REDMOND & ASSOCIATES

Geotechnical Investigation

Proposed Arlington Assisted Living Facility Site

Tax Lot No. 2, Olympic Avenue

Arlington (Snohomish County), Washington

for

Mountain West Investment Corp.

Project No. 314.036.G
September 12, 2002

REDMOND & ASSOCIATES

September 12, 2002

Mr. Ben Settecase
Mountain West Development Corp.
245 Commercial Street SE
Suite 200
Salem, Oregon 97301

Dear Mr. Settecase:

Re: Geotechnical Investigation, Proposed Arlington Assisted Living Facility Site, Tax Lot No. 2, Olympic Avenue, Arlington (Snohomish County), Washington

INTRODUCTION

In accordance with the request of Mr. Ben Settecase of Mountain West Development Corp., we have completed our Geotechnical Investigation at the above subject proposed assisted living facility site. The site, a lone irregular shaped property consisting of Tax Lot No. 2, encompasses approximately 4.62 acres and is located just east of Olympic Avenue and to the north of Kruger Creek in Arlington (Snohomish County), Washington.

We understand that present plans are to develop the site by constructing a new assisted living facility which we anticipate will range from approximately 40,000 to 50,000 square feet in size. The proposed development plan calls for the construction of two-and/or three-story structure which is expected to be located across the central and/or easterly portion of the site. The planned ALF structure is anticipated to be supported on conventional continuous and/or individual spread footings with a concrete slab-on-grade floor. Structural loading is anticipated to result in maximum dead plus live continuous footing and column footing loads on the order of about 2.5 to 4.0 kips per lineal foot (klf) and 30 to 70 kips, respectively. Other associated site improvements will include asphalt pavements for both automobile drive and parking areas, underground utility services and landscaping.

SITE DESCRIPTION

The proposed assisted living facility site, located within Township 31 North, Range 5 East, and Section 11 of the Willamette Meridian, is presently unimproved and consists of an existing open field.

Topographically, the site is characterized as relatively flat-lying terrain with overall topographic relief estimated at about 2 to 3 feet and is estimated near to Elevation 126 feet. However, the northerly portion of the site contains a moderately steep slope descending upward.

Vegetation across most of the site includes a light to moderate growth of grass and weeds. However, the northerly sloping portion of the property contains numerous large trees as well as a heavy growth of miscellaneous bushes and brush.

SCOPE OF WORK

The purpose of our geotechnical studies is to evaluate the overall site subsurface soil and ground water characteristics as well as any associated impacts or concerns with regard to the planned construction and development of the site. Specifically, our geotechnical investigation included the following scope of work items:

1. Site exploration by means of two (2) exploratory test pits and four (4) exploratory drilled test boring excavations. The exploratory test pits and test borings were excavated and/or drilled at various locations across the site as shown on the Site Exploration Map, Figure No. 2 to depths ranging from about 13 to 14 feet beneath existing site grades. Detailed logs of the exploratory test pit and test boring excavations, presenting conditions encountered at each location explored, are presented on the Log of Test Pits and/or Boring Log, Figure No. 4 and Figure No's. 5 through 8, respectively. Additionally, representative samples of the subsurface soils encountered at the site were collected at selected depths and/or intervals and returned to our laboratory for further examination and testing.

2. A laboratory testing program to assess the pertinent physical and engineering characteristics of the subsurface soils. The laboratory program consisted of tests to evaluate the natural (field) moisture content and dry density, gradational properties, and Direct Shear Strength tests. Results of the moisture content and dry density tests are shown on their respective test pit and/or boring log, Figure No's. 4 through 8. Results of the gradation and direct shear strength tests are shown graphically on Figure No's. 9 and 10.

3. Recommendations and our final written report presenting the results of our investigation. Our report includes recommendations for site preparation and grading including any overexcavation of unsuitable materials revealed by the explorations, placement and compaction of any required structural fill(s), suitability of the on-site soils for use as structural fill as well as criteria for import fill materials, and preparation of pavement and foundation areas.

4. Recommendations for foundation support and design including allowable contact bearing pressures for proportioning footings, minimum width and embedment depths, and estimates of foundation settlement as well as flexible pavement sections for both automobile and truck traffic areas.

