Table of Contents

File 1992-0018 Name: Montessori Day Care School - PR-8 - Revised Final Plan

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

DOCUMENT DESCRIPTION:

X	X	Action Sheet - Approved - 7/7/92	X	X	Landscape Plan
X	X	Development Improvement Agrmt with Release of Improvements Agrmt - sent to City Clerk for scanning	X	X	Drainage Plan
X	X	Drainage Report - 4/1/92, 6/15/92, 7/1/92	X	X	Site Plan
X	X	Geologic Report - 4/2/92	X		American Land Title Assoc. Loan Policy
X		Development Project Meeting Agenda - 4/8/92, 4/23/92	X		Description of Fire Alarm Control Unit
X		Land Appraisal Report - 4/21/92	X		Landscape and Drainage Plan
X		Legal Ad - 4/28/92	X		Wall Section Maps
X	X	Subsurface Soils Exploration Warren Property - 4/30/92	X		Waterline Extension and Fire Hydrant Design SheetS
X	X	Correspondence	X		Miscellaneous Detail Sheet
X	X	Planning Commission Minutes and Agenda - 5/5/92,6/2/92 - **			
X		Public Notice Posting - 4/24/92			
X	X	Planning Clearance - issued 7/23/92 - **			
X	X	Certificate of Occupancy - 10/24/92			
X	X	Suggested Motions by David Thornton			

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street Grand Junction, CO 81501
(303) 244-1430

[A] Receipt 4950
Date 4-1-92
Rec'd By
File No. #18 92

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

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
[ ] Subdivision Plat/Plan	[ ] Minor [ ] Major [ ] Resub				
[ ] Rezone				From: To:	
[X] Planned Development	[ ] ODP [ ] Prelim [X] Final - Revised		2815 Patterson	PR-8	Day Care Center & School
[ ] Conditional Use					
[ ] Zone of Annex					
[ ] Text Amendment					
[ ] Special Use					
[ ] Vacation					[ ] Right-of-Way [ ] Easement

[X] PROPERTY OWNER	[X] DEVELOPER	[X] REPRESENTATIVE
Leo Warren	Same	Wayne H Lizer/W H Lizer & Associates
Name	Name "	Name
2815 F Road	"	576 25 Road, Unit #8
Address	Address "	Address
Grand Junction, CO 81506	"	Grand Junction, CO 81505
City/State/Zip	City/State/Zip "	City/State/Zip
243-0867	"	241-1129
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 hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

X Wayne H. Lizer — 4/1/92
Signature of Person Completing Application — Date

X Leo Warren
Signature of Property Owner(s) - Attach Additional Sheets if Necessary

PROJECT NARRATIVE AND IMPACT STATEMENT

FOR

MESA MONTESSORI CHILDREN'S HOUSE DAY CARE CENTER

PART OF LOT ONE, BLOCK ONE, LANDING HEIGHTS NURSING CARE CENTER,

GRAND JUNCTION, MESA COUNTY, COLORADO

APRIL 1992

DEVELOPER:

LEO WARREN
2815 F ROAD
GRAND JUNCTION, CO 81501

#18 92

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

IMPACT STATEMENT/PROJECT NARRATIVE for BUILDING MESA MONTESSORI CHILDREN'S HOUSE at 2815 F Road. Grand Junction. CO

General

It is proposed to move Mesa Montessori Children's House from its present location at 1306 N. 23rd St. to a new building at 2815 F Road. Grand Junction. CO.

A 5.000 sq. foot frame building will be erected. We are looking at a possible starting day in mid May and to take a maximum of 90 days to erect the building. fencing and landscaping. The school would move in the first week of September 1992 to start a new school year.

The area impacted by the proposal would be Bethesda Care Center to the East, to the South the residence of Leo Warren. to the West several residences and a floral business. To the North there is open space.

We intend to have a single level building which is similar to adjacent structures, a playground with grass and gravel. Inside the fenced area will be playground equipment ie. sand box. climbing structure and swings. There will be a planter and sign at the entrance of the property much like Bethesda's sign.

Mesa Montessori Children's House is a school for children ages 12 months through 8 years of age. We offer a Toddler Program. Pre-school Program. Kindergarten Program. and Child Care. We are open Monday through Friday, from 7 a.m. to 6 p.m. We run our school program in correspondence with the public school calendar. We also offer a summer program. We are presently licensed by the State of Colorado and have a capacity of 54 children. We have 51 enrolled during the school year. The enrollment usually drops in the three summer months to about 30. With the added space we may expand to 65 enrolled during the school year. Because we offer a separate morning and afternoon session. we generally have 30-35 children in attendance at one time. Please note brochure for program philosophy and detail. We hope to implement an intergen-erational program at Bethesda. We presently participate in intergenerational activities at Grand Villa.

The main impact on the proposed area will be that of traffic and playground sound. The cars will be mainly arriving on F Road from both directions. The drop-off and pick-up of children will take place in the parking lot area which is off-street. Not all parents arrive and depart at the same time. We usually have no more than 3-4 cars at one time. The main traffic times would be 7:30 - 8:30 a.m. and 4-5 p.m.. with some departing at 11:30 and some arriving for afternoon session at 1:00. The main playground times are 8:00-8:30 during arrival. 11:00-11:30, 12:00-1:00, 3:30-4:30.

#18 92

By Mesa Montessori Children's Center Staff

ACCESS TO THE DEVELOPMENT

The planned access is off F Road from an existing driveway West of the property and from the Bethesda Nursing Home driveway which is on the East side of the property.

The access on the West side would be an entry access only from F Road and would connect to the driveway opening at the Besthesda Nursing Home which is both an entry-and-exit driveway.

Traffic would enter from the driveway on the West and exit to the East.

AMOUNT OF TRAFFIC GENERATED

The maximum amount of trips daily would be as follows:

Employees:	6 maximum @ 6 trips/day	36
Children Drop-off/Pick-up:	65 children @ 2 trips/day	130
	TOTAL TRIPS/DAY	166

Minimum Amount:

Employees:	3 minimum @ 6 trips/day	18
Children Drop-off/Pick-up:	30 children @ 2 trips/day	60
	TOTAL TRIPS/DAY	78

LAND USE SUMMARY

BUILDING	5000 Sq.Ft.	22%
PARKING AND DRIVEWAY	5267 Sq.Ft.	23%
LANDSCAPING AND OTHER	12349 Sq.Ft.	55%
TOTAL	22616 Sq.Ft.	100%

The remaining portion of land, 1 acre, is occupied by the existing residence, yard, and other structures.

#18 92

PUBLIC SERVICES AND UTILITY SUMMARY

GRAND JUNCTION FIRE DEPARTMENT	PUBLIC SERVICE CO. GAS & ELECTRIC
GRAND JUNCTION CITY WATER	U.S. WEST TELEPHONE OR OTHERS
GRAND JUNCTION CITY SANITATION	GRAND JUNCTION DRAINAGE DISTRICT

DEVELOPMENT SCHEDULE

The development including building, fencing, driveway and parking, and landscaping will be completed 4 to 6 months after final approval.

See plan for building location.

Respectfully submitted,

Wayne H. Lizer

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

#18 92

MESA MONTESORRI CHILDREN'S HOUSE
Proposed Day Care Center
April 1992

B & G Investments Etal
P O Box 292
Durango, CO 81302

First Church of the Nazarene
1022 Grand Ave
Grand Junction, CO 81501

MTC West Inc
1465 Kelly Johnson Blvd #200
Colorado Springs, CO 80920

Ronald J Bockelman
2811 F Road
Grand Junction, CO 81501

Bethesda Foundation of Nebraska
2825 Patterson Road
Grand Junction, CO 81506

Bethesda Foundation of Nebraska
1465 Kelley Johnson Blvd #200
Colorado Springs, CO 80918

Leo H & Helen M Warren
2815 Patterson
Grand Junction, CO 81501

Wayne H Lizer
W H Lizer & Associates
576 25 Road Unit #8
Grand Junction, CO 81505

#18 92

4

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

April 1, 1992

DRAINAGE REPORT
FOR
A PROPOSED DAY CARE CENTER
MESA MONTESORI CHILDREN'S HOUSE
PART OF LOT ONE, BLOCK ONE, LANDING HEIGHTS NURSING CARE CENTER, GRAND JUNCTION, MESA COUNTY, COLORADO

GENERAL

This drainage report covers part of Lot One, Block One of Landing Heights Nursing Care Center, located approximately 250 feet West of 28 1/4 Road and on the South side of F Road.

There is no exterior contribution of stormwater to the site.

METHOD OF ANALYSIS

The Rational Method was used to determine the amount of storm runoff, using the formula $Q = CC_fIA$ since this is a very small area,

where Q = runoff in cfs

C = runoff coefficient

C_f = frequency factor used to account for antecedent precipitation

I = rainfall intensity (in./hr)

A = area in acres

For historic runoff, a value of 0.37 was used for "C" for an unimproved area of 0.52 acre.

For runoff after development, a value of 0.64 was used for "C" which was determined by the composit method.

Historically, drainage is from the South to North with an average slope of approximately 2%.

The subject site contains approximately 0.52 acre. There will be 0.24 acre of building and parking lots.

A value of 0.95 was used for "C" for buildings and parking lots.

Values for "I" were determined from intensity duration curves for the Grand Junction area (Graph attached).

$$T_c = \frac{1.87(1.1-C)D^{\frac{1}{2}}}{S^{1/3}}$$

where T_c = Time of Concentration, minutes
S = Slope of Basin, %
C = Rational Method Runoff Coefficient
D = Length of Basin, feet

T_c Historical

$$= \frac{1.87(1.1-0.37)(185)^{\frac{1}{2}}}{2^{1/3}} = 14.7 \text{ minutes}$$

I_{10} from graph = 2.2

$Q_{10} = CC_fIA = (0.37)(1)(2.2)(0.52)$

$= 0.42$ cfs

Runoff After Development

Composite Runoff Factor

$$\frac{CiAi}{Ac} = \frac{(0.28 \times 0.37) + (0.24 \times 0.95)}{(0.52)}$$

$= 0.64$

$$T_{c_{10}} = \frac{1.87(1.1-0.64)(185)^{\frac{1}{2}}}{2^{1/3}}$$

$= 9.29$

I_{10} from graph = 2.65

$Q_{10} = CC_fIA = (0.64)(1)(2.65)(0.52)$

$= 0.88$ cfs

#18 92

CONCLUSIONS

There will be an increase of 0.46 cfs after development.

Respectfully submitted,

Wayne H. Lizer

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

WHL/sl

#18 92

Original
Do NOT Remove
From Office

A value of 0.95 was used for "C" for buildings and parking lots.

Values for "I" were determined from intensity duration curves for the Grand Junction area (Graph attached).

$$T_c = \frac{1.87(1.1-C)D^{\frac{1}{2}}}{S^{1/3}}$$

where T_c = Time of Concentration, minutes
S = Slope of Basin, %
C = Rational Method Runoff Coefficient
D = Length of Basin, feet

T_c Historical

$$= \frac{1.87(1.1-0.37)(185)^{\frac{1}{2}}}{2^{1/3}} = 14.7 \text{ minutes}$$

I_{10} from graph = 2.2

$Q_{10} = CC_fIA = (0.37)(1)(2.2)(0.52)$

$= 0.42$ cfs

Runoff After Development

Composite Runoff Factor

$$\frac{CiAi}{Ac} = \frac{(0.28 \times 0.37) + (0.24 \times 0.95)}{(0.52)}$$

$= 0.64$

$$T_{c_{10}} = \frac{1.87(1.1-0.64)(185)^{\frac{1}{2}}}{2^{1/3}}$$

$= 9.29$

I_{10} from graph = 2.65

$Q_{10} = CC_fIA = (0.64)(1)(2.65)(0.52)$

$= 0.88$ cfs

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

April 2, 1992

A GEOLOGIC REPORT FOR A PROPOSED DAY CARE CENTER FOR MESA MONTESSORI CHILDREN'S HOUSE DAY CARE CENTER PART OF LOT ONE, BLOCK ONE, LANDING HEIGHTS NURSING CARE CENTER GRAND JUNCTION, MESA COUNTY, COLORADO

LOCATION

The proposed day care center is located in the Northwest Quarter of Section 7, T1S, R1E of the Ute Meridian in Mesa County, Colorado, approximately 250 feet West of 28 1/4 Road and on the South side of F Road in Grand Junction.

The site is also located in the Northerly portion of Lot One, Block One of the Landing Heights Nursing Care Center.

At one time the site location had a building on it, however, this building was removed twelve years ago and the site has been vacant since that time.

GEOLOGIC FORMATIONS

As shown on the attached soil conservation, map, the surface formation consists of Persayo-Chipita Silty Clay Loams, 2% to 5% slopes. There is no evidence of any shale outcrops on the site. The debris fan materials that cover the site are derived from the Bookcliffs to the North of the Project site. The debris fans overlay formational Mancos Shale.

GEOLOGIC STRUCTURES

There are no geologic hazards within the site area. The inactive Redlands fault lies approximately six miles to the South.

CONSTRUCTION FACTORS

The Mancos shale usually has a high bearing capacity but exhibits varying degrees of swell factor, which will require subsurface soil testing for buildings prior to construction.

SUMMARY

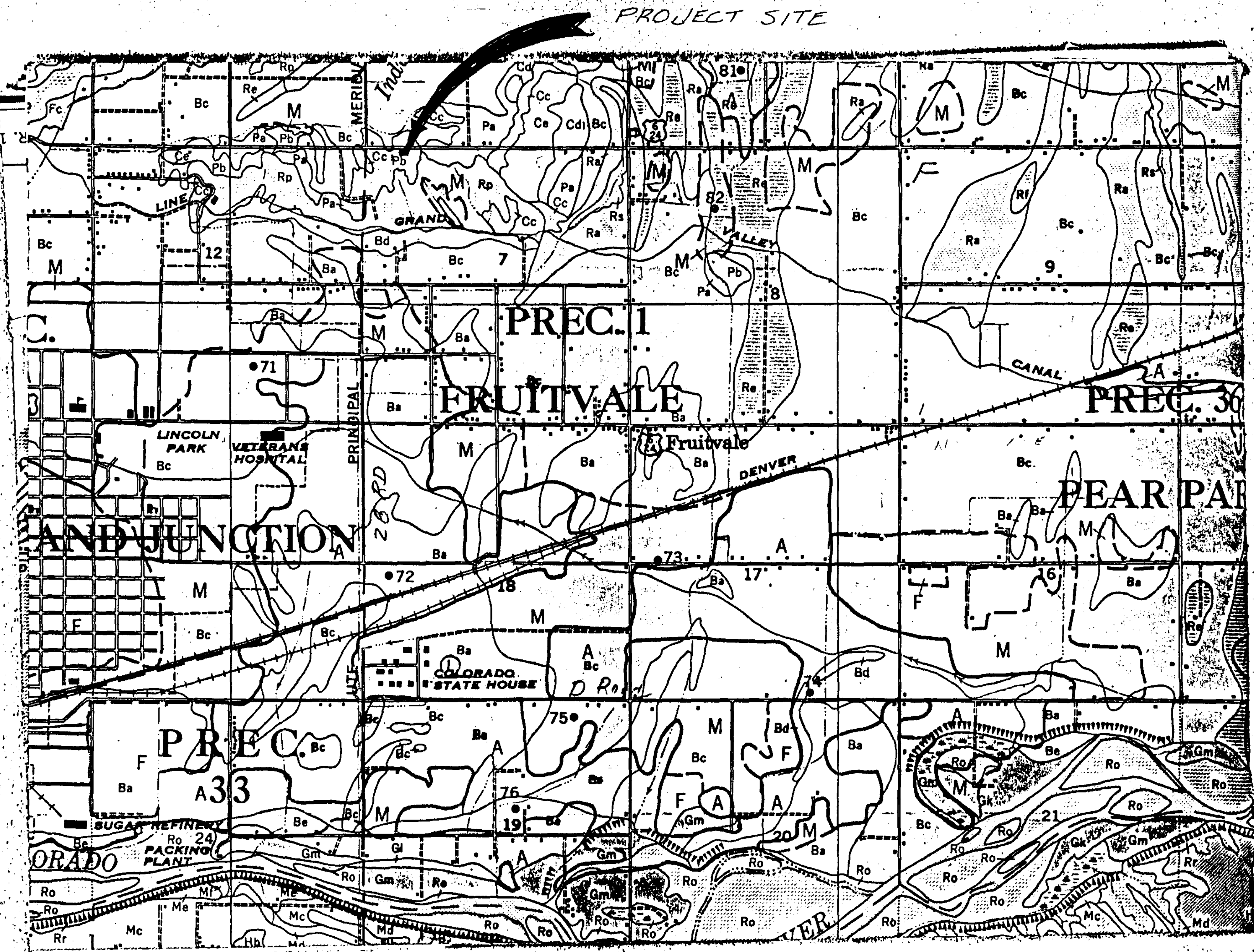
There are no geologic reasons why this proposed location cannot be utilized with the proposed use as a day care center. Subsurface soil testing should be completed prior to building construction.

