

Table of Contents

File FP-1996-117

Name: Dawn Subdivision – Final Plan – S. of Hawthorne Avenue / E. of 28 Rd.

P **S** A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS
r **c** retrieval system. In some instances, items are found on the list but are not present in the scanned electronic development
e **a** file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will
s **n** be found on the ISYS query system in their designated categories.
e **e** Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page.
n **d** Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for
t **d** the contents of each file.

X	X	Table of Contents
		*Review Sheet Summary
X	X	*Application form
X		Review Sheets
X		Receipts for fees paid for anything
		*Submittal checklist
		*General project report
		Reduced copy of final plans or drawings
		Reduction of assessor's map.
X		Evidence of title, deeds, easements
X	X	*Mailing list to adjacent property owners
X		Public notice cards
X		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)
X		Other bound or non-bound reports
		Traffic studies
X	X	*Review Comments
X	X	*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	Final Inspection Checklist Subdivision – 6/3/97
X	X	Planning Commission Minutes – 6/11/96, 6/13/96 - **	X	X	State of CO – Dept. of State – Certification – Bk 2248 / Pg 891 – 7/12/96
X	X	City Council Minutes – 6/19/96 - **	X	X	Certification of Plat – 7/26/96 -
X	X	Development Improvement Agreement – Bk 2252 / Pg 24-41- **	X	X	Ordinance 2924 – Bk 2244 / Pg 573 - **
X	X	3 Agencies Entrenched in Mighty Ditch Battle- Daily Sentinel newspaper article – 6/30/96	X	X	Avigation Easement – BK 2252 / Pg 14 – sent to Walker Field Airport Authority – copy for file
X	X	Geotechnical Investigation – 3/29/96	X		Declaration of Covenants, Conditions and Restrictions – Bk 2252 / pg 16
X		Final Drainage Report – 5/1/96	X		Warranty Deed – Bk 2268 / Pg 839
X		Request for Treasurer's Certificate of Taxes Due – 3/29/96			Composite Plan
X		Commitment for Title Ins. – 1/29/96	X	X	Release of Improvements – Bk 2390 / Pg 872 - ** - sent to City Clerk
X	X	Construction Standards for Excavations – CO Contractors Assoc.	X	X	Final Plan-also scanned in GIS Historical Records-**
X		Statutory Deed – Bk 2237 / Pg 936	X		Stormwater Management Plan – 5/1/96



DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(303) 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
<input checked="" type="checkbox"/> Subdivision Plat/Plan	<input type="checkbox"/> Minor <input checked="" type="checkbox"/> Major <input type="checkbox"/> Resub	8.7	East 28 Rd. S of Hawthorne	RSF-4	Residential
<input type="checkbox"/> Rezone				From: To:	
<input type="checkbox"/> Planned Development	<input type="checkbox"/> ODP <input type="checkbox"/> Prelim <input type="checkbox"/> Final				
<input type="checkbox"/> Conditional Use					
<input type="checkbox"/> Zone of Annex					
<input type="checkbox"/> Variance					
<input type="checkbox"/> Special Use					
<input type="checkbox"/> Vacation					<input type="checkbox"/> Right-of Way <input type="checkbox"/> Easement
<input type="checkbox"/> Revocable Permit					

<input type="checkbox"/> PROPERTY OWNER	<input type="checkbox"/> DEVELOPER	<input type="checkbox"/> REPRESENTATIVE
<u>First Church Of Nazarene</u>	<u>John Davis</u>	<u>Wayne Lizer</u>
Name	Name	Name
<u>1009 N.9 #8</u>	<u>1023-24 Road</u>	<u>576-25 Road</u>
Address	Address	Address
<u>Grand Junction, CO. 81501</u>	<u>Grand Jct. Colo. 81505</u>	<u>Grand Jct. Colo. 81501</u>
City/State/Zip	City/State/Zip	City/State/Zip
<u>970-245-3125</u>	<u>970-250-0720</u>	<u>970-241-1129</u>
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.

John Davis Signature of Person Completing Application 3-29-96 Date

Carl W. Smith Signature of Property Owner(s) - attach additional sheets if necessary 3/28/96 Date

2943-063-00-037 B & G INVESTMENTS ETAL 274 VALLEY VISTA WAY DURANGO, CO 81301	2943-063-00-089 FIRST CHURCH OF THE NAZARENE OF GJ 1000 N 9TH ST STE 8 GRAND JUNCTION, CO 81501-3107	2943-063-00-945 CITY OF GRAND JUNCTION 250 N 5TH ST GRAND JUNCTION, CO 81501-2628
2943-063-18-001 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953	2943-063-18-002 DWAIN MCCLELLAND 3321 C RD PALISADE, CO 81526-9531	2943-063-18-003 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953
2945-014-09-044 JAMES A BELGARD KATHLEEN M 2531 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6047	2945-014-09-045 GARY T SIESS DEANNA F SIESS 2533 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6047	2945-014-09-044 JAMES A BELGARD KATHLEEN M 2531 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6047
2945-014-22-001 KEITH BOUGHTON JANET L 2961 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6048	2945-014-22-002 ROBERT L POOLE PATRICIA L 2945 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6048	2945-014-22-003 SCOTT L ROMAGER 2939 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6048
2945-014-22-004 JOY R KOSTA MARY ANN 2929 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6048	2945-014-22-005 MILO L COLTON GARNET G 2530 PHEASANT RUN CIR GRAND JUNCTION, CO 81506-6046	2945-014-23-002 ROGER L FISCHER KAREN L FISCHER 2624 HAWTHORNE AVE GRAND JUNCTION, CO 81506-4872
2945-014-23-003 JOHN J KAMMERER JANEEN ANN 2714 HAWTHORNE AVE GRAND JUNCTION, CO 81506-4886	2943-063-17-003 HARRY R MCGUINNESS SHIRLEY A 590 EASTWOOD ST GRAND JUNCTION, CO 81504	2943-063-15-001 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953
2943-063-15-002 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953	2943-063-16-001 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953	2943-063-16-002 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953
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2943-063-17-006 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953	2943-063-17-007 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953	2943-063-17-008 DONADA INC 634 AVALON DR GRAND JUNCTION, CO 81504-6953
2943-063-17-005 SKELTON CONSTRUCTION INC 706 IVY PL GRAND JUNCTION, CO 81506	2943-063-15-003 SKELTON CONSTRUCTION INC 706 IVY PL GRAND JUNCTION, CO 81506-8341	2943-063-17-002 JEFFREY M MCCLELLAND BOBBIE J MCCLELLAND 3351 C RD PALISADE, CO 81526-9533

2945-014-09-028
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2945-014-09-031
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2945-014-09-021
ALVIN E KNOLL
CHARLENE K
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2945-014-09-024
EARL LESTER ELICKER
JIMI BETH N
2950 PHEASANT RUN CIR
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2945-014-09-027
HAROLD E KENNEDY
MARGARET L
2960 PHEASANT RUN CIR
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2945-014-09-029
RICHARD L HITTLE
VICKEY L
2615 HAWTHORNE AVE
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2945-014-09-019
ARTHUR GARCIA
PATRICIA ANNE
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2945-014-09-022
MATTHEW J CARSON
DIANA MACGUIRE CARSON
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First Church of Nazarene
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250 N 5th Street
Grand Junction, CO 81501

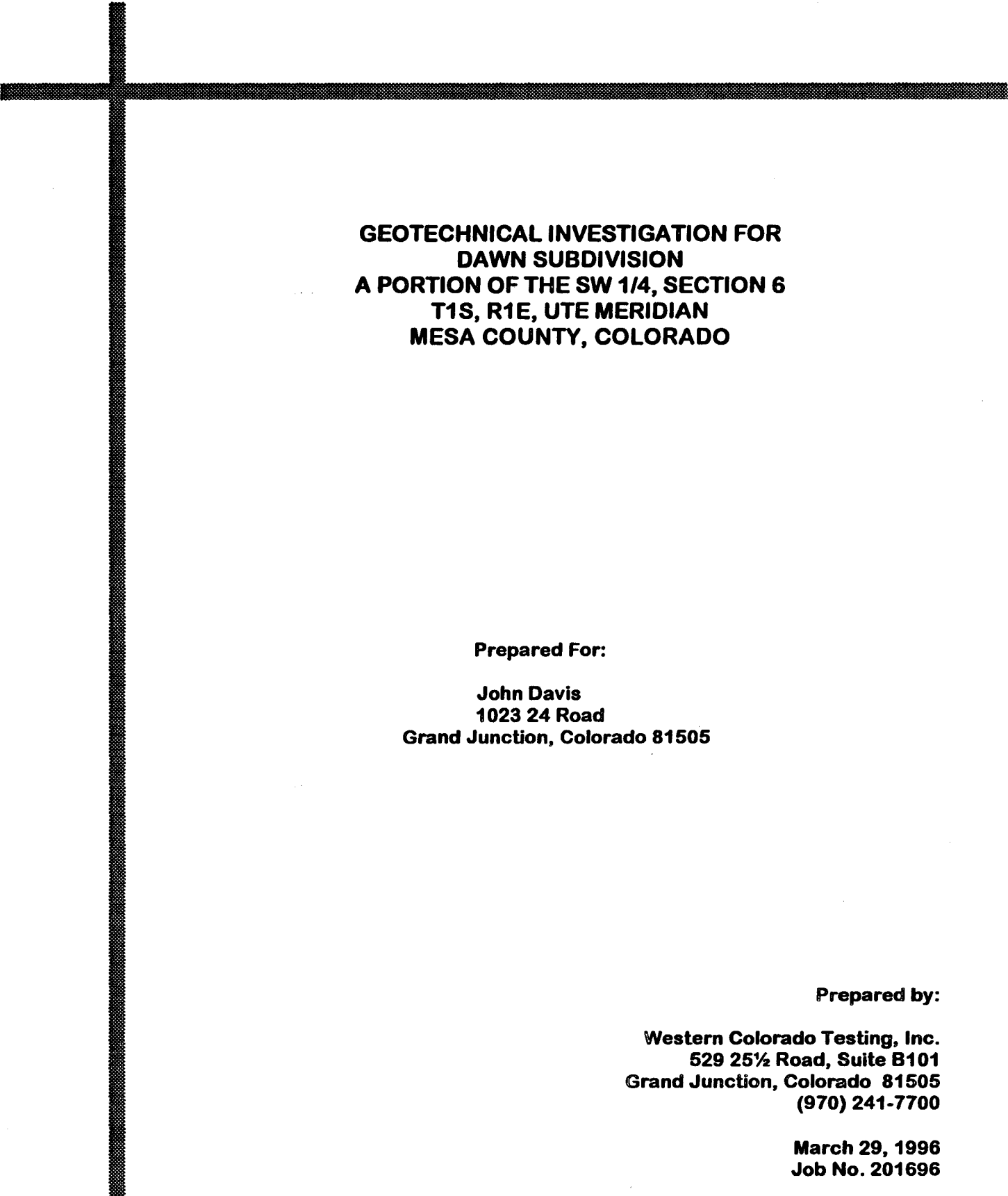
2945-014-09-030
JARREL R DOUDY
VIOLET R
2625 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4873

2945-014-09-020
HAROLD G LYLE
DOROTHY R
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2945-014-09-023
MARK R LUFF
BRENN D
2944 PHEASANT RUN CIR
GRAND JUNCTION, CO 81506-4891

2945-014-09-026
GRAIG L BURDETTE
CYNTHIA M
2958 PHEASANT RUN CIR
GRAND JUNCTION, CO 81506-4891

John Davis
1023 24 Road
Grand Junction, CO 81505



**GEOTECHNICAL INVESTIGATION FOR
DAWN SUBDIVISION
A PORTION OF THE SW 1/4, SECTION 6
T1S, R1E, 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**

**March 29, 1996
Job No. 201696**



**WESTERN
COLORADO
TESTING,
INC.**

**GEOTECHNICAL INVESTIGATION FOR
DAWN SUBDIVISION
A PORTION OF THE SW 1/4, SECTION 6
T1S, R1E, UTE MERIDIAN
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TABLE OF CONTENTS

	Page
Introduction	1
Site Conditions	2
Proposed Construction	2
Field Exploration	3
Laboratory Testing	3
Subsurface Conditions	4
Conclusions And Recommendations	4
Foundations	4
Floor Slabs	6
Perimeter Drain System	8
Surface Drainage and Landscaping	8
Street Pavements	9
General	11
	Appendix
Test Pit Location Plan	Figure 1
Test Pit Logs	Figures 2-5
Physical Properties of Soil	Figure 6
Swell Consolidation Test	Figures 7-8
R-value	Figure 9
Summary Of Soil Tests	Figure 10

INTRODUCTION

This report presents the results of the geotechnical investigation performed at the site a proposed approximate 8.7 ± acre subdivision to be in a portion of the southwest quarter of Section 6, Township 1 South, Range 1 east of Ute Meridian, Mesa County, Colorado. This investigation was authorized by Mr. John Davis on March 8, 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 native grasses and brush. The site shows signs of having been farmland in the past. The site is relatively level with a slight slope to the south. Along the north side of the site is an approximately 3 foot high windrow of soil that had been excavated from the 8 foot deep irrigation ditch. Beyond the irrigation ditch are new residences being constructed. To the west of the site is an 8 foot deep irrigation ditch followed by 28 Road. To the east is a 2 foot deep irrigation ditch followed by vacant pasture land. The 2 foot deep irrigation ditch and the one foot irrigation ditch along the south side appear to be old and no longer in use. The land to the south has been cut down 3 to 4 feet, along the property line, and has a church with a paved parking lot. 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 34 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.

FIELD EXPLORATION

The field investigation was conducted on March 15, 1996. The exploratory program consisted of four (4) test pits, as shown on the Test Pit Location Plan (Appendix, Figure 1). Test pits were located in the field by measuring distances from features shown on the Test Pit Location Plan. The location of the test pits should be considered accurate only to the degree implied by the method used. The test pits were excavated to depths ranging from approximately 8 to 10 feet.

Soil samples were obtained at the sampling intervals shown on the Test Pit Logs (Appendix, Figures 2 through 5). 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 5. 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 5, the subsurface conditions encountered at the site are fairly uniform. Generally, the soils encountered in the test pits consisted of 10 to 11 inches of topsoil over a silty clay with some fine grained sand. 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 to very stiff in the upper portion of the test pits. Generally, the clays became moist and medium stiff at about 2 1/2 to 5 feet and very moist and soft below approximately 5 feet. The clayey soils extended to the maximum depth explored, 8 to 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. Habitable space construction below grade is not recommended for this site due to the very moist to wet conditions that exist at deeper depths. It is anticipated that the ground water table may fluctuate when the large irrigation ditches on the north and west are being used.

Two samples were tested to determine the swell-consolidation potential of the soils. One sample indicated a low swell potential while the other a moderate collapsible characteristic. The soils are dry to slightly moist and depending on the clay content the soils will have either swell or collapsible characteristics. Since the soils are lensatic with erratic shrink-swell potential, and to reduce the risk of foundation movement, we recommend the soils be overexcavated to a minimum depth of 18 inches, moisture conditioned and replaced with structural fill.

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

- Footings placed on the new structural fill should be designed for allowable soil bearing pressures on the order of 1500 to 2000 pounds per square foot. All footings should be proportioned as much as practicable to minimize differential settlement.
- Structural fill placed for support of footings should consist of a granular, non-expansive, non-free draining, material compacted to a minimum 98% of the maximum Standard Proctor density (ASTM D-698) at a moisture content (\pm) 2% of optimum. Structural fill should extend down from the bottom of the footings at a one horizontal to one vertical projection. The existing sandy clay material, below the topsoil, can be used as structural fill.
- 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 98% 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

Due to the shrink-swell potential of the clay soils encountered, crawl space type construction is recommended. However, if slab-on-grade construction is desired the owner/builder must recognize the

risk of distress resulting from slab movement. Slabs placed on or near the shrink-swell potential clays could experience movement if the clay is subjected to moisture changes. Thus, the following precautions are provided 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. Due to the potential of differential slab movement, we recommend the floor slabs be reinforced with welded wire mesh positioned midway in the slabs.
- 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 to depths of 8 to 10 feet; however, the soils were very moist to wet below a depth of 5 feet and the water table is anticipated to fluctuate near the large irrigation ditches. 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 subdivision streets and the additional lane along 28 Road are used for local residential traffic. Traffic counts were provided on 28 Road by the City of Grand Junction. The count was performed in March 1995 and is for both directions. The average daily traffic count provided was 1668 vehicles per day. Upgrading the count to 1996, adjusting for only the north bound direction and including construction traffic the design ADT equals 938.

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 15. 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	S _o	M _R	ΔPSI	ESAL/ mil	SN		HPB	ABC	ASC	TOTAL
Subdivision Streets	80	0.44	4195	2.5	0.056	2.40	A	5			5
							B*	3	10		13
							C*	3	6	5 1/2	14 1/2
Extra Lane along 28 Road	90	0.44	4195	2.5	1.10	2.85	A	6 1/2			6 1/2
							B	3	11		14
							C	3	6	7	16

* Minimum required section by the City of Grand Junction

R - Reliability, %

S_o - Deviation

M_R - Resilient Modulus (psi)

Δ PSI - Serviceability Loss

ESAL/MIL - Equivalent Single Axle Load
(million)

SN - 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.

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 four(4) 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.



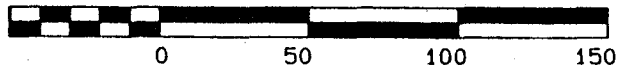
Gary L. Hamacher, P.E.
Senior Geotechnical Engineer

GLH/cc
msa:2016rep.doc



APPENDIX

GRAPHIC SCALE



DAWN SUBDIVISION

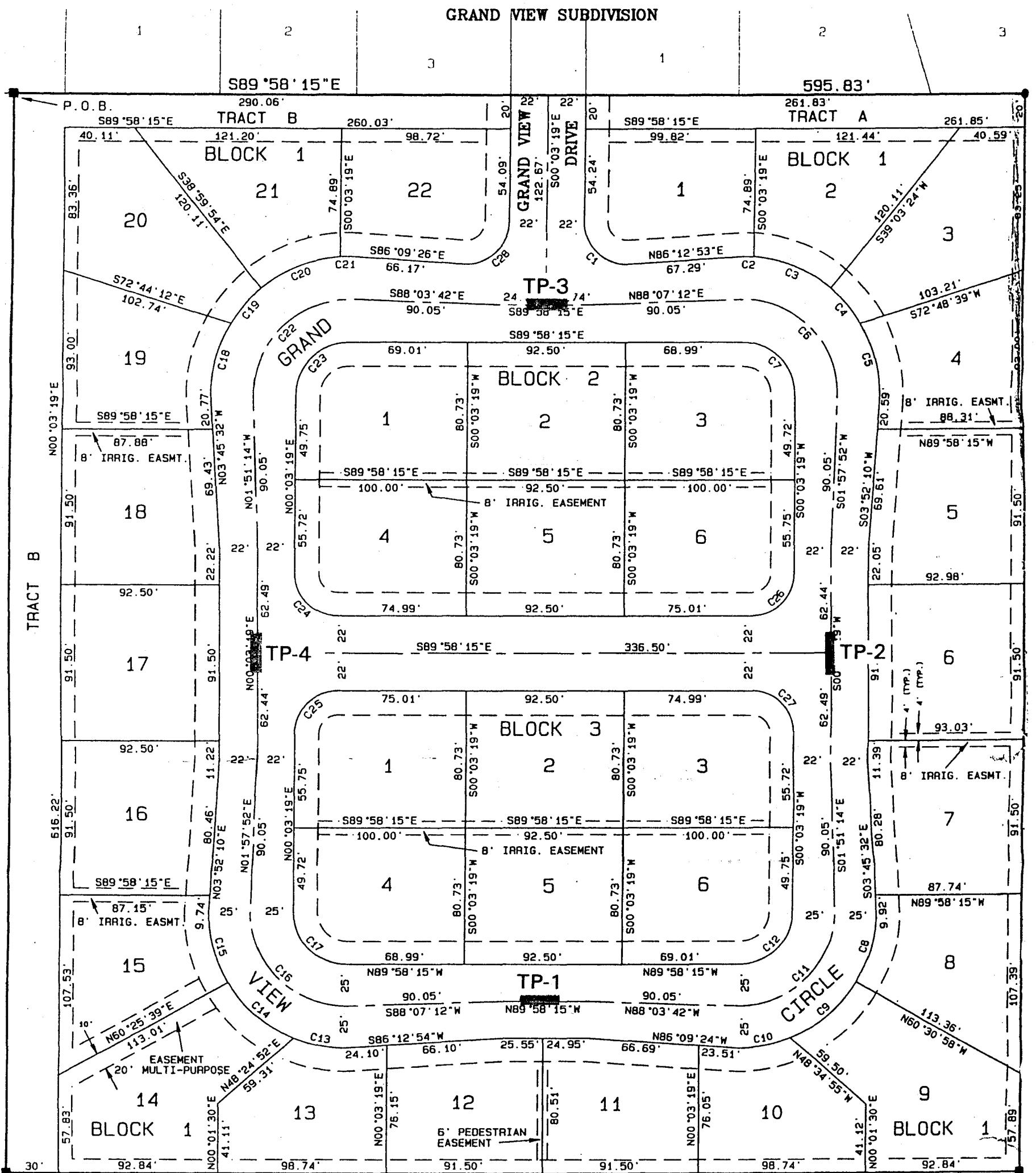


Figure 1



WESTERN
COLORADO
TESTING,
INC.

TEST PIT LOCATION PLAN

Project	Dawn Subdivision	
Location	Grand Junction, Colorado	
Job No.	201696	Date 3-29-96



WESTERN
COLORADO
TESTING,
INC.