SUBSURFACE CONDITIONS

Our understanding of the subsurface conditions which underlie the site was developed by means of two (2) exploratory test pits and four (4) exploratory test borings excavated and/or drilled on August 22, 2002 with a large tracked excavator and/or August 30, 2002 with truck-mounted, solid-stem, hollow-flight, auger drilling equipment at the approximate locations shown on Figure No. 2. The test pits and/or test borings revealed that the site is underlain by native soil deposits comprised of layers of glacial alluvial soil deposits. Specifically, the native soil materials were comprised of an upper unit of medium dense, silty, sandy gravel to gravelly sand with cobbles to a depth of about 7 to 8 feet across the site. These medium dense, silty, sandy gravel to gravelly sand subgrade soils are best characterized by relatively moderate strength and low to moderate compressibility.

These upper sandy gravel to gravelly sand soils were intum found to be underlain by medium dense, silty, gravelly sand to sandy gravel with occasional cobbles to the maximum depth explored of about 14 feet beneath existing site grades. These medium dense, silty, gravelly sand to sandy gravel soil materials are best characterized by relatively moderate strength and low to moderate compressibility.

Ground water was also encountered at the site during our field exploration work at a depth of about 13 feet beneath existing site grades. However, ground water elevations at the site are expected to fluctuate seasonally and in accordance with the level of the nearby Kruger Creek. Additionally, topsoil materials were also encountered across the site and consist of about 12 to 18 inches of organic, sandy silt to silty sand. All soils encountered at the site were classified in accordance with the Unified Soil Classification System (USCS) which is outlined on Figure No. 3.

CONCLUSIONS AND RECOMMENDATIONS

From a geotechnical engineering and constructability standpoint, we are of the opinion that the site is suitable for the planned assisted living facility and associated developments provided that the recommendations contained within this report are properly incorporated into the design and construction of the project. The primary feature of concern at the site is the relative cohesionless characteristics of the underlying sandy gravel to gravelly sand soil materials

In regards to the cohesionless characteristics of the underlying sandy gravel to gravelly sand subgrade soils, we envision that temporary open excavations may experience some minor caving and/or sloughing conditions.

The following sections of this report present specific recommendations for site preparation and grading as well as foundation design and construction for the assisted living facility project.

SITE PREPARATION

In general, we recommend that all planned structural improvement areas for the assisted living facility building(s) and pavements be stripped and cleared of any existing site improvements, vegetation, topsoil materials, and any deleterious materials present at the time of construction. In general, we envision that about 12 to 18 inches of topsoil stripping may be required to remove existing topsoil materials. Holes resulting from the removal of any buried obstructions, such as old foundation remnants and/or boulders, should be backfilled and compacted with structural fill materials. Areas resulting in deeper stripping and removals should be evaluated at the time of construction by the Geotechnical Engineer. The stripped and cleared materials should be properly disposed of as they are generally not considered suitable for use/reuse as structural fill.

Following the stripping and clearing operations, and prior to the placement of any required structural fills and/or structural improvements, the exposed subgrade soils within the planned building and pavement areas should be inspected by the Geotechnical Engineer and possibly proof-rolled with a half-loaded dump truck. Areas found to be soft or otherwise unsuitable for support of structural loads or improvements should be scarified and recompacted or overexcavated and replaced with structural fill. During wet or inclement weather conditions, proof-rolling as recommended above will not be appropriate.

The on-site native silty sand and/or sandy gravel subgrade soils are considered suitable for use/reuse as structural fill provided that they are free of organic materials, debris, and rock fragments in excess of 6 inches in dimension. If grading is conducted during wet weather, the use of the on-site silty sand soils may be difficult and the use of an import granular fill material may be required. In general, we recommend that a free-draining (clean) granular fill (sand & gravel) containing no more than about 5 percent fines be used during wet weather grading. Representative samples of the material(s) to be used as structural fill should be submitted to our laboratory for approval and to determine the maximum dry density and optimum moisture content for compaction.

All required structural fill materials placed within the building and pavement (structural) areas should be moistened or dried as necessary to near (within 3 percent) optimum moisture conditions and compacted by mechanical means to a minimum of 92 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Fill materials should be placed in lifts (layers) such that when compacted do not exceed about 8 inches.

FOUNDATION SUPPORT

Based on the results of our investigation, it is our opinion that the proposed assisted living facility structure may be supported directly on the native medium dense, silty, sandy gravel to gravelly sand subgrade soil deposits or by structural fill materials with conventional continuous and individual spread footings. As such, were foundations are constructed on approved native medium dense, silty, sandy gravel to gravelly sand subgrade soils and/or structural fill materials, an allowable contact bearing pressure of about 2,500 pounds per square foot (psf) is recommended for design. This allowable contact bearing pressure is intended for dead loads and sustained live loads and may be increased by one-third for the total of all loads including short-term wind or seismic loads.

