						
● Geotechnical Report	X-8	1	1																							1					
○ Phase I & II Environmental Report	X-10,11	1	1																												
● Final Drainage Report	X-5,6	1	2															1													
○ Stormwater Management Plan	X-14	1	2															1							1						
○ Sewer System Design Report	X-13	1	2	1																1											
○ Water System Design Report	X-16	1	2	1															1												
○ Traffic Impact Study	X-15	1	2																					1							
○ Site Plan	IX-29	1	2	1	1		1		8																						

NOTES: * An asterisk in the item description column indicates that a form is supplied by the City.

2945-031-21-003
EDWIN J BURK
ILSE I
1301 REGATTA DR
WILMINGTON, NC 28405-4269

2945-031-21-006
SCOTT P DONOHUE
STACY J DONOHUE
487 VALLEJO DR
GRAND JUNCTION, CO 81503-1425

2945-031-22-002
TONY PERRY
NORMA LYNN VALENTINE
2558 JANENCE DR
GRAND JUNCTION, CO 81505

2945-031-21-005
LEO J GILBRIDE
653 JANECE DR
GRAND JUNCTION, CO 81505-1406

2945-031-21-002
LAURIE B LEGGETT
2557 JANECE DR
GRAND JUNCTION, CO 81505-1408

2945-031-21-004
RICHARD W GARWOOD
ELAINE O GARWOOD
2553 JANECE DR
GRAND JUNCTION, CO 81505-1408

2945-031-22-003
BOYD DEAN TAYLOR
VALERIE D STAATS-TAYLOR
2556 JANECE DR
GRAND JUNCTION, CO 81505-1408

2945-031-22-004
MICHAEL L WESTRA
ROBIN J
2554 JANECE DR
GRAND JUNCTION, CO 81505-1408

2945-031-20-002
HAROLD C SHEADER
LORRAINE SHEADER
652 FENTON ST
GRAND JUNCTION, CO 81505-1409

2945-031-20-003
RUBY LEE BRIGGS
654 FENTON ST
GRAND JUNCTION, CO 81505-1409

2945-031-20-004
DAVID L CAMPBELL
BEVERLY A CAMPBELL
656 FENTON ST
GRAND JUNCTION, CO 81505-1409

2945-031-22-001
LEAH E MILLIAS
653 FENTON ST
GRAND JUNCTION, CO 81505-1409

2945-031-20-001
ANTHONY J VALLADAO
GINA V
581 RANCHITOS DEL SOL
APTOS, CA 95003-9733

2945-031-21-001
ANTHONY J VALLADAO
GINA V
581 RANCHITOS DEL SOL
APTOS, CA 95003-9733

2945-031-22-005
ANTHONY J VALLADAO
GINA V
581 RANCHITOS DEL SOL
APTOS, CA 95003-9733

2945-031-00-143
JOHN R LAFFEY
CYNTHIA M LAFEY
2575 YOUNG CT
GRAND JUNCTION, CO 81505-1417

2945-031-00-171
GREAT HOMES LTD
3032 I-70 BUSINESS LOOP
GRAND JUNCTION, CO 81504

2945-031-01-008
SANFORD G HARRIS
WANDA F
653 YOUNG ST
GRAND JUNCTION, CO 81505-1415

2945-031-29-001
CONCEPT BUILDERS LLC
2641 CHESTNUT DR
GRAND JUNCTION, CO 81506-8327

2945-032-00-130
ROBERT G WILSON
PO BOX 60221
GRAND JUNCTION, CO 81506-8758

2945-033-14-006
COLORADO WEST IMPROVEMENTS INC
360 GRAND AVE
GRAND JUNCTION, CO 81501-2448

2945-033-14-007
COLORADO WEST IMPROVEMENTS INC
360 GRAND AVE
GRAND JUNCTION, CO 81501-2448

2945-033-14-008
RICHARD WATSON
L O GRIFFITH
2467 COMMERCE BLVD
GRAND JUNCTION, CO 81505

2945-033-14-009
RICHARD WATSON
L O GRIFFITH
2467 COMMERCE BLVD
GRAND JUNCTION, CO 81505

2945-033-14-010
RICHARD WATSON
2467 COMMERCE BLVD
GRAND JUNCTION, CO 81505

2945-034-00-051
MARTHA J WRIGHT
2559 F 1/2 RD
GRAND JUNCTION, CO 81505-1426

2945-034-00-067
ROBERT E FUOCO
TRUSTEE
611 MEANDER DR
GRAND JUNCTION, CO 81505-1413

2945-034-00-072
MATTHEW PIROFALO
EMMA F PIROFALO - TRUSTEES
2585 F 1/2 RD
GRAND JUNCTION, CO 81505-1426

2945-034-00-093
DAVID A PALMER
JACQUELINE P

GRAND JUNCTION, CO 81505-1426

2945-034-00-112
MUSTANG BROADCASTING COMPANY
715 HORIZON DR STE 430
GRAND JUNCTION, CO 81506-8731

FPP-96-199

2945-034-00-125
DANIEL V PUCKETT
COLLEEN A
2563 F 1/2 RD
GRAND JUNCTION, CO 81505-1426

2945-034-00-173
BEVERLEE A TAYLOR
TRUST
633 FLETCHER LN
GRAND JUNCTION, CO 81505-1403

2945-034-08-010
JBI ASSOCIATES
2324 N SEVILLE CIR
GRAND JUNCTION, CO 81506-8455

2945-034-02-002
THOMAS W GILMOR
CHRISTINE M
2577 MUSIC LN
GRAND JUNCTION, CO 81505-1404

2945-034-02-003
R A VANDEUSEN
S M
2575 MUSIC LN
GRAND JUNCTION, CO 81505-1404

2945-034-02-004
ARLO A KRUEGER
PHYLLIS C KRUEGER
2396 RIDGEWAY CT
GRAND JUNCTION, CO 81503-4618

2945-034-02-008
BEVERLEE A TAYLOR
TRUST
633 FLETCHER LN
GRAND JUNCTION, CO 81505-1403

2945-034-02-009
STEPHEN S KELLY
CONNIE KAY KELLY
629 FLETCHER LN
GRAND JUNCTION, CO 81505-1403

2945-034-23-001
BOYD JAMES BAIR
COY MICHELLE BAIR
537 KIRBY DR
GRAND JUNCTION, CO 81504

2945-034-03-006
EARL J FUOCO
R J
611 MEANDER DR
GRAND JUNCTION, CO 81505-1413

2945-034-03-007
DARREL CHRISTIAN CLARK

615 MEANDER DR
GRAND JUNCTION, CO 81505-1413

Frank & Martha Foraker
2559 F 1/2 Road
Grand Junction, CO 81505

John Davis
1023 24 Road
Grand Junction, CO 81505

Ward Scott
REMAX 4000
1401 N 1st St.
Grand Junction, CO 81501

City of Grand Junction
Community Development Dept.
250 N 5th St.
Grand Junction, CO 81501

August 28, 1996

GENERAL PROJECT REPORT FOR FALL VALLEY FINAL PLAN, FILING ONE

A PLANNED RESIDENTIAL DEVELOPMENT, PR-3.5

A. The entire Fall Valley planned unit development is for a 37.93 gross acre parcel located south of F.5 Rd. and east of 25.5 Rd. (25.5 Rd. will be completed as part of the next filing for this development). The actual number of units may vary at final platting of the entire subdivision but the preliminary plan initial application was for a total density of not more than 144 units or 3.8 units per acre which was amended in the preliminary process to 134 units, a 3.5 density. This Final Plan for Filing One is for 58 housing units which will all be single family, detached homes.

Two neighborhood parks are planned for Filing One which will be maintained by the Home Owners Association. All home owners in Fall Valley will be required by covenant to landscape their homes within one year of original purchase.

B. The benefits to the public will to be to provide close-in, "in-fill" housing that is convenient to employment, shopping, recreation, and all other public services.

C.

1. The proposed plan is, or will be before hearing of this plan, in compliance with a rezone that is affected by a rezone ordinance.

2. Land uses in the surrounding area are: to the west and southwest, City PI (Foresight Park); to the east, northeast, and southeast, County R1A and PUD (1 unit per acre); to the south, City PR-18 and PI (for a radio tower) and County AFT; to the north, City PR-3.7 and 3.8; and to the northwest, County AFT. Also, there are approximately 2 acres at the southeast corner of 25.5 Rd. and F.5 Rd. (northwest corner of Fall Valley) that are not part of this development. These two acres comprise three separate parcels each with an existing single family home. One of these parcels will result from the subdividing process as part of this development, and the other two are existing parcels. The new parcel and the parcel next to it are currently part of the City RSF-R zone and the remaining parcel is County AFT. Actual uses are allowable within current zones.

3. Site access will be via 25.5 Rd. Right of way has previously been dedicated for the westerly half and will of course be dedicated for the easterly half when Fall Valley is platted. One-fourth mile to the south is the existing traffic light at Patterson Rd. This is the route to most all employment and

services, and it will be the main traffic pattern as discussed in the Traffic Study. Please note that the Study was completed for 312 units rather than the 134 units now proposed. So while the Study does not call for any new measures to be taken by the developer it is in any event an overstatement by more than a factor of two of the transportation impact for Fall Valley. The City and County have plans for future completion of 25.5 Rd., but the developer feels that it should be improved in full as part of this development. Not only will full-road development improve access for the Fall Valley residents, but the 25.5 Rd. connection between F.5 Rd. and the existing extension from F Rd. to F.25 Rd. will, as stated in the Traffic Study, relieve traffic on the restricted F.5 Rd. section to the east of Fall Valley and on 1st St. and thus be of benefit to the surrounding neighborhood. The developer proposes that the street improvements for 25.5 Rd. be paid from the Fall Valley traffic impact fees to the extent that said fees cover the cost, and the balance, if any, from the City's capital improvement funds. The full 25.5 Rd. improvements will be completed as part of the 2nd filing to the Fall Valley development except for the southmost section to be completed as part of this filing. Note that because the Traffic Study predicts most traffic will flow out of Fall Valley to the south, there will be little need for an earlier completion of the entire section. The traffic impact of Filing One, 58 home lots or 43 % of the 134 total, should not be a problem, especially given that the Study predicts most traffic will normally want to flow to the south.

4. All utilities and irrigation water (it will be dedicated to the Home Owners Association) are available to the property. Irrigation water will be supplied from a central pond/reservoir located on Outlot B that is not part of this filing, but the covenants for this filing will also be recorded to encompass the entire subdivision and will obligate the owner of Outlot B to provide water for the entire subdivision when required by existing filings. Fire hydrants will be added as required.

5. No special or unusual demands are known for this subdivision.

6. The effects on all public facilities are those typical demands for a residential development of this size. The developer appreciates that schools in the general area are faced with overcrowding, but as has been expressed by the City Council for the Hacienda approval, that issue is beyond the scope of the developer's responsibilities and must be solved by action of the community at large to support the upcoming school bond election.

7. The site soils and geology are typical for this general area of the Valley. The soil is mostly a silty, sandy clay which is classified as mostly CL with some CL-ML. There are no known unusual geological features.

8. It is not anticipated that there will be any deleterious impact to site geology.

9. N/A

10. N/A

11. An attractive masonry entrance sign is planned for the second filing for the south-most 25.5 Rd. entrance. This is not shown on the plan for this filing but the permit for it will be obtained at a later date through the normal sign approval process.

D. The development is expected to be phased in three filings over the next two to five years, depending upon market conditions, beginning as soon as final approval is given by the City. The Preliminary Plan shows the phases, but please note that this Filing One encompasses what is shown on the preliminary Plan as filings I and II.

REVIEW COMMENTS

FILE #FPP-96-199 **TITLE HEADING:** Fall Valley, Filing #1

LOCATION: SE corner 25 ½ & F ½ Roads

PETITIONER: John Davis

PETITIONER'S ADDRESS/TELEPHONE: 1023 24 Road
Grand Junction, CO 81505
250-0720

PETITIONER'S REPRESENTATIVE: Ward Scott

STAFF REPRESENTATIVE: Bill Nebeker / Michael Drollinger

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT FOUR (4) COPIES OF WRITTEN RESPONSE AND REVISED DRAWINGS ADDRESSING ALL REVIEW COMMENTS ON OR BEFORE 5:00 P.M., SEPTEMBER 23, 1996.

CITY COMMUNITY DEVELOPMENT **9/26/96**
Bill Nebeker **244-1447**

1. Change Outlot B to Block 5, Lot 1 OR Block 4, lot 9 (to be replatted in the future).
2. Change Block 1, lot 1 to Tract A.
3. Change Block 3, lot 6 to Tract B.
4. Tract A & B shall be dedicated to the Fall Valley Homeowner's Association for their uses noted.
5. Condition #2 of the preliminary approval required the petitioner to detail the amenities proposed for the open space areas at the time of final plat/plan submittal. Show details of amenities and landscaping for Tract B (Park/Buffer Zone/Detention) to be constructed in this phase - or delete Tract B from this phase.
6. Change street names as noted by Ronnie Edwards.
7. Improvement plans and developments improvements agreement must show 8' concrete path in pedestrian easement between lots 1 & 2, block 4.

CITY COMMUNITY DEVELOPMENT **9/20/96**
Rhonda Edwards **256-4008**

Most of the street names will have to be revised. Autumn, Summer, Spring, and Winter are already in existence in other subdivisions. Fall Valley Circle cannot be used three times. A 90 degree turn constitutes a new street. The name "circle" is a horseshoe-shaped street beginning and ending within ONE major block. Tumble Way Drive cannot be used twice as it shows on the preliminary plan. Street designs need a lot of work.

CITY DEVELOPMENT ENGINEER **9/6/96**
Jody Kliska **244-1591**

1. A stormwater management permit from the state is required. Please contact CDOH regarding the permit process. The process is also detailed in the city SWMM manual.

2. The detention ponds are required to have ground cover and landscaping, see SWMM manual page VIII-6.
   This needs to be shown on the plans and guaranteed in the improvements agreement.
3. Are you constructing two or three ponds with this filing? Three ponds are shown on the plans, only two are indicated in the improvements agreement.
4. Sheet 8 of 12 - Note 5 - compaction of base course material is 95% of AASHTO T-180, not T-99. See city specs. p. RB-3. Please note the 1996 City Specs. are in effect and are available for purchase at City Public Works.
5. On S. Fall Valley Circle for the first 217.07 feet, the residential collector section, please use the 7' vertical curb, gutter and sidewalk section as shown in the standard street section.
6. The street plans need to indicate the type and placement of traffic control signs.
7. Please provide a curve widening detail.
8. Is the typical section for 25 ½ Road an extension of the existing section? Are you intending to build the full street improvement? You are only required to build a half-street section with a minimum pavement width of 22' and curb, gutter and sidewalk on your half.
9. The improvements agreement figures for 25 ½ Road pavement appear to be low if you are constructing the 41' pavement width. The unit price per square yard is the same as shown for the internal streets, but the pavement section for this street is 1" thicker than the other streets. The quantity for the curb & gutter appears to be for one side only?

10. Redlined plans are being returned for your use. Please return them with the response to comments.
11. Plans for the complete 25 /12 Road extension were not submitted as required by Planning Commission approval.
12. The Spring Street curb returns are shown on the plans but dedicated on the plat.

CITY UTILITY ENGINEER **9/12/96**
Trent Prall **244-1590**

1. Plat: Please clean up easement descriptions on plat. Lots and easements are not even close. Lots 6,7,27, and 28, Blk 4 need to have an pedestrian and utility easement identified.
2. PLEASE NOTE: 1996 City of Grand Junction Standard Specifications shall apply for this proposed development. Copies are available for $10 in the Public Works and Utilities office.
3. Final Plans shall have Ute signoff block on all water related construction drawings.
4. Please delineate limits of Filing 1 construction on South Tumble Way Drive.
5. Missing water line crossing in sewer profile between manholes A-1 and A-2.
6. Please cross out plan view on Sheet 7 of 15 and identify as "future filing".
7. Between Manholes A-4 and A-5, stub out sewer line to east property line at 0.4% slope through proposed access easement to park / buffer zone.
8. Please ensure the following notes are on the sewer plans sheet 7 of 15.
   A. 14. The Contractor is responsible for all required sewer line testing to be completed in the presence of the City Inspector. Pressure testing will be performed after all compaction of street subgrade and prior to street paving. Final lamping will also be accomplished after paving is completed. These tests shall be the basis of acceptance of the sewer line extension.
   B. 15. A clay cut-off wall shall be placed 10 feet upstream from all new manholes unless otherwise noted. The cut-off wall shall extend from 6 inches below to 6 inches above granular backfill material and shall be 2 feet wide. If native material is not suitable, the contractor shall import material approved by the engineer.

C. 16. Sewer stub outs shall be capped and plugged. Stub out shall be identified with a steel fence post buried 1' below finished grade. As-built surveying of stub out required PRIOR to backfill.

D. 17. Benchmark _____

CITY PROPERTY AGENT **9/16/96**
Steve Pace **256-4003**

1. Do the City of Grand Junction right-of-way (Book 1373, Page 386) and the Ute Water easements (Book 2022, Page 284), as listed in the title commitment, affect this platting?
2. There seems to be no basis of bearings statement.
3. Using the dimensions as shown for the outer perimeter of this Filing #1, there is a 4 foot bust in closure.
4. Nots 4 & 5 (description of easements) don't list the same lost as shown on the plat.
5. Need a dimension on the east line of Outlot A and move monument to NE corner of Outlot A.
6. The drainage easement on the east side of Lot 6, Block 3 could be labeled.

MESA COUNTY PLANNING **9/10/96**
Verna Cox **244-1637**

1. Due to the size of this project, the developer should be responsible for the cost of one-half a local street section for the 25.5 Road frontage. The cost of oversizing of the road would appropriately be the responsibility of the City. Because the entire width of 25.5 Road is needed to be constructed with this development, provision for reimbursement of the cost of ½ of a local street section (the responsibility of future development on the west side of the street) should be made.
2. What are the proposed setbacks? Many lots have less than 100 feet in depth. These lots may not have enough room for the normal type of accessory structures and yard space without creating a crowded appearance.
3. Lots abutting R1A zoned land should be larger and have larger rear yard setbacks. The buffer zone could be extended along this boundary to address the compatibility issues.
4. Are the corner lots wide enough to accommodate the driveway setbacks from intersections.
5. Are the park areas proposed large enough and located so as to benefit the residents of the development?

PUBLIC SERVICE COMPANY **9/10/96**
Jon Price **244-2693**

Public Service Company has no additional requirements.

GRAND JUNCTION DRAINAGE DISTRICT **9/11/96**
John Ballagh **242-4343**

Comments are based on a phone conversation with the engineer that only the wester ½ (?) of this filing will be platted. The drainage report calculations for the plans look ok. Whenever the area that includes Lot 3, Block 3 is to be developed the District wants to see the details of the detention pond including a cross-section with dimensions showing the proximity to the open Beehive Drain. Surface treatment of the pond should be identified as well as liner material(s).

U S POSTAL SERVICE **9/7/96**
Mary Barnett **244-3434**

1. Street names - good; no repetition.
2. City delivery requires central delivery; equipment furnished by the Postal Service - location to be mutually agreed upon with developer OR curbside delivery when 50% of homes are built in Filing Number 1.

U S WEST **9/9/96**
Max Ward **244-4721**

For timely telephone service, as soon as you have a plat and power drawing for your development, please.....

MAIL COPY TO:
U S West Communications
Developer Contact Group
P.O. Box 1720
Denver, CO 80201

AND

CALL THE TOLL-FREE NUMBER FOR:
Developer Contact Group
1-800-526-3557

We need to hear from you at least 60 days prior to trenching.

TCI CABLEVISION **9/16/96**
Glen Vancil **245-8777**

1. We require the developers to provide, at no charge to TCI Cablevision, an open trench for cable service where underground service is needed and when a roadbore is required, that too must be provided by the developer. The trench and/or roadbore may be the same one used by other utilities so long as there is enough room to accommodate all necessary lines.
2. We require developers to provide, at no charge to TCI Cablevision, fill-in of the trench once cable has been installed in the trench.
3. We require developers to provide, at no charge to TCI Cablevision, a 4" PVC conduit at all utility road crossings where cable TV will be installed. This 4" conduit will be for the sole use of cable TV.
4. Should your subdivision contain cul-de-sac's the driveways and property lines (pins) must be clearly marked prior to the installation of underground cable. If this is not done, any need to relocate pedestals or lines will be billed directly back to your company.
5. TCI Cablevision will provide service to your subdivision so long as it is within the normal cable TV service area. Any subdivision that is out of the existing cable TV area may require a construction assist charge, paid by the developer, to TCI Cablevision in order to extend the cable TV service to that subdivision.
6. TCI will normally not activate cable service in a new subdivision until it is approximately 30% developed. Should you wish cable TV service to be available for the first home in your subdivision it will, in most cases, be necessary to have you provide a construction assist payment to cover the necessary electronics for that subdivision.

UTE WATER **9/16/96**
Gary Mathews **242-7491**

1. Contact with Ute Water is needed to discuss water line sizes inside the project.

2. Water mains shall be c-900, class 150. Installation of pipe fittings, valves and services including testing and disinfection shall be in accordance with Ute Water standard specifications and drawings.
3. Developer will install the meter pits and yokes. Ute Water will furnish the pits and yokes.
4. Construction plans required 48 hours before development begins.
5. Policies and fees in effect at the time of application will apply.

CITY PARKS & RECREATION **9/16/96**
Shawn Cooper **244-3869**

1. Parks & Open Space Fee - 135 units x $225 = $30,150.
2. Parks Department would be interested in acquiring a neighborhood park site in this area, are the developers interested in such a proposal?

COLORADO GEOLOGICAL SURVEY **9/25/96**
James M. Soule **303-866-2611**

1. The surficial geology of this site consists of a silty and clayey residual soil derived from alluvium which originated as sheetwash from the Mancos Shale of the Bookcliffs. These materials are admixed in places with remnants of Colorado River gravels. The bedrock in this area is the Mancos Shale but the depth to it is not known. The near surface soils are relatively moist at shallow depth as indicated in the submitted Western Colorado Testing, Inc., report and this is probably due to irrigation in the vicinity. This condition can be expected to persist and/or ground-moisture levels will increase after buildout of the subdivision because of increased impervious cover and landscaping irrigation. The site is nearly flat and level and because of this the drainage on it is relatively poor and this may contribute to the present ground-moisture levels.
2. The geologic conditions indicted above will present some serious, but not insurmountable, constraints on development of this parcel as planned, either as indicated in the revised preliminary plan or for the original plat which presumably now will be the basis for platting future filings of the subdivision. The soil and soil-moisture conditions are not conducive to buildings with basements or, because of potential soil settlement, ones that would subject the soils to relatively heavy or concentrated structural loads. The soils and foundation engineer's report discusses foundation-designs adequately and the recommendations made in his report should be expressly followed. We also strongly recommend that peripheral foundation drains be used for all houses in the subdivision and that lots be finish graded to maintain good positive drainage away from all building foundations.
3. The proposed detention basins should be adequate to contain storm runoff in the subdivision as presently planned. As the subdivision builds out in the future OR if drainage is changed by development of adjacent parcels, including Foresight Park to the west, it may be necessary to increase detention capacity in the subdivision itself or in nearby areas.

If the recommendations made above are followed and made conditions of approval of this subdivision proposal, then we have no geology-related objection to it.

ADDITIONAL COMMENTS - 2ND SUBMITTAL

CITY PROPERTY AGENT **9/27/96**
Steve Pace **256-4003**

1. Need to address Lot 1, Block 1 as a detention/retention easement in the dedication.
2. Need to address Lot 6, Block 3 as a park/buffer zone detention in the dedication.
3. Grand Junction Drainage District easements are addressed in the dedication, but are not shown.
4. Outlot B could be labeled Lot 1, Block 5.
5. Lien holder approval?
6. There is a distance missing between monuments on the east line of Daniel V. Puckett property.
7. Outlot "A" should be addressed in the dedication.

CITY DEVELOPMENT ENGINEER **9/30/96**
Jody Kliska **244-1591**

1. The revised plans appear to have addressed the previous comments.
2. On sheet 4 of 15, no detail is provided for the outlet structure of the detention pond. After looking at the drainage report, it does not appear the ponds are designed with the two stage outlets required by Section VIII of the SWMM Manual, which regulates release rates for both the two year and hundred year events.

September 19, 1996

SUPPPLEMENTAL GENERAL PROJECT REPORT FOR FALL VALLEY FINAL PLAN, FILING ONE

A PLANNED RESIDENTIAL DEVELOPMENT, PR-3.5

A Final Plan for Filing One was originally submitted for 58 housing lots. The submitted plan included most of the lots shown as both Filings I and II in the Preliminary Plan. City reviews are requiring that as part of the 58 lot plan it would be necessary to complete 25.5 Rd. along its entire lenght bordering Fall Valley and to connect the northern entrance off 25.5 Rd. into Fall Valley to the Filing One parcel that was submitted. To avoid these requirements as part of Filing One, the developer is therefore down-sizing his submittal to include only 19 residential lots. These 19 lots are all shown as part of Filing I in the Preliminary Plan as required by the Planning Commission's approval for the Preliminary Plan.

ATTACHED ARE ONLY THOSE ITEMS THAT HAVE BEEN REVISED.

STATE OF COLORADO

COLORADO GEOLOGICAL SURVEY
Division of Minerals and Geology

Department of Natural Resources
1313 Sherman Street, Room 715
Denver, Colorado 80203
Phone (303) 866-2611
FAX (303) 866-2461

FAXED 9/25/96

RECEIVED GRAND JUNCTION
PLANNING DEPARTMENT

DEPARTMENT OF
NATURAL
RESOURCES

September 25, 1996

MA-97-0009

Mr. Bill Nebeker
City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, Colorado 81501

Re: Proposed Fall Valley Subdivision (Revised) -- SE Corner of F 1/2 Road and 25 1/2 Road, Grand Junction

Dear Mr. Nebeker:

At your request, we have reviewed the materials submitted for and made a field inspection of the site of the proposed residential subdivision indicated above. The following comments summarize our findings.

(1) The surficial geology of this site consists of a silty and clayey residual soil derived from alluvium which originated as sheetwash from the Mancos Shale of the Book Cliffs. These materials are admixed in places with remnants of Colorado River gravels. The bedrock in this area is the Mancos Shale but the depth to it is not known. The near surface soils are relatively moist at shallow depth as indicated in the submitted Western Colorado Testing, Inc., report and this is probably due to irrigation in the vicinity. This condition can be expected to persist and/or ground-moisture levels will increase after buildout of the subdivision because of increased impervious cover and landscaping irrigation. The site is nearly flat and level and because of this the drainage on it is relatively poor and this may contribute to the present ground-moisture levels.

(2) The geologic conditions indicated above will present some serious, but not insurmountable, constraints on development of this parcel as planned, either as indicated in the revised preliminary plat or for the original plat which presumably now will be the basis for platting future filings of the subdivision. The soil and soil-moisture conditions are not conducive to buildings with basements or, because of potential soil settlement, ones that would subject the soils to relatively heavy or concentrated structural loads. The soils and foundation engineer's report discusses foundation-designs adequately and the recommendations made in his report should be expressly followed. We also strongly recommend that peripheral foundation drains be used for all houses in the subdivision and that lots be finish graded to maintain good positive drainage away from all building found-

tions.

(3) The proposed detention basins should be adequate to contain storm runoff in the subdivision as presently planned. As the subdivision builds out in the future or if drainage is changed by development of adjacent parcels, including Foresight Park to the west, in may be necessary to increase detention capacity in the subdivision itself or in nearby areas.

If the recommendations made above are followed and made conditions of approval of this subdivision proposal, then we have no geology-related objection to it.

