Construction Inspection & Testing Co.

2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602) 861-2002 FAX (602)861-9116

950 WEST GRANT ROAD
TUCSON, ARIZONA 85705
(520) 882-0626 FAX (520)882-9867

AUGUST 11, 1997

CIRCLE G PROPERTY DEVELOPMENT, L.L.C
1455 E. UNIVERSITY DRIVE
MESA, ARIZONA 85203

RE: PAVEMENT DESIGN - RESIDENTIAL STREETS

PROJECT: **PEGASUS AIRPARK**
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

ATTN: GERRY RICKE

IN ACCORDANCE WITH YOUR REQUEST, WE HAVE DESIGNED THE RESIDENTIAL STREETS FOR THE SUBJECT PROJECT IN ACCORDANCE WITH THE TOWN OF QUEEN CREEK/MARICOPA COUNTY REQUIREMENTS.

LOCATION	THICKNESS (INCHES)			
	AC	ABC	SELECT	
RESIDENTIAL STREETS	2.0	6.0		
ARTERIAL STREETS	3.0	4.0	5.0	OR
ARTERIAL STREETS	3.0	9.0		

A COMPACTED SUBGRADE OF ONSITE SURFACE SOILS OR IMPORTED SOILS WITH COMPARABLE PROPERTIES IS ASSUMED. SUBGRADE SOILS SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698.

SHOULD YOU HAVE ANY FURTHER QUESTIONS REGARDING THIS MATTER, PLEASE CONTACT THE UNDERSIGNED.

RESPECTFULLY SUBMITTED,
CONSTRUCTION INSPECTION & TESTING CO.

SALEM M. PROUTY, P.E.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
13273
SALEM M.
PROUTY
Date Signed 8/11/97
ARIZONA U.S.A.

COPIES: ADDRESSEE
PROEHL DEVELOPMENT

Construction Inspection & Testing Co.

EXISTING SOIL CHARACTERISTICS

PROJECT: PEGASUS AIRPARK
LOCATION: ELLSWORTH RD. & EMPIRE BLVD.
FOR: CIRCLE G PROPERTY DEVELOPMENT, L.L.C.

DATE: 8/04/97
LAB NO. 979645-55
TYPE OF SAMPLE: SOIL
SOURCE: 0-1.5'

	% PASSING (SIEVE SIZE)							ATTERBERG LIMITS		
LOCATION	1	½	#4	#10	#40	#100	#200	LL	PL	PI
BC-1			97	94	77	62	55	21	18	3
BC-2			100	94	67	50	41	19	18	1
BC-3			96	89	63	46	37	19	18	1
BC-4			96	91	66	49	40	22	18	4
BC-5			98	94	71	55	45	19	19	0
BC-6			97	94	75	57	47	20	19	1
BC-7			98	94	71	58	47	19	17	2
BC-8			96	89	62	47	38	20	17	3
BC-9			95	88	64	46	38	20	19	1
BC-10			97	92	65	42	34	18	17	1
BC-11			95	88	64	47	37	18	17	1

Construction Inspection & Testing Co.

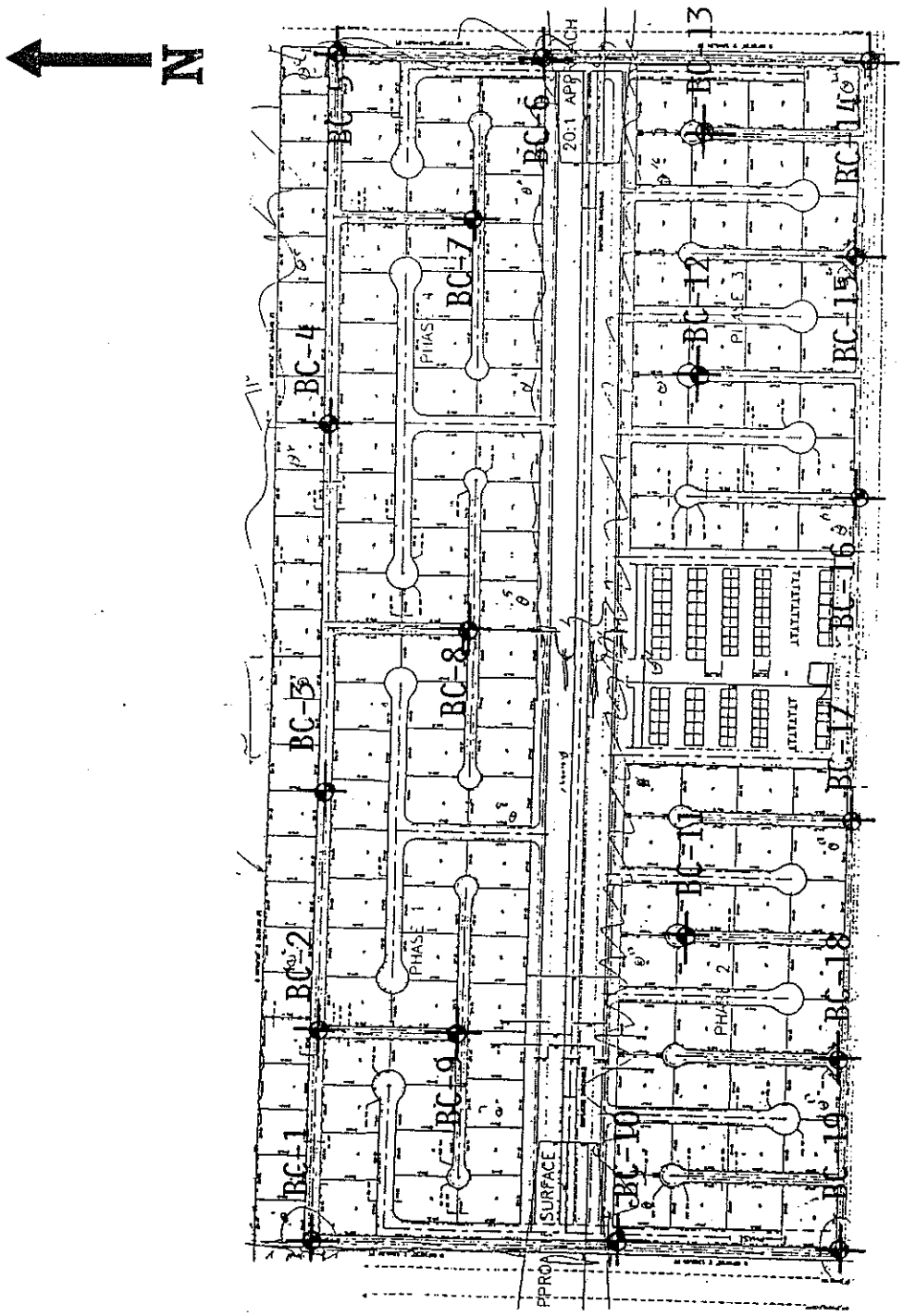
EXISTING SOIL CHARACTERISTICS

PROJECT: PEGASUS AIRPARK
LOCATION: ELLSWORTH RD. & EMPIRE BLVD.
FOR: CIRCLE G PROPERTY DEVELOPMENT, L.L.C.

DATE: 8/04/97
LAB NO. 979656-63
TYPE OF SAMPLE: SOIL
SOURCE: 0-1.5'

	% PASSING (SIEVE SIZE)							ATTERBERG LIMITS		
LOCATION	1	½	#4	#10	#40	#100	#200	LL	PL	PI
BC-12			97	93	73	59	51	21	19	2
BC-13			99	94	69	54	46	20	18	2
BC-14			91	86	67	57	52	23	17	6
BC-15			96	87	62	45	38	20	19	1
BC-16			95	87	59	45	39	21	19	2
BC-17			95	89	63	43	34	19	19	0
BC-18			97	89	61	44	36	20	19	1
BC-19			98	95	77	61	52	24	19	5

SALEM M. PROUTY, P.E.



SITE PLAN

TEST HOLE LOCATIONS

PEGASUS AIRPARK

SOIL INVESTIGATION

PROJECT

PEGASUS AIRPARK
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

PREPARED FOR

CIRCLE G PROPERTY DEVELOPMENT, L.L.C
1455 E. UNIVERSITY DRIVE
MESA, ARIZONA 85203

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AUGUST 11, 1997

CIRCLE G PROPERTY DEVELOPMENT, L.L.C
1455 E. UNIVERSITY DRIVE
MESA, ARIZONA 85203

RE: SOIL INVESTIGATION

PROJECT: **PEGASUS AIRPARK**
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

JOB NO. **97-6968**

ATTENTION: GERRY RICKE

IN ACCORDANCE WITH YOUR REQUEST, WE HAVE COMPLETED THE SOIL INVESTIGATION FOR THE SUBJECT PROJECT.

THE ACCOMPANYING REPORT INCLUDES THE RESULTS OF OUR FIELD INVESTIGATION AND LABORATORY TESTING ALONG WITH OUR CONCLUSIONS AND RECOMMENDATIONS.

RESPECTFULLY SUBMITTED,
CONSTRUCTION INSPECTION & TESTING CO.

SALEM M. PROUTY, P.E.

Registered Professional Engineer (Civil) CERTIFICATE NO. 13273 SALEM M. PROUTY Date Signed 8/11/97 ARIZONA U.S.A.

COPIES TO: ADDRESSEE (6)
PROEHL DEVELOPMENT (2)

PART I

REPORT

PEGASUS AIRPARK
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

GENERAL

THIS REPORT WAS PREPARED AT THE DIRECTION OF CIRCLE G PROPERTY DEVELOPMENT, L.L.C, MESA, ARIZONA, AND DESCRIBES THE SOIL CONDITIONS, LABORATORY FINDINGS AND A LOAD BEARING EVALUATION OF THE PROJECT IDENTIFIED AS PEGASUS AIRPARK, LOCATED AT ELLSWORTH ROAD AND EMPIRE BOULEVARD, MARICOPA COUNTY, ARIZONA. THE PURPOSE OF THE REPORT IS TO PRESENT GENERAL INFORMATION CONCERNING THE ENGINEERING CHARACTERISTICS OF THE SOIL AND TO SUBMIT RECOMMENDATIONS FOR THE DESIGN OF FOUNDATIONS AND SITE PREPARATION IN ACCORDANCE WITH FHA/VA/TOWN OF QUEEN CREEK/MARICOPA COUNTY REQUIREMENTS.