In general, continuous strip footings should have a minimum width of at least 16 inches and be embedded at least 18 inches below the lowest adjacent finish grade (includes frost protection). Individual column footings (if required) should be embedded at least 16 inches below grade and have a minimum width of about 24 inches.

Total and differential settlements of foundations constructed as recommended above and supported directly by approved native subgrade soils or on properly placed and compacted structural fill materials are expected to be well within tolerable limits for this type of structure and should generally be less than about 1-inch and 1/2-inch, respectively.

Allowable lateral frictional resistance between the base of the footings and the silty sand or gravel bedrock subgrade soil can be expressed as the applied vertical load multiplied by a coefficient of friction of 0.40 and 0.50, respectively. In addition, lateral loads may be resisted by passive pressures on footings poured "neat" against in-situ native soils or properly compacted structural fill materials. For passive earth pressure resistance we recommend that an equivalent fluid density of 300 pounds per cubic foot (pcf) be used for design.

FLOOR SLAB SUPPORT

In order to provide uniform subgrade reaction beneath concrete slab-on-grade floors, we recommend that the floor slabs be underlain by a minimum of 6 inches of free-draining (less than 5 percent passing the No. 200 sieve), well-graded, crushed rock. The crushed rock should provide a capillary break to prevent migration of moisture through the slab. Additional moisture protection can be provided by using a 6-mil visqueen vapor barrier covered with a 1-inch protective layer of sand on the top and bottom. The base course materials should be compacted to at least 95 percent of the maximum dry density obtainable by the ASTM D-1557 (AASHTO T-180) test procedures.

EXCAVATIONS

Temporary excavations within native subgrade soils of up to four (4) feet in depth are expected to encounter at least minor caving and sloughing conditions even at near vertical inclinations. Excavations to depths of between four (4) feet to ten (10) feet should be properly braced and shored or backcut to inclinations of at least 1 to 1 (Horizontal to Vertical). Where excavations are planned to exceed ten (10) feet, this office should be consulted. Additionally, at present levels, we anticipate that ground water will not be a factor during construction unless construction occurs during the wetter winter months.

PAVEMENTS

Flexible pavement design for the project was determined on the basis of projected traffic volume and loading conditions relative to assumed subgrade soil strength characteristics. Based on an assumed subgrade "R"-value of 35 (CBR = 4.0) and utilizing the Washington State Highway Flexible Pavement Design Procedures, we recommend that the asphaltic concrete pavement sections for automobile parking and drive area use at the site consist of the following:

	Asphaltic Concrete Thickness (inches)	**Crushed Base Rock Thickness (inches)**
Automobile Parking Areas	2.5	6.0
Automobile Drive Areas	3.0	8.0

Note: Where heavy vehicle traffic is anticipated, we recommend that the main access drive area pavement section be increased by adding 0.5 inches of asphalt and 4.0 inches of aggregate base rock. Additionally, for wet and/or winter time construction, we recommend that an additional 6 inches of aggregate base rock be used.

The above recommended pavement section(s) assume that the subgrade will be prepared as recommended herein, that the exposed subgrade soils will be properly protected from rain and construction traffic, and that the subgrade is firm and unyielding at the time of paving. Additionally, it assumes that the subgrade is graded to prevent any ponding of water which may tend to accumulate in the base course. Further, the above recommended flexible pavement section(s) assumes a design life of about 20 years.

Pavement base course materials should consist of well-graded 1 1/4-inch and/or 5/8-inch minus crushed base rock having less than 5 percent fine materials passing the No. 200 sieve. The base course and asphaltic concrete materials should conform to the requirements set forth in the latest edition of the Washington Department of Transportation, Standard Specifications of Highway Construction. The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. The asphaltic concrete materials should be compacted to at least 91 percent of the theoretical maximum density as determined by the ASTM D-2041 (Rice Gravity) test method.

SEISMIC DESIGN CONSIDERATIONS

Subgrade acceleration coefficients for the project were obtained from the seismic hazard/design mapping project performed by Geomatrix Consultants. Geomatrix mapping indicates that a peak ground acceleration on bedrock soils in the area of the site are 0.19g with a return period of about 500 years. The UBC seismic zone factor (Z) for the subject site is 0.30. Additionally, the soil profile type for the subject site is recommended at S_D.

USE OF REPORT

This report is intended for the exclusive use of the addressee and their representatives to use to design the proposed assisted living facility structure(s) and associated improvements described herein and to prepare any construction documents. The data, analyses, and recommendations may not be appropriate for other structures or purposes. We recommend that parties contemplating other structures or purposes contact our office. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report.

