Table of Contents

File 1974-0046

Date 1/18/00 Project Name: Spring Valley Subdivision

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, not all entries designated to be scanned are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been included. **Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.** **Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
X	X	***Summary Sheet – Table of Contents**
		Application form
		Receipts for fees paid for anything
		***Submittal checklist**
		***General project report**
		Reduced copy of final plans or drawings
		Reduction of assessor's map
		Evidence of title, deeds
X	X	***Mailing list**
		Public notice cards
		Record of certified mail
		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or nonbound reports
		Traffic studies
		Individual review comments from agencies
		***Consolidated review comments list**
		***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**
		***Letters and correspondence dated after the date of final approval (pertaining to change in conditions or expiration date)**

DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X	X	Review Sheets			
X	X	Planning Commission Minutes - ** - 12/30/74			
X	X	Follow-Up Form			
X	X	Letter from James Patty to Planning Commission – 9/30/74			
X		Petition and Application for Rezoning			
X	X	Calculation of Development Potential for Existing Zones & Requested Zone			
X		Map			

FOLLOW-UP FORM FOR:

Right-of-way Vacation	Preliminary Plat	Bulk Development
Text Change	Final Plat	Conditional Use
Rezoning	Minor Subdivisions	PUD

ITEM SPRING VALLEY

DATE RECEIVED 10-8-74 ITEM # 45-74

REQUEST REZONE FROM R-1-A & R-1-C TO R-1-B

LOCATION A PART OF THE E. 1/2 OF SECT. 1, T 1S R 1W, UTE MERIDIAN

PETITIONER WARIE & MELDEN PEACH

ADDRESS 624 - 27 1/2 Rd. PHONE NO.

ENGINEERS NAPG 760 HORIZON DRIVE 243-7569

Information Submitted

Fee Submitted 270.00 Oct 25, 1974

Application: 15 Plats: 15

Progress Chart

Reviewing Agencies (see attached form) Sign Posted 10-21-74

Notice to Adjacent Property Owners

Planning Commission: 10-30-74

Action Taken: Approved

City Council: Nov. 20 1974

Action Taken:

PUBLICATION DATES: 7 days 1. 10-18-74

7 days 2.

DATE COMPLETED:

ENGINEERING NHPQ CONSULTANTS

NELSON, HALEY, PATTERSON and QUIRK, INC.

760 HORIZON DRIVE GRAND JUNCTION, COLORADO 81501 303: 243-7569

September 30, 1974

City Planning Commission
City Council
Grand Junction City Hall
Grand Junction, Colorado 81501

Ladies and Gentlemen:

This letter is a formal request for a zoning change from the present R-1-A and R-1-C zones to R-1-B zone on the property described in the following legal description.

The reason for this zone change request is explained in full on pages 7-12 of this report.

THis zone change is requested on behalf of W. L. and M. A. Peach, and Dempsey Construction Corporation, holder of an option of subject property.

Very truly yours,

NELSON, HALEY, PATTERSON and QUIRK, INC.

James T. Patty, Jr., L. S.
Project Manager

JTP:dsb

Enclosures

ADJOINING PROPERTY OWNERS

Parcel No.	Name and Address
2945-013-00-016	Robert E. Mraule 616 - 27-1/4 Road
2945-013-00-018	Olga Griffith 917 South Avenue
2945-013-00-019	Claude and V.R. DeCrow 609 - 27-1/2 Road
2945-013-00-020	Olga Griffith 917 South Avenue
2945-013-00-021	George and O.M. Henderson 605-1/2 - 27-1/2 Road
2945-013-00-022	Lawrence and M. Ely 2738 F Road
2945-013-00-033	Minnie W. and V. R. Cheney Box 126 Palisade, Colorado 81526
2945-013-00-034	Marian L. and E.F. Howard 601 - 27-1/2 Road
2945-013-00-038	Eugene H. and M.V. Godfrey 647 - 27-1/2 Road
2945-013-00-039	Louis P. and G.I. Hyde 633 - 27-1/2 Road
2945-013-00-041	Edwin S. and C.E. Lamm 637 - 27-1/2 Road
2945-013-00-042	Louis P. and G.I. Hyde 633 - 27-1/2 Road
2945-013-00-043	Edwin S. and Cleo E. Lamm 643 - 27-1/2 Road
2945-013-00-048	Edwin S. and C. E. Lamm 637 - 27-1/2 Road
2945-013-00-049	Edwin S. and C.E. Lamm 637 - 27-1/2 Road

Parcel No.	Name and Address
2945-014-00-038	Murdin E. and C.E. Erickson 640 - 27-1/2 Road
2945-011-00-037	Edwin S. and Cleo E. Lamm 337 North Avenue
2945-011-00-035	K. M. and T. H. Matchett 2844 F Road
2945-011-00-007	C. A. Schindel Bookcliff Orchards 688 - 27-1/2 Road
2945-011-00-006	Wm. R. Waddrop and Barbara Price 3434 N.W. 56th Street Oklahoma City, Oklahoma 73112
2945-011-00-005	George N. and Ida Hubbard 2784 F-3/4 Road
2945-011-00-004	George Ralph 2784-1/2 - F-3/4 Road
2945-011-00-003	Charles F. and R. F. Roberts 681 - 28 Road
2945-011-00-002	Henry Patterson, Jr. 2410 W. 6th Street Topeka, Kansas 66608
2945-011-00-065	J.L.D. and L.E. Phillips 676 - 28 Road
2945-011-00-066	J.L.D. and L.E. Phillips 676 - 28 Road
2945-011-00-940	Mesa County and City of Grand Junction
2943-062-00-004	John D. and L.E. Phillips 676 - 28 Road
2943-062-00-046	Charles D. and Marilyn J. Scott 2796 - F-3/4 Road
2943-062-00-047	Claude G. and Diana K. Scott Box 1851