Project Dawn Subdivision

Location Grand Junction, Colorado

Job No 201696

Date 3-29-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM					
TP-1	See Test Pit Location Plan	-	-	K. Alpha	-					
WATER LEVEL OBSERVATIONS				TYPE OF SURFACE						
				Native grasses & weeds						
WHILE EXCAVATING	END OF EXCAVATION	24 HOURS AFTER EXCAV.	HOURS	EXCAVATION METHOD	TOTAL DEPTH					
None	-	None	-	Backhoe	8 1/2'					
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 tsf	CLASS	
-		brown	moist	loose	CLAY, silty, organics					-
-		light brown	slightly moist to dry	hard	CLAY, silty, stratified					-
-		light brown	slightly moist to dry	stiff	CLAY, silty with fine grained sand, lensatic					-
-	C-1					7.2	96.7			-
-	B-1				some lenses of fine sand & some medium to coarse grained sand lenses.					-
-										-
5		light brown	slightly moist	very stiff	CLAY, silty, calcareous					5
-										-
-										-
-	C-2					10.6	102.8			-
-										-
-					B.O.P @ 8'-6"					-
-										-
10										10

Figure 2



**WESTERN
COLORADO
TESTING,
INC.**

Project Dawn Subdivision

Location Grand Junction, Colorado

Job No 201696

Date 3-29-96

TEST PIT LOG										
TEST PIT NO.	LOCATION OF TEST PIT		DATE EXCAVATED	ELEVATION	LOGGER	DATUM				
TP-2	See Test Pit Location Plan		-	-	K. Alpha	-				
WATER LEVEL OBSERVATIONS						TYPE OF SURFACE				
						Native grasses & weeds		-		
WHILE EXCAVATING	END OF EXCAVATION		24 HOURS AFTER EXCAV.	HOURS	EXCAVATION METHOD	TOTAL DEPTH				
None	-		None	-	Backhoe	7'-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 tsf	CLASS	
-		brown	moist	loose	CLAY, silty, organics					-
-		light brown	slightly moist to dry	stiff	CLAY, silty, with fine sand lenses, calcareous					-
-	C-1									-
-	B-1		slightly moist to moist	medium stiff						-
-										-
-	C-2									-
5		brown	very moist		less silt @ 5'-4"					5
-										-
-										-
-	C-3									-
-										-
-										-
-										-
10					B.O.P @ 7'-10"					10

Figure 3



**WESTERN
COLORADO
TESTING,
INC.**

Project Dawn Subdivision

Location Grand Junction, Colorado

Job No 201696

Date 3-29-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM					
TP-3	See Test Pit Location Plan	-	-	K. Alpha	-					
WATER LEVEL OBSERVATIONS				TYPE OF SURFACE						
				Native grasses & weeds						
WHILE EXCAVATING		END OF EXCAVATION	24 HOURS AFTER EXCAV.	HOURS	EXCAVATION METHOD	TOTAL DEPTH				
None		-	None	-	Backhoe	8'				
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 tsf	CLASS	
-		brown	moist	loose	CLAY, silty, organics					-
-		light brown	slightly moist to dry	stiff	CLAY, silty with fine grained sand lenses, calcareous					-
-	C-1									-
-	B-1	light brown	slightly moist to moist	medium stiff to soft	CLAY, sandy & silty					-
-	C-2									-
-		brown	moist to very moist	medium stiff to stiff	CLAY, silty, with fine sand lenses, calcareous					5
-	C-3									-
-		brown	very moist to wet	soft	CLAY, slightly silty					-
-	C-4									-
-					B.O.P @ 8'					-
-										-
10										10

Figure 4



**WESTERN
COLORADO
TESTING,
INC.**

Project Dawn Subdivision
 Location Grand Junction, Colorado
 Job No 201696 Date 3-29-96

TEST PIT LOG

TEST PIT NO.	LOCATION OF TEST PIT	DATE EXCAVATED	ELEVATION	LOGGER	DATUM					
TP-4	See Test Pit Location Plan	-	-	K. Alpha	-					
WATER LEVEL OBSERVATIONS				TYPE OF SURFACE						
				Native grasses & weeds						
WHILE EXCAVATING		END OF EXCAVATION	24 HOURS AFTER EXCAV.	HOURS	EXCAVATION METHOD	TOTAL DEPTH				
None		-	None	-	Backhoe	10'-2"				
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 tsf	CLASS	
-		brown	moist	loose	CLAY, silty, organics					-
-		light brown	slightly moist to dry	stiff	CLAY, silty, with fine sand lenses, calcareous					-
-	B-1								LL=30 PI=16 CL	-
-	C-1					5.8	86.1			-
-					fine sand layer 4'-7" to 5'-0"					-
5	C-2	brown	slight moist to moist moist	medium stiff	CLAY, silty with fine sand, calcareous					5
-		brown	wet	soft	CLAY, silty					-
-	C-3									-
10					B.O.P. @ 10'-2"					10

Figure 5



**WESTERN
COLORADO
TESTING,
INC.**

PHYSICAL PROPERTIES OF SOILS

Job No.: 201696

Lab/Invoice No.: _____

Date of Report: 3-29-96

Reviewed By: *[Signature]*

Client: John Davis Project: Dawn Subdivision

Location: Grand Junction, Colorado Sampled By: K. Alpha Date: 3-15-96

Type of Material: CLAY, sandy Submitted By: K. Alpha Date: 3-15-96

Source of Material: TP-4 @ 1 1/2' - 3' Authorized By: Client Date: 3-8-96

Sieve Analysis, ASTM D422-

Sieve Size	% Passing Accumulative	Specification	Soil Classification:	Unified CL	AASHTO A-6 (10)
			Liquid Limit and Plasticity of Soils:		LL= 30
3"			ASTM D424-		PI= 15
2 1/2"			Moisture - Density Relations		Maximum Dry Density, pcf :
2"			<input type="checkbox"/> ASTM D698-	<input type="checkbox"/> ASTM D1557-	Method: Optimum Moisture, % :
1 1/2"			Specific Gravity of Soils (minus No. 4 material)		
1"			ASTM D854-		Specific Gravity:
3/4"			Resistance 'R' Value of Compacted Soils		
1/2"			ASTM D2844-		'R' Value: 15
3/8"			Other:		
1/4"					
No. 4					
8					
10					
16	100				
30	99				
40	99				
50	98				
100	91				
Finer than 200 ASTM D1140-	77.9				

Copies:

Figure 6

SWELL CONSOLIDATION TEST

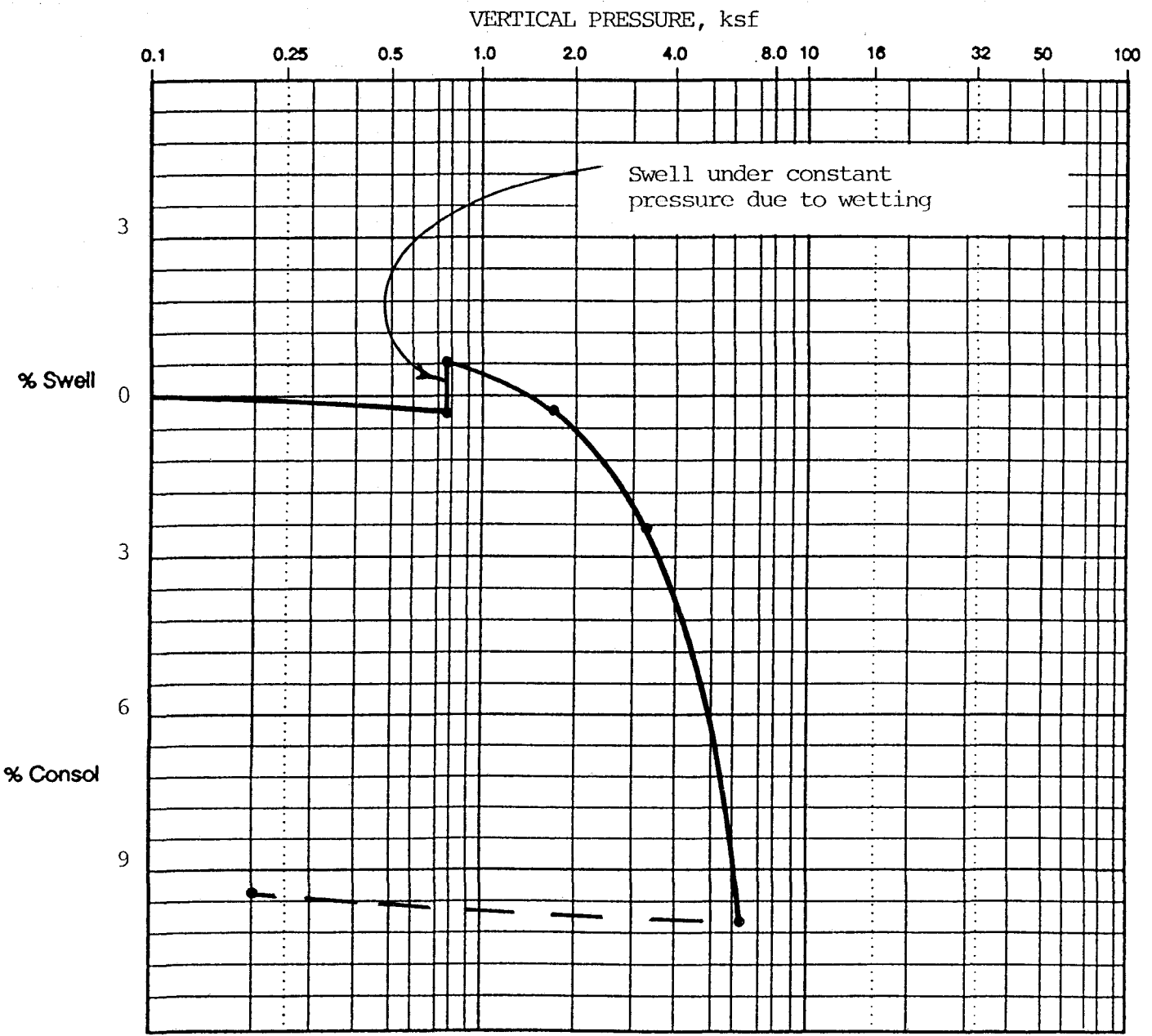
Drill Hole No. TP-1 Sample No. C-2 Sample Depth Interval 7'-6" - 7'-10"

Sample Description CLAY, silty

Initial Water Content 10.6 Dry Unit Weight 102.8 Initial Saturation _____

Final Water Content 18.1 Specific Gravity _____ Assumed

Liquid Limit _____ Plastic Limit _____ Plasticity Index _____ Classification _____



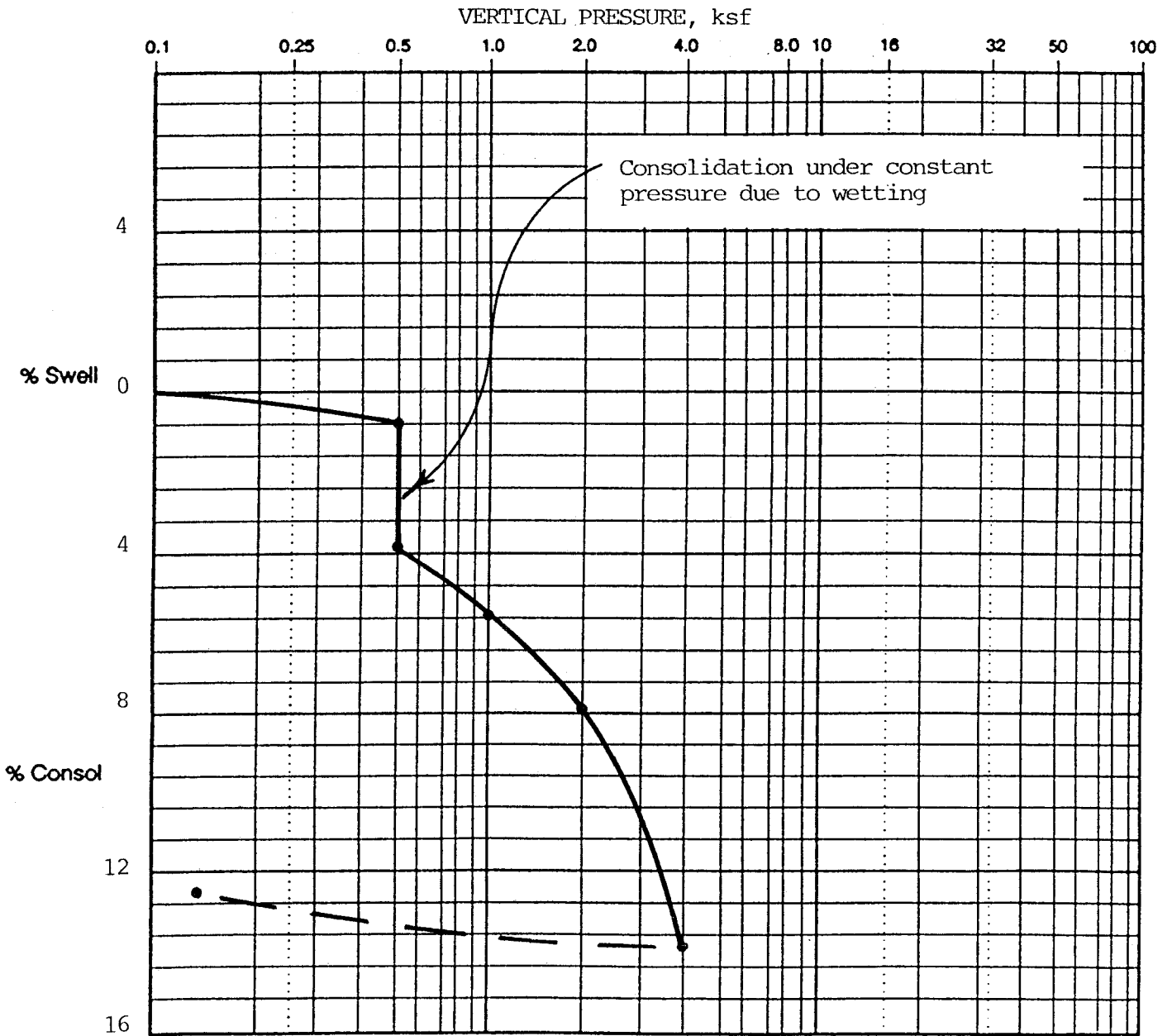
WESTERN COLORADO TESTING, INC.
 529 25½ Road, Suite B-101
 Grand Junction, CO 81505
 (303) 241-7700

Project		Dawn Subdivision	
Location		Grand Junction, Colorado	
Job No.	201696	Date	3-29-86

Figure 7

SWELL CONSOLIDATION TEST

Drill Hole No. TP-4 Sample No. C-1 Sample Depth Interval 3'-1" - 3'-5"
 Sample Description CLAY, sandy
 Initial Water Content 5.8 Dry Unit Weight 86.1 Initial Saturation _____
 Final Water Content 25.0 Specific Gravity _____ Assumed
 Liquid Limit 30 Plastic Limit 15 Plasticity Index 15 Classification CL



**WESTERN
COLORADO
TESTING,
INC.**

529 25½ Road, Suite B-101
Grand Junction, CO 81505
(303) 241-7700

Project

Dawn Subdivision

Location

Grand Junction, Colorado

Job No.

201696

Date

3-29-96



**WESTERN
COLORADO
TESTING,
INC.**

Job No. 201696

Lab./Invoice No. _____

Date 3-29-96

Reviewed by _____

**RESISTANCE 'R' VALUE AND
EXPANSION PRESSURE**

Client John Davis Project Dawn Subdivision

Location Grand Junction, Colorado Sampled By K. Alpha Date 3-15-96

Type of Material CLAY, sandy Submitted By K. Alpha Date 3-15-96

Source of Material TP-4 @ 1.5' - 3.0' Authorized By Client Date 3-8-96

ASTM D2844-	Specimen		
	A	B	C
Compactor Pressure, psi	100	275	150
Exudation Pressure, psi	191	334	211
Moisture at Compaction, %	16.0	14.3	15.3
Dry Density at Compaction, pcf	114.3	119.7	117.0
Corrected 'R' Value	12	15	13
Expansion Dial Read, x10 ⁻⁴			
Expansion, psf			
Atterberg Limits, ASTM D424-	LL = <u>30</u> PI = <u>15</u>		

Sieve Analysis, ASTM D422-			
Sieve Size	% Passing Accumulative	Specification	As Tested Grading
3"			
2 1/2"			
2"			
1 1/2"			
1"			
3/4"			
1/2"			
3/8"			
1/4"			
No. 4			
No. 8			
No. 10			
No. 16	100		
No. 30	99		
No. 40	99		
No. 50	98		
No. 100	91		
Finer than 200 ASTM D1140-	77.9		

Corrected 'R' Value at 300 psi 15

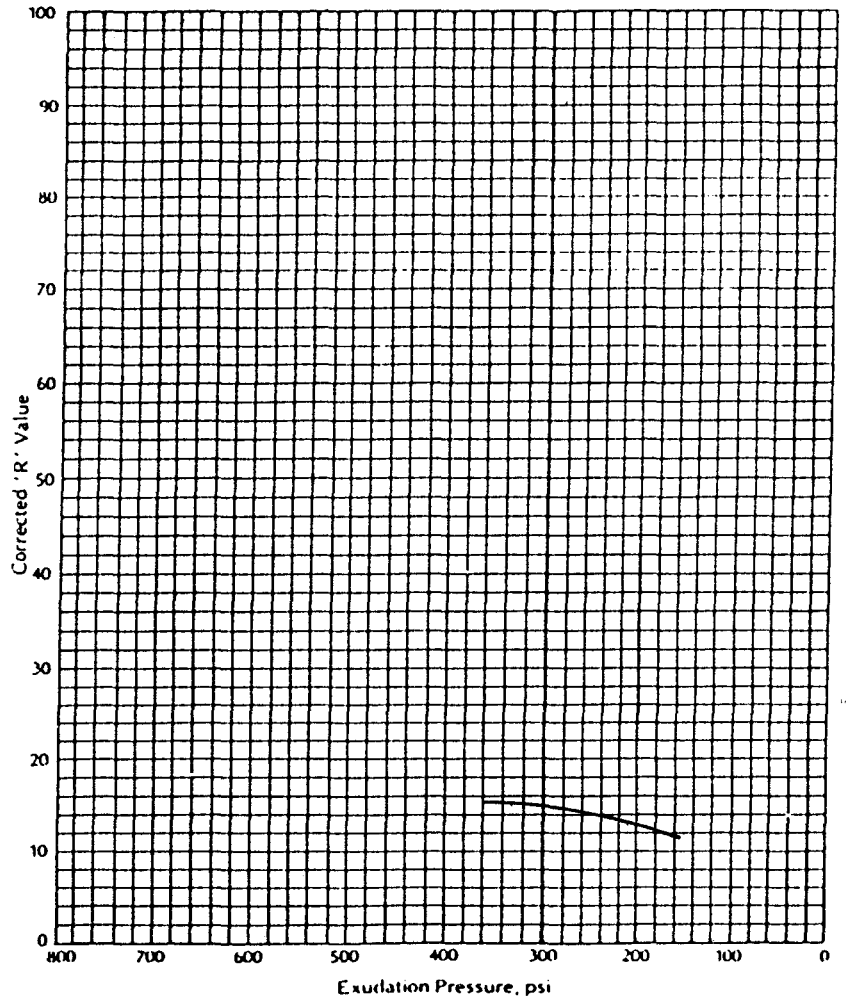


Figure 9



WESTERN
COLORADO
TESTING,
INC.

Job No.: 201696

Client: John Davis

Project: Dawn Subdivision

Location: Grand Junction, Colorado

SUMMARY OF SOIL TESTS

Test Hole No.	Sample No.	Sample Depth (ft)	Sample Dia. (in)	Sample Hgt. (in)	Water Content (%)	Density		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	2.0 - 2.3	1.94		7.2	102.6	95.7									
TP-1	C-2	7.5 - 7.8	1.94		10.6	113.7	102.8						*			
TP-4	B-1	1.5 - 3.0	Bulk					15			30	15	15		77.9	CL
TP-4	C-1	3.1 - 3.4	1.94		5.8	91.1	86.1							*		

Figure 10

General Project Report
Dawn Subdivision, Final Plan
City File # PP-96-47 April 26, 1996

- A. The proposed subdivision is located on the west side of 28 Road, about 0.2 miles north of Patterson Road. It is an 8.7 acre parcel which will be used for single family, detached housing using the in-place zoning, RSF-4. However, a R.O.W. vacation for the east 10 ft. of 28 Road is already in process that will increase the acreage to 8.85 acres which for the 34 platted lots yields a density of 3.7 units per acre.
- B. The benefit to the public will be to provide sites for new homes to satisfy demand resulting from community growth and from desire by current Valley residents to upgrade their housing.
- C.
 1. The current zoning, RSF-4, is satisfactory for this proposal.
 2. The land uses surrounding this proposal are:
 - (a) north and west: RSF-5 (actual uses are of lesser density)
 - (b) south: RSF-4, but the use is first as a drainage area owned by the City and then the new Nazarene Church site.
 - (c) east: PR-16 (vacant land).
 3. Access will be from the east directly off 28 Road and from the north on View Drive one-half block to Hawthorne Avenue and then west about 350 ft. to 28 Road. When 28.25 Road is eventually improved to the east, it should be accessible by traveling east on Hawthorne. It is the developers understanding that 28.25 Road, or its north extension, will connect south to the stop light at Patterson Road and north to the "Matchett Park".
 4. All utilities are available to the site; fire hydrants will be provided to meet code requirements.

The Planning Commission approved the preliminary plan with a requirement that the drain ditches along the north and west boundaries are to be piped and filled. The west side (28 Road) drain ditch will be piped and filled in accordance with engineering plans as part of this submittal. However, it has been determined that the Dawn Developer for Dawn Subdivision has no legal right for access onto the adjacent Grand View Subdivision which would be required to fill the north ditch. Also, during discussions with the majority owner in Grand View he has stated he absolutely would not participate in or allow the ditch to be filled. City Staff has advised the Dawn Developer that the Planning Commission's requirement for the north drain ditch is without effect for Dawn Subdivision.

The north tier lots will be graded to reduce the existing ditch berm elevation and move the maintenance access pathway to be within the 28 ft. drainage easement. This easement will contain the actual drain ditch within the north 8 ft. leaving the balance for the pathway.

5. There are no anticipated unusual demands on utilities.
6. The exact effects on public facilities are not known. However, the relatively small size of the development with 34 lots would not per se be expected to cause any unusual demands.

- 7/8. The soils for the subdivision are classified as Billings silty clay loam. There are no known geological factors that will impact the subdivision or home construction.

- 9/10. These sections regarding operating hours and employees are not applicable.

11. No sign will be erected.

- D. The subdivision will be developed in one phase with construction expected to begin immediately upon final approval and finished lot sales anticipated by about August, 1996.

