Western Geotechnical Consultants, Inc.

4183 Saltsprings Dr., Ferndale, WA 98248
Phone/FAX (360)380-2507

November 21, 2005

Thomco Construction, Inc.
13700 44th Street NE
Lake Stevens, WA 98258

Re: Geotechnical Site Investigation
4T Development, Inc. Industrial Buildings
59th Ave. NE and 169th St. NE
Arlington, WA

Western Geotechnical Consultants, Inc. is pleased to present the results of our geotechnical site investigation conducted at the above referenced property. On November 16, 2005 a geotechnical engineer from our firm oversaw the excavation of a total of 6 test pits to evaluate soil and groundwater conditions across the site. The property is a rectangular parcel that is approximately 4-1/2 acres in size, and the site is located on the northeast corner of 59th Ave. NE and 169th Street NE in Arlington, WA.

The property is an open field located immediately to the south of the Crown Distributing Building. The project plan is to construct two industrial buildings on the south side of the property adjacent to 169th Street Northeast. The northern portion of the property will be paved parking. The two industrial buildings will be one to two story structures; the northern building will have a 35,800 square foot building footprint and the southern building will have a 30,340 square foot building footprint. The project plan is to infiltrate on-site stormwater if soil and groundwater conditions are favorable. The project will also consider stormwater storage beneath a porous concrete or porous pavers parking lot. Figure 1 is a Site Plan showing the planned site layout, test pit locations and other relevant site features.

The purpose of the geotechnical investigation was to obtain the necessary subsurface information to evaluate soil and groundwater characteristics for stormwater facilities design and to evaluate foundation conditions for the two proposed industrial buildings. The specific scope of our investigation for the project included the following services:

1. Excavating a total of 6 test pits across the property to characterize the near surface soil and groundwater conditions. Piezometers were installed in each of the test pits to monitor groundwater levels throughout the winter months.

2. Developing tabulated logs for each test pit as to the thickness and depth of each soil unit and describing the soils encountered in accordance with the Unified Soil Classification System (USCS).
3. Performing field and laboratory testing, as deemed necessary, to assist in developing our conclusions and recommendations.
4. Preparing this engineering report, including a summary of work performed and our conclusions regarding infiltration capacity of site soils, foundation design information, and general recommendations for site development.

Site Conditions

Surface Conditions

The site is a relatively flat parcel that is grass and weed covered. There is a large stockpile of soil along the north side of the property where a parking lot is planned.

Subsurface Conditions

Subsurface soil and groundwater conditions were explored on November 16, 2005 using a rubber tire backhoe with an 18-inch bucket. A total of six test pits were excavated across the property to evaluate both the infiltration capacity of site soils and foundation conditions for supporting the industrial buildings. Figure 1 (Site Plan) shows the locations of the test pits together with the proposed site layout and other relevant site features. A geotechnical engineer from our firm continuously logged and classified soils encountered in the test pits in accordance with the Unified Soils Classification System (USCS) and obtained representative soil samples for analysis and testing. Edited tabulated test pit logs are contained in this report together with a USCS chart explaining soil descriptions. The test pits were loosely backfilled upon completion.

The subsurface profile is very consistent across the property. The profile consists of 1.0 to 1.4 feet of sandy organic SILT to silty SAND with significant roots (SM/OL by USCS) (topsoil), which is underlain by a thin layer of silty SAND, (SM by USCS) which extends to a depth of 1.8 to 2.5 feet below ground surface. This soil unit is underlain by a fine to medium SAND (SP by USCS), which grades to a gravelly fine to coarse SAND (SW by USCS).

The USDA Soil Conservation Service (SCS) "Soil Survey of Snohomish County Area, WA has mapped the site soils as being underlain by Custer fine sandy loam. Custer soils are very deep, poorly drained soils having formed in basins on outwash plains. The soil formed in glacial outwash. The permeability of Custer soils is moderately slow. The soils encountered in the upper 2 feet of our test pits are consistent with the SCS soil description of Custer soils.

Groundwater Conditions

Groundwater seepage was encountered in all of the Test Pits at a depth of about 5 feet below the ground surface at the time of our subsurface investigation on November 16, 2005. Piezometers were installed in all of the test pits to measure the static water level throughout the winter months.

Laboratory Testing

Lab testing included sample inspection under controlled laboratory conditions, moisture content tests and grain size analyses using the ASTM D-422 test methodology (Method 2 of the Stormwater Manual). Moisture content test results are presented in the tabulated test pit logs, which are included in this report, and the grain size distribution test results are attached to this report in the form of grain size distribution curves. The test results revealed that the soils are classified as SANDs.

Conclusions and Recommendations

Based on our geotechnical site investigation we conclude that the site can be developed as planned provided good construction practices are utilized and provided our recommendations are followed. Site soils appear to be conducive for infiltration facilities and the site soils will provide adequate foundation support for conventional shallow spread foundations (assumes no unusually large foundation loads as defined below). We provide the following specific and general recommendations.