Parcel No.	Name and Address
2943-062-00-048	Norma J. Cozzette 587 Kirby Avenue
2943-062-00-012	E.C. and P.B. Loshbaugh 662 - 28 Road
2943-062-00-038	Felix and P.V. Smith 654 - 28 Road
2943-062-01-001	Felix J. and E.I. Smith 656 - 28 Road
2943-062-01-002	Felix J. and E. I. Smith 656 - 28 Road
2943-062-01-005	Cecil G. and Sandra E. Norris 654 - 28 Road
2943-062-01-007	Felix and P.V. Smith 654 - 28 Road
2943-063-00-010	U.S. Bank c/o Nissen Trust P. O. Box 908
2943-063-00-039	Kenneth L. Graves and D. Wilcox 1060 Orchard Avenue
2943-063-00-040	Western Slope Gas Company 1125 Pitkin
2945-122-00-004	L. A. Brodak 2741 - F Road
2945-121-00-820	Western Slope Gas Company 1125 Pitkin
2945-121-00-002	Leo A. and G. E. Hupert 2771 Patterson Road
2945-121-00-019	Leo A. and G.E. Hupert 2771 Patterson Road
2945-121-00-018	Lee A. and T.M. Pease 2777 - F Road
2945-121-00-003	James L. Gale Box 1282

Parcel No.	Name and Address
2945-121-01-001	James L. Gale Box 1282
2945-121-01-002	James L. Gale Box 1282
2945-121-01-003	James L. Gale Box 1282
2945-121-01-004	James L. Gale Box 1282
2945-121-01-005	James L. Gale Box 1282
2945-121-01-006	James L. Gale Box 1282
2945-121-02-001	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-02-002	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-02-003	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-02-004	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-02-005	Christy G. and M.E. Brost 110 Mt. View Drive
2945-121-02-006	Leonard H. and W.V. Scales 113 Mantey Heights Drive
2945-121-03-001	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-03-002	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-03-003	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-03-004	Carol H. Farina 109 Santa Fe Drive

Parcel No.	Name and Address
2945-121-04-001	Gene D. and N.A. Taylor 105 Mantey Heights Drive
2945-121-04-002	Kenneth and C. Lemoine 110 Mantey Heights Drive
2945-121-07-001	Dale W. and L.W. Hamilton 138 Santa Fe Drive
2945-121-07-002	James R. and V.A. Kuhlman 106 Santa Fe Drive
2945-121-07-003	Robert W. and B.V. Tyson 110 Santa Fe Drive

ZONING

Existing - R-1-A, 140 acres
R-1-C, 20 acres

Requested - R-1-B, 160 acres

TAXING DISTRICTS

City of Grand Junction

Mesa County

Central Pest Control

Ute Water Conservancy District

School District No. 51

CALCULATION OF DEVELOPMENT POTENTIAL
FOR
EXISTING ZONES AND REQUESTED ZONE

R-1-A

140 acre
- 5.2 (park)
134.8
- 33.7 (25% Roads)
101.1 acre

4,403,916 Ø (101.1 acre)
÷ 10,500 Ø = (R-1-A minimum)
419 lots (3.0 density)

R-1-C

20 acre
- 3 (park)
17
- 4.3 (25% Roads)
12.75 acre

535,788 Ø (12.75 acre)
÷ 6,000 Ø (R-1-C minimum)
93 units (4.6 density)

COMBINED

160 acres
512 units
3.2 density

R-1-B

160 acre
- 8.2 (park)
151.8
- 38.0 (25% Roads)
113.8 acre

4,957,128 Ø (113.8 acre)
÷ 9,000 Ø (R-1-B minimum)
551 units (3.4 density)

Following is a breakdown of the criteria and impacts of a development plan previously approved by the City Planning Commission as compared to the plan herein submitted by Dempsey Construction Company.

CRITERIA	APPROVED PLAN	SUBMITTED PLAN
RESIDENTIAL LOTS		
minimum Ø	11,875	9,200
average Ø	15,625	10,925
maximum Ø	20,500	18,500
units planned	324 (2.1 den.)	435 (2.8 den.)
roadway	23.3%	26%
public park areas	8.8	8.2 acres
IMPACTS		
POPULATION		
3.3 per unit	1,069	1,436
SEWER		
150 gal./day/person to be treated	160,350	215,400
WATER		
100 gal./day/person		
domestic and yard care	106,900	143,600
UTILITIES		
telephone, gas, electricity hookups	324	435
TRASH REMOVAL		
1-1/2 yard/month/household	486 yards	653 yards
ROADWAYS		
Internal and external	24,324 L.F.	30,289 L.F.
CURB, GUTTER AND SIDEWALK	48,648 L.F.	60,596 L.F.
STORM DRAINAGE		(See storm drainage report, Page 26)
SCHOOLS		
children in development	359	482
pre-school age children	74	100
school age children	285	382
elementary	145	194
junior high	66	89
high school	74	99

IMPACTS	APPROVED PLAN	SUBMITTED PLAN
PARKS/PUBLIC SITES	8a/1,000	5.5a/1,000
TAX REVENUE projected assessment per year	$ 291,600	$ 391,500

SUMMARY

R-1-B zoning is compatible with contiguous City and County zonings. 9,000 square foot residential lots will provide an economical unit for the average-income homeowner. It will also be an economical package for the services to be rendered by the City of Grand Junction in terms of maintenance of roadways, sewer lines, trash removal, police and fire protection, and busing of school children.