LEVEL OF CARE

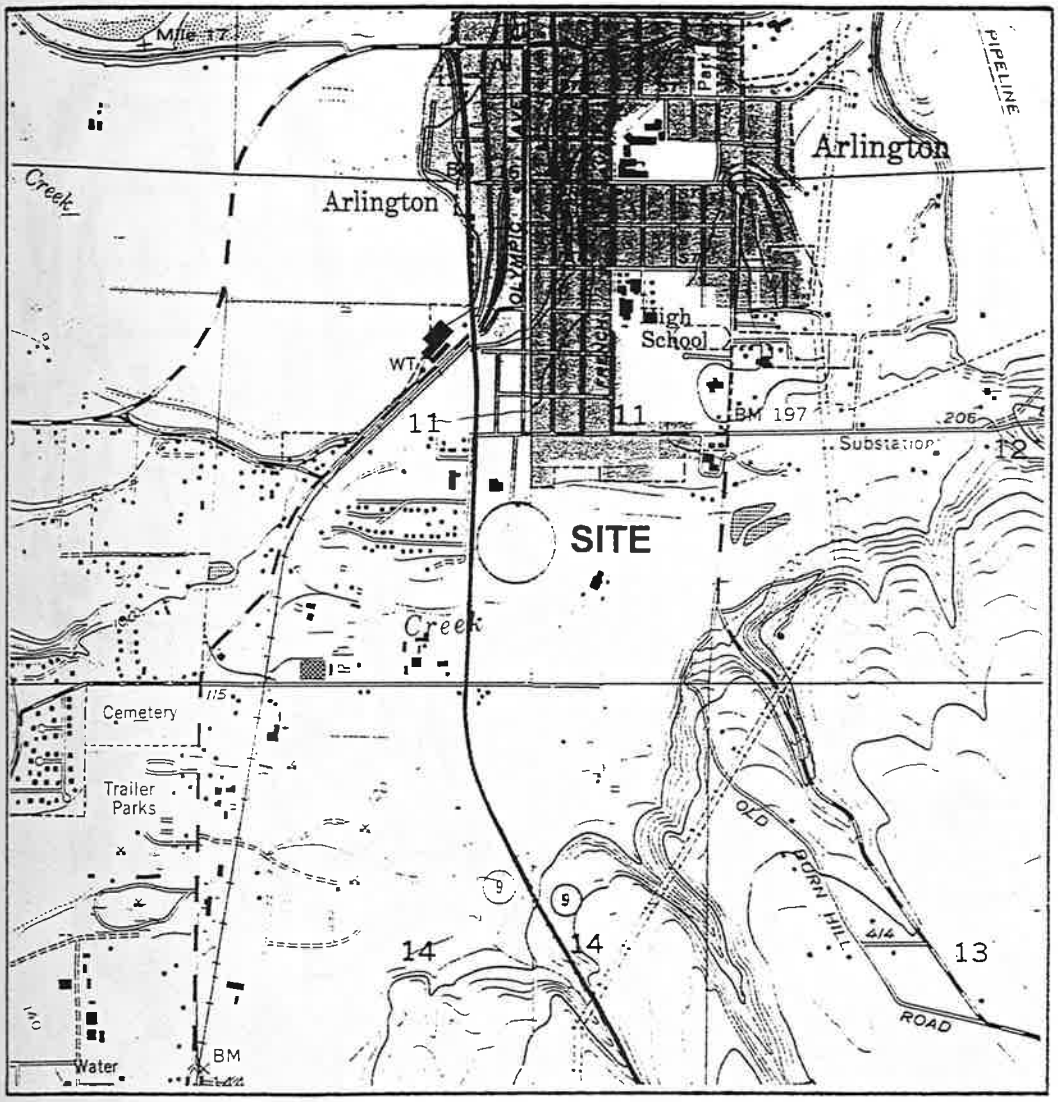
Services performed by the geotechnical engineer for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in the area under similar budget and time restraints. No warranty, either expressed or implied, is made.

We will be pleased to provide such additional assistance or information as you may require in the balance of the design phase of this project and to aid in construction control or solution of unforeseen conditions which may arise during the construction period.