#18 92

Submitted by:

Wayne H. Lizer

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

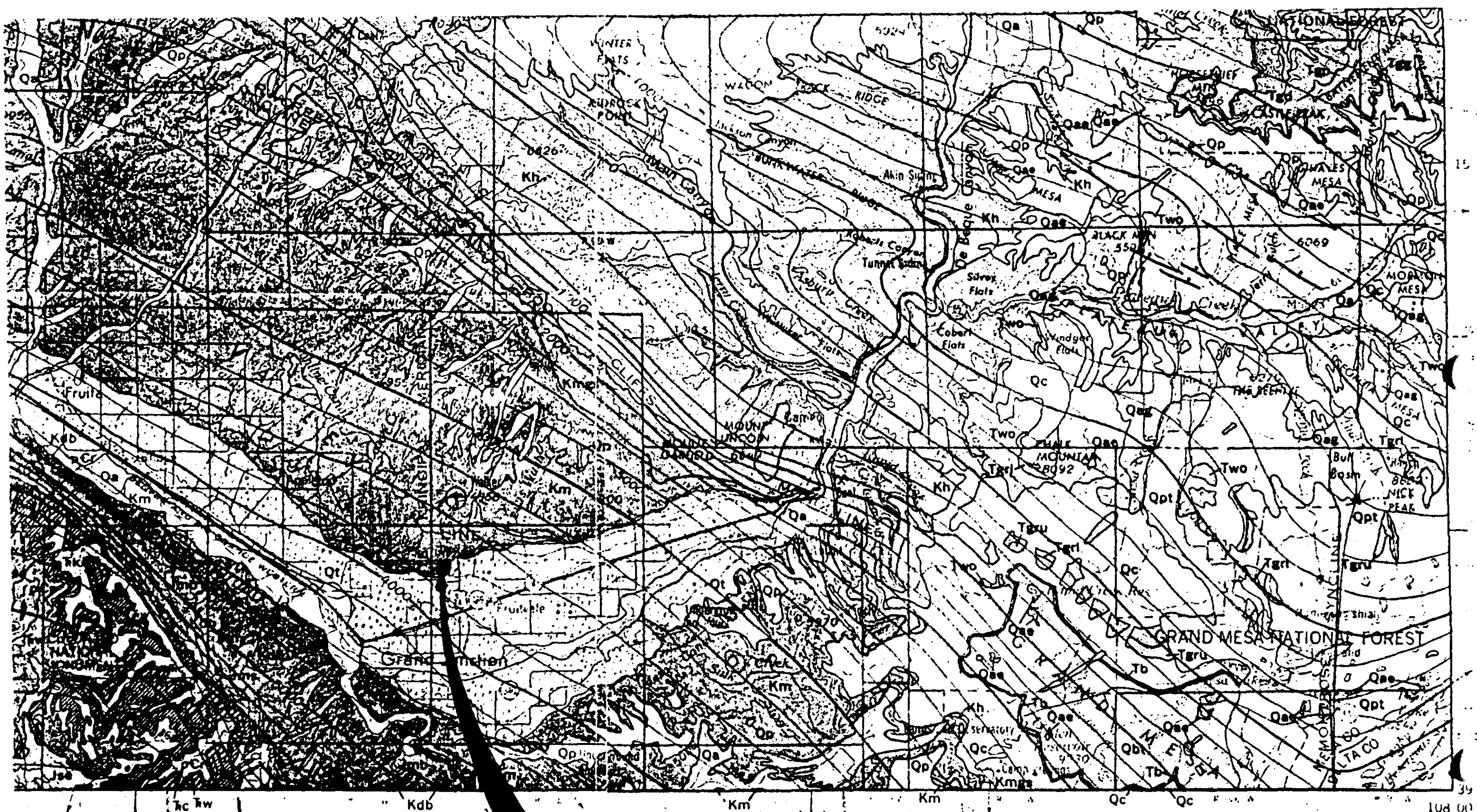


#18 72

PERSAYO-CHIPETA SILTY CLAY LOAMS, 2 to 5 percent slopes, Class IVs (Pb)

In most features except slope, the soil of this complex are essentially like those of the complex of Persayo-Chipeta loams, 0 to 2 percent slopes. At least 80 percent of the complex is made up of the Persayo soil, and the rest of the Chipeta. The Chipeta soil occurs either on comparatively sharp rises or undulations having slopes of more than 5 percent that extend 4 to 6 feet above the prevailing level or in small irregularly shaped bodies on relatively smooth topography. Wherever the areas of Chipeta soil occur, they are too small and too intricately associated with the Persayo soil to be mapped separately.

Soil limitations are classified as severe for sanitary land fill (depth to rock, slope), septic tank absorption fields (depth to rock, slope), and sewage lagoons (depth to rock, slope). Limitations are moderate to severe for local roads and streets (shrink-swell, depth to rock and slope), shallow excavations (depth to rock, slope), dwellings with basements (shrink-swell, depth to rock, slope), and dwellings without basements (shrink- swell, depth to rock, slope).



Geology compiled in 1968–71

Mesa Montessori Children's House
Day Care Center

Located in the NW¼ of Section 7,
T 1 S, R 1 E, Ute Meridian,
City of Grand Junction
Mesa County, Colorado

25 MILES

Scale 1" = 4 Miles

Pb Persayo-Chipeta Loams
2 to 5 percent slopes

MESA MONTESSORI CHILDREN'S HOUSE
DAY CARE CENTER
GEOLOGICAL MAP

W.H. LIZER & ASSOCIATES
ENGINEERING CONSULTING & LAND SURVEYING
576 25 ROAD UNIT 8
GRAND JUNCTION, COLORADO 81505

116° 114° 112° 110° 108° 106° 104° 102°

REVIEW COMMENTS

FILE NO. #18-92 **TITLE HEADING:** Revised Final Plan

ACTIVITY: Revised Final Plan in PR-8 Zone for a Daycare Center & School

LOCATION: 2815 Patterson Road

PHASE: Final **ACRES:**

PETITIONER: Leo Warren

PETITIONER'S ADDRESS/TELEPHONE: 2815 F Rd, GJ, CO 81506
243-0867

STAFF REPRESENTATIVE: David Thornton

NOTE: WRITTEN RESPONSE BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED ON OR BEFORE 5:00 P.M., APRIL 30, 1992.

CITY UTILITIES ENGINEER **04/15/92**
Bill Cheney 244-1590

WATER

1. Connection to City water will need to be made from the south property line, not "F" Road. Existing water service as show is off Ute Water. City water available at south property line of lot.

SEWER

1. Show location of sanitary sewer service line and how it will be affected by other utilities if put into the line in "F" Road.

2. An E.Q.U. of 2.16 will be applied to the proposed use if capacity as stated is 54.

CITY ENGINEER **04/14/92**
Gerald Williams **244-1577**

1. Onsite detention of storm runoff was not proposed. The amount required to prevent an increase in runoff due to development would not be substantial and could be incorporated into gentle landscaping swales, particularly the roof runoff. Detention to prevent an increase in 10-year storm runoff due to development will be required.

2. A Grading and Drainage Plan will be required. The drawing should include surrounding areas to show that the site does not receive drainage from offsite. Onsite drainage subareas should be shown which depict the subarea runoff direction, such as areas which contribute direct runoff to "F" Road, or to shallow swales, etc. Also show overflow patterns and provide detention volumes. The proposed building finish floor adjacent street curb and gutter, and all asphalt and concrete angle and curvature points must have grades.

3. Parking lot and entry/exit detail is lacking on the site plan. Please show dimensions and elevations.

4. An existing concrete ditch is shown to be piped under the driveway entrance with CMP. Written approval of the size and material type by the ditch owner must be submitted to the City. Also an easement or agreement is required for the driveway offsite.

5. Sewer service is not shown. The proposed location must be shown.

6. Sign must be on property, not in right-of-way unless it is 30" high or less.

7. Six foot (6') sidewalk required along Patterson Road.

8. Need one-way traffic control signs on driveways.

9. Parking space at east end encroaches upon exit driveway.

10. Landscaping plans are required.

TRANSPORTATION ENGINEER 04/14/92
David Tontoli 244-1567

1. One-way signing for access.

2. Easement for one-way entry.

3. Remove last parking stall closest to exit way as it encroaches into access.

4. No landscaping over 2 1/2 feet in right-of-way.

CITY FIRE DEPARTMENT 04/06/92
George Bennett 244-1400

1. A manual and automatic fire alarm system shall abe installed. Please submit plans for approval.

2. At least one fire hydrant must be provided within 150 feet of all exterior portions of the building - (measured around the exterior of the building). An (8) eight inch supply line is required.

3. A fire department clearance form will need to be obtained prior to any building construction. Please contact our office.

CITY PARKS AND RECREATION 04/06/92
Don Hobbs 244-1542

Unless proof of non-profit status can be presented, an appraisal will be needed to determine open-space fee required.

UTE WATER 04/10/92
Gary R. Matthews 242-7491

NO OBJECTIONS TO THE PROJECT.

City of Grand Junction can provide domestic water as per agreement between City of Grand Junction and Ute Water.

Policies and fees in effect at the time of application will apply.

BUILDING DEPARTMENT 04/08/92
Bob Lee 244-1656

Daycare 12 months to 3 years I-1 occupancy min. one hour fire resistive construction. Uniform Building Code, 1988 edition. Plans show non-rated building. Site location looks ok.

CITY POLICE DEPARTMENT 04/15/92
Lt. Bob Knight 244-3619

A decel right turn lane should be installed considering speed limit and visibility restrictions - Traffic Engineering contacted.

U.S. WEST 04/15/92
Leon Peach 244-4964

No comments at this time.

COMMUNITY DEVELOPMENT 04/17/92
David Thornton 244-1447

1. The "Mesa Montessori Children's House" sign must be located upon the premises. It cannot be located in the right-of-way.

2. Since it has been determined that Montessori School is not non-profit, an appraisal of open space is required. Open space fees of 2.5% of FMV of unimproved land is required.

3. A subsurface soils survey is required.

4. The number of parking spaces required is one and one half spaces per employee. Six employees are proposed; therefore, nine (9) spaces are required.

5. A nonexclusive ingress/egress easement is required from the property owner to the west for the west entrance.

6. Sidewalk is required along Patterson Road.

7. Landscaping is not adequate. We need a detailed landscaping plan for the entire site. All landscaping must have a pressurized underground irrigation system.

COMMUNITY DEVELOPMENT, continued 04/17/92
David Thornton 244-1447

8. Parking stall must be at a 90° angle since traffic can potentially enter from either direction. You need to make sure enough room is provided for aisle width and parking stall width and length.

9. All Review Agency Summary Sheet comments must be properly addressed by the petitioner and a written response to our office is due at least 48 hours prior to the Planning Commission Hearing on May 5, 1992.

PUBLIC SERVICE 04/15/92
Herb Tinkle 244-2687

Gas & Electric: No objections. Electric line is Public Service Co. NOT Grand Valley Power (see attached).

CITY PROPERTY AGENT 04/21/92
Tim Woodmansee 244-1565

No comments.

GRAND VALLEY WATER USER'S 04/21/92
GW Klapwyk 242-5065

Near the NW corner of the site, this Association has an irrigation lateral of long standing. It is shown on the site plan drawing and is labeled existing ditch, to be piped with 18" CMP. Piping of the lateral is advisable in view of the site's proposed use and while 18" diameter pipe is acceptable, CMP is not, due primarily to its limited life-span and its susceptibility to penetration by tree roots at the joints or at pin holes once developed. Any pipe used must be approved by the Association and must have water-tight root-tight joints and be connected to the existing concrete pipe with an absolute root and water tight connection.

The existing tree shown on the site plan is water-loving willow and is feeding on the water from the open ditch. Its root system continually fills the ditch causing unreasonable, additional work and expense to keep the ditch functioning as evidenced by large piles of root mass shoveled from the ditch at that location. While objectionable, it is manageable in an open ditch, but not in a pipeline.

The willow tree is not presently healthy and when its water supply is cut-off due to piping of the ditch, unless carefully attended, it will likely die or become increasingly unhealthy and during its existence it's a constant treat to the piped lateral if its roots manage to penetrate the pipe in search of water. The tree should have been previously removed from the Association's right-of-way and now in view of the lateral piping and the tree's condition, its removal is even more advisable.

Conclusion:

(1) Unhealthy willow tree should be removed for reasons above-stated.

(2) Lateral piping must be approved in advance by Association to insure that the laterals integrity is maintained.

(3) Piping and other related lateral activity must be done during non-irrigation season.

Thank you for the opportunity to submit the above remarks.

Sincerely,

G. W. Klapwyk

G. W. Klapwyk-Manager

MISSING COMMENTS FROM: Mesa County Planning
State Social Services
City Attorney
Mesa County Social Services

File # 18-92

Lincoln DeVore, Inc.
Geotechnical Consultants
1441 Motor St.
Grand Junction, CO 81505
(303) 242-8968

April 30, 1992

Mr. Leo Warren
2815 Patterson Road
Grand Junction, CO 81506

Re: Subsurface Soils Exploration
Warren Property

As requested, Lincoln-DeVore personnel have recently completed a geotechnical exploratory program at the above referenced site. A shallow exploration pit was excavated within the building pad to determine as closely as possible the soil types which exist beneath the proposed structure. Our conclusions and recommendations for this site are presented below.

Soil Classification: The soils on this site are quite variable, ranging from expansive clays of the Mancos Shale Formation to fine-grained, alluvial silty sands which overlie the Mancos Shale. The soils of the Mancos Shale Formation have low to moderate expansive properties. The allowable bearing capacities of the Mancos Shale clay soils are 4500 psf maximum and 1150 psf minimum. The allowable bearing capacities of the alluvial silty sandy soils are 1800 psf maximum and 200 psf minimum, assuming a minmum distance of 4 feet between the bottoms of the foundation system and the Mancos Shale Formation..

Man-made Fill: The soils encountered in our exploration pits appear to be native to the site. All building foundations must penetrate any man-made fills which are present at the site at this time, as well as any fills which result from the excavation process. Carefull examination of the open excavation will be necessary to determine the presence or absence of man-made fills. The open excavation must be examined prior to the placement of concrete to establish that materials of proper design bearing capacity have been exposed and that no soft spots or debris are present in the foundation area. A 24 hour notice is required for all field examinations to enable Lincoln-DeVore to schedule personnel and provide service when needed.