Soil Infiltration Rate

We tested four samples using the ASTM D-422 test procedure. Two of the tests were performed on the fine to medium SAND (SP by USCS) located from 2 to 5 feet below grade. The other two tests were performed on the underlying well-graded gravelly SAND (SW by USCS) located below about 5 feet. The tests revealed that the soil below a depth of 2 to 2-1/2 feet is a SAND (SP by USCS) with a D_{10} = 0.10 mm to 0.20 mm. The underlying gravelly SAND (SW by USCS) have a measured D_{10} = 0.22 mm to 0.70 mm. Due to the presence of an anticipated relatively high water table we recommend designing facilities for the fine to medium SAND (SP by USCS) soils. The test results are attached to this report in the form of grain size distribution curves.

Based on our field investigation and subsequent lab testing we have defined the long-term infiltration rate of on-site soils using the Washington DOE "Stormwater Management Manual for Western Washington" (August 2001 ed.). The manual recommends a long-term (design) infiltration rate of 2.0 inches/hour for a D_{10} = 0.1 mm. One of the tests measured a D_{10} = 0.20 for which the recommended long-term design infiltration rate is 3.5 inches/hour.

Building Foundation Support

Based on our geotechnical investigation, the site is suitable for foundation support using conventional shallow spread footings founded on compact, undisturbed native, non-organic sandy soils (SP/SM or SP by USCS), or structural fill. Bearing soil that is disturbed during foundation excavation should be re-compacted or removed and replaced with structural fill. Wall footings and column footings should have minimum dimensions of 18 and 24 inches, respectively. All footings should be founded a minimum of 18 inches below the lowest adjacent final grade.

All footings supported on the properly prepared, compact native non-organic soils, or imported structural fill, may be proportioned using a net allowable bearing pressure of 2,000 pounds per square foot (psf). The term net allowable bearing pressure refers to the pressure that can be imposed on the soil at foundation level due to the total of all dead plus live loads, exclusive of the weight of the footing or any backfill placed above the footing. This bearing pressure may be increased by a value of one-third for transient wind or seismic loading.

Our subsurface investigation provided shallow subsurface information that is appropriate for relatively light foundation loads. Relatively light loads are defined as continuous footing loads less than 4,000 pounds per lineal foot (plf) and isolated column footing loads of less than 20,000 pounds when sizing footings using an allowable bearing pressure of 2,000 psf. If footing sizes exceed the above noted dimension, Western Geotechnical Consultants, Inc. should be notified so we can reconsider our recommendations and provide modifications, if appropriate.

Inspection of the foundation excavations by qualified personnel should be performed prior to forming for footings. This is necessary to verify that foundation soils are in an undisturbed state.

Settlement of spread footing foundations depends on the foundation size and bearing pressure as well as the strength and compressibility characteristics of the underlying bearing soils. Assuming construction is accomplished as recommended above and for the loads anticipated, we estimate total settlement of the foundation should be less than about one inch and differential settlement between two adjacent load bearing components should be less than about half the total settlement estimate. Most of the settlement should take place relatively rapidly during construction as loads are applied. We recommend that footing excavations be observed by qualified personal to confirm that our design assumptions are met.

General Site Development

The following sections of this report contain recommendations for general site development. Note that these recommendations are based on the limited scope of subsurface exploration performed as a part of our geotechnical services for the project.

Site Preparation

All topsoil or other organic, soft or deleterious material must be stripped and removed from those areas to receive structural improvements or fill supporting structural improvements. Based on our site exploration, the site preparation will primarily consist of stripping the root rich topsoil layer that generally consists of a brown to dark brown sandy organic SILT to silty SAND (SM/OL by USCS). Our test pits revealed that the topsoil and root rich soil thickness will be about 1 foot. Note that deeper areas of over-excavation and removal may be required, such as where root balls, uncontrolled fill material or other debris is present below grade.

Structural Fill and Compaction

It is possible that some structural fill will be required where over-excavation is needed to remove unsuitable material. Structural fill is defined as compacted fill material supporting buildings, parking areas, driveways, etc. All structural fill should be placed and compacted on a horizontal subgrade surface.

Structural fill should extend beyond the edge of any future structural improvements a distance equal to the thickness of the fill beneath the structural improvements.

If structural fill is required we recommend using an import fill material consisting of relatively clean sandy gravel containing less than 5% fines (GW by USCS). Structural fill should be placed in maximum 8- to 10-inch loose, horizontal lifts and be thoroughly compacted. All structural fill should be compacted to 95% of maximum dry density as determined by the ASTM D-1557 test procedure.

Erosion Control

Erosion control during construction of the proposed buildings can be accomplished through placement of proper sedimentation control facilities. We recommend siltation control facilities, consisting of either hay bales or silt fences, be fabricated around all construction areas. Typical details for siltation control facilities using either hay bales or silt fences are attached to this report.

Siltation devices should be placed down gradient of all construction areas and cleared areas to provide siltation control during construction. All siltation control devices should be maintained in operable condition during construction, and left in operable condition until the site has been revegetated and siltation is no longer a threat. At that time the siltation devices should be removed.

We appreciate the opportunity to be of assistance to you on this project. If you have any questions regarding the contents of this report, or if we can be of further assistance, please contact our office.