There are no major adverse impacts with the addition of 110 units that would be generated by granting the Spring Valley property an R-1-B zone and approving the submitted plan.

SOILS REPORT

DRAINAGE PROPOSAL

SCS-SOIL-5
1-71
FILE CODE SOILS-12

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Tentative - subject to revision

Rough broken land: Mesa, Chipeta and Persayo soil materials (Rr) (Rp) similar

SOIL SURVEY INTERPRETATIONS

MLRA Mesa County, Colo. Grand Junction Soil Soil Survey Area

Except for small areas northeast and south of Palisade, all of this miscellaneous land type occurs south of the Colorado River. It occupies very steep escarpments--25 to 140 feet high--along the south bank of the Colorado River and rough, rugged terrain along tributary drainageways or arroyos. Slopes generally range from 12 to 30 percent along the drainageways but are much steeper along the escarpment adjoining the Colorado River.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION: USDA TEXTURE	CLASSIFICATION: UNIFIED	CLASSIFICATION: AASHO	COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO.: 4	10	40	200	LL	PI	PERMEABILITY (In./hr)	AVAILABLE WATER CAPACITY (In/In)	SOIL REACTION (pH)	SALINITY (EC x 10³ @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	Low

DEPTH TO BEDROCK OR HARDPAN: Variable

DEPTH TO SEASONAL HIGH WATERTABLE: > 60"

FLOOD HAZARD: Rare

HYDROLOGIC GROUP: D

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

TOPSOIL: Unsuitable	GRAVEL: Unsuitable
SAND: Unsuitable	ROADFILL: Poor; slope

DEGREE OF LIMITATION AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

LOCAL ROADS AND STREETS: Severe; slopes	SEPTIC TANK FILTER FIELDS: 1/
SHALLOW EXCAVATIONS: Severe; slopes; depth to shale	SEWAGE LAGOONS: Severe; slopes over 15%
DWELLINGS: Severe; slopes and depth to shale	CORROSIVITY - UNCOATED STEEL: Low
RESERVOIR AREA: Severe; slopes and depth to shale	CORROSIVITY - CONCRETE: Low
RESERVOIR EMBANKMENT: Severe; - limited material	

USDA SCS PORTLAND OREG. 1971

1/ Property highly variable, requiring on-site investigation

61

SCS-

FILE CODE SOILS-12

Tentative - subject to revision

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

MLRA: Mesa County, Colo. Grand Junction Soil Survey Area

Billings silty clay loam, 0 to 2 percent slopes (Bc)

This soil is derived from deep alluvial deposits that came mainly from Mancos shale. Although the dominant texture is silty clay loam, the profile may have seams of loam, clay loam, fine sandy loam, or a very fine sandy texture. Its tilth and workability are fair; but when it is mostly a silty clay loam, it puddles quickly when wet and bakes so hard when dry that good tilth can be maintained only by proper irrigation and special cultural practices. Slopes range up to those having two feet of fall in every 100 feet.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION			COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO. ---				LL	PI	PERMEABILITY (In./hr)	AVAILABLE WATER CAPACITY (in/in)	SOIL REACTION (pH)	SALINITY (EC x 10^3 @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
	USDA TEXTURE	UNIFIED	AASHO		4	10	40	200								
0-60	Silty clay loam	CL	A-7	-	100	90-95	85-90	75-90	-	-	.3-.75	.17-.19	7.9-9.0	1/	Moderate	Mod. to high * 0-60

DEPTH TO BEDROCK OR HARDPAN: >60"

DEPTH TO SEASONAL HIGH WATERTABLE <20"

FLOOD HAZARD: Rare

HYDROLOGIC GROUP C

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

TOPSOIL: Poor; high clay content	GRAVEL: 2/
SAND: 2/	ROADFILL: Fair; moderate shrink-swell; A-2 to A-7

DEGREE OF LIMITATION AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

LOCAL ROADS AND STREETS: Severe; poor traffic-supporting capacity; moderate to high water tables common.	SEPTIC TANK FILTER FIELDS: Severe; slow permeability; poor internal drainage; seasonal high water tables.
SHALLOW EXCAVATIONS: Severe; high water tables common	SEWAGE LAGOONS: Moderate; moderate piping hazard; berm material Unified CL
DWELLINGS: Moderate; high shrink-swell potential; subject to water table build up.	CORROSIVITY - UNCOATED STEEL: --
RESERVOIR AREA: Moderate; seepage through gypsum seams; high water table.	CORROSIVITY - CONCRETE: --
RESERVOIR EMBANKMENT: Moderate; moderately erosive; moderate shrink-swell potential	

1/ Property highly variable requiring on-site investigation.
2/ Unsuitable; limited quantity or limited quality of sand or gravel.
* Frost action potential is greater due to irrigation of desert lands.

USDA SCS-PORTLAND, OREG. 1971

20

Tentative - subject to revision

SCS - SOILS - 2C (Rev.) 8 - 71

FILE CODE SOILS-12

Fruita & Ravola gravelly loams, 5 to 10 percent slopes (Fa)

SOIL SURVEY INTERPRETATIONS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SERIES: Fruita & Ravola
STATE: Colorado
MLRA: 48 & 34
CLASSIF:

The combination of Fruita and Ravola soils consists of pale brown-colored, gravelly loamy textured soils occurring on benches and mesas. Shale ordinarily occurs at depths of 2½ to 4½ feet, but the alluvial mantle may be 10 to 12 feet thick in some places.