Soil Moisture Conditions: Low - NO FREE WATER OBSERVED

Due to the proximity of the Mancos Shale Formation, there exists a possibility of a perched water table developing in the alluvial soils which overlie the soil. This perched water would probably be the result of increased irrigation due to the presence offuture development in the area. The exploration pits indicate that the top of the Mancos Shale Formation is relatively flat in some

areas and that subsurface drainage would probably be quite slow. While it is believed that under the existing conditions at the time of this exploration the construction process would not be effected by any free-flow waters, it is very possible that several years after development is initiated, a troublesome perched water condition may develop which will provide construction difficulties. In addition, this potential perched water could create some problems for existing or future foundations on this tract. Therefore it is recommended that the future presence of a perched water table be considered in all design and construction of both the proposed residential structures and any subdivision improvements.

Foundation Type Recommended: A properly designed shallow foundation system based on the above allowable soil bearing capacities would be appropriate for use on this site. It is recommended the entire foundation system be founded on the same soil type in order to decrease the possibility of differential movement.

The proximity of the Mancos Shale Formation suggests the foundation system should be founded on the Shale. At this time, Lincoln-DeVore has not been provided with a copy of the foundation/building plans and is, therefore, not informed as to the precise wall or column loading planned within the building. Therefore, three foundation types which could be utilized for a building of this type are recommended, based on our experience in this area. The choice between these foundation types depends on the internal loading of the foundation members and the amount of excavation planned to achieve the finished floor elevations.

The three foundation types preliminarily recommended are as follows:

1. The voided wall on grade foundation system with the stem wall resting directly on the Shale Formation.
2. The isolated pad and grade beam foundation system in which the grade beam is voided and loads are transferred to the isolated pads.
3. The drilled pier and fully voided grade beam system with the loads transferred to the piers.

Recommendations given in this letter report are given for the shallow foundation types. Recommendations for deep foundations will be given if it is determined that deep foundations are required.

Voids Beneath Foundation Walls: It is believed that void material will be required in the Foundation stem-walls and must be placed in strict accordance to the foundation design.

Reinforcing: The foundation should be reinforced as shown on the foundation design.

All foundation stem walls should be designed as "grade beams" capable of spanning at least thirteen feet. Where the foundation stem walls are relatively shallow in height, vertical reinforcing will not be necessary. However, in the walls retaining soil in excess of 4 feet in height, vertical reinforcing may be necessary to resist the lateral pressures (restrained case) of the soils along the wall exterior. To aid in designing such vertical reinforcing, an equivalent fluid pressure (E.F.P) on the order of 58 pcf would be appropriate.

Floor Slabs: Floor slabs on grade, if any, should be positively separated from all structural portions of this building and allowed to float freely. Frequent scoring (control joints) of the slabs should be provided to allow for possible shrinkage cracking of the slab. These control joints should be placed to provide maximum slab areas of approximately 200 to 360 square feet. Any man-made fill placed below floor slabs on grade should be compacted to a minimum of 90% of its maximum Modified Proctor dry density, ASTM D-1557. These soils should be placed at a moisture content conducive to the required compaction (usually Proctor optimum moisture content $\pm$2%.

The magnitude of expansion measured of the soils on this site is such that floor slab movement should be expected if slab-on-grade construction is used. Non-bearing partitions resting on slabs should be constructed with a minimum 2 inch void space, preferably at the bottom, to allow for freedom of movement without affecting the roof or floor above (see attached suggested detail). All bearing partitions should have their own foundations. If this is a basement or multi-level type construction, stairways between floors should not be constructed as a rigid connection, but should allow for vertical movement of the floor slab.

Where floor slabs are cast on expansive clay soils, no known method of construction will prevent all future slab movement. If the builder and future owner are willing to risk the possibility of some damage due to concrete floor slab movement, the recommendations contained herein should be carefully followed and can help minimize such damage. Any subsequent owner should be advised of the soil conditions and advised to maintain the surface and subsurface drainage, framing of partitions above floor slabs, drywall and finish work above floor slabs, etc.

Drainage and Grading: Surface grading should be completed in such a manner that all runoff moisture is removed from the vicinity of the structure as quickly as possible. It is recommended that a

minimum surface gradient of 8% be maintained away from the structure for the first 10 feet. Roof downspouts and sill cocks should be carried across all backfill areas and allowed to discharge well away from the building. All lawn sprinkling heads should be placed at least 10 feet away from the foundation. Future owners of this structure should be advised to fill in any settled yard areas to eliminate ponding of water near the structure and to provide adequate slope for proper drainage away from the structure and off the site at all times.

It is recommended that a perimeter foundation drain be constructed around the living area of this structure (see attached suggested detail). Drywell discharge of this perimeter foundation drain is not recommended on this site.

Backfill: To reduce settlement and aid in keeping water from reaching beneath this building, all backfill around this building should be mechanically compacted to 80% of its maximum Modified Proctor dry density ASTM D-1557. The only exception to this would be the components of the perimeter foundation drain, if any. All backfill should be composed of the native soils and should not be placed by soaking, jetting or puddling. All backfill placed in utility trenches around this structure or below foundation walls should be mechanically compacted to a minimum of 90% of its maximum Modified Proctor dry density ASTM D-1557. These soils should be placed at a moisture content conducive to the required compaction (usually Proctor optimum content ±2%.

Cement Type: Type II, Type I-II or Type II-V cement is recommended for all concrete which is in contact with the soils on this site. Calcium chloride should not be added to a Type II, Type I-II or Type II-V cement under any circumstances.

Remarks: The bottoms of all exterior foundations should be located a minimum of 24 inches below finished grade for frost protection.

Senate Bill 13 Discussion: This particular structure is being constructed on foundation soils which possess a 'significant potential for expansion'. Therefore, in compliance with Senate Bill 13, we recommend that you provide the owner with the following:

1) a copy of this summary report of our soil analysis and recommendations.
2) a copy of Special Publication 11, "Home Construction on

Shrinking and Swelling Soils.

3) a copy of Special Publication 14, "Home Landscaping and Maintenance on Swelling Soils.

Both publications are availible through the Colorado Geological Survey, 1313 Sherman St., Rm 715, Denver, CO. 80203, or phone (303) 866-2611.

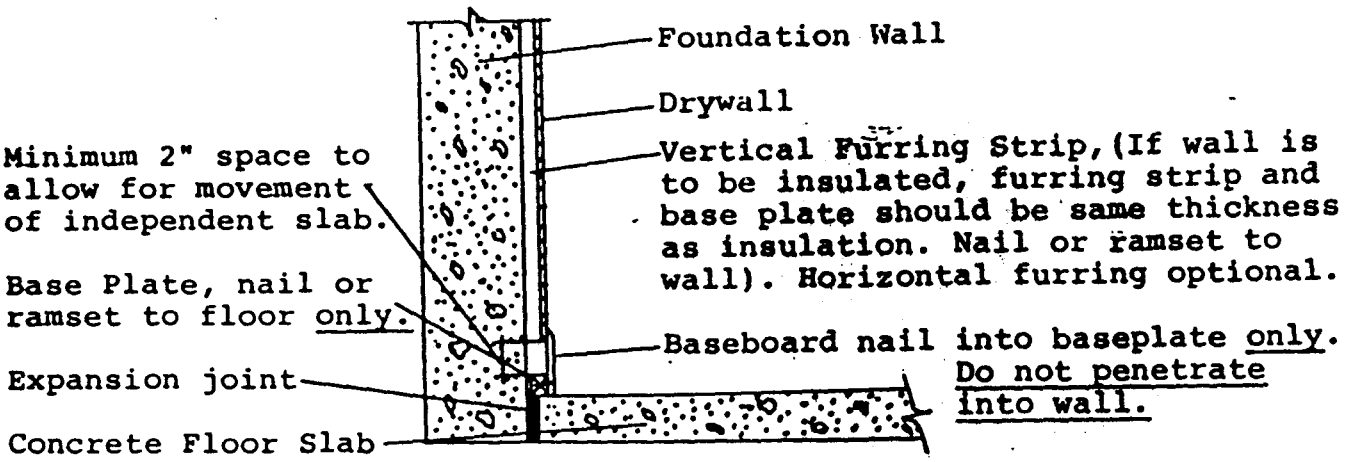
Respectfully submitted,

LINCOLN-DeVORE, INC.

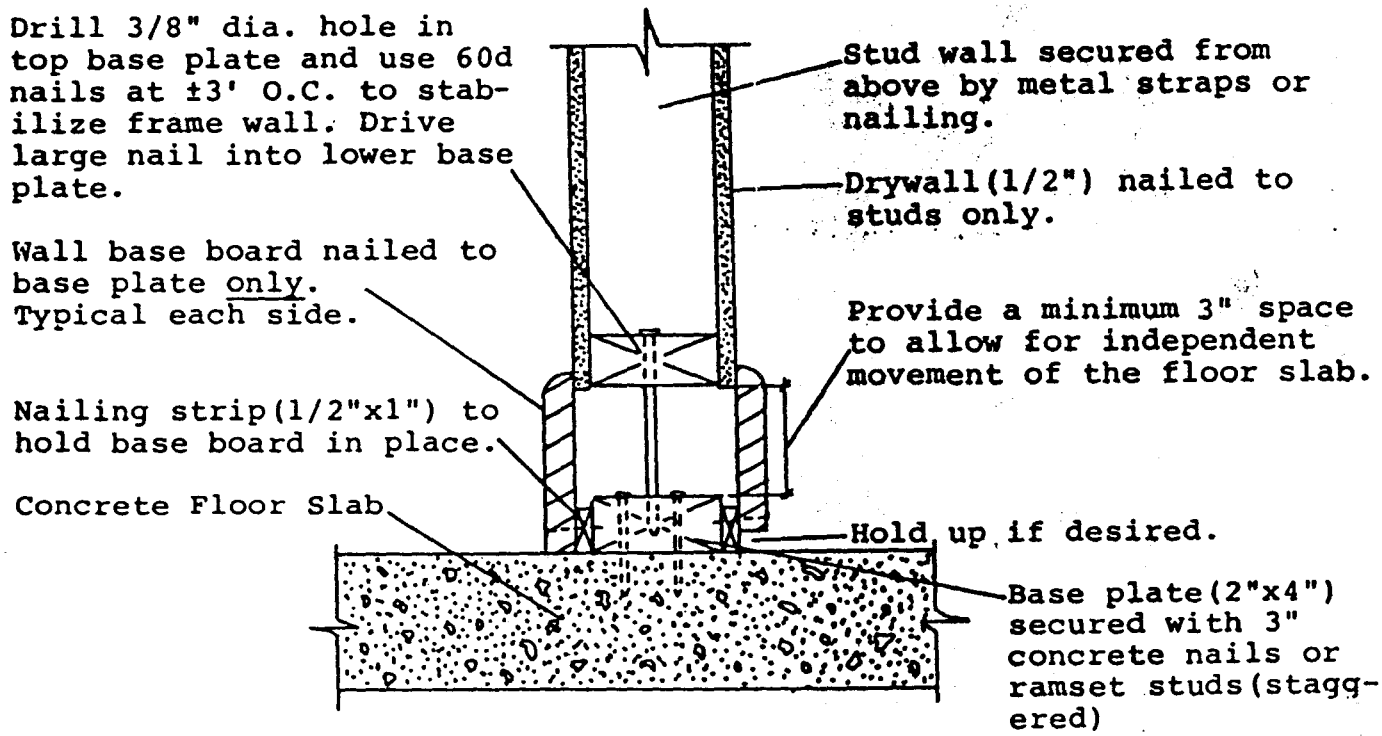
By: Edward M. Morris EIT Reviewed by: George D. Morris PE
Western Slope Manager

LDTL Job # 75871-J

FLOATED WALL DETAIL



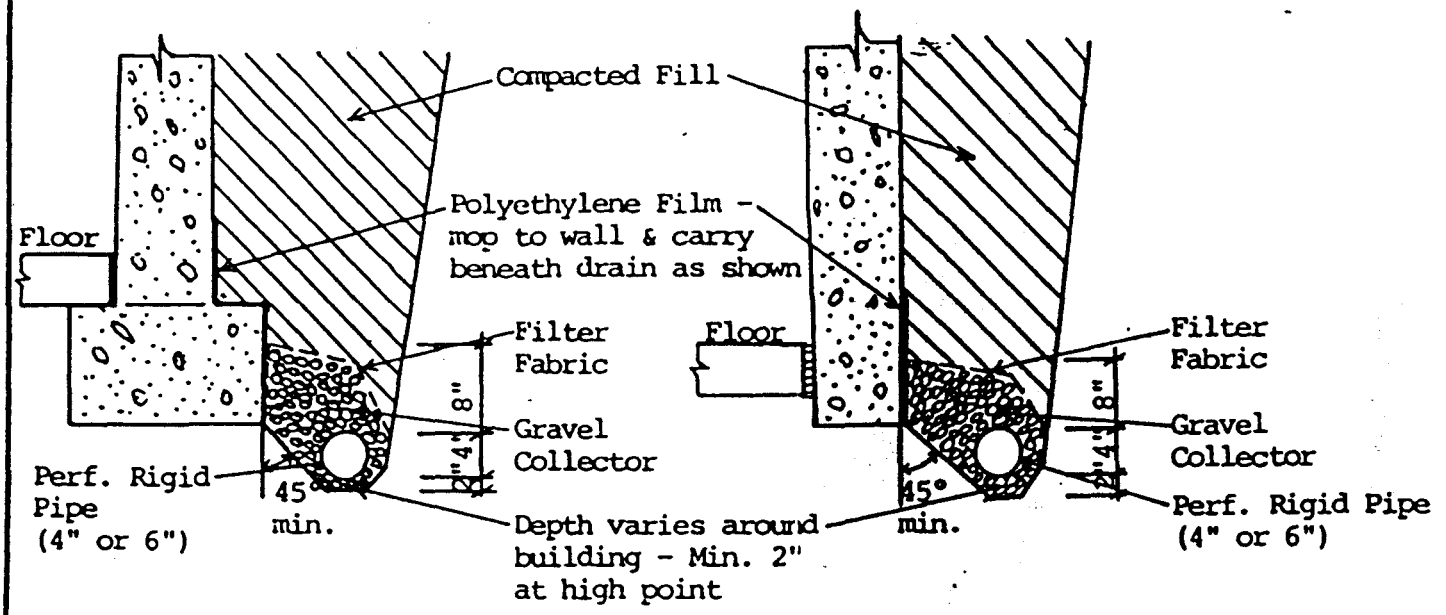
FINISH FRAMING AT FOUNDATION



FRAMING WALL

Lincoln DeVore, Inc. Geotechnical Consultants	Typical Bottom Floated Wall Detail	
		DATE 12/16/86
JOB NO.	DRAWN Rick	C5

EXTERIOR DRAIN DETAIL



SPREAD FOOTING TYPE

WALL-ON-GRADE TYPE

NOTES:

-Diameter of perforated pipe varies with amount of seepage expected. 4" diameter is most common.
-The required size of drain components should be determined by Lincoln-DeVore, Inc. personnel.
-Gravel size depends on size of pipe perforation: 85% gravel 2 x diameter of perforation.
-All pipe to be perforated VCP or PVC.
-4" flexible pipe may be used depth of 4 feet, but must be carefully graded. Discharge portion of all drain pipe should be non-perforated.
-Rigid pipe only to be used below backfill depths greater than 4 feet.
-All pipe to be laid at a minimum grade of 1.0% around building foundations.
-Outfall to be free, gravity outfall if at all possible. Use sump and pump only if no gravity outfall exists.
-Filter fabric may be any type, equivalent to Mirafi 140N.
-Lincoln-DeVore personnel should examine the drain system after it is installed and prior to backfilling.
-Exterior earth backfill material should be compacted to at least 80% maximum modified proctor.

Lincoln DeVore, Inc.
Geotechnical Consultants

Exterior Drain Detail		
		DATE 12/4/86
JOB NO.	DRAWN Rick	D2

May 3, 1992

Planning Commission

Dear Planning Board Members:

This is a letter of support and recommendation for Glenda Gibson and Mesa Montessori Children's House.

One or the other of my children have attended Mesa Montessori, under the direction of Glenda Gibson for the past seven years. This is an outstanding school in our valley, which does an excellant job in preparing young children to suceed academically and personally in life.