Sincerely,

Daniel M. Redmond, P.E.
President/Principal Geotechnical Engineer

EXPIRES: 3-22-03



ARLINGTON WEST QUADRANGLE
WASHINGTON—SNOHOMISH CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24000

1/2 0 1 MILE

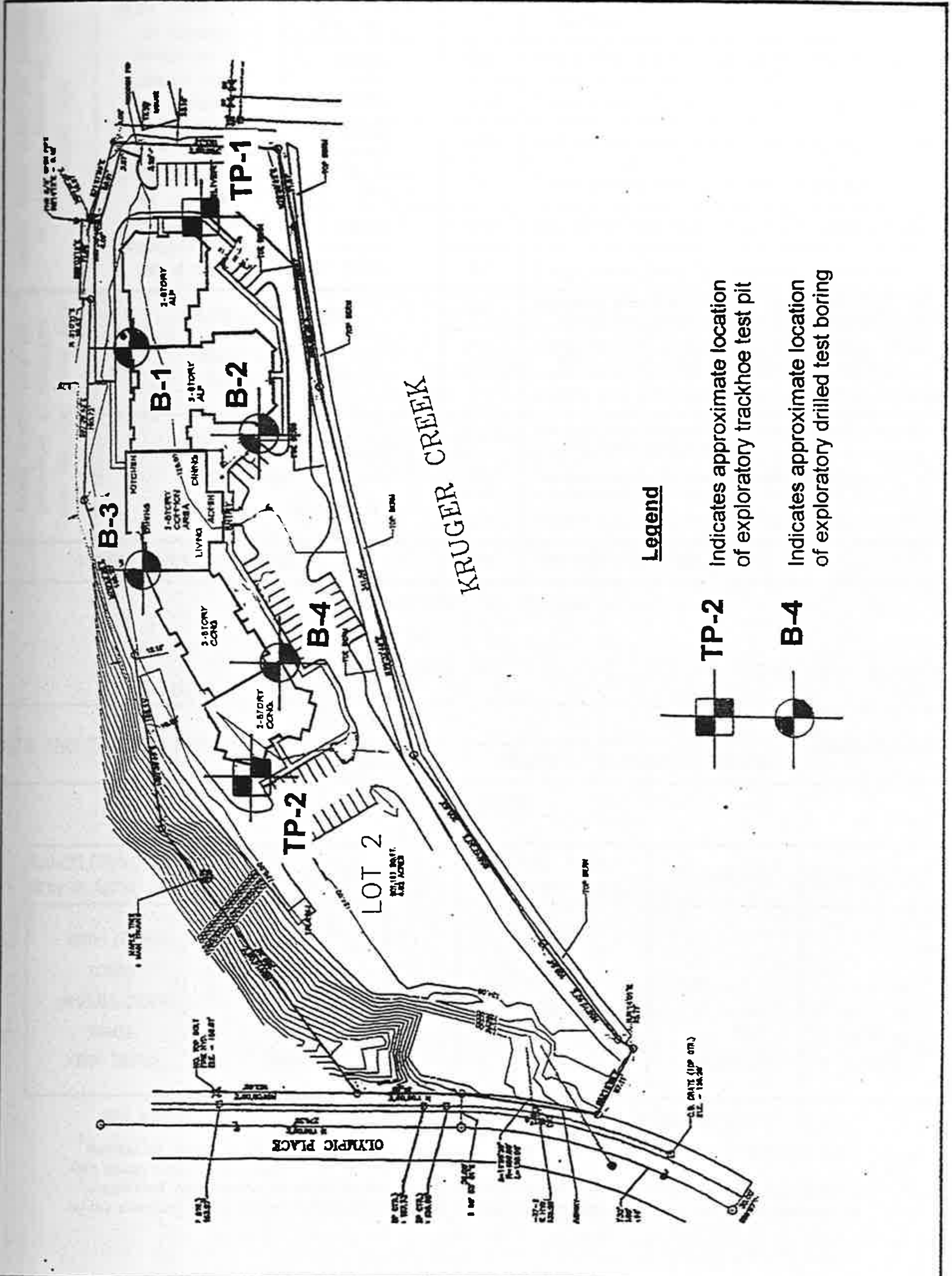
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT 10-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SITE VICINITY MAP

Project No. 314.036.G	**PROPOSED ARLINGTON ALF SITE**	Figure No. 1



SITE EXPLORATION MAP

Project No. 314.036.G	PROPOSED ARLINGTON ALF SITE	Figure No. 2

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS — LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

DEFINITION OF TERMS

	U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS			
	200	40	10	4	3/4"	3"	12"	
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS	
	FINE	MEDIUM	COARSE	FINE	COARSE			

GRAIN SIZES

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT†
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