SUBMITTAL CHECKLIST

MAJOR SUBDIVISION: FINAL

Location: E Side 28 Rd S of Hawthorne Ave Project Name: DAWN SUBDIVISION

ITEMS		DISTRIBUTION																				TOTAL REQ'D.									
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	● Drainage District - GYWU	● Water District - UTE	○ Sewer District	● U.S. West		● Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	● Colorado Geologic Survey	○ U.S. Postal Service	● R/S/60MM/4"	● TCI Cable	
● Application Fee \$ 995	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	1	1	1	1
● Application Form*	VII-1	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	1	1
● Reduction of Assessor's Map	VII-1	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	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	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																			
● Final Plat	IX-15	1	2	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	1	1	1
○ 11"x17" Reduction of Final Plat	IX-15	1						8	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
● Roadway Plan and Profile	IX-28	1	2															1													
● Road Cross-sections - 28 ROAD	IX-27	1	2																												
○ Detail Sheet	IX-12	1	2																												
○ Landscape Plan	IX-20	2	1	1				8																							
● Geotechnical Report	X-8	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																												
○ 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.

FINAL DRAINAGE REPORT

FOR

DAWN SUBDIVISION

LOCATED IN THE SW 1/4 OF SEC. 6, T1S, R1E, UM
CITY OF GRAND JUNCTION, MESA COUNTY, COLORADO

MAY 1, 1996

PREPARED BY:

WAYNE H. LIZER, P.E., P.L.S.

W.H. LIZER & ASSOCIATES
Engineering Consulting and Land Surveying
576 25 Road, Unit #8
Grand Junction, Colorado 81505
241-1129

W.H. LIZER & ASSOCIATES
Engineering Consulting and Land Surveying
576 25 road, Unit #8
Grand Junction, Colorado 81505
(970) 241-1129

May 1, 1996

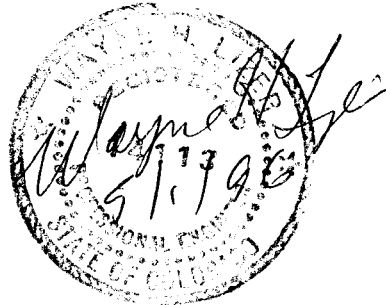
FINAL DRAINAGE REPORT
FOR
DAWN SUBDIVISION

LOCATED IN THE SW 1/4 OF SEC. 6, T1S. R1E, UM
CITY OF GRAND JUNCTION, MESA COUNTY, COLORADO

CERTIFICATION OF DOCUMENTS

I, Wayne H. Lizer, a registered Professional Engineer in the State of Colorado, hereby certify that this report was prepared by me.


Wayne H. Lizer, P.E., P.L.S. #14113



W.H. LIZER & ASSOCIATES
Engineering Consulting and Land Surveying
576 25 road, Unit #8
Grand Junction, Colorado 81505
(970) 241-1129

May 1, 1996

FINAL DRAINAGE REPORT
FOR
DAWN SUBDIVISION
LOCATED IN THE SW 1/4 OF SEC. 6, T1S, R1E, UM
CITY OF GRAND JUNCTION, MESA COUNTY, COLORADO

I. GENERAL LOCATION AND DESCRIPTION

A. Site and Major Basin Location

The site is located at the Southeast corner of F 1/4 line and 28 Road, also being situate in the Southwest Quarter of Section 6, T1S, R1E, U.M., in the City of Grand Junction, Mesa County, Colorado.

Streets in the vicinity include 28 Road which runs North and South on the West side of the site, and F Road which runs East and West and lies approximately 1/4 mile South of the site. (Exhibit 1)

Access to the proposed subdivision is from Grand View Drive from the North and from 28 Road to the West.

Developments in the vicinity include Spring Valley Subdivision to the West, Grand View Subdivision to the North, to the Northeast is Matchett Village, and to the South is currently being developed by the First Church of the Nazarene.

B. Site and Major Basin Description

The proposed subdivision contains approximately 8.7 acres and 34 single-family residential units are planned.

Presently the site is covered with weeds (mostly cheat grass) and some salt brush along the North side and along the drainage ditches. The site was probably farmed at one time but has been fallow for some time.

There are approximately 4.5 acres to the East of the proposed Dawn Subdivision which contribute stormwater through the site. (Exhibit 6 - "OF-1")

The entire site and contributing off-site soils are defined as (Bc), Billings Silty Clay Loam , 0 to 2 percent slopes, and would be considered hydrological soils group "C". (Reference 3, Exhibit 2; Exhibit 3, respectively.)

II. EXISTING DRAINAGE CONDITIONS

A. Major Basin

Generally the area wide basin drains as sheet flow from Northeast to Southwest at approximately 1% slope.

The site is bounded on the North and West sides by drain ditches and an irrigation ditch runs from North to South approximately 30 feet East of the East side of the proposed subdivision. Another irrigation ditch runs East and West along the North side of the proposed subdivision South of of the before-mentioned drain ditch on the North.

Field inspections of the site on January 31, 1996 and again on February 10, 1996 revealed that the plant type in the before-mentioned drains and along the irrigation ditches are typical of wetlands plant life.

The proposed subdivision is within "ZONE X" as determined by the FIRM Flood Insurance Rate Map (Panel 480 of 1000, Reference 2, Exhibit 4).

B. Site

The site historically drains from Northeast to Southwest as sheet flow at approximately 1% slope. Approximately 4.5 acres of exterior drainage ("OF-1") would contribute to the site from the Easterly side of the parcel. The before-mentioned irrigation ditch lying East of the parcel would intercept part of this flow and direct it to the South. (Exhibits 5 & 6)

The on-site historic drainage, together with the off-site historic drainage discharges into the drain ditch along the West side of the proposed site where it is conveyed South towards F Road.

III. PROPOSED DRAINAGE CONDITIONS

A. Changes in Drainage Patterns

Streets and site grading will carry both interior and exterior stormwater to a storm sewer which will carry the stormwater to

a proposed city-owned detention basin on the South side of Dawn Subdivision.

The drain ditch on the West side of the site is proposed to be piped.

There will not be any on-site detention for stormwater.

B. Maintenance Issues

Access to and through the proposed subdivision will be by dedicated public right-of-way.

Once the stormwater drainage system is accepted, the City of Grand Junction will be responsible for upkeep and maintenance.

IV. DESIGN CRITERIA AND APPROACH

A. General Considerations

The City of Grand Junction Stormwater Management Manual (SWMM) dated June 1994 was used for stormwater analysis and facility design.

Previous drainage studies in the area would include the FIRM Flood Insurance Rate Map, Grand View Subdivision, and the First Church of the Nazarene.

B. Hydrology

The design storms are for a 2-year and a 100-year event. (Exhibit 7)

Since the site is less than 25 acres, the Rational Method was used for analysis. (Exhibit 8)

Parameter selection was based upon soil type and development density of 5 units/acre.

C. Hydraulics

Hydraulic calculations or other methods of analysis were made in accordance to the City of Grand Junction Stormwater Management Plan. (Reference 1)

A grading and drainage plan is attached.

V. RESULTS AND CONCLUSIONS

Summary of Run-off Rates

	Q ₂ cfs	Q ₁₀₀ cfs
Historic		
Interior	1.0	5.0
Exterior (OF-1)	<u>0.5</u>	<u>2.4</u>
Total	1.5	7.4
After-Development		
Interior	3.0	10.5
Plus Historic Exterior (OF-1)	<u>0.5</u>	<u>2.4</u>
Total	3.5	12.9

Respectfully submitted,

Wayne H. Lizer

Wayne H. Lizer, P.E., P.L.S.

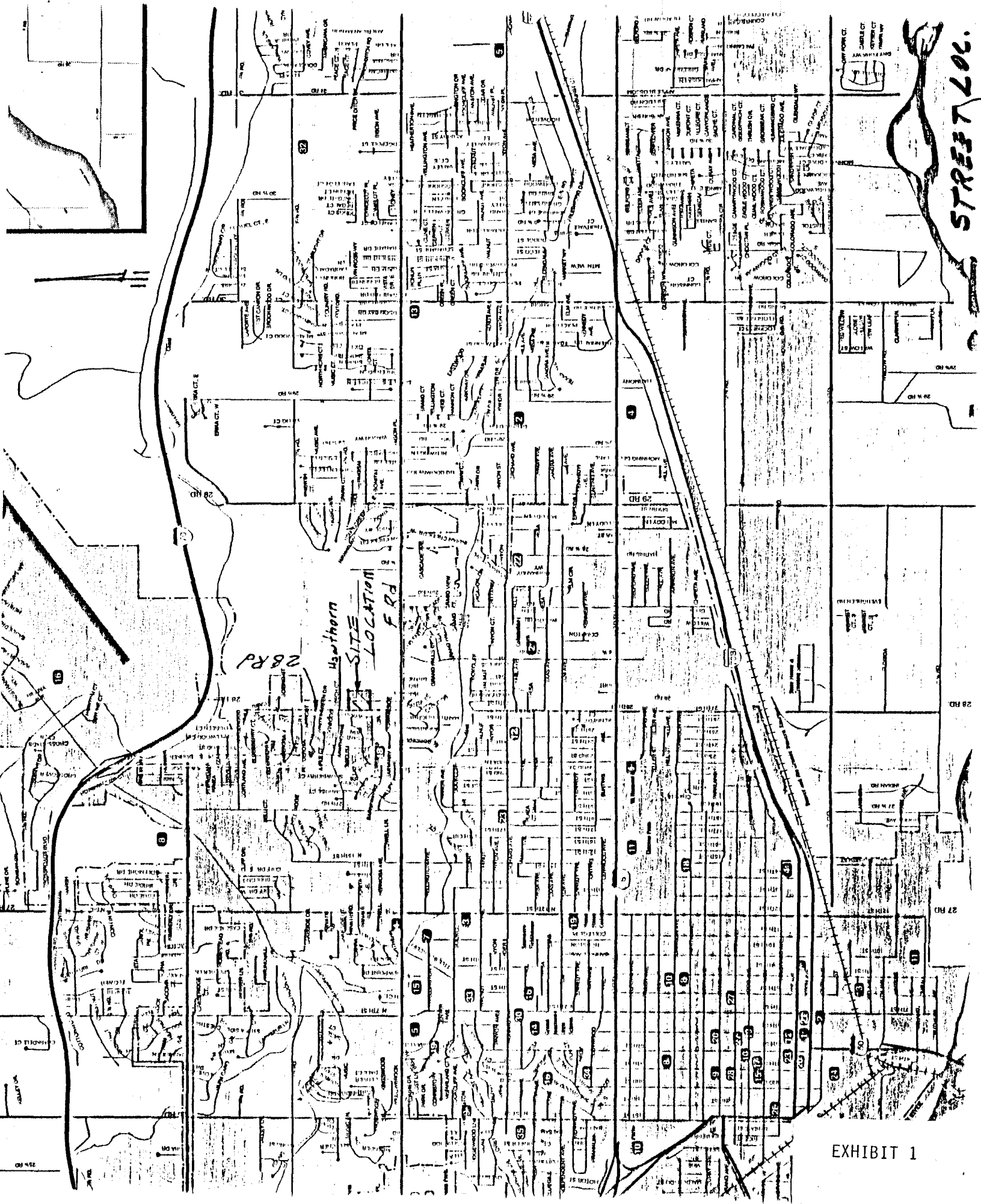
VI. REFERENCES

1. Stormwater Management Manual (SWMM), City of Grand Junction, Colorado, Department of Public Works, June 1994.
2. FIRM Flood Insurance Rate Map, Mesa County, Colorado, (Unincorporated Areas), Community Panel Number 080115 0480 C, Federal Emergency Management Agency, Map Revised July 15, 1992.
3. Soil Survey, Grand Junction Area, Colorado, Series 1940, No. 19 U.S. Department of Agriculture, Soil Conservation Service, issued November, 1955.

VII. APPENDIX

EXHIBIT

- 1 Street Location Map
- 2 Soil Conservation Service Map (SCS)
- 3 SCS Hydrologic Soil Group Chart (SWMM B-3)
- 4 FIRM Flood Insurance Rate Map - Zone X
- 5 Topographical Map 1" = 2000'
- 6 Major Basin Map/Orthophoto Map 1" = 200'
- 7 Intensity Duration Frequency (IDF) Table (SWMM A-2)
- 8 Rational Method Equation (SWMM VI-10)
- 9 Catch Basin Inlet Type Diagram (SWMM G-6)
- 10 Maximum Inlet Capacities: On-Grade Graph (SWMM G-7a)
- 11 Depth of Flow in Street Equation (SWMM VII-1)
- 12 Calculations (5 pages)



28th Rd

Northern
SITE
LOCATION
P.R.F.

307 LESTER STREET LOC.

EXHIBIT 1

Fruita clay loam, Fruita clay loam, Fruita clay loam, Fruita clay loam,

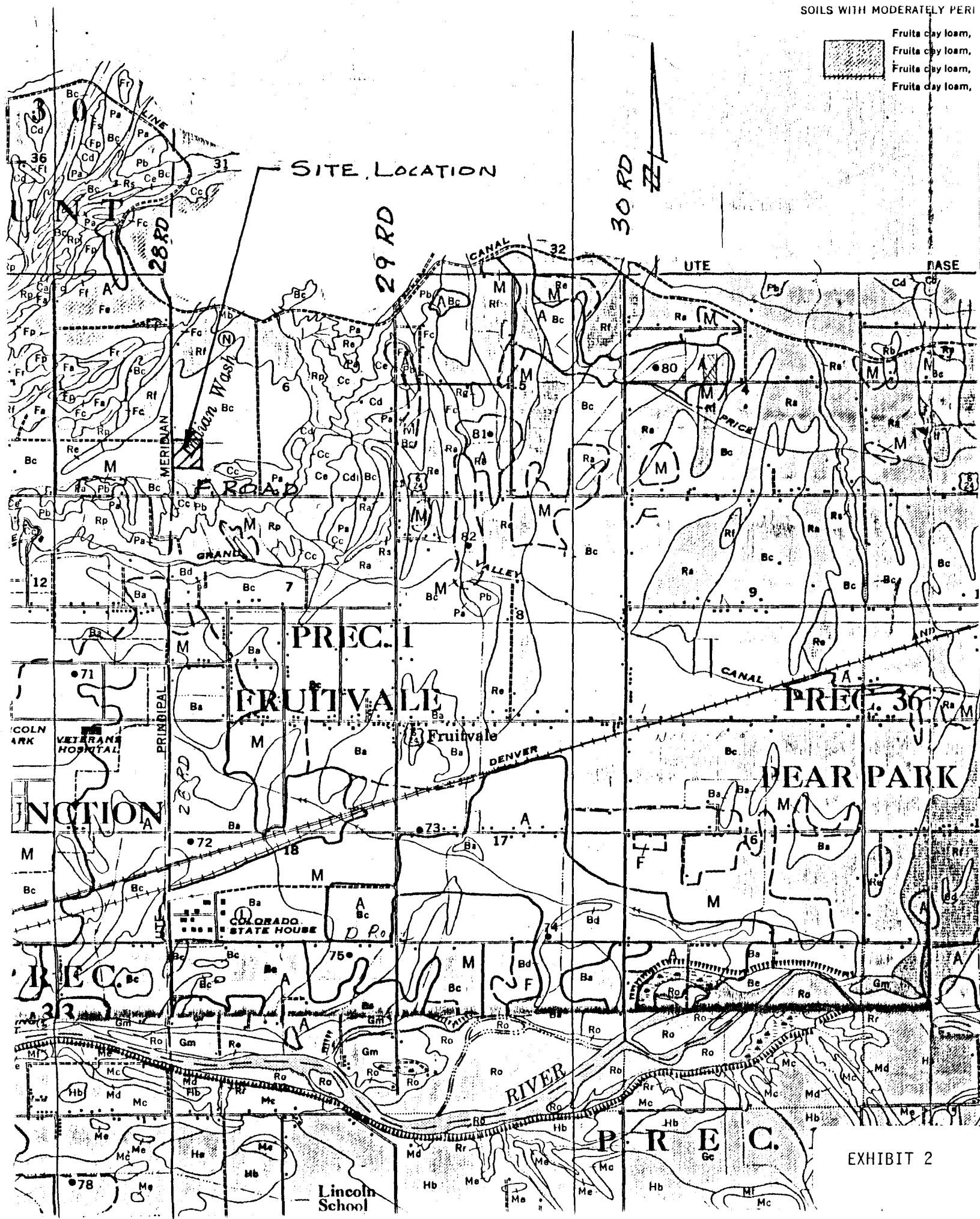


EXHIBIT 2

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

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

RATIONAL METHOD RUNOFF COEFFICIENTS
 (Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls) TABLE "B-1"

City of Grand Junction
AREA NOT INCLUDED

INDIAN WASH

ZONE X

SCALE: 1"=1000'

SITE
LOCATION

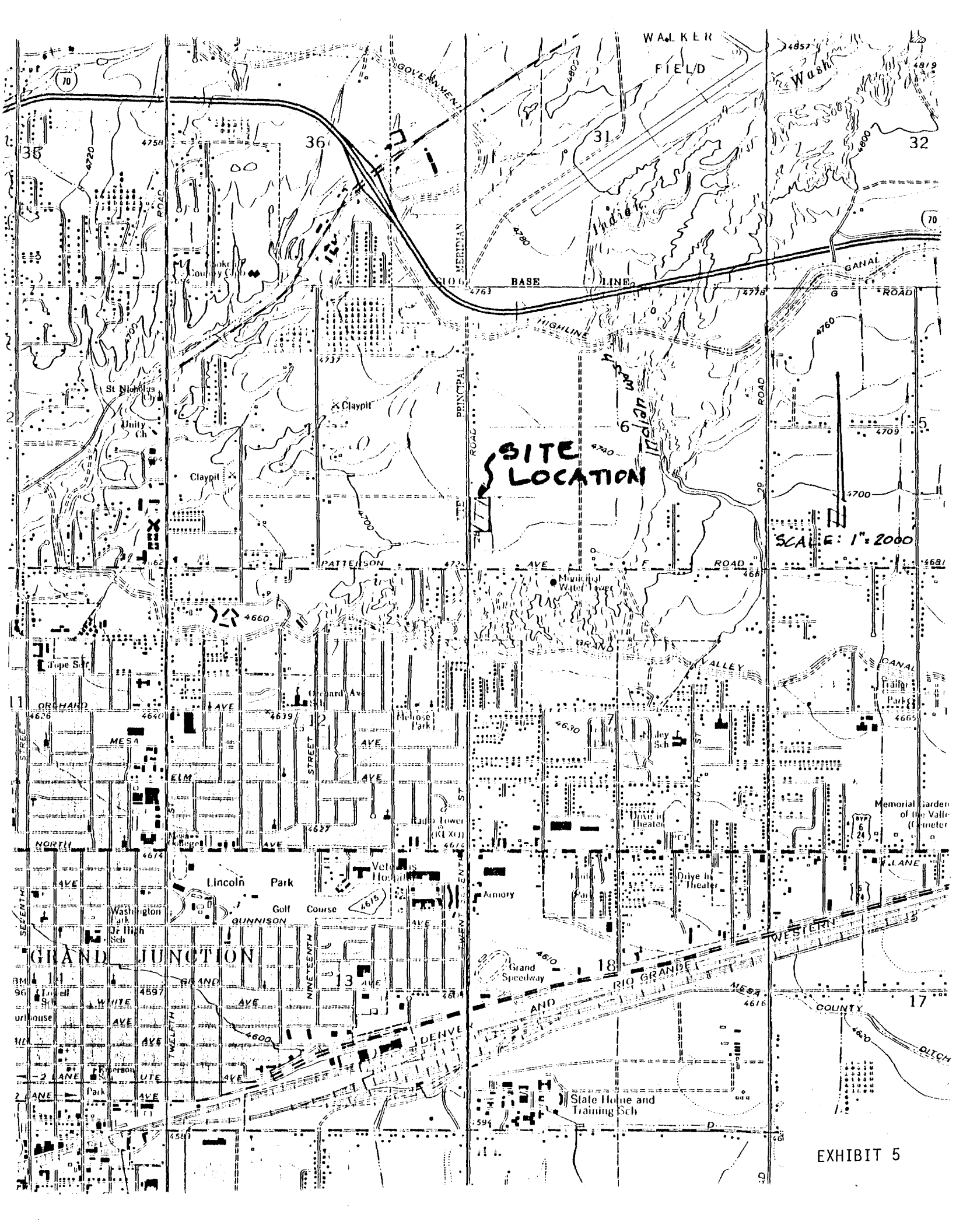
29 1/2 Rd

FROM PANEL 480 of 1000
FIRM
FLOOD INSURANCE RATE MAP
MAP REVISED JULY 15, 199

M

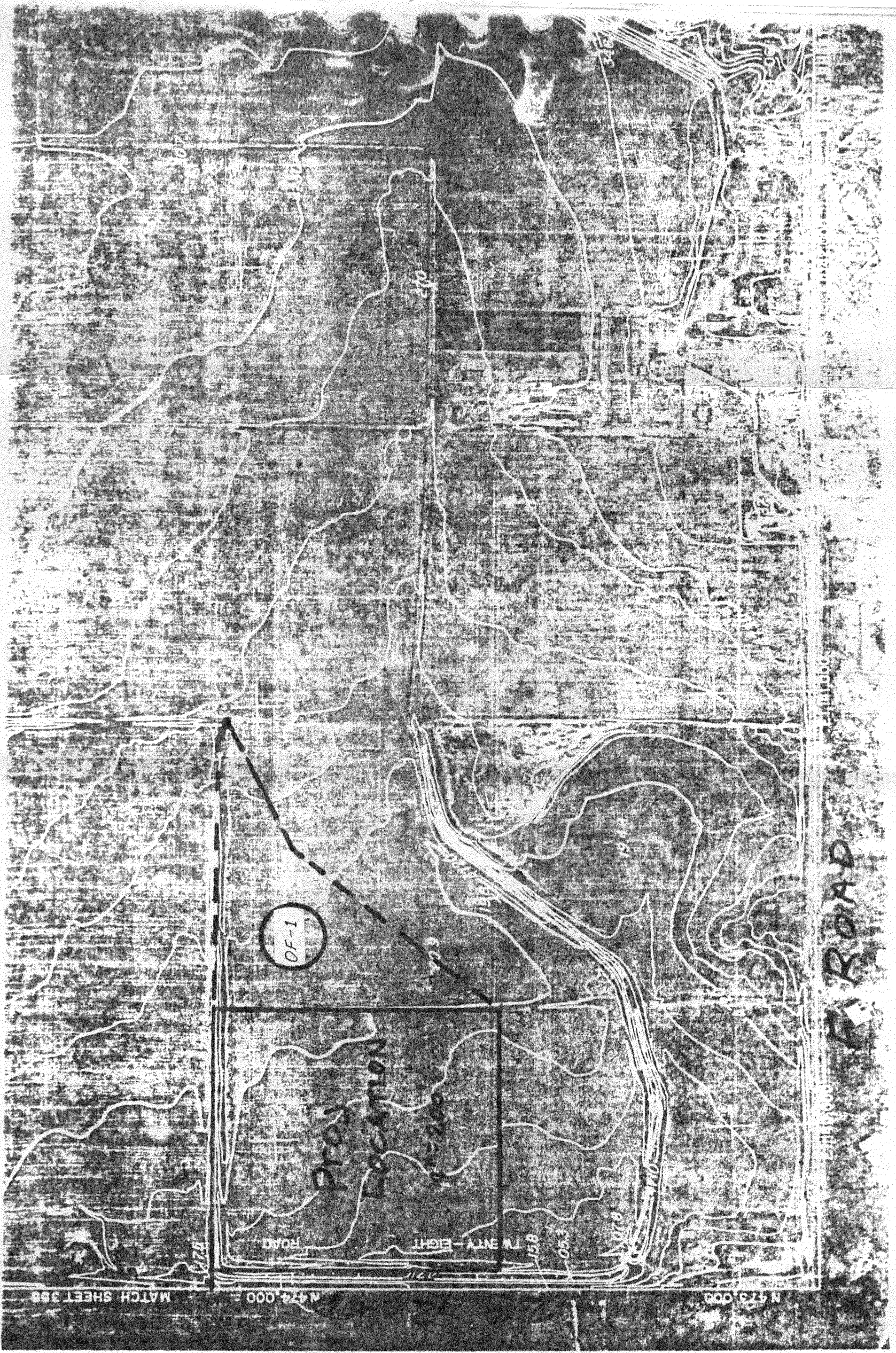
JOINS PANEL 0460

EXHIBIT 4



SITE LOCATION

SCALE: 1" = 2000'



