HYDROLOGY

L15/D10

VILLAGE PROPERTIES

L15-D10

1 PLAN

I James W. Shepherd have reviewed the Grading Plan and have no objections to Fill Material being placed on our property for the purpose of constructing a motel for Village Properties, Inc., Salt Lake City, Utah.

James W. Shepherd

Dated this 26th day of August, 19 81

The foregoing instrument was acknowledged before me this 26th day of August, 19 81. By

June A. Brunner

Notary Public

JUNE A. BRUNNER, Notary Public
My Commission Expires Sept. 16, 1983

My commission expires on _____ day of _____.

Tom Mann Associates, Inc.
Engineers
811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 • 505-265-5611

10801
October 5, 1981

RECEIVED
OCT 06 1981
ENGINEERING

Mr. Charles M. Easterling
Principal Assistant
City Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Village Properties Drainage Plan

Dear Chuck:

Transmitted herewith are two (2) copies of the drainage plan for the Village Properties facility. Special Order No. 19 has been turned in to Bob Kielich, the drainage covenant has been submitted to the owner for his execution, and the construction plans will go through the plan check in about one week.

Please have your staff review and comment on the drainage plan. I will submit Special Order No. 19 and the Covenant as soon as they are completed. If you have any questions or comments, do not hesitate to call. Thank you.

Yours truly,

TOM MANN & ASSOCIATES, INC.

Thomas T. Mann, Jr., P.E.
President

TTM:jj
Encs.

Chuck-
attached is adjacent property owner's release & soils report.
JD

1-080

RICHARD E. LEONARD
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
R. WARD HUNNICUTT, VICE-CHAIRMAN
FRANCES McCOY, SECRETARY-TREASURER
VERNON DOAK, DIRECTOR
KLESTON LAWS, DIRECTOR

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT AVE., N.E.
P. O. BOX 25851 - ALBUQUERQUE, N. M. 87125
TELEPHONE 884-2215

October 12,1981

Tom Mann Associates, Inc.
811 Dallas, N.E.
Albuquerque, New Mexico 87110

SUBJECT: Village Properties Outfall

Dear Sir:

The detail for the outfall structure to the AMAFCA inlet proposed in your submittal of October 5, 1981, is satisfactory.

Sincerely,

Dan Sabo

Dan Sabo,
Drainage Engineer

DS/lb

811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 • 505-265-5611

Tom Mann Associates, Inc.
Engineers

10801
October 27, 1981

RECEIVED
OCT 27 1981
ENGINEERING

Mr. Jim Fink
Engineering/Hydrology Division
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Village Properties Motel
Drainage Plan

Dear Jim:

I have received your letter dated October 21, 1981, concerning the Village Properties Motel Drainage Plan. Please consider this letter as my response to your letter.

A. Enclosed please find the planning and zoning action history concerning this project.

B. I have calculated what the offsite flows east of University would be. It appears that there are two (2) drainage basins that would contribute flows onto University which could affect this site. At the present time, there could be approximately 85 cfs entering University before it passes our site. The street is capable of handling 118 cfs. Since the flow entering is from one side, and it is a divided street, it is my opinion that during a peak storm, some of those flows would cross from the east lanes into the west lanes in order to utilize the full capacity of the street. The calculations indicate that the flows should be below top-of-curbs; therefore, none of the flows should enter our site.

C. An emergency spillway has been provided.

D. A legal description has been added to the Grading Plan.

E. Top-of-curb elevations have been shown.

F. The curb has been added to the section view. I have attached a copy of the retaining wall detail for the south property line. The construction agreement with James Shepherd is being altered to indicate that he is aware of the wall. He was always aware of it;

we are just now putting it in writing for you. That agreement will be forwarded as soon as we receive it.

G. The Drainage Covenant has been returned to Salt Lake City for proper signature. As soon as we receive it, we will transmit it to you.

Enclosed is a revised copy of the Grading Plan plus the retaining wall details. Hopefully, this will satisfy the requirements. If you have any further comments, do not hesitate to call. Thank you.

Yours truly,

TOM MANN & ASSOCIATES, INC.

Thomas T. Mann, Jr., P.E.
President

TTM:bb
Encs.

OCT 28 1981

PHONE 842-8444

EVER READY OIL CO., Inc.

NUGGET TEXACO DISTRIBUTOR

101 ANDERSON AVE., S.E.

ALBUQUERQUE, NEW MEXICO 87102

RECEIVED

OCT 29 1981

ENGINEERING

October 27, 1981

I James W. Shepherd have reviewed the Grading Plan and have no objections to Fill Material and Retaining Wall being placed on our property for the purpose of constructing a motel for Village Properties, Inc., Salt Lake City, Utah.

James W. Shepherd

Dated this 27 day of October, 1981

The foregoing instrument was acknowledged before me this 27th day of October, 1981. By

Therese Lente

Notary Public

My commission expires on 10th day of June 1985

Notary stamp is on original document. It will not reproduce.

6-10-85

OFFICIAL NOTICE

RECEIVED

RECEIVED

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION
P.O. Box 1293, Albuquerque, New Mexico 87103

OCT 27 1981

OCT.

ENGINEERING

ENGI

Village Properties
225 South 2nd East, Suite 300
Salk Lake City, Utah 84111

DATE: September 24, 1981

NOTIFICATION OF DECISION

File: Z-81-107

Location: Site Development Plan Approval for Tract B-1 Ever Ready Oil Company Subdivision, located on the west side of University Boulevard, S.E., between Stadium and Gibson Boulevard, S.E.