ESTIMATED SOIL PROPERTIES SIGNIFICANT TO ENGINEERING

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION			COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO. ---				LL	PI	PERMEABILITY (in./hr)	AVAILABLE WATER CAPACITY (in/in)	SOIL REACTION (pH)	SALINITY (EC x 10³ @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
	USDA TEXTURE	UNIFIED	AASHO		4	10	40	200								
0-48	Gravelly loam	GM	A-2	25	70-80	55-70	45-60	25-45	5-10	5-10	2.5-3.5	.16-.18	7.4-8.4	Low	Low	Low

DEPTH TO BEDROCK OR HARDPAN: >48"
DEPTH TO SEASONAL HIGH WATERTABLE: >60"
FLOOD HAZARD: None
HYDROLOGIC GROUP: B

SUITABILITY OF SOIL AS SOURCE OF SELECTED MATERIAL AND FEATURES AFFECTING USE

TOPSOIL: Poor	GRAVEL: Fair if alluvial mantle is deep enough
SAND: Unsuitable	ROADFILL: Good

DEGREE OF SOIL LIMITATION

LOCAL ROADS AND STREETS: Moderate: shallow to shale in places	SEPTIC TANK ABSORPTION FIELDS: Moderate to severe: shallow to shale in places
SHALLOW EXCAVATIONS: Moderate: shallow to shale in places	SEWAGE LAGOONS: Moderate: steepness of slope
DWELLINGS: a) w/ basements Severe: shallow to shale; b) w/o basements Moderate: shallow to shale	CORROSIVITY: a) uncoated steel Low; b) concrete Low
SANITARY LAND FILL: (TRENCH TYPE) Moderate: rippable material at less than 60"	

MAJOR SOIL FEATURES AFFECTING SELECTED USE

POND RESERVOIR AREAS: Shallow to shale in places	IRRIGATION: Steepness of slope
EMBANKMENTS, DIKES, and LEVEES: Shallow to shale in places	TERRACES and DIVERSIONS: Steepness of slope
DRAINAGE of CROPLAND and PASTURE: Steepness of slope	GRASSED WATERWAYS: Steepness of slope, potential channel siltation.

Fruita and Ravola loams, 2 to 5 perce... slopes (Fc)

Fruita very fine sandy loam, moderately deep, 2 to 5 percent slopes (Ftf)

SCS - SOILS - 2C (Rev.) 8-71

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

FILE CODE SOILS-17

SERIES: Fruita
STATE: Colorado
MLRA: 34
CLASSIF:

The Fruita series consists of deep, well drained soils formed in calcareous alluvium on fans and valley slopes. Typically the surface layer is fine sandy loam about 4 inches thick. The subsoil is a heavy loam about 16 inches thick and overlies loam that extends to 60 inches or more. Natural vegetation is mostly desert grasses and shrubs. Average annual precipitation is about 8 inches, and the frost free season is about 160 days. Slopes are 0 to 15 percent.

ESTIMATED SOIL PROPERTIES SIGNIFICANT TO ENGINEERING

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION			COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO. ---				LL	PI	PERMEABILITY (In./hr)	AVAILABLE WATER CAPACITY (In/In)	SOIL REACTION (pH)	SALINITY (EC x 10³ @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
	USDA TEXTURE	UNIFIED	AASHO		4	10	40	200								
0-4	Very fine sandy loam	ML-CL	A-4, A-6	0-5	90-100	80-100	75-90	50-70	20-30	0-10	0.6-2.0	0.15-0.17	7.4-7.8	--	Low	Mod. *
4-20	Loam	CL	A-6	0-5	90-100	90-100	75-90	55-70	25-35	10-15	0.6-2.0	0.15-0.17	7.4-8.4	--	Low	Low
20-60	Fine sandy loam	ML-SM	A-4	0-5	90-95	80-95	75-85	40-70	15-30	0-5	0.6-6.0	0.13-0.17	7.8-8.4	-	Low	Low

DEPTH TO BEDROCK OR HARDPAN: > 60"

DEPTH TO SEASONAL HIGH WATERTABLE > 6'

FLOOD HAZARD: None

HYDROLOGIC GROUP B

SUITABILITY OF SOIL AS SOURCE OF SELECTED MATERIAL AND FEATURES AFFECTING USE

TOPSOIL: 0-8% slopes - good; 8-15% slopes - fair (slopes)

SAND: Unsuited

GRAVEL: Unsuited

ROADFILL: 0-8% fair (low strength; 8%+ fair (low strength & Slope)

DEGREE OF SOIL LIMITATION

LOCAL ROADS AND STREETS: Severe (frost action)

SHALLOW EXCAVATIONS: 0-8% slopes - slight; 8%+ moderate (slopes)

DWELLINGS:
a) w/ basements: 0-8% slopes - moderate (low strength)
b) w/o basements: 8%+ - moderate (low strength; slope)

SANITARY LAND FILL: (TRENCH TYPE) Slight

SEPTIC TANK ABSORPTION FIELDS: 0-8% slopes - slight; 8%+ - moderate (slopes)

SEWAGE LAGOONS: 0-2% moderate (percs rapidly; 2-7% moderate (percs rapidly; slope); 7%+ severe (slope)

CORROSIVITY:
a) uncoated steel: High
b) concrete: Low

MAJOR SOIL FEATURES AFFECTING SELECTED USE

POND RESERVOIR AREAS: Percs rapidly; slope

EMBANKMENTS, DIKES, and LEVEES: Low strength

DRAINAGE of CROPLAND and PASTURE: Favorable

IRRIGATION: Slope

TERRACES and DIVERSIONS: Favorable

GRASSED WATERWAYS: Favorable

* Frost action potential is greater due to irrigation of desert lands.