MATCH SHEET 358

N 474,000

N 473,000

OF-1

ROAD

ROAD

ROAD

TABLE "A-1"
INTENSITY-DURATION-FREQUENCY (IDF) TABLE

Time (min)	2-Year Intensity (in/hr)	100-Year Intensity (in/hr)	Time (min)	2-Year Intensity (in/hr)	100-Year Intensity (in/hr)
5	1.95	4.95	33	0.83	2.15
6	1.83	4.65	34	0.82	2.12
7	1.74	4.40	35	0.81	2.09
8	1.66	4.19	36	0.80	2.06
9	1.59	3.99	37	0.79	2.03
10	1.52	3.80	38	0.78	2.00
11	1.46	3.66	39	0.77	1.97
12	1.41	3.54	40	0.76	1.94
13	1.36	3.43	41	0.75	1.91
14	1.32	3.33	42	0.74	1.88
15	1.28	3.24	43	0.73	1.85
16	1.24	3.15	44	0.72	1.82
17	1.21	3.07	45	0.71	1.79
18	1.17	2.99	46	0.70	1.76
19	1.14	2.91	47	0.69	1.73
20	1.11	2.84	48	0.68	1.70
21	1.08	2.77	49	0.67	1.67
22	1.05	2.70	50	0.66	1.64
23	1.02	2.63	51	0.65	1.61
24	1.00	2.57	52	0.64	1.59
25	0.98	2.51	53	0.63	1.57
26	0.96	2.46	54	0.62	1.55
27	0.94	2.41	55	0.61	1.53
28	0.92	2.36	56	0.60	1.51
29	0.90	2.31	57	0.59	1.49
30	0.88	2.27	58	0.58	1.47
31	0.86	2.23	59	0.57	1.45
32	0.84	2.19	60	0.56	1.43

Source: Mesa County 1991

not the composite watershed. Runoff from the impervious area would not be based on runoff loss parameters, but on an impervious area with direct runoff potential.

Where storage capacity is available (on-lot retention, surface depression, lakes, ponds), these must also be accounted for. Many methods allow for direct input of surface depression storage while others do not. Surface depression and/or on-lot retention, lakes, and ponds may also be accounted for through storage or diversion routines where precipitation on the pervious areas contributes to available storage volume prior to the start of excess runoff.

In order to properly apply rainfall loss coefficients or parameters, one must understand the method used, and use good judgement in applying the method to a given watershed.

F. **RUNOFF ESTIMATION** There are many methods of estimating runoff, each with its own advantages and disadvantages, applications and limitations, an understanding of which is important to avoid misuse and obtain the desired level of accuracy. Only the two most commonly used methods are discussed here, although other methods may also be acceptable.

1. **Rational Method** Despite its many limitations, the simplicity of the Rational Method for small watersheds has resulted in its common use around the world through most of this century.

a. **Method Description** The Rational Method is based upon the equation

$$Q = CIA$$

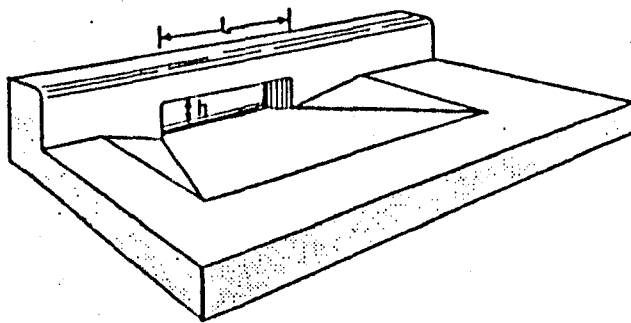
Where:

C = Runoff coefficient (see Table "B-1" in Appendix "B");
I = Storm intensity in inches per hour (see Table "A-1" in Appendix "A");
A = Area in acres;
Q = Inches per acre per hour, which is approximately equal to 1 cubic foot per second (CFS), and is therefore generally considered to be measured in units of CFS.

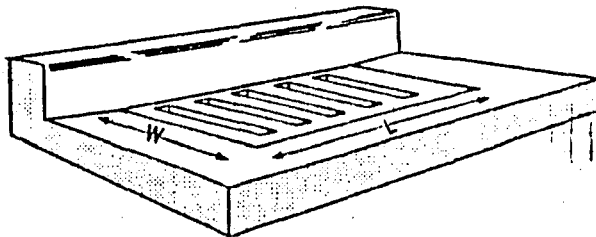
b. **Assumptions and Limitations** As with all hydrological methods, several simplifying assumptions are involved, each of which limits the use or reduces the accuracy of the results. Assumptions have been listed in many publications, particularly in APWA and Singh. Only selected assumptions are noted here which are deemed to be of greatest value in understanding limitations and use. Assumptions are written in italics, with the corresponding limitation or application following.

1) *Runoff is directly proportional to rainfall; that is, rainfall loss remains constant throughout a storm event.* This assumption does not allow for the

MODIFIED FROM DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, VOL-II

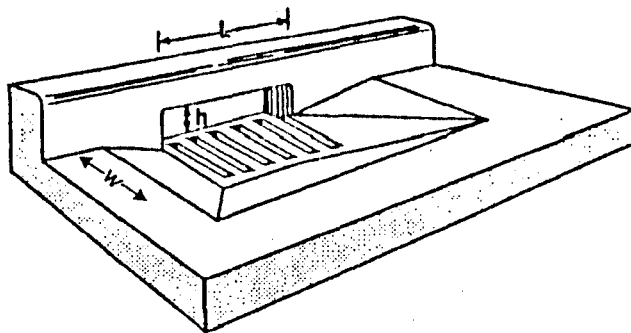


(a) Curb Opening Catch Basin Inlet
Clogging Factor = 80% of HEC-12



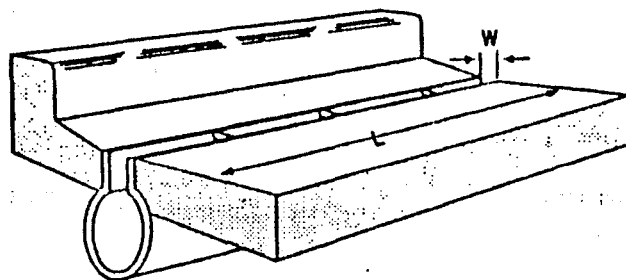
(b) Grated Catch Basin Inlet

- $P = 2w + L$
- Clogging Factor
 - On grade - 50% of HEC-12
 - Sag or Sump - 0% of HEC-12 (i.e., not allowed)



(c) Combination Catch Basin Inlet

- $P = 2w + L$
- Clogging Factor
 - On grade
 - Grate @ 100% of HEC-12
 - Curb Opening @ 0% of HEC-12
 - Sag or Sump [$< 0.5'$ depth]
 - Grate @ 100% of HEC-12
 - Curb Opening @ 0% of HEC-12
 - Sag or Sump [$1.0'$ depth]
 - Grate @ 50% of HEC-12
 - Curb Opening @ 100% of HEC-12

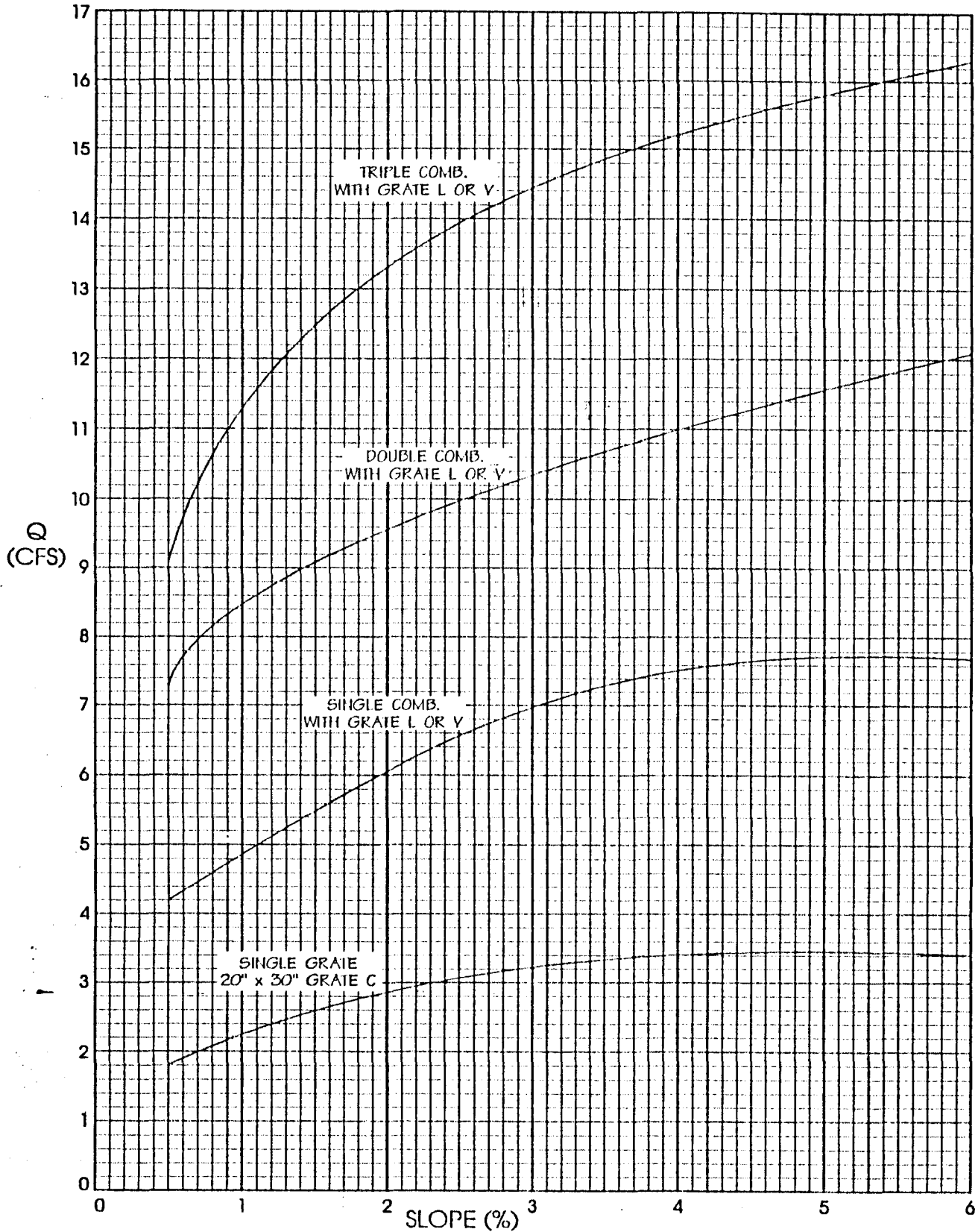


(c) Slotted Drain Catch Basin Inlet
Clogging Factor = 80% of HEC-12
(not allowed in sag or sump condition)

CATCH BASIN INLET TYPES

FIGURE G-6

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



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

FIGURE "G-7a"

VII. HYDRAULICS

A. "n" VALUES

Manning "n" value selection may be from information provided in Appendix "F" or from other sources, provided that they are selected and used in accordance with procedures and guidelines presented in Appendix "F". It is recommended that Appendix "F" be read prior to selection of "n" values from other sources.

B. STREETS, CURBS, AND GUTTERS

1. Hydraulic Calculations Use of Manning's modified equation is required for calculating flow on street pavement. The equation is:

$$Q = 0.56 (Z/n) S^{.5} d^{2.67}$$

Where:

- Q = Flow rate in CFS;
- Z = Inverse pavement cross slope, ft/ft;
- n = Manning's "n" value;
- S = Longitudinal slope of the street or gutter, ft/ft; and
- d = Depth of gutter flow in feet.

2. Two-Year Runoff Design Criteria

- a. Runoff shall not overtop curbs nor extend outside of the street section.
- b. The maximum depth of flow in valley pans and gutters is 6 inches.
- c. No backup from detention/retention facilities into streets is allowed.
- d. Collector roads shall have at least one 8-foot wide traffic lane in each direction remaining free of inundation.
- e. Arterial roads shall have at least one 8-foot wide traffic lane in each direction and the center turning lane remaining free of inundation.

3. 100-Year Runoff Design Criteria

- a. The maximum depth of flow in streets is 1.0 feet.
- b. No backup from detention/retention facilities into streets is allowed.

Down Sub.

Historical on site

Soil Group "C", Density 2.5 units/acre
at 8500 SQ.FT./Lot.

$$C_2 = 0.14, C_{100} = 0.24, S = 1.0\%$$

$$T_c = \frac{1.87(1.1 - C)(d)^{1/2}}{S^{1/3}}, d = 300 \text{ max}$$

$$T_{c2} = \frac{1.87(1.1 - 0.14)(300)^{1/2}}{1^{1/3}} = 31 \text{ min}$$

$$T_{c100} = \frac{1.87(1.1 - 0.24)(300)^{1/2}}{1^{1/3}} = 28 \text{ min}$$

From Table A-1

$$I_2 = 0.86, I_{100} = 2.36$$

$$Q_2 = CIA = (0.14)(0.86)(8.7) = 1 \text{ CFS}$$

$$Q_{100} = CIA = (0.24)(2.36)(8.7) = 5 \text{ CFS}$$

There is approximately 4.5 Acres
of exterior contribution at 0.66% Slope

$$T_{c2} = \frac{1.87(1.1 - 0.14)(300)^{1/2}}{(0.66)^{1/3}} = 36 \text{ min}$$

$$T_{c100} = \frac{1.87(1.1 - 0.24)(300)^{1/2}}{(0.66)^{1/3}} = 32 \text{ min}$$

Down Sub

2

From Table A-1

$$I_2 = 0.80, I_{100} = 2.19$$

$$Q_2 = CIA = (0.14)(0.8)(4.5) = 0.5 \text{ CFS}$$

$$Q_{100} = CIA = (0.24)(2.19)(4.5) = 2.4 \text{ CFS}$$

AFTER DEVELOPMENT - Interior

$$S \text{ units/Ac}, C_2 = 0.38, C_{100} = 0.48$$

$$T_{c_2} = 1.87 \frac{(1.1 - 0.38)(300)^{1/2}}{(0.5)^{1/3}} = 29 \text{ min}$$

$$T_{c_{100}} = 1.87 \frac{(1.1 - 0.48)(300)^{1/2}}{(0.5)^{1/3}} = 25 \text{ min}$$

From TABLE A-1

$$I_2 = 0.90, I_{100} = 2.51$$

$$Q_2 = CIA = (0.38)(0.90)(8.7) = 3 \text{ CFS}$$

$$Q_{100} = CIA = (0.48)(2.51)(8.7) = 10.5 \text{ CFS}$$

Down SUB

HISTORIC

	Q ₂ CFS	Q ₁₀₀ CFS
Interior	1	5
Exterior	0.5	2.4
Total	1.5	7.4

AFTER DEVELOPMENT

Interior	3	10.5
+ HISTORIC Exterior	0.5	2.4
Total	3.5	12.9

Dawn

41

DEPTH OF FLOW IN STREETS

$$Q = 0.56 \left(\frac{Z}{n} \right) S^{1/2} d^{2.67}$$

$$d^{2.67} = \frac{Q}{0.56 \left(\frac{Z}{n} \right) S^{1/2}} \quad , \quad Q_{\max} = 12.9 \text{ CFS}$$

$$= \frac{12.9}{0.56 \left(\frac{1}{0.016} \right) (0.005)^{1/2}} = 0.103$$

$$d = 0.103^{1/2.67} = 0.43 \text{ feet}$$

Minimum Storm Sewer Pipe Sizing

Line A , $Q_{\max} = 12.9 \text{ CFS}$

$\phi = 18'' \text{ PVC}$

$A = 0.785 D^2 = 1.766$

$P = \pi D = 4.71$

$R = A/P = 0.37$

$$Q = \frac{1.49}{n} (Rn)^{2/3} S^{1/2} A$$

$$= \frac{1.49}{0.011} (0.37)^{2/3} (0.015)^{1/2} (1.766) = 15 \text{ CFS}$$

DOWN SUB

5/

Storm Sewer Line B

$$\text{Area} = 4.5 \text{ AC}$$

$$Q = \frac{4.5}{8.7} \times 10.5 = 5.4 \text{ CFS}$$

no exterior contribution

$$\phi = 15" \text{ PVC}$$

$$A = 0.785(D^2) = 1.23$$

$$P = \pi D = 3.92$$

$$R_h = A/P = 0.31$$

$$Q = \frac{1.49}{n} (R_h)^{2/3} S^{1/2} A$$

$$= \frac{1.49}{0.011} (0.31)^{2/3} (0.006)^{1/2} 1.23 = 5.9 \text{ CFS}$$

trol were developed. These nomographs give headwater-discharge relationships for most conventional culverts flowing with inlet control through a range of headwater depths or discharges. An example of these nomographs is shown in Figure 3.25.

COMMENT #6

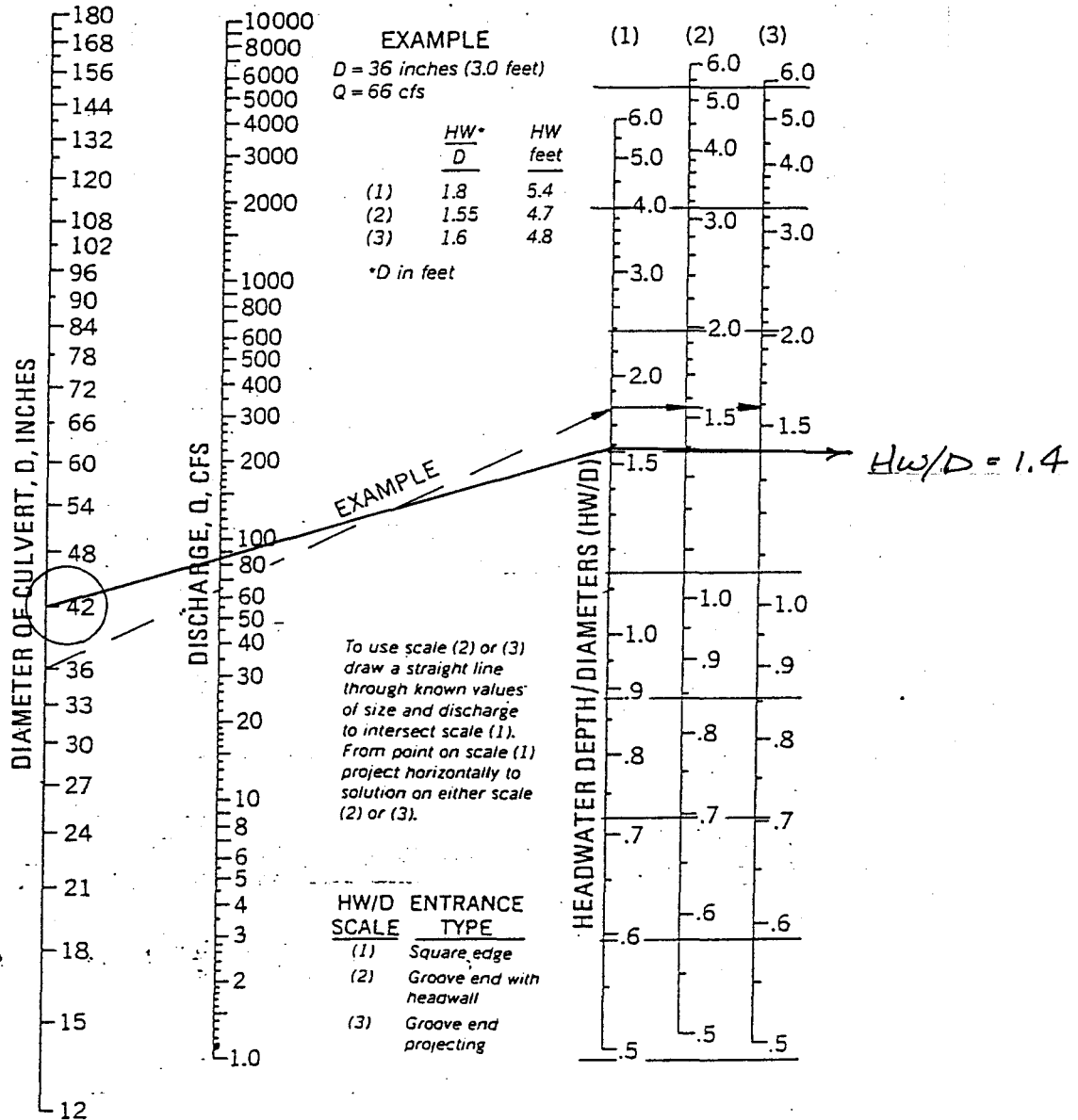


Figure 3.25. Headwater Depth for Circular Concrete Pipe Culverts with Inlet Control.