Sincerely,

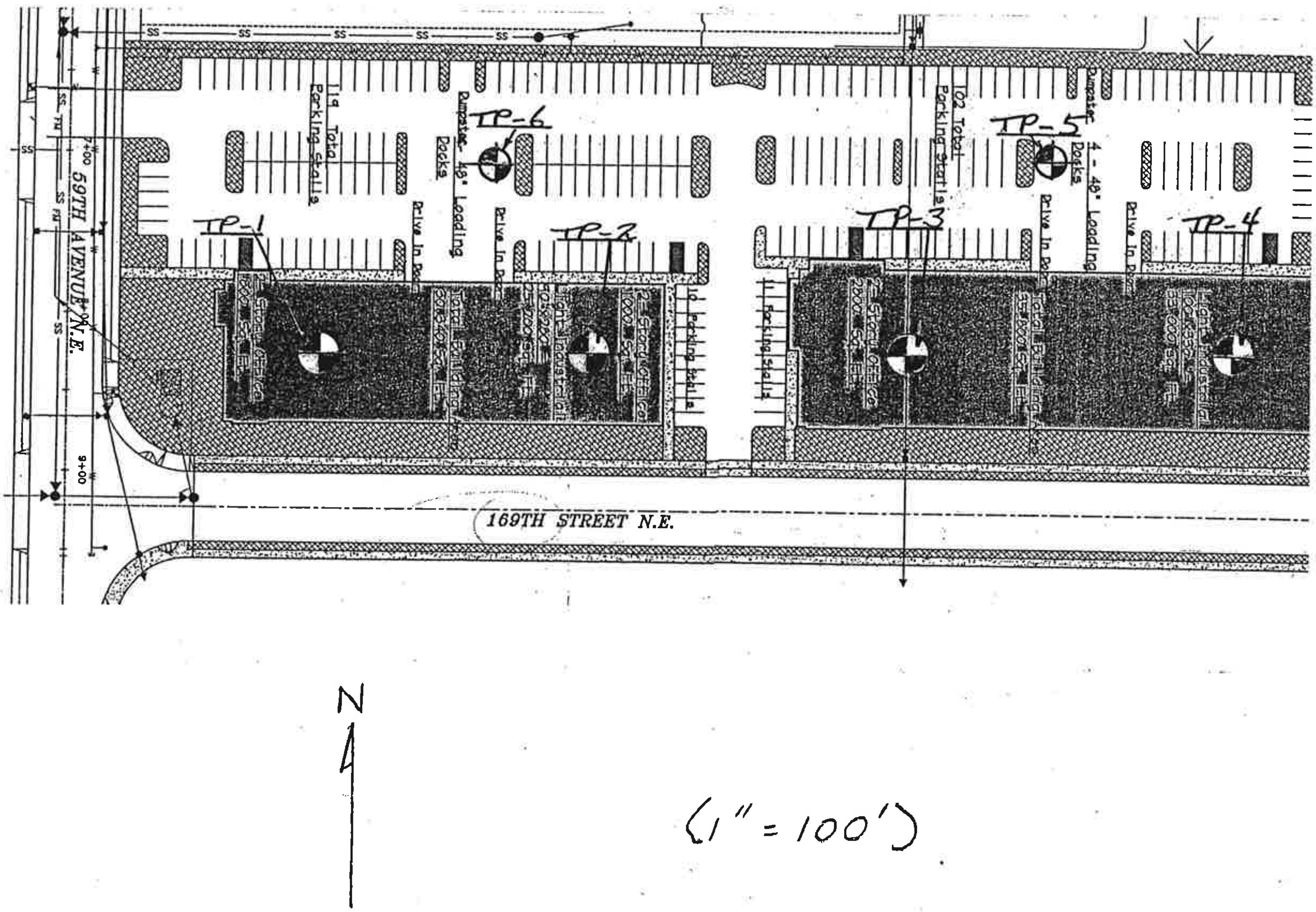
Western Geotechnical Consultants, Inc.

Theodore A. Hammer, P.E.
Geotechnical Engineer

Inclusions: Figure 1, Site Plan
USCS Classification Chart
Tabulated Test Pit Logs
Attachment: 4 Grain Size Distribution Curves
Typical Erosion Control Facilities

File: 05 190 1

Site Plan – 4T Industrial Site
59th Ave. NE and 169th St. NE, Arlington, WA



Unified Soil Classification System & Key to Test Pit Descriptions

UNIFIED SOIL CLASSIFICATION CHART (USCS)

MAJOR DIVISIONS		GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES) <5%	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES) <12%	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES) <5%	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES) <12%	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT 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 GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