PROPOSED CONSTRUCTION

IT IS UNDERSTOOD THAT THE PROPOSED STRUCTURES WILL CONSIST OF ONE OR TWO LEVEL SINGLE FAMILY HOUSES OF MASONRY AND/OR WOOD FRAME CONSTRUCTION IMPOSING RELATIVELY LIGHT FOUNDATION LOADS. BASEMENTS MAY BE PROPOSED. MAXIMUM STRUCTURE LOADS ON THE ORDER OF 2.5 KIPS PER LINEAL FOOT ARE ANTICIPATED AND THE GRADING WILL CONSIST OF MINOR CUTS AND/OR FILLS TO OBTAIN FINISH PAD GRADES.

INVESTIGATION

TWENTY ONE (21) TEST HOLES WERE MADE AT THE LOCATIONS AS SHOWN ON THE ACCOMPANYING SITE PLAN. THE SOILS ENCOUNTERED WERE CONTINUOUSLY EXAMINED, CLASSIFIED, LOGGED AND SAMPLED WHERE APPLICABLE. THE GRADATION AND ATTERBERG LIMITS WERE DETERMINED ON SELECTED SAMPLES ALONG WITH SWELL TESTS TO

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DETERMINE THE VOLUME CHANGE POTENTIAL OF THE SOILS. DIRECT SHEAR AND CONSOLIDATION TESTS WERE PERFORMED ON UNDISTURBED SAMPLES TAKEN AT SHALLOW DEPTHS TO DETERMINE THEIR BEARING CAPACITY AND COMPRESSIBILITY.

RESULTS OF LABORATORY TESTS, FIELD INVESTIGATION AND CLASSIFICATION OF THE SUBSOILS WERE USED AS THE BASIS FOR THE CONCLUSIONS AND RECOMMENDATIONS CONTAINED IN THIS REPORT.

SITE CONDITIONS AND SOIL PROFILE

THE SITE CONSISTS OF APPROXIMATELY 320 ACRES OF RELATIVELY FLAT, UNDEVELOPED FORMER AGRICULTURAL LAND WHERE THE NATURAL GROUND ELEVATIONS SLOPE DOWNWARD TO THE SOUTHEAST. THE SITE HAS RECENTLY BEEN DISCED RESULTING IN LOOSE SURFACE SOILS. SITE VEGETATION CONSISTS OF A LIGHT GROWTH OF WEED WHICH WILL REQUIRE REMOVAL OR STRIPPING. RECOMMENDED SITE WORK PROCEDURES WILL BE PRESENTED LATER IN THIS REPORT.

AS SHOWN ON THE ACCOMPANYING LOG OF TEST BORINGS AND SOIL CHARACTERISTICS DISTRIBUTION CHART, THE SUBSOIL PROFILE TO THE DEPTHS EXPLORED CONSISTS OF STRATIFIED FINE-GRAINED AND GRANULAR SOILS DISTRIBUTED IN A RELATIVELY UNIFORM MANNER ACROSS THE SITE. THE NATIVE SURFACE SOILS CONSIST OF SANDY SILTS/SILTY SANDS OF LOW PLASTICITY WHICH EXTEND TO DEPTHS VARYING FROM 3 FEET TO DEEPER THAN EXPLORED. CLAYEYSANDS/SILTY SANDS UNDERLIE SURFACE SOILS AND EXTEND TO DEPTHS DEEPER THAN EXPLORED.

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DISCUSSION OF RESULTS

IN GENERAL, THE IN-SITU MOISTURE CONTENTS OF THE SUB-SOILS WERE FOUND TO BE DAMP BEING WELL BELOW THE PLASTIC LIMIT OF THE SUBSOILS. EXISTING NATIVE SUBSOILS ARE GENERALLY OF LOW TO MODERATE DENSITY AND EXHIBIT SOFT TO MODERATELY FIRM CONSISTENCIES TO THE DEPTHS EXPLORED IN THEIR PRESENT MOISTURE CONTENTS. DECREASED SHEAR STRENGTH AND GREATLY INCREASED COMPRESSIBILITY ARE INDICATED UPON SATURATION OF THE NATIVE FOUNDATION SOILS AT THE ANTICIPATED FOUNDATION LOADS. FOUNDATIONS SHOULD BE DESIGNED UTILIZING LOW BEARING PRESSURES TO REDUCE THE SETTLEMENT POTENTIAL UNDER CONDITIONS OF INCREASED MOISTURE. THE SWELL POTENTIAL OF THE SURFACE SOILS IS RELATIVELY LOW WHEN COMPACTED AND SATURATED WHILE CONFINED BY LIGHT FLOOR SLAB LOADINGS.

IN VIEW OF THE ABOVE DISCUSSION, IT WILL BE ESSENTIAL TO PREVENT MOISTURE FROM INFILTRATING BENEATH THE FOOTINGS AND SLABS.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL:

THE FOLLOWING GENERALIZED CONCLUSIONS ARE DRAWN:

(1) IT IS ANTICIPATED THAT CONSIDERABLE GRADING WILL BE REQUIRED TO RAISE AND LEVEL BUILDING SITES TO PROVIDE ADEQUATE DRAINAGE. SINCE THIS IS THE CASE, RECOMMENDATIONS FOR CONTROLLED FILLS ARE INCLUDED IN THIS REPORT UNDER "EARTHWORK".

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(2) THE EXISTING SUBSOILS TO DEPTHS OF SIGNIFICANT FOUNDATION STRESS INFLUENCE CONSIST OF LOW DENSITY SILTY SANDS/SANDY SILTS OF LOW PLASTICITY. THESE BEARING SOILS ARE OF LOW DENSITY AND POSSESS RELATIVELY HIGH VOID RATIOS. THIS CONDITION IS BELIEVED TO CONSTITUTE A SERIOUS PROBLEM DUE TO EXTREME SETTLEMENT POTENTIAL UPON INCREASED MOISTURE CONTENT. TO MITIGATE THE POTENTIAL FOR SETTLEMENTS DUE TO HIGHLY COMPRESSIBLE SOILS, THE MOST EFFECTIVE TREATMENT IS TO OVER-EXCAVATE AND RECOMPACT THE SITE SOILS TO FORM A COMPACTED FILL ZONE BELOW THE FOUNDATION ELEMENTS

(3) ONSITE SOILS MAY BE USED AS FILL MATERIAL PROVIDED THAT THEY ARE COMPACTED AS SPECIFIED.

(4) IT IS ASSUMED HEREIN THAT THE FOOTINGS FOR THE PROPOSED STRUCTURES WILL BEAR UPON PREVIOUSLY COMPACTED SOILS OR FILLS PLACED AND COMPACTED AS PART OF THIS PROJECT.

FOUNDATIONS:

FINAL GRADING CONCEPTS WERE NOT AVAILABLE, HOWEVER, FOR PURPOSES OF THIS REPORT IT IS ASSUMED THAT COMPACTED FILL WILL BE REQUIRED TO ACHIEVE FINISH GRADES. THEREFORE, RECOMMENDATIONS FOR SHALLOW FOUNDATIONS FOUNDED AT UNIFORM DEPTHS BELOW FINISH PAD GRADES AND BEARING ON A COMPACTED SOIL SECTION A MINIMUM OF 1.5 FEET IN DEPTH ARE PRESENTED.

IT IS RECOMMENDED THAT FOOTINGS BE FOUNDED A MINIMUM OF 1.5 FEET BELOW FINISH COMPACTED GRADE PROVIDED THE EARTHWORK IS PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS IN THIS

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REPORT. A SOIL BEARING PRESSURE OF 1500 P.S.F. SHOULD NOT BE EXCEEDED IN THE DESIGN OF FOOTINGS AT THE ABOVE MINIMUM DEPTH. A SOIL BEARING PRESSURE OF 2000 P.S.F. SHOULD NOT BE EXCEEDED IN THE DESIGN OF FOOTINGS SUPPORTING BASEMENT WALLS FOUNDED EIGHT (8) TO TEN (10) FEET BELOW FINISH COMPACTED GRADE AND BEARING UPON FIRM, UNDISTURBED, NATIVE SOILS. FINISHED GRADE FOR INTERIOR BEARING FOOTINGS SHOULD BE REFERENCED TO TOP OF FLOOR SLAB AND TO THE EXTERIOR GRADE FOR PERIMETER FOOTINGS.

THE STEM WALLS SHOULD BE WELL REINFORCED TO DISTRIBUTE STRESSES CAUSED BY POSSIBLE NON-UNIFORM BEARING CAPACITY AND/OR MINOR DIFFERENTIAL FOUNDATION MOVEMENTS. TWO (2.0) FEET, 1.33 FEET AND 1.0 FOOT ARE RECOMMENDED AS THE MINIMUM WIDTH OF FOOTINGS SUPPORTING COLUMNS, MASONRY AND WOOD FRAME WALLS, RESPECTIVELY. FOOTING DIMENSIONS FOR CONTINUOUS FOOTINGS SUPPORTING MASONRY WALLS AND WOOD FRAME WALLS SHOULD BE DESIGNED BY A STRUCTURAL ENGINEER BASED ON THE ABOVE ALLOWABLE BEARING PRESSURES.

THE ESTIMATED FOOTING SETTLEMENTS SHOULD BE WITHIN TOLERABLE LIMITS IF CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THIS REPORT AND A REASONABLE EFFORT IS MADE TO BALANCE LOADS ON THE FOOTINGS. HOWEVER, AS INDICATED BY THE CONSOLIDATION AND SWELL TESTS, SATURATION OF THE SUBSOILS BENEATH FOOTINGS AND SLABS WILL INCREASE SETTLEMENT/SWELL AND COULD RESULT IN SERIOUS MOVEMENT BETWEEN SETTLING FOOTINGS

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AND THE UPWARD MOVEMENTS OF FLOOR SLABS DEPENDENT UPON COMPACTION DEGREE AND SURCHARGE PRESSURES.