Tentative - subject to revision

SCS - SOILS - 2C (Rev.) 8 - 71

Fruita very fine sandy loam, 2 to 5 percent slopes (Fr)

SOIL SURVEY INTERPRETATIONS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

FILL CODE SOILS-12

This is a deep, brownish-colored, calcareous soil. The surface is 8 to 10 inches thick, a light very fine sandy loam in texture. The subsoil is a heavy, very fine sandy loam, 1 to 3 feet in thickness, and overlies stratified sands and gravels. This soil occurs on low-lying mesas and alluvial fans.

SERIES: Fruita
STATE: Colorado
MLRA: 34
CLASSIF: Typic haplargid: fine-loamy, mixed, mesic

ESTIMATED SOIL PROPERTIES SIGNIFICANT TO ENGINEERING

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION			COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO.				LL	PI	PERMEABILITY (In./hr)	AVAILABLE WATER CAPACITY (In/In)	SOIL REACTION (pH)	SALINITY (EC x 10^3 @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
	USDA TEXTURE	UNIFIED	AASHO		4	10	40	200								
0-50	Very fine sandy loam	ML	A-4	0	100	100	85-95	50-65	21-34	3-7	0.6-2.0	.15-.17	7.6-8.2	Low	Low	Mod. * 0-50

DEPTH TO BEDROCK OR HARDPAN: > 60"
DEPTH TO SEASONAL HIGH WATERTABLE > 6'
FLOOD HAZARD: Rare
HYDROLOGIC GROUP B

SUITABILITY OF SOIL AS SOURCE OF SELECTED MATERIAL AND FEATURES AFFECTING USE

TOPSOIL: Good	GRAVEL: Unsuited: thick overburden
SAND: Unsuited: thick overburden	ROADFILL: Fair: limited compaction

DEGREE OF SOIL LIMITATION

LOCAL ROADS AND STREETS: Slight	SEPTIC TANK ABSORPTION FIELDS: Slight
SHALLOW EXCAVATIONS: Slight	SEWAGE LAGOONS: Moderate: slopes, permeability, compaction
DWELLINGS: a) w/ basements Slight; b) w/o basements Slight	CORROSIVITY: a) uncoated steel Low; b) concrete Low
SANITARY LAND FILL: (TRENCH TYPE) Slight	

MAJOR SOIL FEATURES AFFECTING SELECTED USE

POND RESERVOIR AREAS: Permeability	IRRIGATION: Water erosion hazard
EMBANKMENTS, DIKES, and LEVEES: Fair to poor compaction	TERRACES and DIVERSIONS: Channel siltation possibility
DRAINAGE of CROPLAND and PASTURE: Stability of ditch banks	GRASSED WATERWAYS: Water erosion hazard

* Frost action potential is greater due to irrigation of desert lands.

Persayo-Chipeta silty clay loams, 0 to _ percent slopes (Pa)
2 to 5 percent slopes (Pb)

SCS - SOILS - 2C (Rev.)
8 - 71

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

FILE CODE SOILS-12

Persayo are shallow, well drained soils formed in calcareous loamy sediments weathered from soft, sedimentary rock. In a representative profile they have about 14 inches of silty clay loam that overlies weathered shale and siltstone. Natural vegetation is a thin stand of desert shrubs and grass. Average annual precipitation is about 8 inches. Slopes are 2 to 45 percent.

SERIES: Persayo-Chipeta
STATE: Colorado
MLRA: 34
CLASSIF:

ESTIMATED SOIL PROPERTIES SIGNIFICANT TO ENGINEERING

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION: USDA TEXTURE	CLASSIFICATION: UNIFIED	CLASSIFICATION: AASHO	COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO.: 4	10	40	200	LL	PI	PERMEABILITY (in./hr)	AVAILABLE WATER CAPACITY (in/in)	SOIL REACTION (pH)	SALINITY (EC x 10³ @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
0-14	Silty clay loam	CL	A-6	0-10	0-15	80-100	80-95	60-85	25-40	15-20	0.6-2.0	0.15 0.19	7.9-8.4	0-8	Mod.	Mod * 0-14
14+	Weathered shale		Partially consolidated shale.													

DEPTH TO BEDROCK OR HARDPAN: --

DEPTH TO SEASONAL HIGH WATERTABLE: 6'

FLOOD HAZARD: None

HYDROLOGIC GROUP: D

SUITABILITY OF SOIL AS SOURCE OF SELECTED MATERIAL AND FEATURES AFFECTING USE

TOPSOIL: Poor - area reclamation, slope	GRAVEL: Unsuited
SAND: Unsuited	ROADFILL: Poor - thin layer, slope

DEGREE OF SOIL LIMITATION

LOCAL ROADS AND STREETS: Moderate to severe - shrink-swell, depth to rock and slope	SEPTIC TANK ABSORPTION FIELDS: Severe - depth to rock, slope
SHALLOW EXCAVATIONS: Moderate to severe - depth to rock, slope	SEWAGE LAGOONS: Severe - depth to rock, slope
DWELLINGS: a) w/ basements: Moderate to severe - shrink-swell, depth to rock, slope; b) w/o basements: "	CORROSIVITY: a) uncoated steel: High; b) concrete: Low
SANITARY LAND FILL: (TRENCH TYPE) Severe - depth to rock, slope	

MAJOR SOIL FEATURES AFFECTING SELECTED USE

POND RESERVOIR AREAS: Slope, depth to rock	IRRIGATION: Slope, rooting depth
EMBANKMENTS, DIKES, and LEVEES: Thin layer, compressible	TERRACES and DIVERSIONS: Complex slope, droughty, erodes easily
DRAINAGE of CROPLAND and PASTURE: Not needed	GRASSED WATERWAYS: Droughty, erodes easily, slope

* Frost action potential is greater due to irr. of desert lands.