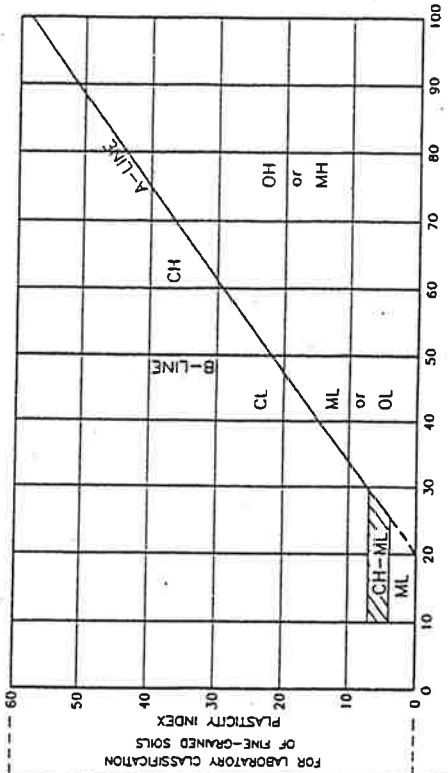
GRADATION CHART

MATERIAL SIZE		PARTICLE SIZE — LOWER LIMIT MILLIMETERS	LOWER LIMIT SIEVE SIZE	UPPER LIMIT MILLIMETERS	UPPER LIMIT SIEVE SIZE
SAND	FINE	.074	#200 *	0.42	#40 *
	MEDIUM	0.42	#40 *	2.00	#10 *
	COARSE	2.00	#10 *	4.76	#4 *
GRAVEL	FINE	4.76	#4 *	191	3/4" *
	COARSE	191	3/4" *	762	3" *
COBBLES		76.2	3" *	304.8	12" *
BOULDERS		304.8	12" *	914.4	

* U.S. STANDARD * CLEAR SQUARE OPENINGS

5-12% FINES (SILT & CLAY) DUAL CLASS

PLASTICITY CHART



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Key to Test Pit Logs Using the Unified Soil Classification System

DATE: 5/11/95 SCALE: N.N.A. N.N.A.

A:TEST PITS

			Table A-1 **Log of Test Pits**		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-1	0.0-1.3	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (topsoil)			
	1.3-2.4	SM	Light brown silty fine to medium SAND (moist, relatively soft)			
	2.4-4.8	SP	Gray fine to medium SAND (very moist to wet, relatively compact)	1-1/2.5'	18.0%	
	4.8-6.0	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (strong seepage at 4.8 feet, caving)	1-2/4.0'	17%	

Notes: Test pit terminates on 11/16/05 at 6.0 feet.
Ground water seepage encountered at 4.8 feet
Test pit backfilled upon completion.
Piezometer installed to 6 feet.

			Table A-1 **Log of Test Pits**		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-2	0.0-1.2	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (Topsoil)			
	1.2-2.5	SM	Light brown silty fine to medium SAND (moist, relatively soft)	2-1/2.0'	15.5%	
	2.5-3.5	SP	Gray fine to medium SAND (very moist to wet, relatively compact)	2-2/3.5'	14.0%	
	3.5-6.0	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (seepage at 5 feet, caving)	2-3/5.2'	15.3%	

Notes: Test pit terminates on 11/16/05 at 6.0 feet.
Ground water seepage encountered at 5.0 feet
Test pit backfilled upon completion.
Piezometer installed to 6.0 feet.

			Table A-1 **Log of Test Pits**		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-3	0.0-1.2	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (Topsoil)	3-1/0.5'	31.2%	
	1.2-2.5	SM	Light brown silty fine to medium SAND (moist, relatively soft)	3-2/2.0'	19.2%	
	2.5-6.2	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (seepage at 5 feet, heavy caving)	3-3/3.0'	21.2%	

Notes: Test pit terminates on 11/16/05 at 6.2 feet.
Ground water seepage encountered at 5 feet.
Test pit backfilled upon completion.
Piezometer installed to 6.2 feet.

			Table A-1 **Log of Test Pits**		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-4	0.0-1.4	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (Topsoil)			
	1.4-2.0	SM	Light brown silty fine to medium SAND (moist, relatively soft)			
	2.0-4.5	SP	Gray fine to medium SAND (very moist to wet, relatively compact)	4-1/2.5'	17.4%	
	4.5-6.0	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (strong seepage at 4.5 feet, caving) (some coarse gravel & cobbles at 5 feet)	4-2/5.0'	19.6%	

Notes: Test pit terminates on 11/16/05 at 6.0 feet.
Ground water seepage encountered at 4.5 feet.
Test pit backfilled upon completion.
Piezometer installed to 6.0 feet.

			Table A-1 Log of Test Pits		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-5	0.0-1.3	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (Topsoil)			
	1.3-2.3	SM	Light brown silty fine to medium SAND (moist, relatively soft)	5-1/1.8'	24.9%	
	2.3-5.0	SP	Gray fine to medium SAND (very moist to wet, relatively compact)	5-2/4.0'	17.5%	
	5.0-6.5	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (seepage at 5.2 feet, caving)	5-3/6.3'	18.7%	

Notes: Test pit terminates on 11/16/05 at 6.5 feet.
Ground water seepage encountered at 5.2 feet
Test pit backfilled upon completion.
Piezometer installed to 6.5 feet.

			Table A-1 **Log of Test Pits**		File: 05 190 1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-6	0.0-1.0	OL/SM	Dark brown sandy organic SILT to silty SAND with numerous roots (moist, soft) (Topsoil)			
	1.0-1.8	SM	Light brown silty fine to medium SAND (moist, relatively soft)			
	1.8-4.8	SP	Gray fine to medium SAND (very moist to wet, relatively compact)	6-1/2.8'	19.8%	
	4.8-6.8	SW	Gray well graded gravelly fine to coarse SAND (wet, relatively compact) (strong seepage at 4.8 feet, caving)	6-2/6.0'	11.9%	

Notes: Test pit terminates on 11/16/05 at 6.8 feet.
Ground water seepage encountered at 4.8 feet.
Test pit backfilled upon completion.
Piezometer installed to 6.8 feet.