PIPE SIZING FOR GVWUA DITCH PIPE, N. R TO MH FR. SUBD.

CONTRIBUTING FLOW FROM NORTH

GRAND VIEW SUBD, 68.5 + 9.5 = 78.0

NORMAL FLOW GVWUA DITCH N. = 5.7

N. 30' EASEMENT DEVELOPED AREA = 0.7

TOTAL = 84.4 cfs

42" ϕ RCP @ 84.4 cfs = HW/D OF 1.4

HW = 3.5 \times 1.4 = 4.9' OR \approx 17" HEAD ABOVE PIPE

JOB NO. _____
JOB DAWN SUBDIVISION
CALCULATED BY SES DATE 6-3-95
CHECKED BY _____ DATE _____
SHEET NO. _____ OF _____

BANNER

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

HYDROLOGY CALCULATIONS

NORTH 30' OF SUBDIVISION (WITH GVWUA EASEMENT)

DEVELOPED CONTRIBUTION AFFECTING 42" ϕ STORM DRAIN (PROPOSED NEAR WEST PROPERTY LINE)

<u>DRAIN AREA</u>	<u>$A_T = 0.41$ Ac.</u>	<u>C_{100}</u>
Bare Ground with Soil Type D	0.41	0.34

ASSUME WORST CASE CONDITION

$T_c < 5.0$ MIN.

INTENSITY @ $T_c = 5.0$ MIN. $I_{100} = 4.95$

$$Q_{100} = 0.34(4.95)(0.41) = 0.7 \text{ cfs}$$

COMMENT #6

Circular Channel Analysis & Design
Solved with Manning's Equation

COMMENT #6

Open Channel - Uniform flow

Worksheet Name: DAWN SUBDIVISION

Comment: GVVUA DRAIN DITCH PIPE SIZING, TOTAL TO S PL

Solve For Actual Discharge

Given Input Data:

Diameter.....	4.00 ft*
Slope.....	0.0035 ft/ft
Manning's n.....	0.012
Depth.....	3.90 ft

Computed Results:

Discharge.....	97.75 cfs**
Velocity.....	7.83 fps
Flow Area.....	12.48 sf
Critical Depth....	3.00 ft
Critical Slope....	0.0048 ft/ft
Percent Full.....	97.50 %
Full Capacity.....	92.06 cfs
QMAX @.94D.....	99.03 cfs
Froude Number.....	0.44 (flow is Subcritical)

* 48" CL. 3 RCP PIPE

REQ. FLOW TO TRANSPORT

84.4 cfs FROM NORTH

12.9 cfs FROM DAWN SUB. PER 100-YR
CALCS. (SEE NEXT SHT.)

97.3 cfs TOTAL NEEDED

** 97.8 cfs ACTUAL → OK

COMMENT #6

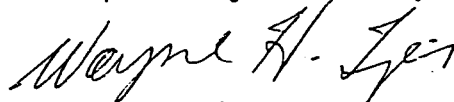
Final Drainage Report/Dawn Subdivision
May 1, 1996
Page 4

V. RESULTS AND CONCLUSIONS

Summary of Run-off Rates

	Q ₂ cfs	Q ₁₀₀ cfs
Historic		
Interior	1.0	5.0
Exterior (OF-1)	<u>0.5</u>	<u>2.4</u>
Total	1.5	7.4
After-Development		
Interior	3.0	10.5
Plus Historic Exterior (OF-1)	<u>0.5</u>	<u>2.4</u>
Total	3.5	12.9

Respectfully submitted,



Wayne H. Lizer, P.E., P.L.S.

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: DAWN SUBDIVISION

Comment: DRAIN PIPE UNDER GRAND VIEW DRIVE, 24" RCP

Solve For Actual Discharge

Given Input Data:

Diameter.....	2.00 ft *
Slope.....	0.0100 ft/ft
Manning's n.....	0.012
Depth.....	2.00 ft

Computed Results:

Discharge.....	24.51 cfs **
Velocity.....	7.80 fps
Flow Area.....	3.14 sf
Critical Depth....	1.75 ft
Critical Slope....	0.0091 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	24.51 cfs
QMAX @.94D.....	26.36 cfs
Froude Number.....	FULL

* 24" ϕ RCP AS SHOWN ON GRADING & DRAINAGE PLAN.

** REQ. FLOW FROM N. 30' PLUS DRAIN DITCH NORMAL FLOW IS $5.7 + 0.7 = 6.4$ CFS < 24.5 CFS AT PIPE ENTRY. REASON FOR 24" IS NEED TO ACCEPT 24" STORM DRAIN FROM GRAND VIEW THAT INTERSECTS DITCH UNDER NEW ROAD, THE DETENTION VOLUME SHOULD BE UNAFFECTED SINCE THE PONDS ON BOTH SIDES OF NEW ROAD ARE CONNECTED BY THE PIPE. EQUILIBRIUM WILL OCCUR FOR BOTH WATER LEVELS DUE TO CONNECTION AND BOTH LEVELS WILL DROP EQUALLY UPON RELEASE FROM THE OUTLET STRUCTURE.

Open Channel Flow Module, Version 3.43 (c) 1991

Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: DAWN SUBDIVISION

Comment: PIPE SIZE, DAWN AVE. N. INLET TO S. INLET

Solve For Actual Discharge

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.0200 ft/ft
Manning's n.....	0.010
Depth.....	1.00 ft

Computed Results:

Discharge.....	6.55 cfs
Velocity.....	8.34 fps
Flow Area.....	0.79 sf
Critical Depth....	0.97 ft
Critical Slope....	0.0176 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	6.55 cfs
QMAX @.94D.....	7.05 cfs
Froude Number.....	FULL

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: DAWN SUBDIVISION

Comment: PIPE SIZE, DAWN AVE. S. INLET TO STORM DRAIN

Solve For Actual Discharge

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.0300 ft/ft
Manning's n.....	0.010
Depth.....	1.00 ft

Computed Results:

Discharge.....	8.02 cfs
Velocity.....	10.21 fps
Flow Area.....	0.79 sf
Critical Depth....	0.99 ft
Critical Slope....	0.0272 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	8.02 cfs
QMAX @.94D.....	8.63 cfs
Froude Number.....	FULL



Representing Heavy Engineering/Highway/Municipal-Utility
Construction Since 1933



Full Service Chapter of the Associated General Contractors of America

CONSTRUCTION STANDARD FOR EXCAVATIONS

(29 CFR Part 1926.650-.652)
Subpart P

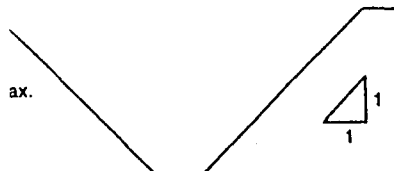
**PROMULGATED
BY THE**

**Occupational Safety
and Health Administration**

Provided By
Colorado Contractors Association, Inc.
1451 South Ash Street, P.O. Box 22106
Denver, Colorado 80222
303-756-9451

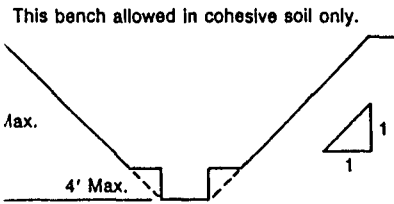
EXCAVATION STANDARD

Excavations Made in Type B Soil



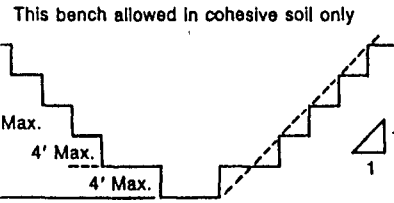
Simple Slope

simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.



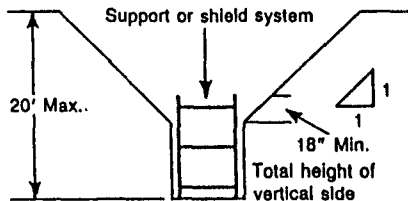
Single Bench

single benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and a maximum bench width of 4 feet.



Multiple Bench

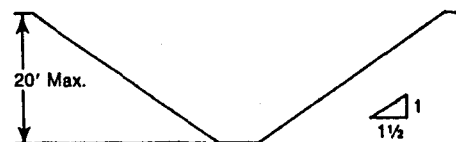
All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



Vertically Sided Lower Portion

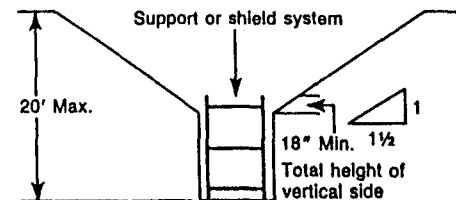
4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B-1.3 Excavations Made in Type C Soil



Simple Slope

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 1/2:1.



Vertical Sided Lower Portion

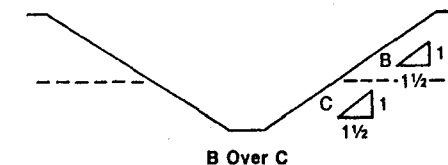
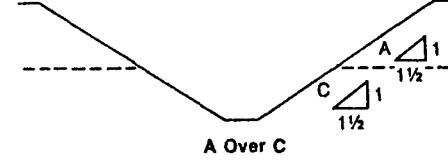
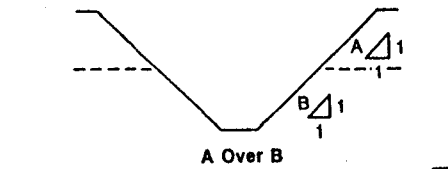
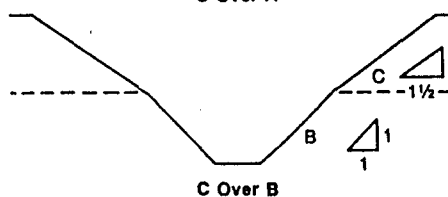
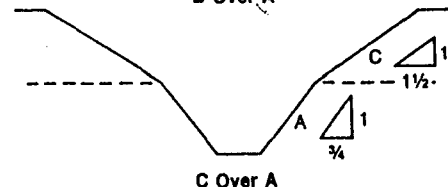
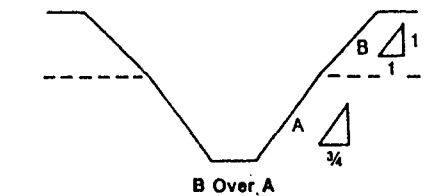
2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1 1/2:1.

3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

APPENDIX C TO SUBPART D TIMBER SHORING FOR TRENCHES

B-1.4 Excavations Made in Layered Soils

1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



2. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

Appendix C to Subpart P

Timber Shoring for Trenches

(a) *Scope.* This appendix contains information that can be used to design timber shoring for trenches that do not exceed 20 feet (6.1 m) in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with § 1926.652(c)(1). Other protective systems such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in § 1926.652(b) and § 1926.652(c).

(b) *Soil Classification.* In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the classification method set forth in appendix A of subpart P of this part.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables C-1.1, C-1.2, and C-1.3, and Tables C-2.1, C-2.2 and C-2.3 following paragraph (g) of the appendix. Each table presents the minimum sizes of timber members to use in a shoring system and each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix, and on the tables themselves.

(3) Information explaining the use of the tabular data is presented in paragraph (e)

EXCAVATION STANDARD

FIGURE B-1 SLOPE CONFIGURATIONS

Samples that dry without cracking are broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as a unfissured cohesive material and the unconfined compressive strength should be determined. If a sample breaks easily by hand, it is a fissured cohesive material or a granular material. To distinguish between them, pulverize the dried clumps of the soil by hand or by stepping on them. If clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Appendix B to Subpart P

Sloping and Benching

Scope and application. This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in 1926.652(b)(2).

Definitions.

Actual slope means the slope to which an excavation face is excavated.
Distress means that the soil is in a condition where a cave-in is imminent or is about to occur. Distress is evidenced by phenomena as the development of cracks in the face of or adjacent to an excavation; the subsidence of the edge of the excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; or falling of material from the face of an

excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) **Requirements—(1) Soil classification.** Soil and rock deposit shall be classified in accordance with appendix A to subpart P of part 1926.

(2) **Maximum allowable slope.** The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) **Actual slope.** (i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least 1/2 horizontal to one vertical (1/2H:1V) less steep than the maximum allowable slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with § 1926.651(i).

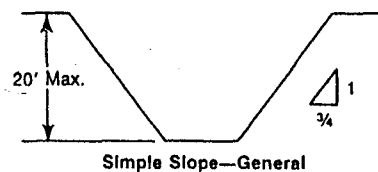
(4) **Configurations.** Configurations of sloping and benching systems shall be in accordance with Figure B-1.

Table B-1 Slope Configurations

The options stated below are in the horizontal to vertical ratio.

Excavations made in Type A soil.

A simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of 3/4:1.



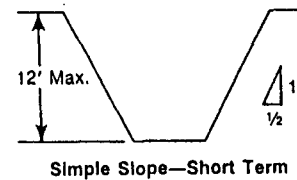
Soil or Rock Type	Maximum Allowable Slopes (H:V) ¹ for Excavations Less Than 20 Feet Deep ^{1,2}	
	Stable Rock	Vertical
Type A ²	3/4:1	(53°)
Type B	1:1	(45°)
Type C	1 1/2:1	(34°)

Notes:

¹ Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

² A short-term maximum allowable slope of 1/2H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).

³ Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

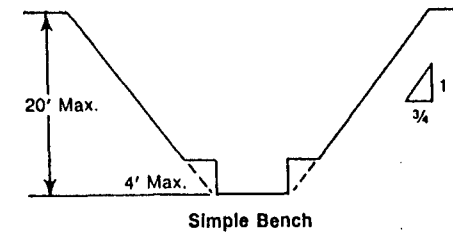


Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of 1/2:1.

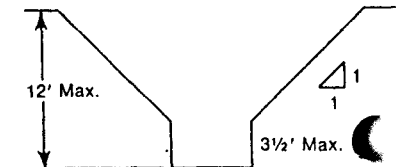


Unsupported Vertically Sided Lower Portion Maximum 8 Feet in Depth

All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3 1/2 feet.

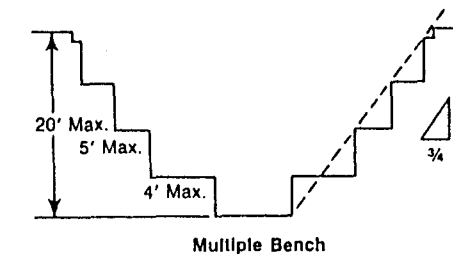


2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as shown above.

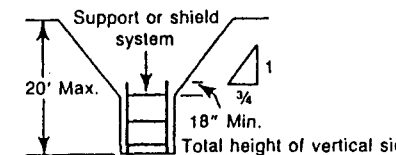


Unsupported Vertically Sided Lower Portion Maximum 12 Feet in Depth

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3 1/2 feet.



Supported or Shielded Vertically Sided Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

W.H. LIZER & ASSOCIATES
Engineering Consulting and Land Surveying
576 25 road, Unit #8
Grand Junction, Colorado 81505
(970) 241-1129

May 1, 1996

STORMWATER MANAGEMENT PLAN
FOR
DAWN SUBDIVISION

LOCATED IN THE SW 1/4 OF SECTION 6, T1S, R1E, U.M.
CITY OF GRAND JUNCTION, MESA COUNTY, COLORADO

A. Site and Project Description

Initially, the site will be grubbed to remove existing vegetation.

The streets will be rough cut and then main water and sewer lines will be installed.

Prior to construction the estimated runoff coefficients are 0.14 and 0.24 for 2-year and 100-year storm events, respectively.

After-development, the estimated runoff coefficients are 0.38 and 0.48 for 2-year and 100-year storm events, respectively.

It is expected that soil erosion and contaminants to the soil will be very minimal as the site is relatively flat and no toxic materials will be used for construction purposes.

At this time the site is covered with low growth weed cover and some salt brush along the North side and along the drainage ditches.

There will be no storage of fuels or toxic material on the site during construction.

B. Management During Construction

Watering will be required for dust control.

Most equipment used for construction should be left on-site until the work is completed in order to keep from tracking mud off-site during construction.

Safety procedures should be addressed to the contractors to reduce the risk of fuel spills.

Stormwater Management Plan
Dawn Subdivision
May 1, 1996
Page 2

Final stabilization would include lawns with individual lot watering systems.

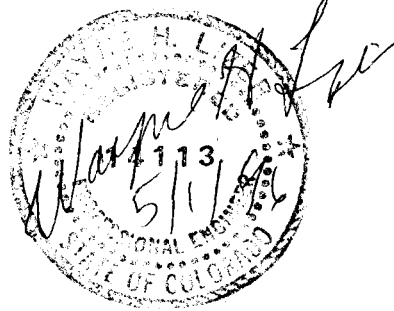
Once the stormwater drainage system is accepted, the City of Grand Junction will be responsible for upkeep and maintenance.

Respectfully submitted,



Wayne H. Lizer, P.E., P.L.S.

WHL/s1



REVIEW COMMENTS

Page 1 of 3

FILE #FP-96-117

TITLE HEADING: Dawn Subdivision

LOCATION: N of the NE corner of 28 & Patterson Roads

PETITIONER: John Davis

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

PETITIONER'S REPRESENTATIVE: Ward Scott, Remax 4000

STAFF REPRESENTATIVE: Kristen Ashbeck

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., MAY 23, 1996.

CITY POLICE DEPARTMENT

5/7/96

Dave Stassen

244-3587

For crime prevention and limiting problems with vandalism, theft from autos, and burglaries, the access onto 28 Road should be eliminated.

UTE WATER

5/8/96

Gary R. Mathews

242-7491

1. An 8" water main is needed for Grand View Drive. A 6" is ok for the remainder of the subdivision. Contact with Ute Water is needed to discuss the water valve and fire hydrant locations.
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 is responsible for installing meter pits and yokes for a complete installation. Ute Water will furnish the meter pits and yokes.
4. Construction plans required before development begins.
5. Policies and fees in effect at the time of application will apply.

WALKER FIELD AIRPORT

5/6/96

Dennis Wiss

244-9100

This development lies approximately 4,000 feet south-southwest of the approach end of Runway 04 at Walker Field. As such, it lies within the Airport's Area of Influence as well as underlying the common aircraft traffic pattern for Runway 4-22. This development may be affected by the overflight of aircraft. An Avigation Easement is required to be filed at or before the filing of the subdivision plat. A copy of the recorded document should be forwarded to the Walker Field Airport Authority following its recording.

It is the recommendation of the Airport Authority that due to this development being in proximity to aircraft flight paths and the airport proper that additional soundproofing insulation as well as planned landscape features be designed into each residence and site to help mitigate potential sound-level perceptions.

CITY FIRE DEPARTMENT

5/9/96

Hank Masterson

244-1414

The Fire Department has no problems with this Final Plan.

U.S. WEST

5/8/96

Max Ward

244-4721

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

PUBLIC SERVICE COMPANY

5/9/96

John Salazar

244-2781

GAS & ELECTRIC: Require that 14' multi-purpose easement on both sides of Valley Street at west end extend all the way to 28 Road. Ask that front-lot 14' multi-purpose easements be noted as such on plat.

CITY PROPERTY AGENT

5/13/96

Steve Pace

256-4003

1. Utility and ingress-egress easements are addressed in the dedication, but are not shown on the plat. Only the platted easements need to be addressed.
2. The book and page are missing the dedication caption.
3. It needs to be shown and or noted on the plat, how and when the east 10 feet of 28 Road right-of-way was vacated (Ordinance Number ?).

T C I CABLEVISION

5/13/96

Glen Vancil

245-8777

See attached comments.

CITY DEVELOPMENT ENGINEER

5/16/96

Jody Kliska

244-1591

See attached comments.

CITY COMMUNITY DEVELOPMENT

5/16/96

Kristen Ashbeck

244-1437

See attached comments.

CITY COMMUNITY DEVELOPMENT

5/16/96

Ronnie Edwards

244-1430

The names "Village", "Park" and "Valley" cannot be used as they are a duplication of names previously used. See Section 5-3-4.A.13 of the Zoning and Development Code.

GRAND VALLEY WATER USERS' ASSOCIATION

5/16/96

Richard Proctor

242-5065

See attached comments.

CITY UTILITY ENGINEER

5/15/96

Trent Prall

244-1590

1. PLANS WERE NOT STAMPED
2. UTILITY COMPOSITE NOT SUBMITTED.

WATER: Ute

- 3. Provide a signoff block for Ute on all water related plans.
- 4. Please obtain Ute Water's standard specifications to be included in plan set.
- 5. Angles for bends not on drawings.
- 6. Water Note A - check spelling on "specification".

SEWER: City

- 7. Proposed horizontal alignments are inadequate:
 - a. No bearing and distance for sewer line A.
 - b. Please look into reconfiguring sewer as shown on attachment.
 - 1. Alignment from Park Ave to Valley Street under pedestrian easement has three flaws: a. Alignment intersects Valley Street at > 90 degree angle, restricting flow. b. 12' easement is inadequate, must be at least 20' c. Pedestrian easement would have to have 6" concrete (rather than 4") to accommodate heavy equipment if there was a sewer break. For the above reasons and if grades permit, abandon this alignment and plan to extend sewer further up 28 road and then between lots 6 and 7 to get to Park Ave. The storm drain could probably be shifted to one side of the easement and the sewer placed in the other. This proposed alignment would save two manholes. (See attached drawing)
- 8. In reference to sewer note K, where is F 3/4 Street stub out???? On Sewer sheet 1 of 2 a sewer is stubbed out to eastern development property line through 20' multipurpose easement between lots 5 and 6 of Blk 1, however no notes or sewer profiles were submitted. Please clarify. Sewer AND water should be stubbed to the east as discussed in preliminary submittal meetings.
- 9. Lot 4 Blk 2 has 2 sewer taps shown, however does not have a water tap. Please reconfigure.
- 10. As mentioned before under different projects, when running pipe straight through manhole, elevation should be called out for center of manhole rather than having the same elevation for both east and west.
- 11. All profiles should show utility crossings.
- 12. More comments on resubmittal.