IT IS RECOMMENDED THAT FOOTING EXCAVATIONS BE INSPECTED TO ENSURE THAT THEY ARE FREE OF LOOSE SOIL WHICH MAY HAVE BLOWN OR SLOUGHED INTO THE EXCAVATIONS AND THAT THE FOOTINGS WILL BEAR UPON FIRM, RECOMPACTED NATIVE SOILS OR CONTROLLED COMPACTED FILLS.

LATERAL LOADINGS:

THE FOLLOWING DESIGN PARAMETERS ARE PRESENTED FOR LATERAL STABILITY ANALYSIS:

FOUNDATION TOE PRESSURES:	1.33 X MAX. ALLOWABLE
LATERAL BACKFILL PRESSURES:	
UNRESTRAINED WALLS	30 PSF/FT
RESTRAINED WALLS	50 PSF/FT
LATERAL PASSIVE PRESSURES:	
CONTINUOUS WALLS OR FOOTINGS	250 PSF/FT
SPREAD COLUMN FOOTINGS	350 PSF/FT
COEFFICIENT OF BASE FRICTION:	
INDEPENDENT OF PASSIVE RESISTANCE	0.50
IN CONJUNCTION WITH PASSIVE RESISTANCE	0.30

THE ABOVE VALUES FOR BACKFILL PRESSURES DO NOT INCLUDE TEMPORARY FORCES IMPOSED DURING COMPACTION OF THE BACKFILL, SWELLING PRESSURES DEVELOPED BY OVER-COMPACTED CLAYEY BACKFILL SOILS OR HYDROSTATIC PRESSURES FROM INUNDATION OF BACKFILLS. WALLS SHOULD BE SUITABLY BRACED DURING BACKFILLING TO PREVENT DAMAGE AND DEFLECTION.

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INTERIOR WALLS:

INTERIOR WALLS BEARING ON THICKENED FLOOR SLAB SECTIONS SHOULD BE LIMITED TO LESS THAN 800 POUNDS PER LINEAL FOOT. HEAVIER LOADS SHOULD BE SUPPORTED INDEPENDENT OF THE FLOOR SLABS. THE THICKENED SECTIONS SHOULD BE SIZED A MINIMUM OF 12 INCHES IN WIDTH, OR AS NECESSARY SO AS NOT TO EXCEED 400 PSF BEARING PRESSURE. IT IS SUGGESTED THAT THICKENED SECTIONS BE REINFORCED, AND CONTROL JOINTS BE USED TO ALLOW SOME DEFLECTION AND THEREBY MINIMIZE THE POTENTIAL CRACKING OF SLABS.

DRAINAGE:

DUE TO THE ADVERSE EFFECT THAT SATURATION HAS ON THE SUBSOILS, DRAINAGE OF SURFACE WATER FROM THE STRUCTURES MUST BE PROVIDED DURING CONSTRUCTION AS WELL AS THROUGHOUT THEIR LIFE. IN NO CASE SHOULD LONG-TERM PONDING BE ALLOWED NEAR STRUCTURES. BACKFILL AGAINST FOOTINGS, STEM WALLS, BUILDING WALLS AND IN UTILITY LINE TRENCHES MUST BE WELL COMPACTED TO MINIMIZE THE POSSIBILITY OF MOISTURE INFILTRATION THROUGH LOOSE SOIL. ALL ROOF RUNOFF SHOULD BE COLLECTED AND DISCHARGED A MINIMUM OF 3 FEET AWAY FROM ALL FOOTINGS. NO SPRINKLER HEADS, IRRIGATION OUTLETS OR ANY TYPE OR HIGH WATER USAGE PLANTS SHALL BE LOCATED WITHIN 5 FEET OF ANY EXTERIOR FOOTING. MINIMUM SLOPES SHOULD EXTEND IN SUCH A MANNER TO CONFORM WITH THE ATTACHED FHA LOCAL ACCEPTABLE STANDARD NO. 3A.

SUBFLOOR PREPARATION:

IT IS RECOMMENDED THAT ALL DEBRIS, OBVIOUSLY LOOSE SOILS AND

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VEGETATION BE REMOVED PRIOR TO SITE WORK. PREPARATION OF SUBGRADE SOILS AND ANY FILL MATERIAL NEEDED TO RAISE AND LEVEL BUILDING SITES SHOULD BE PLACED IN ACCORDANCE WITH THE FILL CONTROL SPECIFICATIONS INCLUDED IN THIS REPORT UNDER "EARTHWORK". A MINIMUM FOUR INCH THICKNESS OF WELL-GRADED SAND AND GRAVEL BASE COURSE MEETING THE MARICOPA ASSOCIATION OF GOVERNMENTS' "SPECIFICATION FOR AGGREGATE BASE COURSE MATERIALS" SHOULD IMMEDIATELY UNDERLIE INTERIOR FLOOR SLABS ON GRADE.

EXCAVATION AND BACKFILL TECHNIQUES

THE SILTY SANDS/SANDY SILTS, WHICH EXTEND TO DEPTHS GREATER THAN 10 FEET BELOW EXISTING GRADE, CAN BE EXCAVATED WITH CONVENTIONAL BACKHOES AND LIGHT DUTY TRENCHING MACHINES. THE SILTY SANDS/SANDY SILTS WILL ALSO TEND TO SLOUGH AND MAY REQUIRE SHORING OR FLATTENING OF SLOPES TO SATISFY GOVERNING CODE REGULATIONS AND TO PROVIDE PERSONNEL SAFETY. INTERIOR UTILITY TRENCHES SHALL BE MECHANICALLY TAMPED TO 90% OF MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698 AT OPTIMUM MOISTURE CONTENT PLUS OR MINUS 2%. EXTERIOR (OFF-SITE) UTILITY TRENCHES SHOULD BE WATER-SETTLED WITH MECHANICAL TAMPING WITHIN THE TOP THREE FEET BELOW GRADE. TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 85% OF MAXIMUM DENSITY FROM TOP OF LINE TO 3 FEET BELOW GRADE AND TO 95% IN THE TOP THREE FEET.

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STATEMENT REGARDING GEOLOGICAL FAULTS

THIS PROJECT IS NOT LOCATED OVER ANY KNOWN ACTIVE FAULTS OR FAULT-ASSOCIATED DISTURBED ZONES AND NO ADVERSE GEOLOGICAL PROBLEMS ARE PRESENT.

LIMITATIONS

THE RECOMMENDATIONS CONTAINED IN THIS REPORT ARE BASED ON THE ASSUMPTION THAT THE SOIL CONDITIONS DO NOT DEVIATE APPRECIABLY FROM THOSE DISCLOSED BY THE TEST HOLES. SHOULD UNUSUAL MATERIAL OR CONDITIONS BE ENCOUNTERED DURING CONSTRUCTION, THE SOIL ENGINEER SHOULD BE NOTIFIED SO THAT HE MAY MAKE SUPPLEMENTAL RECOMMENDATIONS IF THIS SHOULD BE REQUIRED. THIS REPORT IS ISSUED WITH THE UNDERSTANDING THAT IT IS THE RESPONSIBILITY OF THE OWNER TO SEE THAT ITS PROVISIONS ARE CARRIED OUR OR BROUGHT TO THE ATTENTION OF THOSE CONCERNED.

THE FINDINGS OF THIS REPORT ARE CONSIDERED VALID AS OF THE PRESENT DATE. HOWEVER, CHANGES IN THE CONDITIONS OF THE SITE CAN OCCUR WITH THE PASSAGE OF TIME, WHETHER THEY BE DUE TO NATURAL EVENTS OR TO HUMAN ACTIVITIES ON THIS OR ADJACENT SITES. IN ADDITION, CHANGES IN APPLICABLE OR APPROPRIATE CODES AND STANDARDS MAY OCCUR, WHETHER THEY RESULT FROM LEGISLATION OR THE BROADENING OF KNOWLEDGE. ACCORDINGLY, THIS REPORT MAY BECOME INVALIDATED WHOLLY OR PARTIALLY BY CHANGES OUTSIDE OUR CONTROL. THEREFORE, THIS REPORT IS SUBJECT TO REVIEW AND REVISION AS CHANGED CONDITIONS ARE IDENTIFIED.

FEDERAL HOUSING ADMINISTRATION WASHINGTON, D. C.

LOCAL ACCEPTABLE STANDARD NO. 3A

APRIL, 1966

PHOENIX, ARIZONA INSURING OFFICE

FOR PROPERTIES LOCATED IN THE AREA OF THIS ISSUING OFFICE, THE MINIMUM PROPERTY STANDARDS FOR ONE AND TWO LIVING UNITS ARE REVISED TO THE EXTENT SHOWN IN THE FOLLOWING LOCAL ACCEPTABLE STANDARD. ALL PORTIONS OF THE MINIMUM PROPERTY STANDARDS WHICH ARE NOT CHANGED SPECIFICALLY BY THE FOLLOWING LOCAL STANDARD CONTINUE TO APPLY. THIS LOCAL ACCEPTABLE STANDARD SUPERSEDES THAT DATED JUNE, 1959 AND IS EFFECTIVE IMMEDIATELY.

1202.3.2 SHALL BE REVISED AS FOLLOWS:

1202.3.2 HORIZONTAL LENGTH, MINIMUM 10' FEET EXCEPT WHERE RESTRICTED BY PROPERTY LINES AND EXCEPT AS NECESSARY FOR CONTROLLED IRRIGATION AS SHOWN IN ATTACHED DETAIL.

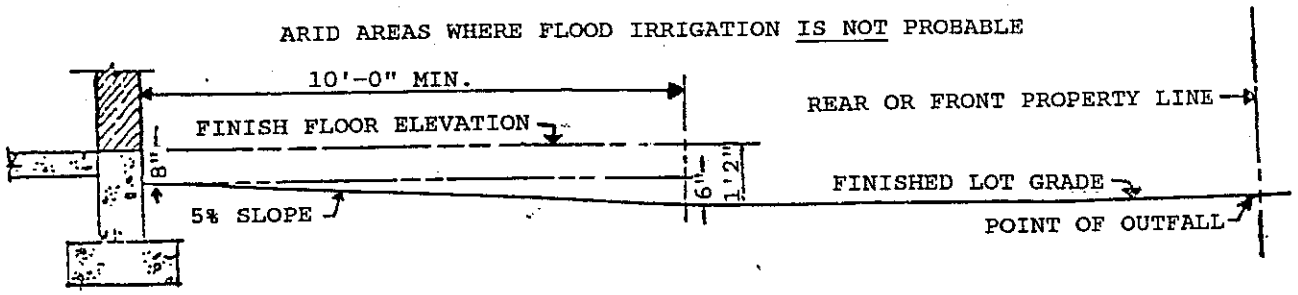
ADD NEW SECTION AS FOLLOWS:

1202.4.5 IN AREAS WHERE CONTROLLED PONDING IS PERMITTED FOR IRRIGATION ON LOTS, LEVEL AREA PERMITTED. EMERGENCY OVERFLOWS SHALL BE PROVIDED TO ADEQUATE OUTFALL TO PROTECT BUILDINGS. SEE ATTACHED DETAIL.