Glenda Gibson and her wonderful staff are very responsible and hardworking to provide the best learning environment for the young child. I cannot think of a better neighbor than Mesa Montessori.

President Bush, and the local 2000 committee have worked hard to promote excellance in education on behalf of the people in the Grand Valley. Your support of the request to allow Mesa Montessori to relocate onto Patterson Road would be an important contribution to the 2000 goals.

Thank you for your consideration of this important request. I hope that you will keep in the forefront of your deliberations the critical importance of supporting the growth of this outstanding educational institution.

Sincerely,

Janet K. Cameron

244-3826

COMMUNITY DEVELOPMENT DEPARTMENT STAFF REPORT

File # 18-92

PROPOSAL

This proposal is to construct a daycare center (Montessori School) in a Planned Residential Zone (PR-8) at 2815 Patterson Road. The school will be 5,000 sq ft, single level and will be licensed by the State of Colorado to enroll up to 65 children. Montessori School now licensed for 54 children.

Planning Commission heard this item on May 5th and tabled it because of several unresolved issues (ie. Drainage and Grading, parking/stacking of vehicles) and review of a landscaping plan.

SURROUNDING LAND USE AND ZONING

The area impacted by the proposal would be Bethesda Care center (zoned PR-8) to the East, the residence of Leo Warren, Petitioner to the South (Zoned PR-8), to the west there are several residences and a floral shop (zoned RSF-5) and to the North is the Matchett Property which is currently vacant and has county zoning.

CORRIDOR GUIDELINES - PATTERSON ROAD

The Patterson Road Corridor Guidelines encourage residential development along the stretch of the corridor from 15th Street to 30 Road. Day Care/Preschools are allowed with a Conditional Use permit in all single family zones. With a good site design the proposed Montessori School can be compatible with surrounding uses. The corridor guidelines also recommend that adequate walkways be provided along Patterson Road and that curb cuts and access points on Patterson Road should be limited and consolidated for shared access between developments.

CRITERIA - (rezone, special use, conditional use, vacation, etc.)

N/A

RECOMMENDATIONS

Staff recommends approval with the condition that all review agency summary sheet comments are adhered to.

W.H. LIZER AND ASSOCIATES
CONSULTING ENGINEERING AND LAND SURVEYING
576 25 ROAD-UNIT 8
GRAND JUNCTION, COLORDO-81505

APRIL 30, 1992

Dave Thornton, Planner
City of Grand Junction Development Department
250 N. 5th Street
Grand Junction, Colorado 81501

RE; MESA MONTESSORI CHILDRENS'S HOUSE-DAY CARE CENTER

Dear Mr. Thornton,

Listed below are the review agency review comment responses in Chronological order as they appear on the letter sent to me.

CITY UTILITIES ENGINEER-Bill Cheney
WATER

1. The service connection to the City of Grand Junction Water system is shown on the attached plans together with plans for a fire hydrant installation.

SEWER

1. The location of the of the sanitary sewer service line is shown on the utility composite.

2. The proposed E.Q.U. at this time is 54.

CITY ENGINEER-Gerald Williams.

1. Onsite storm detention for roof runoff will be provided for a 10 year event. Drainage and grading plan attached.

2. Drainage and grading plan attached.

3. Dimensions, details, and elevations shown on attached plans.

4. Concrete pipe for existing ditch has been deleted from plans.

5. Sewer service shown on utility composite.

6. Sign moved to property side of development.

7. Six foot wide sidewalk along Patterson added to plans.

8. One way traffic pattern has been deleted from plans.

9. Parking area has been re-designed.

10. See attached landscaping plan.

TRANSPORTATION ENGINEER-David Tontoli.

1. One way deleted.

2. Easement deleted

3. Parking has been re-designed. See Plan

4. Landscaping in right of way is less than 2 1/2 feet high. See landscaping plan.

CITY FIRE DEPARTMENT-George Bennett

1. A manual and automatic fire system is shown on the attached building floor plan.

2. One fire hydrant has been extended to the property. See plan.

3. A fire department clearance will be obtained prior to construction.

CITY PARKS AND RECREATION-Don Hobbs

1. Appraisal attached

UTE WATER-Gary Matthews

1. Water will be provided by City of Grand Junction.

BUILDING DEPARTMENT-Bob Lee

1. Details for one hour fire rating shown on the building plans Plans are attached.

CITY POLICE DEPARTMENT-Lt. Bob Knight

1. One way traffic layout deleted from plans.

U.S. WEST-Leon Peach

1. No response required

COMMUNITY DEVELOPMENT-David Thornton

1. "Mesa Montessori Children's House" sign relocated on the premises.

2. Appraisal attached.

3. Subsurface soil report attached.

4. 9 parking spaces shown on site plan.

5. Easement to the West has been deleted.

6. A six foot wide sidewalk along Patterson Road has been added to the site plan.

7. Revised landscaping plan is attached.

8. Parking angle has been changed to 90 degrees, with 25 foot aisle space.

PUBLIC SERVICE-Herb Tinkle

1. Electric line on West side of property changed to Public Service instead of Grand Valley Power.

CITY PROPERTY AGENT-Tim Woodmansee

1. No response required

GRAND VALLEY WATER USER'S ASSOCIATION-Bill Klapwyk

1. Irrigation Lateral will not be piped as plan has been revised to delete one way traffic. Willow tree will be removed.

Respectfully submitted

Wayne H. Lizer

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

May 27, 1992

Grand Junction Community Development Department
Planning • Zoning • Code Enforcement
250 North Fifth Street
Grand Junction, Colorado 81501-2668
(303) 244-1430 FAX (303) 244-1599

Mr. Leo Warren
2815 F Road
Grand Junctiion, Colorado 81506

Dear Mr. Warren:

With regard to your submittal for a Day Care facility (Monessori Children's House) at 2815 Patterson Road we are sorry to inform you that since we have not received the adequate information requested through the Review Agency Summary Sheet Comments we can not recommend this item be heard at the next scheduled Planning Commission meeting on June 2, 1992. We will recommend that Planning Commission table this item for one more month and schedule it for the July 7, 1992 Planning Commission Hearing. This will allow you more time to submit the necessary plans and reports specified during the review process. If you have any questions please contact our office at your earliest convenience.

Respectfully,

Bennett Boeschenstein
Community Development Director

#18-92

cc: David Thornton
Dan Wilson
John Shaver
Planning Commission Members

DRAFT

COMMUNITY DEVELOPMENT DEPARTMENT STAFF REPORT 6-16-92

File # 18-92

PROPOSAL

This proposal is to construct a daycare center (Montessori School) in a Planned Residential Zone (PR-8) at 2815 Patterson Road. The school will be 5,000 sq ft, single level and will be licensed by the State of Colorado to enroll up to 65 children. Montessori School now licensed for 54 children.

Planning Commission heard this item on May 5th and tabled it because of several unresolved issues (ie. Drainage and Grading, parking/stacking of vehicles) and review of a landscaping plan.

Review of new Drainage Plan/Report & Landscaping Plan

SURROUNDING LAND USE AND ZONING

The area impacted by the proposal would be Bethesda Care center (zoned PR-8) to the East, the residence of Leo Warren, Petitioner to the South (Zoned PR-8), to the west there are several residences and a floral shop (zoned RSF-5) and to the North is the Matchett Property which is currently vacant and has county zoning.

CORRIDOR GUIDELINES - PATTERSON ROAD

The Patterson Road Corridor Guidelines encourage residential development along the stretch of the corridor from 15th Street to 30 Road. Day Care/Preschools are allowed with a Conditional Use permit in all single family zones. With a good site design the proposed Montessori School can be compatible with surrounding uses. The corridor guidelines also recommend that adequate walkways be provided along Patterson Road and that curb cuts and access points on Patterson Road should be limited and consolidated for shared access between developments.

CRITERIA - (rezone, special use, conditional use, vacation, etc.)

N/A

RECOMMENDATIONS

Staff recommends approval with the condition that all review agency summary sheet comments are adhered to.

GERALD WILLIAMS

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

June 15, 1992

DRAINAGE REPORT
FOR
A PROPOSED DAY CARE CENTER
MESA MONTESORI CHILDREN'S HOUSE
PART OF LOT ONE, BLOCK ONE, LANDING HEIGHTS NURSING CARE CENTER, GRAND JUNCTION, MESA COUNTY, COLORADO

GENERAL

This drainage report covers part of Lot One, Block One of Landing Heights Nursing Care Center, located approximately 250 feet West of 28 1/4 Road and on the South side of F Road.

There is no exterior contribution of stormwater to the site.

METHOD OF ANALYSIS

The Rational Method was used to determine the amount of storm runoff, using the formula $Q = CC_fIA$ since this is a very small area,

where Q = runoff in cfs

C = runoff coefficient

C_f = frequency factor used to account for antecedent precipitation

I = rainfall intensity (in./hr)

A = area in acres

For historic runoff, a value of 0.37 was used for "C" for an unimproved area of 0.74 Acre.

For runoff after development, a value of 0.68 was used for "C" which was determined by the composit method.

Assumptions Made:

Historic.

The top of the site was relatively flat due to having had a building previously occupying the site. This building was removed approximately 12 years ago.

It is assumed that approximately 75% of the site involved drained towards Patterson Road and 25% drained to the East, then back to the South.

The total area involved in the drainage report is approximately 0.74 acre.

A_1 (Drainage towards Patterson Road) = 0.74 x 75% = 0.56 acre.

A_2 (Drainage to the East, then South) = 0.74 x 25% = 0.19 acre

A value of 0.95 was used for "C" for buildings and parking lots.

Values for "I" were determined from intensity duration curves for the Grand Junction Area(Graph Attached).

$$T_c = \frac{1.87(1.1-C)D^{\frac{1}{2}}}{S^{1/3}}$$

where T_c = Time of Concentration, minutes
S = Slope of Basin, %
C = Rational Method Runoff Coefficient
D = Length of Basin, feet

Break out areas per comments. Show areas on the drawing.

T_c Historical

Area 1

$$T_c = \frac{1.87(1.1-0.37)(210)^{\frac{1}{2}}}{2.66^{1/3}} = 14.3 \text{ minutes}$$

from graph, $I_{10} = 2.3$

$Q_{10} = CC_fIA = (0.37)(1)(2.3)(0.56) = 0.5$ CFS

Area 2

$$T_c = \frac{1.87(1.1-0.37)(100)^{\frac{1}{2}}}{5.5^{1/3}} = 7.7 \text{ min}$$

from graph, $I_{10} = 2.92$

$Q_{10} = CC_fIA = (0.37)(1)(2.92)(0.19) = 0.2$ CFS

Total Area 1 and Area 2 0.7 CFS

After Development

Composite Runoff Factor

$$\sum \frac{C_iA_i}{A_t} = \frac{(0.35)(0.37) + (0.39)(0.95)}{0.74} = 0.68$$

Should be figured for each

Area 1

$$T_c = \frac{1.87(1.1-0.68)(210)^{\frac{1}{2}}}{2.66^{1/3}} = 8.21$$

From Graph, $I_{10} = 2.85$

$Q_{10} = CC_fIA = (0.95)(1)(2.85)(0.56) = 1.5$ CFS

Area 2

$$T_c = \frac{1.87(1.1-0.68)(100)^{\frac{1}{2}}}{4.5^{1/3}} = 4.7, \text{ use } T_c = 5 \text{ minutes}$$

from graph, $I_{10} = 3.35$

$Q_{10} = CC_fIA = (0.95)(1)(3.35)(0.19) = 0.60$ CFS

Total Area 1 and Area 2 = 2.1 CFS, or an increase of 1.4 CFS over Historical

Due to the topography of the site, it is proposed that all runoff from the building and playground area will be retained on the site.

Percolation tests run on the site by W. H. Lizer and Associates resulted in a percolation rate of 5 minutes per inch in the existing soil. A value of 10 minutes per inch was used for design purposes.

The playground area with gravel will be used for the storm detention area with the release of storm water into the ground.

The required volumn of the retention area is determined by the formula $V = 60\left(\frac{Q_d}{2} - Q_o\right)T_c + 60\left(\frac{Q_d+Q_h}{2} - Q_o\right)(T_o-T_c)$

where Q_d = Peak Development Runoff Rate

Q_o = Average Outlet Release Rate over the T_o - 0.0 Time Span,

T_o max = 2.67 T_c

The area of the Building and play ground area is approximately 0.38 acre, or 51 % of the area involved.

It is assumed that 51% of the runoff after development will be generated from this area, therefore, 51% x 2.1 CFS = 1.1 CFS will be retained in the detention area.

The absorption area used in the retention area is 115 feet long by 15 feet wide, or 1725 square feet.

Using a percolation rate of 10 minutes per inch, Q_o=

$$\frac{1 \text{ inch}}{10 \text{ min}} \times \frac{\text{ft}}{12 \text{ in.}} \times \frac{\text{min}}{60 \text{ sec.}} \times 1725 \text{ ft}^2 = 0.24 \text{ CFS}$$

$$\text{Vovume required} = V = 60\left(\frac{1.1}{2} - 0.24\right)14.3 + 60\left(\frac{1.1 + 0.36}{2} - 0.24\right)(17.1 - 14.3)$$

= 352 ft³ required.

For simplicity, a 13 foot wide by 115 foot long by an average of 0.33 foot high storage area was calculated which gives a volume of 493 ft³ which is adequate for the retention area.

Respectfully submitted

Wayne H. Lizer

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

Review Comments

for

Mesa Montessori Children's House

6/12/92

Grading Plan & Drainage Report

1. The drawing must show subbasins.

2. Developed runoff rates from the site may not exceed historic runoff rates from the site ~~under~~ ~~these conditions~~ as a whole or to individual [redacted] private properties (unless written approval is received by affected parties). The drainage report does not address the above criteria. Area 1 and Area 2, which are not delineated, are discussed, but Area 1 does not coincide with the area contributing to the retention basin. Therefore, one must assume that the balance of Area 1 has direct runoff. Likewise for Area 2. It would appear [redacted] that under the developed condition, Area 1 consists of 0.4 cfs direct runoff, and 0.5 cfs overflow runoff from a filled retention basin, and Area 2 contributes 0.6 cfs direct runoff for a total site runoff of 1.5 cfs, which exceeds the historic rate of 0.7 cfs. Also, the 0.6 cfs of Area 2, which goes to private property exceeds the historic rate of 0.2 cfs.

Criteria does not appear to be met.

3. The site should be divided into subbasins which contribute to each individual private property and the R.O.W. For example, one may be the area which goes to private property to the east, another to private property to the south, and a third to the R.O.W. Then, runoff calculations are made. These could be thought of as Q_h (east), Q_h (south), and Q_h (ROW). The first two rates are each limiting criteria, as is the summation of all three.

For the proposed condition the site should be subdivided into specific areas which drain to individual private properties, to detention/retention facilities, and directly to the R.O.W. For example, you may have Q_d (south), Q_d (detention), and Q_d (ROW). On this case, Q_d (south) may not exceed Q_h (south), and the total of Q_d (south), Q_d (ROW), and Q_d (detention overflow) may not exceed the summation of the historic runoff rates. The overflow from the detention basin is the amount of runoff generated once the basin is full, or at time T_o.

4. ~~What is being~~ proposed is a retention basin, not ~~a~~ detention basin. Percolation rates into

surface soil during storm activity is already considered in the Rational Method runoff coefficient "C" values; i.e., the ability of the soil or surface treatment to absorb water is already accounted for and may <u>not</u> be duplicated by additional calculated percolation rates.

5. Per the grading plan, much of the asphalt surface area will drain directly to the R.O.W. at an increased runoff rate due to development. This must be counteracted by <u>reduced</u> runoff elsewhere (as opposed to maintained runoff). Keep this in mind when designing a detention or retention facility. Also, retention is not allowed unless: <u>submitted</u> percolation tests indicate that the retained volume can be dissipated in 48 hours; a letter from a geotechnical engineer indicates that such retention can be mitigated by structural design; and that the volume is sized to prevent overflow until such time that other runoff is reduced, and the summation of runoff from the site is not more than in the historic condition.