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BY DATE
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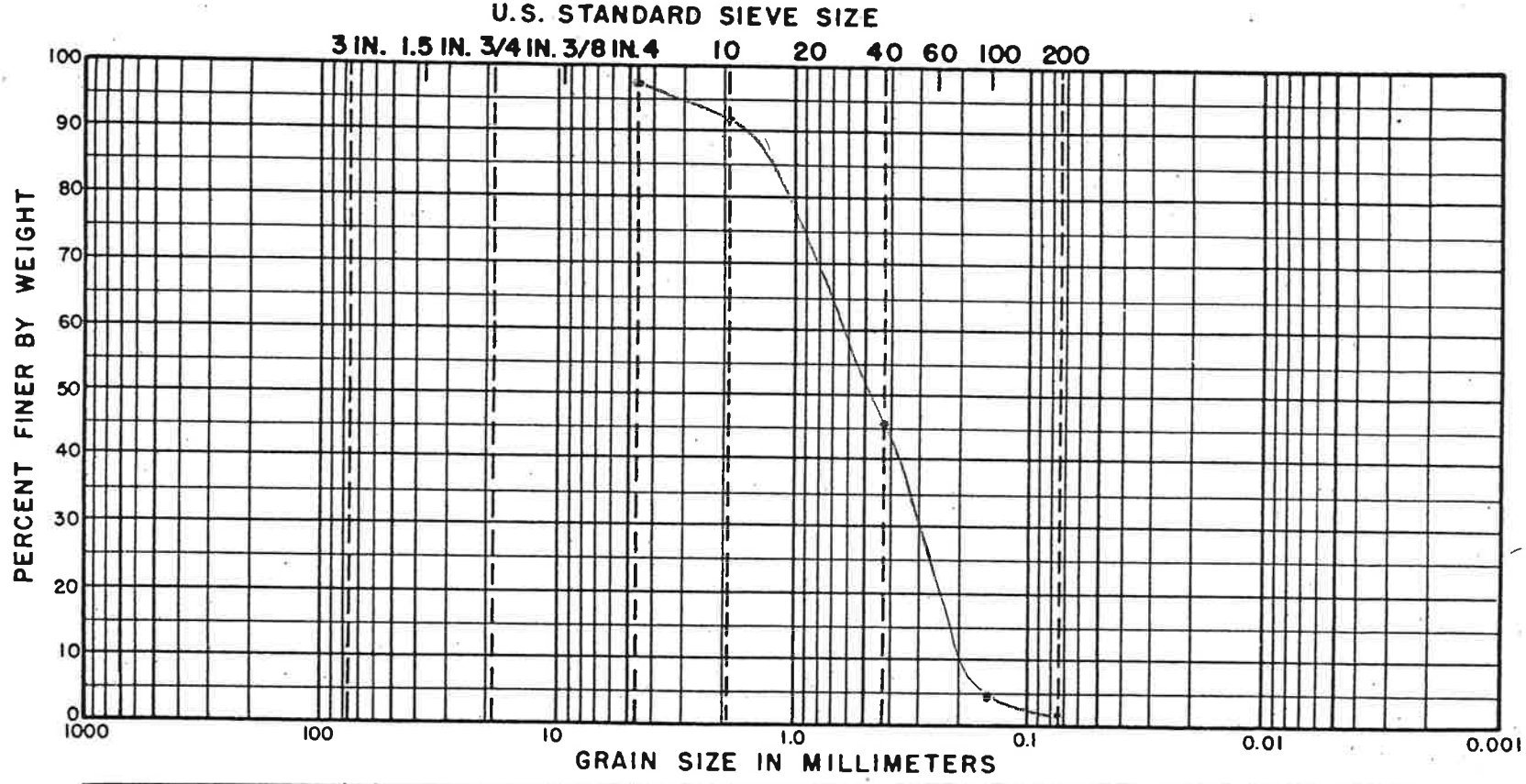

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Test Pit/Sample	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
TP-S/S-2	4.0'	SP	Fine to Medium SAND	17.5%	N/A			D_{10} = 0.2 mm / i = 3.5 "/hr