ADD NEW SECTION AS FOLLOWS:

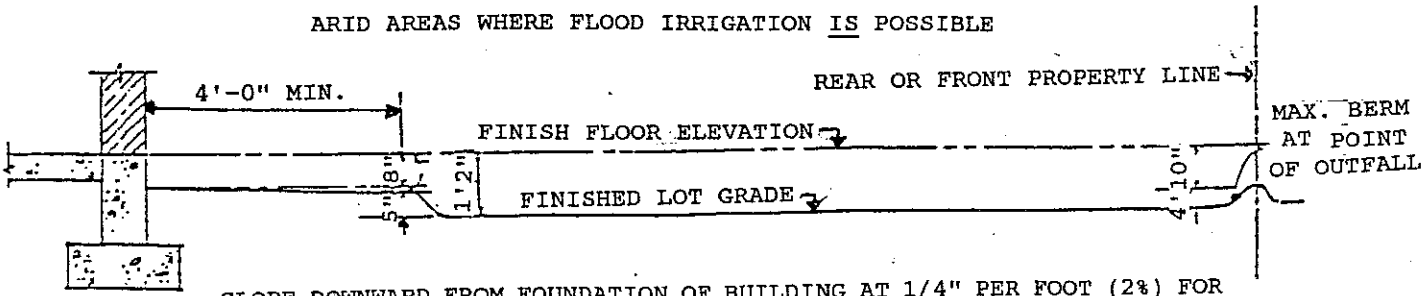
1207.2.1A FOR LOTS LARGER THAN ONE HALF ACRE AND LOCATED IN A DESERT AREA, 1207.2. 1A THROUGH 1207.2. 1D DO NOT APPLY.

ARID AREAS WHERE FLOOD IRRIGATION IS NOT PROBABLE



SLOPE DOWNWARD FROM WALLS AND FOUNDATION OF BUILDING AT 5/8" PER FOOT (5%) FOR AT LEAST 10 FEET AND THEN LEVEL OFF IN ORDER TO RETAIN AS MUCH WATER AS POSSIBLE ON LOT.

ARID AREAS WHERE FLOOD IRRIGATION IS POSSIBLE



SLOPE DOWNWARD FROM FOUNDATION OF BUILDING AT 1/4" PER FOOT (2%) FOR A DISTANCE OF 4'-0", THEN DROP 5" WITH ROUNDED TRANSITION TO LOT GRADE, THEN LEVEL OFF AT A POINT OF OUTFALL THE MAXIMUM BERM HEIGHT SHALL BE 4" (TOP OF BERM AT THIS POINT SHALL BE AT LEAST 10" BELOW FLOOR GRADE OF HOUSE).

PONDING FOR CONTROLLED IRRIGATION IN ARID AREAS

EARTHWORK

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ELLSWORTH ROAD AND EMPIRE BOULEVARD
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SPECIFICATION FOR GRADING

1. SCOPE:

   THE FOLLOWING RECOMMENDATIONS ARE PRESENTED FOR SITE GRADING WITHIN AND 5 FEET BEYOND THE PROPOSED BUILDING AREAS.

2. CLEARING BUILDING AREAS:

   REMOVE ALL SURFACE VEGETATION, DEBRIS AND ALL EXISTING SUBSURFACE FACILITIES. REMOVE NATIVE SURFACE SOILS TO A MINIMUM ONE (1) FOOT DEPTH BELOW PROPOSED FOOTING ELEVATIONS AND FOR A MINIMUM LATERAL DISTANCE OF FIVE (5) FEET BEYOND FOUNDATION EDGES. AREAS TO BE FILLED SHOULD BE LEVELLED TO PROVIDE A LEVEL BASE TO SUPPORT THE FILL.

3. SCARIFYING BUILDING AREAS:

   THE EXPOSED SOILS SHOULD BE SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES AND UNTIL THE SURFACE IS FREE FROM RUTS, OR OTHER UNEVEN FEATURES WHICH WOULD TEND TO PREVENT UNIFORM COMPACTION BY THE EQUIPMENT TO BE USED.

4. COMPACTING BUILDING AREAS:

   AFTER THE FOUNDATION FOR THE FILL HAS BEEN CLEARED AND SCARIFIED, IT SHALL BE DISCED OR BLADED UNTIL IT IS FREE OF LARGE CLODS, BROUGHT TO THE PROPER MOISTURE CONTENT AND COMPACTED TO THE SPECIFIED DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698.

5. FILL MATERIAL:

   ALL FILL MATERIAL SHALL BE FREE OF VEGETATIVE MATTER, DELETERIOUS OR FOREIGN MATERIAL AND ROCKS AND LUMPS

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HAVING A DIAMETER OF MORE THAN 6 INCHES. NATIVE SOILS MAY BE USED AS FILL MATERIAL PROVIDED THAT THEY ARE COMPACTED AS SPECIFIED. IF IMPORTED FILL MATERIAL IS REQUIRED, IT SHOULD BE APPROVED LOW EXPANSIVE POTENTIAL SOILS.

6. DEPTH AND MIXING OF FILL LAYERS:

FILL MATERIAL SHALL BE PLACED IN LAYERS, WHICH WHEN COMPACTED SHALL NOT EXCEED 6 INCHES. EACH LAYER SHALL BE PLACED EVENLY AND THOROUGHLY MIXED DURING SPREADING TO ENSURE UNIFORMITY OF MOISTURE THROUGHOUT EACH LAYER.

7. MOISTURE CONTENT:

ONSITE SOILS SHALL BE COMPACTED TO THE SPECIFIED DENSITY AT OR NEAR THE OPTIMUM MOISTURE CONTENT (PLUS OR MINUS 2 PERCENT) FOR NATIVE AND IMPORT LOW SWELL POTENTIAL SOILS AS DETERMINED IN ACCORDANCE WITH ASTM D-698.

8. AMOUNT OF COMPACTION:

AFTER EACH LAYER HAS BEEN PLACED, MIXED AND SPREAD EVENLY, IT SHALL BE COMPACTED TO THE FOLLOWING DENSITIES:

MATERIAL	RECOMMENDED COMPACTION
NATIVE AND IMPORT LOW SWELL POTENTIAL SOILS:	
BELOW FOUNDATION LEVEL	95% MINIMUM
BELOW INTERIOR FLOORS	90% MINIMUM

9. COMPACTION OF EACH LAYER:

COMPACTION EQUIPMENT SHALL BE OF SUCH DESIGN THAT IT WILL BE ABLE TO COMPACT THE FILL TO THE SPECIFIED DENSITY. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER ITS

PEGASUS AIRPARK
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

ENTIRE AREA AND THE COMPACTION EQUIPMENT SHALL MAKE SUFFICIENT TRIPS TO ENSURE THAT DENSITY HAS BEEN OBTAINED.

10. DENSITY TESTS:

A FIELD DENSITY TEST SHOULD BE TAKEN FOR EACH TWELVE INCHES OF COMPACTED FILL OR AT THE DISCRETION OF THE INSPECTING ENGINEER.

11. OBSERVATION:

OBSERVATION BY THE SOILS ENGINEER SHOULD BE CONTINUOUS DURING THE GRADING OPERATIONS SO THAT HE MAY VERIFY THAT ALL CUT AND FILL AREAS WERE GRADED IN ACCORDANCE WITH THE SPECIFICATIONS. THIS OFFICE SHOULD BE NOTIFIED PRIOR TO EARTHWORK OPERATIONS SO THAT OBSERVATION CAN BE PROVIDED.

12. SEASONAL LIMITS:

WHEN WORK IS INTERRUPTED BY HEAVY RAINS, FILL OPERATIONS SHALL NOT BE RESUMED UNTIL THE SOIL ENGINEER INDICATES THAT THE MOISTURE CONTENT AND DENSITY OF THE PREVIOUSLY PLACED FILL ARE AS SPECIFIED.

13. FILLS CONSTRUCTED IN ACCORDANCE WITH THESE SPECIFICATIONS WILL SATISFY REQUIREMENTS FOR F.H.A. DATA SHEET 79G "LAND DEVELOPMENT WITH CONTROLLED EARTHWORK" AND TOWN OF QUEEN CREEK/MARICOPA COUNTY REQUIREMENTS.

14. AFTER THE GEOTECHNICAL ENGINEER HAS TERMINATED HIS OBSERVATION AND TESTING OF THE COMPLETED GRADING, NO FURTHER EXCAVATIONS AND/OR FILLING SHALL BE PERFORMED WITHOUT THE APPROVAL OF THE GEOTECHNICAL ENGINEER, IF IT IS TO BE SUBJECT TO THE RECOMMENDATIONS OF THIS REPORT.

PART II

LABORATORY ANALYSIS

PEGASUS AIRPARK
ELLSWORTH ROAD AND EMPIRE BOULEVARD
MARICOPA COUNTY, ARIZONA

SWELL TEST ON DISTURBED RECOMPACTED SOIL SAMPLE

LOCATION	DEPTH	SURCHARGE	DRY DENSITY	% SWELL
TH-1	0-2'	100 PSF	119.7 PCF	0.8
TH-11	0-2'	100 PSF	125.3 PCF	0.4
TH-18	0-2'	100 PSF	121.2 PCF	0.5
TH-21	0-2'	100 PSF	120.6 PCF	0.5

PERCENT EXPANSION UPON SOAKING OF REMOLDED SAMPLE COMPACTED TO APPROXIMATELY 95% OF THE MAXIMUM ASTM D-698 DENSITY AT APPROXIMATELY 2 TO 3 PERCENT BELOW OPTIMUM MOISTURE CONTENT.