On September 17, 1981, the Environmetal Planning Commission approved the above-mentioned request; thereby changing the zoning to SU-1 (for Motel and Related Facilities), based on the following Findings:

1. The site development shall be submitted to staff for final approval.
2. It was suggested that the erosion control be addressed with seeding ... ground cover and/or sod.
3. A drainage plan must be submitted to and approved by the City Engineer necessary easements and other requirements as stated by the City Council must be obtained.
4. The site plan must be changed to solve difficulties cited by the Traffic Engineer, City Engineer, and Refuse Division.
5. A bus bench and/or shelter should be placed in a landscaped area on University Boulevard.

If you wish to appeal this decision, you must do so by 10-2-81 **in the manner described below. A non-refundable filing fee of $40 is required at the time the appeal is filed.**

Appeal to the City Council. Any person aggrieved with any determination of the Environmental Planning Commission acting under this ordinance may file an appeal to the City Council by submitting written application on the Planning Division form to the Planning Division within 15 days of the Planning Commission's decision. The date the determination in question is issued is not included in the 15-day period for filing an appeal, and if the fifteenth day falls on a Saturday, Sunday or holiday as listed in the Merit System Ordinance, the next working day is considered as the deadline for filing the appeal. The City Council may decline to hear the appeal if it finds that all City plans, policies and ordinances have been properly followed. If it decides that all City plans, policies and ordinances have not been properly followed, it shall hear the appeal. Such appeal, if heard, shall be heard within 60 days of its filing.

You will receive notice if any other person files an appeal. If there is no appeal you can receive building permits any time after the appeal deadline quoted above provided all conditions imposed at the time of approval have been met. Successful applicants are reminded that other regulations of the City must be complied with, even after approval of the referenced application(s).

IF YOU RECEIVE APPROVAL FOR ANY REQUEST WHICH REQUIRES A SITE DEVELOPMENT PLAN, SEE ATTACHED SHEET FOR FURTHER INFORMATION.

Sincerely,

Evelyn Jaspe

Elizabeth Marquez
Secretary

Letter of Advice

cc: Tom Fallon, Pace Contracting, 1178 S. Highland Drive, Las Vegas, Nevada; 89102

Speed Letter.

To Jim Fink
City of Albuquerque

From Tom Mann

RECEIVED
NOV 06 1981
ENGINEERING

Subject 1-080 Village Properties Drainage

—No. 9 & 10 FOLD

MESSAGE

Transmitted herewith are two copies of the revised drainage plan for Village Properties. I have shown a spillway section that will work with the grades shown. I went to concrete so that it would handle the 100 year flow. L 15-D10

Date 11/5/81 Signed Tom

REPLY

—No. 9 FOLD

—No. 10 FOLD

Date Signed

Wilson Jones Company
GRAYLINE FORM 44-902 2-PART
© 1978 • PRINTED IN U.S.A.

RECIPIENT—RETAIN WHITE COPY, RETURN PINK COPY

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

L15-D10

November 10, 1981

Mr. Tom Mann
Tom Mann & Associates, Inc.
811 Dallas N.E.
Albuquerque, New Mexico 87110

Re: VILLAGE PROPERTIES DRAINAGE REPORT

Dear Tom:

The referenced drainage report is approved based on your submittal of October 5, 1981 and received in our office October 6, 1981. Please submit the signed drainage covenant to our office as soon as possible.

Thank you for your cooperation throughout this project. If I can be of any further help, please call.

Sincerely,

Jim Fink
Civil Engineer/Hydrology

JF/fs

MUNICIPAL DEVELOPMENT DEPARTMENT
Richard S. Heller, P.E., City Engineer ENGINEERING DIVISION Telephone (505) 766-7467

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7544

November 23, 1984

Mr. Tom Mann
Tom Mann & Associates, Inc.
811 Dallas NE
Albuquerque, NM 87110

REF: DRAINAGE PLAN FOR VILLAGE PROPERTIES (L15-D10) RECEIVED OCTOBER 19, 1984

Dear Tom:

I have reviewed the above referenced plan and forward the following comments:

1. We request a current approval from AMAFCA on the outfall structure. The approval that was received by this office is three (3) years old. New criteria or development may have changed this approval.

2. Please submit an agreement from adjoining property owners allowing the earthwork and placement of fill.

Sincerely yours,

Carlos A. Montoya

Carlso A. Montoya
City/County Flood Plain Admin.

CAM:mrk

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

December 3, 1984

Mr. Tom Mann
Tom Mann & Associates
811 Dallas NE
Albuquerque, NM 87110

REF: DRAINAGE PLAN FOR VILLAGE PROPERTIES (L15-D10) RECEIVED NOVEMBER 30, 1984

Dear Tom:

The above referenced plan, received November 30, 1984 is approved.

Please attach a copy of this approved plan to the construction set prior to Hydrology sign-off.

If I can be of further assistance, please contact me at 766-7644.

Sincerely yours,

Carlos A. Montoya

Carlos A. Montoya, [illegible]
City/County Flood Plain Admin.

CAM:mrk

1-080

RECEIVED

OCT 06 1981

ENGINEERING

GEOTECHNICAL INVESTIGATION FOR PROPOSED
MOTEL-HOTEL COMPLEX, UNIVERSITY AND MILES ROAD,
ALBUQUERQUE, NEW MEXICO
ATL ENGINEERING SERVICES LAB. NO. 3726
JULY 17, 1981

ENGINEERING SERVICES

July 17, 1981

Village Properties
225 South Second East
Suite 300
Salt Lake City, Utah 84111

Re: ATL Engineering Services Lab. No. 3726. Geotechnical Investigation for Proposed Motel-Hotel Complex, University and Miles Road, Albuquerque, New Mexico

Gentlemen:

Transmitted herewith is our GEOTECHNICAL INVESTIGATION REPORT for the above referenced project.