6. The drawing shows a retention area that is 0.0'-0.5' (average of 0.25 feet) deep on one end and 0.0' deep on the

(average of 0.0 feet).

other end. The average depth available is not 0.33 feet as shown on the drawing, but 0.125 feet deep. However, average end/area methods also overestimate volumes. The conic method is more suited to detention volumes, which is

$$V = h/3\left(A_1 + A_2 + (A_1 A_2)^{.5}\right)$$

where: V = Volume in ft^3;
h = height between areas;
A_1 = area of lower elevation; and
A_2 = area of upper elevation.

Call if you have questions about this.

~~If you would be better off leaving it at~~ You have plenty of area to work with to get retention volume — but your design does not provide it.

7. Proposed contours do not match proposed grades on parking lots. Contours on parking lots are not necessary either, so you may as well remove them.

8. Where is the entrances to the building? What are sidewalk grades and slopes? Do they meet handicap criteria? The proposed handicap

ramp needs more grades and definition. More grades are needed elsewhere too. See attached drawing.

9. See redlined drawings and report for other comments.

Non-Grading and Drainage Issues

All items commented on in the May 11, 1992 letter must be addressed, which apply to more than just grading and drainage issues.

Deadline

All issues must be addressed prior to July 2, 1992, or recommendation will be made to the Planning Commission to table the project again.

attachments: Red-lined report
Red-lined plan

Copy: Don Newton
Community Development

Review Comments
for
Mesa Montessori Children's House (File #18-92)
6/18/92

By Gerald Williams, Development Project Engineer
(303) 244-1577

Grading Plan & Drainage Report

1. The drawing must show subbasins.

2. Developed runoff rates from the site may not exceed historic runoff rates from the site as a whole or to individual private properties (unless written approval is received by affected parties). The Drainage Report does not address the above criteria. An Area 1 and Area 2, which are not delineated, are discussed, but Area 1 does not coincide with the area contributing to the retention basin. Therefore, one must assume that the balance of Area 1 has direct runoff. Likewise for Area 2. It would appear that under the developed condition, Area 1 consists of 0.4 cfs direct runoff, and 0.5 cfs overflow runoff from a filled retention basin, and Area 2 contributes 0.6 cfs direct runoff for a total site runoff of 1.5 cfs, which exceeds the historic rate of 0.7 cfs. Also, the 0.6 cfs of Area 2, which goes to private property, exceeds the historic rate of 0.2 cfs. Criteria does not appear to be met.

3. The site should be divided into subbasins which contribute to each individual private property and the R.O.W. For example, one may be the area which goes to private property to the east, another to private property to the south, and a third to the R.O.W. Then, runoff calculations are made. These could be thought of as Q_h (east), Q_h (south), and Q_h (ROW). The first two rates are each limiting criteria, as is the summation of all three.

   For the proposed condition, the site should be subdivided into specific areas which drain to individual private properties, to detention/retention facilities, and directly to the R.O.W. For example, you may have Q_d(south), Q_d (detention), Q_d(ROW). In this case, Q_d(south) may not exceed Q_h(south), and the total of Q_d(south), Q_d(ROW), and Q_d(detention) overflow, may not exceed the summation of the historic runoff rates. The overflow from the detention basin is the amount of runoff generated once the basin is full or at time T_o.

4. Percolation rates into surface soil during storm activity is already considered in the Rational Method runoff coefficient "C" values; i.e., the ability of the soil or surface treatment to absorb water is already accounted for and may <u>not</u> be duplicated by additional calculated percolation rates.

5. Per the Grading Plan, much of the asphalt surface area will drain directly to the R.O.W. at an increased runoff rate due to development. This must be counteracted by reduced runoff elsewhere (as opposed to maintained runoff). Keep this in mind when designing a detention or retention facility. Also, retention is not allowed unless: submitted percolation tests indicate that the retained volume can be dissipated in 48 hours; a letter from a geotechnical engineer indicates that such retention can be mitigated by structural design; and that the volume is sized to prevent overflow until such time that other runoff is reduced, and the summation of runoff from the site is not more than in the historic condition.

6. The drawing shows a retention area that is 0.0' - 0.5' deep on one end (average of 0.25 feet) and 0.0' deep on the other end (average of 0.0 feet). The average depth available is not 0.33 feet as shown on the drawing, but 0.125 feet deep. However, average end/area methods also overestimate volumes. The conic method is more suited to detention volumes, which is

$$V = h/3[A_1 + A_2 + (A_1 A_2)^{.5}]$$

where: V = Volume in ft^3;
h = height between areas;
A_1 = Area of lower elevation; and
A_2 = Area of upper elevation.

Call if you have questions about this.

You have plenty of area to work with to get retention volume -- but your design does not provide it.

7. Proposed contours do not match proposed grades on parking lots. Contours on parking lots are not necessary either, so you may as well remove them.

8. Where is the entrances to the building? What are sidewalk grades and slopes? Do they meet handicap criteria? The proposed handicap ramp needs more grades and definition. More grades are needed elsewhere too. See attached drawing.

9. See red-lined drawings and report for other comments.

Non-Grading and Drainage Issues

All items commented on in the May 11, 1992 letter must be addressed, which apply to more than just grading and drainage issues.

Deadline

All issues must be addressed prior to July 2, 1992, or recommendation will be made to the Planning Commission to table the project again.

Attachments: Red-lined report
Red-lined plan

Copy: Don Newton, City Engineer
Community Development Department

Storm Detention Criteria-Day Care Center
Triangular Method

$$V = \frac{T_c\ (Q_d - Q_h)^2\ 60}{Q_d}$$

Where V = volumn to be stored in ft^3

T_c = time of concentration (for historic area), min.

Q_d = maximum runoff rate when fully developed, cfs.

Q_h = maximum release rate for design storms under conditions prior to development.

therefore $V = \frac{14.7(0.88-0.42)\ 60}{0.88} = 212\ ft^3$

A berm 4 inches high around the West and South sides of the structure will provide approximately 1583 ft^3 of storage area.

The existing soil is a sandy silt and on April 29, 1992, an on-site percolation test was run and the percolation rate was found to be 5 minutes per inch. The natural percolation rate should dispense of water within the detention area from roof runoff which is essentially the only major change in the existing site conditions.

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

JULY 1, 1992

REVISED DRAINAGE REPORT
FOR
A PROPOSED DAY CARE CENTER
MESA MONTESSORI CHILDREN'S HOUSE
PART OF LOT ONE, BLOCK ONE, LANDING HEIGHTS NURSING CARE CENTER
GRAND JUNCTION, MESA COUNTY, COLORADO

GENERAL

This drainage report covers part of Lot One, Block One of Landing Heights Nursing Care Center, located approximately 250 feet West of 28 1/4 Road and on the South side of Patterson Road (F Road).

There is no exterior contribution of stormwater to the site.

METHOD OF ANALYSIS

The Rational Method was used to determine the amount of storm runoff, using the formula $Q = CC_fIA$ since this is a very small area.

where Q = runoff in cfs

C = runoff coefficient

C_f = frequency factor used to account for antecendent precipitation

I = rainfall intensity (in./hr)

A = area in acres

For historic runoff, a value of 0.37 was used for "C" for an unimproved area of 0.74 acre.

From orthophoto maps dated April 13, 1975, it appears that the drainage pattern of the subject site essentially drained to the North, East, South, and West which involves four difference drainage subbasins, ie., Area 1 - North, Area 2 - East, Area 3 - South, and Area 4 - West.

Area 1 - North

L = 115'
S = 4.61%
Area = 0.24 Ac

Area 2 - East

L = 105'
S = 5%
Area = 0.18 Ac

Area 3 - South

L = 95'
S = 1.4%
Area = 0.15 Ac

Area 4 - West

L = 74'
S = 3.11%
Area = 0.17 Ac

Values for "I" were determined from intensity duration curves for the Grand Junction Area (Graph attached).

$$T_c = \frac{1.87(1.1-C)D^{\frac{1}{2}}}{S^{1/3}}$$

where T_c = Time of Concentration, minutes

S = Slope of Basin, %

C = Ration Method Runoff Coefficient

D = Length of Basin, feet

Area 1 - North

$$T_c = \frac{1.87(1.1-0.37)(115)^{\frac{1}{2}}}{(4.61)^{1/3}} = 8.8 \text{ min}$$

I_{10} from graph = 2.8

$Q_{10} = CC_fIA = (0.37)(1)(2.8)(0.24) = 0.25$ cfs

Area 2 - East

$$T_c = \frac{1.87(1.1-0.37)(105)^{\frac{1}{2}}}{5^{1/3}} = 8.18 \text{ min}$$

I_{10} from graph = 2.85

$Q_{10} = (0.37)(1)(2.85)(0.18) = 0.19$ cfs

Area 3 - South

$$T_c = \frac{1.87(1.1-0.37)(95)^{\frac{1}{2}}}{(1.4)^{1/3}} = 12 \text{ min}$$

I_{10} from graph = 2.4

$Q_{10} = (0.37)(1)(2.4)(0.15) = 0.14$ cfs

Area 4 - West

$$T_c = \frac{1.87(1.1-0.37)(74)^{\frac{1}{2}}}{(3.11)^{1/3}}$$

I_{10} from graph = 2.85

$Q_{10} = (0.37)(1)(2.85)(0.17) = 0.18$ cfs

Total Historical Runoff = 0.76 cfs

Runoff After Development

After development, the site will have 4 subbasins which will drain North, East, South, and also provide retention on-site, ie., Area 1A - North, Area 2A - East, Area 3A - South, and Area 4A - Detention.

A composite runoff factor was computed for each area using the composite method with C = 0.37 for landscaping and C = 0.95 for asphalt, roof, and sidewalk areas or

$$\sum \frac{C_i A_i}{A_t}$$

Area 1A - North

Sidewalk/Parking Area = 0.12 acre

Landscaped Area = 0.06 acre

Total = 0.18 acre

Composite Runoff Factor

$$\sum \frac{C_i A_i}{A_t} = \frac{(0.37)(0.06)+(0.95)(0.12)}{0.18} \qquad C = \frac{0.02+0.11}{0.18} = 0.74$$

L = 75', S = 4.5%

$$T_c = \frac{1.87(1.1-0.74)(75)^{\frac{1}{2}}}{(4.5)^{1/3}} = 3.5, \text{ use } 5 \text{ min}$$

I_{10} from graph = 3.3

$Q_{10} = (0.74)(1)(3.3)(0.18) = 44$ cfs

Area 2A - East

Sidewalk/Parking Area = 0.07 acre

Landscaped Area = 0.003 acre ≈ 0

Use 0.95 for C L = 80', S = 5%

$$T_c = \frac{1.87(1.1-0.95)(80)^{\frac{1}{2}}}{5^{1/3}} = 1.46, \text{ use 5 min}$$

I_{10} from graph = 3.3

$Q_{10} = (0.95)(1)(3.3)(0.05) = 0.16$ cfs

Area 3A - South

Sidewalk/Paving Area = 0.07 acre
Landscaped Area = 0.04 acre
Total = 0.11 acre

$$\sum \frac{C_i A_i}{A_t} = \frac{(0.37)(0.04)+(0.95)(0.07)}{0.11}, \quad C = 0.73$$

L = 62', S = 7.74%

$$T_c = \frac{1.87(1.1-0.75)(62)^{\frac{1}{2}}}{7.74^{1/3}} = 2.6, \text{ use 5 min}$$

I_{10} from graph = 3.3

$Q_{10} = (0.73)(1)(3.3)(0.11) = 0.26$ cfs

Area 4A - Detention

Building and Sidewalk = 0.13 acre
Landscaped Area = 0.25 acre
Total = 0.38 acre

$$\sum \frac{C_i A_i}{A_t} = \frac{(0.37)(0.25)+(0.95)(0.13)}{0.38}$$

$C = 0.55$

Storage Required

Volume = I_{10} X A X C

where I_{10} = 1.6" for 24 hr rainfall intensity

A = Area (ft^2)

C = Runoff coefficient (24hr)

or $V = \frac{1.6}{12}(0.38\ Ac)(43560\ \frac{ft^2}{Ac}) \times 0.55 = 1214\ ft^3$ storage req'd

Note at the end of the 24 hour period, the soil will no longer act as a runoff factor but will be utilized as an agent to dispose of the ponding of the water by way of percolation.

A trapozoidal storage area is designed with a depth of 0.60 feet, length of 140 feet, and end area of 8.88 feet which results in 1243 ft^3, slightly over the required volume.

Using a percolation rate of 10 minutes per inch, the discharge rate is calculated as follows:

$$\frac{1\ in}{10\ min} \times \frac{ft^2}{12\ in} \times \frac{min}{60 sec} \times 1820 = 0.25\ cfs$$

(Bottom of retention area used only for area)

$$\frac{1820 ft^3}{0.25\ ft^3/sec} \times \frac{1\ min}{sec} = 121\ minutes\ or\ approx.\ 2\ hours$$

or the retention pond will dissipate a 10-year, 24-hour storm in approximately 2 hours.

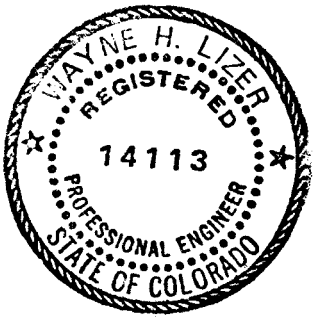
See attached plans for drainage subbasin locations.