Sincerely,

James M. Soule

James M. Soule
Engineering Geologist

FINAL
DRAINAGE REPORT

FALL VALLEY SUBDIVISION

25½ ROAD & F½ ROAD

CITY OF GRAND JUNCTION

Prepared For:

JOHN DAVIS
1460 North Avenue, Unit H
Grand Junction, Colorado 81501

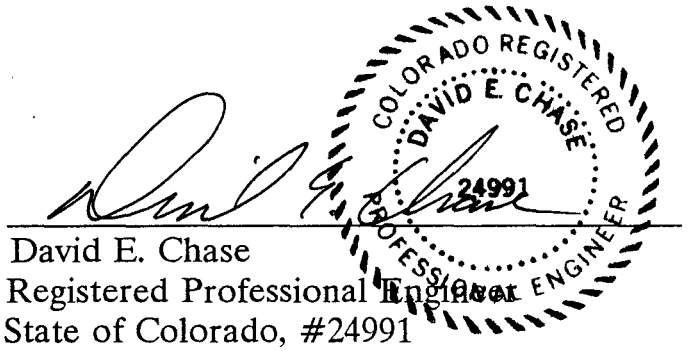
Prepared By:

BANNER ASSOCIATES, INC.
2777 Crossroads Boulevard
Grand Junction, Colorado 81506

September 1996

CERTIFICATION

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



David E. Chase
Registered Professional Engineer
State of Colorado, #24991

TABLE OF CONTENTS

I. GENERAL LOCATION AND DESCRIPTION

FINAL DRAINAGE REPORT
FALL VALLEY SUBDIVISION

SITE AND MAJOR BASIN LOCATION

Fall Valley Subdivision, being proposed by John Davis, is located in the southeast corner of the intersection of 25½ Road and F½ Road as shown on the Vicinity Map that is included in this report as Exhibit A. Fall Valley Subdivision is bounded by F½ Road to the north, consisting of an asphalt traveling surface, and 25½ Road right-of-way to the west, which is currently an unimproved dirt road. Development in the vicinity consists of Kay Subdivision to the north, Public Service Company to the west, undeveloped land to the south and single family residences to the east.

SITE AND MAJOR BASIN DESCRIPTION

The proposed Fall Valley Subdivision is approximately 37.9 acres in size. The western most quarter of the parcel, approximately 10 acres, has a ground cover consisting mostly of weeds with grass understory with surface grades ranging from 1 - 2% sloping downward to the south and west. Vegetation covers approximately 50 - 70% of the ground as observed in this region. The eastern three quarters of the parcel has been recently plowed and currently is bare ground with surface grades ranging from 0.7 - 1% again sloping downward to the south and west. The boundaries of the parcel to the east, west and south are heavily vegetated corresponding to the locations of runoff and irrigation waste ditches.

In researching the soils on the site, reference was made to the Soil Survey of the Grand Junction Area as issued by the U.S. Department of Agriculture, Soil Conservation Service, November 1955. The soil in the north western two-thirds of the parcel is Ravola very fine sandy loam (Rf) and in the south eastern one-third is Billings silty clay loam (Bc) as shown on page 5 and described on pages 6 through 9 of this report.

II. EXISTING DRAINAGE CONDITIONS

MAJOR BASIN

In researching the floodplain hazard for the area, reference was made to the Mesa County Floodplain Map as produced by the Mesa County Land Records Section of Engineering and Design, April 1993. The existing site lies approximately 1,320 feet north of the 100-year flood delineation for Independent Ranchmans Ditch. Therefore, no part of the proposed site is within the 100-year flood limits. The Grand Valley Canal is located north of the site running diagonally from NW to SE and it's distance from the existing parcel averages approximately 440 feet. A Grand Junction Drainage Ditch runs southerly near the southeast region of the parcel.

SITE

F½ Road borders the parcel on the north and consists of an asphalt traveling surface with a gravel shoulder and roadside ditch that transports drainage westward parallel to F½ Road. This roadside ditch prevents runoff from being introduced from the north. Grading of the existing parcel along the east boundary prevents runoff from being introduced from the east. There is no runoff introduced from the west or south due to the natural topography of the land sloping to the south and west. Irrigation waste ditches along the western and southern boundaries prevent runoff from being discharged onto adjacent lands. These two waste ditches intersect in the southwest corner of the parcel where they enter a storm sewer manhole, by way of a grated inlet. Runoff then proceeds westward, through a 36" concrete storm drain, for approximately 40 feet, where it intersects another 36" storm drain. This storm sewer ultimately discharges into Independent Ranchmans Ditch, approximately one quarter of a mile to the south.

III. PROPOSED DRAINAGE CONDITIONS

CHANGES IN DRAINAGE PATTERNS

No change in drainage patterns is proposed for the lands adjacent to and surrounding the Fall Valley Subdivision. Proposed drainage patterns within the site will be modified, as is customary, to accommodate development and to better control surface flows to designed collection areas. A Preliminary Drainage Map is included in Appendix B that illustrates the existing drainage basin. Upon development, an irrigation pond and park is proposed in the central region of the site that will also be utilized as a detention basin for storm water runoff to serve a portion of this region. A detention basin and park proposed in the southeast corner will collect runoff from the eastern portion of the development and discharge flows at the historic levels into the "Beehive" ditch adjacent to the site. In addition, an open space and detention basin is proposed near the southwest corner of the site to collect runoff from the western and north regions of the site. This pond will discharge flows, again at historic levels, into the existing 36" storm drain.

MAINTENANCE ISSUES

Access to drainage basins and outlet structures are provided, by design, to be directly from the streets that border them in the southwest and southeast areas. Since the pond and park in the central region will be utilized as an irrigation facility, as well as retention of runoff, access will be provided on the north, east and south side of the pond. The Fall Valley Subdivision Homeowners Association will claim ownership and maintenance responsibilities for the parks and drainage basins.

IV. DESIGN CRITERIA & APPROACH

GENERAL CONSIDERATIONS

Due to the isolation of the site on the north and west, the proximity of the Drainage ditch on the east and natural topography affecting runoff patterns to the south, larger scale master planning for drainage is difficult, since the proposed site is already quite large. Strategic location of ponds and parks within the site lends itself as an attractive and effective layout for stormwater collection. No constraints should be imposed on future adjacent development due to the development of this site.

HYDROLOGY

Hydrology calculations will be based on the 2 and 100-year rainfall events and precipitation based on the Depth-Duration-Frequency (DDF) Table "A-2" as obtained from the City of Grand Junction Stormwater Management Manual (SWMM), June 1994. Runoff calculations will be performed using the SCS Curve Number method with four designed drainage basins each being less than 25 acres in size. Detention basin design will be accomplished by the Modified Rational Method using Haestad Methods software for maximum volume required with historic flow release rates. Parameter selection and design procedures will be based on using a composite Curve Number, an IDF value corresponding to the largest time of concentration (Tc) obtained for each drainage basin and the respective basin area obtained by use of a planimeter or computer.

HYDRAULICS

Hydraulic calculations will be accomplished by Manning's equation for gravity flow in circular channels using Haestad Methods FlowMaster Professional Edition and/or StormCAD software. Detention pond outlet structure design will be based on use of Haestad Methods Pond-2 software. Parameter selection will be determined by the pipe material selected, accompanying pipe characteristics and the City of Grand Junction standards and specifications for storm sewer construction. Analysis and design procedures will be based on individual and combined subcatchments within the development using Manning's formula and the Rational Method for storm sewer sizing. Again, pipeline sizing may be determined using Haestad Methods StormCAD software.

V. RESULTS & CONCLUSIONS

RUNOFF RATES

Historic runoff rates are tabulated below.

2 year storm: 0 cfs
100 year storm: 3 cfs

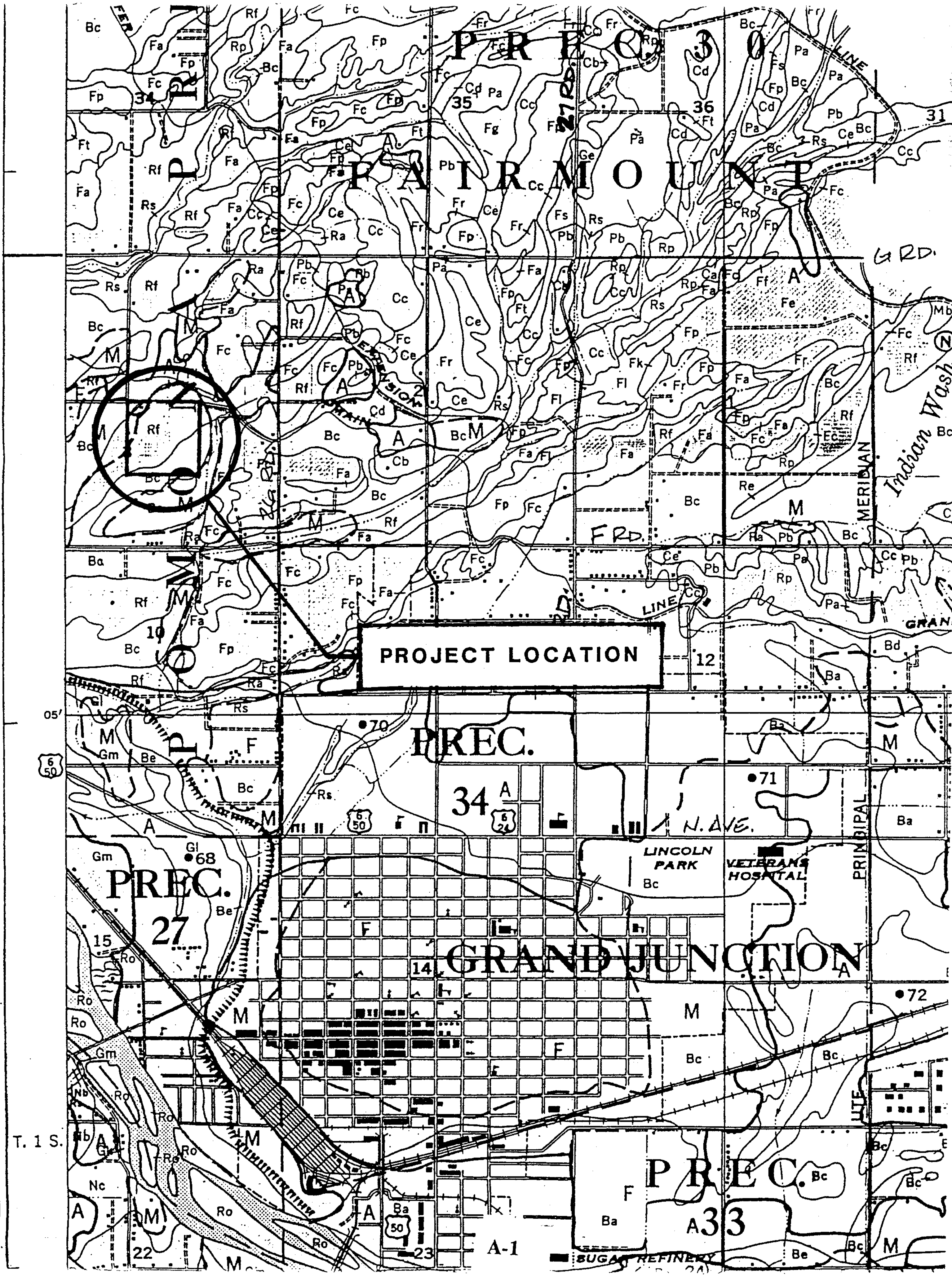
The 0 cfs value for the 2-year storm event is qualified by noting the large basin area, relatively flat slope, and existing soil conditions. See appendix C for these calculations.

COMPLIANCE

Due to this unique nature of the parcel's runoff, the City Engineering Staff opted to only hold the developer to the 100-year historic runoff value of 3 cfs. This rate will be maintained using 3 detention areas in the subdivision. 2 cfs will be released to the southwest, and 1 cfs to the southeast. Both of these separate release locations ultimately flow to the Independent Ranchmans Drain.

The developed parcel's relatively flat sloping, large area and high permeable to impermeable area ratios produced very large Tc's. These Tc values produced small, unrealistic runoff values. Therefore, the developed conditions were analyzed using the paved areas only. This required using a developed CN of 98 throughout the computations. This paved-area-only analysis produced more intuitively accurate results for a fully developed subdivision.

APPENDIX A


PREC. 30
FAIRMOUNT
PROJECT LOCATION
PREC.
34
PREC.
27
GRAND JUNCTION
PREC.
33
LINCOLN PARK
VETERANS HOSPITAL
N. AVE.
MERIDIAN
PRINCIPAL
Indian Wash
SUGAR REFINERY
GRD.
FRD.
EXTENSION
DRAIN
LINE
05'
T. 1 S.

A-1

Ravola very fine sandy loam, 0 to 2 percent slopes (RF).—This extensive and important soil occurs either along washes or arroyas extending from the north or on broad coalescing alluvial fans. The alluvial material from which the soil has developed was derived from sandstone and shale and ranges from 4 to 20 feet deep. The principal areas of the soil are north and northwest of Grand Junction and north, northwest, and southwest of Fruita.

This soil is much like Ravola fine sandy loam, 0 to 2 percent slopes, but is generally more uniformly level. The texture is prevailingly very fine sandy loam, but the percentage of silt is noticeably higher in some places. A few small areas that have a loam texture are included.

The 10- or 12-inch surface layer consists of light brownish-gray to very pale-brown very fine sandy loam. In some places the underlying thin depositional layers vary only slightly in color or texture. In other places, especially near drainage courses, the layers are more variable and may grade to loam, silt loam, or fine sandy loam. Nevertheless, layers of very fine sandy loam are more numerous. Below depths of 4 to 5 feet, the texture is sandier, and at depths of 8 to 12 feet strata of loamy fine sand, gravel, and scattered sandstone rock are common.

Disseminated lime occurs from the surface downward. Owing to the friable consistence of the successive layers, the tilth, internal drainage, available supply of moisture for plants, permeability to plant roots, and other physical properties are favorable and assure a wide suitability range for crops. The organic-matter content, however, is low. The soil is slightly saline under native cover and has a few strongly saline spots. Occasionally the water table is high.

Use and management.—More than 99 percent of this soil is cultivated. The chief crops are alfalfa, corn, pinto beans, small grains, and truck crops. Corn is planted on an estimated 35 percent of the area, alfalfa on 20 percent, beans on 20 percent, small grains on 10 percent, and potatoes, tomatoes, sugar beets, and irrigated pasture on the rest. The percentage of land planted to the various crops fluctuates considerably. Yields have been increased by using improved soil management, such as application of barnyard manure; the growing of clovers and alfalfa frequently after corn, potatoes, sugar beets, and other crops; and the more liberal use of treble superphosphate and mixed commercial fertilizer.

Billings silty clay loam, 0 to 2 percent slopes (Bc).—This soil, locally called adobe, is one of the most important and extensive in the Grand Valley. It covers nearly one-fifth of the Grand Junction Area. The areas occur on the broad flood plains and very gently sloping coalescing alluvial fans along streams. Many large areas are north of the Colorado River.

The soil is derived from deep alluvial deposits that came mainly from Mancos shale but in a few places from fine-grained sandstone materials. The deposits ordinarily range from 4 to 40 feet deep but in places exceed 40 feet. The deposits have been built up from thin sediments brought in by the streams that have formed the coalescing alluvial fans or have been dropped by the broad washes that have no drainage channel. The thickest deposit, near Grand Junction, was built up by Indian Wash.

The color and texture of the soil profile vary from place to place. The 8- to 10-inch surface soil normally consists of gray, light-gray, light olive-gray, or light brownish-gray silty clay loam. This layer grades into material of similar color and texture that extends to depths of 3 or 4 feet. Below this depth the successive depositional layers show more variation. Although the dominant texture is silty clay loam, the profile may have a loam, clay loam, fine sandy loam, or a very fine sandy loam texture.

Where there are fairly uniform beds of Mancos shale and where the soil is not influenced by materials deposited by adjoining drainage courses, the profile varies only slightly within the upper 3 or 4 feet. In areas bordering drainage courses, however, the soil varies more in texture and color from the surface downward.

One small area about 1½ miles southeast of Loma consists of light grayish-brown or pale-brown heavy silty clay loam that shows only slight variation in texture to depths of 4 to 6 feet. The underlying soil material is more variable. Below depths of 6 to 10 feet the layers generally are somewhat thicker and have a higher percentage of coarse soil material.

Also included with this soil are several small areas totaling about 3 square miles that are dominantly pale yellow. These are located 2½ to 3½ miles northeast of Fruita, 5 miles north of Fruita, 2½ miles northeast of Loma, 3 to 5 miles north of Loma, 1½ miles northwest of Loma, and 4 miles northwest of Mack. In these areas the 8- or 10-inch surface soil is pale-yellow silty clay loam, and the subsoil is a relatively uniform pale-yellow silty clay loam to depths of 4 to 8 feet. The accumulated alluvial layers are difficult to distinguish, but in a few places transitional to Fruita soils there are small areas having a pale-brown to light-yellowish brown color. These transitional areas are included with Billings silty clay loam because they have a finer textured subsoil than is characteristic of the Ravola soils.

Although moderately fine textured, this Billings soil permits successful growth of deep-rooted crops such as alfalfa and tree fruits. Its permeability is normally not so favorable as that of the Mesa, Fruita, and Ravola soils. Its tilth and workability are fair, but it puddles so quickly when wet and bakes so hard when dry that good tilth can be maintained only by proper irrigation and special cultural practices. Runoff is slow and internal drainage is very slow.

Like all other soils in the area, this one has a low organic-matter content. Under natural conditions it contains a moderate concentration of salts derived from the parent rock (Mancos shale). In places, however, it contains so much salt that good yields cannot be obtained. Some large areas are so strongly saline they cannot be used for crops. Generally, this soil is without visible lime, but it is calcareous. In many places small white flecks or indistinct light-colored streaks or seams indicate that lime, gypsum, or salts are present.

Use and management.—About 80 percent of this soil is cultivated. The chief irrigated crops are alfalfa, corn, dry beans, sugar beets, small grains, and tomatoes and other truck crops. Where the soil is located so as to avoid frost damage, tree fruits are grown.

Most of the field crops are grown in the central and western parts of the valley, or from Grand Junction westward. The entire acreage in tree fruits—approximately 3 square miles—lies between Grand Junction and Palisade. Because the climate is more favorable near Palisade, the acreage in orchard fruits is greater there. A few small orchards are located northeast of Grand Junction in the direction of Clifton. The main fruit acreage is between Clifton and Palisade. Peach orchards predominate, but a considerable acreage is in pears, especially near Clifton. Yields depend on the age of the trees and other factors, including management, but the estimated potential yield is somewhat less on this soil than on Mesa soils. This takes into account the slower internal drainage of this soil and its susceptibility to salinity if overirrigated. Yields of other crops vary according to the length of time the land has been irrigated, internal drainage or subdrainage, salt content of the soil, management practices, and local climate.

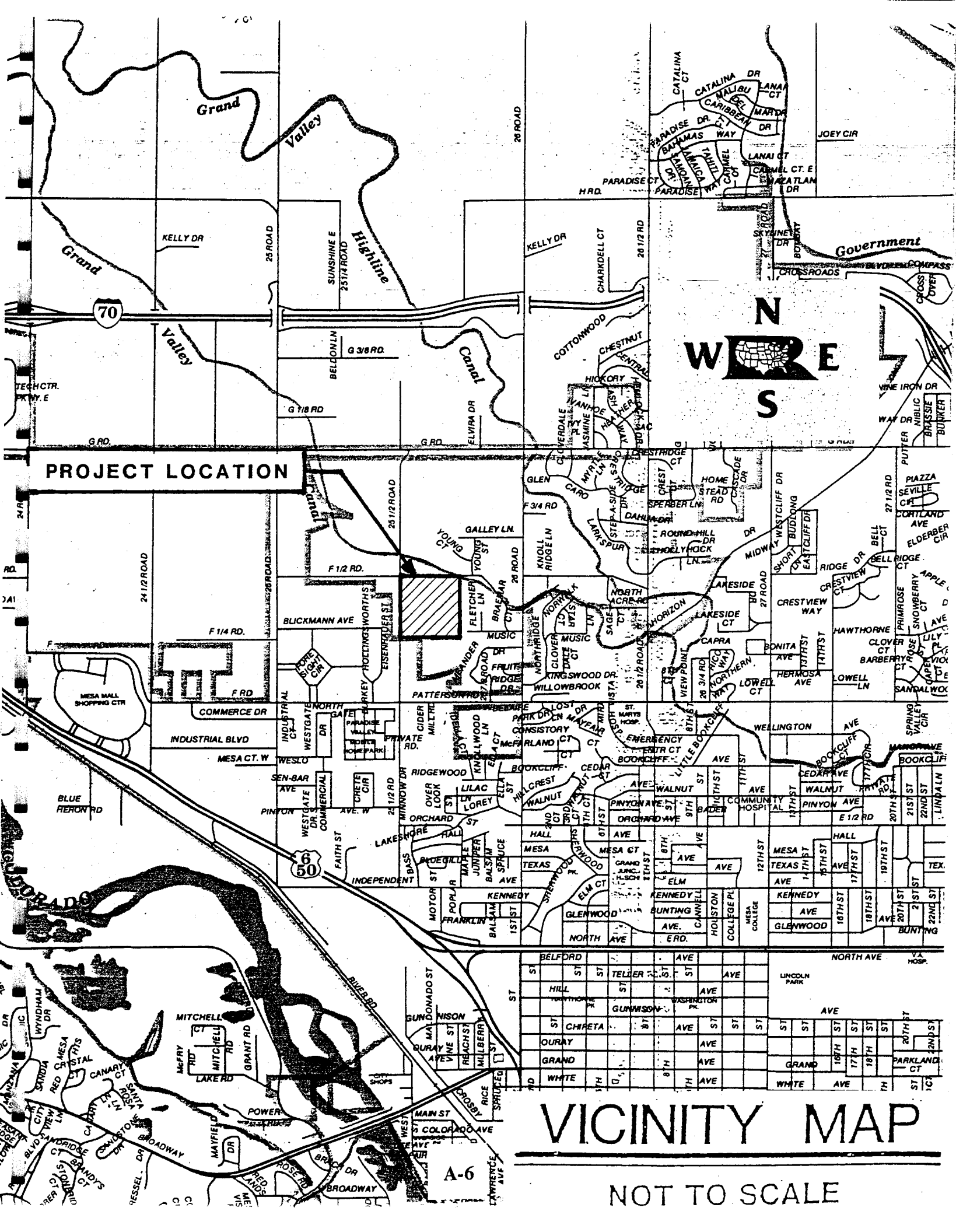
The uncultivated areas of this soil are mostly inaccessible places adjoining the larger washes, which occur mainly in the western part of the area, and those places that cannot be cropped profitably because they have inadequate drainage and a harmful concentration of salts. The uncultivated land supports a sparse growth of greasewood, saltbush, shadscale, rabbitbrush, ryegrass, peppergrass, and saltgrass. From 70 to 90 acres are required to pasture one animal during a season.

A number of places shown on the map by small marsh symbols are low and seepy. They could be ditched, but their acreage is likely too small to justify the expense. Left as they are, their salt content makes them worthless for any use except pasture.

Sizeable acreages of this soil apparently were overirrigated in the past. Irrigation water applied at higher levels to the north seeps upward in this soil where it occurs in low areas toward the river. Even now, new saline areas are appearing, and existing areas are getting larger. The total acreage affected by salts has remained more or less the same for the last two decades, but affected areas will continue to change in size and shape because of seepage.

Most fields are ditched where necessary. Some uncultivated areas require both leveling and ditching. In places subdrainage is inadequate because irregularities in the underlying shale tend to create pockets and prevent underground water from flowing into the drainage ditches. Also, in some areas where the alluvial mantle is 30 to 40 feet thick, the ditches are not always deep enough to drain the soil. Some areas are seepy because there are no ditches running in an east-west direction to intercept lateral flow of ground water from the overirrigated, permeable, medium-textured, stratified soils on the upper parts of the fan to the north. After being leveled, uncultivated areas would have to be cropped for 3 years before their salt content would be reduced enough to permit good yields.

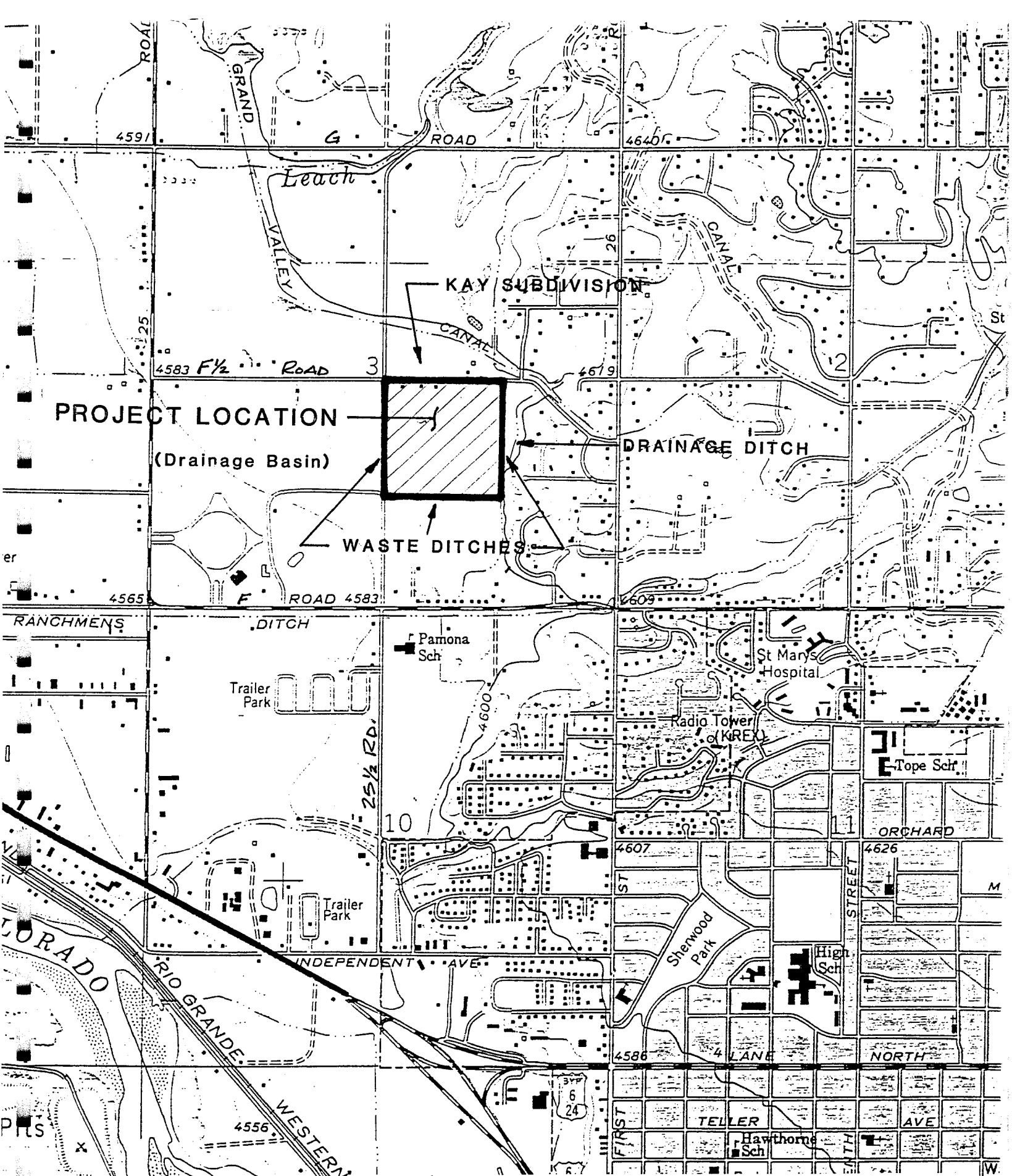
Farmers can increase the organic-matter content of this soil by applying manure liberally and by growing alfalfa or clovers at least part of the time. A combination field crop and livestock type of farming favors improvement of this soil. Many of the small imperfectly drained areas may be kept in pasture. Strawberry clover and sweetclover are well suited, and mixtures of pasture grasses grow well.