INTRODUCTION:

The test borings were drilled on July 10 and 13, 1981 using a Mobile B-56 "Pacemaker" rotary drill mounted on a 1969 Dodge 4 x 4 truck, the drill itself being powered by a Ford Industrial Engine. The test holes were advanced "dry" using 6-5/8" O.D. by 3-1/4" I.D., continuous flight, 5-foot sectional hollow stem augers. Standard penetration tests were made at 2½ to 5 foot vertical intervals in the holes and through the hollow stems of the augers at the time of drilling. The purpose of the standard penetration test is to obtain a measure of the relative density or consistency of the subsurface soils encountered and to obtain samples of the soils and/or rock for visual inspection and laboratory testing.

TEST DATA AND RESULTS:

A sketch showing the locations of the five (5) test holes is shown on Page 2 and was made from a print of the site plan furnished to our office. "Boring Log Graphs" of the test holes are shown on Pages 3 through 6 and depict the subsurface soils encountered in the holes along with the results of the standard penetration tests, natural or existing moisture content, dry densities where obtainable, grain size classifications and Atterberg Limit Tests made on typical recovered samples. Notes and Definitions pertaining to the "Log Graphs" are shown on Page 7. Conclusions and Recommendations follow.

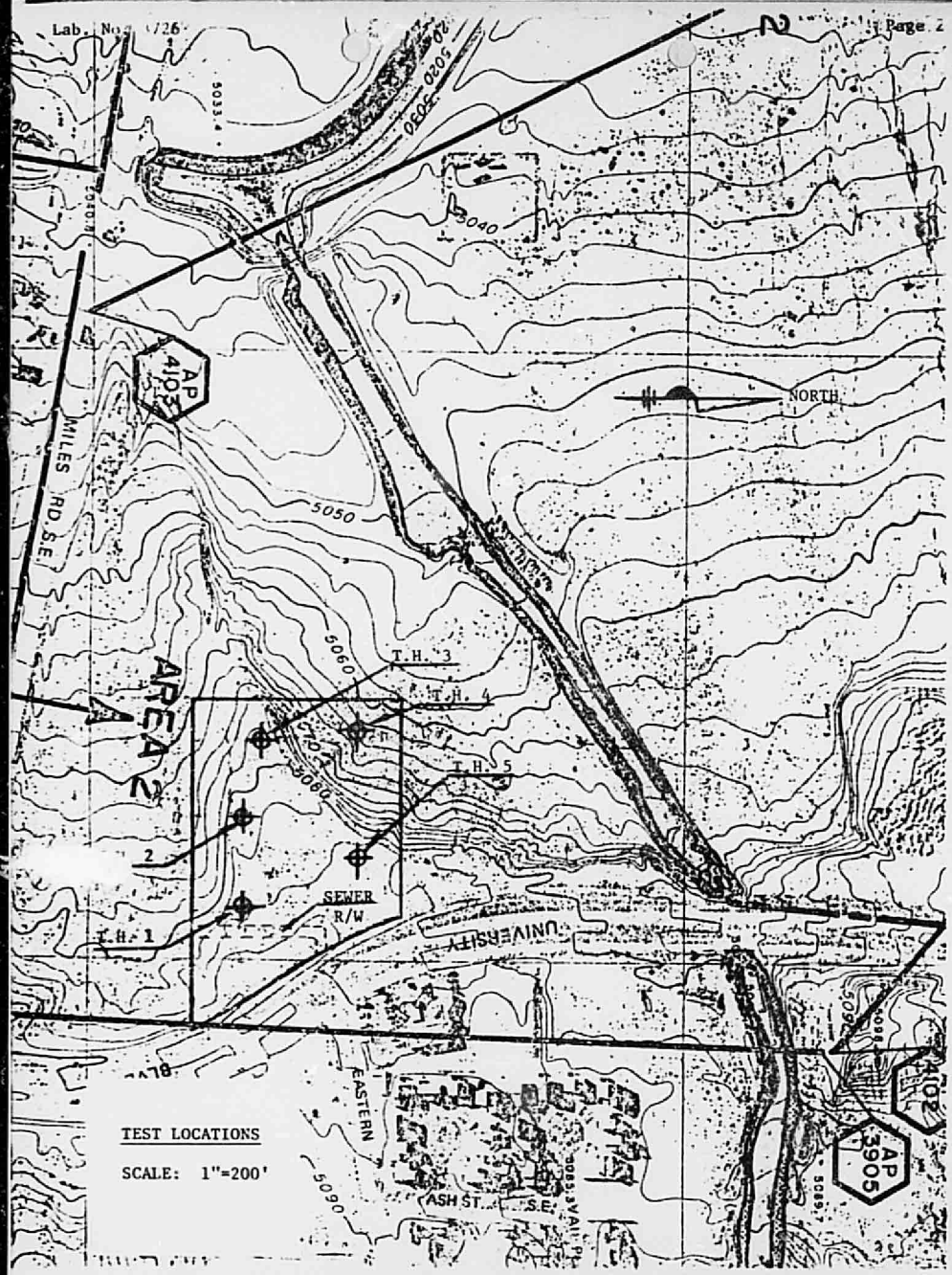
If any questions should arise concerning the report, please contact our office.