* * * * * * * * * * * * * *

MOISTURE DETERMINATION

TH#	1.5-2.5'	5.0-6.0'	9.0-10.0'
1	1.9%	1.3%	1.5%
5	1.9%	2.4%	
18	2.6%	5.2%	1.8%
21	3.1%	3.9%	

EXISTING SOIL CHARACTERISTICS

PROJECT: PEGASUS AIRPARK
LOCATION: ELLSWORTH RD. & EMPIRE BLVD.
FOR: CIRCLE G PROPERTY DEVELOPMENT, L.L.C.

DATE: 8/04/97
LAB NO. 979608-18
TYPE OF SAMPLE: SOIL
SOURCE:

		% PASSING (SIEVE SIZE)							ATTERBERG LIMITS		
LOCATION	DEPTH	1	½	#4	#10	#40	#100	#200	LL	PL	PI
TH-1	0-1'		100	97	94	77	62	55	21	18	3
TH-5	"		100	98	93	71	54	46	19	17	2
TH-9	"		100	96	92	67	49	41	18	18	0
TH-18	"	100	99	96	90	66	48	40	19	18	1
TH-21	"	100	99	98	92	68	53	46	18	17	1
TH-1	1.5-2.5'			100	97	80	67	60	18	17	1
TH-3	"		100	96	89	63	46	37	19	18	1
TH-5	"		100	95	89	68	51	42	20	18	2
TH-7	"		100	95	88	64	46	38	19	19	0
TH-9	"		100	95	90	62	46	39	20	18	2

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EXISTING SOIL CHARACTERISTICS

PROJECT: PEGASUS AIRPARK
LOCATION: ELLSWORTH RD. & EMPIRE BLVD.
FOR: CIRCLE G PROPERTY DEVELOPMENT, L.L.C.

DATE: 8/04/97
LAB NO. 979619-29
TYPE OF SAMPLE: SOIL
SOURCE:

		% PASSING (SIEVE SIZE)							ATTERBERG LIMITS		
LOCATION	DEPTH	1	½	#4	#10	#40	#100	#200	LL	PL	PI
TH-13	1.5-2.5'		100	95	88	64	47	37	18	17	1
TH-15	"		100	97	93	73	59	51	21	19	2
TH-17	"		100	97	89	61	44	36	20	19	1
TH-19	"		100	95	87	59	45	39	21	19	2
TH-21	"		100	91	86	67	57	52	23	17	6
TH-1	3-4'	100	99	96	91	68	46	37	19	18	1
TH-5	"	100	99	97	92	75	60	51	21	19	2
TH-9	"	100	99	98	93	65	47	40	19	18	1
TH-18	"		100	95	93	72	56	48	29	19	10
TH-21	"			100	98	89	79	70	24	20	4

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EXISTING SOIL CHARACTERISTICS

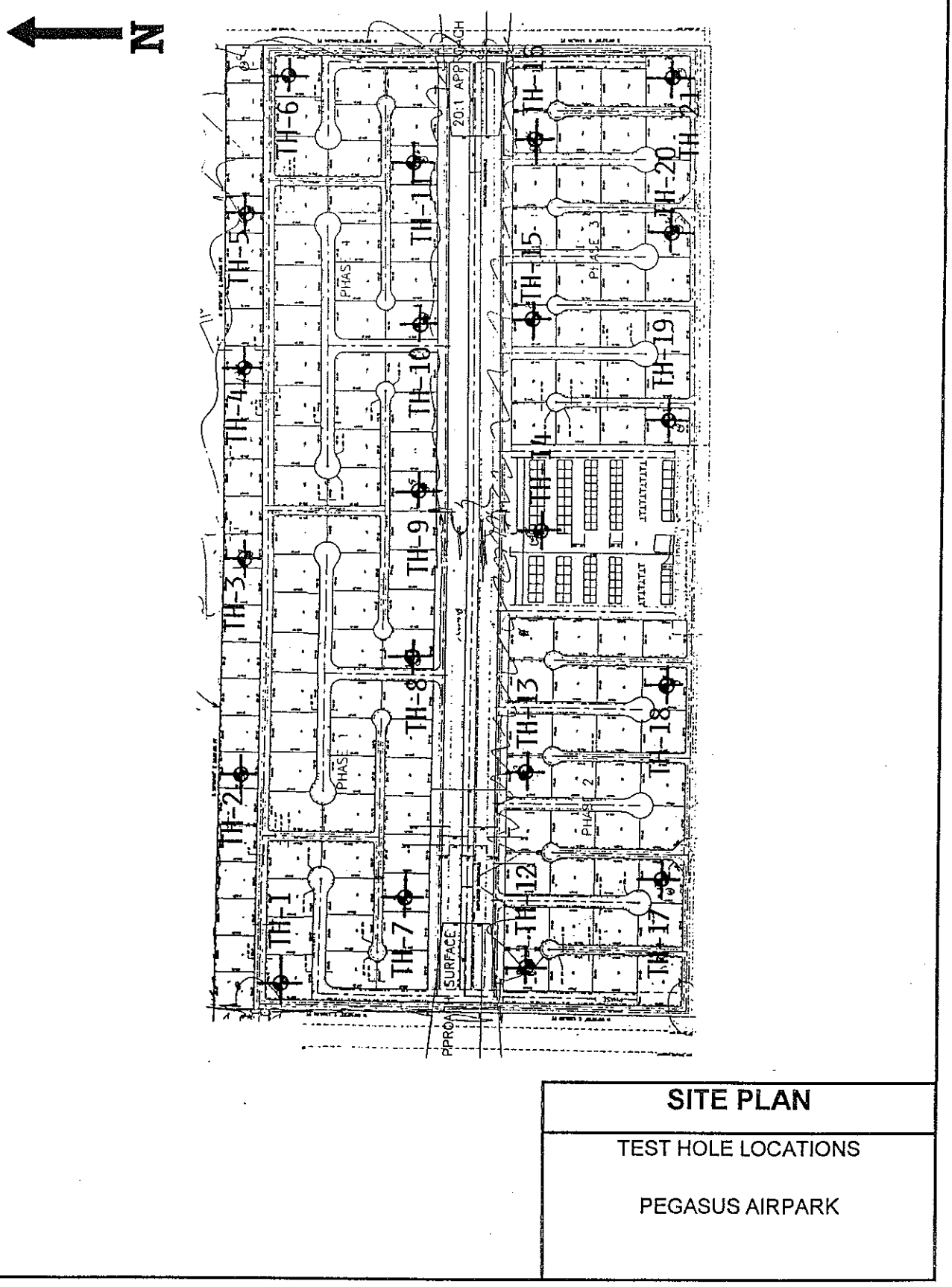
PROJECT: PEGASUS AIRPARK
LOCATION: ELLSWORTH RD. & EMPIRE BLVD.
FOR: CIRCLE G PROPERTY DEVELOPMENT, L.L.C.

DATE: 8/04/97
LAB NO. 979630-31
TYPE OF SAMPLE: SOIL
SOURCE:

		% PASSING (SIEVE SIZE)							ATTERBERG LIMITS		
LOCATION	DEPTH	1	½	#4	#10	#40	#100	#200	LL	PL	PI
TH-18	5-6'	100	99	95	87	61	44	38	18	17	1
TH-21	"		100	99	97	86	70	58	21	19	2

PART III

SITE PLAN



SITE PLAN

TEST HOLE LOCATIONS

PEGASUS AIRPARK

PART IV

FIELD INVESTIGATION

Construction Inspection & Testing Co.

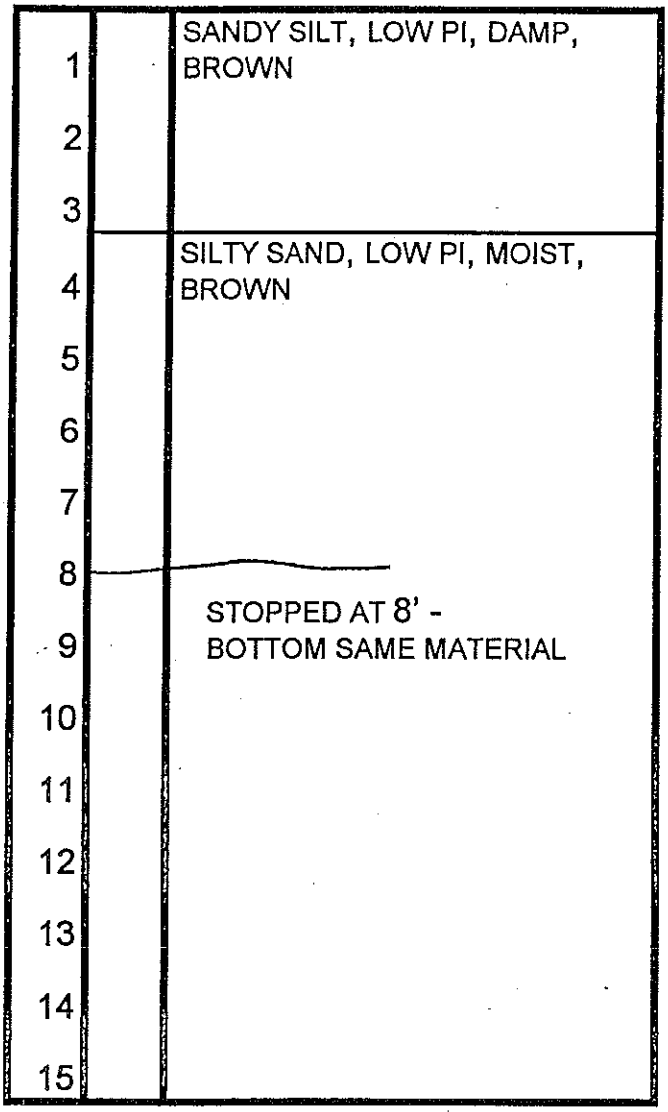
LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

