HYDROLOGY D17/D35 AMERICAN PARTS SYSTEM OFFICE-WAREHOUSE

D17 / D35

AMERICAN PARTS

SYSTEM OFFICE -

WAREHOUSE

2 PLANS

INFORMATION SHEET

PROJECT TITLE AMERICAN PARTS SYSTEM OFFICE - WAREHOUSE TYPE OF SUBMITTAL Foundation Only Permit

ZONE ATLAS PAGE NO. D-17 CITY ADDRESS 4001 HAWKINS STREET N.E.

LEGAL DESCRIPTION INTERSTATE INDUSTRIAL TRACT UNIT IV LOTS 9 & 10

ENGINEERING FIRM C.I.D. DESIGN, INC. CONTACT DAVID WOMACK, P.E.

ADDRESS 6090 SURETY DR., SUITE 200 PHONE (915) 778-6374

OWNER GULF & WESTERN PROPERTIES, INC. CONTACT DAVID WILLIAMSON

GULF & WESTERN REALTY CORP.

ADDRESS 1GULF & WESTERN PLAZA, NY, NY 10023 PHONE (212) 333-4310

ARCHITECT JON STEWART CONTACT JON STEWART

ADDRESS 6090 SURETY DR., SUITE 200 PHONE (915) 778-6374

SURVEYOR FRANK G. BENAVIDEZ CONTACT FRANK G. BENAVIDEZ

ADDRESS 3200 Richmond Dr., N.E. Albuquerque, NM PHONE 873-1203

CONTRACTOR CONDEL CONSTRUCTION CONTACT DAVID PARMETER

ADDRESS 6090 SURETY DR., SUITE 200 PHONE (915) 778-6603

DATE SUBMITTED March 11, 1983

BY Jon S. Stewart (As agent of Condel Construction)

RECEIVED

MAR 16 1983

ENGINEERING

C.I.D. DESIGN, INC.
ARCHITECTURE · ENGINEERING · PLANNING
A SUBSIDIARY OF CONDEL, INC.

March 11, 1983

Mr. Brian Burnett
The City of Albuquerque
Hydrology Engineering Division
Municipal Development Department
P.O. Box 1293
Albuquerque, NM 87103

D17-D35

RECEIVED
MAR 16 1983
ENGINEERING

Dear Mr. Burnett:

Enclosed please find copies of th Drainage Report, your letter indicating that ponding is not required, the Soils Report for the site, the Grading and Drainage Plan and the City of Albuquerque information sheet.

Our plans were submitted for a "Foundation Only" permit February 24. Everything else on these plans has been approved with the exception of Mr. Fred Aguirre's rejection pending review and approval of our Drainage Report. We would appreciate your review and comment or approval as soon as possible to release this permit so that we can begin grading and foundation work on this project.

Please call me if you have any questions.

Sincerely,

Jon S. Stewart

Jon S. Stewart, A.I.A.

Enclosures

6050 SURETY DR., SUITE 200 EL PASO, TX. 79905 (915) 778-6374

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

D17 - D35

March 30, 1983

Mr. David Womack
CID Design, Inc.
6090 Surety Dr., Suite 200
El Paso, Texas

RE: AMERICAN PARTS SYSTEM OFFICE-WAREHOUSE DRAINAGE PLAN

Dear David:

The referenced plan is approved. Please see that prints dated 2/23/83 are placed in the City construction sets prior to sign-off by Hydrology.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

C.I.D. DESIGN, INC.
ARCHITECTURE · ENGINEERING · PLANNING
A SUBSIDIARY OF CONDEL, INC.

June 10, 1983

RECEIVED
JUL 12 1983
CITY ENGINEER

Mr. Brian Burnett
City of Albuquerque
Hydrology Engineering Division
P.O. Box 1293
Albuquerque, NM 87103

Re: American Parts System Office/Warehouse

Dear Mr. Burnett:

Please find enclosed a copy to the revised Grading and Drainage plan with revised drainage quantities which indicate the additional runoff we will accept onto our site from the northeast corner of said site. Quantities are 0.44 cfs. for 10 year storm, and 0.67 cfs. for 100 year. This additional runoff will, of course, be directed off our site onto Hawkins Street. The previously approved plan indicated 5.52 cfs. (10 year) and 8.37 cfs. (100 year). Our new contributing drainage onto Hawkins Street, then, is 5.96 cfs. for a 10 year storm, and 9.04 cfs. for one of 100 years.

