EXHIBIT "C"

GEOTECHNICAL ENGINEERING REPORT

R-163: RIVERSIDE PUMPING STATION

BACKUP POWER GENERATION

GEOTECHNICAL ENGINEERING REPORT

MWW Riverside
Milwaukee, WI

Gestra Project No.: 09012-10
October 26, 2009

Prepared For:
OTIE Solutions
Milwaukee, WI

Geotechnical Engineering Report
MWW Riverside
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1.0 INTRODUCTION

This report presents our geotechnical explorations and engineering evaluation for the proposed Milwaukee Water Works (MWW) Riverside backup power generation project in Milwaukee, WI. This report describes our exploration, subsequent laboratory test results, and recommendations pertaining to the design and construction of the proposed structure. Our draft report dated May 11, 2009 is hereby finalized with no changes other than the date.

The engineering recommendations and analysis contained within this report are based on the following project information which is a projection of our understanding of the project. If for any reason actual project information differs from what is reported below, Gestra Engineering, Inc. (GESTRA) should be contacted so that we can review our recommendations in light of the new information.

The MWW Riverside facility is located at 1311 E. Chambers Street, northeast of the intersection of the N. Humboldt Blvd and E. Locust Street, in the City of Milwaukee. Geotechnical exploration was requested to evaluate the soil condition for a proposed backup power generation system employing a diesel fuel storage tank and a power load bank located as shown on the Borehole Layout Plan included in Appendix I.

The fuel storage tank will be 155,000 lb in weight and supported by a 10 feet by 25 feet concrete slab on grade. The load bank will be 15,000 lb in weight and supported by a 5 feet by 20 feet concrete slab on grade.

2.0 SCOPE OF WORK

Based on the request for proposal by Black & Veatch Corporation, GESTRA has performed the following services:

- Completed two (2) standard penetration borings (SPT), to a depth of 30 feet each. Boreholes were abandoned with bentonite chips in accordance with applicable WDNR regulations. Boreholes were located by GESTRA.
- Completed onsite and laboratory VOCs screening for the presence of hazardous material.
- Completed laboratory soil tests to assign classification and engineering properties to the soils encountered. Based upon the types of soils encountered laboratory tests included: moisture content, wet and dry density, unconfined compressive strength, and hand penetrometer.
- Prepared an engineering report presenting the results of the field exploration and laboratory testing as well as providing recommendations pertaining to the foundation s

system, allowable bearing capacity, excavation and backfilling, site preparation, and seismic soil classification.

3.0 EXPLORATION RESULTS

3.1 Explorations

The soil borings were completed with a truck mounted CME 55 drill rig using continuous hollow stem augers. The location of boring B-1 was at the location marked in the field by Oneida Total Integrated Enterprises (OTIE). The location of boring B-2 was offset slightly due to underground utilities and access limitations on the grassy slope. The completed location of B-2 was 5 feet south, 2 feet west, and 3-inches lower than the staked location.

Soil samples were taken in accordance with ASTM: D1586-84. Using this procedure, a two (2) inch O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30 inches. An "automatic" was used to lift and drop the hammer. After an initial set of six (6) inches, the number of blows required to drive the sampler an additional 12 inches is known as the penetration resistance or N value. The N value, recorded in blows per foot (bpf) is an index of the relative density of cohesionless soils and the consistency of cohesive soils.

Soil samples were generally obtained at a 2.5 foot interval to a depth of 15 and every 5 feet thereafter. Attempts for thin-walled tube samples were made which somewhat altered that sample recovery pattern. Representative soil samples were taken by the "Standard Method for Penetration Test and Split-Barrel Sampling of Soils" (ASTM D1586) and/or "Standard Method for Thin-Walled Tube Sampling of Soils" (ASTM D1586). The soil sample was then placed in a jar and recorded for type, color, consistency, and moisture, sealed and then transported to the laboratory for further review and testing, if required. Samples were screened with a Photo Ionization Detector (PID) and the four samples with the highest VOC reading were submitted for laboratory VOC testing. The laboratory test results are included in Appendix II. Samples were also collected for water soluble sulfate testing.

After completion of drilling operations, all of the samples retained in the field were transported to our laboratory and classified by our geotechnical engineer using the Unified Soil Classification System. A chart describing the classification system used is included in the Appendix I of this report. The engineer assigned a laboratory testing program suited to extract important index properties of the soil layers.

3.2 Site Conditions

The general slope of the area surrounding the site is downward to the east. The MWW Riverside pumping station appears to have been excavated into the natural soil on the west side of the site. The entrance to the site is at the northwest corner of the property. Access drives then drops down to the building level along the north and south sides of the pumping station.