Very truly yours,

ATL ENGINEERING SERVICES

Robert K. Lloyd

Robert K. Lloyd, P.E.
cc: ✓Pace Construction Company
Attention: Mr. Tom Fallon
RKL/ksc



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ENGINEERING SERVICES

PAGE: 3

PROJECT: Proposed Motel-Hotel Development - University and Miles Road

LAB NO.: 3726

DATE: July 17, 1981

BORING LOG GRAPH - TEST HOLE NO. 1

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Fill:Sand, light brown, med. to fine silty(SM) Med.Dense	18	4 14		S	1.7							
	2'												
	Sand, light tan	32	14 8		S	2.4							
5	to light brown,												
	silty to very	24	11 13		C	3.4 3.5	104 104						
	silty, slightly												
	clayey, medium	20	15 15		S	3.6							
10	to fine grained,												
	(SM-some SC)	71	40 31		S	3.3							
	Generally Medium												
	Dense or Firm												
15		35	18 17		S	4.5	)						
	17'						)						
	*						)With moderate calcareous						
							)inclusions and deposits						
20		56	23 33		S	5.9	)						
	*Clay, light tan, sandy, silty and with calcareous "cementation" (CL) Firm to Very Firm												

ENGINEERING SERVICES

PROJECT: Proposed Motel-Hotel Development - University and Miles Road

PAGE: 4

LAB NO.: 3726

DATE: July 17, 1981

BORING LOG GRAPH - TEST HOLE NO. 2

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DENSITY P.C.F.	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand-Silt-Clay mixtures, light tan to light brown, fine grained (SC-CL-some ML)	16	7 9		S	4.1							
		38	15 23		C	7.4	90	1	29	70			
5	Firm	21	9 12		S	4.7							
	7'												
	Sand, light brown, silty, fine grained (SM) Medium Dense	27	10 17		S	3.3							
10	9½'												
	Sand, light tan to light brown, silty to very silty, slightly clayey, fine to medium grained (SM-some SC)	38	19 19		S	6.3							
15	Medium Dense or Firm	24	11 13		S	4.2							
	18'												
	*												
20		53	24 29		S	6.0							
	*Clay, light tan, sandy, silty (CL) with calcareous "cementation" Very Firm												

ENGINEERING SERVICES

PAGE: 5

PROJECT: Proposed Motel-Hotel Development - University and Miles Road

LAB NO.: 3726

DATE: July 17, 1981

BORING LOG GRAPH -TEST HOLE NO. 3 & 4

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Test Hole No. 3												
	Sand-Silt Mixtures, Light tan to light brown, very fine (SM-ML); Medium Dense or Moderately Firm	16	7 9		S	4.2		0	32	67			
		21	10 11		S	5.4		0	33	67	22	17	5
	4½'												
5	Sand, light tan to light brown, silty to very silty, slightly clayey, medium to fine grained (SM-some SC) Medium Dense to Dense *	21	10 11		S	5.2		2	72	26			
		35	11 19		S	6.7		2	64	34			
10		42	18 24		S	5.5		8	56	36			
	14'												
15	*Clay, light brown, sandy (CL) Firm	29	13 16		S	8.4		1	29	70	26	14	12
	Test Hole No. 4												
0	Sand, light brown, silty, medium to fine grained, trace of fine gravel (SM)	13	6 7		S	1.5							
		22	11 11		C	2.1 2.9	113 92						
5	Medium Dense	17	8 9		S	1.7							
		27	10 17		S	2.7							
	9½'												
10	Sand, light gray, gravelly.(fine to occasional 2"), coarse to fine, silty to "clean" river sand (SM-SP) Medium Dense	28	15 13		S	2.7		27	62	11			
		32	13 19		S	1.7							

ENGINEERING SERVICES

PAGE: 6

PROJECT: Proposed Motel-Hotel Development - University and Miles Road

LAB NO.: 3726

DATE: July 17, 1981

BORING LOG GRAPH -TEST HOLE NO. 5

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand, light tan to light brown, trace fine gravel, silty, medium to fine grained (SM)	13	4 9		S	2.7							
		19	8 11		S	3.2							
	Medium 4½' Dense												
5	Clay & Silt, brown, sandy, very fine, (CL-ML) Firm	21	10 11		S	7.2		1	17	82			
	7'												
	Sand, brown to light tan, silty to very silty, medium to fine grained, slightly clayey (SM-some SC) Medium Dense or Firm	23	11 12		S	4.5							
10		21	10 11		S	4.1							
15		27	13 14		S	2.8							

NOTES AND DEFINITIONS

1. **Penetration Resistance** – Blows per foot using "A" rod, 140 lb. hammer with 30-inch guided free fall unless otherwise noted.
   - N – Standard Penetration Resistance (ASTM: D-1586), 2" O.D. split barrel sampler
   - C – Continuous Penetration Resistance, 2½" O.D., conical, steel drive point
   - R – Penetration Resistance, 3" O.D. Modified Dames & Moore Split Ring Sampler
2. **Sample Type**
   - S – Standard Split barrel; 2" O.D. x 1-3/8" I.D.
   - C – California Sampler; 2-3/8" O.D. equipped with 2" I.D. x 4" high brass liners
   - R – Modified Dames & Moore Sampler; 3" O.D. equipped with 2.42" I.D. x 1" high brass liners
   - T – Shelby Tube
3. **Soil Index Properties**
   - M – Moisture Content, % of dry soil weight
   - D – Density, lbs per cubic foot computed either by volumetric or displacement methods. Soils Classifications are visual unless accompanied by grain size analysis and Atterberg Limits.
4. **Water Table** – If encountered is noted on Log Graphs as ⊥.