The additional contributing areas consists of a 20' wide strip by an approximate length of 1650 feet in Journal Center property that extends east to Jefferson Street. The boundary of this watershed was delineated to us by Dave Millikan of Bohanon-Huston, Inc., of Albuquerque.

Another revision shown is the elimination of 189'-8" of retaining wall at the northwest corner of site due to backfilling onto the adjacent Journal Center property. A letter from this property Owner accepting the backfilling is also enclosed.

Thank you, in advance, for your cooperation in this matter. If you have any questions, please do not hesitate to call me or Joe Molina at (915) 778-6374.

Sincerely,

David P. Womack

David P. Womack

Enclosures

D17-D35

6080 SURETY DR., SUITE 200 EL PASO, TX. 79905 (915) 778-6374

JOURNAL CENTER CORPORATION
7777 JEFFERSON ST. NE • P.O. DRAWER J.
ALBUQUERQUE, NEW MEXICO 87103
505/842-2515

June 13, 1983

Mr. Vernon L. Greggerson, P.E.
C.I.D. Design, Inc.
6090 Surety Drive
Suite 200
El Paso, TX 79905

Re: American Parts System - Albuquerque, New Mexico

Dear Mr. Greggerson:

At your request, we have reviewed the revised grading plan for Gulf Western's Lots 9 and 10, Unit IV, Interstate Industrial Tract. Our understanding of the drainage patterns, which will be established upon completion of grading the lot, as shown, are:

1. All runoff generated on Lots 9 and 10 will be conveyed to Hawkins Street.

2. Any runoff generated on the undeveloped lots east of Lots 9 and 10 is being conveyed through the swale within Lots 9 and 10 to the parking area. From this point, they are conveyed within the parking area to Hawkins Street.

3. Minor flows from the existing slope on the Journal Center property, which used to be conveyed to the west along the property line, are being accepted by the owner of Lots 9 and 10 and conveyed through the swale and parking area to Hawkins Street.

We can assure the owner of Lots 9 and 10 that the only flows which reach this area will be from the existing slope along the south boundary of the Journal Center. As the Journal Center develops in this area, the flows will not increase. However, they may be reduced by landscaping of the slope or by structural improvements on the Journal Center which reduce the area draining to the property line.

Permission to perform grading on the Journal Center property, as shown on your grading plan, dated February 23, 1983, is approved based upon the following requirements:

1. Grading on the Journal Center property be done in a manner that protects the existing trees along the property line.

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

December 14, 1982

Mr. Bill Sellers
Jaynes Corporation
2906 Broadway N.E.
Albuquerque, N.M. 87107

RE: DRAINAGE FOR LOTS 9 & 10 - INTERSTATE INDUSTRIAL SUBDIVISION

Dear Bill:

Per our conversation on December 13, 1982, I am forwarding drainage information for the referenced site.

1. Free discharge from the site is permissible if runoff can be directed toward the street right-of-way. Any runoff not directed toward the street must be ponded and provided with a positive outfall.

2. Special attention should be given to the project interface with existing development.

3. Prior to release of a building permit an approved drainage plan must be obtained through this office.

Please call if you have any questions concerning these matters.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

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MAR 16 1983
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BGB/tsl

cc: Fred Aquirre, Civil Engineer/Hydrology

Attachments

GEOTECHNICAL INVESTIGATION FOR A PROPOSED
WAREHOUSE STRUCTURE FOR AMERICAN PARTS SYSTEM, INC.
LOTS 9 & 10, INTERSTATE INDUSTRIAL TRACT UNIT
HAWKINS STREET, ALBUQUERQUE, NEW MEXICO
ATL ENGINEERING SERVICES LAB. NO. 1001-82
APRIL 15, 1982

ATL ENGINEERING SERVICES

RECEIVED
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Lab. No. 1001-82

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AMERICAN PARTS SYSTEM, INC.
WAREHOUSE - HAWKINS STREET
ALBUQUERQUE, NEW MEXICO

INTRODUCTION

The purposes of the investigation were to define and evaluate the surface and subsurface conditions at the site through field exploration (field reconnaissance and test borings); securing representative soil samples to determine through laboratory testing their engineering properties; and the engineering analysis of both field and laboratory test results to set forth conclusions and recommendations relative to foundation design and other geotechnical aspects pertinent to the successful development at the site.