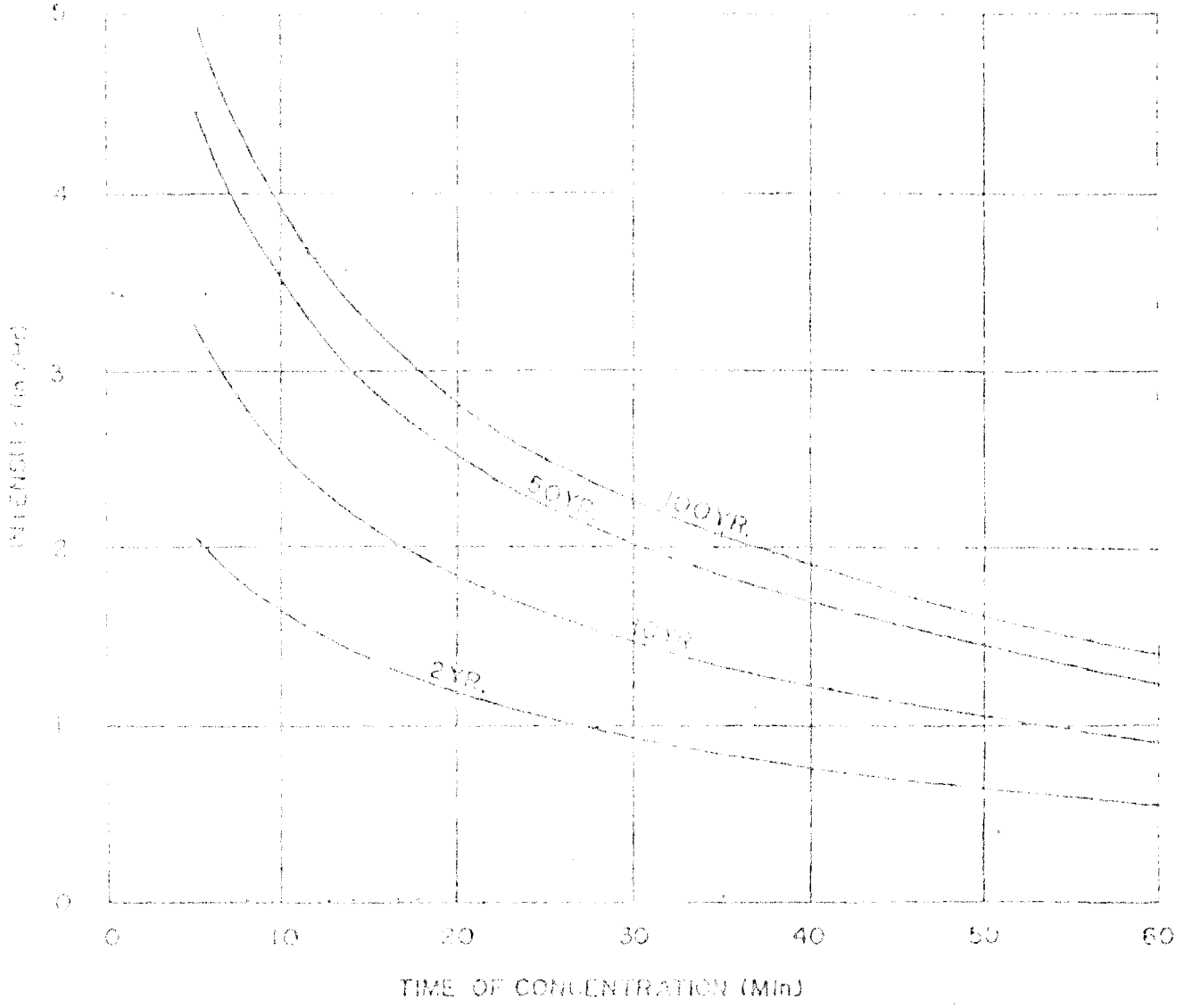
Respectfully submitted,

Wayne H. Lizer

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

WHL/sl





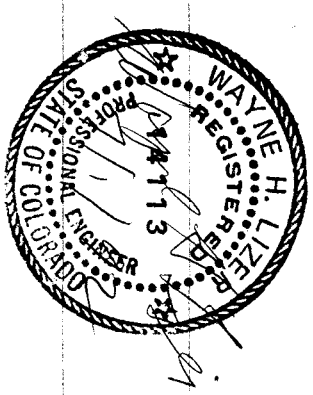
INTENSITY DURATION CURVES
GRAND JUNCTION, COLORADO

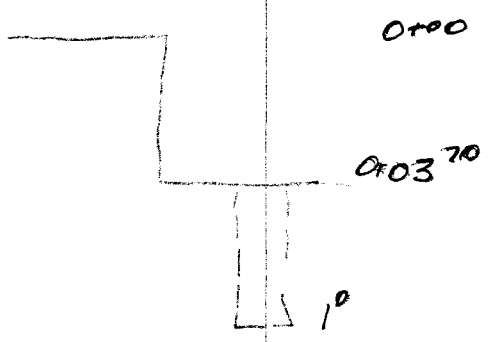
Perk Test 53-40

Depth	Time
4.88	9:24
5.23	9.36
5.38	9.47
5.45	9.53
5.56	10:04
	40 min

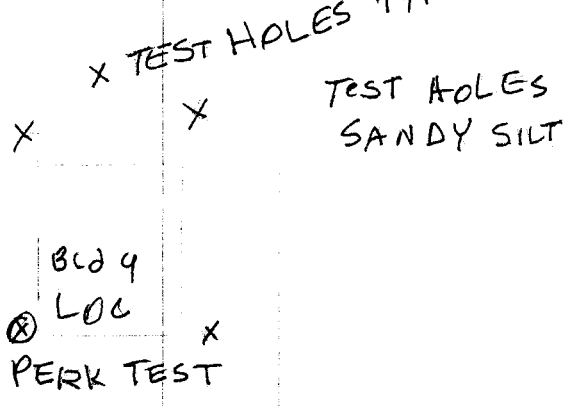
0.68' = 8.16"

≈ 5 min/in.





Sandy Silt consistent



Storage Required

Volume = I_{10} X A X C

where I_{10} = 1.6" for 24 hr rainfall intensity

A = Area (ft^2)

C = Runoff coefficient (24hr)

or $V = \frac{1.6}{12}(0.38\ Ac)(43560\ \frac{ft^2}{Ac}) \times 0.55 = 1214\ ft^3$ storage req'd

Note at the end of the 24 hour period, the soil will no longer act as a runoff factor but will be utilized as an agent to dispose of the ponding of the water by way of percolation.

A trapozoidal storage area is designed with a depth of 0.60 feet, length of 140 feet, and end area of 8.88 feet which results in 1243 ft^3, slightly over the required volume.

Using a percolation rate of 10 minutes per inch, the discharge rate is calculated as follows:

$$\frac{1\ in}{10\ min} \times \frac{ft^2}{12\ in} \times \frac{min}{60sec} \times 1820 = 0.25\ cfs$$

(Bottom of retention area used only for area)

$$\frac{1820 ft^3}{0.25\ ft^3/sec} \times \frac{1\ min}{sec} = 121\ minutes\ or\ approx.\ 2\ hours$$

or the retention pond will dissipate a 10-year, 24-hour storm in approximately 2 hours.

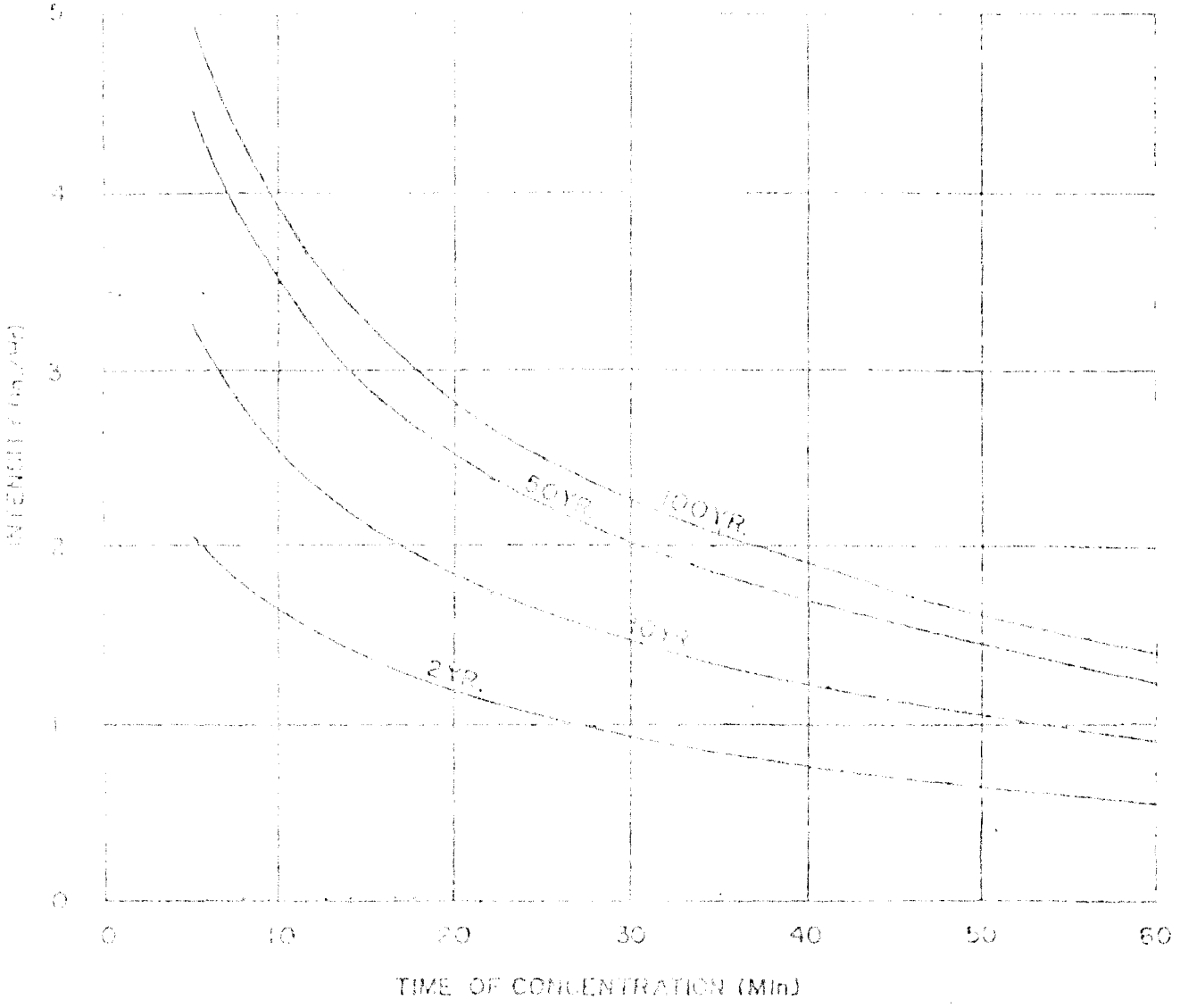
See attached plans for drainage subbasin locations.

Respectfully submitted,

Wayne H. Lizer

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

WHL/sl



INTENSITY DURATION CURVES
GRAND JUNCTION, COLORADO

November 10, 1992

Grand Junction Community Development Department
Planning • Zoning • Code Enforcement
250 North Fifth Street
Grand Junction, Colorado 81501-2668
(303) 244-1430 FAX (303) 244-1599

Mr. Leo Warren
2815 Patterson Road
Grand Junction, CO 81501

RE: Montessori Day Care Certificate of Occupancy

Dear Mr. Warren:

This letter is in follow up of our site inspection today of the Montessori Children Day Care facility at 2815 Patterson Road. All improvements are found acceptable with the following exceptions:

1. Landscaping has not been installed.
2. A letter of agreement from the irrigation company allowing runoff into the ditch that crosses the Northwest portion of the property has not been obtained or a method to retain the runoff and get it to Patterson Road has not been completed.

A temporary Certificate of Occupancy is being released for this project. The permanent Certificate of Occupancy will not be signed off and issued until the above two issues are completed. The temporary Certificate of Occupancy is valid until May 15th, 1992, therefore you have until that time to install all landscaping that was approved as part of the final development plan and obtain a letter of agreement from the irrigation company regarding the drainage in the Northwest portion of the property. If the irrigation company is unwilling to issue a letter allowing runoff from the parking lot into the ditch then an acceptable method to retain the runoff must be established.

We will release all escrowed funds for this project except the $5000 required for the landscaping and any fees required as set forth in the improvements agreement contract. Once the landscaping has been installed, inspected and approved, we will release the remainder of the funds minus processing fees as set forth in the improvements agreement contract. If you have any questions, please contact me at your earliest convenience.

Respectfully,

Dave Thornton
Planner

cc: Gerald Williams, Development Engineer
File # 18-92

Occupancy LoaD NOT TO EXCEED 125 PERSONS

CERTIFICATE OF OCCUPANCY

BUILDING DEPARTMENT
CITY OF GRAND JUNCTION
(OR MESA COUNTY)

PERMIT # 42414 *DATE* 10-24-92

PERMISSION IS HEREBY GRANTED TO Gambill Const *TO OCCUPY THE*

BUILDING SITUATED AT 2815 Patterson

LOT _____ *BLOCK* _____ *FILING* _____ *SUBDIVISION* _____

TAX SCHEDULE NUMBER 2943-072-12-007

FOR THE FOLLOWING PURPOSE: Day Care Center

THIS CERTIFICATE ISSUED IN CONFORMITY TO SECTION 307, UNIFORM BUILDING CODE

INSPECTOR _____

City Planning _____

10-15-93

SUGGESTED MOTIONS

ITEM: **#18-92 (Page 1 of 1)**

PETITIONER: Leo Warren
REPRESENTATIVE: Wayne H. Lizer & Associates

PROPOSAL: Revised Final Plan in PR-8 Zone for daycare center & school

PRESENTED BY: David Thornton

COMMENTS: SEE REVIEW AGENCY SUMMARY SHEET COMMENTS

APPROVAL: "Mr. Chairman, on item #18-92, a request for a Revised Final Plan for a daycare center and a school at 2815 F Road, I move that we approve this subject to Review Agency Summary Sheet comments."

DENIAL: "Mr. Chairman, on item #18-92, a request for a Revised Final Plan for a daycare center and a school at 2815 F Road, I move that we deny this request for the following reasons:" (STATE REASONS)

TABLE: "Mr. Chairman, on item #18-92, a request for a Revised Final Plan for a daycare center and a school at 2815 F Road, I move that we table this item until the June 2, 1992 Planning Commission Meeting due to several unresolved issues."

SUGGESTED MOTIONS

ITEM: #18-92

PETITIONER: Leo Warren

REPRESENTATIVE: Wayne H. Lizer & Assoc.

PROPOSAL: Revised Final Plan for Daycare Center and School

STAFF: Dave Thornton

COMMENTS: **See Review Agency Summary Sheet Comments**

TABLE: "Mr. Chairman, on item #18-92, a request for a Revised Final Plan at 2815 F Road, I move that we table this item until the next Planning Commission Meeting on July 7, 1992 to allow the petitioner additional time to respond to the review agency summary sheet comments and the Planning Commission's comments at the last Planning Commission Hearing."

Remove

FF — ACTION SHEET

CITY OF GRAND JUNCTION COLORADO

~~Pre~~ FINAL — REVISED

ACRES 1

UNITS

DENSITY

FILE NUMBER #18 92

ZONE PR-8

TAX SCHEDULE # 2943-072-17-007

ACTIVITY Revised Final Plan for a Planned Residential Zone to allow Daycare

PHASE Final

COMMON LOCATION 2915 Patterson Road

DATE SUBMITTED ______ DATE MAILED OUT ______ DATE POSTED ______

______ DAY REVIEW PERIOD RETURN BY ______

OPEN SPACE DEDICATION (acreage) ______ OPEN SPACE FEE REQUIRED $ ______ PAID RECEIPT # ______

RECORDING FEE REQUIRED $ ______ PAID (Date) ______ DATE RECORDED ______

AP Narrative Open Sp. Title Names Legal Soils Nar. Site Plan → Site - Bldg Plan Assessors

REVIEW AGENCIES

Agency		A	B	~~C~~	D	~~E~~	~~F~~	G	H	~~I~~	J	K	L	~~M~~	~~N~~	O	~~P~~	Q	R	S	T	U	V	~~W~~	X	Y	Z	~~AA~~	BB	CC	DD	~~EE~~	FF	~~GG~~
Planning Department	X	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
City Engineer	X	●	●	●						●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●				
Transportation Engineer	X	●	●	●										●	●	●	●	●	●	●	●	●	●	●	●	●	●			●				
City Parks/Recreation	X	●	●	●	●									●	●	●	●	●	●	●		●	●				●			●				
City Fire Department	X	●	●	●										●	●	●	●	●	●	●	●	●	●	●	●	●	●			●				
City Police Department	X	●	●	●												●	●	●	●			●	●				●			●				
County Planning		●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
County Engineer		●	●	●										●	●	●	●	●	●	●	●	●	●	●	●	●	●			●				
County Health		●	●	●							●	●		●	●	●	●	●	●	●		●	●				●			●				
Floodplain Administration		●	●	●						●				●	●	●	●	●	●	●		●	●				●			●				
G.J. Dept. of Energy		●	●	●										●	●	●	●	●	●	●		●	●				●			●				
Walker Field		●	●	●										●	●	●	●	●	●	●		●	●				●			●				
School District		●	●	●										●	●	●	●	●	●	●		●	●				●			●				
Irrigation Grand Valley Water Users	X	●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
Drainage		●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
Water (~~Ute~~, Clifton)	X	●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
Sewer Dist. (FV, CGV, OM)		●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
U.S. West	X	●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
Public Service (2 sets)	X	●	●	●										●	●	●	●	●	●	●	●	●	●				●			●				
State Highway Department		●	●	●										●	●	●	●	●	●	●		●	●				●			●				
State Geological		●	●	●							●	●		●	●	●	●	●	●	●		●	●				●			●				
State ~~Health~~ Social Services Department		●	●	●										●	●	●	●	●	●	●		●	●				●			●				
City Property Agent Verbal	X	●	●	●										●	●	●	●	●	●	●	●		●	●			●			●				
City Utilities Engineer	X	●	●	●										●	●	●	●	●	●	●	●		●	●			●			●				
City Attorney		●	●	●		●	●							●	●	●	●	●	●								●			●				
Building Department	X	●	●	●									●			●		●	●				●				●			●	●	●		
DDA		●	●	●												●														●	●	●		
GJPC (7 packets)		●	●	●												●			●			●	●			●	●			●				
CIC (11 packets)		●	●	●												●			●			●	●				●			●	●	●		
Other Mesa County Social Services		●	●	●												●	●	●	●								●			●	●	●		
TOTALS																																		