Tentative - subject to revision

SCS - SOILS - 2C (Rev.) 8-71 Ravola very fine sandy loam, 0 to 2 percent slopes (Rf)
" " " " " 2 to 5 percent slopes (Rg)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

FILE CODE SOILS-17

SERIES: Ravola
STATE: Colorado
MLRA: 48 & 34
CLASSIF:

This is a deep, brownish-colored, very fine sandy loamy textured soil. It occurs along washes and arroyos extending from the north, or on broad, coalescing alluvial fans of mixed sandstone and shale materials.

ESTIMATED SOIL PROPERTIES SIGNIFICANT TO ENGINEERING

MAJOR SOIL HORIZONS (INCHES)	CLASSIFICATION			COARSE FRACT. > 3 IN. %	PERCENTAGE LESS THAN 3 INCHES PASSING SIEVE NO. ---				LL	PI	PERMEABILITY (in./hr)	AVAILABLE WATER CAPACITY (in/in)	SOIL REACTION (pH)	SALINITY (EC x 10³ @25°C)	SHRINK-SWELL POTENTIAL	POTENTIAL FROST ACTION
	USDA TEXTURE	UNIFIED	AASHO		4	10	40	200								
0-60	Very fine sandy loam	ML	A-4		90-100	80-100	75-90	50-70	20-30	0-10	0.6-2.0	0.15-0.17	7.4-8.4	Mod.	Low	Mod * 0-60

DEPTH TO BEDROCK OR HARDPAN: > 60" FLOOD HAZARD: Rare

DEPTH TO SEASONAL HIGH WATERTABLE: Shallow to water table in ~~certain locations~~ HYDROLOGIC GROUP: B

SUITABILITY OF SOIL AS SOURCE OF SELECTED MATERIAL AND FEATURES AFFECTING USE

TOPSOIL: Good	GRAVEL: Unsuitable
SAND: Fair to good	ROADFILL: Fair

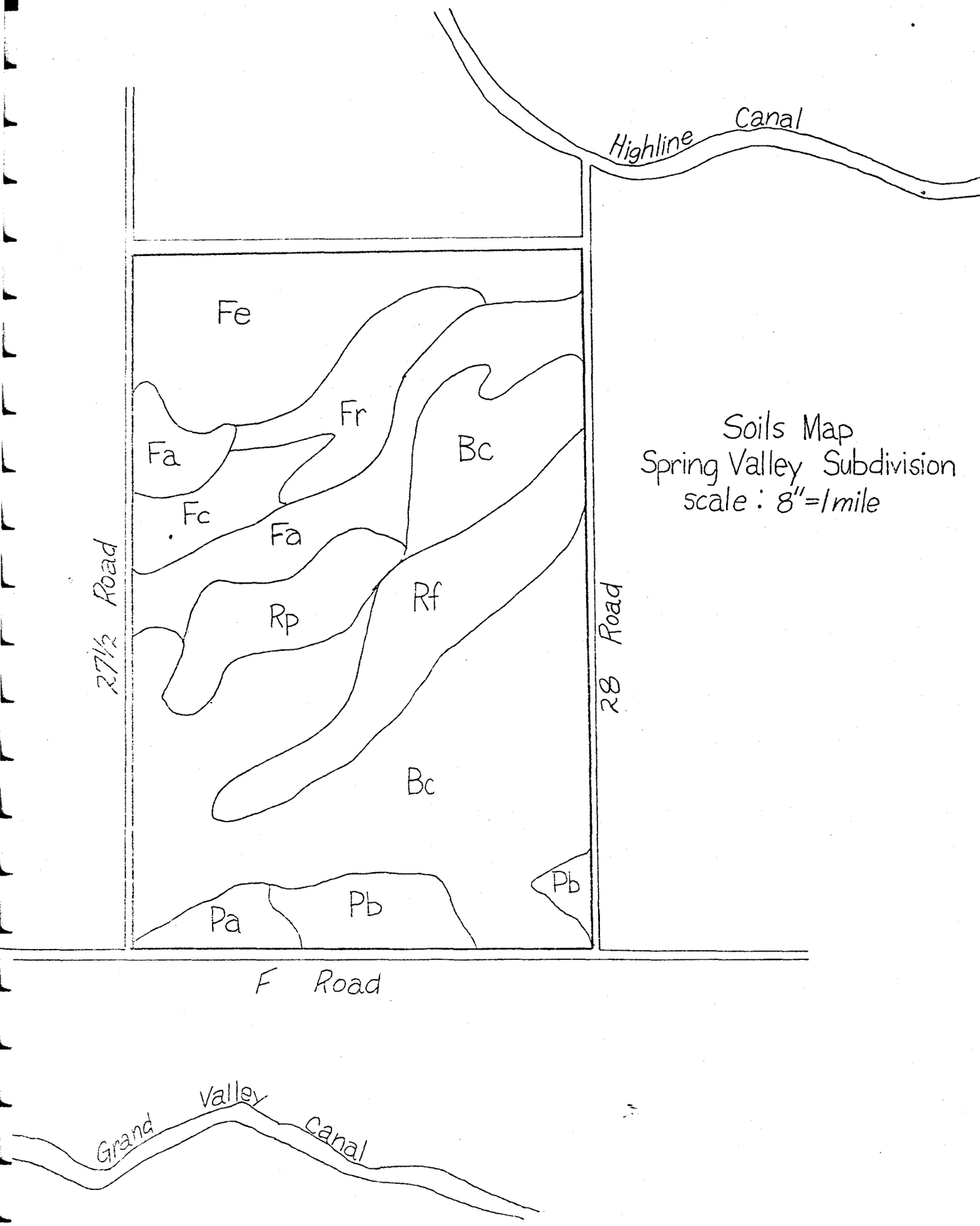
DEGREE OF SOIL LIMITATION

LOCAL ROADS AND STREETS: Slight	SEPTIC TANK ABSORPTION FIELDS: Slight
SHALLOW EXCAVATIONS: Slight	SEWAGE LAGOONS: Moderate: permeability, fair - poor compaction
DWELLINGS: a) w/ basements Slight; b) w/o basements Slight	CORROSIVITY: a) uncoated steel Low; b) concrete Low
SANITARY LAND FILL: (TRENCH TYPE) Slight	