CLAYS AND PLASTIC SILTS	STRENGTH‡	BLOWS/FOOT†
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

†Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

‡Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

REDMOND & ASSOCIATES
P.O. Box 301545 • PORTLAND, OR 97294

KEY TO EXPLORATORY BORING LOGS
Unified Soil Classification System (ASTM D-2487)

PROPOSED ARLINGTON ALF SITE
Arlington, Washington

PROJECT NO.	DATE	
314.036.G	Sept. 12, 2002	Figure 3

BACKHOE COMPANY: West Coast Excavating BUCKET SIZE: 36 inches DATE: 8/22/02

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TP-1 ELEVATION
0					ML/SM	Dark brown, very moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
5	x			11.5	GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
10	x			12.8	SM/GM	Medium brown to olive-brown, medium dense, silty, gravelly SAND to sandy GRAVEL with occasional cobbles
						Becomes saturated at 13 feet
15						Total Depth = 13.0 feet Ground water encountered at a depth of 13.0 feet
						TEST PIT NO. TP-2 ELEVATION
0					ML/SM	Dark brown, very moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
5	x			12.0	GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
10	x			13.3	SM/GM	Medium brown to olive-brown, moist, medium dense, silty, gravelly SAND to sandy GRAVEL with occasional cobbles
15						Total Depth = 14.0 feet

LOG OF TEST PITS

PROJECT NO. 314.036.G | PROPOSED ARLINGTON ALF SITE | FIGURE NO. 4

DRILLING COMPANY: Subterranean, Inc. RIG: Mobile B-61 DATE: 8/30/02

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION:

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-1
0					ML/SM	Dark brown, moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
5	x	14			GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
10	x	20			SM/GM	Medium brown to olive-brown, moist, medium dense, silty, gravelly SAND to sandy GRAVEL with occasional cobbles
	x	18				Becomes saturated at 13.0 feet
15						Total Depth = 14.0 feet Ground water encountered at a depth of about 13.0 feet at time of drilling
20						
25						
30						

BORING LOG

PROJECT NO. 314.036.G | PROPOSED ARLINGTON ALF SITE | FIGURE NO. 5

REDMOND & ASSOCIATES

DRILLING COMPANY:	Subterranean, Inc.	RIG:	Mobile B-61	DATE:	8/30/02
BORING DIAMETER:	6.0"	DRIVE WEIGHT:	140#	DROP:	30"
ELEVATION:					

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-2
0					ML/SM	Dark brown, moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
5	x	21			GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
10	x	16			SM/GM	Medium brown to olive-brown, moist, medium dense silty, gravelly SAND to sandy GRAVEL with occasional cobbles
	x	19				Becomes saturated at 13 feet
15						Total Depth = 14.0 feet Ground water encountered at a depth of about 13.0 feet at time of drilling
20						
25						
30						

BORING LOG

PROJECT NO.	314.036.G	PROPOSED ARLINGTON ALF SITE	FIGURE NO.	6

DRILLING COMPANY: Subterranean, Inc.		RIG: Mobile B-61		DATE: 8/30/02	
BORING DIAMETER: 6.0"	DRIVE WEIGHT: 140#		DROP: 30"	ELEVATION:	

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-3
0					ML/SM	Dark brown, moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
5	X	15			GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
10	X	19			SM GM	Medium brown to olive-brown, moist, medium dense, silty, gravelly SAND to sandy GRAVEL with occasional cobbles
	X	23				
15						Total Depth = 14.0 feet No ground water encountered at time of drilling
20						
25						
30						

BORING LOG

PROJECT NO. 314.036.G	PROPOSED ARLINGTON ALF SITE	FIGURE NO. 7

DRILLING COMPANY: Subterranean, Inc. RIG: Mobile B-61 DATE: 8/30/02

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION:

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-4
0					ML/SM	Dark brown, moist, soft to loose, organic, sandy SILT to silty SAND with occasional gravel (Topsoil)
	x	16			GM/SM	Medium brown, moist, medium dense, silty, sandy GRAVEL to gravelly SAND with cobbles
5						
	x	17			SM/GM	Medium brown to olive-brown, moist, medium dense, silty, gravelly SAND to sandy GRAVEL with occasional cobbles
10	x	18				Becomes saturated at 13 feet
15						Total Depth = 14.0 feet Ground water encountered at a depth of about 13.0 feet at time of drilling
20						
25						
30						