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM: D2487

COARSE-GRAINED SOIL

MORE THAN 50% LARGER THAN 200 SIEVE SIZE

Symbol	Letter	Description	Major Divisions
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size.
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% - 200 FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% - 200 FINES	
	SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	SANDS More than half of coarse fraction is smaller than No. 4 sieve size.
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES MORE THAN 12% - 200 FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES MORE THAN 12% - 200 FINES	

NOTE – Soils with 5 to 12 percent minus 200 fines should be classified with dual symbols.

FINE-GRAINED SOIL

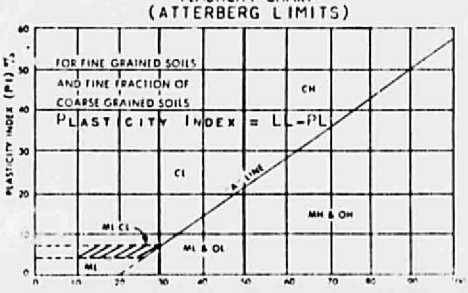
MORE THAN 50% SMALLER THAN 200 SIEVE SIZE

Symbol	Letter	Description	Major Divisions
	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	SILTS AND CLAYS Liquid limit less than 50
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILT CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	SILTS AND CLAYS Liquid limit greater than 50
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

SOIL FRACTIONS

Component		Size Range
Boulders		Above 12 in.
Cobbles		3 in. to 12 in.
Gravel		3 in. to No. 4 sieve
Coarse Gravel	G	3 in. to ¾ in.
Fine gravel		¾ in. to No. 4 sieve
Sand		No. 4 to No. 200
Coarse	CS	No. 4 to No. 10
Medium	MS	No. 10 to No. 40
Fine	FS	No. 40 to No. 200
Fines (silt or clay)	S/C	Below No. 200 sieve

PLASTICITY CHART
(ATTERBERG LIMITS)



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CONCLUSIONS AND RECOMMENDATIONS

Based on the conditions of the surface and subsurface soils existing at the site as revealed by the five (5), fifteen to twenty foot depth test borings; standard penetration tests (A.S.T.M. D-1586) made at the time of drilling; laboratory tests made on representative soil samples; and a visual inspection of the site; we submit the following opinions and recommendations concerning the design of the foundations for the proposed building:

A. SITE CONDITIONS

The site is located approximately 350 feet north of the intersection of Miles Road and University Boulevard, N.E. in Albuquerque, New Mexico. The site itself is relatively flat in the southwest area but drops rapidly to the north and west some 15 to 20 feet to an old arroyo. (See Contour Map Page 2). Some of the high ground surface is covered with small man-made fill and rubbish.

Surface and subsurface soil conditions existing at the test locations are shown on the "Boring Log Graphs" on Pages 3 through 6. At the tested locations, soils consist of interbedded silty to clayey sands (SM-SC), sandy silts and clays of low plasticity (ML-CL) and at Test Location No. 4 below a depth of 9½ feet, river and/or arroyo deposited slightly silty to "clean" pea gravelly sands (SM-SP). Some indications of shallow depth man-made fill soils occur over the higher elevations of the site and fill soils were encountered to a depth of approximately 2 feet at Test Location No. 1. In general, standard penetration testing as well as laboratory determined density tests show subsoils to be in a medium dense or firm state throughout the depths of the borings.

No water table or water bearing strata was encountered at any of the test locations and all recovered subsurface soils revealed low moisture content.

B. PROPOSED CONSTRUCTION

It is our understanding that the proposed Motel Complex will consist of 3 to 4, three story buildings without basements, of wood frame construction and with "on-grade" reinforced concrete floor slabs. Foundation loads will be relatively light, on the order of 2 to 3 kips per lineal foot of wall. Presently it is not known what finished floor elevations will be and existing site contour indicates the need for considerable earthwork.

C. SITE PREPARATION AND GRADING

General guideline specifications are presented below to provide a basis for quality control during site grading (cutting and filling). It is recommended that all structural fills be placed and compacted under engineering control and in accordance with the following specification requirements.

(1) The areas to receive compacted fill for support of foundations, floor slabs and asphalt pavement shall be stripped of all vegetation, debris, existing fill and soft or disturbed soils. The excavated areas shall be inspected by the Soils Engineer prior to placing compacted fill.

(2) The exposed ground surface shall then be scarified to a depth of eight inches, watered and mixed to near optimum conditions, and the scarified ground compacted to at least 90 percent of the maximum laboratory density.

(3) Fill consisting of either "on-site" or imported granular soils, both approved by the Soils Engineer shall be placed in thin layers (maximum loose depth of 8") with approved compaction equipment. Rocks larger than two inches in diameter shall not be used in the upper two feet of the compacted fill.

(4) The fill shall be compacted to at least 95 percent of the maximum laboratory density for the material used. The maximum density shall be determined by the A.S.T.M. D-1557-70 compaction method.

(5) Observations and field density tests shall be performed continuously by this office during grading to provide a basis for an opinion on the degree of compaction being obtained. Where compaction of less than that required is indicated, additional compactive effort shall be made, with adjustment of the moisture content as necessary, until the required percent compaction is obtained.

D. FOUNDATIONS

All foundations, both continuous, reinforced concrete footings and individual or "spot" footings (if used), should be based either (1) entirely on naturally deposited, undisturbed soils or (2) entirely on engineered, compacted fill soils. If foundations are based on a combination of the two, differential vertical settlements are more likely to occur.