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GRADATION CURVE

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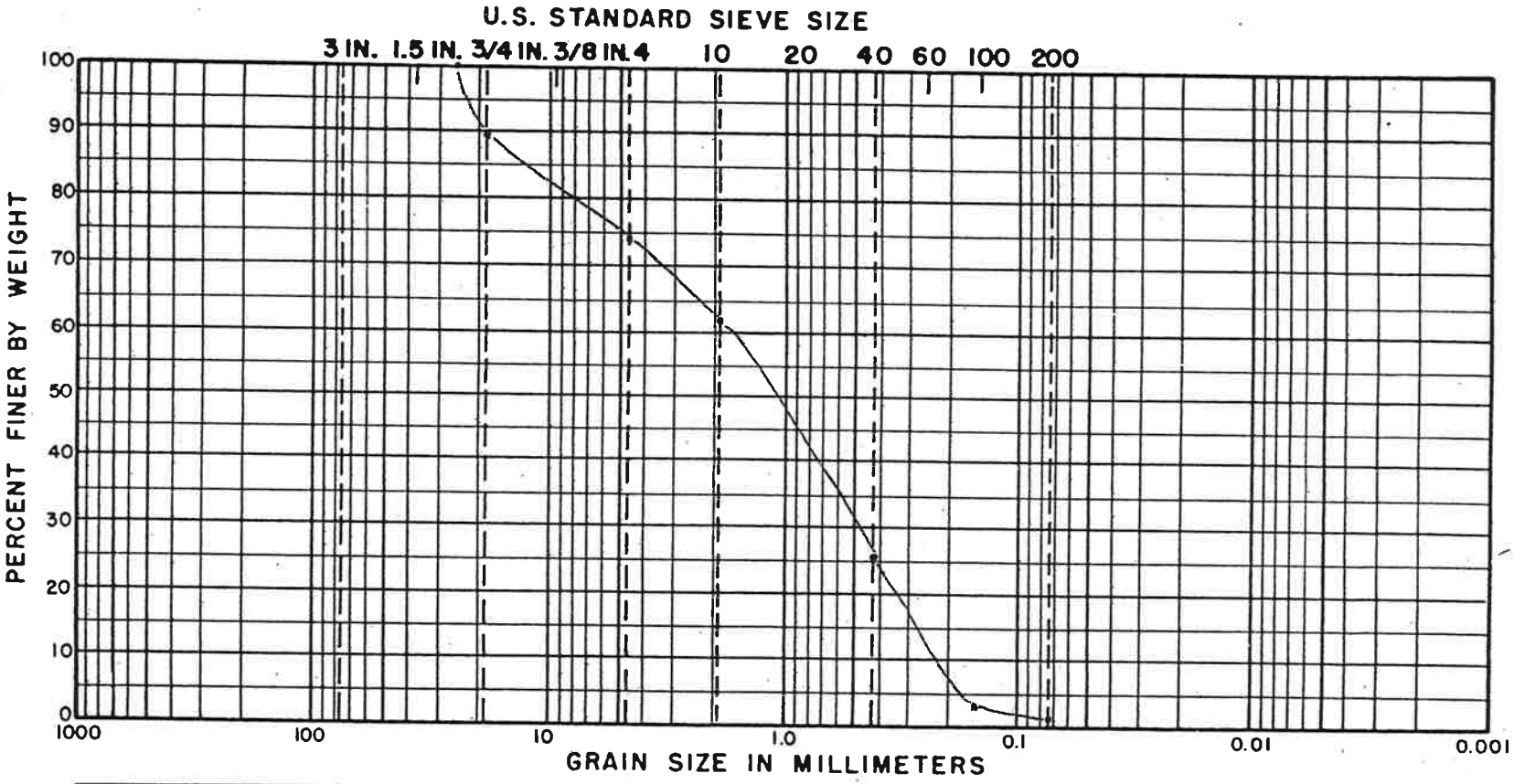

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Test Pit/Sample	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
TP-5/S-3	6.3'	SW	Well graded gravelly SAND	18.7%	N/A			D_{10} = 0.22 mm / i = 3.5 "/hr