VICINITY MAP

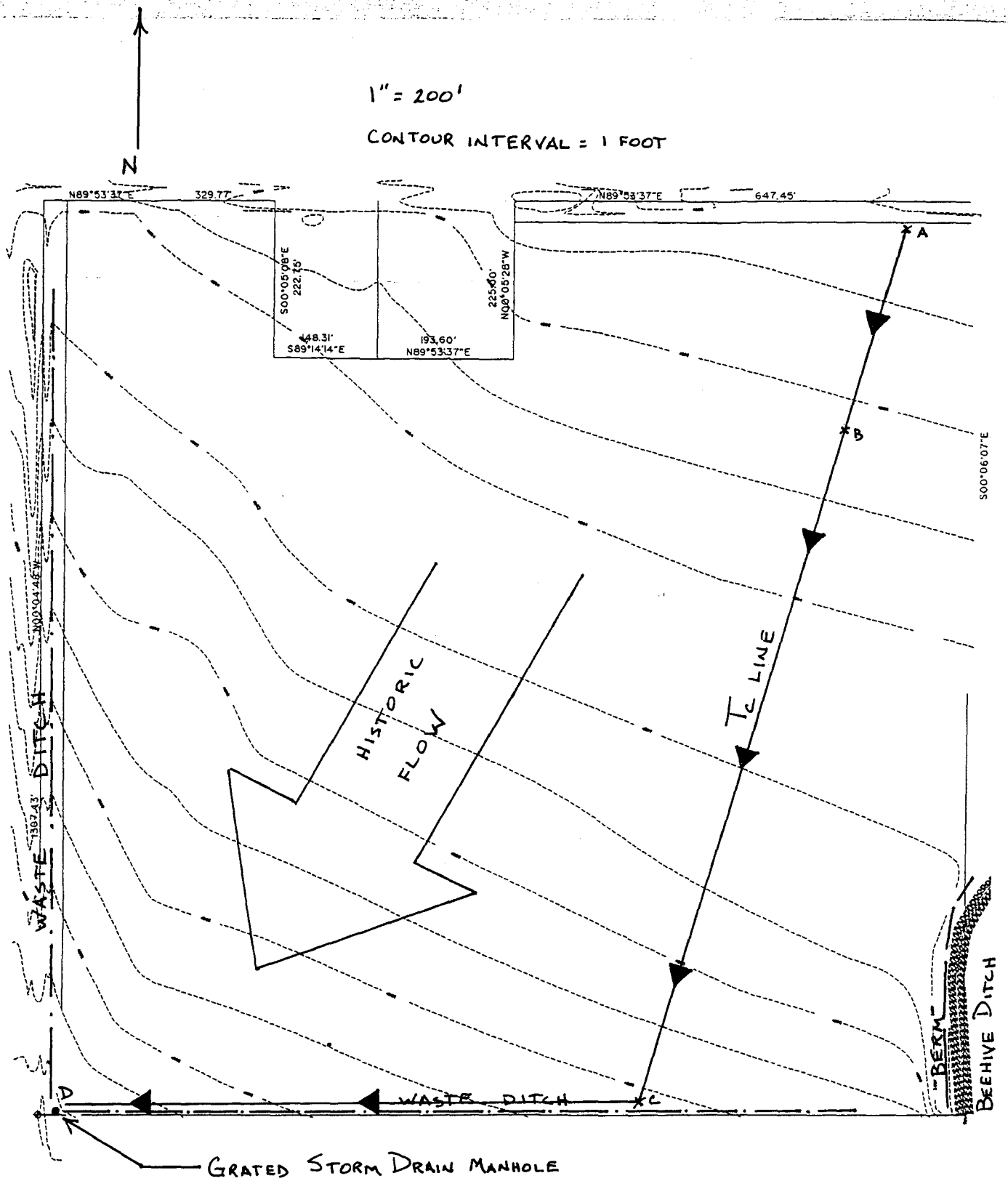
NOT TO SCALE

APPENDIX B



PRELIMINARY MAJOR BASIN DRAINAGE MAP

APPENDIX C


1" = 200'
CONTOUR INTERVAL = 1 FOOT
N
N89°53'37"E
329.77'
N89°53'37"E
647.45'
S00°05'08"E
222.15'
225.60'
N00°05'28"W
48.31'
S89°14'14"E
193.60'
N89°53'37"E
A
B
S00°06'07"E
N00°04'48"W
1307.43'
WASTE DITCH
HISTORIC FLOW
Tc LINE
BERM
BEEHIVE DITCH
D
WASTE DITCH
C
GRATED STORM DRAIN MANHOLE

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 12:51:29 08-23-1996

Subarea #1

RUNOFF CURVE NUMBER DATA

Composite Area: Subarea #1

SURFACE DESCRIPTION	AREA (acres)	CN	
Type B, Pasture, good	8.30	61	
Type B, Cultivated, thick	29.60	75	
COMPOSITE AREA --->	37.90	71.9	(72)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 12:51:29 08-23-1996

Subarea #1

RUNOFF CURVE NUMBER SUMMARY

Subarea Description	Area (acres)	CN (weighted)
Subarea #1	37.90	72

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 21:56:47 08-25-1996 FALL.TCT

SUBAREA #1

Tc COMPUTATIONS FOR: Tc

SHEET FLOW (Applicable to Tc only)

Segment ID		AB	
Surface description		CULTIVATED	
Manning's roughness coeff., n		0.1700	
Flow length, L (total < or = 300)	ft	300.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0070	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	1.41	= 1.41

SHALLOW CONCENTRATED FLOW

Segment ID		BC	
Surface (paved or unpaved)?		Unpaved	
Flow length, L	ft	1060.0	
Watercourse slope, s	ft/ft	0.0080	
Avg.V = $Csf * (s)^{0.5}$	ft/s	1.4431	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.20	= 0.20

CHANNEL FLOW

Segment ID		CD	
Cross Sectional Flow Area, a	sq.ft	0.35	
Wetted perimeter, Pw	ft	1.56	
Hydraulic radius, r = a/Pw	ft	0.224	SEE DETAIL NEXT PAGE
Channel slope, s	ft/ft	0.0055	
Manning's roughness coeff., n		0.0280	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	1.4572	
Flow length, L	ft	810	
T = L / (3600*V)	hrs	0.15	= 0.15

TOTAL TIME (hrs) 1.77

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 21:56:47 08-25-1996 FALL.TCT

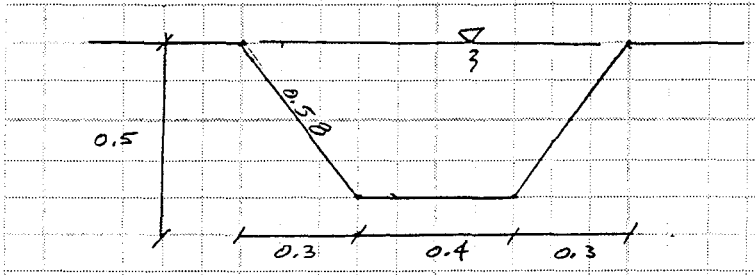
SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

SUBAREA #1

Subarea descr.	Tc or Tt	Time (hrs)
Tc	Tc	1.77

CHANNEL FLOW:

- Deeply trodden cow path/ditch, rough dirt
- fairly uniform, some weeds



$A = (0.4(0.5)) + 0.3(0.5)$
$= 0.35$ s.f.

$P_w = 0.58(2) + 0.4$
$= 1.56$ ft.

$n = .025 - .030$
$= .028$

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

HISTORIC

CALCULATED
DISK FILE: FALL .GPD

Drainage Area	(acres)	37.9	--->	0.0592 sq.mi.
Runoff Curve Number	(CN)	72		
Time of Concentration,Tc	(hrs)	1.77		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.778	0.778	0.778
Ia/p Ratio	1.111	0.387	0.000
Unit Discharge, * qu (csm/in)	119	168	0
Runoff, Q (in)	0.00	0.30	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	0	3	0

Summary of Computations for qu

Ia/p	#1	0.500	0.350	0.000
C0	#1	2.203	2.419	0.000
C1	#1	-0.516	-0.616	0.000
C2	#1	-0.013	-0.088	0.000
qu (csm)	#1	118.603	182.306	0.000
Ia/p	#2	0.500	0.400	0.000
C0	#2	2.203	2.364	0.000
C1	#2	-0.516	-0.599	0.000
C2	#2	-0.013	-0.056	0.000
qu (csm)	#2	118.603	163.006	0.000
* qu (csm)		119	168	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Worksheet 2: Runoff curve number and runoff

Project Fall Valley Subdivision By DJH Date 23AUG96

Location Grand Junction, CO Checked _____ Date _____

Circle one: Present Developed

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area ☒ acres ☐ mi^2 ☐ %	Product of CN x area
Ravola B	Pasture, 90% cover, 0% impervious	61	61	61	8.3	506
Ravola B	Cultivated, 80% thick cover, SR + CR, 0% impervious	75	75	75	18.3	1373
Billings B	Cultivated, " "	75	75	75	11.3	848
					Totals =	
					37.9	2727

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{2727}{37.9} = 72.0$; Use CN = 72

2. Runoff

	Storm #1 (2)	Storm #2 (100)	Storm #3
Frequency ..... yr	2	100	
Rainfall, P (24-hour) ..... in	0.7	2.01	
Runoff, Q ..... in (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.) OVER	0	0.30	

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project Fall Valley Subdivision By DJH Date 23AUG 96

Location GRAND JCT CO Checked ____ Date ____

Circle one: (Present) Developed

Circle one: (T_c) T_t through subarea

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	AB		
1. Surface description (table 3-1)			CULTIVATED AGR (THICK)		
2. Manning's roughness coeff., n (table 3-1) ..			0.17		
3. Flow length, L (total L ≤ 300 ft)	ft		300		
4. Two-yr 24-hr rainfall, P_2	in		0.7		
5. Land slope, s	ft/ft		0.007		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t	hr		1.41	÷	= 1.41

Shallow concentrated flow		Segment ID	BC		
7. Surface description (paved or unpaved)			Unpaved		
8. Flow length, L	ft		1060		
9. Watercourse slope, s	ft/ft		0.008		
10. Average velocity, V (figure 3-1)	ft/s		1.4		
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		0.21	÷	= 0.21

Channel flow		Segment ID	CD		
12. Cross sectional flow area, a	ft^2		0.35		
13. Wetted perimeter, p_w	ft		1.56		
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft		0.224		
15. Channel slope, s	ft/ft		0.0056		
16. Manning's roughness coeff., n			0.028		
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s		1.47		
18. Flow length, L	ft		810		
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		0.15	÷	= 0.15

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 1.77

Worksheet 4: Graphical Peak Discharge method

Project Fall Valley Subdivision By DJH Date 8/23/96

Location Grand Jct CO Checked _____ Date _____

Circle one: (Present) Developed _____

1. Data:

Drainage area ..... A_m = 0.059 mi^2 (acres/640)

Runoff curve number .... CN = 72 (From worksheet 2)

Time of concentration .. T_c = 1.41 hr (From worksheet 3)

Rainfall distribution type = II (I, IA, II, III)

Pond and swamp areas spread throughout watershed ..... = -- percent of A_m (____ acres or mi^2 covered)

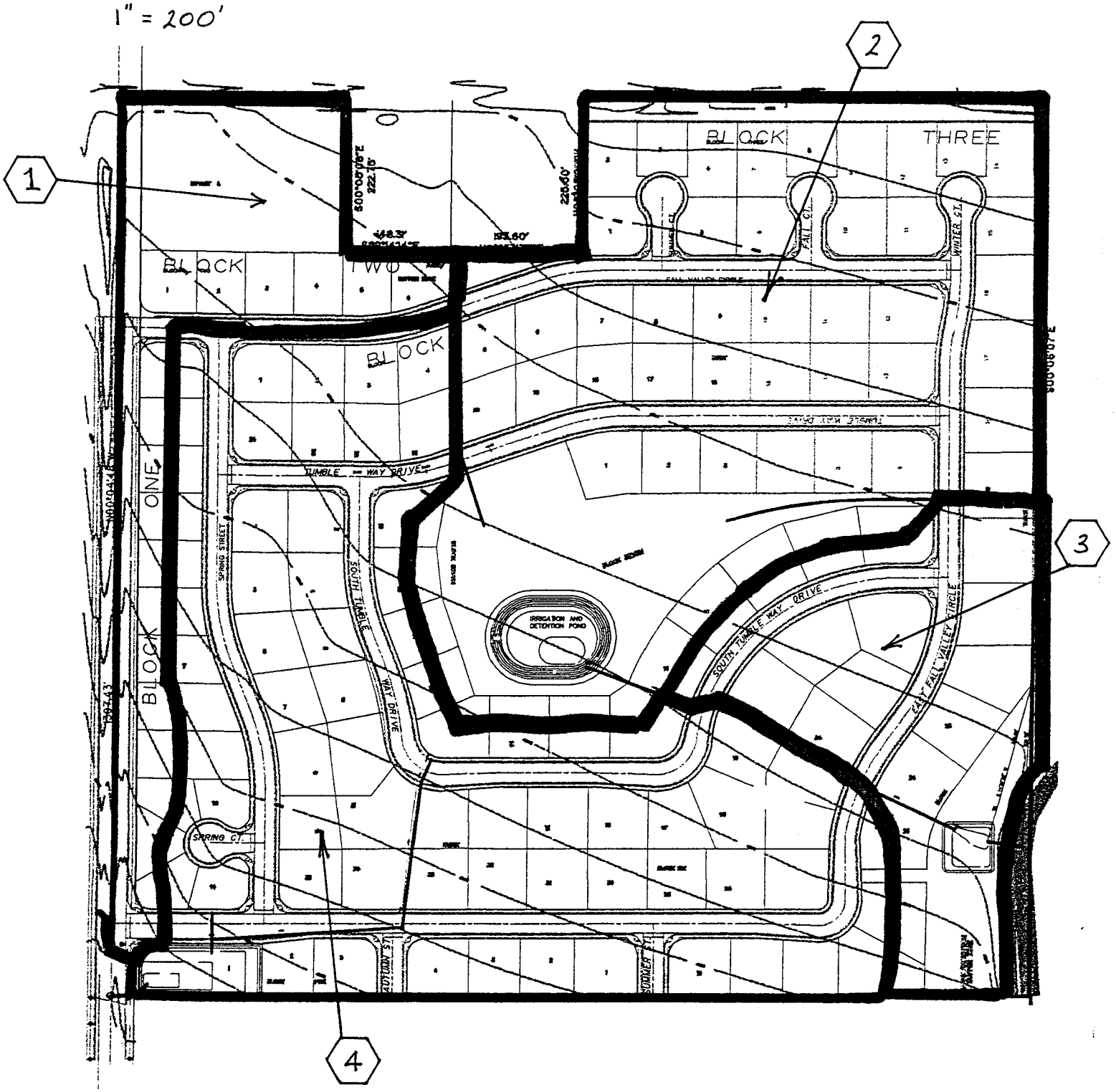
			Storm #1	Storm #2	Storm #3
2.	Frequency	yr	2	100	
3.	Rainfall, P (24-hour)	in	0.7	2.01	
4.	Initial abstraction, I_a ..... (Use CN with table 4-1.)	in	0.778	0.778	
5.	Compute I_a/P		1.11	0.387	
6.	Unit peak discharge, q_u ..... (Use T_c and I_a/P with exhibit 4-II)	csm/in	Ø	180	
7.	Runoff, Q ..... (From worksheet 2).	in	0	0.30	
8.	Pond and swamp adjustment factor, F_p .... (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)		1	1	
9.	Peak discharge, q_p ..... (Where $q_p = q_u A_m Q F_p$)	cfs	Ø	3,186	

APPENDIX D

Developed Drainage Basin Map

N

1" = 200'



BANNER
BANNER ASSOCIATES, INC.
CONSULTING ENGINEERS & ARCHITECTS
2777 CROSSROADS BOULEVARD
GRAND JUNCTION, CO 81506 • (303) 243-2242

JOB NO 8336-02
JOB Fall Valley
CALCULATED BY DJH DATE 9/3/96
CHECKED BY ____ DATE ____
SHEET NO. ____ OF ____

Summary of Runoff Rates

Subbasin	2-yr (cfs)	100-yr (cfs)
(1)	1	3
(2)	2	5
(3)	1	3
(4)	2	8

Notes:
- Subbasins (1) & (4) are combined in the same detention area.
- 100-yr flow of 0.5 cfs is released from (2) into (3).

Summary of Release Rates to Off-Site Drains/Ditches

Detention Area	100-yr (cfs)
(1) & (4)	2
(3)	1

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 09:54:45 09-03-1996

FALL VALLEY SUBDIVISION
DEVELOPED RUNOFF

INITIAL STANDARD DEVELOPED ANALYSIS

RUNOFF CURVE NUMBER DATA

Composite Area:

SURFACE DESCRIPTION	AREA (acres)	CN	
PAVEMENT, ROOFS, ETC	13.46	98	
YARDS, PARKS, MISC GRASS	24.47	61	
COMPOSITE AREA --->	37.93	74.1	(74)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 15:59:05 08-23-1996

FALL VALLEY SUBDIVISION
DEVELOPED RUNOFF

RUNOFF CURVE NUMBER SUMMARY

Subarea Description	Area (acres)	CN (weighted)
	37.93	74

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 21:56:03 08-25-1996 FALL-SB1.TCT

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS
SUBBASIN #1

Tc COMPUTATIONS FOR: #1 (1)

SHEET FLOW (Applicable to Tc only)

Segment ID			AB		
Surface description			SHORT GRASS		
Manning's roughness coeff., n			0.1500		
Flow length, L (total < or = 300)		ft	280.0		
Two-yr 24-hr rainfall, P2		in	0.700		
Land slope, s		ft/ft	0.0070		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$		hrs	1.21		= 1.21

SHALLOW CONCENTRATED FLOW

Segment ID			BC	CC1		
Surface (paved or unpaved)?			Unpaved	Paved		
Flow length, L		ft	100.0	100.0		
Watercourse slope, s		ft/ft	0.0070	0.0070		
$Avg.V = Csf * (s)^{0.5}$		ft/s	1.3499	1.7008		
where:	Unpaved Csf = 16.1345					
	Paved Csf = 20.3282					
T = L / (3600*V)		hrs	0.02	+ 0.02	=	0.04

CHANNEL FLOW

Segment ID			C1D		
Cross Sectional Flow Area, a		sq.ft	3.14		
Wetted perimeter, Pw		ft	6.28		
Hydraulic radius, r = a/Pw		ft	0.500		
Channel slope, s		ft/ft	0.0080		
Manning's roughness coeff., n			0.0130		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$		ft/s	6.4580		
Flow length, L		ft	990		
T = L / (3600*V)		hrs	0.04		= 0.04

::

TOTAL TIME (hrs) 1.29

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 21:56:03 08-25-1996 FALL-SB1.TCT

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

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS
SUBBASIN #1

Subarea descr.	Tc or Tt	Time (hrs)
#1	Tc	1.29

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
SUBBASIN #1
DEVELOPED RUNOFF

(1)

CALCULATED
DISK FILE: FALLSB1 .GPD

Drainage Area	(acres)	5.6	--->	0.0087 sq.mi.
Runoff Curve Number	(CN)	74		
Time of Concentration,Tc	(hrs)	1.29		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.703	0.703	0.703
Ia/p Ratio	1.004	0.350	0.000
Unit Discharge, * qu (csm/in)	140	224	0
Runoff, Q (in)	0.00	0.35	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	(0)	(1)	0

Summary of Computations for qu

NUMBERS DON'T REFLECT VALUES FOR A DEVELOPED SUBDIVISION!

Ia/p	#1	0.500	0.300	0.000
C0	#1	2.203	2.465	0.000
C1	#1	-0.516	-0.623	0.000
C2	#1	-0.013	-0.117	0.000
qu (csm)	#1	139.831	248.339	0.000
Ia/p	#2	0.500	0.350	0.000
C0	#2	2.203	2.419	0.000
C1	#2	-0.516	-0.616	0.000
C2	#2	-0.013	-0.088	0.000
qu (csm)	#2	139.831	223.751	0.000
* qu (csm)		140	224	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:23:25 08-29-1996 FALLSB1R.TCT

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY

Tc COMPUTATIONS FOR: SUBBASIN #1R (1)

SHEET FLOW (Applicable to Tc only)

Segment ID		ab		
Surface description		paved		
Manning's roughness coeff., n		0.0110		
Flow length, L (total < or = 300)	ft	14.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0200		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.01	=	0.01

SHALLOW CONCENTRATED FLOW

Segment ID		bc		
Surface (paved or unpaved)?		Paved		
Flow length, L	ft	480.0		
Watercourse slope, s	ft/ft	0.0080		
Avg.V = $Csf * (s)^{0.5}$	ft/s	1.8182		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.07	=	0.07

CHANNEL FLOW

Segment ID		cd*		de**		
Cross Sectional Flow Area, a	sq.ft	2.34		0.79		
Wetted perimeter, Pw	ft	12.50		3.14		
Hydraulic radius, r = a/Pw	ft	0.187		0.252		
Channel slope, s	ft/ft	0.0080		0.0050		
Manning's roughness coeff., n		0.0130		0.0110		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	3.3547		3.8172		
Flow length, L	ft	930		40		
T = L / (3600*V)	hrs	0.08	+	0.00	=	0.08

TOTAL TIME (hrs) 0.16

* Typical CG's sw flowing to top of curb elev.

** 24" ø SDR-35 PIPE

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:23:25 08-29-1996 FALLSB1R.TCT

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

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY

Subarea descr.	Tc or Tt	Time (hrs)
SUBBASIN #1R	Tc	0.16

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY

SUBBASIN (1)

CALCULATED
DISK FILE: FALLSB1R.GPD

Drainage Area	(acres)	1.25	--->	0.0020 sq.mi.
Runoff Curve Number	(CN)	98		
Time of Concentration,Tc	(hrs)	.16		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.041	0.041	0.041
Ia/p Ratio	0.058	0.020	0.000
Unit Discharge, * qu (csm/in)	869	869	0
Runoff, Q (in)	0.50	1.78	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	1	3	0

Summary of Computations for qu

Ia/p	#1	0.100	0.100	0.000
C0	#1	2.553	2.553	0.000
C1	#1	-0.615	-0.615	0.000
C2	#1	-0.164	-0.164	0.000
qu (csm)	#1	868.743	868.743	0.000
Ia/p	#2	0.100	0.100	0.000
C0	#2	2.553	2.553	0.000
C1	#2	-0.615	-0.615	0.000
C2	#2	-0.164	-0.164	0.000
qu (csm)	#2	868.743	868.743	0.000
* qu (csm)		869	869	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 09:44:49 08-29-1996 FALLSB4R.TCT

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
AS CONTRIBUTING TO RUNOFF
adjust channel flow to reflect 12" pvc in section 'de'

Tc COMPUTATIONS FOR: SUBBASIN #4R (4)

SHEET FLOW (Applicable to Tc only)

Segment ID		ab		
Surface description		asphalt		
Manning's roughness coeff., n		0.0110		
Flow length, L (total < or = 300)	ft	14.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0020		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.02	=	0.02

SHALLOW CONCENTRATED FLOW

Segment ID		bc		
Surface (paved or unpaved)?		Paved		
Flow length, L	ft	335.0		
Watercourse slope, s	ft/ft	0.0040		
$Avg.V = Csf * (s)^{0.5}$	ft/s	1.2857		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.07	=	0.07

CHANNEL FLOW

Segment ID		cd		de		
Cross Sectional Flow Area, a	sq.ft	2.34		0.79		
Wetted perimeter, Pw	ft	12.50		3.14		
Hydraulic radius, r = a/Pw	ft	0.187		0.250		
Channel slope, s	ft/ft	0.0070		0.0050		
Manning's roughness coeff., n		0.0130		0.0110		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	3.1381		3.8024		
Flow length, L	ft	800		60		
T = L / (3600*V)	hrs	0.07	+	0.00	=	0.08

TOTAL TIME (hrs) 0.17

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 09:44:49 08-29-1996 FALLSB4R.TCT

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

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
AS CONTRIBUTING TO RUNOFF
adjust channel flow to reflect 12" pvc in section 'de'

Subarea descr.	Tc or Tt	Time (hrs)
SUBBASIN #4R	Tc	0.17

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
SUBBASIN #4

(4)

CALCULATED
DISK FILE: FALLSB4R.GPD

Drainage Area	(acres)	3.3	--->	0.0052 sq.mi.
Runoff Curve Number	(CN)	98		
Time of Concentration,Tc	(hrs)	.17		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.041	0.041	0.041
Ia/p Ratio	0.058	0.020	0.000
Unit Discharge, * qu (csm/in)	850	850	0
Runoff, Q (in)	0.50	1.78	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	2	8	0

Summary of Computations for qu

Ia/p	#1	0.100	0.100	0.000
C0	#1	2.553	2.553	0.000
C1	#1	-0.615	-0.615	0.000
C2	#1	-0.164	-0.164	0.000
qu (csm)	#1	850.073	850.073	0.000
Ia/p	#2	0.100	0.100	0.000
C0	#2	2.553	2.553	0.000
C1	#2	-0.615	-0.615	0.000
C2	#2	-0.164	-0.164	0.000
qu (csm)	#2	850.073	850.073	0.000
* qu (csm)		850	850	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: COMBINED BASINS #1 AND #4, ANALYZE PAVED AREA ONLY

CALCULATED
DISK FILE: FALLSB14.GPD

Drainage Area	(acres)	4.55	--->	0.0071 sq.mi.
Runoff Curve Number	(CN)	98		
Time of Concentration,Tc	(hrs)	.17		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	0.7	2.01	
Initial Abstraction, Ia (in)	0.041	0.041	0.041
Ia/p Ratio	0.058	0.020	0.000
Unit Discharge, * qu (csm/in)	850	850	0
Runoff, Q (in)	0.50	1.78	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	3	11	0

Summary of Computations for qu

Ia/p	#1	0.100	0.100	0.000
C0	#1	2.553	2.553	0.000
C1	#1	-0.615	-0.615	0.000
C2	#1	-0.164	-0.164	0.000
qu (csm)	#1	850.073	850.073	0.000
Ia/p	#2	0.100	0.100	0.000
C0	#2	2.553	2.553	0.000
C1	#2	-0.615	-0.615	0.000
C2	#2	-0.164	-0.164	0.000
qu (csm)	#2	850.073	850.073	0.000
* qu (csm)		850	850	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> DETENTION STORAGE ESTIMATE <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: COMBINED BASINS #1 & #4, ANALYZE PAVED AREAS ONLY

CALCULATED
DISK FILE: FALLSB14.DET

Drainage Area	(acres)	4.55	0.0071 sq.mi.
Rainfall Distribution	(Type)	II	

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Peak Inflow, qi (cfs)	3	11	0
Inflow Runoff, Q (in)	.5	1.78	0
Peak Outflow, qo (cfs)	0	2	
qo/qi Ratio	0.000	0.182	0.000
* Vs/Vr Ratio	0.682	0.471	0.000
Inflow Volume, Vr (ac-ft)	0.2	0.7	0.0
STORAGE VOLUME, Vs (ac-ft)	0.1	0.3	0.0

Summary of Volume Computations

C0	0.682	0.682	0.682
C1	-1.430	-1.430	-1.430
C2	1.640	1.640	1.640
C3	-0.804	-0.804	-0.804
* Vs/Vr	0.682	0.471	0.000

$$* \quad Vs/Vr = C0 + (C1*(qo/qi)) + (C2*(qo/qi)^2) + (C3*(qo/qi)^3)$$

Graphical Peak Discharge File Used for Inflow Data:
FALLSB14.GPD

JOB NO. Fall Valley Subdivision

JOB

CALCULATED BY DJH DATE 8/29/96

CHECKED BY DATE

BANNER

BANNER ASSOCIATES, INC.
CONSULTING ENGINEERS & ARCHITECTS
2777 CROSSROADS BOULEVARD
GRAND JUNCTION, CO 81506 • (303) 243-2242

SHEET NO. OF

SW Detention Area

Find depth to get req'd 100-yr detention volume = 0.3 ac-ft (≈ 13000 c.f.)