(1) Foundations on Natural Ground

Found or base all foundations entirely on naturally deposited, undisturbed soils at a minimum depth of two (2) feet beneath the existing ground surface but not less than two (2) feet beneath the lowest adjacent, exterior finished grade. For foundations based at this depth and entirely on naturally deposited soils, an allowable soil bearing pressure of 2000 lbs./sq. ft. may be used. This value may be increased by 30 percent for the combination of dead plus full live load plus transitory loadings. Minimum width of continuous footings should be 1'-4"; minimum dimension of individual or "spot" footings should be 2'-0".

(2) Foundations on Engineered, Compacted Fill Soils

Found or base all foundations entirely on engineered, compacted fill soils at a minimum depth of two (2) feet beneath the adjacent, exterior finished grade. The depth of engineered, compacted fill soils extending beneath foundations, and the lateral distance of engineered fill soils extending from perimeters of footing edges should at least be equal to one-half the width or least dimension of the footing but not less than two (2) feet. Placement and compaction of engineered structural fills beneath all foundations shall conform to the requirements set forth under C. SITE PREPARATION AND GRADING.

For foundations based entirely on engineered, compacted fill soils as recommended, an allowable soil bearing pressure of 2500 lbs./sq. ft. may be used. This value may be increased by 30 percent for the combination of dead plus full live load plus transitory loadings. Minimum width of continuous footings should be 1'-4". Minimum dimension of individual or "spot" footings should be 2'-0".

E. ON-GRADE REINFORCED CONCRETE FLOOR SLABS

All "on-grade" reinforced concrete floor slabs should be based on a minimum 6 inch compacted thickness of a select fill soil either of approved on-site soils or imported soils consisting of a well graded sand and gravel, decomposed granite sand, or similar material having a Plasticity Index not exceeding 6. These soils should be thoroughly mixed with optimum moisture (±2%) outside of construction limits. Placement and compaction of select slab fill should conform to the requirements given under C. SITE PREPARATION AND GRADING.

F. PAVEMENTS

Support for asphaltic concrete pavement (parking areas and drives) may be provided by a minimum 6 inch compacted thickness of imported aggregate base course and fines or approved on-site soils, placed and compacted as described in Paragraph C. above. The following minimum pavement sections are suggested for varying traffic conditions:

Traffic Condition	Minimum Pavement Thickness (inches)	Recommended Aggregate Base Course Thickness (inches)
Light - passenger cars and general parking areas	2	6
Medium - light to medium trucks, driveways	3	6

Specifications for asphaltic concrete pavement and select base course may be taken from the "New Mexico Standard Specifications for Public Works Construction", 1979 Edition, Sections 115 and 302 respectively. In addition, the following specifications are recommended for the pavements:

Marshall Stability (Modified Method)	1500 minimum
Marshall Flow	10 to 16
% Aggregate Voids Filled with Asphalt Cement	70 to 80
% Voids in Compacted Mix	3 to 5
Density of Compacted Pavement	Minimum 96% of Laboratory Compacted Specimen.

G. SITE DRAINAGE AND PROTECTION OF FOUNDATION SOILS

It will be important at this site to keep the soils at and below foundation depths protected from moisture intrusions. Saturation or wetting to various degrees of the foundation soils could cause them to consolidate with resulting settlement; if sufficient and differential in nature, structural distress could result. (See Consolidation Test Results in Appendix) To help prevent moisture intrusions into the foundation soils, we advise that the following precautions be taken:

(1) Provide and maintain positive surface water drainage around and away from all foundations and exterior walls.

(2) Keep opened excavations dry, with concreting operations to follow as soon as is practical. The contractor should have equipment readily available to remove surface water ponded for any reason.

(3) Properly compact all backfill soils in utility trenches and around foundations and exterior walls to a minimum of 90 percent of Modified Proctor Density.

(4) Discourage the planting of vegetation adjacent to foundations unless underdrains are placed beneath planted areas to lead irrigation waters away from foundations. It is suggested that vegetation and landscaping be of the "southwestern type" which requires minimal watering.

(5) The proposed swimming pool should be made as "watertight" as feasibly possible.

(6) If on-site ponding of surface runoff is required, edges of ponds should be located a minimum of 15 feet from any exterior building wall.

The conclusions and recommendations given in this report are based on the actual surface and subsurface soil conditions existing at the site, a visual reconnaissance of the site, and our understanding of the proposed construction. Any changes or deviations from the recommendations given in this report in structure loads, foundation depths or any other factors which could affect or alter the recommendations covered herein, should be brought to our attention before finalization of plans and prior to construction.

Your attention is directed to the fact that only a very small, fractional part of the proposed site area was "opened" and subsurface soils exposed and tested through test borings. Subsurface soils and their in-situ properties which can materially affect design considerations may change in areas not covered by the test borings. Therefore, if during construction and when excavations for footings are opened, soil foundation conditions differ from those encountered by the test borings of this report, our laboratory should be notified immediately for possible revision of our recommendations.

Professional opinions and recommendations presented in this report are based on our evaluations of the subsurface soil conditions at the site, our understanding of the proposed construction and our experience in the geotechnical field. Our only guarantee concerning the project is that our engineering and geological work and judgments given herein meet the standards of our profession at this time.

Respectfully submitted,
ATL ENGINEERING SERVICES

Robert K. Lloyd

Robert K. Lloyd, P.E.