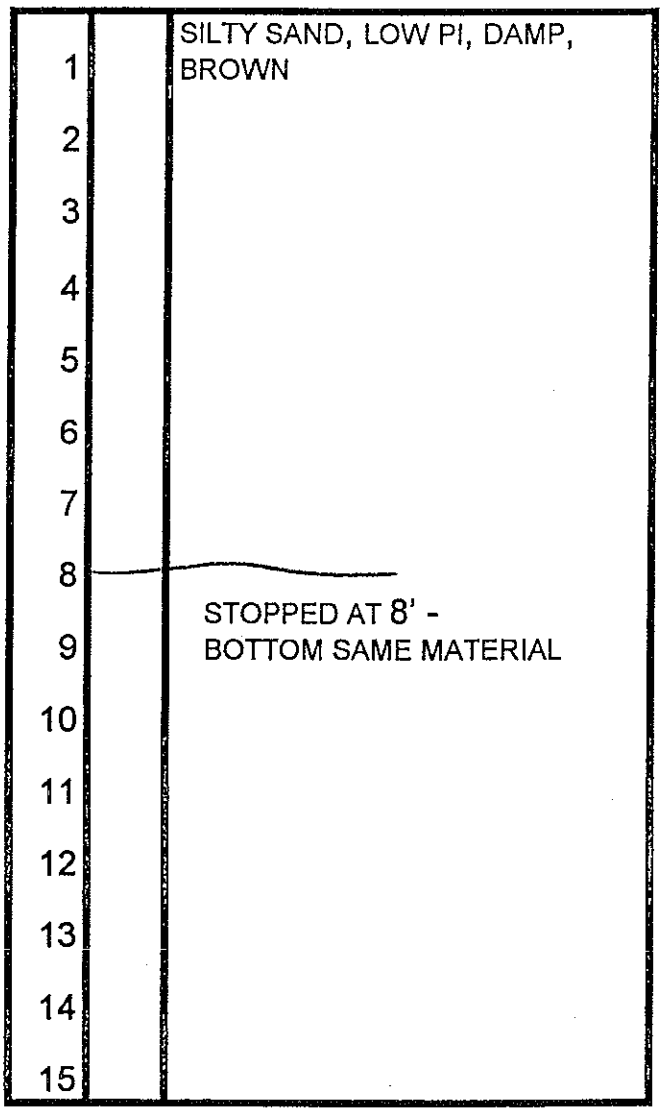
DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 1
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 2
LOCATION: AS SHOWN ON SITE PLAN



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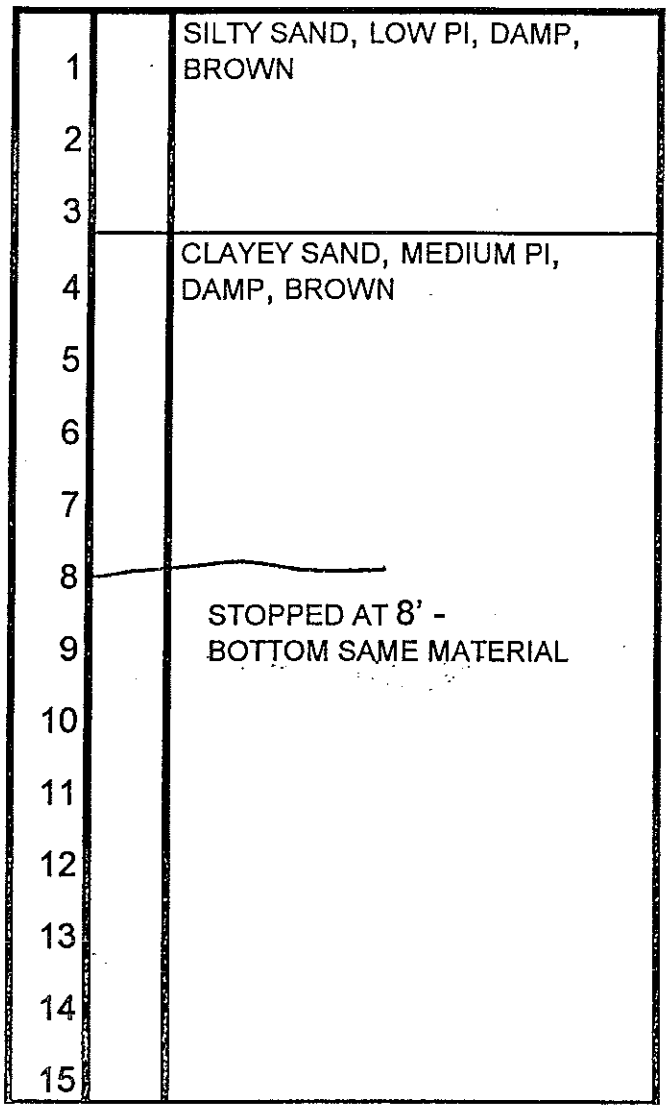
LOG OF BORINGS

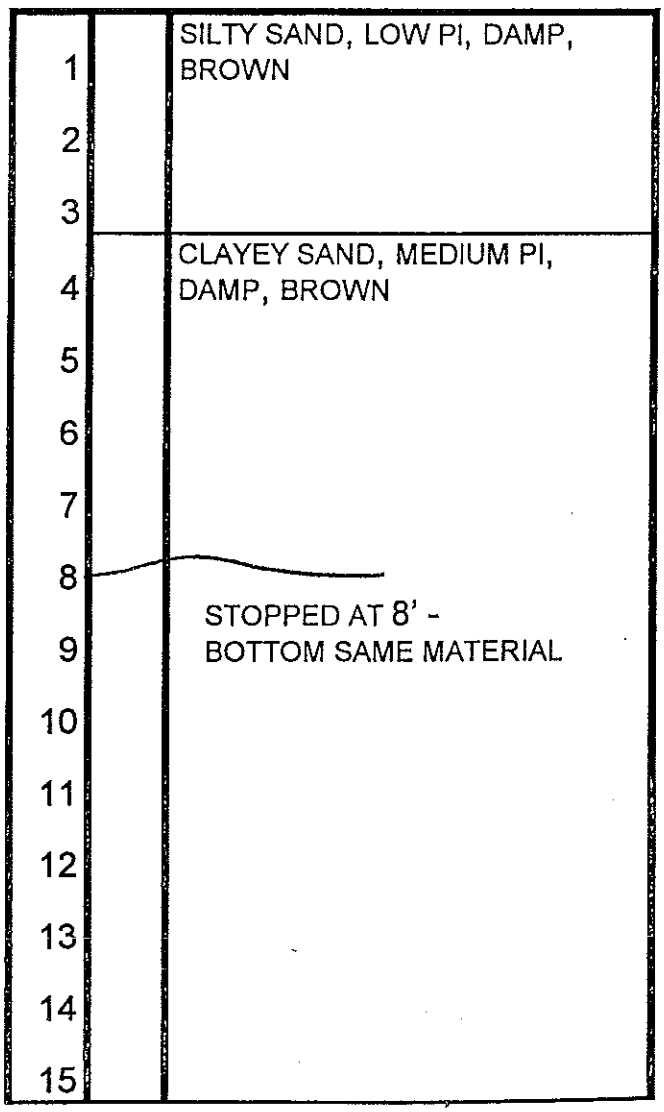
FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97 **JOB NO.** 97-6968
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

BORING NO. 3
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 4
LOCATION: AS SHOWN ON SITE PLAN



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LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 5
LOCATION: AS SHOWN ON SITE PLAN

1		SILTY SAND, LOW PI, DAMP, BROWN
2		
3		
4		
5		
6		
7		
8		
9		STOPPED AT 8' - BOTTOM SAME MATERIAL
10		
11		
12		
13		
14		
15		

BORING NO. 6
LOCATION: AS SHOWN ON SITE PLAN

1		SILTY SAND, LOW PI, DAMP, BROWN
2		
3		
4		
5		
6		
7		
8		
9		STOPPED AT 8' - BOTTOM SAME MATERIAL
10		
11		
12		
13		
14		
15		

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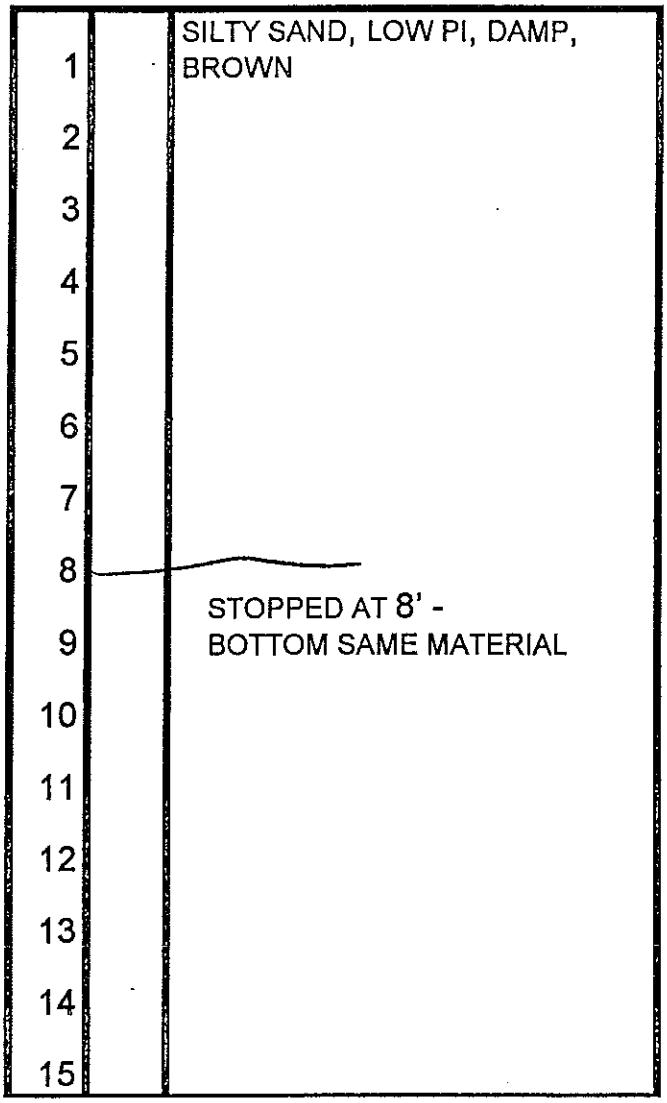
LOG OF BORINGS