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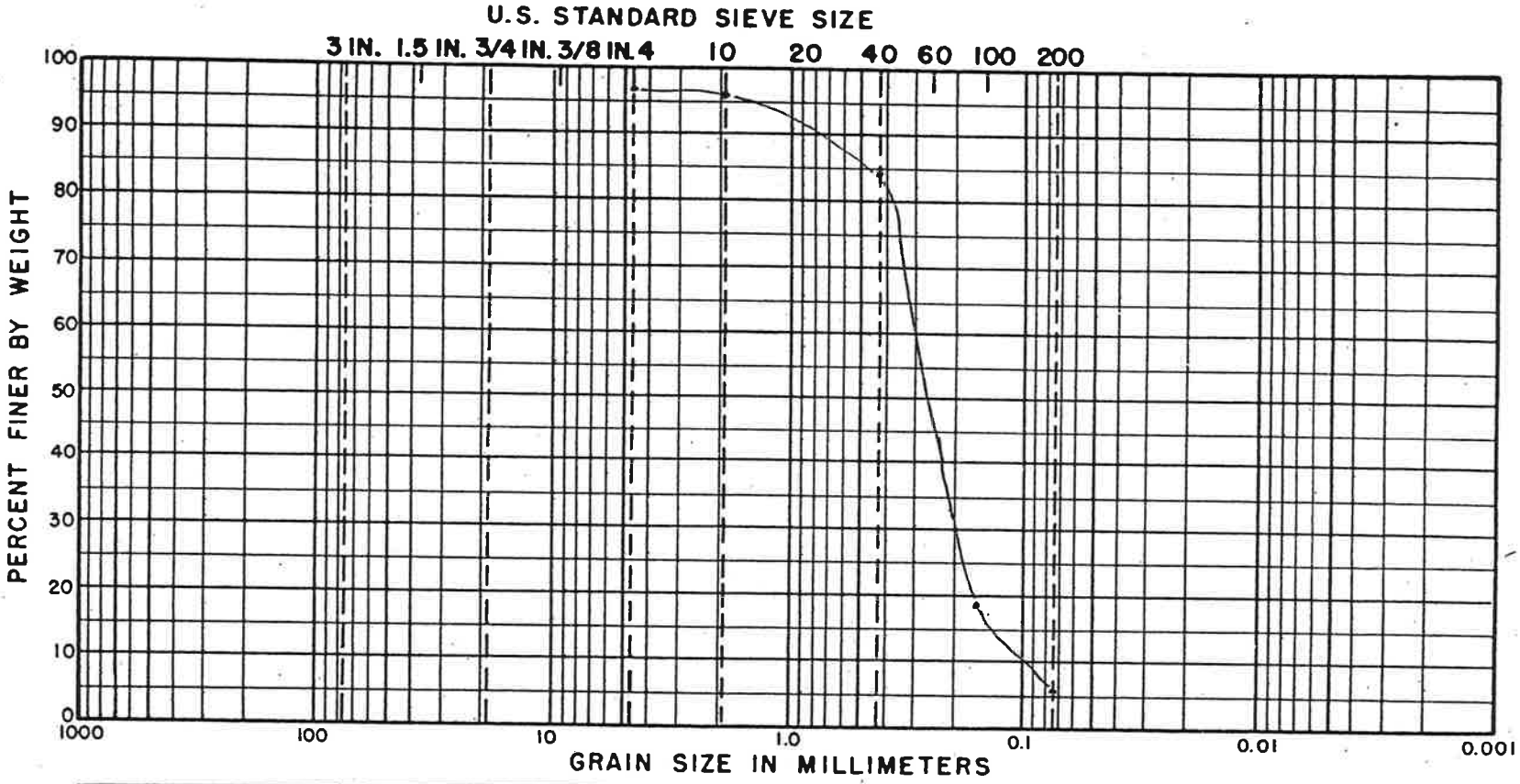

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Test Pit/Sample	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
TP-6/S-1	2.8'	SP/SM	Fine to med. SAND, Trace silt	19.8%	N/A			D_{10} = 0.1 mm / i = 2.0 "/hr

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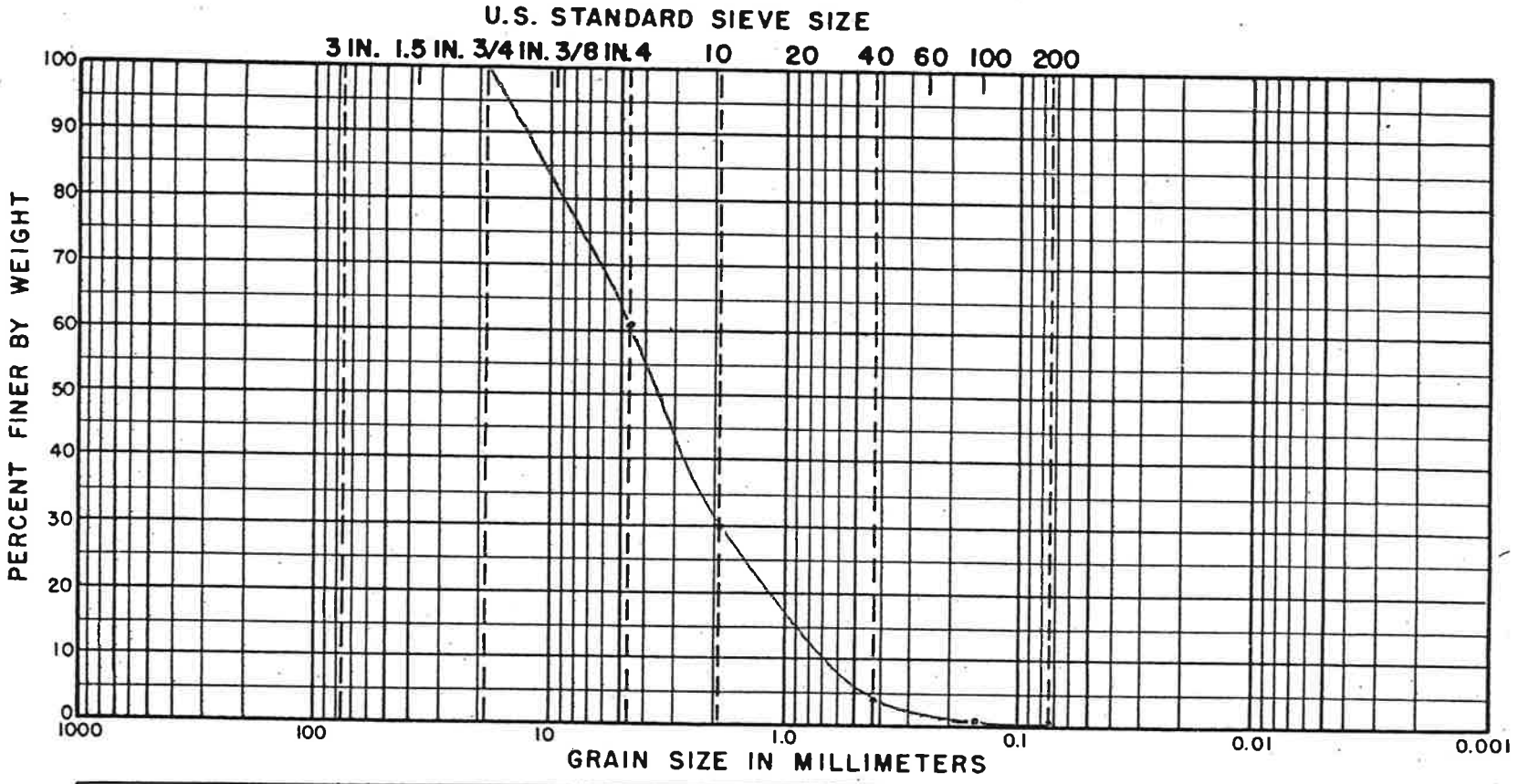