MAJOR SOIL FEATURES AFFECTING SELECTED USE

POND RESERVOIR AREAS: Permeability	IRRIGATION: Water erosion hazard
EMBANKMENTS, DIKES, and LEVEES: Fair to poor compaction	TERRACES and DIVERSIONS: Channel siltation possibility
DRAINAGE of CROPLAND and PASTURE: Stability of ditch banks	GRASSED WATERWAYS: Water erosion hazard

* Frost action potential is greater due to irr. of desert lands.



Soils Map
Spring Valley Subdivision
scale : 8"=1 mile

DRAINAGE STUDY

SPRING VALLEY SUBDIVISION

GENERAL

We have completed a preliminary storm drainage study for the Spring Valley Subdivision and surrounding contributary areas. The entire watershed contributary to runoff through the proposed development has been considered in the preparation of this report. It is the intent of this report to describe the anticipated storm drainage conditions during a ten year design storm when the subdivision is fully developed. It is understood that this development will be constructed in accordance with the requirements of the City of Grand Junction and the applicable regulations of the Federal Housing Administration.

DESIGN CRITERIA

The rational method of design as outlined in the Data Book for Civil Engineers by Elwyn E. Seelye, Vol. 1, Sec. 18-01 to 18-71, Third Edition, was used throughout the analysis. This method requires the use of the formula $Q = CIA$.

Q - The discharge of storm water in cubic feet per second.

C - A runoff factor. (The runoff factor is a coefficient that takes into consideration factors that affect this flow, such as soils features and type of improvements.) For this report, a runoff factor of 0.15 was used for all land that is presently used for agricultural purposes. For the proposed single family residential development the runoff factors

of .30 has been used.

been used respectively.

I - Intensity rate of rainfall. (For this study, we have used an intensity expectation for one hour rainfall of .85 inch per hour for a ten year design storm as recommended by Colorado State Highway Design Manual, 1961, Figure 5-802, 1B page 112, revised to March 1963.)

A - The area contributing storm water runoff to a particular point.

1. The flow of storm runoff in the streets has been limited to that which can be carried in a 10-foot wide channel measured from the curb face toward center of the street. This would leave the driving lanes free of water in most areas. When the flow of runoff exceeds that which can be carried in this channel, a catch basin will be installed to carry the water off the street into a storm drain.
2. The allowable discharge is based on the runoff from the present agricultural use. This is shown in the attached calculation sheets.

EXHIBITS

Exhibit No. 1 is a reproduction of the U.S. Geological Survey Map and shows the exterior drainage areas which are contributary to the development.

Exhibit No. 2 is a preliminary sketch of the development showing the site in its entirety. Direction flow arrows, preliminary street grades, runoff concentration and the existing and proposed drainage structures are shown.

EXISTING TOPOGRAPHY

The proposed development is presently irrigated farm land which generally drains to the southwest. The site is separated into two drainage areas by the shallow ridge beginning in the northeast corner and running southwesterly. The contributary drainage is limited by "F-3/4" Road and 28 Road. Two drainage ditches now cross the property. One, located in the south part, crosses the property from east to west. This ditch will be relocated and piped. The ditch in the northwest area will be piped and covered over. All of this drainage now flows in a system of ditches and pipes to the Colorado River.

STORM DRAINAGE DESIGN

The design criteria utilized in the runoff analysis has been described in an earlier section of this report. A study of existing topographic maps and a field inspection of the site and surrounding area indicates that minor runoff may occur from the area to the northwest. This has been taken into account in Zones A1 and D2. Drainage from other adjacent areas is intercepted by 28 Road, F-3/4 Road and the existing ditches.

DRAINAGE PLAN

The general drainage plan of the development area is shown on Exhibit 2. Storm water will be carried in the planned street system and storm drains to the point of discharge. Preliminary street grades have been calculated as shown. Catch basins and piped drainage is provided where flows would exceed a 10-foot width along the curb line. The basic concept presented in this report is to use a system of detention ponds in order to protect the

adjacent downstream properties from the additional storm runoff generated by development. Discharge from the detention ponds will be controlled and will not exceed the discharge that could be expected from a ten year storm on the property as now used.

The detention pond area, if properly designed and maintained, can serve a multiple use and prove to be attractive to the local neighborhood. If the area of the pond is sufficiently large, it can be used as a recreation site, such as a park or playground. The side slopes can be flattened and seeded with grass and otherwise developed for use as a park. Construction can be done and maintained so that they are not materially damaged by the temporary flooding which occurs during a storm.

It must be recognized that the usual detention pond is inundated only on very rare occasions and then only for a very short period of time. Generally, the pond is flooded and drained dry again without requiring any more maintenance than the removal of deposited debris.

Detention Pond A in the center of the development has been sized to handle the excess storm water generated in Zones A, B, C, D, and part of Zone G. The off-site drainage from the area to the west and north of "F-3/4" Road will drain into the ditch as it does at present.

Detention Pond B in the southwest corner of this development has been sized to handle runoff from Zone F and part of Zone G. By retaining a larger quantity of runoff water in the detention ponds, storm water from E will flow west to 27-1/2 Road and then south to existing drainage ditch and will not exceed the historic agriculture runoff of the existing land.