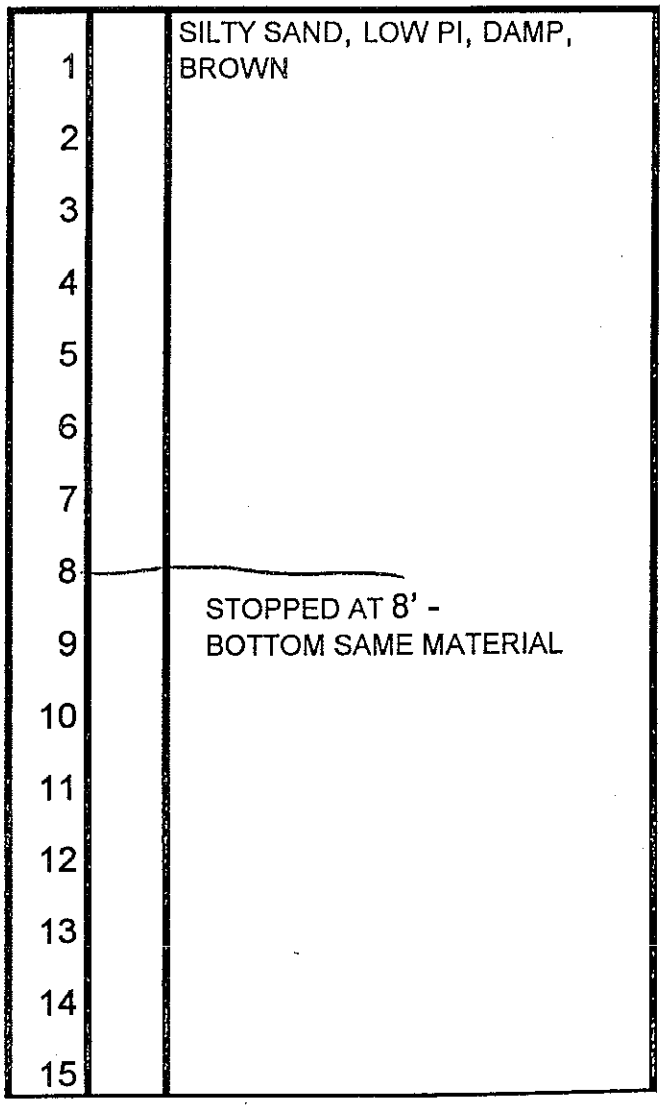
FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS
JOB NO. 97-6968

BORING NO. 7
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 8
LOCATION: AS SHOWN ON SITE PLAN



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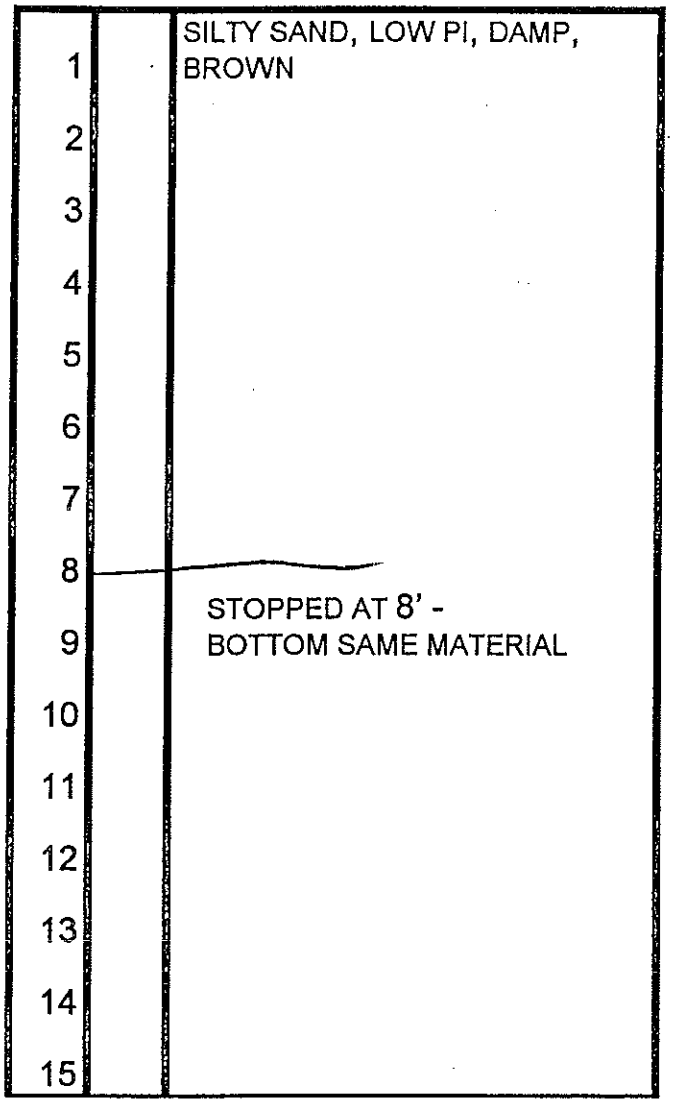
LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

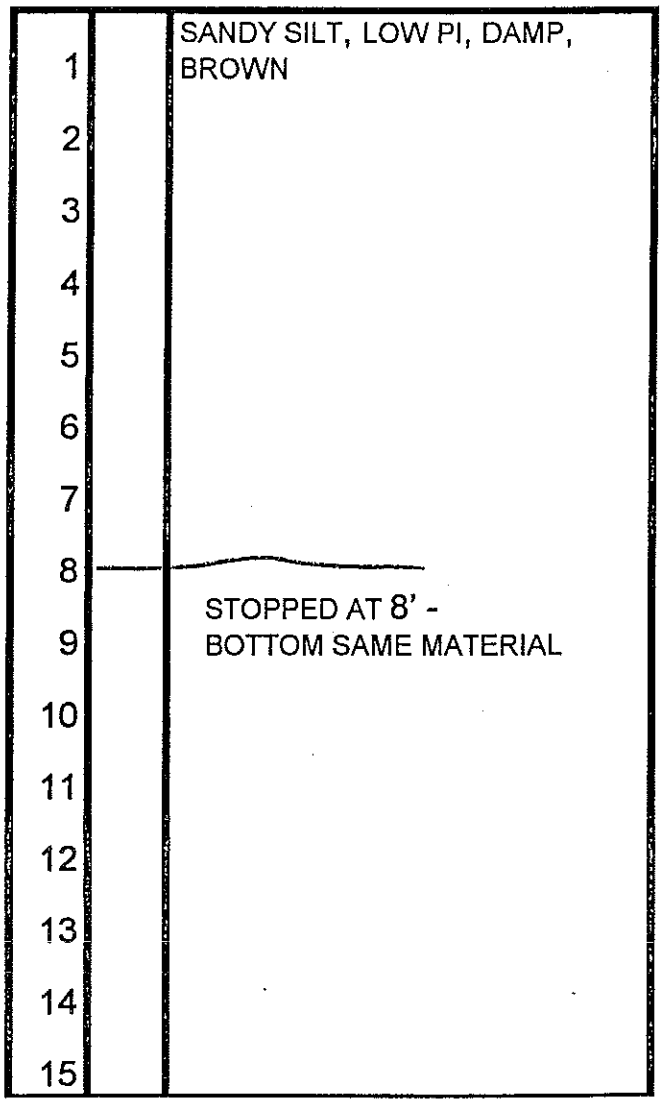
DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 9
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 10
LOCATION: AS SHOWN ON SITE PLAN



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LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97 **JOB NO.** 97-6968
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

BORING NO. 11
LOCATION: AS SHOWN ON SITE PLAN

1	SILTY SAND, LOW PI, DAMP, BROWN
2	
3	
4	
5	
6	
7	
8	STOPPED AT 8' - BOTTOM SAME MATERIAL
9	
10	
11	
12	
13	
14	
15	

BORING NO. 12
LOCATION: AS SHOWN ON SITE PLAN

1	SILTY SAND, LOW PI, DAMP, BROWN
2	
3	WITH GRAVEL BELOW 3'
4	
5	
6	
7	
8	STOPPED AT 8' - BOTTOM SAME MATERIAL
9	
10	
11	
12	
13	
14	
15	

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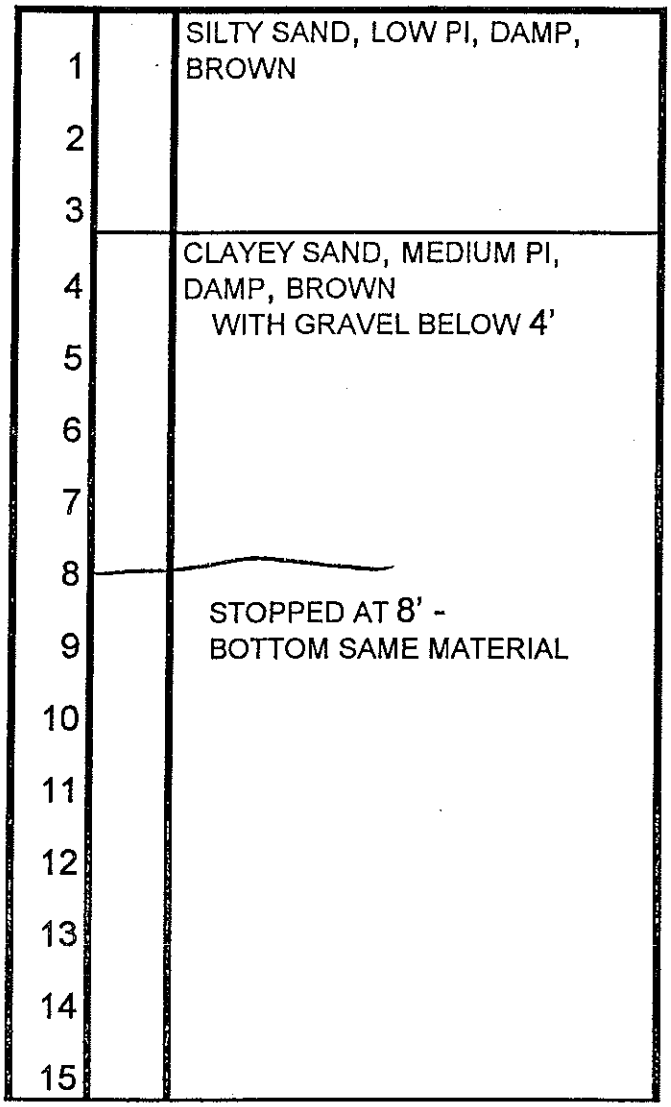
LOG OF BORINGS