BOARDS	DATE	
P.C.	5-5-92	Tabled until June 2nd
P.C.	7/7/92	Approved subject to staff comments

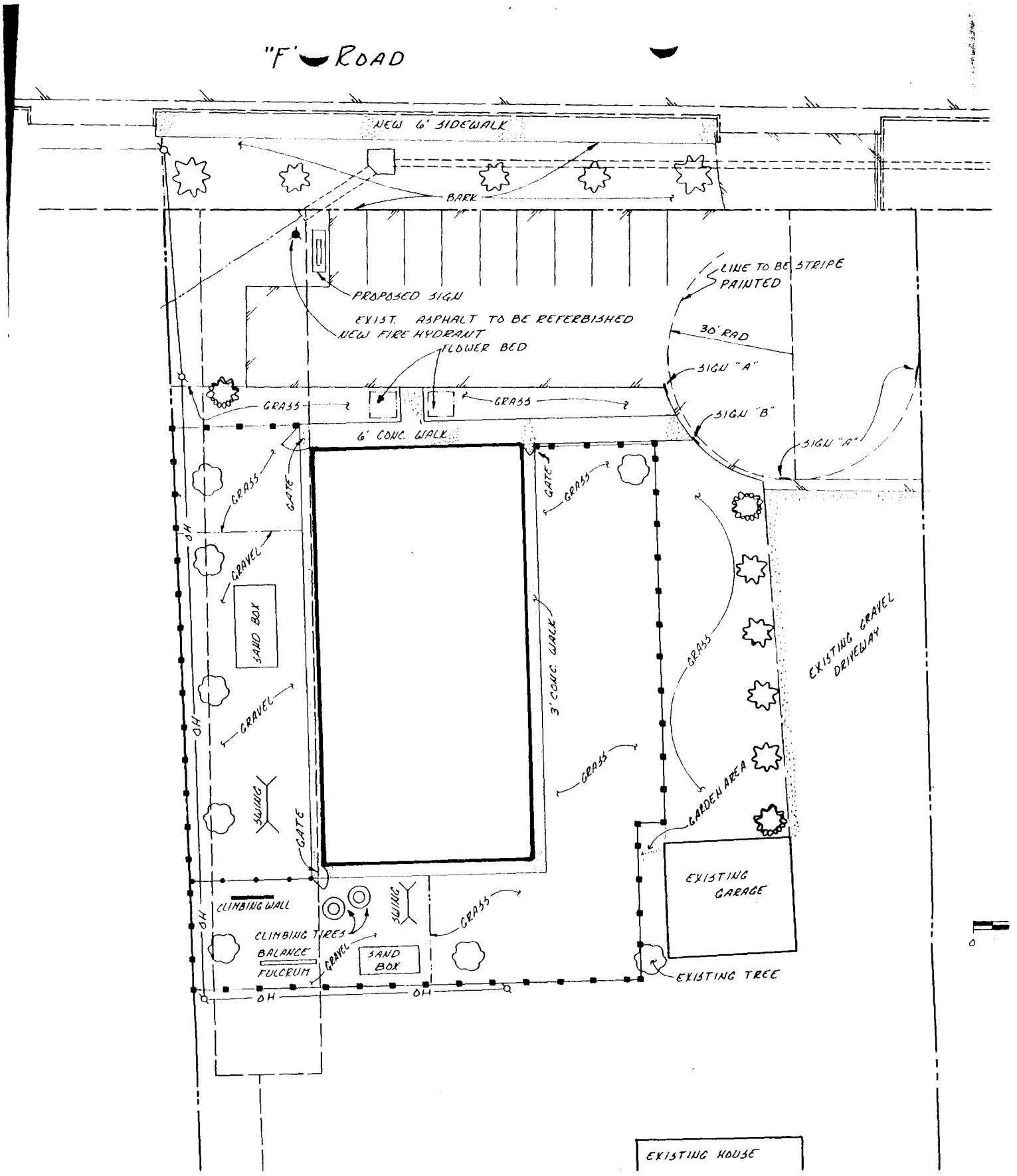
STAFF

APPLICATION FEE REQUIREMENTS

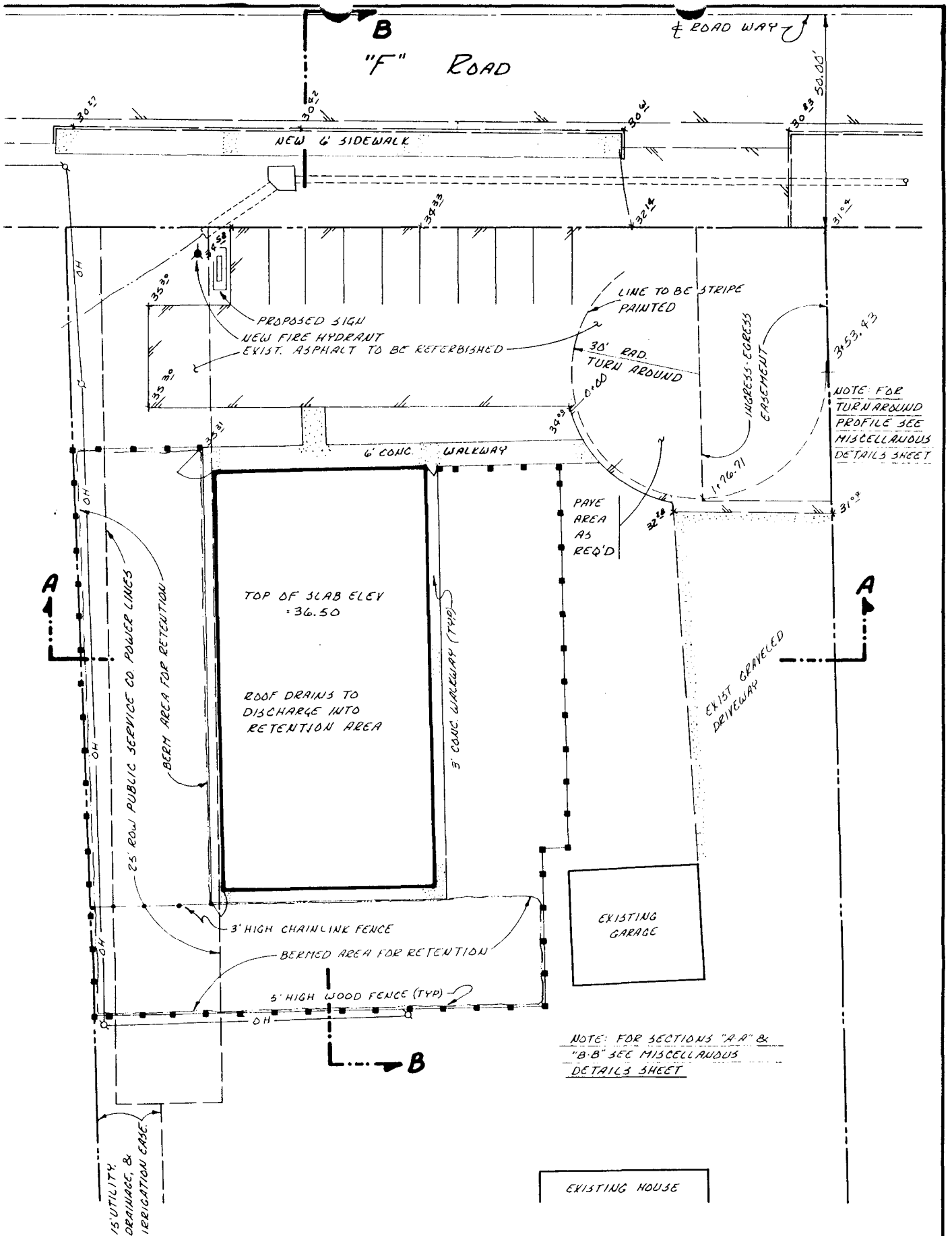
$225.00 due at submittal (Make checks payable to the City of Grand Junction)

$50 sign deposit

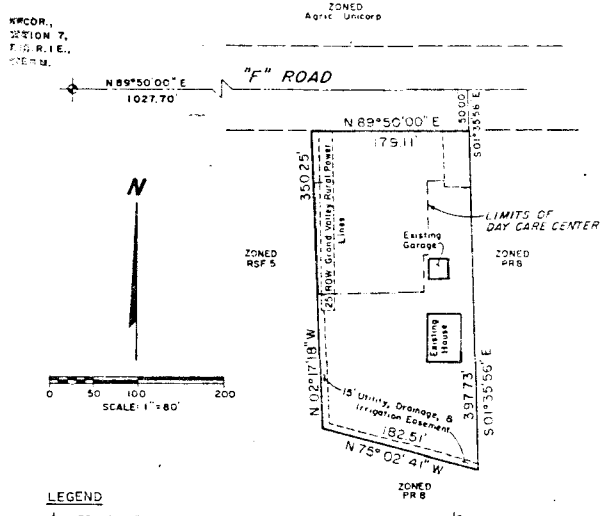
GRAND JUNCTION planning



LANDSCAPE PLAN

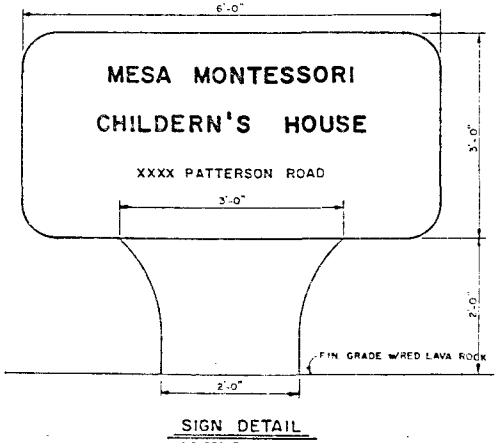


DRAINAGE PLAN

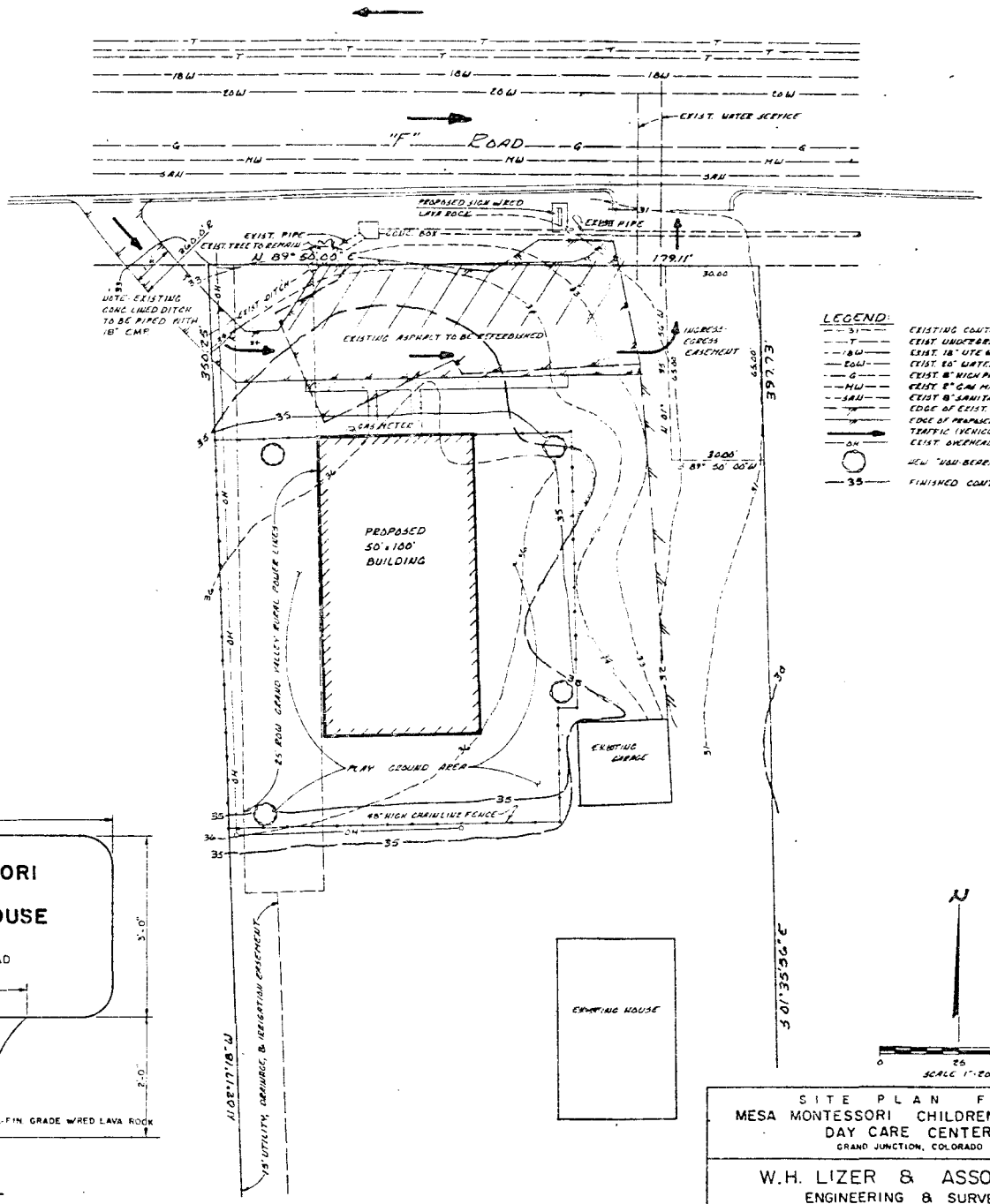


LEGEND

MESA COUNTY SURVEY MARKER (BRASS CAP)