SUBSURFACE EXPLORATION

The six (6) requested test borings were drilled on April 12 and 13, 1982 using a Mobile B-56 rotary drill powered by a Ford Industrial Engine and mounted on an Dodge truck. The test borings 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 (A.S.T.M. D-1586) 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, consistency, or firmness of the subsurface soils and to obtain samples of the soils for visual inspection and laboratory testing.

LABORATORY TESTING

Soil samples obtained during field exploration were sealed at the site in watertight containers to maintain field moisture and transported to the laboratory where they were visually inspected and classified according to the Unified Soils Classification System (A.S.T.M. D-2487) by either a Geologist or a Geotechnical Engineer. Selected, representative samples were tested further to aid in classification and evaluation of engineering properties. Results of these tests are tabulated on the "Boring Log Graphs" in the Appendix.

SURFACE AND SUBSURFACE CONDITIONS

The ground surface at the building site is relatively flat, sloping slightly to the west, covered with low height native grasses and weeds. Some fill soils exist at the surface and to depths of about 1 to 1½ feet. Subsurface soils are alluvial fan and wind-blown sands and consist of interbedded and stratified deposits of (a) silty, fine and medium to fine grained sands (SM) with traces of fine gravel. At about the 22 to 25 foot depths, these sands are underlain by river deposited sands (SP) and gravels (GP-GM). Standard penetration testing indicates subsoils to be for the most part in a medium dense state of relative density with a few loose zones at and below expected shallow foundation depth. All recovered subsoils exhibited low in-situ moisture content.

PROPOSED CONSTRUCTION

It is our understanding that the proposed building will be single story, without basement, a 20 foot high bay, either pre-engineered metal building or tilt-up concrete construction and with "on-grade" floor slabs established at dock height (4½± above grade). Expected loadings will be relatively light, approximately 1.5 kips per lineal foot wall loads and 15 to 30 kips estimated for columns (dead plus live). The floor slab will be reinforced concrete "on-grade" founded at dock height, approximately 4½ feet above existing ground elevation. Asphaltic concrete parking areas and drives will be constructed around the building.

SITE GRADING

Some site work, principally filling operations, is indicated and general guideline specifications are therefore presented below to provide a basis for quality control during these operations. It is recommended that structural fills beneath pavements, foundations and "on-grade" or dock height concrete floor slabs be placed and compacted under engineering control and in accordance with the following specifications requirements:

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

(2) The exposed ground surface (both cut as well as non-cut areas) shall then be scarified to a depth of eight inches, watered and mixed to within 2%± of optimum conditions, and the scarified ground compacted to at least 90 percent of the maximum laboratory density (A.S.T.M. D-1557).

(3) Fill consisting of "on-site" soils, imported granular soils (well graded decomposed granite sand or a pit run sand and gravel) approved by the Soils Engineer shall be placed in thin layers (not exceeding 8" loose depth) and compacted or densified with approved compaction equipment. Rocks larger than two inches in diameter shall not be used in the upper one foot 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 compaction methods.

(5) Observations and field density tests shall be performed under the direction of the Soils Engineer during grading to provide a basis for an opinion on the degree of compaction being obtained. Where compaction is less than required, additional compactive effort shall be made, with adjustment of the moisture content as necessary until the desired compaction is obtained.

FOUNDATIONS

Foundations, either continuous or "spot" should be based a minimum depth of two (2) feet beneath the existing ground's surface but also not less than two (2) feet below the lowest adjacent exterior grade, below any filled ground soils and all on native, virgin soils. At this depth, a soil bearing pressure of 2000 pounds per square foot may be used to design and proportion the

footings. Full dead loadings, including footing weight, plus the maximum reasonable live loads that can act at any one time should be used to size the footings. Minimum width of continuous footings should be 1'-4"; minimum dimension of "spot" footings should be 2'-0".

Provided soils at and below foundation elevation are kept dry and for foundations based as noted above, we would not expect total settlements to exceed 1" and differential settlements not to exceed 3/4".

"AT-GRADE" OR DOCK HEIGHT SLABS

All "at-grade" or dock height concrete slabs should be based on compacted "on-site" soils or imported, select fill soils consisting of a pit-run sand and gravel, a well graded decomposed sand, or similar material having a Plasticity Index not exceeding 8 and approved by our laboratory. In addition, the compacted select fill should be underlain by at least one (1) foot of excavated and recompacted "on-site" soils. Prior to placement of any fill soils, the areas to receive the slabs should be completely stripped of vegetation and loose soils and the exposed cut ground overcut a vertical depth of at least one (1) foot beneath the entire building and extending at least three (3) feet from all exterior building walls. The excavated soils should be thoroughly mixed "off-site" with optimum moisture (±2%) then placed in thin layers and compacted to a minimum thickness of 12 inches. Imported fill soils for elevation slabs should be thoroughly mixed outside of building limits to optimum moisture, placed in thin lifts (8" maximum loose depth) and compacted as noted herein.