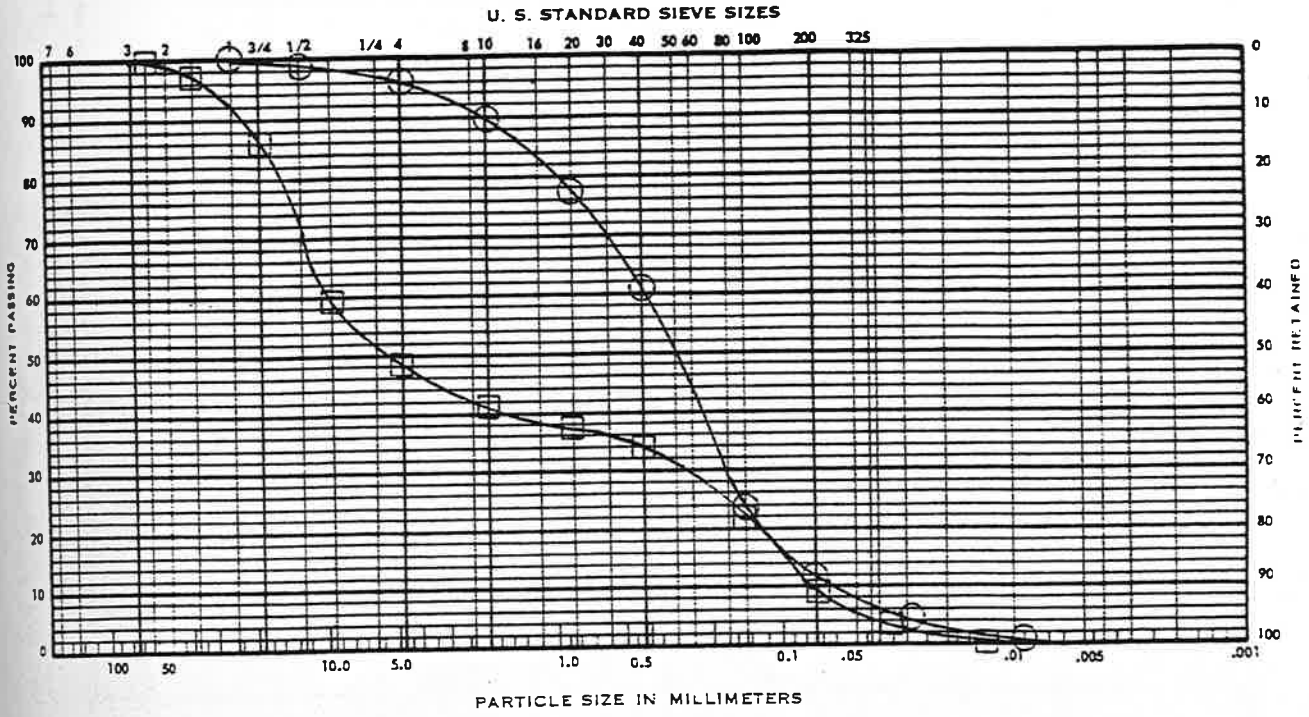
BORING LOG

PROJECT NO. 314.036.G | PROPOSED ARLINGTON ALF SITE | FIGURE NO. 8

REDMOND & ASSOCIATES

UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D 422-72)