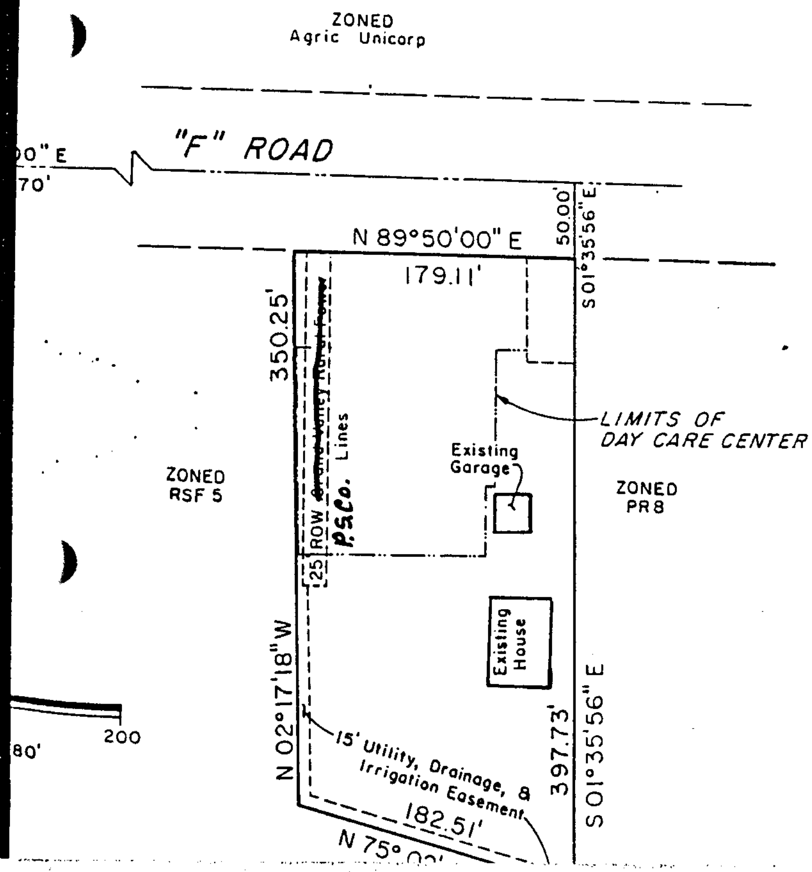


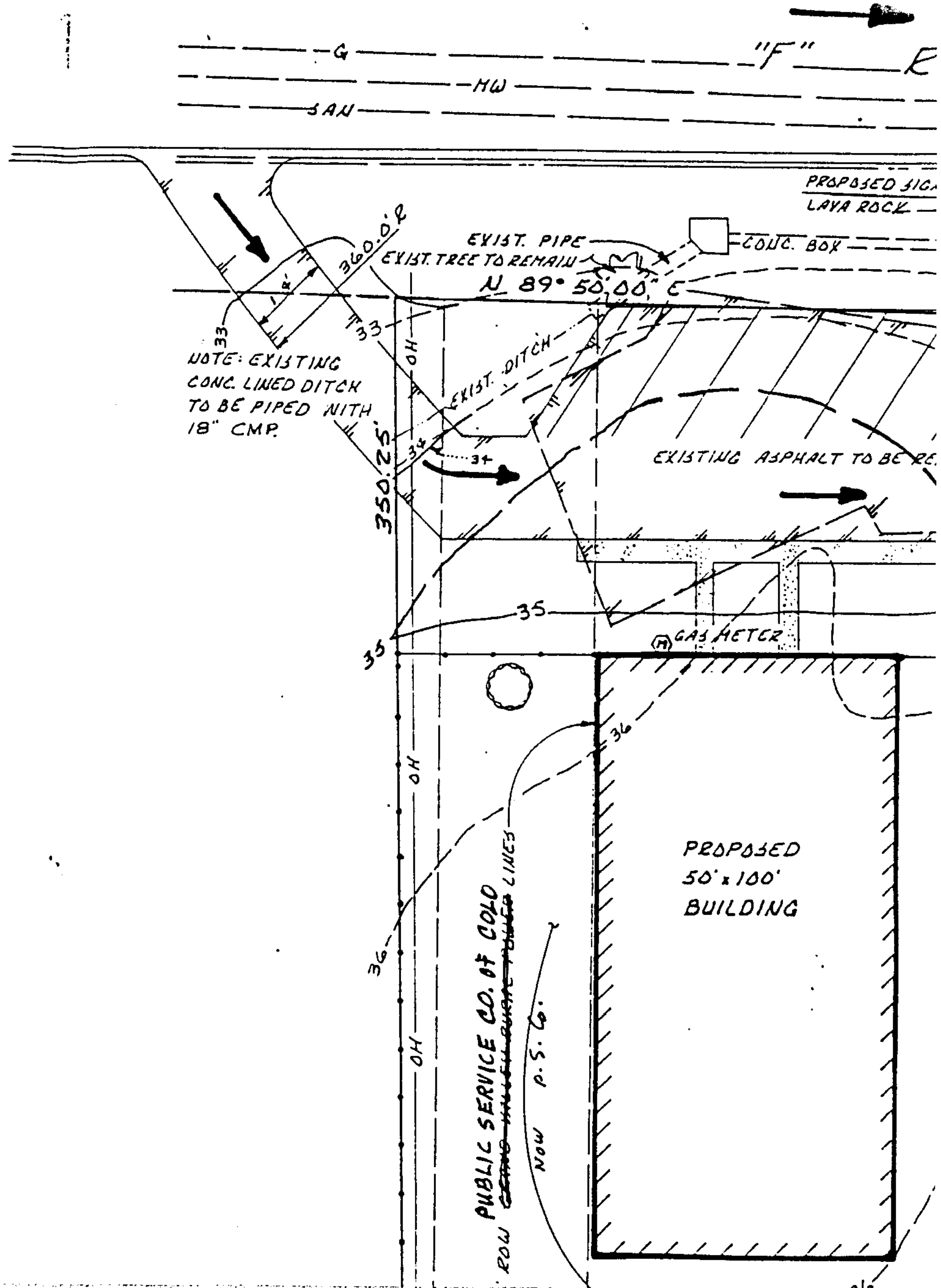
SIGN DETAIL
NO SCALE



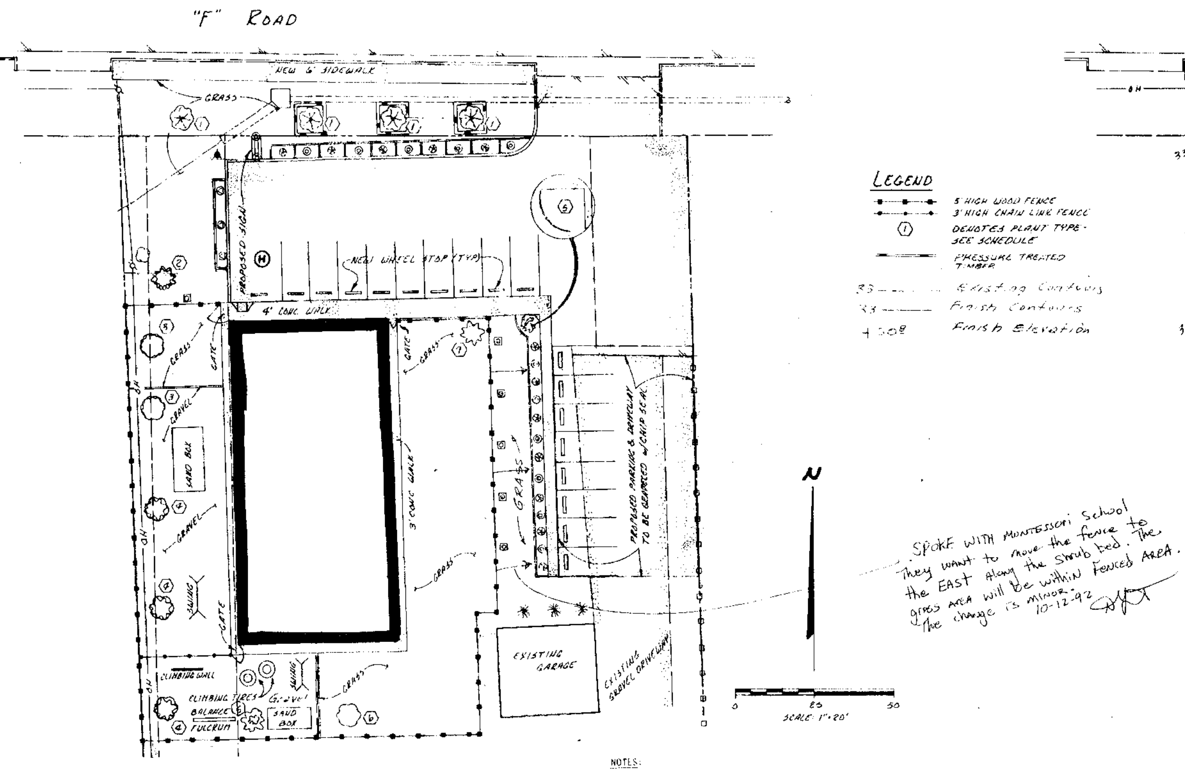
SITE PLAN FOR
MESA MONTESSORI CHILDREN'S HOUSE
DAY CARE CENTER
GRAND JUNCTION, COLORADO

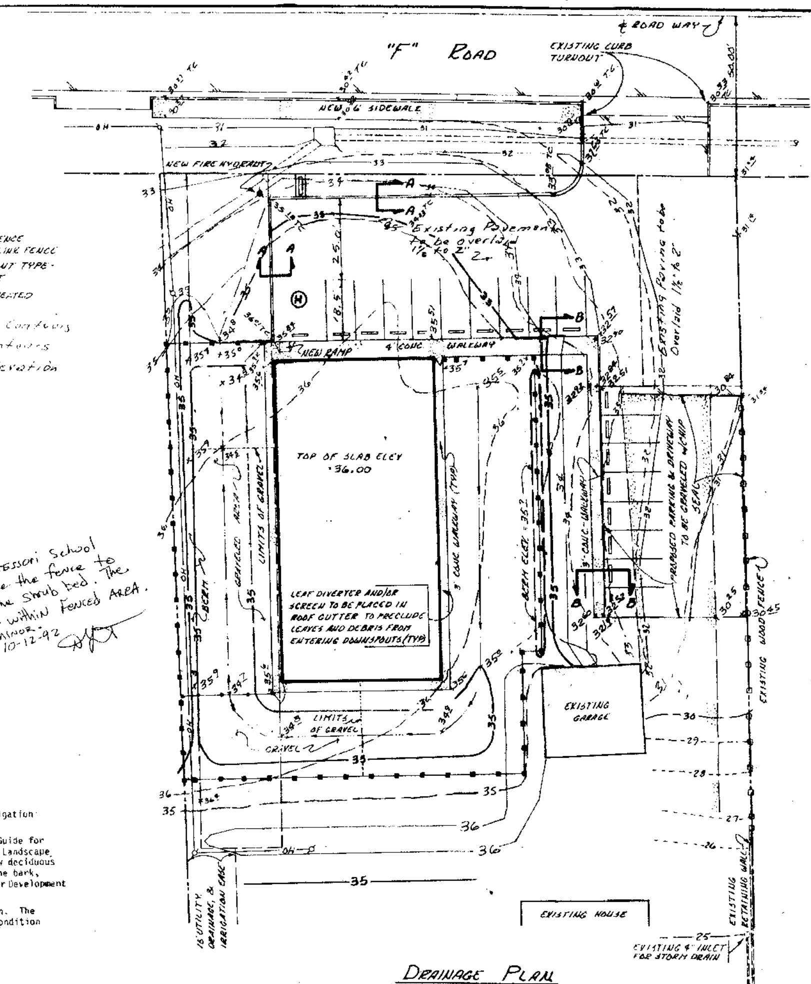
W.H. LIZER & ASSOCIATES
ENGINEERING & SURVEYING
576 25 ROAD · UNIT 8 · 241-1129
GRAND JUNCTION, COLORADO 81505


ZONED
Agric Unicorp
"F" ROAD
0" E
70'
N 89°50'00" E
179.11'
50.00'
S01°35'56" E
350.25'
ROW
P.S.Co. Lines
25
LIMITS OF DAY CARE CENTER
Existing Garage
ZONED RSF 5
ZONED PR8
Existing House
N 02°17'18" W
15' Utility, Drainage, & Irrigation Easement
182.51'
397.73'
S01°35'56" E
N 75°0
80'
200


G
"F"
MW
SAN
PROPOSED SIG
LAVA ROCK
360.0'
EXIST. PIPE
CONC. BOX
EXIST. TREE TO REMAIN
N 89° 50' 00" E
33
NOTE: EXISTING CONC. LINED DITCH TO BE PIPED WITH 18" CMP.
EXIST. DITCH
OH
34
350.25'
EXISTING ASPHALT TO BE RE
35
GAS METER
36
PUBLIC SERVICE CO. of COLO
ROW LINES
NOW P.S. Co.
PROPOSED 50' x 100' BUILDING

-92





DRAINAGE PLAN

PLANT SCHEDULE

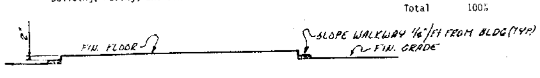
KEY	COMMON NAME	SCIENTIFIC NAME	QUAN	SIZE
DECIDUOUS TREES				
1	Sunburst Honeylocust	Gleditsia triacanthus v. inermis 'Sunburst'	4	1½" cal.
3	Newport Ash	Fraxinus pennsylvanica 'Newport'	2	1½" cal.
4	Fruitless Mulberry	Morus alba 'Mesilla' or 'Stribling'	4	1½" cal.
5	Marshall's Seedless Green Ash	F. pennsylvanica 'Marshall Seedless'	2	1½" cal.
6	Silver Maple	Acer saccarinum	1	1½" cal.
7	Thornless Common Honeylocust	G. triacanthus v. inermis 'Shademaster'	1	1½" cal.
CONIFEROUS TREES				
2	Colorado Spruce	Picea pungens	1	6' tall
DECIDUOUS SHRUBS				
	Spring Glory Forsythia	Forsythia intermedia 'Spring Glory'	1	5 gal.
	Common Lilac	Syringa vulgaris	3	5 gal.
	Gold Drop Potentilla	Potentilla farreri 'Gold Drop'	13	2 gal.*
	Climbing Rose Blaze or other	Rosa hybrida 'Blaze' or other	6	2 gal.*
		* Not available in 5 gal size		
CONIFEROUS SHRUBS				
	Youngstown Andorra Juniper (Compact)	Juniperus horizontalis 'Youngstown'	12	5 gal.
	Blue Chip Juniper	Juniperus horizontalis 'Blue Chip'	3	5 gal.
GROUNDCOVER				
	Grass - Inside Fenced Area:	Kentucky Blue/Perennial Rye Custom Mix (Poa pratensis/Lolium perenne)		
	Outside Fenced Area:	Kentucky Blue (Poa pratensis)		
	Gravel Inside Fenced Area:	3/8" pea gravel		
	Bark - Around Trees and Shrubs	Decorative Bark for mulching purposes		

NOTES:

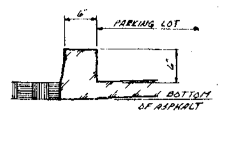
1. All landscaped areas will be irrigated with an underground pressurized irrigation system.
2. All trees and shrubs to be planted following guidelines put forth in "The Guide for Colorado Landscape Industry Contracts & Specifications" by the Associated Landscape Contractors of Colorado, with particular notice to the wrapping of all new deciduous trees with a commercial bark wrap in order to prevent winter sunburn to the bark, and proper staking to support the trees. See also "Landscape Guidelines for Development in Grand Junction".
3. All landscaping shall be maintained in an acceptable and healthy condition. The replacement of any vegetation materials that die or are in an unhealthy condition shall be required.

LAND USE BREAKDOWN

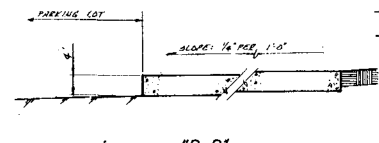
	Area Covered	% Total
Vegetative Landscaping (grass, trees, & shrubs)	11,255 sq.ft.	34%
Non-vegetative Landscaping (playground gravel)	3,375 sq.ft.	10%
Building, Paving, and Sidewalks	18,500 sq.ft.	56%
	Total	100%



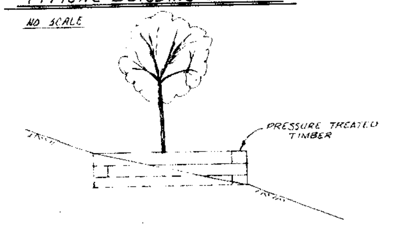
TYPICAL BUILDING GRADING
NO SCALE



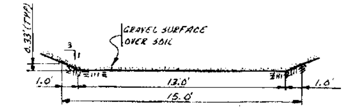
SECTION "A-A"
NO SCALE



SECTION "B-B"
NO SCALE



TREE PLANTER DETAIL
NO SCALE



AVERAGE CROSS SECTION DESIGN USED FOR STORM RETENTION AREA
NO SCALE

LANDSCAPE AND DRAINAGE PLANS
MESA MONTESSORI CHILDREN'S HOUSE
DAY CARE CENTER
GRAND JUNCTION, COLORADO

W.H. LIZER & ASSOCIATES
ENGINEERING & SURVEYING
576 25 ROAD - UNIT 8 - 241-1129
GRAND JUNCTION, COLORADO 81505