Both prepared subgrade and select fill soils should be compacted to a minimum of 90 to 95 percent of Modified Proctor Density respectively. Site grading should be designed to maintain positive surface water drainage away from the building.

PAVEMENTS

Support for asphaltic concrete pavement may be provided by a 6 inch compacted thickness of a well graded crushed gravel and fines base course fill, placed

on a minimum of 12" compacted thickness of a previously prepared subgrade. Both prepared subgrade and base course materials should be compacted to a minimum of 95 percent of Modified Proctor Density. The following minimum pavement sections are recommended for expected traffic conditions:

Traffic Conditions	Minimum Total Pavement Thickness (inches)
Light (passenger cars or trucks)	2
Heavy (medium to heavy duty trucks)	3

In addition, the asphalt pavement should conform to the following specifications:

Stability (Marshall - 75 blow briquette)	1500 minimum
Flow (Marshall)	10 to 16
Percent Voids in Compacted Mix	3 to 7
Percent Voids Filled with Asphalt	75 to 85
Percent Asphalt Cement Content by Weight of Total Mix	5 to 7
Sand Equivalent	40 minimum
Compaction	96% of Laboratory Molded Specimen

Additional specifications for asphaltic concrete and select gravel base course may be taken from the "New Mexico Standard Specifications for Public Works Construction, 1979 Edition", Sections 115 and 302 respectively.

SITE DRAINAGE AND PROTECTION OF FOUNDATION SOILS

Soils at this site are subject to some additional consolidation under structure loads if they are wetted to various degrees. It will therefore be important to keep subsoils at and below foundation elevations relatively dry. Depending on structure loads and in-situ soil moisture conditions, increases in the soil moisture could cause the soils to consolidate with some resultant settlement; if differential in nature, settlements could cause structural distress. To help prevent changes in existing soil moisture, we recommend that the following precautions be taken:

1. Provide and maintain positive surface water drainage around and away from the structure. Proper roof drains with downspouts leading runoff waters away from the building should also be provided.
2. Keep opened footing excavations "dry" with concreting operations to follow as soon as is practical.
3. Properly compact all fill soils in utility trenches and around foundations to a minimum of 90% of Modified Proctor Density. The silty sand soils removed from foundation excavations may be used for this purpose; when properly compacted they should provide a relatively impermeable barrier to moisture intrusions.
4. Shrubbery or trees should not be planted adjacent to the foundations.
5. Consideration should be given to paving around the entire structure.

SUMMARY

Foundation depths, allowable soil bearing pressure, protection of foundation soils, and all other recommendations given in this report are based on the following:

a. actual surface and subsurface soil conditions existing at the site,
b. the indicated relatively lightly loaded structure contemplated for 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 the 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.

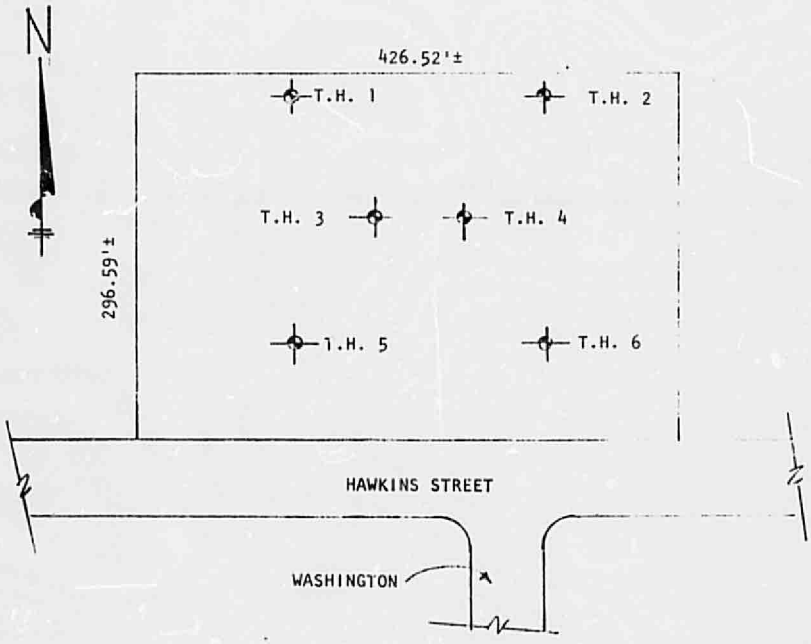
The Albuquerque Testing Laboratory assumes no liability for the design and structural adequacy of the foundation(s) or as the foundation effects the superstructure. Our only guarantee concerning the project is that our engineering and geological work and judgments given herein meet the standards of our profession at this time.