Catch basins and piped storm drainage will be required throughout the development. The catch basins and piped storm drainage will prevent flooding of the traveled part of the street. Inlets will be located around the pond sites to divert water from the street to the ponds. The pond and catch basin location are shown on Exhibit 2.

CONCLUSIONS

According to our analysis, all storm runoff from a ten year design storm can be routed through this subdivision by the storm drainage plan outlined herein and shown on Exhibit 2 without flooding the proposed improvements. It is concluded that the downstream properties can be protected from the additional runoff generated by the development by means of a system of detention ponds and controlled release of storm water.

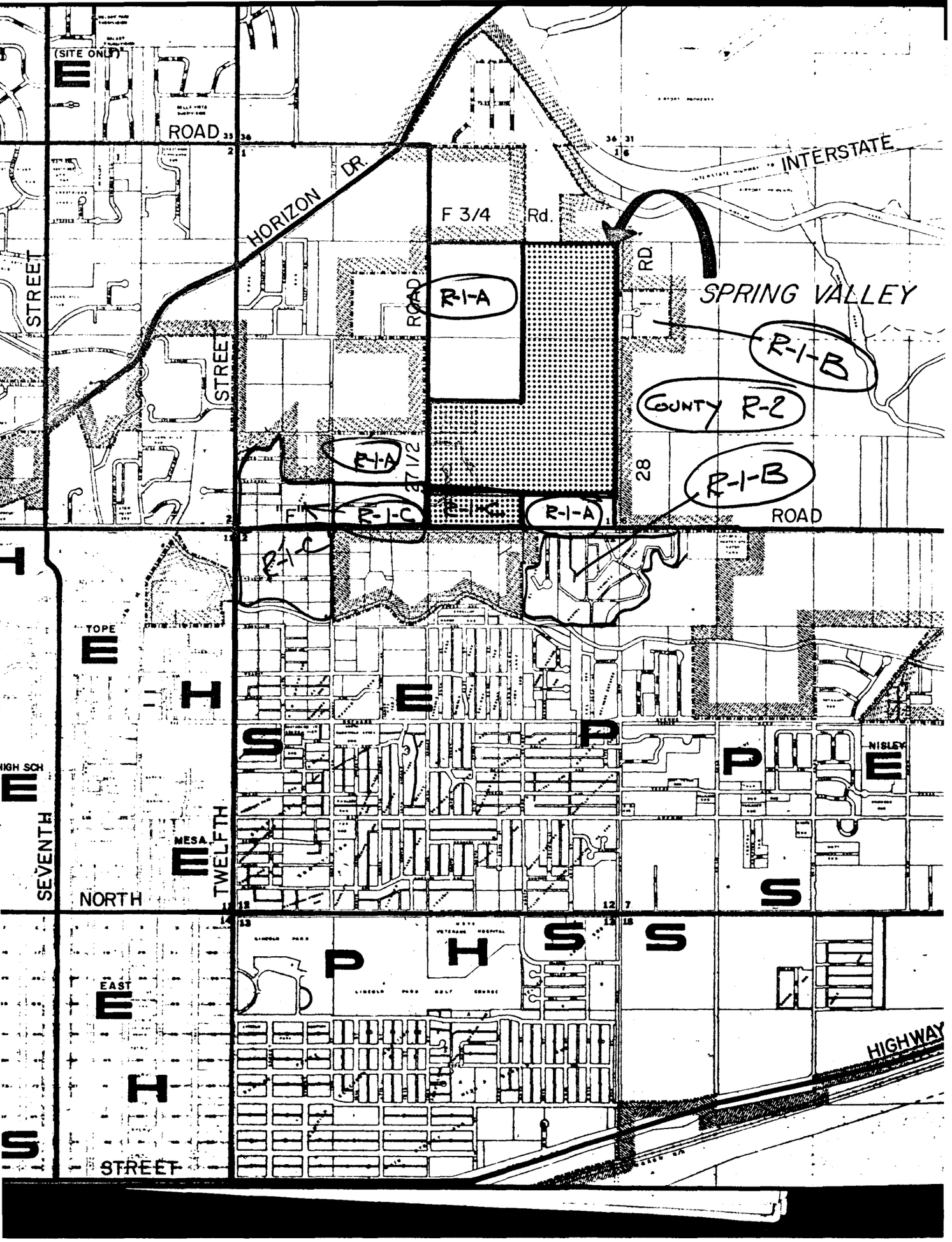
RECOMMENDATIONS

1. It is recommended that the final street grades be designed at a minimum grade of 0.4 percent.
2. It is recommended that ponds A and B be constructed to store the excess runoff water.
3. Federal Housing Administration minimums should be maintained on overlot grading in the subdivision. The minimum rise between the top of the curb and the ground level at the house corner is 18 inches.
4. It is recommended that as each phase of the development proceeds, the drainage plans be reviewed in light of other developments and/or conditions and the final plans for the drainage improvement be completed in detail.

Very truly yours,

NELSON, HALEY, PATTERSON and QUIRK, INC.

Gordon W. Bruchner, P.E., L.S.
Colorado Reg. No. 8873


(SITE ONLY)
ROAD
HORIZON DR.
INTERSTATE
F 3/4 Rd.
STREET
STREET
ROAD
R-1-A
SPRING VALLEY
R-1-B
COUNTY R-2
R-1-B
28
ROAD
R-1-A
47 1/2
R-1-C
R-1-K
R-1-A
R-1-C
TOPE
NISLEY
HIGH SCH
SEVENTH
MESA
TWELFTH
NORTH
EAST
STREET
HIGHWAY