CONTOUR	AREA	AVG	VOL
79	0	506	506
80	1012	2492	2492
81	3972	6419	6419
82	8866	7951	4976
82.5	11036		

Σvol 14393 c.f. > 13000 c.f.

14393 - 13000 = 1393

$\frac{1393}{4976} = 0.28$

0.28 (82.5 - 82) = 0.14

82.5 - 0.14 = 82.36 = approximate water table elevation to get 13000 c.f. storage

→ Set overflow inlet @ 82.40 elevation. (H now equals 3.40)

Orifice Equation

$Q = CA\sqrt{2gH}$

$2\text{cfs} = 0.599\, A\sqrt{2(32.2)(3.40)}$

$A = 0.226\ \text{ft}^2 \rightarrow r = 0.268\ \text{ft} \rightarrow \text{dia} \approx 0.5\ \text{ft}.$

→ Use 6" dia outflow pipe for 100-yr flow.

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:02:46 08-29-1996 FALLSB2R.TCT

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
adjust channel flow to reflect 12" pvc in section 'de'

Tc COMPUTATIONS FOR: SUBBASIN #2 (2)

SHEET FLOW (Applicable to Tc only)

Segment ID		ab		
Surface description		paved		
Manning's roughness coeff., n		0.0110		
Flow length, L (total < or = 300)	ft	30.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0200		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.02	=	0.02

SHALLOW CONCENTRATED FLOW

Segment ID		bc		
Surface (paved or unpaved)?		Paved		
Flow length, L	ft	280.0		
Watercourse slope, s	ft/ft	0.0030		
$Avg.V = Csf * (s)^{0.5}$	ft/s	1.1134		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.07	=	0.07

CHANNEL FLOW

Segment ID		cd		de		
Cross Sectional Flow Area, a	sq.ft	2.34		0.79		
Wetted perimeter, Pw	ft	12.50		3.14		
Hydraulic radius, r = a/Pw	ft	0.187		0.252		
Channel slope, s	ft/ft	0.0040		0.0050		
Manning's roughness coeff., n		0.0130		0.0110		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	2.3722		3.8172		
Flow length, L	ft	550		450		
T = L / (3600*V)	hrs	0.06	+	0.03	=	0.10

::

TOTAL TIME (hrs) 0.18

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:02:46 08-29-1996 FALLSB2R.TCT

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

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
adjust channel flow to reflect 12" pvc in section 'de'

Subarea descr.	Tc or Tt	Time (hrs)
SUBBASIN #2	Tc	0.18

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
SUB BASIN (2)

CALCULATED
DISK FILE: FALLSB2R.GPD

Drainage Area	(acres)	2.32	--->	0.0036 sq.mi.
Runoff Curve Number	(CN)	98		
Time of Concentration,Tc	(hrs)	.18		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.041	0.041	0.041
Ia/p Ratio	0.058	0.020	0.000
Unit Discharge, * qu (csm/in)	832	832	0
Runoff, Q (in)	0.50	1.78	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	2	5	0

Summary of Computations for qu

Ia/p	#1	0.100	0.100	0.000
C0	#1	2.553	2.553	0.000
C1	#1	-0.615	-0.615	0.000
C2	#1	-0.164	-0.164	0.000
qu (csm)	#1	832.440	832.440	0.000
Ia/p	#2	0.100	0.100	0.000
C0	#2	2.553	2.553	0.000
C1	#2	-0.615	-0.615	0.000
C2	#2	-0.164	-0.164	0.000
qu (csm)	#2	832.440	832.440	0.000
* qu (csm)		832	832	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> DETENTION STORAGE ESTIMATE <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZED PAVED AREA ONLY
USE 0.5 CFS OUTFLOW FOR 100 YR. STORM

CALCULATED
DISK FILE: FALLSB2R.DET

Drainage Area	(acres)	2.32	0.0036 sq.mi.
Rainfall Distribution	(Type)	II	

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Peak Inflow, qi (cfs)	2	5	0
Inflow Runoff, Q (in)	.5	1.78	0
Peak Outflow, qo (cfs)	0	.5	
qo/qi Ratio	0.000	0.100	0.000
* Vs/Vr Ratio	0.682	0.555	0.000
Inflow Volume, Vr (ac-ft)	0.1	0.3	0.0
STORAGE VOLUME, Vs (ac-ft)	0.1	0.2	0.0

Summary of Volume Computations

C0	0.682	0.682	0.682
C1	-1.430	-1.430	-1.430
C2	1.640	1.640	1.640
C3	-0.804	-0.804	-0.804
* Vs/Vr	0.682	0.555	0.000

$$* \quad Vs/Vr = C0 + (C1*(qo/qi)) + (C2*(qo/qi)^2) + (C3*(qo/qi)^3)$$

Graphical Peak Discharge File Used for Inflow Data:
FALLSB2R.GPD

JOB NO. _____

JOB _____

CALCULATED BY DJH DATE 8/29/96

CHECKED BY _____ DATE _____

SHEET NO. _____ OF _____

BANNER

BANNER ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD
GRAND JUNCTION, CO 81506 • (970) 243-2242

Irrigation Storage Volume

Contour	Area	Avg	Vol
85	0	1098	1098
86	2196	5519	5519
87	8841	9873	9873
88	10904	11492	11492
89	12080	12697	12697
90	13313		

Σ vol = 40679 ft^3

Detention Storage Volume

Contour	Area	Avg	Vol (ft^3)
90	13313	13761	9633 > 8712 ft^3 ✓ OK
90.7	14209		

→ Set detention outlet at 4590, overflow inlet at 4590.7

Orifice Equation

$Q = CA\sqrt{2gH}$

$0.5 = 0.601\ A\ \sqrt{2(32.2)(0.7)}$

$A = 0.124$ ft^2 → $r = 0.199$ ft → dia = 0.397 ft

→ Use 4" dia outflow pipe for 100-yr flow.

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:06:05 08-29-1996 FALLSB3R.TCT

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
adjust channel flow to reflect 12" pvc in section 'de'

Tc COMPUTATIONS FOR: SUBBASIN #3R (3)

SHEET FLOW (Applicable to Tc only)

Segment ID			ab		
Surface description			paved		
Manning's roughness coeff., n			0.0110		
Flow length, L (total < or = 300)		ft	14.0		
Two-yr 24-hr rainfall, P2		in	0.700		
Land slope, s		ft/ft	0.0020		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$		hrs	0.02	=	0.02

SHALLOW CONCENTRATED FLOW

Segment ID			bc		
Surface (paved or unpaved)?			Paved		
Flow length, L		ft	100.0		
Watercourse slope, s		ft/ft	0.0070		
$Avg.V = Csf * (s)^{0.5}$		ft/s	1.7008		
where:	Unpaved Csf = 16.1345				
	Paved Csf = 20.3282				
T = L / (3600*V)		hrs	0.02	=	0.02

CHANNEL FLOW

Segment ID			cd		de		
Cross Sectional Flow Area, a		sq.ft	2.34		0.79		
Wetted perimeter, Pw		ft	12.50		3.14		
Hydraulic radius, r = a/Pw		ft	0.187		0.252		
Channel slope, s		ft/ft	0.0050		0.0050		
Manning's roughness coeff., n			0.0130		0.0110		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$		ft/s	2.6522		3.8172		
Flow length, L		ft	430		450		
T = L / (3600*V)		hrs	0.05	+	0.03	=	0.08

::

TOTAL TIME (hrs) 0.12

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:06:05 08-29-1996 FALLSB3R.TCT

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

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY

Subarea descr.	Tc or Tt	Time (hrs)
SUBBASIN #3R	Tc	0.12

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY

SUBBASIN (3)

CALCULATED
DISK FILE: FALLSB3R.GPD

Drainage Area	(acres)	.95	--->	0.0015 sq.mi.
Runoff Curve Number	(CN)	98		
Time of Concentration,Tc	(hrs)	.12		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.041	0.041	0.041
Ia/p Ratio	0.058	0.020	0.000
Unit Discharge, * qu (csm/in)	956	956	0
Runoff, Q (in)	0.50	1.78	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	1	3	0

Summary of Computations for qu

Ia/p	#1	0.100	0.100	0.000
C0	#1	2.553	2.553	0.000
C1	#1	-0.615	-0.615	0.000
C2	#1	-0.164	-0.164	0.000
qu (csm)	#1	956.229	956.229	0.000
Ia/p	#2	0.100	0.100	0.000
C0	#2	2.553	2.553	0.000
C1	#2	-0.615	-0.615	0.000
C2	#2	-0.164	-0.164	0.000
qu (csm)	#2	956.229	956.229	0.000
* qu (csm)		956	956	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> DETENTION STORAGE ESTIMATE <<<<<

FALL VALLEY SUBDIVISION
DEVELOPED CONDITIONS: ANALYZE PAVED AREA ONLY
USE 1.0 CFS FOR 100-YR STORM OUTFLOW
add 0.5 cfs to peak discharge from area #2

CALCULATED
DISK FILE: FALLSB3R.DET

Drainage Area (acres) .95 0.0015 sq.mi.
Rainfall Distribution (Type) II

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Peak Inflow, qi (cfs)	1	3.5	0
Inflow Runoff, Q (in)	.5	1.78	0
Peak Outflow, qo (cfs)	0	1	
qo/qi Ratio	0.000	0.286	0.000
* Vs/Vr Ratio	0.682	0.389	0.000
Inflow Volume, Vr (ac-ft)	0.0	0.1	0.0
STORAGE VOLUME, Vs (ac-ft)	0.0	0.1	0.0

Summary of Volume Computations

C0	0.682	0.682	0.682
C1	-1.430	-1.430	-1.430
C2	1.640	1.640	1.640
C3	-0.804	-0.804	-0.804
* Vs/Vr	0.682	0.389	0.000

$$* \quad Vs/Vr = C0 + (C1*(qo/qi)) + (C2*(qo/qi)^2) + (C3*(qo/qi)^3)$$

JOB NO. _____

JOB _____

CALCULATED BY DJH DATE 8/29/96

CHECKED BY _____ DATE _____

SHEET NO. _____ OF _____

BANNER

BANNER ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD
GRAND JUNCTION, CO 81506 • (970) 243-2242

SE Detention Area

Vol req'd = 0.1 ac-ft = 4356 ft³

Q_{100} allowed = 1 cfs

CONTOUR	AREA (ft²)	AVG (ft²)	VOL (ft³)
86.3	0	110	22
87	220	1682	1682
88	3143	3943	3943
89	4742		

ΣVol = 5647 > 4356 ft³

5647 − 4356 = 1291

$\frac{1291}{3943}$ = 0.33

83 + 0.33 = 83.33 = approximate water table elevation to get 4356 ft³ storage

→ Set overflow inlet elevation at 4588.40 (H = 1.6 ft)

Orifice Equation

$Q = CA\sqrt{2gH}$

$1 = 0.597\,A\sqrt{2(32.2)(1.6)}$

A = 0.165 ft² → r = 0.23 → d.a = 0.46

→ Use 6" d.a outflow pipe for 100-yr flow.

CITY COUNCIL STAFF REPORT

FILE: #RZP-96-177

DATE: September ~~12~~ 26, 1996

STAFF: Michael T. Drollinger

REQUEST: Rezone - Fall Valley Subdivision

LOCATION: E side of 25 1/2 Road; S of F 1/2 Road

APPLICANT: John Davis
1023 24 Road
Grand Junction CO 81505

EXECUTIVE SUMMARY:

IN ADDITION TO A REZONE REQUEST, THIS ITEM IS ALSO AN APPEAL OF A PLANNING COMMISSION APPROVAL OF A PRELIMINARY PLAN AND REZONE REQUEST THE SECOND READING OF WHICH WILL BE ON OCTOBER 2, 1996. The petitioner is requesting a rezone on approximately 38 acres south of F 1/2 Road and E of 25 1/2 Road with a proposed density of PR-3.5 (Planned Residential with a density of 3.5 units/acre). Part of the property is in the process of being annexed to the City as part of the Hetzel annexation. At the September 10th Planning Commission meeting the petitioner received preliminary plan approval for 134 single family units on the subject site. Staff recommends approval.

EXISTING LAND USE: Vacant

PROPOSED LAND USE: Residential - Single Family

SURROUNDING LAND USE:

NORTH:	Residential (Kay Subdivision and Cimmaron North Subdivision)
SOUTH:	Vacant
EAST:	Single Family Residential
WEST:	Industrial (Foresight Park)

EXISTING ZONING: RSF-R & AFT (County)

PROPOSED ZONING: PR-3.5 (Planned Residential - not to exceed 3.5 units/acre)

SURROUNDING ZONING: (see also attached map)

NORTH: PR-3.7 & PR-3.8
SOUTH: PR-18; PI & AFT (County)
EAST: R1A (County)
WEST: PI

RELATIONSHIP TO COMPREHENSIVE PLAN:

The City of Grand Junction Growth Plan identifies the subject parcel in the "Residential Medium Low (2-3.9 units/acre)" land use category. The developer's proposed density is within the recommended in the growth plan.

STAFF ANALYSIS:

Petitioner's request is for a rezone of approximately 37.93 acres. The petitioner recently received preliminary plan approval for 134 single family units on the subject parcel. In addition to the residential lots, the petitioner proposes to dedicate 4.56 acres of open space and detention area.

Primary access to the project is from F 1/4 Road and 25 1/2 Road. Two stub streets are provided in the southeastern portion of the subdivision to a vacant residentially-zoned parcel. The development as proposed will be constructed in four phases. Additional right-of-way for F 1/2 Road will be dedicated with the development. The petitioner is also required to construct half-street improvements along 25 1/2 Road with a minimum 22 foot pavement mat.

The petitioner was required to prepare a traffic study which examined the traffic impacts of the proposed development using existing and projected volumes to the year 2010. The report concludes that no improvements are required to the adjacent street network to accommodate the proposed development, besides the 25 1/2 Road improvements which are required for the development. Staff concurs with the conclusions of the traffic study.

Analysis of Rezone Criteria

Section 4-4-4 of the Zoning and Development Code contains criteria which must be considered in the review of a rezone request. To minimize repetition, references are made to the previous section where applicable.

A. **Was the existing zone an error at the time of adoption?**
There is no evidence that the existing zone was an error at the time of adoption.

B. **Has there been a change of character in the area due to installation of public facilities, other zone changes, new growth trends, deterioration, development transitions, etc.?**
The subject property is in close proximity to services and major roadways and other existing infrastructure. The proposal represents an attempt to concentrate growth close to existing infrastructure.

C. **Is there an area of community need for the proposed rezone?**
The project is a response to an anticipated market demand for the proposed unit types.

D. **Is the proposed rezone compatible with the surrounding area or will there be adverse impacts?**
The petitioner has attempted to locate the larger lot single family portion near the eastern perimeter to minimize conflicts with adjoining neighbors.

E. **Will there be benefits derived by the community, or area, by granting the proposed rezone?**
The completion of 25 1/2 Road will provide a needed north-south link in the project vicinity earlier than the improvements are presently scheduled in the City's Capital Improvement Program (CIP).

F. **Is the proposal in conformance with the policies, intents and requirements of this Code, with the City Master Plan, and other adopted plans and policies?**
The proposed project density is within the density range recommended in the draft Grand Junction Growth Plan. The proposal is in general conformance with the intent and requirements of the Zoning and Development Code.

G. **Are adequate facilities available to serve development for the type and scope suggested for the proposed zone?**
Adequate facilities are available to serve the proposed development.

Staff feels that the rezone request is supported by the rezone criteria.

Conditions of Approval

Staff recommends that the following conditions be part of the approval of the preliminary plan for this development:

1. The completion of 25 1/2 Road improvements shall occur concurrent with the development of Filing #2 (as shown on Preliminary Plan), not Filing #4 as proposed by the petitioner.

2. The petitioner shall be required to detail the amenities proposed for the open space areas at the time of final plat/plan submittal.

STAFF RECOMMENDATION:

Staff recommends approval of the rezone for Fall Valley Subdivision.

PLANNING COMMISSION RECOMMENDATION:

At their September 10th meeting the Planning Commission approved the preliminary plan for Fall Valley (vote: 3-1) with staff conditions #1 & #2 detailed above and recommended approval of the rezoning for the site to from RSF-R and AFT to PR-3.5.

h:\cityfil\1996\96-177.src

NEBEKER

PLANNING COMMISSION REPORT - OCTOBER 8, 1996 HEARING

FILE: #FPP-96-199
DATE: October 1, 1996
STAFF: Bill Nebeker
REQUEST: Final Plat Fall Valley Subdivision, Filing #1
LOCATION: E side of 25 1/2 Road; S of F 1/2 Road
APPLICANT: Ward Scott for John Davis

EXECUTIVE SUMMARY: The petitioner is requesting final plat approval for Fall Valley Subdivision, filing #1. The subdivision consists of 19 lots for single family homes, two lots for park/detention purposes, one lot for future development and an outlot not to be included in this subdivision. Half street improvements for 25 1/2 Road will be constructed just north of the intersection of Fall Valley Circle and south to existing improvements for this phase. The remainder of the half street improvements will be constructed during phase II. Staff recommends approval with conditions.

EXISTING LAND USE: Vacant

PROPOSED LAND USE: Residential - Single Family

SURROUNDING LAND USE:

NORTH:	Residential (Kay Subdivision and Cimmaron North Subdivision)
SOUTH:	Vacant
EAST:	Single Family Residential
WEST:	Industrial (Foresight Park)

EXISTING ZONING: RSF-R & AFT (County)

PROPOSED ZONING: PR-3.5 (Planned Residential - not to exceed 3.5 units/acre)

SURROUNDING ZONING: (see also attached map)

NORTH:	PR-3.7 & PR-3.8
SOUTH:	PR-18; PI & AFT (County)
EAST:	R1A (County)
WEST:	PI

RELATIONSHIP TO COMPREHENSIVE PLAN:

The City of Grand Junction Growth Plan identifies the subject parcel in the "Residential Medium Low (2-3.9 units/acre)" land use category. The proposed density of this subdivision is in conformance with the growth plan map.

STAFF ANALYSIS: Fall Valley Subdivision Filing 1 consists of 19 lots for single family residential use, 2 lots for park/detention area purposes, and 2 lots for future and current development. Current development is on 7.9 acres. Outlot A will be retained by the owner of the property for the existing home at the southeast corner of F 1/2 and 25 1/2 Road. Outlot B, to be redesignated as a Tract, will be platted and reserved for future filings. Filing 1 roughly follows the configuration of the first phase as shown on the approved preliminary plan.

The detention pond at the southeast corner of 25 1/2 Road and Fall Valley Circle will be constructed with this phase. The applicant had proposed to also plat the detention pond located on lot 6, block 3, located in the southeast corner of the site but defer improvements until a later phase. Per Planning Commission's preliminary approval, the lot should not be platted unless the improvements are installed with this phase. A sewer line will be required to be extended through this site to the east property line for future development.

The lots in Filing 1 range in size from approximately 5700 to 9025 square feet, with the larger lots closer to the east property line. Street names for the subdivision must be changed since most of the names proposed conflict with other names in the City. Half street improvements for 25 1/2 Road will be completed just north of the intersection of Fall Valley Circle. The plat and construction drawings must be revised prior to construction and plat recording to resolve numerous technical issues.

At their September 10th hearing the Planning Commission approved the preliminary plan for Fall Valley Subdivision with the following conditions:

1. The completion of 25 1/2 Road improvements shall occur concurrent with the development of Fling #2 as shown on the Preliminary Plan, not Filing #4 as proposed by the petitioner.

2. The petitioner shall be required to detail the amenities proposed for the open space areas at the time of final plat/plan submittal.

This approval has been appealed by the neighborhood and will be heard by the City Council at their October 2, 1996 hearing along with adoption of the ordinance annexing a portion of this property into the City and zoning it to PR 3.5. Staff's recommendation may change pending the outcome of this hearing.

STAFF RECOMMENDATION: Approval of Fall Valley Subdivision Filing 1, with the following conditions:

1. Improvement plans and development improvements agreement must show 8 foot concrete path in pedestrian easement between lots 1 & 2, block 4.

2. Show details of amenities proposed for the park/detention pond at the southeast corner of the site, or do not plat it with this phase.

3. Extend the sewer line with appropriate easements to the east property line as required by City Utility Engineer.

4. The applicant shall respond to staff review comments with revised plans prior to construction and/or plat recordation.

RECOMMENDED PLANNING COMMISSION MOTION:

Mr. Chairman, on item 96-199 I move that we approve the final plan for Fall Valley Subdivision Filing #1 with the conditions in the staff recommendation.

EXCUSE HAND CORRECTION BUT THE DATA IS CORRECT

GEOTECHNICAL INVESTIGATION FOR
FALL VALLEY SUBDIVISION
A PORTION OF THE NW 1/4, SE 1/4, SECTION 3
T1S, R1W, UTE MERIDIAN
MESA COUNTY, COLORADO

Prepared For:

John Davis
1023 24 Road
Grand Junction, Colorado 81505

Prepared by:

Western Colorado Testing, Inc.
529 25½ Road, Suite B101
Grand Junction, Colorado 81505
(970) 241-7700

September 3, 1996
Job No. 206196

WESTERN
COLORADO
TESTING,
INC.

GEOTECHNICAL INVESTIGATION FOR FALL VALLEY SUBDIVISION A PORTION OF THE NW 1/4, SE 1/4, SECTION 3 T1S, R1W, UTE MERIDIAN MESA COUNTY, COLORADO

Prepared For:

John Davis
1023 24 Road
Grand Junction, Colorado 81505

Prepared by:

Western Colorado Testing, Inc.
529 25 1/2 Road, Suite B101
Grand Junction, Colorado 81505
(970) 241-7700

September 3, 1996
Job No. 206196

INTRODUCTION

This report presents the results of the geotechnical investigation performed at the site a proposed approximate 37.9 ± acre subdivision to be in a portion of the northwest quarter of the southeast quarter of Section 3, Township 1 South, Range 1 west of Ute Meridian, Mesa County, Colorado. This investigation was authorized by Mr. John Davis on August 13, 1996.

Included in this investigation were test borings and a report of our conclusions and recommendations. The scope of our report was limited to the following:

- Evaluating the engineering properties of the subsoils encountered.
- Recommending types and depths of foundation elements.
- Evaluating soil bearing capacity and estimated settlement.
- Presenting recommendations for earthwork and soils related construction with respect to the subsoils encountered.
- Presenting recommended alternative pavement sections.

This report was prepared by the firm of Western Colorado Testing, Inc. (**WCT**) under the supervision of a professional engineer registered in the state of Colorado. Recommendations are based on the applicable standards of the profession at the time of this report within this geographic area. This report has been prepared for the exclusive use of **Mr. John Davis** for the specific application to the proposed project in accordance with generally accepted geotechnical engineering practices.

The scope of this investigation did not include any environmental assessment for the presence of hazardous or toxic materials in the soil or groundwater on or near this site. If contamination is a concern, it is recommended an environmental assessment be performed.

SITE CONDITIONS

The site is currently vacant with a ground coverage of sparse native grasses and lots of weeds. Slopes to the southwest with approximately 14 feet of elevation differential across the site. Along the west side of the site is an irrigation ditch, then 25 1/2 Road followed by commercial lots. To the south is commercial lots and structures. To the north and east is residential housing, some on small acreages.

The sites will need to be graded to provide good surface drainage around and away from the proposed structures.

PROPOSED CONSTRUCTION

The proposed construction will consist of 134 single family dwellings. The proposed residences will be of conventional wood framing with siding or brick veneer. The structures are planned to be built over reinforced concrete foundations. The structures will be constructed with either slab-on-grade floors or over crawl spaces. No basements are proposed for the subdivision. Light foundation loads are anticipated.

located in the field with the help of the survey crew in the tall weeds. The location of the test pits are as near to the locations shown as was reasonably possible. The test pits were excavated to depths of approximately 10 feet.

Soil samples were obtained at the sampling intervals shown on the Test Pit Logs (Appendix, Figures 2 through 7). Recovered samples were extracted in the field, sealed in plastic or brass containers, labeled and protected for transportation to the laboratory for testing. California tube samples were obtain with a hand sampler. Bulk samples were recovered, placed in cloth bags, labeled and transported to the laboratory for testing.

Stratification lines represent the approximate boundary between soil types, and the transition may be gradual.

LABORATORY TESTING

The field test pit logs were reviewed to outline the depths, thickness, and extent of the soil strata, and a testing program was established to evaluate the engineering properties of the recovered samples. Specific tests that were performed include moisture contents, density determinations, particle size analysis, Atterberg limits and swell-consolidation tests. These tests were performed in general accordance with current ASTM or state-of-the-art test procedures. An R-value test was also performed. The R-value was determined according to the Colorado Department of Transportation (CDOT) procedures which is a modification to ASTM D-2844.

Based on the results of this testing program the field logs were reviewed and supplemented as presented in the Appendix, Figures 2 through 7. These final logs represent our interpretation of the field logs, and reflect the additional information gained in the laboratory testing program.

Based on the results of this testing program the field logs were reviewed and supplemented as presented in the Appendix, Figures 2 through 7. These final logs represent our interpretation of the field logs, and reflect the additional information gained in the laboratory testing program.

SUBSURFACE CONDITIONS

As shown on the test pit logs, Appendix, Figures 2 through 7, the subsurface conditions encountered at the site are fairly uniform. Generally, the soils encountered in the test pits consisted of 6 to 12 inches of topsoil over a silty clay with some fine grained sand to sandy. The clay soils were lensatic with varying amounts of sand. Some fine to medium grained sand lenses exist in the clays. The clays were dry to slightly moist, light brown in color and stiff in the upper portion of the test pits. Generally, the clays became moist and medium stiff at about 2 1/2 to 6 feet and very moist to wet and soft below approximately 4 to 8 feet. The clayey soils extended to the maximum depth explored, 10 feet.

CONCLUSIONS AND RECOMMENDATIONS

FOUNDATIONS

Based on the subsurface conditions encountered and the nature of the proposed construction, we recommend the residential structures be founded on shallow spread footings or new structures fill. Habitable space construction below grade is not recommended for this site due to the very moist conditions and relatively high groundwater table. It is anticipated that the ground water table may fluctuate during various seasons of the year.

The clays encountered in the test pits are non-swelling or have low swell potential at the present moisture contents. However, the

clay soils have a low to moderate plasticity which indicates if moistures are allowed to fluctuate, the clays may undergo some shrink-swell potential.

The following design and construction details should be observed for spread footing foundation systems.

- Footings placed on the natural soils, below any topsoil, or on new structural fill should be designed for a maximum allowable soil bearing pressures on the order of 1000 to 1500 pounds per square foot. All footings should be proportioned as much as practicable to minimize differential settlement. Footings should not be placed below a depth of 3 feet below the existing grade.