Respectfully submitted,
ATL ENGINEERING SERVICES

Robert K. Lloyd

Robert K. Lloyd, P.E.

APPENDIX



TEST LOCATIONS

SCALE: 1"=100'

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure

LAB NO.: 1001-82

For American Parts System, Inc.

DATE: April 15, 1982

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.
	Sand, light brown,												
	some buff and					1.7	115						
	yellowish-brown	17	7 10		C	1.0 1.2	121 1.2	6	59	35			
5	with depth,	20	8 12		S	1.9		2	85	13			
	generally coarse												
	to fine, grading	20	9 11		S	1.9		1	90	9			
	to fine with depth,												
10	trace of fine	19	8 11		S	4.6		2	72	26			
	gravel, very												
	silty to silty,												
	(SM)												
15	Medium Dense	22	9 13		S	2.5		1	87	12			
	to Dense												
	below 17'.												
20		45	17 28		S	7.7		2	53	45			
	22'												
	Sand-gravel mixtures, gray-brown, river deposited (SM-GM)												
25	Dense	32	13 19			2.1		56	31	13			

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure

LAB NO.: 1001-82

for American Parts System, Inc.

DATE: April 15, 1982

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	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
						2.9 (Cuttings 0 to 2½')							
	Sand, light brown, some buff and yellowish-brown	10	4 6		C	2.1 3.8	108 96						
5	with depth, generally coarse to fine, grading to fine with	10	4 6		S	3.9							
	depth, trace of fine gravel, very	11	5 6		S	3.4							
10	silty to silty, (SM)	13	5 8		S	3.3							
	Loose through 9' foot depth to												
15	Medium Dense below 9'.	19	8 11		S	2.5							
20		24	12 12		S	3.7							

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure for American Parts System, Inc.

LAB NO.: 1001-82

DATE: April 15, 1982

BORING LOG GRAPH -TEST HOLE NO. 3

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 brown, some buff and yellowish-brown					3.9 (Cuttings 0 to 2½')								
		27	11 16		S	3.1								
5	with depth, generally coarse to fine grained to	26	11 15		S	3.5								
		26	10 16		S	3.5								
10	trace of fine gravel, very silty to silty (SM)	19	9 10		S	3.7								
15	Medium	29	12 17		S	3.1								
20	Dense	27	12 15		S	4.4								
	23½' *													
25		14	5 9		S	2.0								
	*Sand, light brown to light gray, medium to coarse, river deposited slightly silty to "clean", (SM-SP)													

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure

LAB NO.: 1001-82

for American Parts System, Inc.

DATE: April 15, 1982

BORING LOG GRAPH -TEST HOLE NO. 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.
	Sand, light brown, some buff and yellowish-brown with depth, generally coarse to fine, grading to fine with depth, trace of fine gravel, very silty to silty, (SM) Loose through 7' depth to Medium Dense below 7 feet.	11	5 6		S	3.5							
5		9	4 5		S	4.1							
		18	9 9		S	3.5							
10		17	7 10		S	2.8							
15		22	10 12		S	2.3							
20		25	11 14		S	3.8							
	24' *												
25		21	9 12		S	(No Recovery)							
	*Sand, light gray, medium to fine, river deposited, relatively "clean", (SP). Medium Dense												

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure for American Parts System, Inc.

LAB NO.: 1001-82

DATE: April 15, 1982

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 brown					9.5	(Cuttings) to 2½')						
	to some buff	11	4 7		S	4.5							
5	and yellowish-brown with depth,	37	20 17		S	2.8							
	silty to very silty, fine	19	8 11		S	3.2							
10	grained, changing to coarse at	22	13 9		S	2.3							
	about 10 to 12 feet, trace fine gravel, (SM).												
15	Medium	36	19 17		S	2.1							
	Dense												
20		17	8 9		S	4.1							

ENGINEERING SERVICES

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PROJECT: Proposed Warehouse Structure for American Parts System, Inc.