COBBLES	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

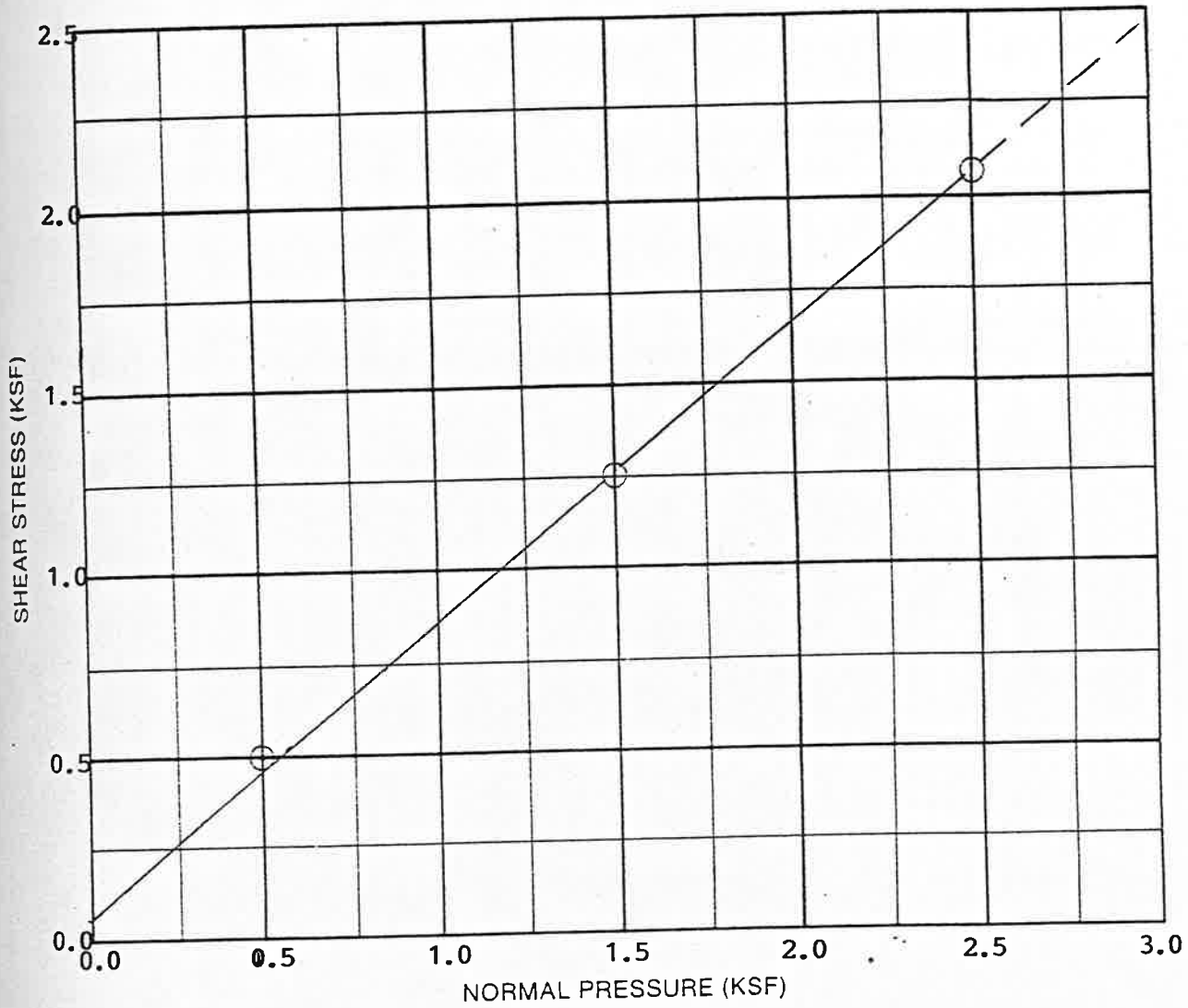
KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	ELEV. (feet)	UNIFIED SOIL CLASSIFICATION SYMBOL	SAMPLE DESCRIPTION
⊖	TP-1	2.0		GM/SM	Medium brown, silty, sandy GRAVEL to gravelly SAND
⊟	TP-1	8.0		SM/GM	Medium brown to olive-brown, silty, gravelly SAND to sandy GRAVEL

REDMOND & ASSOCIATES
P.O. Box 301545 • PORTLAND, OR 97294

GRADATION TEST DATA

PROPOSED ARLINGTON ALF SITE
Arlington, Washington

PROJECT NO.	DATE	FIGURE
314.036.G	Sept. 12, 2002	9



SAMPLE DATA	
DESCRIPTION:	Medium brown, silty, sandy GRAVEL to gravelly SAND
BORING NO.:	TP-1
DEPTH (ft.): 2.0	ELEVATION (ft):
TEST RESULTS	
APPARENT COHESION (C):	50 psf
APPARENT ANGLE OF INTERNAL FRICTION (Φ):	39°

TEST DATA				
TEST NUMBER	1	2	3	4
NORMAL PRESSURE (KSF)	0.5	1.5	2.5	
SHEAR STRENGTH (KSF)	0.5	1.25	2.06	
INITIAL H_2O CONTENT (%)	11.5	11.5	11.5	
FINAL H_2O CONTENT (%)	11.8	11.1	10.5	
INITIAL DRY DENSITY (PCF)	98.0	98.0	98.0	
FINAL DRY DENSITY (PCF)	99.7	101.4	102.6	
STRAIN RATE:	0.02 inches per minute			

REDMOND & ASSOCIATES
P.O. Box 301545 • Portland, OR 97294

DIRECT SHEAR TEST DATA

PROPOSED ARLINGTON ALF SITE
Arlington, Washington

PROJECT NO.	DATE	
314.036.G	Sept. 12, 2002	Figure 10