- Structural fill placed for support of footings should consist of a granular, non-expansive, non-free draining, material compacted to a minimum 95% of the maximum Standard Proctor density (ASTM D-698) at a moisture content (±) 2% of optimum. Structural fill should extend down from the bottom of the footings at a one horizontal to one vertical projection.

- We estimate total settlement for footings designed and constructed as discussed in this section will be one inch or less, which is generally considered acceptable and was used in our analysis.

- Exterior footings and footings in unheated areas should extend to below the frost depth. The local building codes should be consulted, however we would recommend a minimum depth of 24 inches.

- Continuous foundation walls should be reinforced top and bottom to span an unsupported length of at least twelve (12) feet. A

sulfate resistant concrete should be used for all concrete exposed to the on site soils.

- All loose or disturbed material encountered at the foundation bearing level should be removed or compacted to a minimum 95% of ASTM D-698.

- Foundation soils should be compacted with a mechanical compactor prior to the placement of structural fill and concrete.

- The bottom of the foundation excavations should be proofrolled prior to placing compacted structural fill. Any soft areas should be removed and replaced with structural fill. Caution should be taken when proofrolled to prevent pumping of the soils which will degrade the integrity of the soils. The footing depths may need to be elevated due to the soft, very moist underlying soils. Lots near the deep irrigation ditches may need additional stabilization.

- A representative of the geotechnical engineer should observe all foundation excavations prior to the placement of fill and concrete.

FLOOR SLABS

The natural soils, exclusive of top soil, are suitable for support of slab-on-grade construction. However if the soils have a low to moderate plasticity and moisture contents are allowed to fluctuate, the clays may undergo some shrink-swell potential. The only way to prevent damage as a result of slab movement is to construct a structural floor above a well ventilated crawl space. Slab-on-grade construction may be used provided the risk of distress resulting from floor slab movement is accepted by the owner and the following measures are taken to reduce the effects of movement.

- Floor slabs should be separated from all bearing walls, columns and utility lines with an expansion joint which allows unrestrained vertical movement.

- Interior nonbearing partitions resting on the floor slabs should be provided with slip joints at the bottom so that slab movement is not transmitted to the upper structure. This detail is also important for wall boards, door frames and stairways. Slip joints which allow at least 1 1/2 inches of vertical movement are recommended.

- The floor slabs should be provided with control joints to reduce damage due to shrinkage cracking. It is recommended control joints be spaced at 12 feet on centers or less.

- The top 6 to 8 inches of subgrade soils should be moisture conditioned to (±) 2% of the optimum and recompacted to minimum 95% of ASTM D-698. The moisture content should be maintained until the slabs are placed.

space → • If slabs will have a moisture sensitive — - - -

- The risk of slab movement could be reduced by removing all clay encountered within 1 1/2 feet below the slabs and replacing it with structural fill.

- All fill placed below the slabs should consist of non-expansive, granular material compacted to at least 95 percent of the maximum standard Proctor density at a moisture content near optimum.

↓ **PERIMETER DRAIN SYSTEM**

Free ground water was not encountered in the test pits at depths of 6 to 10+ feet; however, the soils were very moist below a depth of 4 to 9 feet and the water table is anticipated to fluctuate near the irrigation ditches and different seasons of the year. In addition it has been our experience that local perched water table conditions can develop after construction. The source of water could be from excessive irrigation or poor surface drainage accumulating in backfill areas, with subsequent seepage to foundation depth. For this reasons a drain system should be provided around exterior foundation walls. The perimeter drain system should be placed at or below the footing level and typically consist of a perforated 4 inch diameter drain pipe surrounded by at least one pipe diameter of free draining gravel. The gravel should extend to above the footing or crawl space level and should be completely wrapped in a filter fabric. As an alternative the drain pipe itself can be wrapped with filter fabric with a minimum 2 inches of sand surrounding the pipe to prevent clogging. The drain lines should be graded to a sump where the water can be removed by pumping. A pump would not be required until water accumulates. A minimum slope of 1 percent should be used for all drain pipe. The gravel used in the drain system should be minus 2 inch material having less than 20 percent passing the No. 4 sieve and less than 5 percent passing the No. 200 sieve.

SURFACE DRAINAGE AND LANDSCAPING

The success of shallow foundation and slab-on-grade systems is contingent upon keeping the subgrade soils at a more or less constant moisture content, and by not allowing surface drainage a path to the subsurface. Positive surface drainage away from structures must be maintained at all times. Landscaped areas should be designed and built such that irrigation and other surface water will be collected and carried away from foundation elements.

The final grade of the foundations backfill and any overlying concrete slabs or sidewalks should have a positive slope away from

foundation walls on all sides. We recommend a minimum slope of 8 inches in the first 10 feet; however, the slope can be decreased if the ground surface adjacent to foundations is covered with concrete slabs or sidewalks.

Backfill material should be placed near optimum moisture content and compacted to at least 90% of maximum standard Proctor density in landscaped areas and to at least 95% maximum standard Proctor density beneath structural areas (sidewalks, patios, driveways, etc.). All roof downspouts and faucets should discharge well beyond the limits of all backfill. Irrigation within ten (10) feet of foundations should be carefully controlled and minimized.

STREET PAVEMENTS

The pavement section thickness needed is dependent mainly on the subgrade conditions and the traffic loadings. The subsurface soils were tested and classified using both the Unified and AASHTO classification systems. The soil was then tested to determine an R-value according to the Colorado Department of Transportation (CDOT) procedure which is a modification ASTM D-2844. Results of the R-value test provided a value of 21. Based on the testing results, traffic count provided, design manual procedures, freeze/thaw conditions, and experience with similar projects, the following minimum pavement section alternatives are indicated:

PAVEMENT ALTERNATIVE SECTIONS									
pavement Section Location	Design Criteria				Alternatives	Pavement Section - Inches			
	R-Value	EDLA	RF	WSN		HPB	ABC	ASC	TOTAL
Fall Valley circle ~~Subdivision~~	21	10	2.0	2.29	A	5 1/2			5 1/2
					B	3	7		10
					C	3	4	4	11
All other subdivision streets	21	5	2.0	2.07	A	5			5
					B	3	6		9

"R" Value - CDOH Procedures
EDLA - Equivalent Daily Load Application
RF - Regional Factor
WSN - Weighted Structural Number

HBP - Hot Bituminous Pavement
ABC - Aggregate Base Course (Class 6)
ASC - Aggregate Subbase Course (Class 2)

Once the cut and fill operation for the roadways has been determined and/or a possible better traffic count determined the above section should be re-evaluated prior to construction.

Aggregate base course material should conform with Class 6 (minus 3/4 inch) specifications of the Colorado Department of Transportation (CDOT) and be compacted to a minimum 95% of AASHTO T-180 at (+)2% of optimum moisture content. The aggregate subbase course material should conform with Class 2 CDOT Specifications and be compacted to a minimum 95% of AASHTO T-180 at (+)2% of optimum moisture content.

Pavement performance is directly affected by the degree of compaction, uniformity, and the stability of the subgrade. It is recommended that the top 6 to 8 inches of the subgrade be compacted

to a minimum of 95% of the maximum dry density as determined by AASHTO T-99 "Standard Proctor Moisture-Density Relationship". The moisture content should also be controlled to between (-)2% and (+)3% of optimum. The final subgrade should be proofrolled immediately prior to placement of the subbase to detect any localized areas of instability. Unstable areas should be reworked to provide a uniform subgrade. Additional stabilization materials may be needed for these areas.

Positive drainage should be provided during construction and maintained throughout the life of the pavement. Adequate drainage is essential for continuing performance.

GENERAL

In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analysis and recommendations submitted in this report are based in part upon the data obtained from the six (6) test pits. The nature and extent of variation across the building sites may not become evident until construction. If variations then appear, it will be necessary to reevaluate the recommendations in this report.

It is recommended that the geotechnical engineer be provided the opportunity for general review of the final designs and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the designs and specifications. It is also recommended that the geotechnical engineer be retained to provide continuous engineering services during construction of the foundations, excavations, and

earthwork phases of the work. This is to observe compliance with the design concepts, specifications, or recommendations and to modify these recommendations in the event that subsurface conditions differ from those anticipated.

Respectfully Submitted,

WESTERN COLORADO TESTING, INC.

Gary L. Hamacher, P.E.
Senior Geotechnical Engineer

GLH/cc
msa:2016rep.doc

APPENDIX

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-1	See Test Pit Location Plan	8-14-96	-	K. Alpha	-

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	~~DRILL RIG~~
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
7'	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA		SOIL DESCRIPTION			LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tst	CLASS	
		light brown	sl moist to dry	stiff	SILT, clayey & sandy, organics, cale					
	B-1	light brown	slightly moist to moist	medium stiff to stiff	CLAY, silty, slightly sandy, calcareous, some organics to 1 1/2'					
			moist	medium stiff	lenses of fine grained clayey sand					
	C-1					13.5	97.6			
5			very moist	medium stiff to soft						5
			wet	soft						
	B-2									
10										10
					B.O.P. @ 10'					

Figure 2

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-2	See Test Pit Location Plan	8-14-96	-	K. Alpha	-

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	~~DRILL RIG~~
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
6'	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA: SAMPLE NO. & TYPE	COLOR	MOIST	CONS.	SOIL DESCRIPTION: GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: % MC	DRY DENS pcf	qu tst	CLASS	DEPTH FT
		light brown	slightly moist to dry	stiff	SILT, clayey & sandy, organics, calcareous					
	B-1	light brown	slightly moist to moist	stiff	CLAY, silty, slightly sandy, calcareous					
	C-1									
		light brown	moist	medium stiff to loose	Interbedded - CLAY, silty & sandy, SAND, fine grained (fine to medium grained below 3 1/2'), clayey, calcareous					
5										5
		light brown	wet	soft	CLAY, silty, slightly sandy					
	B-2									
10										10
					B.O.P. @ 10'					

Figure 3

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-3	See Test Pit Location Plan	8-14-96	-	K. Alpha	-
WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	~~DRILL RIG~~
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
None	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA: SAMPLE NO. & TYPE	SAMPLE DATA: COLOR	SOIL DESCRIPTION: MOIST	SOIL DESCRIPTION: CONS.	SOIL DESCRIPTION: GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: % MC	LABORATORY DATA: DRY DENS pcf	LABORATORY DATA: qu tst	LABORATORY DATA: CLASS	DEPTH FT
		light brown	dry to slightly moist	medium stiff	SILT, clayey & sandy, organics, calcareous					
	B-1	light brown	slightly moist	medium stiff to stiff	CLAY, very silty & sandy, calcareous				LL=26 PI=6 CL-ML	
			slightly moist to moist		lenses of fine to medium grained clayey sand @ 3' to 6'					
5										5
			moist		less sand below 6'					
	C-1									
	B-2									
10			moist to very moist	medium stiff						10
					B.O.P. @ 10'					

Figure 4

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-4	See Test Pit Location Plan	8-14-96	-	K. Alpha	-

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	~~DRILL RIG~~
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
8'	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA		SOIL DESCRIPTION			LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tst	CLASS	
		light brown	dry to slightly moist	stiff	SILT, clayey & sandy, organics, calcareous					
	B-1	light brown	slightly moist	stiff	CLAY, silty, slightly sandy, calcareous some fine to medium grained, clayey sand lenses at 4' to 6'					
			moist							
	C-1									
5										5
	C-2									
			very moist	medium stiff						
									LL-39 PI=18 CL	
	B-2									
10										10
					B.O.P. @ 10'					

Figure 5

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-5	See Test Pit Location Plan	8-14-96	-	K. Alpha	-

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	~~DRILL RIG~~
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
8'	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA: SAMPLE NO. & TYPE	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: % MC	DRY DENS pcf	qu tst	CLASS	DEPTH FT
		light brown	dry to sl moist	stiff	SILT, clayey & sandy, organics, calc.					
		light brown	slightly moist to moist	stiff	CLAY, silty, slightly sandy, calcareous					
	B-1									
	C-1									
			moist							
5										5
			very moist	medium stiff	some lenses of fine grained, clayey sand @ 6' - 8'					
			wet	soft						
	B-2									
10										10
					B.O.P. @ 10'					

Figure 6

WESTERN COLORADO TESTING, INC.

Project: Fall Valley Subdivision
Location: Grand Junction, Colorado
Job No.: 206196 Date 9-3-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM
TP-6	See Test Pit Location Plan	8-14-96	-	K. Alpha	-

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Native grases & weeds	-
WHILE EXCAVATION	END OF EXCAVATION	24 HOURS AFTER EXCAVATION	HOURS	EXCAVATION METHOD	TOTAL DEPTH
7 1/2'	-	-	-	Backhoe	10'

DEPTH FT	SAMPLE DATA		SOIL DESCRIPTION			LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tst	CLASS	
		light brown	sl moist to dry	stiff	SILT, clayey & sandy, organics, cal					
	B-1	light brown	slightly moist to moist	stiff	CLAY, silty, slightly sandy, calcareous				LL=32 PI=13 CL	
	C-1				lenses of fine grained clayey sand from 4' to 5'					
5			very moist	medium stiff						5
			wet	soft						
10	B-2									10
					B.O.P. @ 10'					

Figure 7

msa:jobs\2061fg7.doc

WESTERN COLORADO TESTING, INC.

PHYSICAL PROPERTIES OF SOILS

Job No.: 206196

Lab/Invoice No.:

Date of Report: 9-3-96

Reviewed By:

Client: John Davis | Project: Fall Valley Subdivision

Location: Grand Junction, Colorado | Sampled By: K. Alpha | Date: 8-14-96

Type of Material: CLAY, very silty & sandy | Submitted By: G. Hamacher | Date: 8-19-96

Source of Material: TP-3 @ 1.0' - 3.0' | Authorized By: Client | Date: 8-13-96

Sieve Analysis, ASTM D422-

Sieve Size	% Passing Accumulative	Specification
3"		
2 1/2"		
2"		
1 1/2"		
1"		
3/4"		
1/2"		
3/8"		
1/4"		
No. 4	100	
8	99.9	
10	99.8	
16	99.3	
30	97.5	
40	96.2	
50	94.8	
100	88.1	
Finer than 200 ASTM D1140-	74.0	

Soil Classification:	Unified CL-ML	AASHTO A-4(8)
Liquid Limit and Plasticity of Soils: ASTM D424-		LL= 26 PI= 6
Moisture - Density Relations ☐ ASTM D698- ☐ ASTM D1557- Method:		Maximum Dry Density, pcf : Optimum Moisture, % :
Specific Gravity of Soils (minus No. 4 material) ASTM D854-		Specific Gravity:
Resistance 'R' Value of Compacted Soils ASTM D2844-		'R' Value:
Other:		

Copies:

Figure 8

msa:jobs\2061fg8.doc

WESTERN COLORADO TESTING, INC.

PHYSICAL PROPERTIES OF SOILS

Job No.: 206196

Lab/Invoice No.:

Date of Report: 9-3-96

Reviewed By:

Client: John Davis | Project: Fall Valley Subdivision

Location: Grand Junction, Colorado | Sampled By: K. Alpha | Date: 8-14-96

Type of Material: CLAY, ~~very~~ silty ~~& sandy~~ | Submitted By: G. Hamacher | Date: 8-19-96

Source of Material: TP-6 @ 1.0' - 3.0' | Authorized By: Client | Date: 8-13-96

Sieve Analysis, ASTM D422-

Sieve Size	% Passing Accumulative	Specification
3"		
2 1/2"		
2"		
1 1/2"		
1"		
3/4"		
1/2"		
3/8"		
1/4"		
No. 4		
8		
10		
16		
30	100	
40	-	
50	99.0	
100	97.3	
Finer than 200 ASTM D1140-	94.4	

Soil Classification: Unified ~~CL-ML~~ CL | AASHTO A-6(9)

Liquid Limit and Plasticity of Soils: LL= 32

ASTM D424- PI= 13

Moisture - Density Relations — Maximum Dry Density, pcf :

☐ ASTM D698- ☐ ASTM D1557- Method: — Optimum Moisture, % :

Specific Gravity of Soils (minus No. 4 material)

ASTM D854- Specific Gravity:

Resistance 'R' Value of Compacted Soils

ASTM D2844- 'R' Value: 21

Other:

Copies:

Figure 9

msa:jobs\2061fg9.doc

WESTERN COLORADO TESTING, INC.

Job No. 206196

Lab./Invoice No.

Date 9-3-96

Reviewed by

RESISTANCE 'R' VALUE AND EXPANSION PRESSURE

Client John Davis Project Fall Valley Subdivision

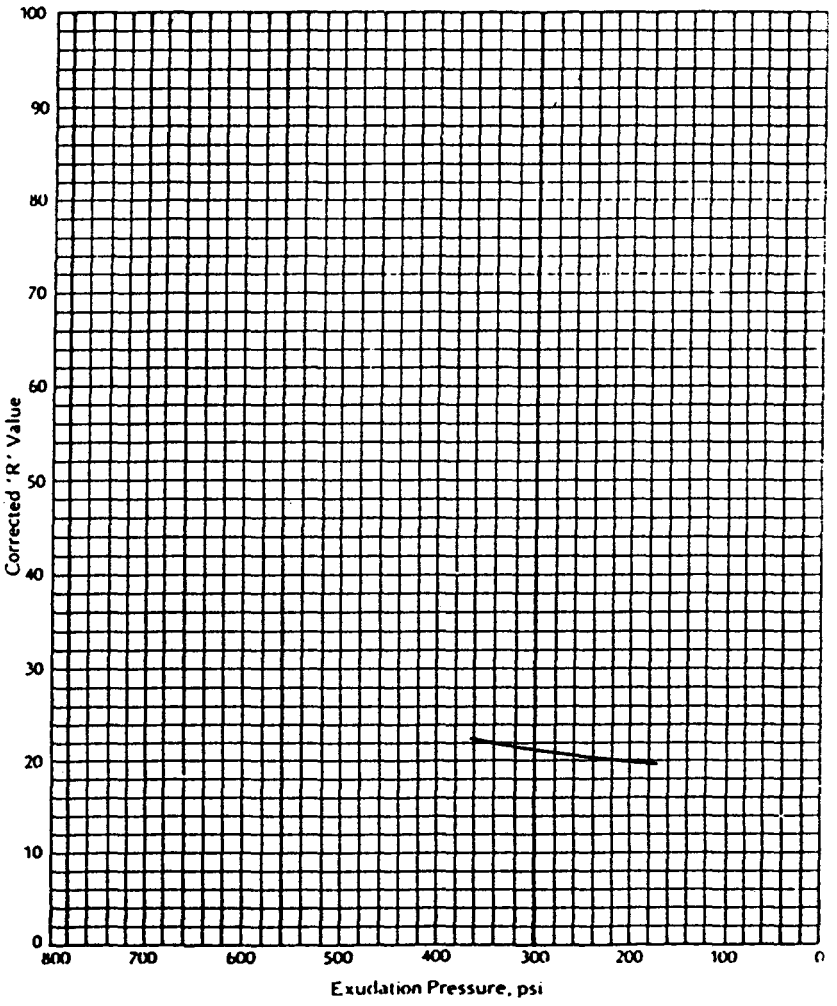
Location Grand Junction, CO Sampled By K. Alpha Date 8-14-96

Type of Material Clay, silty Submitted By G. Hamacher Date 8-19-96

Source of Material TH-6 @ 1.0'-3.0' Authorized By Client Date 8-13-96

ASTM D2844-	Specimen		
	A	B	C
Compactor Pressure, psi	240	195	145
Exudation Pressure, psi	342	285	191
Moisture at Compaction, %			
Dry Density at Compaction, pcf			
Corrected 'R' Value	22	21	20
Expansion Dial Read, $x10^{-4}$			
Expansion, psf			
Atterberg Limits, ASTM D424-	LL= 32	PI= 13	

Corrected 'R' Value at 300 psi 21



Sieve Analysis, ASTM D422-

Sieve Size	% Passing Accumulative	Specification	As Tested Grading
3"			
2½"			
2"			
1½"			
1"			
¾"			
½"			
⅜"			
¼"			
No. 4			
No. 8			
No. 10			
No. 16			
No. 30	100		
No. 40	–		
No. 50	99.0		
No. 100	97.3		
Finer than 200 ASTM D1140-	94.4		

Figure 10

WESTERN COLORADO TESTING, INC.

SUMMARY OF SOIL TESTS

Job No.: 206196
Client: John Davis
Project: Fall Valley Subdivision
Date: 9-3-96

Test Hole No.	Sample No.	Sample Depth (ft)	Sample Dia. (in)	Sample Hgt. (in)	Water Content (%)	Density		~~Void~~ Ratio (e) R-Value	Unconfined Compression		Atterberg Limits			Cons Test	% Pass #200 Sieve	Classification or Remarks
						Wet (pcf)	Dry (pcf)		QU (tsf)	Strain (%)	LL	PL	PI			
TP-1	C-1	3.5-3.8	1.94		13.5	110.8	97.6									
~~TP-2~~	~~C-1~~	~~2.0-2.3~~	~~1.94~~											+		
TP-3	B-1	1.0-3.0	Bulk								26	20	6		74.0	
TP-4	B-2	3.5-10.0	Bulk		25.0						39	21	18		98.9	
TP-5 6	B-1	1.0-3.0	Bulk								32	19	13		94.4	
~~TP-6~~	~~C-1~~	~~3.0-3.3~~	~~1.94~~													

Figure ~~12~~ 11

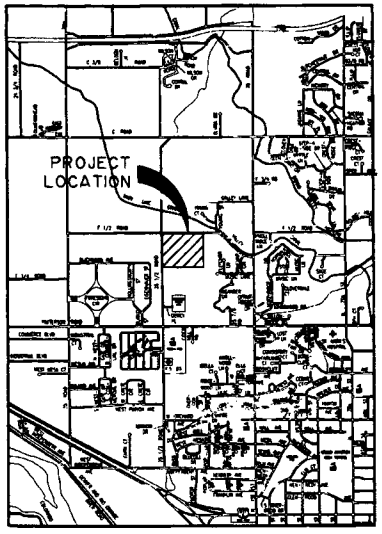
msa:jobs\2061fg12.doc

SONSHINE CONSTRUCTION, LLC

PLANS FOR
CONSTRUCTION
OF

FALL VALLEY SUBDIVISION
FILING 1

JUNE 1997



VICINITY MAP
NTS

CONSTRUCTION
DRAWING OF RECORD

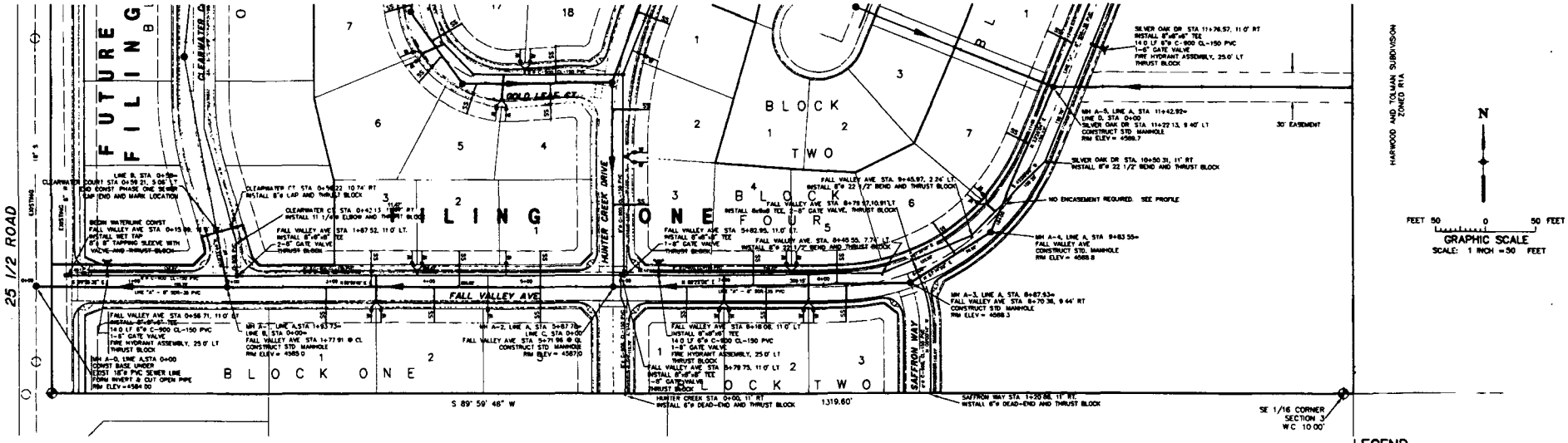
NO.	TITLE
1.	COVER
~~2.-3.~~	~~FINAL PLAT~~
~~UC 1~~	~~UTILITY COMPOSITE PLAN~~
SW 1-3	WATER PLAN, SEWER PLAN AND PROFILE
R 1-5	ROADWAY TYPICAL, PLAN AND PROFILE
D 1-3	STORM DRAINAGE PLAN & PROFILE, GRADING AND DRAINAGE
~~L 1~~	~~LANDSCAPE PLAN~~
~~S 1-5~~	~~STANDARD DETAILS~~

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

JOB NO. 8336-02

08030401.tif



CONSTRUCTION DRAWING OF RECORD

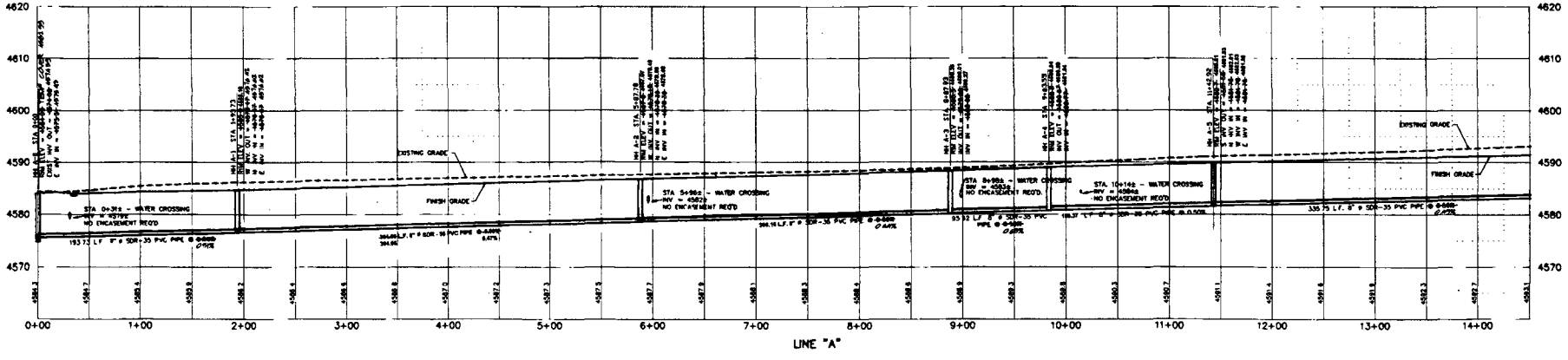
LEGEND

- PROPOSED SANITARY SEWER, MANHOLE AND SERVICE
- PROPOSED WATER LINE, SERVICE AND VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED DROP INLET AND STORM SEWER
- EXISTING 2" WATER LINE
- EXISTING SANITARY SEWER LINE AND MANHOLE
- EXISTING STORM SEWER LINE AND MANOLE
- EXISTING GAS LINE
- EXISTING OVERHEAD POWER LINE

ENGINEERS STATEMENT

Banner Associates, Inc., provides this Construction Drawing of Record based on surveying information, by D.N. Survey, collected after installation of improvements. To the best of our knowledge the sanitary sewer services were constructed in the design location. In addition, home construction and the subsequent tie-in to these services was completed prior to the completion of these Construction Drawing of Record. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc — Date



DRAWN BY: R.L.C.	REVIEWED: ____ DATE: ____ FOR: ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO — BANNER	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242
CHECKED BY: D.E.C.	REVIEWED: ____ DATE: ____ FOR BANNER ASSOCIATES, INC.		