LAB NO.: 1001-82

DATE: April 15, 1982

BORING LOG GRAPH - TEST HOLE NO. 6

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 brown to light buff to yellowish-brown	11	5 6		S	3.9		1	76	23			
5	with depth, very silty in upper reaches, fine and medium to fine	14	7 7		S	2.2		3	86	11			
		22	9 13		S	2.7		3	78	19			
10	grained, trace of fine gravel with gravelly layer at about 22 feet.	17	10 7		S	4.7		6	62	32			
15	(SM) Generally Medium Dense throughout.	10	4 6		S	5.8		1	58	41			
20		20	9 11		S	4.0		2	76	22			
25		23	10 13		S	2.0		0	89	11			
	From: 24½ to 25½ feet: Sand, light gray, medium to fine, relatively "clean", river deposited, (SM-SP). Medium Dense												

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 ATTIRBERG 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

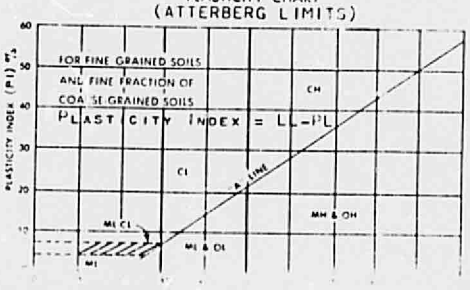
MORE THAN 50% SMALLER THAN 200 SIEVE SIZE

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		3 in. to ¾ in.
Fine gravel	G	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)



THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

Drainage Report - Albuquerque American Parts System

A warehouse building and parking facilities are being proposed on Lots 9 and 10 of Interstate Industrial Tract Unit IV, Albuquerque, New Mexico (street address: 4001 Hawkins St., N.E.)for American Parts System, Inc., in a site with zoning "M-1". To the best of my knowledge, this site as a portion of Interstate Industrial Tract Unit IV Albuquerque, New Mexico, has been zoned M-1 since the inception of this tract as filed in the office of the County Clerk of Bernalillo County, New Mexico, on March 22, 1977. Survey (topographic, boundaries and utility) information has been provided by Frank G. Benavidez, Surveyor, 3200 Richmond Dr., N.E., Albuquerque, New Mexico, with supplemental city elevation datum provided by Bohanan, Houston, Inc., 4125 Carlisle Blvd., N.E., Albuquerque, New Mexico.

As per telephone conversation with Mr. Houle of the City of Albuquerque Hydrology Engineering Division on February 18, 1983, our proposed development does not lie within a flood hazard boundary and can be verified on the Albuquerque Flood Hazard Boundary Map "M-1".

Our proposal to drain the overland flow consists of collecting all site runoff and discharging it into Hawkins Street due south from the southwest corner of the site via a concrete drive apron at the entrance to the parking lot. A release from on-site ponding has been effected by Mr. Brian Burnett, Hydrologist, for the City of Albuquerque of which a copy is included here.

Topographic survey information indicates that the only property that possibly could contribute off-site water shed to this site is the adjacent property due east of the site (Lot 8). This adjacent property runoff is directed into Hawkins Street as per Albuquerque City Engineering Drainage Report D-17-D8, so that no drainage is contributed to the referenced site.

The ground cover surrounding the proposed building shall be graded at minimal slopes and reseeded with natural grasses for erosion control. The composition and permeability of the existing soil is described in the accompanying soils test report, as prepared by Albuquerque Testing Laboratory, Inc., (ATL Engineering Services Lab. No. 10001-82), 532 Jefferson, N.E., Albuquerque, New Mexico.

As indicated on the "Site Grading and Drainage Plan" enclosed, a retaining wall on the northwest corner of the site shall retain the soil required to maintain the positive drainage away from this corner. Gravel-covered earth swales adjacent to the building on the north and south sides shall direct the roof drainage onto the parking lot, then out through the concrete approach apron as described above. Run-off calculations and quantities for storm flows are indicated on the "Site Grading and Drainage Plan".

Enclosure

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
NO. 5257
DAVID P. WOMACK

Prepared By: David P. Womack, P.E.

Signed By: David P. Womack

P.E. No. : 5257

Date: March 10, 1983

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