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Test Pit/Sample	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
TP-6/S-2	6.0'	SW	Well graded gravelly SAND	11.9%	N/A			D_{10}= 0.7mm / i = 9"/hr

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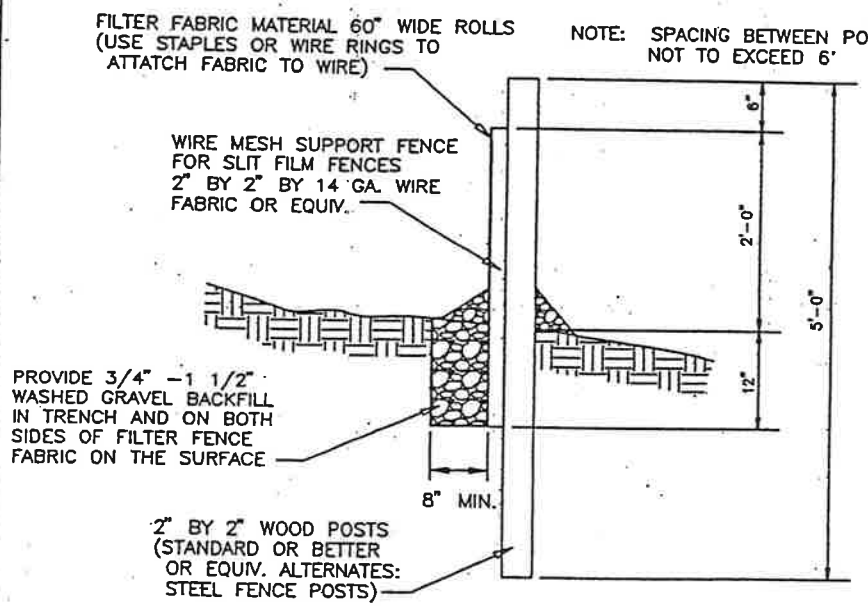
GRADATION CURVE



FILTER FABRIC FENCE

NOT DRAWN TO SCALE

Western Geotechnical Consultants, Inc.
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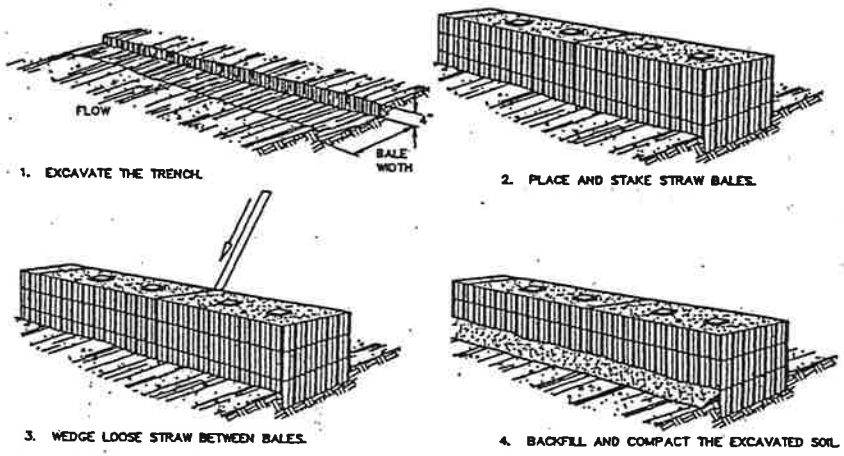
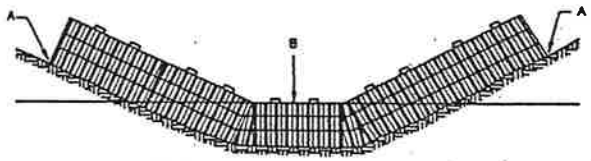
SEDIMENT CONTROL
FILTER FABRIC FENCE



CONSTRUCTION OF A STRAW BALE BARRIER

NOT DRAWN TO SCALE



POINTS A SHOULD BE HIGHER THAN POINT B

PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY

NOT DRAWN TO SCALE

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SEDIMENT CONTROL
STRAW BALE BARRIER