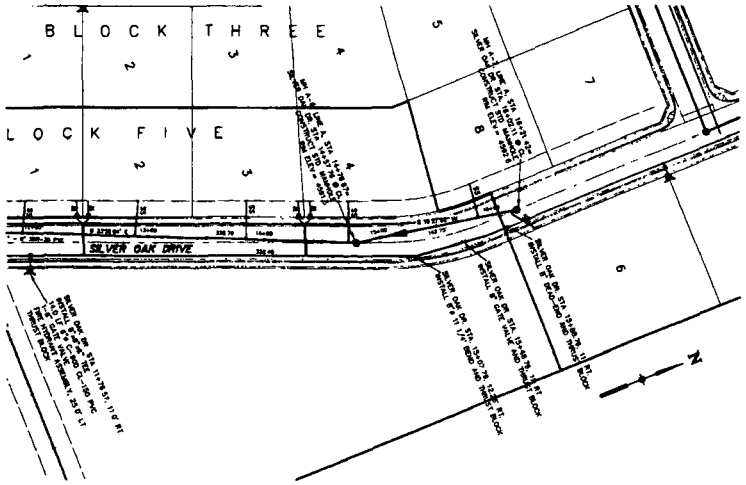
REVISION	DATE	DESCRIPTION	BY	CHD
1	7/3/97	REVISED PER REVIEW COMMENTS	BKR	BKR
2	8/6/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	MH	DEC

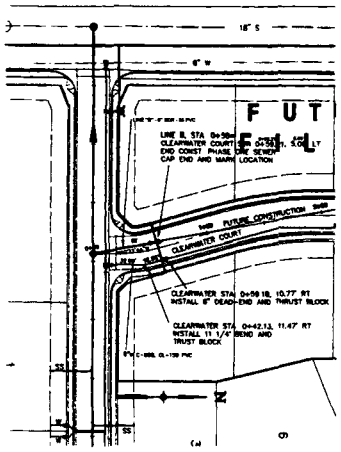
BILL FITZGERALD — GRAND JUNCTION, COLORADO

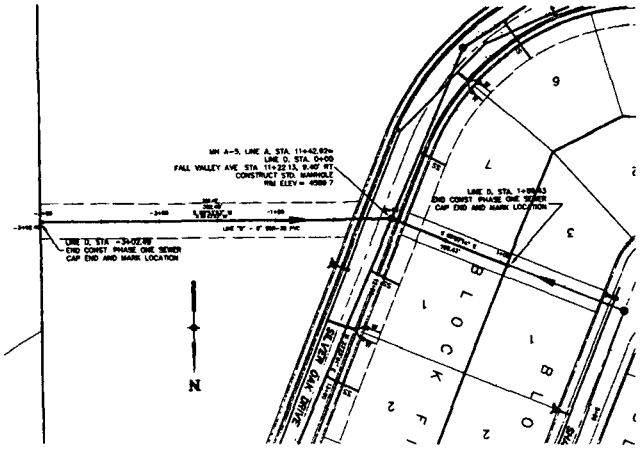
FALL VALLEY FILING NO. ONE
WATER PLAN – SEWER LINE "A" PLAN AND PROFILE

SCALE: Horiz 1" = 50' Vert 1" = 10'	Project No: 8336	
DATE: 6-02-97	SHEET NO: SW-1	

08030402.tif







FEET 50 0 50 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 50 FEET

CONSTRUCTION DRAWING OF RECORD

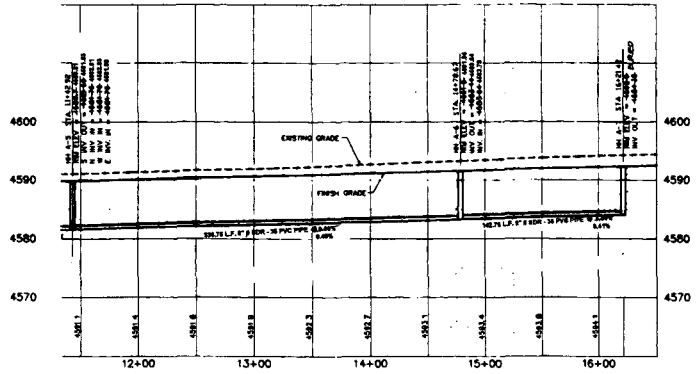
ENGINEERS STATEMENT

Banner Associates, Inc., provides this Construction Drawing of Record based on surveying information, by D H Survey, collected after installation of improvements. To the best of our knowledge the sanitary sewer services were constructed in the design location. In addition, home construction and the subsequent tie-in to these services was completed prior to the completion of these Construction Drawing of Record. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications

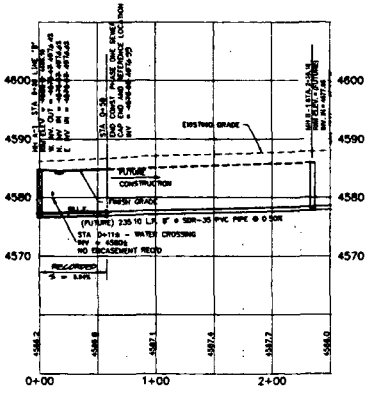
Banner Associates, Inc. Date

LEGEND

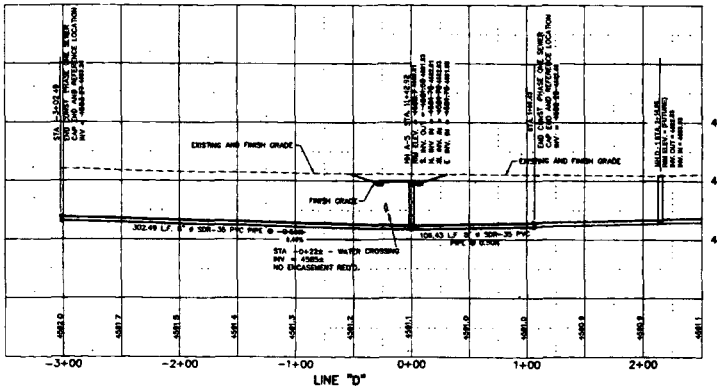
- PROPOSED SANITARY SEWER, MANHOLE AND SERVICE
- PROPOSED WATER LINE, SERVICE AND VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED DROP INLET AND STORM SEWER
- EXISTING 2" WATER LINE
- EXISTING SANITARY SEWER LINE AND MANHOLE
- EXISTING STORM SEWER LINE AND MANOLE
- EXISTING GAS LINE
- EXISTING OVERHEAD POWER LINE



LINE "A"



LINE "B"



LINE "D"

DRAWN BY: R.L.C.	REVIEWED ____ DATE ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO BANNER ASSOCIATES, INC. ● CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD ● GRAND JUNCTION, CO 81506 ● (970) 243-2242	REVISION	DATE	DESCRIPTION	BY	CHD
CHECKED BY: D.E.C.	REVIEWED ____ DATE ____ FOR BANNER ASSOCIATES, INC		1	11/6/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	RWS	DEC

BILL FITZGERALD — GRAND JUNCTION, COLORADO

FALL VALLEY FILING NO. ONE
WATER PLAN – SEWER LINES "A", "B" AND "D" PLAN AND PROFILE

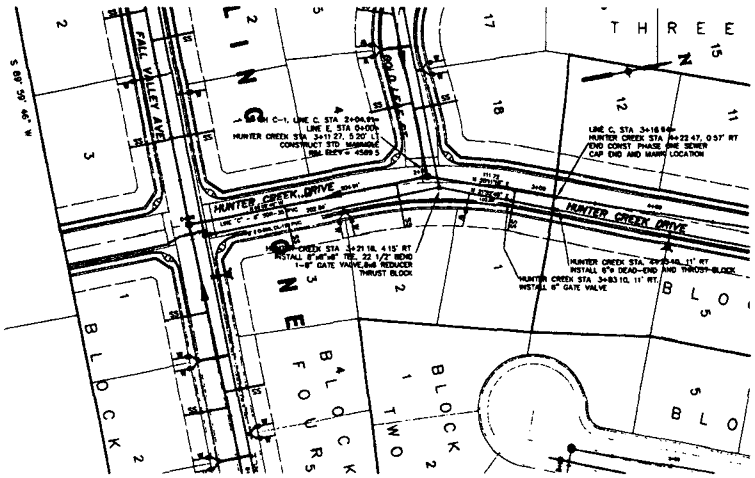
SCALE: Horiz. 1" = 50' Vert. 1" = 10'

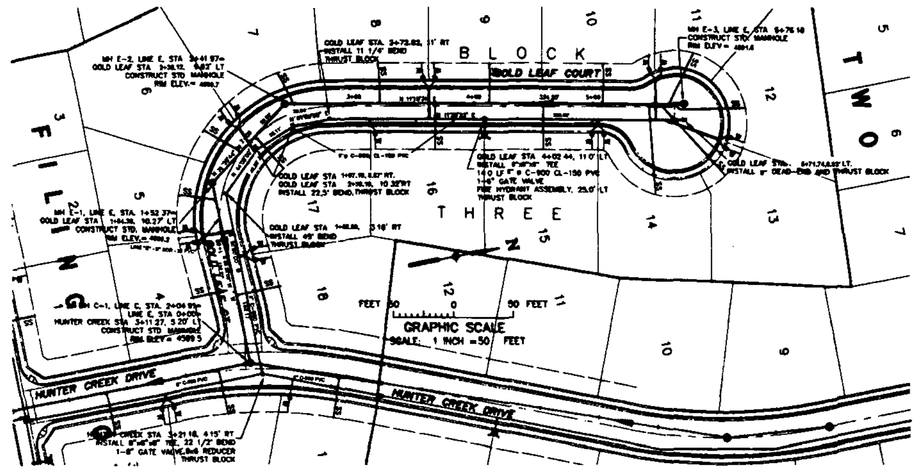
DATE: 6-02-97

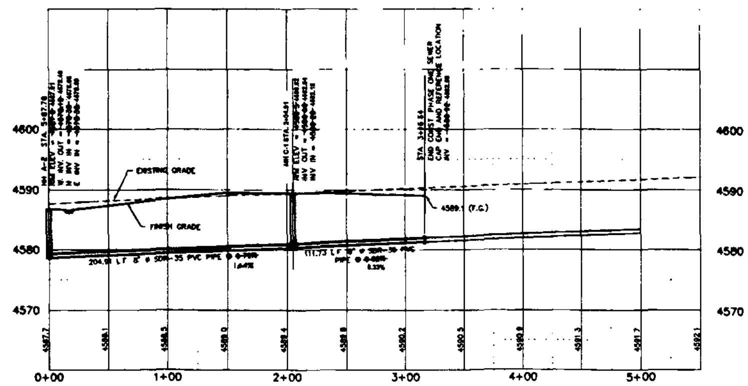
Project No: 6336

SHEET NO: SW-2

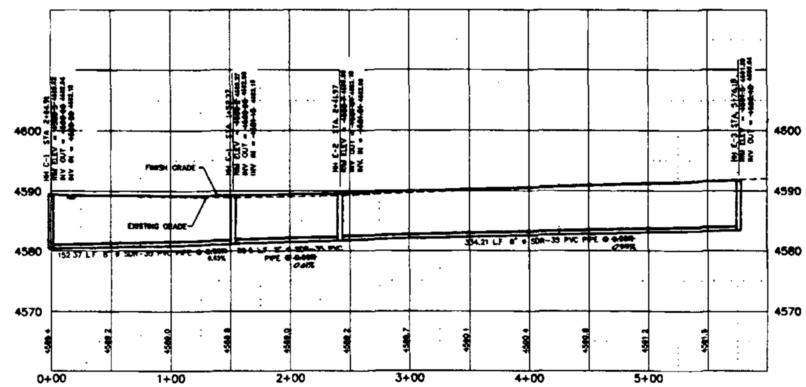
08030403.tif







LINE "C"



LINE "E"

CONSTRUCTION DRAWING OF RECORD

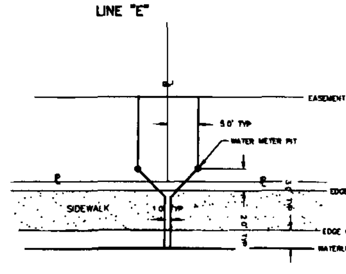
ENGINEERS STATEMENT

Banner Associates, Inc., provides this Construction Drawing of Record based on surveying information, by D.H. Survey, collected after installation of improvements. To the best of our knowledge the sanitary sewer services were constructed in the design location. In addition, home construction and the subsequent tie-in to these services was completed prior to the completion of these Construction Drawing of Record. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications

Banner Associates, Inc — Date

GENERAL NOTES:

1. CONSTRUCTION, INSPECTION, AND TESTING FOR INSTALLATION OF SANITARY SEWER WILL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR CONSTRUCTION OF SANITARY SEWER SYSTEMS" AS DEVELOPED BY THE CITY OF GRAND JUNCTION, COLORADO, AND THE INCLUDED STANDARD SANITARY SEWER DETAILS, EXHIBIT 1.
2. CONSTRUCTION, INSPECTION AND TESTING FOR INSTALLATION OF DOMESTIC WATER WILL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR WATERLINE CONSTRUCTION" AS DEVELOPED BY THE UTE WATER CONSERVANCY DISTRICT, AND THE INCLUDED STANDARD UTE WATER CONSERVANCY DETAILS. WATERLINES SHALL BE TESTED IN ACCORDANCE WITH CITY STANDARDS PRIOR TO STREET CONSTRUCTION
3. SANITARY SEWER LINES SHALL BE ASTM D3034, SDR-35, PVC PIPE
4. DOMESTIC WATER LINES SHALL BE AWWA C-900, CLASS 150, PVC PIPE
5. THE CONTRACTOR SHALL HAVE ONE SIGNED COPY OF THE PLANS AND A COPY OF THE CITY OF GRAND JUNCTION AND UTE WATER CONSERVANCY STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES
6. ALL SEWER MAINS SHALL BE INSTALLED UTILIZING A PIPE LASER FOR GRADE CONTROL
7. ALL SEWER SERVICE LINE CONNECTIONS TO THE NEW MAIN SHALL BE ACCOMPLISHED WITH FULL BODY WYES OR TEES. TAPPING SADDLES WILL NOT BE ALLOWED. NO SERVICE LINE SHALL BE CONNECTED DIRECTLY INTO A MANHOLE.
8. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED AT ALL TIMES BETWEEN THE WATERLINE AND SEWER LINE EXCEPT AT SPECIFIED CROSSINGS OR WHERE WATERLINE IS 18" OR MORE ABOVE (VERTICALLY) THE SEWER LINE.
9. ALL SEWER SERVICE LINES SHALL BE EXTENDED TO THE FRONT LOT EASEMENT LINES AS SHOWN. ALL SERVICE LINES SHALL BE GLUE CAPPED AND MARKED WITH GREEN PAINTED POSTS
10. ALL WATER SERVICE LINES SHALL BE SOFT COPPER TYPE K, 1"ø. UTE WATER CONSERVANCY DISTRICT WILL SUPPLY METER YOKES AND METER PITS. CONTRACTOR IS RESPONSIBLE FOR INSTALLING METER YOKES AND METER PITS. SERVICE LINES SHALL BE EXTENDED TO THE FRONT LOT EASEMENT LINES AS SHOWN AND MARKED WITH BLUE PAINTED POSTS.
11. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY OF GRAND JUNCTION AND UTE WATER CONSERVANCY DISTRICT 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
12. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR CONSTRUCTION REQUIRED OUTSIDE THE BOUNDARY OF THE SITE.
13. FIRE HYDRANTS SHALL BE IN CONFORMANCE WITH THE CITY OF GRAND JUNCTION FIRE DEPARTMENT STANDARDS
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SEWER LINE TESTING TO BE COMPLETED IN THE PRESENCE OF THE CITY ENGINEER. PRESSURE TESTING WILL BE PERFORMED AFTER ALL COMPACTION OF STREET SUBGRADE AND PRIOR TO STREET PAVING. FINAL LAMPING WILL ALSO BE ACCOMPLISHED AFTER PAVING IS COMPLETED. THESE TESTS SHALL BE THE BASIS OF ACCEPTANCE OF THE SEWER LINE EXTENTION.
15. A CLAY CUT-OFF WALL SHALL BE PLACED 10 FEET UPSTREAM FROM ALL NEW MANHOLES UNLESS OTHERWISE NOTED. THE CUT-OFF WALL SHALL EXTEND FROM 6INCHES BELOW TO 6 INCHES ABOVE GRANULAR BACKFILL MATERIAL AND SHALL BE 2 FEET WIDE. IF NATIVE MATERIAL IS NOT SUITABLE THE CONTRACTOR SHALL IMPORT MATERIAL APPROVED BY THE ENGINEER
16. SEWER STUB OUTS SHALL BE CAPPED AND PLUGGED. STUB OUT SHALL BE INDENTIFIED WITH A STEEL FENCE POST BURIED 1' BELOW FINISHED GRADE. AS-BUILT SURVEYING OF STUB OUT REQUIRED PRIOR TO BACKFILL.
17. RED LINE AS-BUILTS SHALL BE SUBMITTED TO THE CITY UTILITY ENGINEER PRIOR TO PAVING FOR REVIEW
18. BENCHMARK IS C-S 1/16 CORNER, SECTION 3



WATER SERVICE CONNECTION TYP.
SCALE 1" = 10'

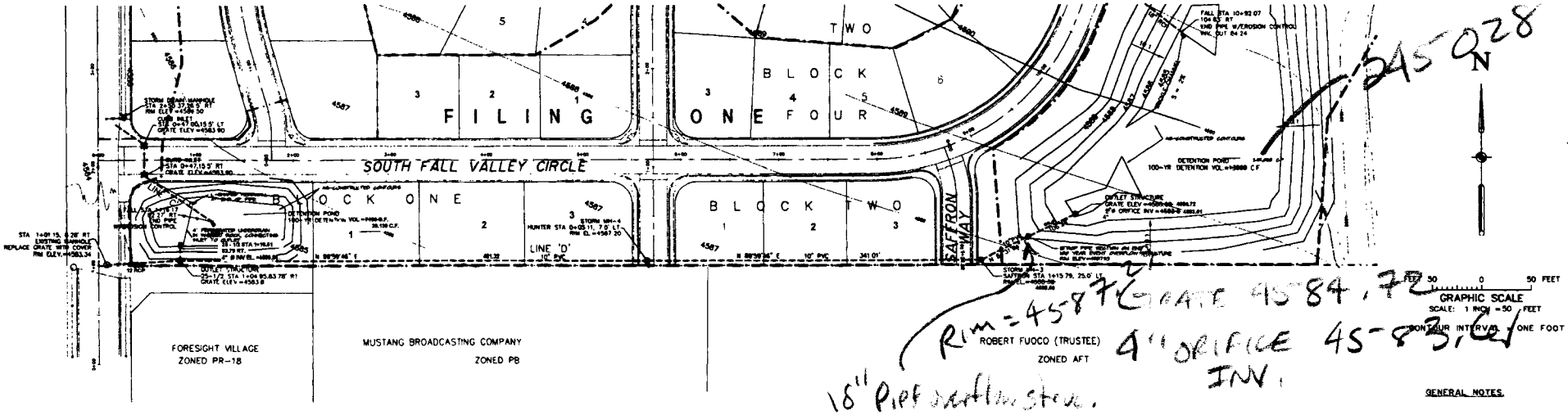
LEGEND

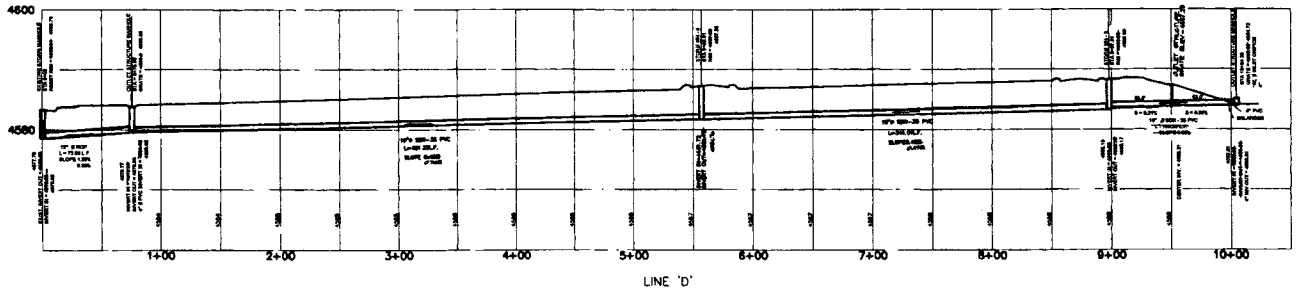
- PROPOSED SANITARY SEWER, MANHOLE AND SERVICE
- PROPOSED WATER LINE, SERVICE AND VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED DROP INLET AND STORM SEWER
- EXISTING 2" WATER LINE
- EXISTING SANITARY SEWER LINE AND MANHOLE
- EXISTING STORM SEWER LINE AND MANOLE
- EXISTING GAS LINE
- EXISTING OVERHEAD POWER LINE

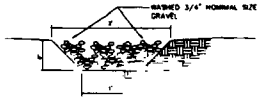
DRAWN BY: R.L.C.	REVIEWED ____ DATE ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO — BANNER — BANNER ASSOCIATES, INC. ● CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD ● GRAND JUNCTION, CO 81506 ● (970) 243-2242	REVISION	DATE	DESCRIPTION	BY	CHD	BILL FITZGERALD — GRAND JUNCTION, COLORADO
CHECKED BY D.E.C.	REVIEWED ____ DATE ____ FOR BANNER ASSOCIATES, INC		1	12/16/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD			FALL VALLEY FILING NO. ONE WATER PLAN - SEWER LINES "C" AND "E" PLAN AND PROFILE

SCALE: Horiz. 1" = 50' Vert. 1" = 10'	Project No 6336
DATE 6-02-97	SHEET No. SW-3

08030404.tif







TRICKLE CHANNEL SECTION
NOT TO SCALE

GENERAL NOTES

1. All storm sewer construction shall conform to the City of Grand Junction Standards and Specifications
2. All storm inlets are to be single grate with curb openings as approved by the City of Grand Junction.
3. Pipe sizing and detention pond capacities are to be as shown on the plans

LEGEND

- PROPOSED STORM DRAIN MANHOLE, PIPE, CURB INLET
- 4587 / 4590 PROPOSED CONTOUR LINES
- PROPOSED STRAW BALE INLET PROTECTION
- PROPOSED STRAW BALE BARRIER
- EXISTING CONTOUR LINES
- PROPOSED 6" COBBLE, 2'x4'x1'DEPTH EROSION CONTROL
- DRAINAGE BASIN BOUNDARY
- FILING ONE BOUNDARY

ENGINEERS STATEMENT

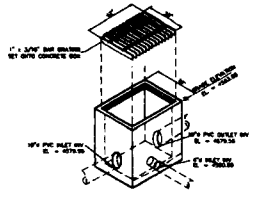
Banner Associates, Inc., provides this CONSTRUCTION DRAWING OF RECORD based on survey information provided by D.H. Survey, Inc collected after installation of improvements. Banner Associates only provided periodic inspection of the improvements as shown on this plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications

Banner Associates, Inc — Date

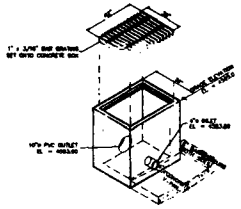
Banner Associates, Inc., has analyzed the volume provided in the construction of the two detention basins and has determined that the volume provided meets the requirements that were approved by the City of Grand Junction for the grading plan and drainage report.

Banner Associates, Inc — Date

CONSTRUCTION DRAWING OF RECORD



CONCRETE OUTLET STRUCTURE
SW DETENTION POND
NOT TO SCALE



CONCRETE OUTLET STRUCTURE
SE DETENTION POND
NOT TO SCALE

APPROVED FOR CONSTRUCTION

CITY OF GRAND JUNCTION — DATE

ACCEPTED AS CONSTRUCTED

CITY OF GRAND JUNCTION — DATE

DRAWN BY	BKR	REVIEWED	
		DATE:	FOR
CHECKED BY	DEC	REVIEWED	
		DATE	FOR BANNER ASSOCIATES, INC

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

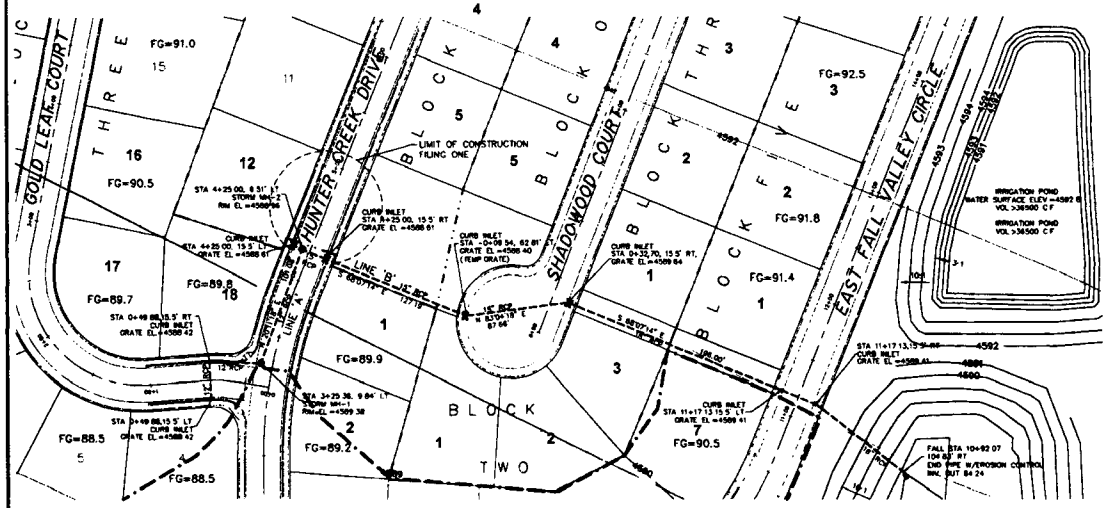
REVISION	DATE	DESCRIPTION	BY	CK'D
1	6/23/97	REVISED PER REVIEW COMMENTS	SGS	DEC
2	7/1/97	REVISED PER REVIEW COMMENTS	BKR	BKR
3	7/3/97	REVISED PER REVIEW COMMENTS	BKR	BKR
4	11/26/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

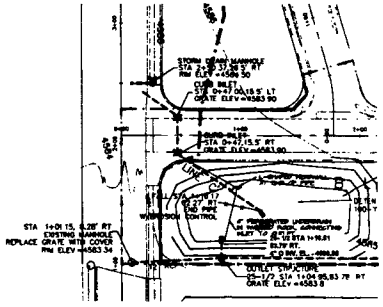
SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

STORM DRAINAGE PLAN AND PROFILE
FALL VALLEY SUBDIVISION, FILING ONE

SCALE: Horiz 1" = 50' / Vert 1" = 10'	Project no. 8336-02
DATE 5/28/97	SHEET NO. D-2

08030405.tif





FEET 50 0 50 FEET

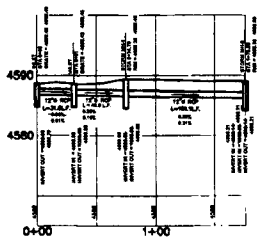
GRAPHIC SCALE

SCALE: 1 INCH = 50 FEET

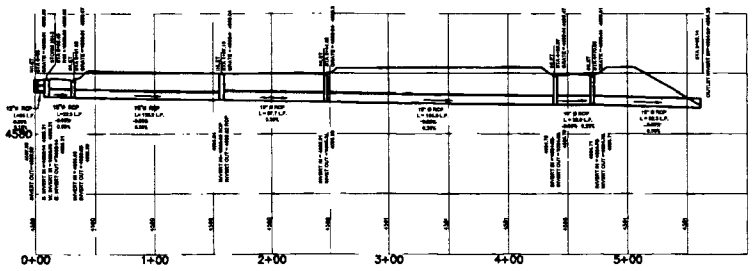
CONTOUR INTERVAL = ONE FOOT

GENERAL NOTES:

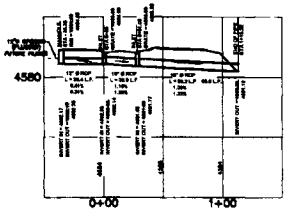
1. All storm sewer construction shall conform to the City of Grand Junction Standards and Specifications.
2. All storm inlets are to be single grate with curb openings as approved by the City of Grand Junction.
3. Pipe sizing and detention pond capacities are to be as shown on the plans.