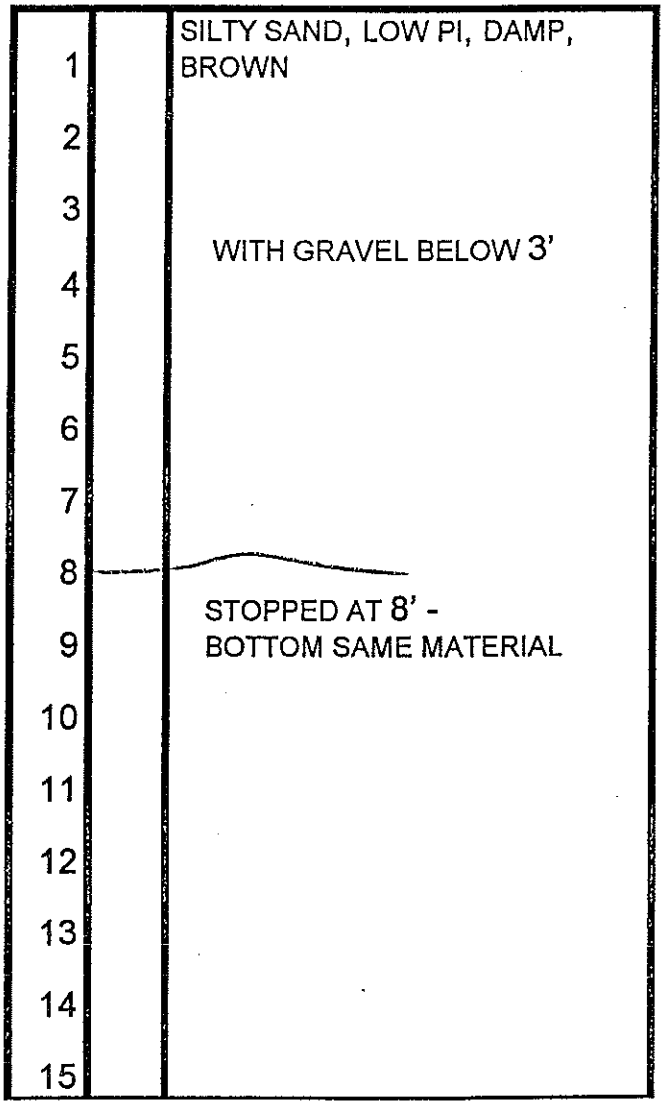
FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97 JOB NO. 97-6968
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

BORING NO. 13
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 14
LOCATION: AS SHOWN ON SITE PLAN



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LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 15
LOCATION: AS SHOWN ON SITE PLAN

1		SANDY SILT, LOW PI, DAMP, BROWN
2		
3		
4		
5		
6		
7		
8		STOPPED AT 8' - BOTTOM SAME MATERIAL
9		
10		
11		
12		
13		
14		
15		

BORING NO. 16
LOCATION: AS SHOWN ON SITE PLAN

1		SILTY SAND, LOW PI, DAMP, BROWN
2		
3		
4		
5		CLAYEY SAND, MEDIUM PI, DAMP, BROWN
6		
7		
8		STOPPED AT 8' - BOTTOM SAME MATERIAL
9		
10		
11		
12		
13		
14		
15		

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LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 17
LOCATION: AS SHOWN ON SITE PLAN

1		SILTY SAND, LOW PI, DAMP, BROWN
2		
3		
4		
5		
6		
7		
8		STOPPED AT 8' - BOTTOM SAME MATERIAL
9		
10		
11		
12		
13		
14		
15		

BORING NO. 18
LOCATION: AS SHOWN ON SITE PLAN

1		SILTY SAND, LOW PI, DAMP, BROWN
2		
3		
4		CLAYEY SAND, MEDIUM PI, DAMP, BROWN
5		
6		
7		
8		STOPPED AT 8' - BOTTOM SAME MATERIAL
9		
10		
11		
12		
13		
14		
15		

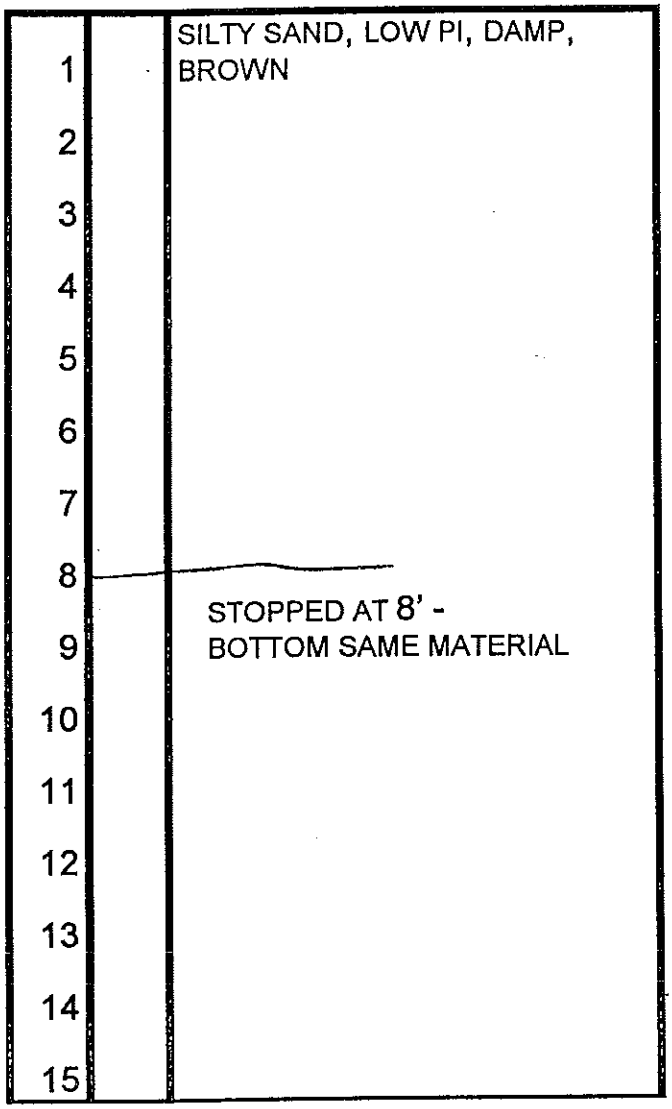
Construction Inspection & Testing Co.

LOG OF BORINGS

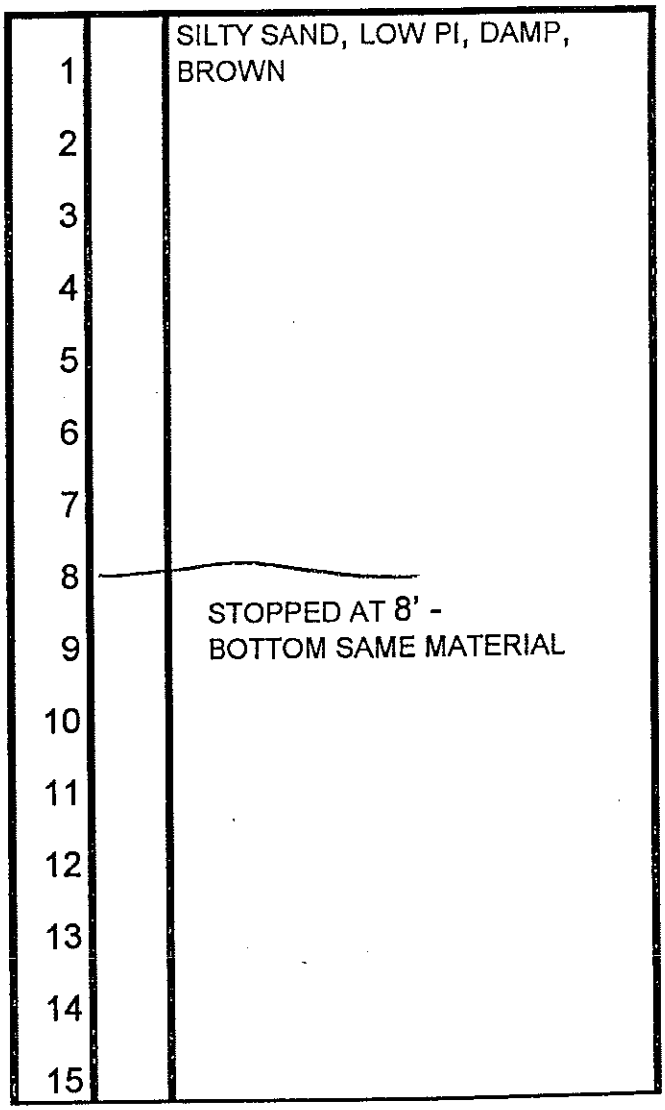
FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97 **JOB NO.** 97-6968
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

BORING NO. 19
LOCATION: AS SHOWN ON SITE PLAN



BORING NO. 20
LOCATION: AS SHOWN ON SITE PLAN



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LOG OF BORINGS

FOR: CIRCLE G PROPERTY DEV., L.L.C.
PROJECT: PEGASUS AIRPARK
LOCATION OF PROJECT: ELLSWORTH RD. AND EMPIRE BLVD.

DATE: 8/04/97
TYPE OF BORING: BACKHOE
FIELD PARTY: SRS

JOB NO. 97-6968

BORING NO. 21
LOCATION: AS SHOWN ON SITE PLAN

1		SANDY SILT, LOW PI, DAMP, BROWN
2		
3		
4		
5		
6		
7		
8		
9		STOPPED AT 8' - BOTTOM SAME MATERIAL
10		
11		
12		
13		
14		
15		

BORING NO.
LOCATION: AS SHOWN ON SITE PLAN

1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		