APPENDIX

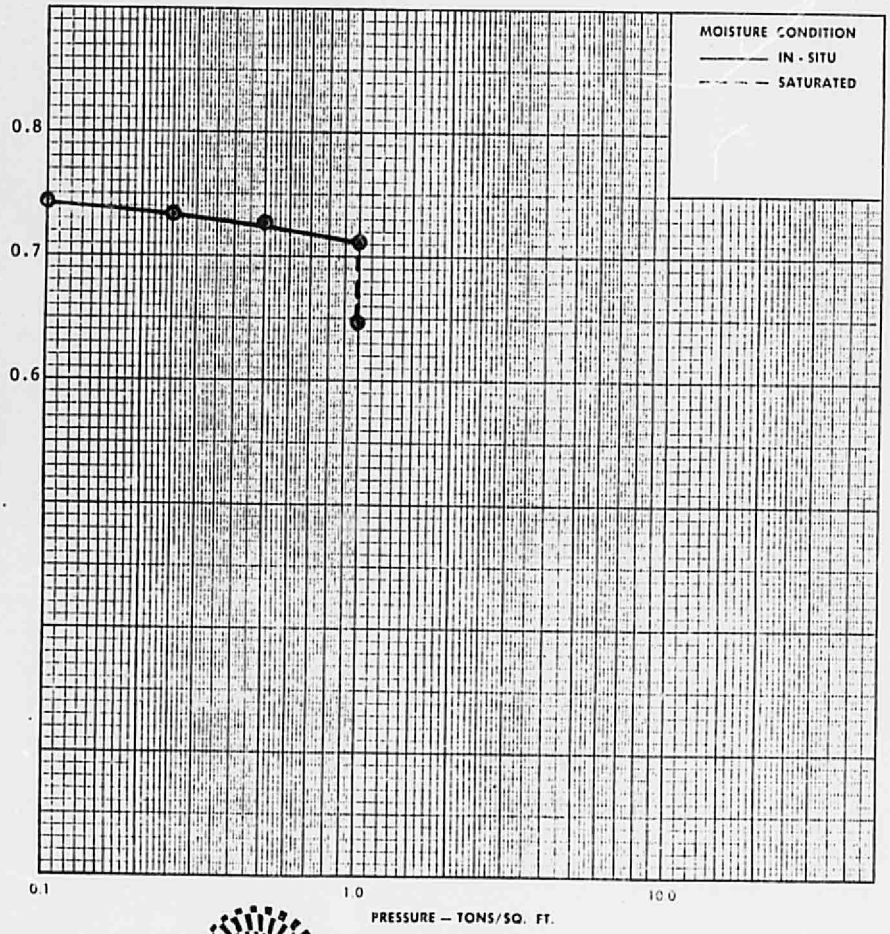
CONSOLIDATION TEST DATA

Lab. No. 3726

Project Motel-Hotel Complex Location University and Miles Road

Source of Sample Test Hole No. 2, Depth 2½-3½ feet (top portion)

Material tan, fine silty sand



ATL ENGINEERING SERVICES

ATL ENGINEERING SERVICES

Project: Motel-Hotel Complex
Location: U. versity and Miles Road
Sample Source: Test Hole No. 2, Depth 2½ feet
Material: tan, fine silty sand
Undisturbed [X] C Remolded [ ] TOP PORTION

CONSOLIDATION TEST

Date	Time	Load T/sf	Elasped Time(min)	Dial Reading	Date	Time	Load T/sf	Elasped Time(min)	Dial Reading
7/14/81	10:05	1/4	0	0.0000				1/4	0.0340
			1/4	0.0031				1/2	0.0402
			1/2	0.0032				1	0.0496
			1	0.0032				2	0.0531
			2	0.0033				4	0.0537
			4	0.0034		10:00			0.0549
	11:15			0.0044		11:24			0.0551
	12:49			0.0050		12:45			0.0553
	1:51	1/2	0	0.0052					
			1/4	0.0075					
			1/2	0.0075					
			1	0.0076					
			2	0.0077					
			4	0.0078					
	3:02			0.0087					
	4:03	1	0	0.0090					
			1/4	0.0136					
			1/2	0.0138					
			1	0.0139					
			2	0.0140					
			4	0.0142					
	5:09			0.0151					
7/15/81	7:47			0.0172					
	8:30	1*	0	0.0173					

Wet Wt. Soil + Ring 106.9 gm.
Ring Wt. 33.4 gm.
Wet Soil 73.5 gm.
Dry Soil 71.9 gm.

Assumed Sp. Gr. 2.65

CONSOLIDATION RING 2
Dia. 1.9140 in. Area 2.8772 sq.in.
Ht. 1.000 in. Vol. 0.00167 cu.ft.