LINE 'A'



LINE 'B'



LINE 'C'

LEGEND

- PROPOSED STORM DRAIN MANHOLE, PIPE, CURB INLET
- 4587 / 4590 PROPOSED CONTOUR LINES
- PROPOSED STRAW BALE INLET PROTECTION
- PROPOSED STRAW BALE BARRIER
- EXISTING CONTOUR LINES
- PROPOSED 6" COBBLE, 2'x4'x1' DEPTH EROSION CONTROL
- DRAINAGE BASIN BOUNDARY
- FILING ONE BOUNDARY

ENGINEERS STATEMENT

Banner Associates, Inc., provides this CONSTRUCTION DRAWING OF RECORD based on survey information provided by C.H. Surveys, Inc. collected after installation of improvements. Banner Associates only provided periodic inspection of the improvements as shown on this plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc. Date

Banner Associates, Inc., has analyzed the volume provided in the construction of the two detention basins and has determined that the volume provided meets the requirements that were approved by the City of Grand Junction for the grading plan and drainage report.

Banner Associates, Inc. Date

CONSTRUCTION DRAWING OF RECORD

APPROVED FOR CONSTRUCTION

CITY OF GRAND JUNCTION DATE

ACCEPTED AS CONSTRUCTED

CITY OF GRAND JUNCTION DATE

DRAWN BY: BKR
REVIEWED: DATE: FOR
CHECKED BY: DEC
REVIEWED: DATE: FOR BANNER ASSOCIATES, INC

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD
1	6/23/97	REVISED PER REVIEW COMMENTS	SES	DEC
2	7/1/97	REVISED PER REVIEW COMMENTS	BKR	BKR
3	8/18/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

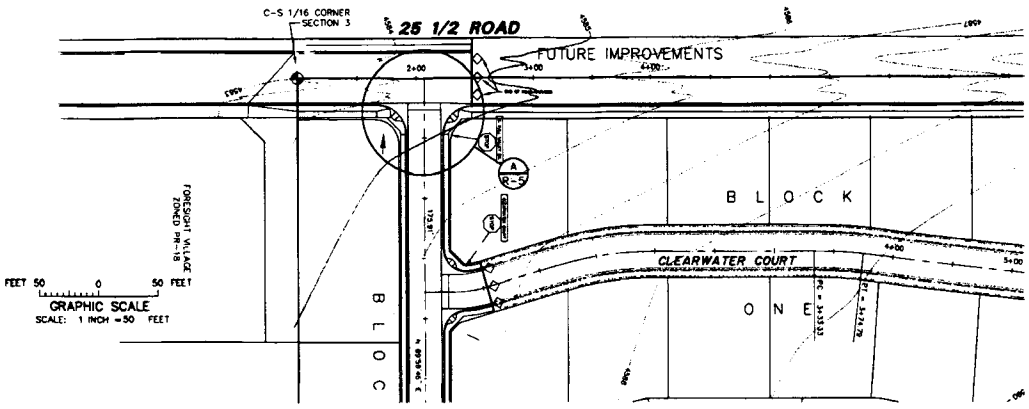
SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

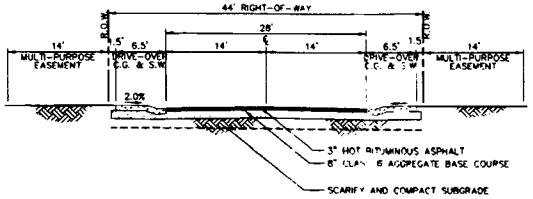
STORM DRAINAGE PLAN AND PROFILE
FALL VALLEY SUBDIVISION, FILING ONE

SCALE: Horiz 1" = 50' Vert 1" = 10'
Project No. 8236-02
DATE: 5/28/97
SHEET No. D-1

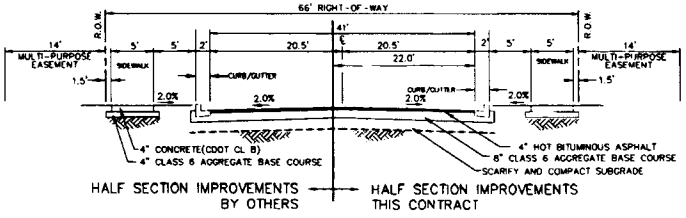
08030406.tif

PUBLIC SERVICE COMPANY OF COLORADO
ZONED PI

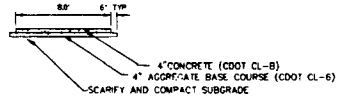




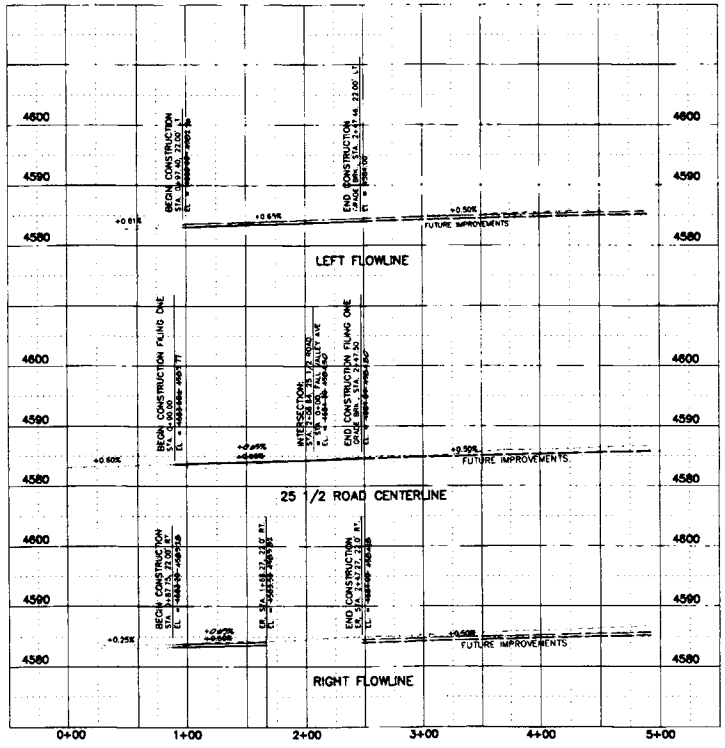
TYPICAL ROADWAY SECTION
(SUBDIVISION INTERIOR)
NOT TO SCALE



TYPICAL ROADWAY SECTION
25-1/2 ROAD
(SOUTH OF FALL VALLEY AVENUE)
NOT TO SCALE



TYPICAL PATHWAY SECTION
NOT TO SCALE



CONSTRUCTION DRAWING OF RECORD

ENGINEERS STATEMENT

Banner Associates, Inc., provides this construction Drawing of Record based on surveying information, by D.M. Surveys, collected after installation of improvements. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc. Date

LEGEND

TRAFFIC SIGN TYPE AND LOCATION

GENERAL NOTES:

1. All street construction shall conform to the City of Grand Junction Standards and Specifications.
2. All materials and workmanship shall be subject to inspection by the City of Grand Junction. The City of Grand Junction reserves the right to accept or reject any such materials and workmanship that does not conform to the City of Grand Junction's Standards and Specifications.
3. The Contractor shall notify the City of Grand Junction 24 hours prior to the beginning of construction.
4. Subgrade and Class 6 base course shall be compacted to 95% (T-99). Contractor shall be required to perform all necessary compaction tests through a certified soils lab
5. Where proposed pavement is to match existing pavement, existing pavement to be square cut for the full base thickness. Existing surface to be tack coated before new asphalt surface is placed. The new asphalt shall match and be flush with existing asphalt edge. No lip or depression will be allowed as tested with a straight edge and shall be repaired by the Contractor if the transition exceeds 1/4 inch per 10 feet tolerance.
6. Contractor to protect existing utilities and appurtenances. Manholes, curb inlets, utility lines, etc., damaged, covered or filled with dirt or debris by the Contractor shall be cleaned and repaired to the City of Grand Junction's standards.
7. The Contractor shall protect the surface of all concrete against weather, traffic, graffiti and similar items. Any concrete damaged for any reason shall be repaired to meet the City of Grand Junction specifications.
8. Any concrete curb and gutter, sidewalk, or crosspan damaged by roller during or prior to paving, will be removed and replaced at Contractor's expense.
9. The finish surface of the asphalt mat must be 1/4" above any adjacent concrete surface.
10. Traffic signs shall comply with Manual of Uniform Traffic Control Devices (M.U.T.C.D.)

DRAWN BY: FJB/DEC	REVIEWED: ____ DATE: ____ FOR: ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER
CHECKED BY: DEC	REVIEWED: ____ DATE: ____ FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. ● CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD ● GRAND JUNCTION, CO 81506 ● (970) 243-2242	

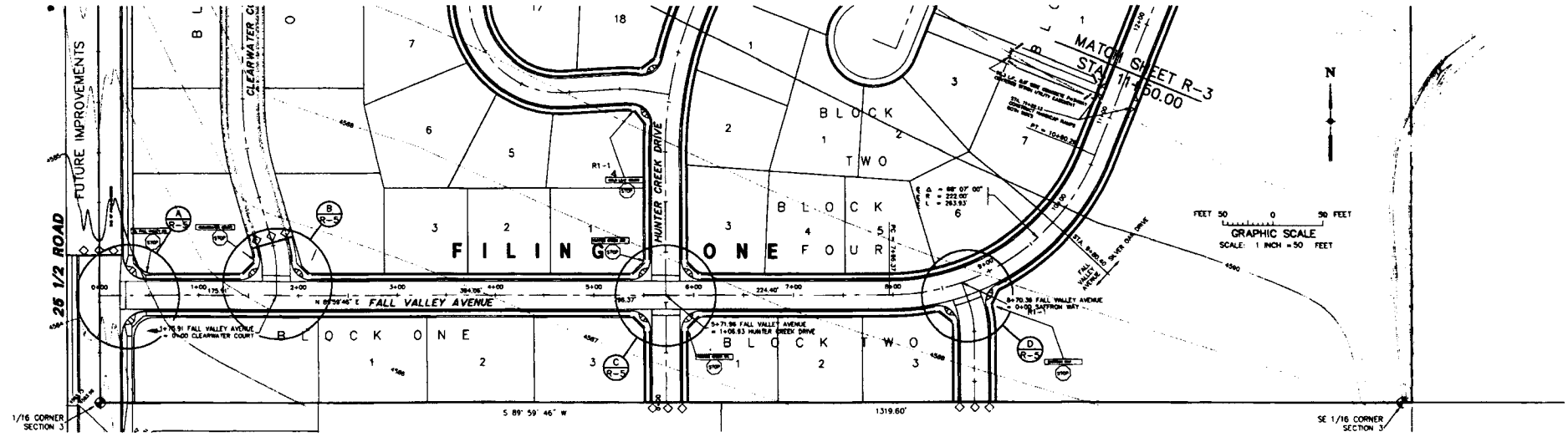
REVISION	DATE	DESCRIPTION	BY	CHD
1.	6/23/97	REVISED PER REVIEW COMMENTS	BKR	BKR
2.	7/3/97	REVISED PER REVIEW COMMENTS	BKR	BKR
3	8/6/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

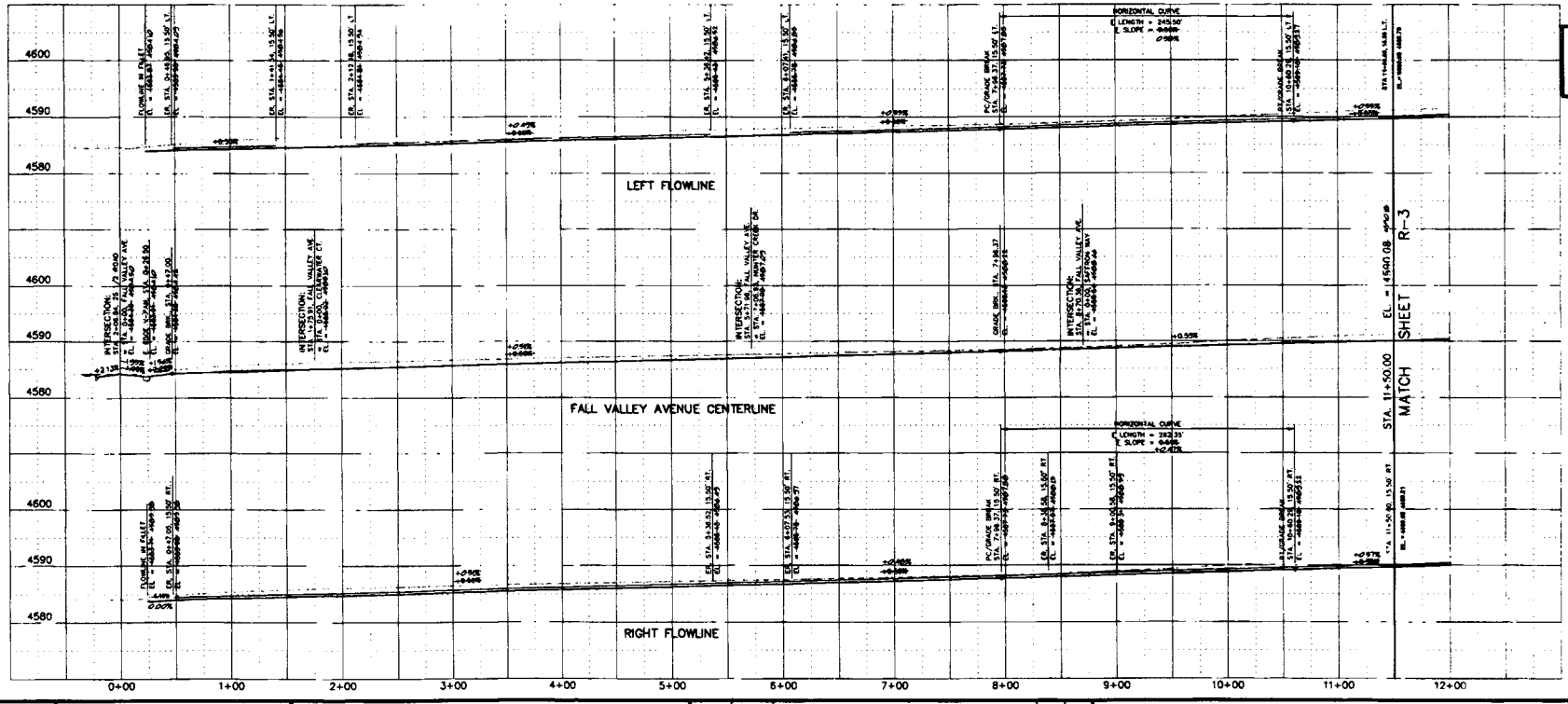
SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

FALL VALLEY SUBDIVISION, FILING ONE
25 1/2 ROAD

SCALE: Horiz. 1" = 50' Vert. 1" = 10'
Project No: 8376-02
DATE: 6-02-97
SHEET No: R-1

08030407.tif





CONSTRUCTION DRAWING OF RECORD

ENGINEERS STATEMENT

Banner Associates, Inc., provides this construction drawing of Record based on surveying information, by D.H. Survey, collected after installation of improvements. Banner Associates Inc., only provided periodic inspection of the improvements as shown on the plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc. Date

DRAWN BY: FJB/DEC	REVIEWED: ____ DATE: ____ FOR: ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER
CHECKED BY: DEC	REVIEWED: ____ DATE: ____ FOR BANNER ASSOCIATES, INC	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242	

REVISION	DATE	DESCRIPTION	BY	CHD
1	6/23/97	REVISED PER REVIEW COMMENTS	BKR	BKR
2	7/3/97	REVISED PER REVIEW COMMENTS	BKR	BKR
3	11/18/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

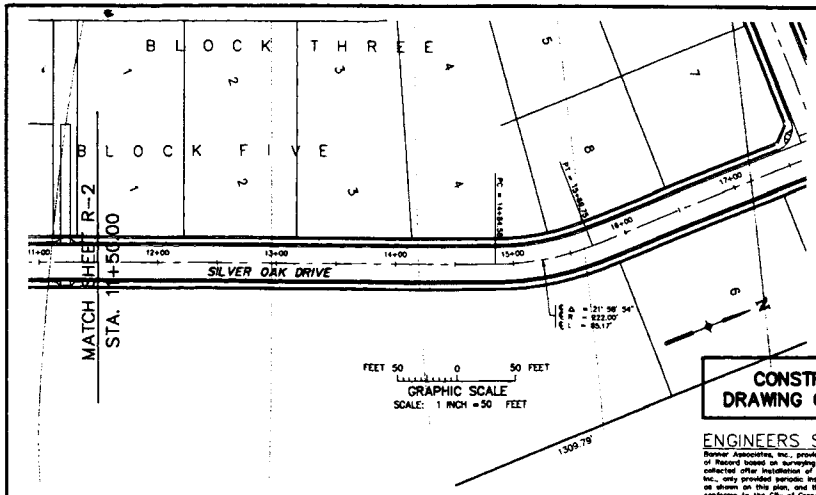
SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

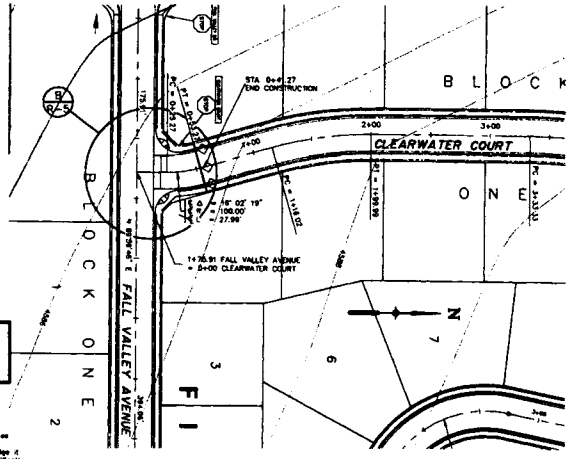
FALL VALLEY SUBDIVISION, FILING ONE
FALL VALLEY AVENUE

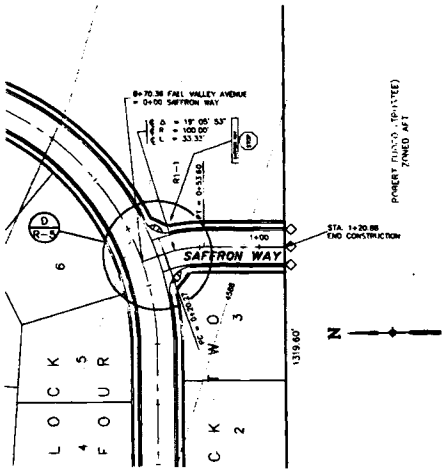
SCALE: Horiz 1" = 50' Vert 1" = 5' — Project No. 8316-02

DATE: 6-02-97 — SHEET P-2

08030408.tif





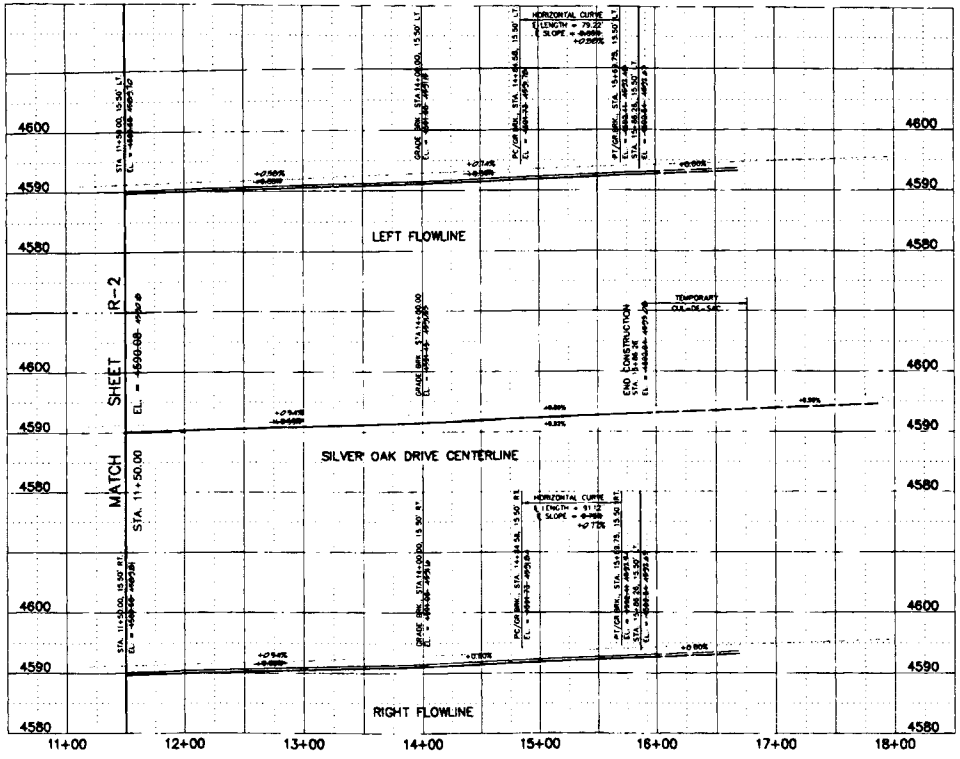


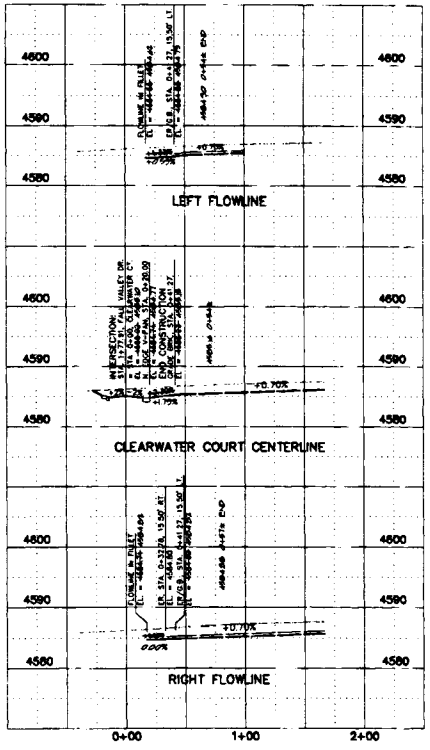
CONSTRUCTION DRAWING OF RECORD

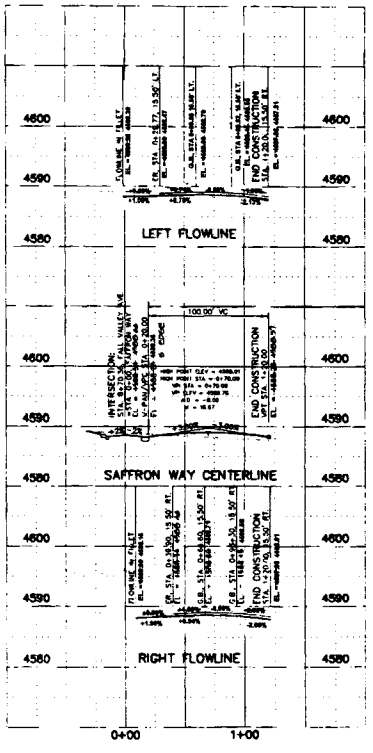
ENGINEERS STATEMENT

Banner Associates, Inc., provides this construction Drawing of Record based on surveying information, by D.N. Survey, collected after installation of improvements. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc. Date







DRAWN BY: FJB/DEC	REVIEWED ____ DATE: ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER
CHECKED BY: DEC	REVIEWED ____ DATE: ____ FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. ● CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD ● GRAND JUNCTION, CO 81506 ● (970) 243-2242	

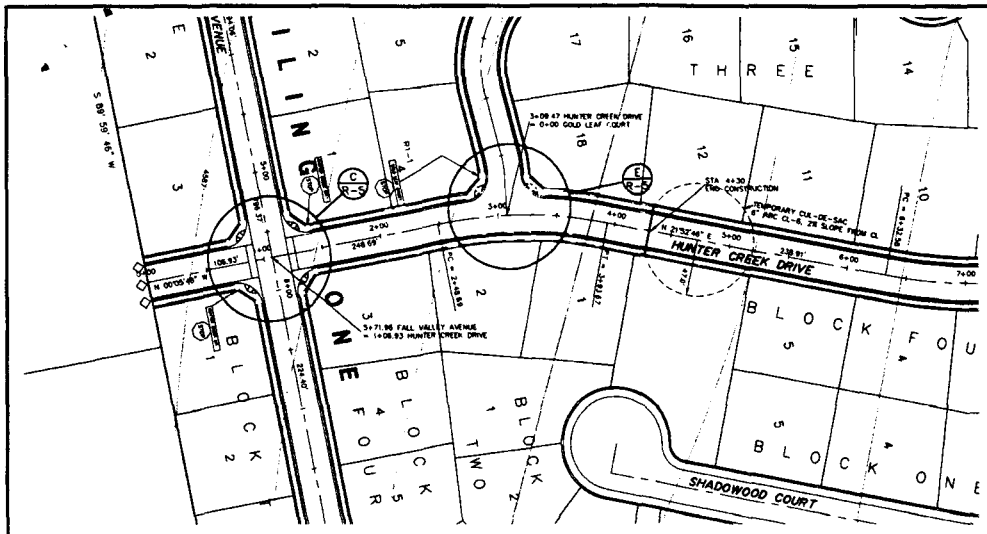
REVISION	DATE	DESCRIPTION	BY	CHD
1.	6/23/97	REVISED PER REVIEW COMMENTS	BKR	BKR
2.	10/8/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

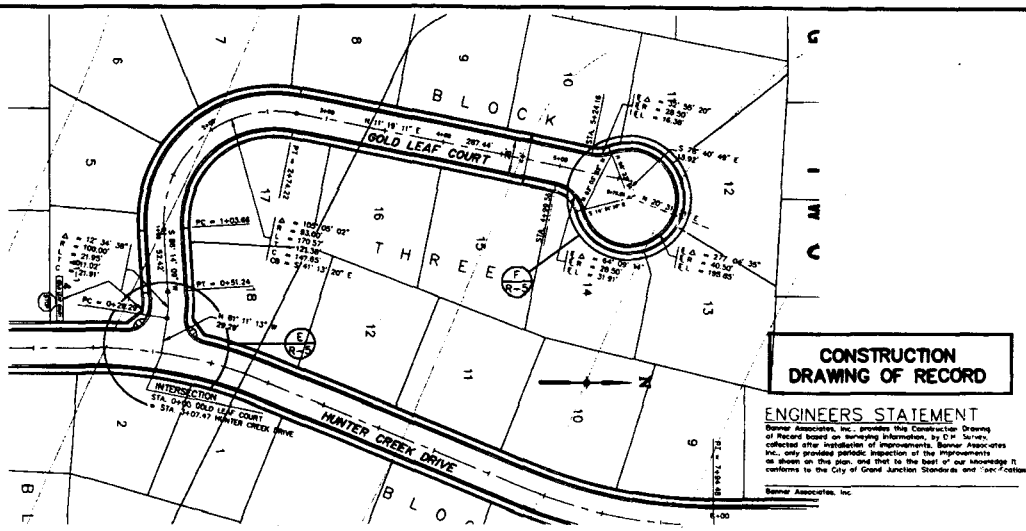
SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