CITY PARKS & RECREATION

5/17/96

Shawn Cooper

244-3869

- 1. Developer to install 10' wide concrete trails through the pedestrian an multi-use easements with appropriate connections and handicap ramps where appropriate.
- 2. Parks & Open Space fees - 34 units @ \$225 = \$7,650.

LATE COMMENTS

MESA COUNTY SCHOOL DISTRICT #51

5/20/96

Lou Grasso

242-8500

SCHOOL - CURRENT ENROLLMENT / CAPACITY - IMPACT

Orchard Avenue Elementary - 389 / 375 - 9

East Middle School - 415 / 465 - 4

Grand Junction High School - 1674 / 1630 - 5

TO DATE, COMMENTS NOT RECEIVED FROM:

City Attorney

Mesa County Planning

Colorado Geological Survey



PARKERSON CONSTRUCTION, INC.

710 S. 15th Street
Grand Junction, Colorado 81501
(303) 242-8134
FAX (303) 242-8977

May 22, 1996

John Davis
1023 - 24 Road
P. O. Box 2867
Grand Junction, Co 81502

Dear Mr. Davis;

Earlier today you asked me how much working area would be needed to repair a 48" concrete buried 10' deep.

Some jobs we do for the City of Grand Junction require us to repair or replace sewer lines in the alleys. Some of these alley's are only 15' to 20' wide. The depths can range up to 14' deep. These are difficult jobs but it is possible to do.

To repair a 48" pipe 10' deep, I would like to have a right of way of 40' total (20' on each side of the center line). With that much width, a repair or replacement would not be too difficult.

If you have any further questions, please call.

Thank you,

A handwritten signature in cursive script that reads "Alan Parkerson".

Alan Parkerson

Thursday, May 23, 1996

Ms. Kristen Ashbeck
Community Development
City of Grand Junction

Re: Dawn Subdivision, #FP-96-117

Dear Ms. Ashbeck:

Following is our response to the REVIEW COMMENTS for the subject file. Where applicable, my numbered responses correspond to the same numbers used in the reviewer's comments.

CITY POLICE DEPT.

The access was required by the Planning Commission.

UTE WATER

All comments noted and will be complied with.

WALKER FIELD AIRPORT

The avigation easement is noted on the plat and the avigation easement form will be executed and recorded at time of recording the plat.

CITY FIRE DEPT. AND US WEST

Comments noted.

PUBLIC SERVICE CO.

See the revised plat.

CITY PROPERTY AGENT

See attached plat. A vacation notation below the SW corner of the subdivision has been added to the plat for the ROW vacation, and the actual ordinance number will be inserted when given.

TCI CABLEVISION

Comments noted.

CITY DEVELOPMENT ENGINEER

See the revised Plat, Composite Plan, Grading and Drainage Plan, Water and Sewer Plan and Profile, Roadway Plan and Profile, and Road Cross-sections. However, regarding comment no. 25, we believe that the centerline to edge of gutter distance is 22 ft. (not 25 ft.) as provided in the MAJOR STREET STANDARDS, COLLECTOR STREET. We have not yet been able to obtain the exact estimates for the DIA revision and have increased item 14. to page 3 to Exhibit B of the DIA, "extras", and the total by \$20,000.00. We are sure that this will more than cover the remarks and will provide a detailed accounting by Noon, May 27, 1996.

CITY COMMUNITY DEVELOPMENT (Ashbeck)

Regarding your comments for final plat, see the revised plat; the avigation easement form will be executed.

Regarding the drain ditches, see the revised Grading and Drainage Plan.

A detail for the 8 ft. concrete walkway is provided. Note that City Parks and Rec. is now saying a 10 ft. pathway is required, but that seems excessive, and an 8 ft. detail has been submitted. If absolutely required for subdivision approval, a 10 ft. walkway and detail will be provided as a condition for final approval.

See the revised DIA Exhibit B.

See the revised Covenants sheets for the subject sections.

(Edwards) See the revised street names on the plat.

GRAND VALLEY WATER USERS' ASSOCIATION

The plat has been revised to show the 30 ft. north drain ditch easement and the Grading and Drainage Plan has been revised to show the associated access roadway. The access road is revised in minor elevation detail (section B-B1 roadway is 1 ft. higher) from that given in the cross sections in my letter of May 9, 1996, to the City, a copy of which was sent to GVVUA, but the general plan is the same.

Please see the revised plans for details regarding the 28 Rd. drain line.

GVWUA has initially advised me that an easement of 40 ft. along 28 Rd. would be required, but the Developer feels that is excessive. The developer has consulted with Parkerson Construction and Banner Engineering regarding maintenance service for this line. Their attached letters indicate that 20 ft. on either side of the pipe is adequate. The revised Plat shows a 30 ft. easement which gives 20 ft. to the east of the pipeline for maintenance which to the Developer seems reasonable, especially given the highly limited to unlikely instances that access will be required.

CITY UTILITY ENGINEER

Stamped plans were provided, although late. See the revised Plat, Composite Plan, Grading and Drainage Plan, Water and Sewer Plan and Profile, Roadway Plan and Profile, and Road Cross-sections and the Ute Standards.

CITY PARKS AND RECREATION

See above comments for the pedestrian walkway given to City Community Development.

CITY PROPERTY AGENT

See the revised plat.

Sincerely,



Ward Scott

Broker Associate

Representative for John Davis, Developer

BANNER

CONSULTING ENGINEERS & ARCHITECTS

BANNER ASSOCIATES, INC.
2777 Crossroads Boulevard
Grand Junction, Colorado 81506
(303) 243-2242
FAX (303)243-3810
605 East Main, Suite 6
Aspen, Colorado 81611
(303) 925-5857

May 23, 1996

Dear Mr. Scott:

In response to our conversation early this morning, I am offering the following information concerning the width of irrigation and drainage easements. I am providing this information based on my own experience which was gained by working with existing easements and providing new easements on plats and the advice of colleagues and also some minor research.

I am of the opinion that an easement that is 20 feet in width from centerline of the pipe is adequate in most cases. Since the pipe line under consideration is 10 feet deep, the side slope could be laid back at a slope of 3:1 for safety from cave in and still be inside the easement at the top of the slope. Most ditches do not require this flat of a slope so that a few feet would be left over at the top for workmen and equipment. If the side slope was steeper an even narrower easement would suffice.

I have enclosed some prints from an OSHA excavation manual which show recommended slopes of ditch sides and most of them are steep enough to fit well within a 20 foot width.

I hope this information will satisfy your requirements. If you have any questions or comments, please call.

Very truly yours,

BANNER ASSOCIATES

Wallace E. Beedle

Wallace E. Beedle, PE, PLS

1 of 2

Jody —

Please excuse my handwritten note, but I'm out of time and leaving town Wed. 5/29, when I understand you'll return (I'm back Thurs.).

Wayne says he can't complete the Dawn Sub. 28 Rd. buried drainage line design because:

- ① Monty Stoupe, Land Design, says there is 87 cfs coming from:
- ② their 28 Rd buried 36" ϕ and
- ③ their Grand View, detention release for Phase 1
- ④ GVWDH say their input is 5.7 cfs.
- ⑤ the existing line under 28 Rd. that Dawn is supposed to connect with is a 24" ϕ which,

202

as Wayne understands it, is
to carry all of the above
plus Dawn Drainage plus
whatever the City will
release from their
retention property. So
~~24~~ 24 & under 28 appears to be
Michael accepted the
Dawn responses to comments
subject to us resolving
this before Planning Comm
hearing for Dawn. Final
on 6/11/96.

Please contact Wayne
Linger directly, 241-1129,
or get with me Thurs.
5/30 if you prefer.

~~202~~

Thanks —
Ward

May 31, 1996

TO Dennis Herzog
Daily Sentinel

FROM: Marcia Rabideaux
Community Development Department
City of Grand Junction

Following is the information and legal description for Dawn Subdivision. Per Ward Scott of REMAX 4000, it is my understanding that you are willing to add this item to our legal ad for the Grand Junction Planning Commission to be published next Tuesday, June 4, 1996.

FP-96-117 FINAL PLAT - DAWN SUBDIVISION

Request for approval of the final plat for 34 single family lots on approximately 8.85 acres with zoning of RSF-4 (Residential Single Family with a density of 4 units per acre).

PETITIONER: John Davis
LOCATION: N of the NE corner of 28 & Patterson Roads
REPRESENTATIVE: Ward Scott
LEGAL DESCRIPTION: A parcel of land located in the W1/2 of Lot 7, Sec 6, T1S, R1E, U.M., being more particularly described as follows: Commencing at the Sw cor of Sec 6, whence the NW cor of Lot 7 bears N00°03'19"E for a basis of bearings with all bearings contained herein relative thereto; thence N00°03'19"E 1322.40ft along the W line of Lot 7, thence S89°58'15"E 40.00ft to the True POB; thence S89°58'15"E 595.83ft to a pt on the E line of the W 1/2 of Lot 7, thence S00°01'54"W 636.03ft along the E line of the W1/2 of Lot 7; thence N89°59'07"W 596.09ft to a pt on the E R-O-W of 28 Road, thence N00°03'19"E 636.18ft to the True POB, Mesa County, Colorado. AND ALSO to include the easterly 10 ft of the current 28 Road R-O-W adjacent to the W boundary of the above described parcel which is being added by a R-O-W vacation as part of the Dawn Subdivision processing through the City of Grand Junction.

RESPONSE TO REVIEW COMMENTS

FILE: FP 96-117

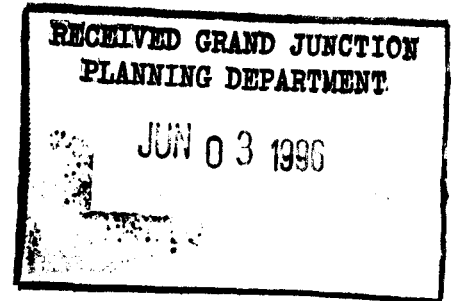
TITLE HEADING: Final Plan - Dawn Subdivision

LOCATION: 28 Road and F Road

PETITIONER: John Davis

PETITIONER'S ADDRESS/TELEPHONE:

1460 North Avenue, Unit H
Grand Junction, CO 81501



PETITIONER'S REPRESENTATIVE: Ward Scott RE/MAX 4000 / Banner Associates

STAFF REPRESENTATIVE: Community Development / Kristen Ashbeck

CITY DEVELOPMENT ENGINEER

1. No response necessary.
2. In agreement with comment, has been provided.
3. Storm inlets near Dawn Avenue and 28 Road intersection have been redesigned.
4. Proposed piping of the irrigation ditch has been shown on the revised grading and drainage plan. The proposed storm sewer line will tie into the irrigation ditch piping located near the west property line.
5. Utility crossings in the storm sewer profile have been provided.
6. A plan and profile for the proposed irrigation ditch pipe has been provided on the revised grading and drainage plan. Calculations for the sizing of the new pipe were performed and accompany these responses.
7. No response necessary.
8. The revised grading and drainage plan includes a cross-section of the proposed grading changes near the north property line of this development.
9. Location and dimensions for the proposed pedestrian walkways have been provided on the street plans along with reference to the sidewalk section detail.
10. A Stormwater Management permit will be obtained from the Colorado Dept. of Health prior to construction activity.

11. No response necessary.
12. Sewer and water lines have been stubbed-out to the east and shown on the Composite Plan and on applicable utility drawings.
13. Utility crossings have been shown on the sewer profiles.
14. No response necessary.
15. Deficiencies as noted on the SSID checklist provided have been addressed.
16. A detail for the curve widening at the 90 degree corners has been provided.
17. Storm drain inlet location, size and type have been called out on the street plans.
18. Improvements for completion of Grand View Drive have been provided on the Grading and Drainage plan. A detail for the pipe crossing under Grand View Drive is also provided on the Grading and Drainage plan. Calculations are provided to verify pipe size and accompany these responses.
19. There will be no V-pan across the intersection with 28 Road. Storm inlets are located on both sides of Dawn Avenue near the intersection with 28 Road that will collect runoff from 28 Road and Dawn Avenue.
20. In response to this comment, scaled elevations from the cross sections are nearly identical to corresponding design elevations shown on the profile for stations 2+25 to 4+00. Centerline and flowline elevation data were compared for 28 Road.
21. The tangent to the vertical curve beyond station 5+50 is 0.52% sloping to the north. Vertical crest curves can, by nature, create short sections of relatively flat grades, however due to the fact that this is the highest point on the alignment, little, if any, accumulation of water should occur. As mentioned previously, the grade beyond this crest is 0.52% all the way to the north property line boundary, approx. Sta 7+00.
22. Table 8, p.28 of the City TEDS manual does in fact state that the minimum length of vertical curves for this road classification to be 75 feet. It is assumed that the length in question is the 72 feet, which in fact occurs in the flowline of the gutter and technically outside the paved roadway limits by 1.5 feet. This would result in an edge of roadway vertical curve of 73.5 feet, which difference we consider to be insignificant. If the City requires correction of the vertical curve, we will make the revision.
23. Pavement structural sections have been revised to match the pavement design as per the submitted geotechnical report.
24. Subdivision street sections will be 3" of HBP on 10" of ABC and the 28 Road section will be 3" HBP on 11" ABC as suggested in the submitted geotechnical report. A note indicating the preparation of the subgrade has been provided.

25. Referring to sheet 13 of 14, the 28 Road section shows 22' of total asphalt from the centerline of 28 Road with a 7' vertical curb, gutter and sidewalk as required for a Collector Street, as per City of Grand Junction Street Standards. The 28 Road cross sections, shown on sheet 11 of 13, seem to reflect this section.

26. No response necessary.

27. A revised DIA is being resubmitted with these responses.

CITY UTILITY ENGINEER

1. Erroneous line on Utility Drawings has been erased.
2. "Line B" and "Line E" have been identified on plan views of sewer drawings.
3. Sewer profiles have been resubmitted showing major existing and proposed utility crossings.

COMMUNITY DEVELOPMENT

FINAL PLAT

3. Street names have been revised per comments of Ronnie Edwards.

IMPROVEMENTS AGREEMENT

1. DIA now includes a line item for this comment.
2. DIA now also includes a line item for this comment.

GRAND VALLEY WATER USERS ASSOCIATION

Please see the revised plans regarding the existing north and west drain ditches. The 30' GVVUA easement along 28 Road will give 26+ feet from the centerline of the buried pipe to the east side of the easement. Also please see the attached letters from Parkerson Construction, Inc. and Banner Associates, Inc. indicating that a 20' easement from the centerline would be sufficient. The Grading and Drainage Plan shows the proposed contours for the north access road as well as a typical cross-section for this road.

Conditions as stated
Approval: 3-0

STAFF REVIEW

FILE: FP 96-117

DATE: June 5, 1996

REQUEST: Final Plat - Dawn Subdivision

LOCATION: North of the Northeast Corner of 28 Road and Patterson Road

APPLICANT: John Davis

STAFF: Kristen Ashbeck

EXISTING LAND USE: Undeveloped

PROPOSED LAND USE: Single Family Residential

SURROUNDING LAND USE:

NORTH: Single Family Residential (Grand View Subdivision)

SOUTH: Church - Under Construction

EAST: Undeveloped

WEST: Single Family Residential (Spring Valley Subdivision)

EXISTING ZONING: Residential Single Family 4 units per acre (RSF-4)

SURROUNDING ZONING:

NORTH: Residential Single Family 5 units per acre (RSF-5)

SOUTH: RSF-4

EAST: Planned Residential 16 units per acre (PR-16 - Mesa County)

WEST: RSF-5

RELATIONSHIP TO COMPREHENSIVE PLAN

No comprehensive plan exists for this area of the city.

STAFF ANALYSIS

Project Summary / Background. The applicant is proposing to subdivide a vacant parcel of land ~~on the east side of 28 Road north of the 28 and Patterson Road intersection~~ into 34 single family residential lots. The ~~Grand Junction~~ Planning Commission, at its March 12, 1996 meeting, approved the Preliminary Plan for the subdivision with three conditions: 1) the issues outlined in the staff report for the Preliminary Plan be addressed at Final Plat submittal; 2) a second access be provided on 28 Road; and 3) the ditch along the northern property line be filled. ZAVB
KSE-1

Access: The applicant has addressed the Planning Commission condition by adding a second access on 28 Road. Full half street improvements the length of the 28 Road frontage are being proposed as required. There will still also be access to the Dawn subdivision via Hawthorne Avenue and Grand

View Drive through the Grand View subdivision to the north. Presently, Grand View Drive only extends south to the drainage ditch. It is intended that the completion of the street improvements to the common property line is to be constructed by the developer of the Grand View subdivision and will be included in the Improvements Agreement and Guarantee for Filing 2 of the Grand View which is currently being reviewed. However, if an Improvements Agreement and Guarantee for Grand View Filing #2 is not in place to address completion of the street prior to recording the Final Plat for Dawn subdivision, completion of the street must be the responsibility of the petitioner and must be included in the Improvements Agreement and Guarantee for the Dawn subdivision.

Drainage. The City has purchased the property directly south of the proposed Dawn Subdivision to serve as a regional stormwater detention facility. All developments within the basin, including this proposal, will be required to use the facility. The Final Drainage and Grading Plan indicates stormwater flow from Dawn Subdivision to the regional facility. The developer's share of the cost of the facility is \$10,911 to be paid prior to recording the plat.

A condition of approval of the Preliminary Plan regarded treatment of the ditch along the northern boundary of the property. The Planning Commission approved a concept for grading these lots which is reflected on the Grading and Drainage Plan. Also, a separate line item for the cost of this earthwork has been included in the Improvements Agreement and Guarantee to ensure construction of these lots as intended.

A remaining issue with drainage is the piping of the ditch along the western edge of the property. The Grand Valley Water Users Association (GVWUA) requested that its concerns with the design and specifications of the pipe and adequate easement for maintenance be addressed prior to Final Plat approval. The developer has provided GVWUA with the design and specifications for the ditch, but staff has not received comments regarding approval.

GVWUA initially requested a 40-foot easement for maintenance of the pipe. Staff concurs with the petitioner that this is an unreasonable request. The petitioner has documented statements from various professionals indicating their opinion of how wide the easement needs to be to maintain the pipe (see letters with Petitioner's Response to Comments). The 30-foot easement shown on the Final Plat will satisfy maintenance requirements.

Utilities. Ute Water will provide water and the City will provide sewer service to the proposed Dawn Subdivision. The City Utilities Engineer required that water and sewer lines be stubbed out to the eastern side of the property in order to service future development with looped lines. A 20-foot easement for this purpose has been shown on the Final Plat and the utility plans indicate the stubbed lines. With the exception of a few minor revisions on the engineering plans, all other utility comments have been addressed. Approval by the Utilities Coordinating Committee will be required prior to recording the plat.

Other Site Development Details. The Final Plat for Dawn subdivision shows a 12-foot pedestrian easement going south to the regional stormwater detention facility and a north-south connection between Dawn and Cottage Avenues. This was required to provide a pedestrian connection to the possible development of a trail system along the edge of the detention basin to points east such as

Machett Park. The developer is responsible for construction of an 8-foot concrete path within these easements. A separate line item for the construction of the path is included in the Improvements Agreement and Guarantee.

Other Concerns. Comments from other review agencies will be addressed prior to recording the Final Plat. These include execution of an avigation easement, payment of Parks and Open Space fees in the amount of \$7,650, details on the language on the Final Plat, and addressing any issues remaining on the red-lined engineering plans to be provided to the petitioner and in the comments per Community Development, City Development Engineer and City Utilities Engineer dated June 5, 1996.

STAFF RECOMMENDATION: Approval of the Final Plat for the Dawn subdivision with the following conditions:

- 1) Address the remaining comments on the red-lined engineering plans and plat provided to the petitioner and in the comments per Community Development, City Development Engineer and City Utilities Engineer dated June 5, 1996;
- 2) Approval of the design and specifications for the piping of the ditch along 28 Road by Grand Valley Water Users Association;
- 3) Payment of the drainage fee in the amount of \$10,911;
- 4) Obtain a Stormwater Management permit from the Colorado Department of health prior to construction activity; and
- 5) Execution of an avigation easement to be recorded with the Final Plat.

SUGGESTED PLANNING COMMISSION MOTION: Mr. Chairman, on item FP 96-117, I move that we approve the Final Plat for the Dawn subdivision with the conditions stated in the staff report.

COMMUNITY DEVELOPMENT

1. Need to break out or verify in writing that the line item III.10., Interior Streets, in DIA includes extension of Grand View Drive from property line north to match existing improvements.
2. Parks & Open Space fees = \$225 x 34 lots = \$7,650, payable prior to recording Final Plat.
3. Please submit original of completed avigation easement to be recorded with plat.
4. Please submit original of covenants to be recorded with plat.
5. Street names will need to be revised again. The change in street configuration shortened the amount of lots and length of streets within the subdivision. Historically, the length of a street to constitute a block is 400 feet and then require new name if direction of street had been changed.

Refer to the red-lined plat for suggested revision--3 names will be needed. It was found that the name "Dawn" cannot be used as it already exists.

The street plan indicating street names will also need to be revised. Refer to red-lined plan for suggested placements.

DEVELOPMENT ENGINEER

1. The drainage fee is calculated at \$10,911, payable prior to recording Final Plat.
2. Stormwater management permit from the Colorado Department of Health will be required for construction activity.
3. If no guarantee is in place that Grand View Drive will be completed by the Grand View subdivision developer prior to Dawn construction, need to revise note on the profiles for Grand View Drive.
4. Regardless of who is to complete the street, need to show completion of Grand View Drive on the street plan.
5. Street lighting and some signs (e.g. curves) not shown on street plan.

UTILITIES ENGINEER

1. MH #4 can be eliminated. It was needed in the original alignment submitted, however the redesign has eliminated the need for it.
2. Please make Line E a 10" line at a 0.28% slope.