Percent Moisture 2.2 Dry Density 94.9 pcf

$V_s = \frac{\text{Dry Density}}{(62.4)\text{Sp.Gr.}} = 0.5739$

$V_v = 1 - V_s = 0.4261$

Init.Void Ratio $(e_o) = \frac{V_v}{V_s} = 0.7425$

$e = \frac{\Delta - V_s}{V_s}$

Load T/sf	Dial Reading	1-Dial Reading (△)	e	Percent Consolidation
0	0.0000	1.0000	0.7425	0
¼	0.0052	0.9948	0.7334	0.52
½	0.0090	0.9910	0.7268	0.90
1	0.0173	0.9827	0.7123	1.73
1*	0.0553	0.9447	0.6461	5.53
2*				
4*				
8*				
12*				
16*				

*Saturated

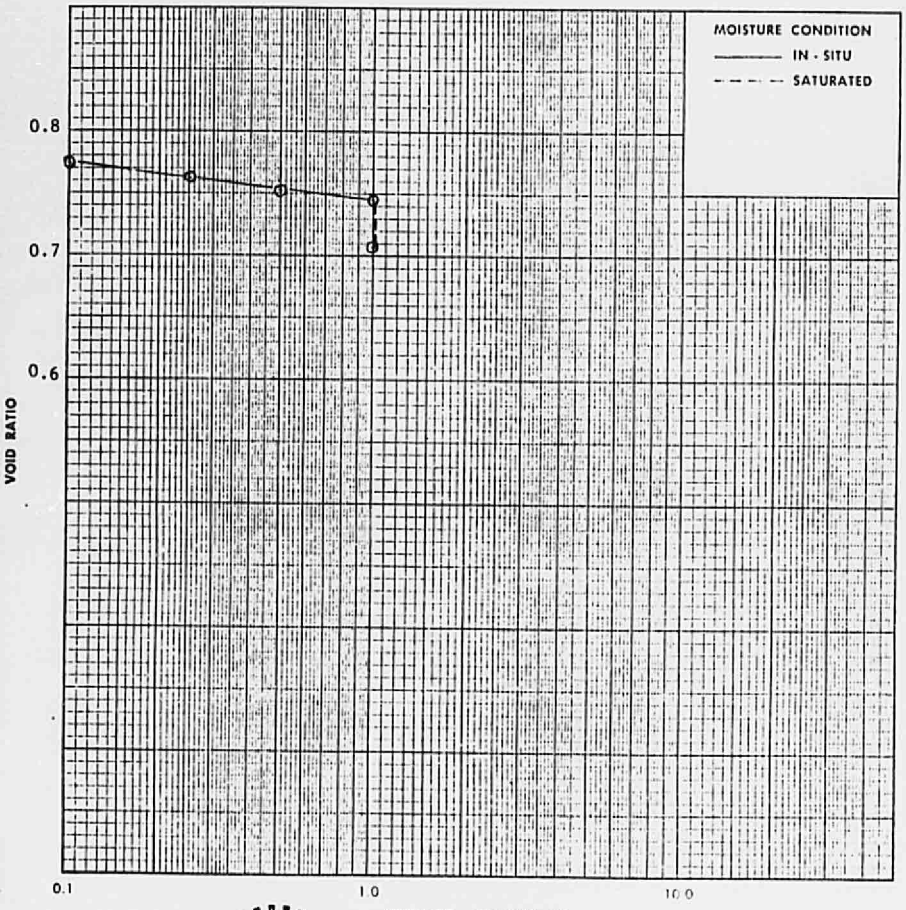
CONSOLIDATION TEST DATA

Lab. No. 3726

Project Motel-Hotel Complex Location University and Miles Road

Source of Sample Test Hole No. 2 - Depth 2½ feet (middle portion)

Material tan silty (blocky)



ATL ENGINEERING SERVICES

ATL ENGINEERING SERVICES

Project: Motel-Hotel Complex
Location: University and Miles Road
Sample Source: Test Hole No. 2 - Depth 2½ feet
Material: tan silt (blocky)
Undisturbed [X] C Remolded [ ]

CONSOLIDATION TEST

Date	Time	Load T/sf	Elasped Time(min)	Dial Reading	Date	Time	Load T/sf	MIDDLE PORTION Elasped Time(min)	Dial Reading
7/14/81	10:20	1/4	0	0.0000		11:25	1*	0	0.0160
			1/4	0.0054				1/4	0.0213
			1/2	0.0054				1/2	0.0231
			1	0.0054				1	0.0263
			2	0.0056				2	0.0318
	11:15			0.0062				4	0.0357
	12:49			0.0068		1:29			0.0378
	1:53			0.0071		2:30			0.0379
	3:02	1/2	0	0.0073		2:49			0.0379
			1/4	0.0097					
			1/2	0.0097					
			1	0.0098					
			2	0.0099					
			4	0.0100					
	4:05			0.0107					
	5:09			0.0110					
7/15/81	7:48			0.0127					
	8:28	1	0	0.0128					
			1/4	0.0148					
			1/2	0.0149					
			1	0.0150					
			2	0.0151					
			4	0.0152					
	10:00			0.0158					

Wet Wt. Soil + Ring 100.0 gm.
Ring Wt. 25.0 gm.
Wet Soil 75.0 gm.
Dry Soil 72.3 gm.

Assumed Sp. Gr. 2.65

CONSOLIDATION RING 3
Dia. 1.9424 in. Area 2.9632 sq.in.
Ht. 1.000 in. Vol. 0.00171 cu.ft.

Percent Moisture 3.73 Dry Density 93.2 pcf

$V_s = \frac{\text{Dry Density}}{(62.4)\text{Sp.Gr.}} = 0.5636$

$V_v = 1 - V_s = 0.4364$

Init.Void Ratio $(e_o) = \frac{V_v}{V_s} = 0.7743$

$e = \frac{\Delta - V_s}{V_s}$

Load T/sf	Dial Reading	1-Dial Reading (△)	e	Percent Consolidation
0	0	1.0000	0.7743	0
¼	0.0073	0.9927	0.7614	0.73
½	0.0128	0.9872	0.7516	1.28
1	0.0160	0.9840	0.7459	1.60
1*	0.0379	0.9621	0.7071	3.79
2*				
4*				
8*				
12*				
16*				

*Saturated