FALL VALLEY SUBDIVISION, FILING ONE
FALL VALLEY AVENUE
CLEARWATER COURT, SAFFRON WAY

SCALE: Horiz. 1" = 50' Vert. 1" = 5'	Drawing No. 8376.02	
DATE: 05-31-97	SHEET No. R-3	

08030409.tif



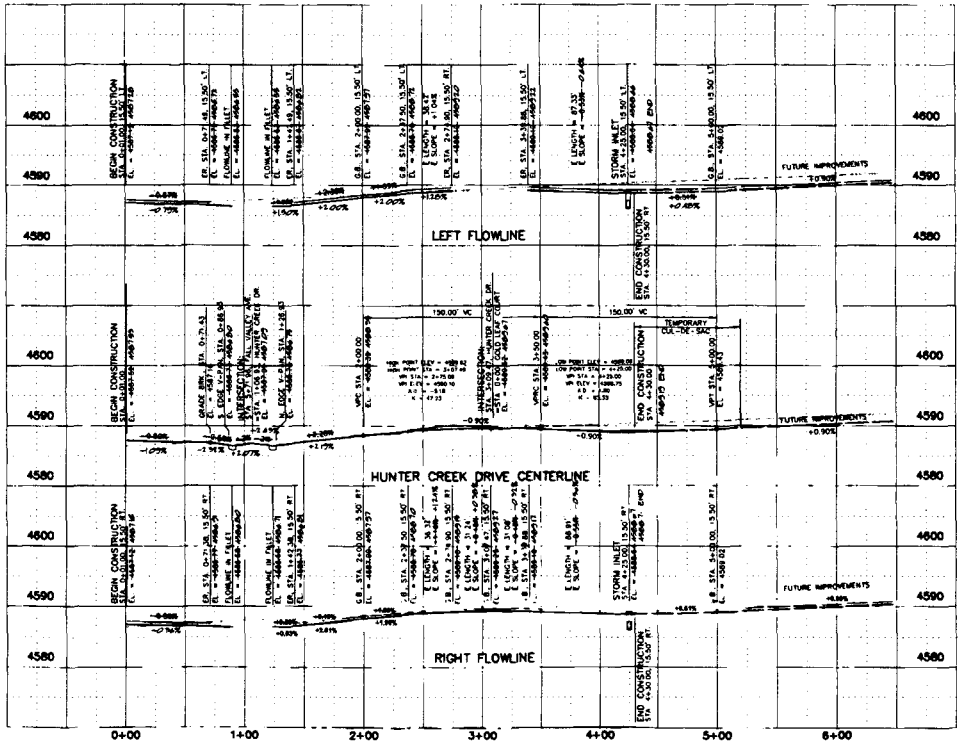


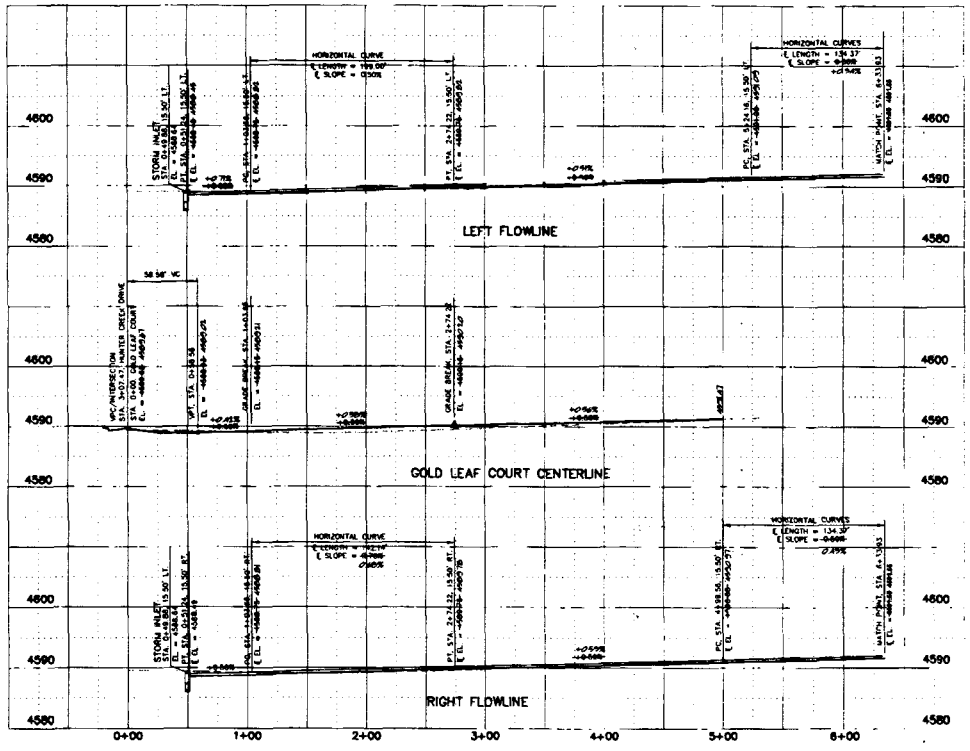
CONSTRUCTION DRAWING OF RECORD

ENGINEERS STATEMENT

Banner Associates, Inc., provides this Construction Drawing of Record based on surveying information, by D.E.C. Surveys, collected after installation of improvements. Banner Associates Inc., only provided periodic inspection of the improvements as shown on this plan, and that to the best of our knowledge it conforms to the City of Grand Junction Standards and Specifications.

Banner Associates, Inc.





DRAWN BY: F.J.B.	REVIEWED DATE: FOR	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER
CHECKED BY: D.E.C.	REVIEWED DATE: FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242	

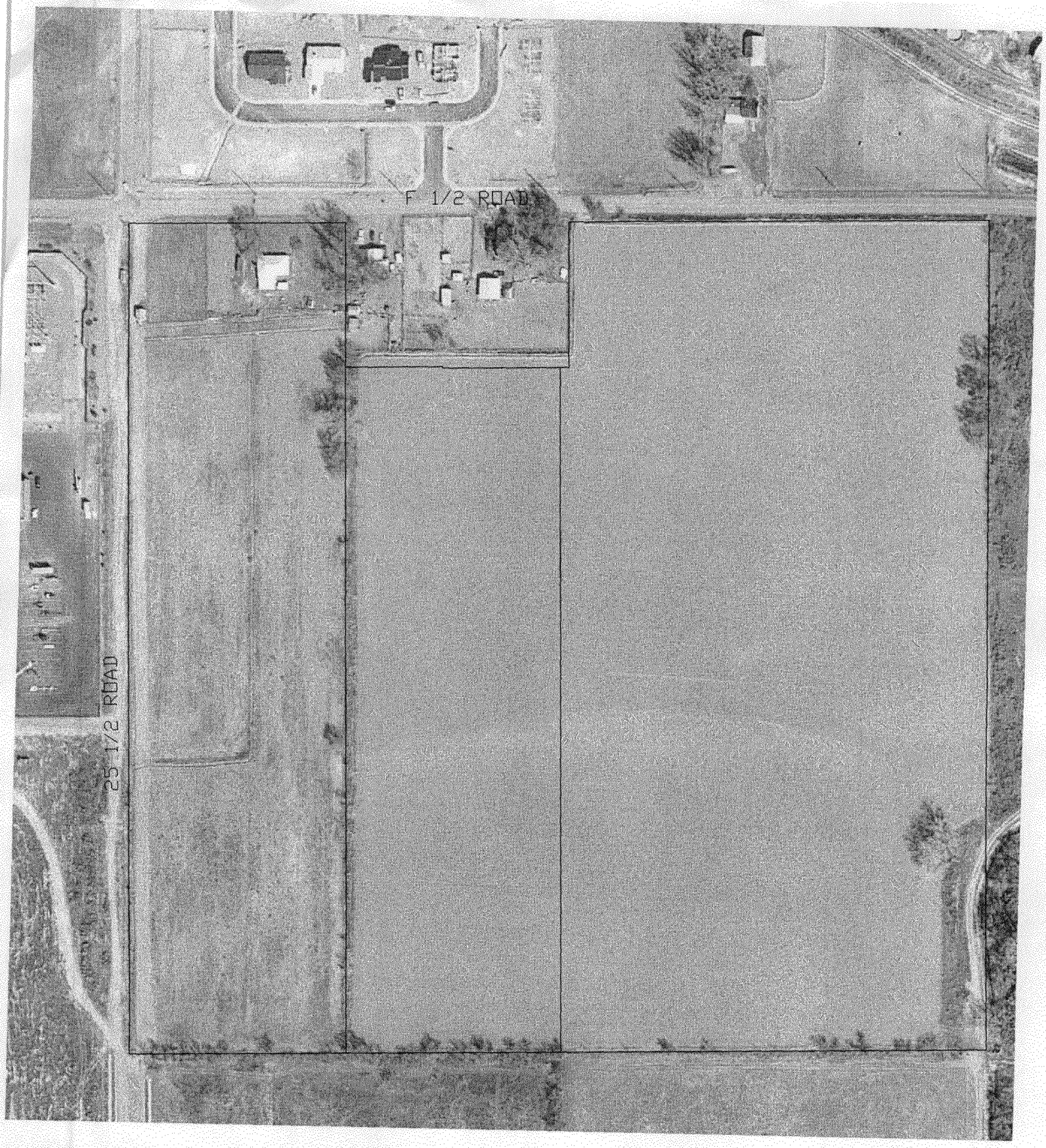
REVISION	DATE	DESCRIPTION	BY	CHD
1.	6/23/97	REVISED PER REVIEW COMMENTS	BKR	BKR
2.	7/1/97	REVISED PER REVIEW COMMENTS	BKR	BKR
3.	11/6/97	REVISED FOR CONSTRUCTION DRAWING OF RECORD	BKR	DEC

SONSHINE CONSTRUCTION, LLC — GRAND JUNCTION, COLORADO

FALL VALLEY SUBDIVISION, FILING ONE
HUNTER CREEK DRIVE & GOLD LEAF COURT

SCALE Horiz: 1" = 50' Vert: 1" = 10'	Project No 8336-02
DATE 6-02-97	SHEET No. R-4

08030410.tif


F 1/2 ROAD
25 1/2 ROAD

TYPE LEGAL DESCRIPTION(S) BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

****

E 1/2 W 1/2 NW 1/4 SE 1/4 of Section 3, Township 1 South, Range 1 West of the Ute Meridian, EXCEPT the North 13.5 rods of the West 9 rods and EXCEPT the North 225 feet of the East 181.5 feet thereof,

AND

E 1/2 NW 1/4 SE 1/4 of Section 3, Township 1 South, Range 1 West of the Ute Meridian, EXCEPT the North 225 feet of the West 12.1 feet thereof,

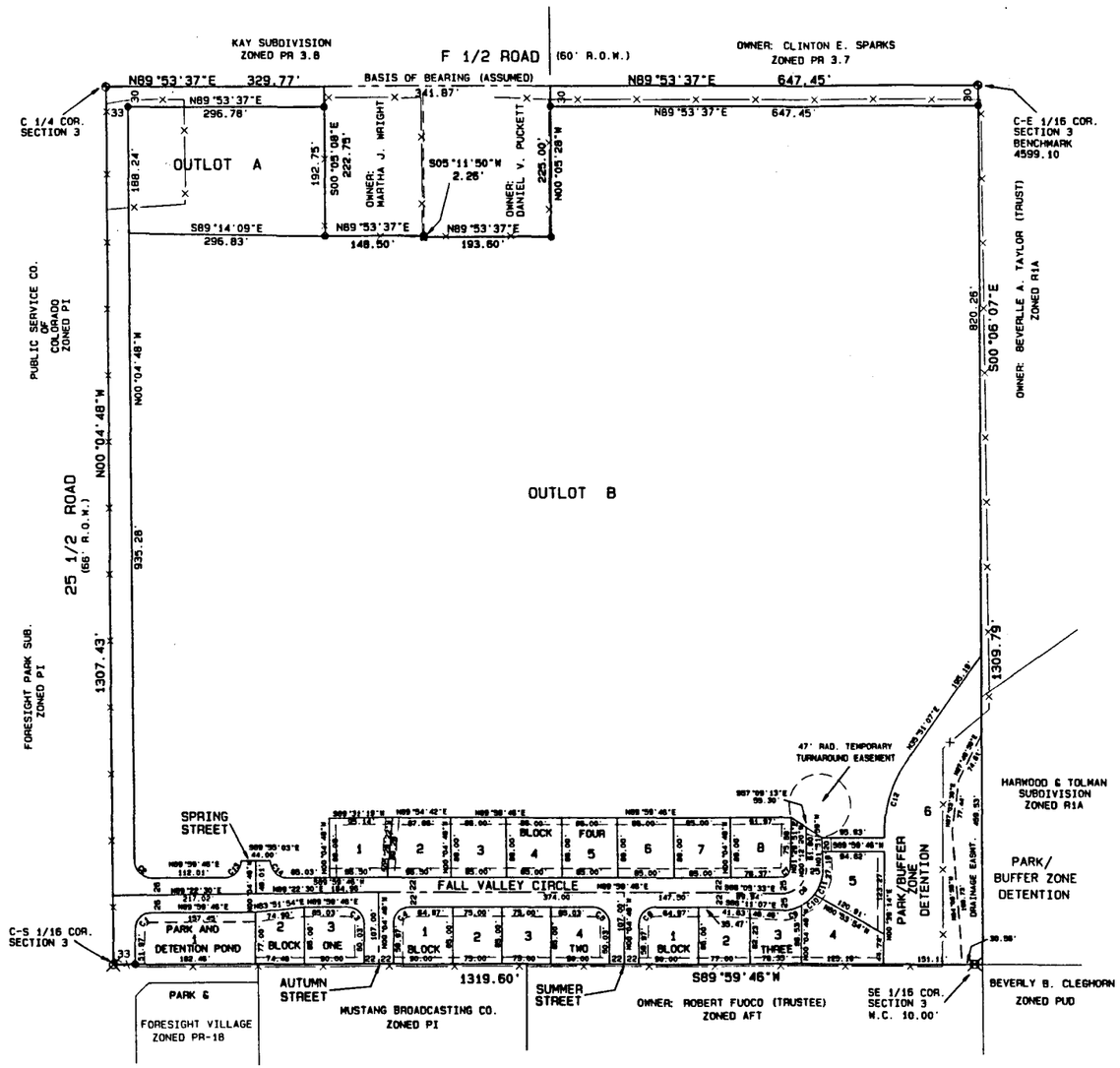
AND

Lots yet to be subdivided in the South 9 acres of the West 1/4 NW¼ SE¼ of Section 3, Township 1 South, Range 1 West of the Ute Meridian,

Mesa County, Colorado.

Continued Next Page

FALL VALLEY - FILING NO. 1



GRAPHIC SCALE 1"=100'
0 100 200 300

AREA SUMMARY

DEDICATED ROADS	2.96 AC. / 8%
PARKS / 2 LOTS	1.58 AC. / 4%
RESIDENTIAL / 19 LOTS	3.37 AC. / 9%
OUTLOTS	30.02 AC. / 79%
TOTAL	= 37.93 AC. / 100%

LEGEND

- MESA COUNTY SURVEY MARKER
- B.L.M. 3 1/4" ALUM. MONUMENT
- FD. 3 1/4" ALUMINUM MONUMENT STAMPED JOHNSON LS 16835
- FD. #5 REBAR W/PLASTIC CAP MARKED N.H.P.Q. LS 2682
- SET #5 REBAR W/2" ALUM. CAP STAMPED D H SURVEYS LS 20677 SET IN CONCRETE

DESCRIPTION OF EASEMENTS

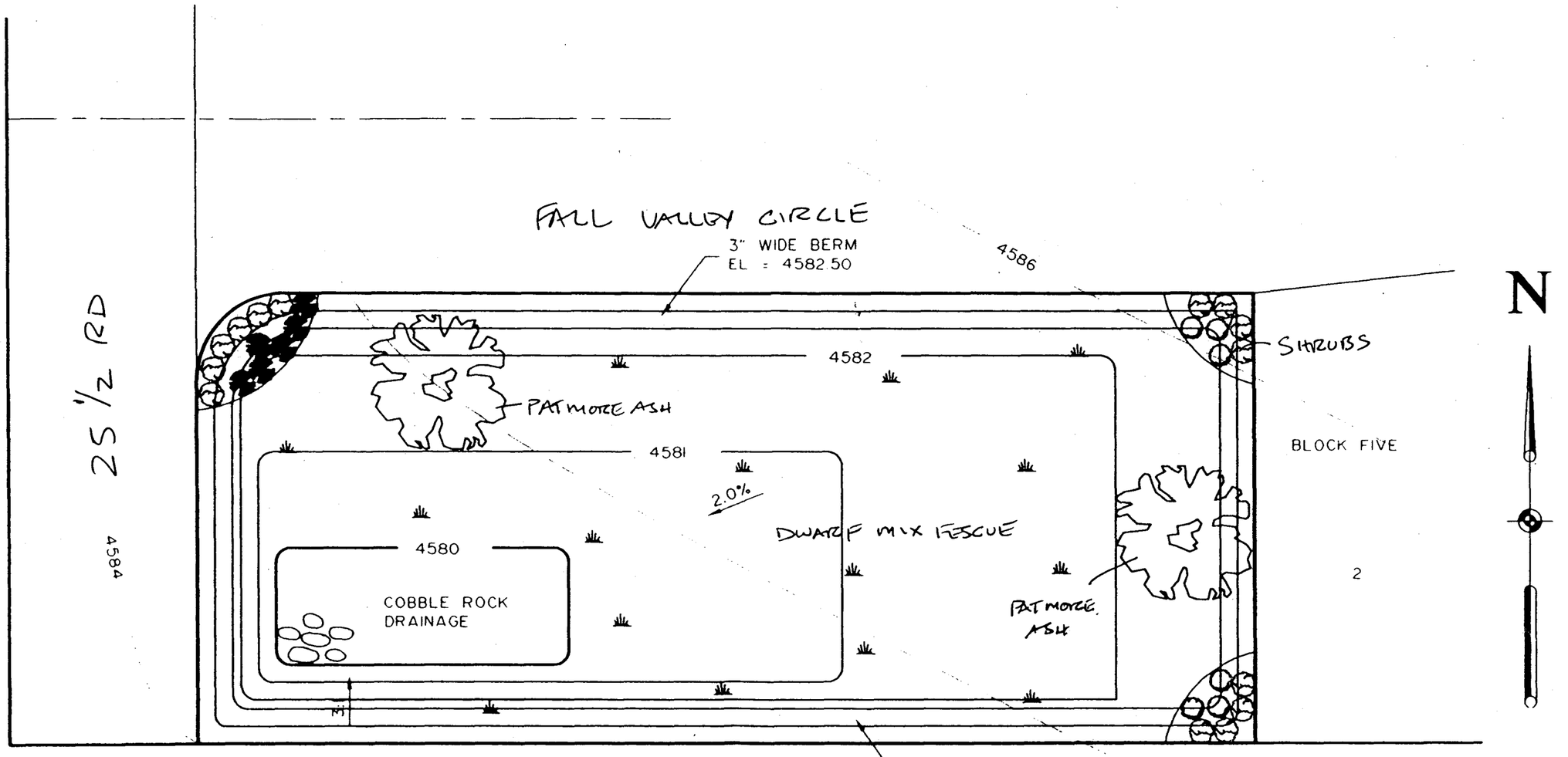
1.) The front of all lots have a 14' multi-purpose easement.
2.) The rear of all lots have a 10' irrigation easement.
3.) There is a drainage easement along the east side of Lot 6, Block 3 as shown.
4.) There is a 20' utility and pedestrian easement between Lots 1 & 2, Block Four, being 10' on each side of the lot line.

SEE SHEET ONE FOR SURVEYOR'S CERTIFICATE

FALL VALLEY
FILING NO. 1
NW 1/4 SE 1/4 SEC. 3, T1S, R1W, U.M.

D H SURVEYS INC.
118 OURAY AVE. - GRAND JUNCTION, CO.
(970) 245-8749

Designed By M.W.D.	Checked By S.L.H.	Job No.	198-96-14
Drawn By TMODEL	Date SEPT. 17, 1996	Sheet	2 OF 2

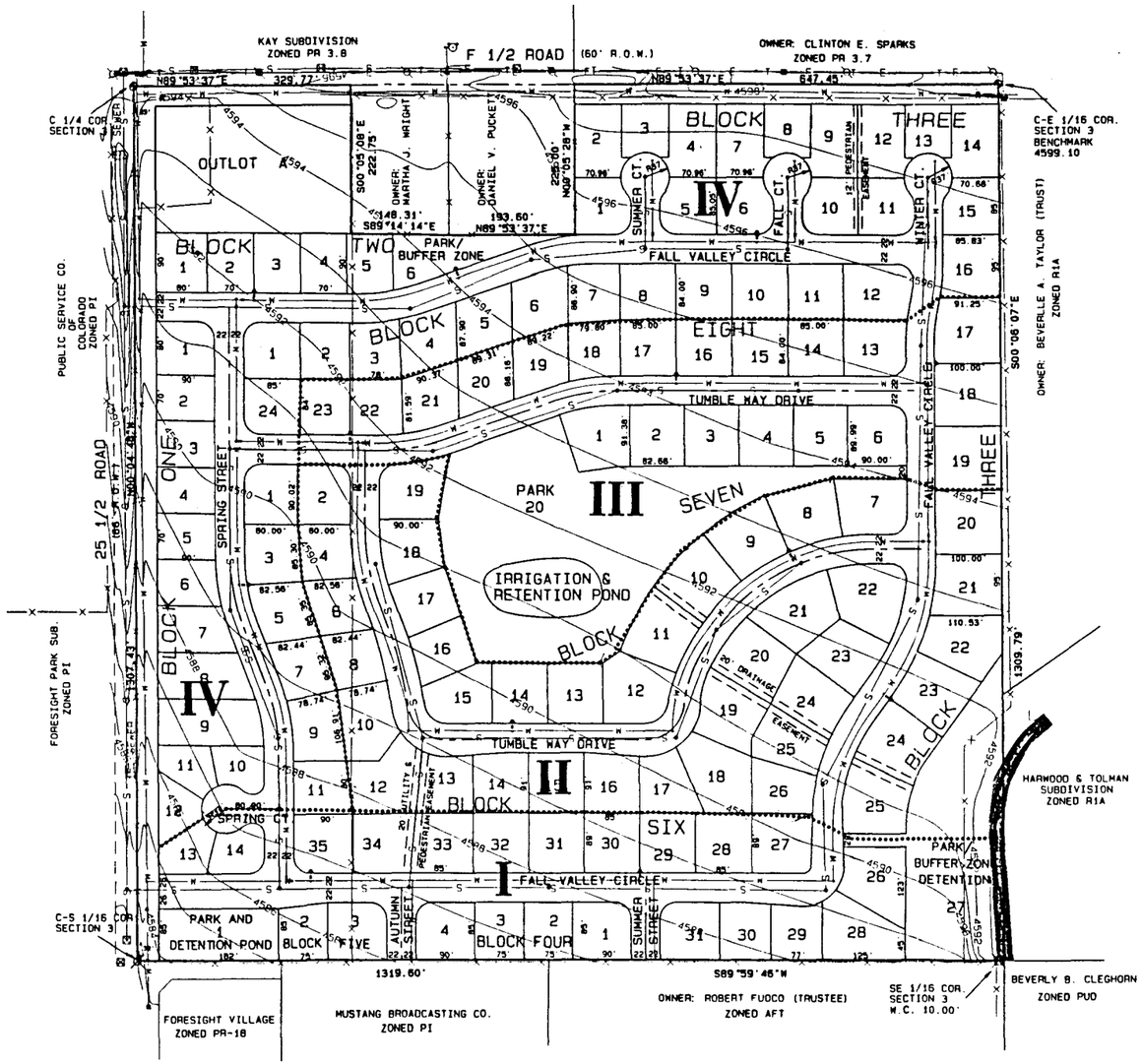


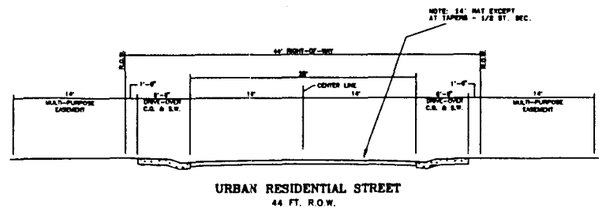
FALL VALLEY - LANDSCAPE PLAN PLAN A
DETENTION POND - LOT 1, BLOCK 1 SCALE: 1" = 20'

DRAWN BY: F.J.B.	REVIEWED _____ DATE: _____ FOR _____	AMERICAN CONSULTING ENGINEERS COUNCIL *of COLORADO*
DESIGNED BY: D.J.H.		BANNER ASSOCIATES, INC. ● CONSULTING ENGINEERS & SURVEYORS
CHECKED BY: D.J.H.	REVIEWED _____ DATE: _____ FOR BANNER ASSOCIATES, INC.	2777 CROSSROADS BOULEVARD ● GRAND JUNCTION, CO 81506 ● (970) 243-2242 605 E. MAIN ● SUITE 6 ● ASPEN, CO 81611 ● (970) 925-5857

REVISION	DATE	

FALL VALLEY
PRELIMINARY PLAN





URBAN RESIDENTIAL STREET
44 FT. R.O.W.

AREA SUMMARY

DEDICATED ROADS	7.13 AC. / 18.8%
PARKS / 4 LOTS	4.56 AC. / 12.0%
RESIDENTIAL / 134 LOTS	26.24 AC. / 69.2%
TOTAL	= 37.93 AC. / 100%
DENSITY	= 3.5 UNITS / AC.

EASEMENTS

THERE WILL BE A 14' MULTI-PURPOSE EASEMENT ALONG ALL LOTS THAT FRONT ON DEDICATED STREETS

THERE WILL BE A 10' IRRIGATION EASEMENT ALONG THE REAR OF ALL LOTS

UTILITIES

THE NEW SEWER AND WATER LINES WILL BE 8" LINES

UTILITY VENDORS

PUBLIC SERVICE
UTE WATER
CITY OF G.J. SEWER
GRAND VALLEY IRRIG. CO.
TCI CABLEVISION
U.S. WEST

LEGEND

—E— ELECTRIC LINE
—S—S— SANITARY SEWER
—G— GAS LINE
—T— TELEPHONE LINE
—W— WATER LINE
—X— FENCE LINE
I PHASING LIMITS

N

GRAPHIC SCALE 1"=100'
0 100 200 300

CONTOUR INTERVAL = 1 FOOT

FALL VALLEY
PRELIMINARY PLAN
LOCATED IN THE
NW 1/4 SE 1/4, SEC. 3, T1S, R1W, U.M.

D H SURVEYS INC.
118 OURAY AVE. - GRAND JUNCTION, CO.
(970) 245-8749

Designed By M.W.D.	Checked By S.L.H.	Job No.	198-96-14
Drawn By TMODEL	Date AUGUST 1996	Sheet	1 OF 3