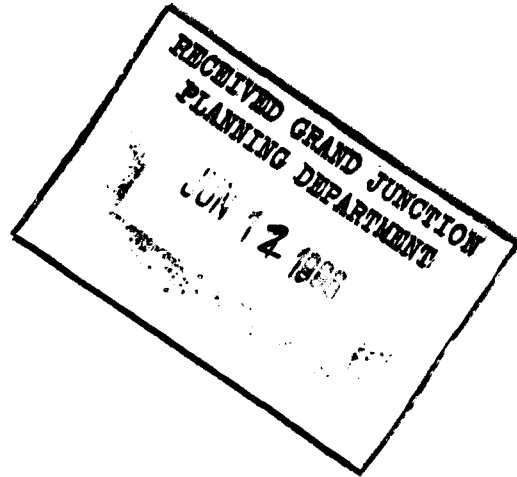
**Above
the
Crowd!**

June 12, 1996

Kristin Ashbeck
City Development Department
Grand Junction, CO

HAND DELIVERED

RE: File F-P96-117



This is our notice that we want to appeal the Planning Commission's determination at their June 11, 1996 hearing for Dawn Subdivision.

I have discussed with Dick Proctor, Grand Valley Water Users Association, the design that he will accept for the 28 Road drain ditch. I have then relayed the same information to Jody Kleska, and she says they will be unable to accept that design. We therefore are asking the City to approve the submitted design without requiring approval from Grand Valley Water Users Association.

Ward Scott
For the Developer John Davis

P.S. If at all possible, please
see if we can be placed
on the Council's' 6/19/96 agenda.

WS

RE/MAX 4000, Inc.
1401 North 1st Street
Grand Junction, Colorado 81501
Phone: (970) 241-4000
Fax: (970) 241-4015

Each Office Independently Owned and Operated



STAFF REVIEW - CITY COUNCIL

FILE: FP 96-117

DATE: June 13, 1996

REQUEST: Reconsideration of Planning Commission Approval of Final Plat - Dawn Subdivision

LOCATION: North of the Northeast Corner of 28 Road and Patterson Road

APPLICANT: John Davis Representative: Ward Scott

STAFF: Kristen Ashbeck

EXISTING LAND USE: Undeveloped

PROPOSED LAND USE: Single Family Residential

SURROUNDING LAND USE:

NORTH: Single Family Residential (Grand View Subdivision)

SOUTH: Church - Under Construction

EAST: Undeveloped

WEST: Single Family Residential (Spring Valley Subdivision)

EXISTING ZONING: Residential Single Family 4 units per acre (RSF-4)

SURROUNDING ZONING:

NORTH: Residential Single Family 5 units per acre (RSF-5)

SOUTH: RSF-4

EAST: Planned Residential 16 units per acre (PR-16 - Mesa County)

WEST: RSF-5

RELATIONSHIP TO COMPREHENSIVE PLAN

No comprehensive plan exists for this area of the city.

EXECUTIVE SUMMARY

The developer of the Dawn Subdivision, John Davis, is appealing a Planning Commission condition of approval of the Final Plat. The condition required that the Grand Valley Water Users Association approve of the design and specifications of the piping of a ditch along the western boundary of the property.

STAFF ANALYSIS

The applicant is proposing to subdivide a vacant parcel of land on the east side of 28 Road north of the 28 and Patterson Road intersection into 34 single family residential lots to be known as the Dawn subdivision. The Grand Junction Planning Commission, at its June 11, 1996 meeting, approved the Dawn subdivision Final Plat with several conditions, one being "Approval of the design and specifications for the piping of the ditch along 28 Road by Grand Valley Water Users".

Staff recommended this condition due to a letter from GVWUA that was received as initial comments on the project. Staff typically considers reasonable comments as issues that either need to be resolved during the review process or, if not resolved by hearing, as items incorporated as conditions of approval. The developer has provided GVWUA with the design and specifications for the ditch, but staff has not received comments regarding approval. Mr. Richard Proctor of the GVWUA testified at the hearing and Planning Commission supported his request to approve of the design.

The petitioner is presently proposing to direct stormwater drainage from the subdivision to the ditch that runs along 28 Road on the western boundary of the Dawn subdivision. The ditch is to be piped with the piping sized to accommodate the water volumes from the subdivision drainage, the existing flows in the ditch under the jurisdiction of the GVWUA, and other flows from properties to the north (Grand View subdivision) and east. As required by staff, the pipe would then discharge into the City-owned regional detention facility just south of the Dawn property.

The GVWUA is requesting that there be a separate pipe for the existing flows and that the pipe be located in the original channel of the ditch (same elevations). The theory being that a separate pipe would keep the historic flows from becoming co-mingled with stormwater discharge from the proposed Dawn subdivision. The developer would still have to construct the 48-inch pipe as proposed adjacent to the pipe for the ditch. The large pipe would still discharge into the City's detention facility.

The developer is appealing the condition that GVWUA approve of the piping design because it seems unlikely to be resolved in a timely manner, if at all possible. The developer believes the GVWUA proposal for separate pipes is unreasonable and not logical when the "historic flows" in the ditch are already co-mingled with stormwater runoff from the subdivision to the north and both pipes will still discharge into the same facility downstream.

There are also some legal issues which need to be resolved relative to the rights/powers GVWUA and, ultimately the Bureau of Reclamation, have over these drainage ditches.



United States Department of the Interior

BUREAU OF RECLAMATION

Upper Colorado Region
Western Colorado Area Office

Northern Division
2764 Compass Drive
PO Box 60340
Grand Junction CO 81506-8785

Southern Division
835 E 2nd Avenue
PO Box 640
Durango CO 81302-0640

JUN 19 1996

WCN-ASchroeder
PRJ-15.00
LND-5.00

City of Grand Junction
City Council
250 N. 5th Street
Grand Junction CO 81501-2668

Subject: Reconsideration of Planning Commission Approval of
Final Plat, Dawn Subdivision (File No. FP-96-117),
Item 16, June 19, 1996 Council Meeting (Drain D, Grand
Valley Project, Colorado)

Dear Council Members:

Reclamation supports the Planning Commission's requirement that the Grand Valley Water Users Association (Association) approve of the design and specifications for piping of the drain ditch along the west side of the Dawn Subdivision. The Association, as our agent and the operator of the Grand Valley Reclamation Project, has the responsibility and the right to ensure that any piping of project facilities meets criteria to protect the purposes for which those facilities were constructed.

The ditch in question is Drain D; a feature of the Grand Valley Reclamation Project. It was constructed by Reclamation in the early 1900's and is owned by the United States of America. The drain was designed to carry administrative waste water, irrigation tail water, and ground water drainage. Those purposes must be protected. Any changes to the facilities or their uses must be approved by the Association and Reclamation.

The Association is under contract with Reclamation to operate and maintain the Grand Valley Project. We rely on the Association to protect project facilities from damage by proposed actions which may adversely affect the facilities' functions. As urbanization of the area continues, the Association has been under increased pressure to maintain project facilities for project purposes.

The issue of approval of design and specifications for piping of project facilities is just one of several regarding third-party use of project facilities which have arisen due to urbanization of the valley. We are meeting with Grand Junction's City Attorney on June 20 to discuss some of these issues and try to find a solution that benefits all parties.

If you have any questions concerning this letter or the June 20 meeting, please contact Alan Schroeder at 248-0692.

Sincerely,



For David W. Mutz
Northern Division Manager

cc: Mr. Dick Proctor
Grand Valley Water
Users Association
500 South Tenth Street
Grand Junction CO 81501

✓ Ms. Kristen Ashbeck
City of Grand Junction
Community Development
250 North 5th Street
Grand Junction CO 81501-2668

ATTACHMENT #2

United States Department of the Interior

BUREAU OF RECLAMATION

Upper Colorado Region
Western Colorado Area Office

Northern Division
2764 Compass Drive
P.O. Box 60340
Grand Junction CO 81506-8785

WCN-ASchroeder
PRJ-15-00
LND-5.00

Jul 19 1996

City of Grand Junction
City Council
250 N. 5th Street
Grand Junction CO 81501-2668

Subject: Reconsideration of Planning Commission Approval of Final Flat, Dawn Subdivision (File No. PP-96-117), Item 16, June 19, 1996 Council Meeting (Drain D, Grand Valley Project, Colorado)

Dear Council Members:

Reclamation supports the Planning Commission's requirement that the Grand Valley Water users Association (Association) approve of the design and specifications for piping of the drain ditch along the west side of the Dawn Subdivision. The Association, as our agent and the operator of the Grand valley Reclamation Project, has the responsibility and the right to ensure that any piping of project facilities meets criteria to protect the purposes for which those facilities were constructed.

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If you have any questions concerning this letter or the June 20 meeting, please contact Alan Schroeder at 248-0692.

Sincerely,

/s/ David W. Mutz
Northern Division Manager

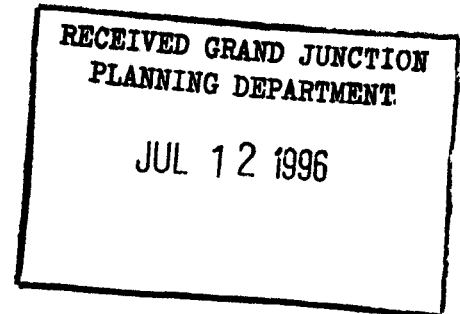
cc: Mr. Dick Proctor
Grand Valley Water Users Association
500 South Tenth Street
Grand Junction CO 81501

Ms. Kristen Ashbeck
City of Grand Junction
Community Development
250 North 5th Street
Grand Junction CO 81501-2668



Thursday, July 11, 1996

Ms. Kristen Ashbeck
Community Development Dept.
City of Grand Junction
Hand Delivered



Re: Dawn Subdivision

Dear Kristin:

Attached are three copies of:

- a. Revised Covenants. Article V, section 7., has been revised to add a new paragraph disallowing fencing of surface drain area (second paragraph from last). *(copies only)*
- b. Avigation Easement. *(original + 2)*
- c. Revised Improvements and Disbursement Agreements (amended as shown on Exhibit B). *(copies only)*
- d. Revised Plat. *(blue lines) 4 pp.*

We are in the process of obtaining and processing all Engineering comments.

We hope to have all matters resolved in the next day or two so that the Plat may be recorded, but I wanted to give you the items now ready for review.

Sincerely,

Ward Scott
Broker Associate



RE/MAX 4000, Inc.
1401 North 1st Street
Grand Junction, Colorado 81501
Phone: (970) 241-4000
Fax: (970) 241-4015

Each Office Independently Owned and Operated



Final Inspection Checklist

DAWN SUB. Subdivision

Date: 6-3-97

*Accepted
12-29-97
K. I. Ska/P. Prall*

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

Streets

Pavement

Concrete

Manholes

*MH #13 - INVERTED LIP - NEEDS TO BE INSTALLED CORRECTLY - SWAP WITH
55 MH @ 28 ROAD.*

Signs

Lighting

Site Grading

Other

*SUBMIT AS-BUILTS AND COMPILATION OF TEST RESULTS,
INSPECTION REPORTS,*

Utilites & Drainage

Water Lines

Sewer Lines

Inlet Structures

Detention Facilities

Outlet Structures

Inspected by:

[Signature]
City Development Engineer

Developer or Representative:

[Signature]

Final Acceptance of the Streets and Drainage Facilities will be made when the above items have been corrected and inspected. Please call 244-1591 when ready for final acceptance.



Recorded 7/12/96
Book 2248, Page 893

STATE OF COLORADO

DEPARTMENT OF
STATE

CERTIFICATE

I, *VICTORIA BUCKLEY*, Secretary of State of the State of Colorado hereby certify that

According to the records of this office

*DAWN HOMEOWNERS ASSOCIATION, INC.
(COLORADO NONPROFIT CORPORATION)*

file # 961084008 was filed in this office on JUNE 24, 1996, and has complied with the applicable provisions of the laws of the State of Colorado and on this date is in good standing and authorized and competent to transact business or to conduct its affairs within this state.

Dated: JULY 2, 1996

Victoria Buckley

SECRETARY OF STATE

Sentinel 6/30/96

3 agencies entrenched in mighty ditch battle

Laurena Mayne Davis
Daily Sentinel

An irrigation drainage ditch along a new 34-lot subdivision has brought on a turf battle between a local drainage district, the city of Grand Junction and the federal government.

The drainage district wants control over underground piping of the ditch, the city has asserted its own authority, and the U.S. Bureau of Reclamation is saying it wants to get out of the drainage business altogether.

Dawn Subdivision, north of a city retention pond at Patterson and 28 roads, is bordered on the west by a drainage ditch that is part of a 100-year-old bureau water delivery system called the Grand Valley Project, in an area referred to as "Drain D."

When developer John Davis was going through city planning this spring, the bureau coincidentally was writing new storm-water guidelines.

The goal was to cut down on the bureau's receipt of water from urban areas, which it asserts has a higher rate of pollutants.

"Drain D is just the tip of the iceberg," said Alan Schroeder, natural-resource specialist with the bureau. "It's just the one that jumped up front."

"It's been a continual hassle for

us," said Ward Scott of Remax 4000, which represents Davis. "There are bigger issues between the city, Grand Valley Water Users and the Bureau of Reclamation over authority and jurisdiction."

The difficulty is being "in the middle of it and not knowing which master to serve," he said.

The federal government holds senior rights for access on all properties in the project. The Grand Valley Water Users Association handles operation and maintenance of the laterals and drainage ditches.

Citing concerns of possible future Environmental Protection Agency regulation and strain of existing systems, the bureau decided to tighten its requirements in urban areas for who can use the drainage ditches and to what extent. And in the wake of federally mandated privatizing and shrinking of the bureau as a whole, Schroeder said the agency may try to withdraw its ownership in urban areas.

"We're working with trying to turn over the operations and maintenance to municipalities in urbanizing areas," Schroeder said. "It's probably appropriate for the city to take over the drainage systems, but then we can't force them

DITCH: Drainage a 'stepchild' issue across U.S., city manager says

Continued from page 1B

"We've got to be willing."

hat may not be the case.

It sounds like they want to give us only the

blems," said City Manager Mark Achen.

ainage is an urban issue all over the nation

generally has been kind of a stepchild."

nd if the bureau wanted to get out of the wa-

elivery, too, "that would be, I would think,

a major step for the city to get into the irrigation

business," Achen said.

"The bulk of the water is going out to serve agricultural needs."

Representatives of all involved interests for

Dawn Subdivision drainage have met and are

expected to forward an engineering solution

Tuesday to the water users Board.

"We just kind of got caught on the cutting

edge of it," Scott said. "Hopefully, we've got a

design that's agreed upon."

The city is drafting an operations-and-main-

tenance agreement for Drainage D that would

turn over responsibility from the water users

association to the city.

Jurisdictional overlap through urbanization

and the changing direction of the bureau at

bound to bring more permanent arrangements,

Schroeder said. The bureau, formed to provide

dams and irrigation for arid Western lands, is

changing its focus to water management and

endangered species, Schroeder said.

"It's just coming to the forefront with chang-

ing our mission," Schroeder said. "We're not

building so many dams — we're just managing

what we have."

CITY OF GRAND JUNCTION
DEPARTMENT OF PUBLIC WORKS & UTILITIES
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501
(970) 244-4003

TO THE MESA COUNTY CLERK & RECORDER:

THIS IS TO CERTIFY that the herein named Subdivision Plat,

DAWN SUBDIVISION

Situated in the SW 1/4 of Section 6,

Township 1 SOUTH, Range 1 EAST,

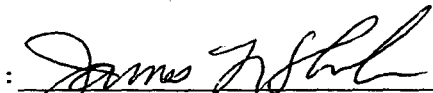
of the UTE Meridian in the City of Grand Junction, County of Mesa, State of Colorado, has been reviewed under my direction and, to the best of my knowledge, satisfies the requirements pursuant to C.R.S. 38-51-106 and the Zoning and Development Code of the City of Grand Junction for the recording of subdivision plats in the office of the Mesa County Clerk and Recorder.

This certification makes no warranties to any person for any purpose. It is prepared to establish for the County Clerk and Recorder that City review has been obtained. This certification does not warrant: 1) title or legal ownership to the land hereby platted nor the title or legal ownership of adjoining; 2) errors and/or omissions, including, but not limited to, the omission(s) of rights-of-ways and/or easements, whether or not of record; 3) liens and encumbrances, whether or not of record; 4) the qualifications, licensing status and/or any statement(s) or representation(s) made by the surveyor who prepared the above-named subdivision plat.

Dated this 22 day of July, 1996.

City of Grand Junction,
Department of Public Works & Utilities

By:


James L. Shanks, P.E., P.L.S.
Director of Public Works & Utilities

Recorded in Mesa County
Date: _____
Plat Book: <u>15</u> Page: <u>130</u>
Drawer: <u>CC46</u>

1765593 0146PM 07/26/96
MONIKA TODD CLK&REC MESA COUNTY CO

Kristen Ashbeck

Monday, July 22, 1996

Mr. Jim Shanks
Public Works Director
City of Grand Junction
by FAX to 244-1458 *1599*

Re: Dawn Subdivision/GVWUA Approval

Dear Jim:

I am in receipt of copies of Don Newton's letter dated July 17, 1996, to GVWUA and their FAX response dated July 20, 1996, regarding the approval of Dawn Subdivision's drainage system. As stated by GVWUA, Dawn is not approved because of the City's failure to assume operation and maintenance practices for all the the Drain D system. They do not mention the Dawn system itself, but I believe our current system fully meets the design criteria agree at the GVWUA board meeting that Don and I attended.

I had been my understanding that the City would approve the Dawn Subdivision and allow us to proceed without GVWUA's approval so long as we otherwise meet all other City requirements and subject, of course, to whatever remedies GVWUA might take against the developer directly. However, my conversation with Kristen Ashbeck last Friday indicated that you had placed a hold on our approval pending GVWUA's approval.

What is the City's position on this issue?

With the exception of what I believe are some very minor things to be done that will take place in the next day or two, we are ready to proceed (Kristin has the DIA and Bank disbursement letter; John Davis inadvertently missed one signature blank but will sign upon his return first thing Wednesday morning).

May I suggest that if the City's position is not that we may proceed without GVWUA's approval then that all of the "players" meet as soon as possible to hopefully mutually resolve this matter. I say "mutually" because as everyone seems to agree, the developer, John Davis, is clearly caught in the middle.



RE/MAX 4000, Inc.
1401 North 1st Street
Grand Junction, Colorado 81501
Phone: (970) 241-4000
Fax: (970) 241-4015

Each Office Independently Owned and Operated

We do not have the authority to grant what GVVUA wants but have very significant financial commitments to John, his development contractor, the builder purchasing the lots and his customers all dependent upon resolving this matter quickly and favorably.

Sincerely,


Ward Scott
Broker Associate

cc:
Dan Wilson
Don Newton
Kristin Ashbeck
Rich Livingston
John Davis

AVIGATION EASEMENT

1765592 0146PM 07/26/96
MONIKA TODD CLK&REC MESA COUNTY CO
DOCUMENT FEE \$EXEMPT

This EASEMENT is made and entered into by and between the WALKER FIELD, COLORADO, PUBLIC AIRPORT AUTHORITY, a body corporate and politic and constituting a political subdivision of the State of Colorado, hereinafter called GRANTEE, and John Davis hereinafter, GRANTOR;

WHEREAS, Grantee is the owner and operator of Walker Field Airport situated in the County of Mesa, State of Colorado, and in close proximity to the land of Grantor, and Grantee desires to obtain and preserve for the use and benefit of the public a-right of free and unobstructed flight for aircraft landing upon, taking off from, or maneuvering about said airport; and

WHEREAS, Grantor is the owner in fee simple of that certain parcel of land situated in the County of Mesa, State of Colorado, to wit: See "Exhibit A" **Book 2252 PAGE 14**

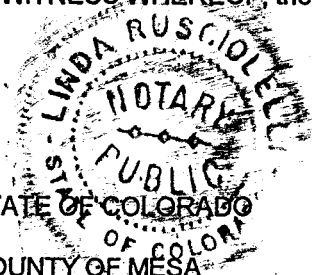
NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Grantor, for himself, his heirs, administrators, executors, successors and assigns, does hereby grant, bargain, sell and convey unto the Grantee, its successors and assigns, for the use and benefit of the public, an easement and right of way appurtenant to Walker Field Airport, for the passage of all aircraft ("aircraft" being defined for the purposes of this instrument as any device known or hereafter invented, used or designed for navigation or flight in the air) by whomsoever owned and operated, in the navigable airspace above the surface of Grantor's Property to an infinite height above said Grantor's property, together with the right to cause in said airspace such noise and vibrations, smoke, fumes, glare, dust, fuel particles and all other effects that may be caused by the normal operation of aircraft landing at or taking off from or operating at or on said Walker Field Airport, and Grantor hereby waives, remises and releases any right or cause of action which Grantor now has or which Grantor may have in the future against Grantee, its successors and assigns, due to such noise, vibrations, smoke, fumes, glare, dust, fuel particles and all other effects caused by the normal operation of such aircraft.

FURTHER, Grantor hereby covenants, for and during the life of this easement, that Grantor:

- (a) shall not hereafter construct, permit or suffer to maintain upon said land any obstruction that extends into navigable airspace required for use of said airport runway surfaces; (Navigable airspace is defined for the purpose of this instrument as airspace at and above the minimum flight altitudes, including take off and landing, as prescribed in Federal Aviation Administration Federal Air Regulations Part 91, and as such regulations are amended.)
- (b) Shall not hereafter use or permit or suffer use of said land in such a manner as to create electrical or electronic interference with radio communication or radar operation between the installation upon Walker Field Airport and aircraft, or to make it difficult for flyers to distinguish between airport lights and others or to result in glare in the eyes of flyers using the said airport, or to impair visibility in the vicinity of the airport, or otherwise to endanger the landing, taking off or maneuvering of aircraft.

Grantor agrees the aforesaid covenants and agreements shall run with the land for the benefit of Grantee, its successors and assigns, until said airport shall be abandoned and shall cease to be used for public airport purposes.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal on this 11 day of July, A.D. 1996.



[Signature]
John Davis
Owner
(Title)

STATE OF COLORADO)
) ss.
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 11 day of July, A.D. 1996, by John Davis

My Commission Expires: 8/17/96
[Signature]
Notary Public.

FPP-9-156
96-117



December 29, 1997

John Davis
P.O. Box 2867
Grand Junction, CO 81502

City of Grand Junction, Colorado
250 North Fifth Street
81501-2668
FAX: (970)244-1599

Subject: Dawn Subdivision

Dear Mr. Davis:

A final inspection of the streets and drainage facilities in Dawn Subdivision was conducted on June 3, 1997. As a result of this inspection, a list of remaining items was given to you for completion. These items were reinspected and found to be satisfactorily completed.

"As Built" record drawings and required test results for the streets and drainage facilities were received on October 17, 1997. These have been reviewed and found to be acceptable.

In light of the above, the streets and drainage improvements are eligible to be accepted for future maintenance by the City of Grand Junction one year after the date of substantial completion. The date of substantial completion is July 1, 1997.

Your warranty obligation for all materials and workmanship for a period of one year beginning with the date of substantial completion will expire upon acceptance by the City. If you are required to replace or correct any defects which are apparent during the period of the warranty, a new acceptance date and extended warranty period will be established by the City.

Thank you for your cooperation in the completion of the work on this project.

Sincerely,

Jody Kliska
City Development Engineer

Sincerely,

Trent Prall
Utility Engineer

cc: Doug Cline
Kathy Portner
Walt Hoyt
Jerry O'Brien
Don Newton
Banner & Associates

Memorandum

To: File
CC: ✓ Mike McDill, City Engineer
From: Laura C. Lamberty
Date: 9/04/02
Re: File Closeout: FPP-1996-117, Dawn Subdivision

PROJECT DATA: Dawn Subdivision is located east of 28 Road, ¼ mile north of Patterson.

Accepted by letter: 12/29/97 (Kliska/Prall)

Date of substantial completion: 7/1/97

End of 1 year warranty period: 7/1/98

No record of warranty inspection exists in the file.

The site was inspected by myself on 9/4/02. The subdivision was 100% built-out at this time. Public improvements were found to be in very good condition with no defects noted.

I recommend closing this file as the maintenance period has expired and no deficiencies were found.

EXHIBIT "A"

TYPE LEGAL DESCRIPTION BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE (1) INCH MARGIN ON EACH SIDE.

LEGAL DESCRIPTION

A parcel of land located in the W 1/2 of Lot 7, Section 6, Township 1 South, Range 1 East of the Ute Meridian, being more particularly described as follows:

Commencing at the Southwest corner of Section 6, whence the Northwest corner of Lot 7 bears North 0°03'19" East for a basis of bearings with all bearings contained herein relative thereto; thence North 0°03'19" East a distance of 1322.40 feet along the West line of Lot 7, thence South 89°58'15" East a distance of 40.00 feet to the True Point of Beginning, thence South 89°58'15" East a distance of 595.83 feet to a point on the East line of the W 1/2 of Lot 7, thence South 00°01'54" West a distance of 636.03 feet along the East line of the W 1/2 of Lot 7, thence North 89°59'07" West a distance of 596.09 feet to a point on the East right-of-way of 28 Road, thence North 00°03'19" East a distance of 636.18 feet to the True Point of Beginning,

Mesa County, Colorado

and also to include the Easterly 10 feet of the current 28 Road Right of Way adjacent to the west boundary of the above described parcel which is being added by a Right of Way Vacation as part of the Dawn Subdivision processing through the City of Grand Junction



28 ROAD

SITE

FP 96-117
FINAL PLAT - DAWN SUBDIVISION
N OF NE CORNER OF PATTERSON & 28 ROADS

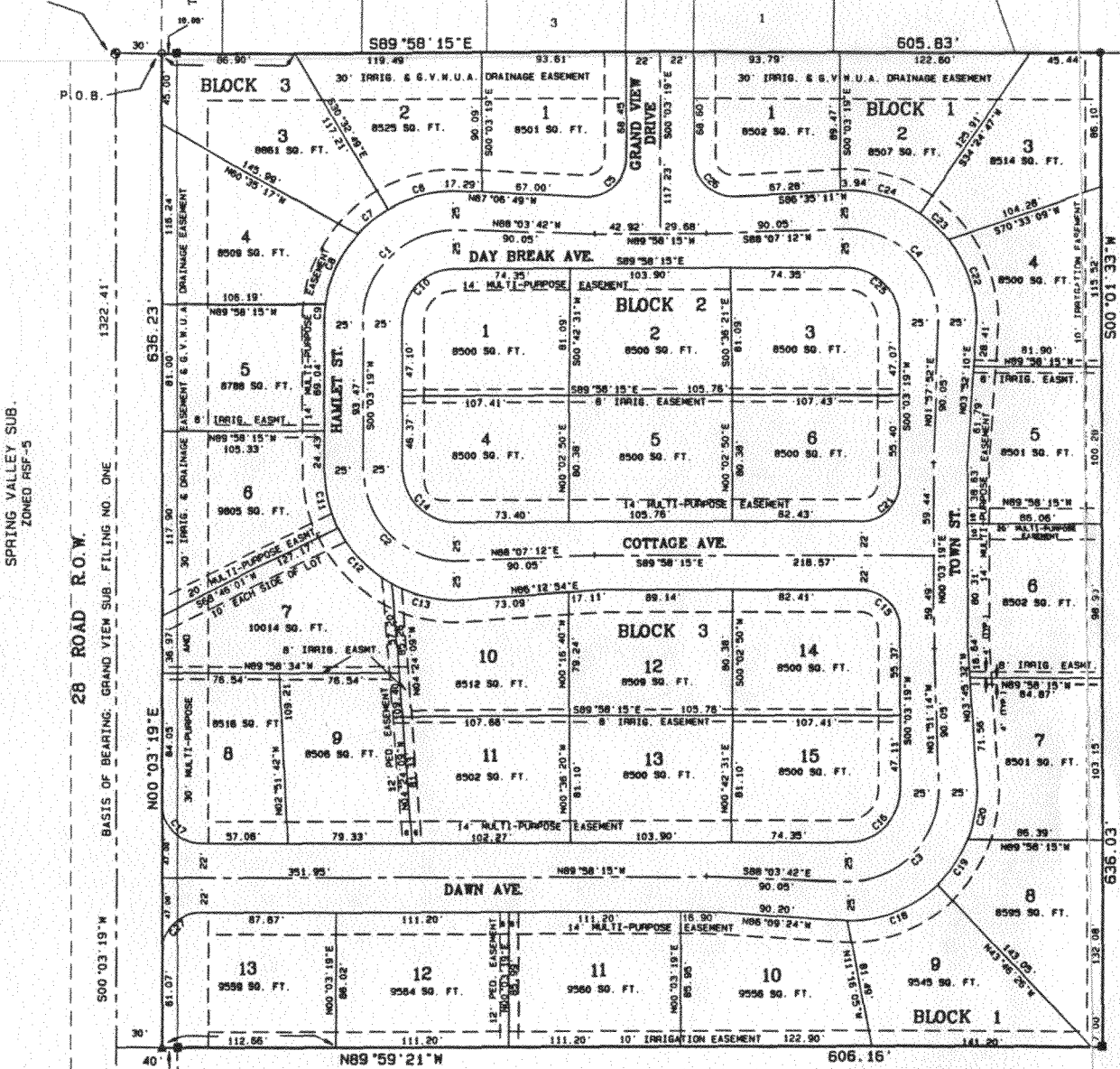
PATTERSON AVE.



DAWN SUBDIVISION

GRAND VIEW SUB. FILING NO. 1
ZONED RSF-5

S 1/16 COR.
M. L. LINE
SEC. 6
MCSM #808
BENCHMARK
ELEV. = 4717.69



OWNER: CITY OF GRAND JUNCTION
250 N. 5th St.
GRAND JUNCTION, CO. 81501-2628
ZONED RSF-4

LEGEND

- MESA COUNTY SURVEY MONUMENT
- FD. #5 REBAR W/2" ALUM. CAP STAMPED LS 16835
- FD. #5 REBAR W/PLASTIC CAP MARKED RYDEN LS 9331
- FD. #5 REBAR W/MELTED CAP
- ▲ SET #5 REBAR W/2" ALUM. CAP STAMPED D H SURVEYS LS 20677

NOTE: ALL EXTERIOR CORNERS SET IN CONCRETE

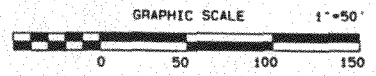
AREA SUMMARY

34 LOTS = 6.87 AC. / 78%
ROADS = 1.98 AC. / 22%
TOTAL = 8.85 AC. / 100%
DENSITY = 3.8 UNITS PER ACRE

NOTE: THERE IS TO BE NO ACCESS TO 28 ROAD FROM THE LOTS ABUTTING ON 28 ROAD.

THIS SUBDIVISION IS SUBJECT TO AN AVIGATION EASEMENT AS RECORDED IN BK. _____ AT PAGE _____ OF THE MESA CO. RECORDS.

NOTE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.



DEDICATION

KNOW ALL MEN BY THESE PRESENTS, that the undersigned, John Davis, is the owner of that real property as described in Book _____ at Page _____ of the records of the Mesa County Clerk and Recorder, located in the W 1/2 of Lot 7, Section 6, Township 1 South, Range 1 East of the Ute Meridian, Mesa County, Colorado, being more particularly described as follows:

Commencing at the found Mesa County Survey Marker for the southwest corner of said Section 6, the basis of bearing being M00°03'19"E along the west line of said Lot 7 to the S 1/16 corner, also being a found Mesa County Survey Marker:
thence M00°03'19"E a distance of 1322.41 feet to said S 1/16 corner;
thence S89°58'15"E a distance of 30.00 feet along the north line of said Lot 7 to a found #5 rebar with an unreadable cap, also being the point of beginning;
thence S89°58'15"E a distance of 605.83 feet to the northeast corner of the W 1/2 of said Lot 7 being a found #5 rebar with a plastic cap marked LS 9331;
thence S00°01'33"W a distance of 636.03 feet to the southeast corner of the W 1/2 of said Lot 7 being a found #5 rebar with a 2" aluminum cap stamped LS 16835;
thence N89°59'21"W a distance of 606.16 feet along the south line of said Lot 7 to a set #5 rebar with a 2" aluminum cap stamped LS 20677;
thence M00°03'19"E a distance of 636.23 feet to the point of beginning. Said parcel contains 8.85 acres more or less.

That said owner has caused the said real property to be laid out and surveyed as DAWN SUBDIVISION a subdivision of a part of the City of Grand Junction, County of Mesa, State of Colorado. That said owner does hereby dedicate and set apart real property as shown and labeled on the accompanying plat as follows:

- All Streets and Rights-of-Way to the City of Grand Junction for the use of the public forever;
 - All Multi-Purpose Easements to the City of Grand Junction for the use of public utilities as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances thereto including, but not limited to electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, water lines, telephone lines, and also for the installation and maintenance of traffic control facilities, street lighting, street trees and grade structures;
 - All Irrigation Easements to the owners (Property / Homeowners Association) of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of private irrigation systems;
 - All GVMUA Easements to the City of Grand Junction for the use of the public and to the Grand Valley Water Users Association, its successors and assigns, for the installation and maintenance of GVMUA irrigation facilities;
 - All Drainage Easements to the owners (Property / Homeowners Association) of the lots and tracts hereby platted as perpetual easements for the conveyance of runoff water which originates within the area hereby platted or from upstream areas, through natural or man-made facilities above or below ground;
 - All Pedestrian Easements to the City of Grand Junction as perpetual easements for ingress and egress use by the general public pedestrian;
- All easements include the right of ingress and egress on, along, over, under, and through and across by the beneficiaries, their successors, or assigns, together with the right to trim or remove interfering trees and brush, and in Drainage and Detention / Retention easements, the right to dredge, provide, however, that the beneficiaries of said easements shall utilize the same in a reasonable and prudent manner. Furthermore, the owners of lots or tracts hereby platted shall not burden nor overburden said easements by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

IN WITNESS WHEREOF said owners have caused their names to be hereunto subscribed this _____ day of _____, 1996.

CITY APPROVAL

This plat of Dawn Subdivision, a subdivision of the City of Grand Junction, County of Mesa, State of Colorado, is approved and accepted on the _____ day of _____, 1996.

City Manager _____ City Mayor _____

CLERK AND RECORDERS CERTIFICATE

STATE OF COLORADO)
) ss
COUNTY OF MESA)
I hereby certify that this instrument was filed in my office at _____ o'clock _____ M.
this _____ day of _____ A.D. 1996, and is duly recorded in
Plat Book No. _____ Page _____ Fees _____ Drawer No. _____

Clerk and Recorder _____ Deputy _____

STATE OF COLORADO)
) ss
COUNTY OF MESA)
The foregoing instrument was acknowledged before me this _____ day of _____, 1996, by John Davis.
My commission expires _____ Witness my hand and official seal

Notary Public _____
Address _____

SURVEYOR'S CERTIFICATE

I, Michael W. Drisell, a registered Professional Land Surveyor in the state of Colorado, do hereby certify that this subdivision was made by me and / or under my direct supervision, and that both are accurate to the best of my knowledge and belief. I also certify that this plat conforms to all applicable requirements of the zoning and development Code of the City of Grand Junction and all applicable regulations of the State of Colorado.

Michael W. Drisell, P.L.S. 20677
Date 6-3-96

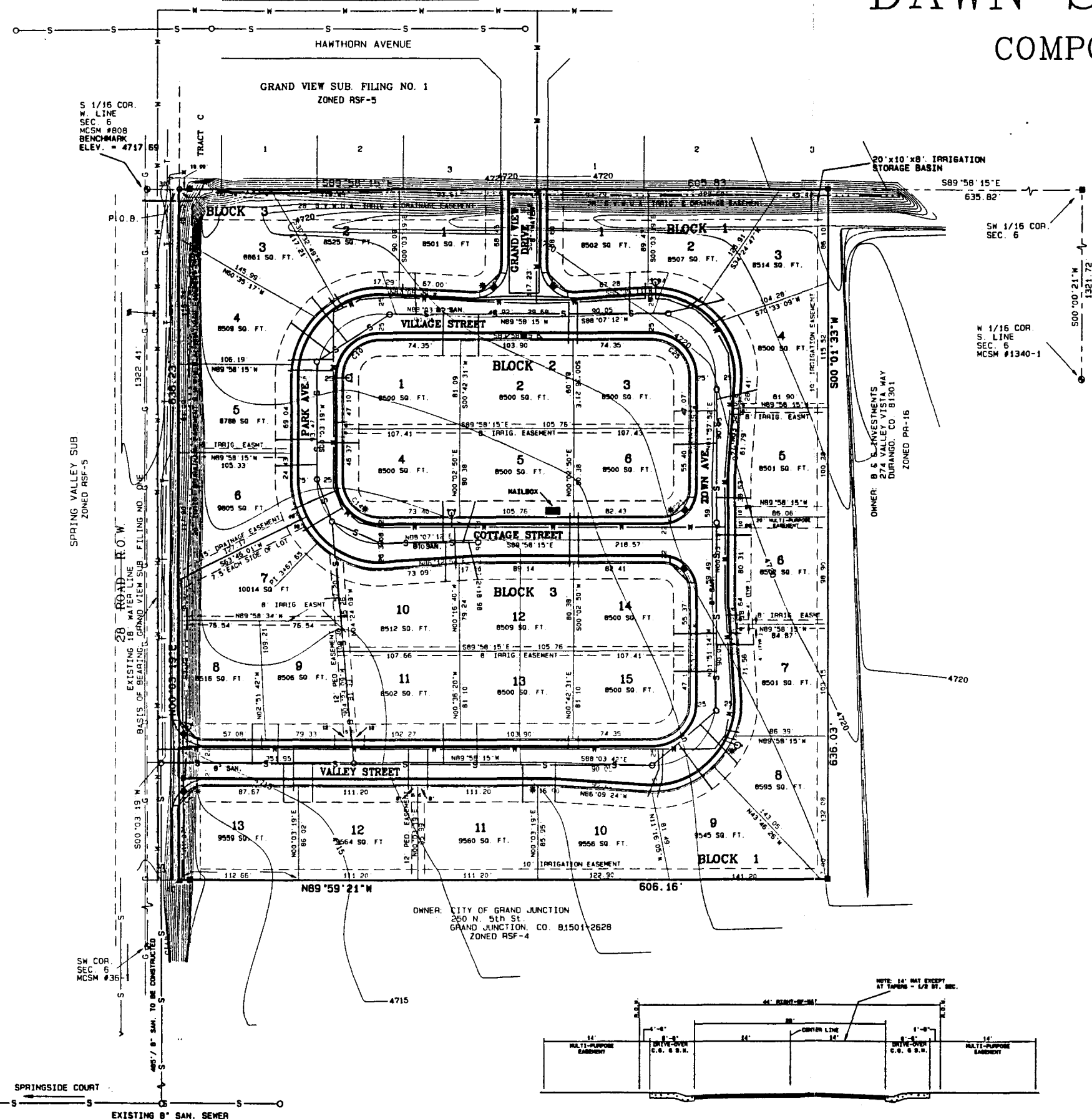
DAWN SUBDIVISION
LOCATED IN THE
W 1/2 LOT 7, SEC. 6, T1S, R1E, U.M.

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

C	DELTA	RADIUS	ARC	CH. BRG.	CHORD
C1	89°58'26"	59.00	92.65	N45°02'32"E	83.42
C2	90°01'34"	59.00	92.70	N44°57'28"W	83.46
C3	89°58'26"	59.00	92.65	N45°02'32"E	83.42
C4	90°01'34"	59.00	92.70	N44°57'28"W	83.46
C5	93°53'55"	25.00	40.97	S46°53'36"W	36.54
C6	30°34'34"	84.00	44.83	S74°44'28"W	44.30
C7	17°03'08"	84.00	25.00	S50°55'37"W	24.91
C8	34°09'36"	84.00	50.38	S26°19'19"W	49.34
C9	08°11'07"	84.00	12.00	S04°08'53"W	11.99
C10	89°58'26"	34.00	53.39	S45°02'32"W	48.07
C11	26°17'18"	84.00	38.54	S13°05'20"E	38.20
C12	34°36'26"	84.00	50.74	S43°32'12"E	49.97
C13	29°07'50"	84.00	42.71	S75°24'20"E	42.25
C14	90°01'34"	34.00	53.42	S44°57'28"E	48.09
C15	90°01'34"	25.00	39.28	S44°57'28"E	35.36
C16	89°58'26"	34.00	53.39	S45°02'32"W	48.07
C17	90°01'34"	25.00	39.28	N44°57'28"W	35.36
C18	43°48'11"	84.00	64.22	N68°07'39"E	62.67
C19	23°57'58"	84.00	35.14	N34°14'35"E	34.88
C20	22°12'16"	84.00	32.55	N11°09'27"E	32.35
C21	89°58'26"	25.00	39.26	N45°02'32"E	35.35
C22	38°35'24"	84.00	56.58	N19°14'23"W	55.51
C23	17°03'08"	84.00	25.00	N47°03'39"W	24.91
C24	34°23'02"	84.00	50.41	N72°46'44"W	49.66
C25	90°01'34"	34.00	53.42	N44°57'28"W	48.09
C26	93°43'47"	25.00	40.90	N46°55'12"W	36.49
C27	89°58'26"	25.00	39.26	S45°02'32"W	35.35

Designed By M.W.D. Checked By S.L.H. JOB No. 198-96-12
Drawn By THODEL Date JUNE 3, 1996 Sheet 2 of 14

DAWN SUBDIVISION COMPOSITE PLAN



NOTES

- MINIMUM LOTS SIZE IS 8500 SQ. FT.
- THERE IS A 14' MULTI-PURPOSE EASEMENT ALONG THE FRONT OF ALL LOTS, ALL OTHER EASEMENTS AS LABELED
- CONTOUR INTERVAL = 1 FOOT
- WATER LINE INSTALLATION WILL TYPICALLY BE 2' OFF THE LIP OF GUTTER, EXCEPT AROUND CURVES.
- MINIMUM DISTANCES BETWEEN SANITARY SEWER AND WATER LINE WILL BE 10'.
- IRRIGATION LINES WILL BE INSTALLED ALONG THE BACK LOT LINES OF ALL LOTS.
- THIS SUBDIVISION IS SUBJECT TO AN AVIGATION EASEMENT
- POWER, TELEPHONE, GAS, AND CABLE TV WILL BE INSTALLED FROM GRAND VIEW SUBDIVISION AND LOCATED IN THE 14' MULTI-PURPOSE EASEMENT

SOIL TYPE ON ENTIRE SITE IS:
BILLINGS SILTY CLAY LOAM (B_c)

UTILITY VENDORS

- CITY OF GRAND JUNCTION SEWER
- UTE WATER
- PUBLIC SERVICE
- GRAND VALLEY WATER USERS ASSOC.
- U S WEST
- TCI CABLEVISION

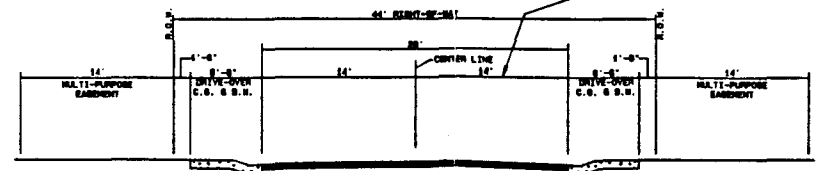
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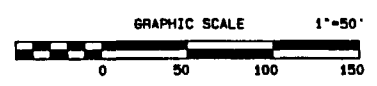
LEGEND

- MESA COUNTY SURVEY MONUMENT
- FD #5 REBAR W/2" ALUM. CAP STAMPED LS 16835
- FD #5 REBAR W/PLASTIC CAP MARKED RYDEN LS 9331
- FD #5 REBAR W/MELTED CAP
- ▲ SET #5 REBAR W/2" ALUM. CAP STAMPED D H SURVEYS LS 20677
- ⊙ = FIRE HYDRANT 5 EA.
- * = STREET LIGHT 6 EA.
- = SAN. MANHOLE 12#.

NOTE: ALL EXTERIOR CORNERS SET IN CONCRETE



TYPICAL STREET SECTION
NOT TO SCALE



DAWN SUBDIVISION COMPOSITE PLAN

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.	198-96-12
Drawn By	THODEL	Date	JAN. 1996	Sheet	3 OF 13