The area of the future storage tank is currently nearly level pavement. The area for the load bank is currently at the base of a grass covered slope which drops down to the south at about a 10% slope angle.

The locations of all the borings are shown in the borehole layout plan in Appendix I. The elevations of the boring locations were determined using the floor slab of the existing building just inside the nearest door as temporary benchmarks. The elevation of the building floor slab at each benchmark was assumed as 100.00 feet. The boring elevations were estimated to be 98.83 feet and 100.50 feet for boring B-1 and B-2, respectively.

3.3 Subsurface Soil Profile

The results of our field and laboratory tests and observations are depicted on the individual test boring logs included in Appendix I of this report. Soils were grouped together based on similar observed properties. Stratification lines were estimated by the reviewing engineer based on the available data and experience. The actual in-situ changes between layers may differ slightly and may be more gradual than depicted on the boring logs. Subsurface and groundwater conditions can vary between borehole locations and in areas not explored by GESTRA.

At boring B-1 the pavement section consisted of 6 inches of asphalt over 9 inches of concrete. Below the pavement was sandy silty clay fill. This clayey fill extended to a depth of 9 feet and was followed by black silty sand fill to a depth of 12 feet. The moisture content of the fill was between 16 and 23 percent. At the bottom of the fill water seepage was encountered. This water is interpreted as perched water on top of the underlying natural clay soils. The natural clay soils were stiff at a depth of 14 feet and became very stiff to hard at 18 feet with 1/16 inch thick silt seams noted within the hard clay.

At boring B-2 a thin layer of topsoil was observed over stiff to very stiff sandy lean clay. A silty gravel zone was encountered from a depth of 5.5 to 8.5 feet. Below this depth the soils were primarily hard silty clay and lean clay. A wet silt layer was encountered from about 17 to 22 feet below the ground surface.

3.4 Groundwater Observations

Groundwater observations were made during drilling operations. Groundwater seepage was observed at a depth of 11.8 feet and 18.5 feet at boring B-1 and B-2, respectively. Groundwater was observed at the base of the existing fill in B-1 and within a silt layer at B-2.

Please note that these observations are a short term condition and the water level can change based on precipitation events and annual fluctuations of the localized groundwater table. Also water levels can take several days to stabilize in a fine grained soil profile. If accurate ground water level is necessary, piezometers should be installed in order to obtain accurate long term groundwater levels.

4.0 ANALYSIS AND RECOMMENDATIONS

4.1 Site Preparation

For a slab on grade at the proposed fuel storage tank we recommend a minimum of 3 feet of the existing materials be excavated and replaced with compacted engineered fill material. The excavation should extend a minimum of 3 feet horizontally around all sides of the slab

footprint. The bottom of the excavation should be well compacted to reduce potential settlement as discussed in section 4.2 below. Fill placement could utilize the excavated material provided it is compacted to at least 98% of the maximum dry density based on the standard proctor (ASTM D698). This may require some drying of the soil. Imported granular soil or crushed stone may be used as backfill as an alternative to the use of on-site soils. Use of a coarse granular soil or stone material low in fines would remove the need for compaction testing and would reduce frost effects as discussed in section 4.4 below.

The load bank may be placed on a slab on grade supported on the stiff sandy lean clay encountered at shallow depths.

4.2 Slab Support Discussion

The planned fuel tank location contains undocumented loose fill. This material can settle under future loading. The amount of settlement is relative to the amount of additional loading. For a uniformly distributed load on the planned slab the loading is 620 pounds per square foot (psf). For this relatively modest loading we estimate that the total settlement would be 1 to 3 inches. Given the moderate amount of sand within the clayey fill we expect that about half the total settlement would occur within 3 months. These estimates assume that conditions at boring B-1 are representative of the entire fill zone under the planned slab. Factors which could result in a high percentage of the total settlement acting as differential settlement include variation in fill depth and material type. We did not complete consolidation testing on the fill. Testing to accurately predict settlement of undocumented fill is difficult due to variation within the fill.

To reduce settlement we recommend that a minimum of 3 feet of the existing materials be excavated and replaced with compacted engineered fill material as described in section 4.1 above. We expect that this excavation and replacement should remove about 50% of the total settlement. This improvement would also reduce potential for differential settlement as the base of the excavation could be evaluated and additional excavation be completed where the soil cannot be properly compacted or where organic soils are observed. Some risk of unknowns including variations in fill depth or potential for buried pockets of compressible material would remain. Additional depth of excavation and replacement would provide additional improvement. Complete excavation and removal at the fuel tank location however would be difficult due to the water seepage at the lower sandy fill. Caving of excavation sides would be likely. Alternatives to remove risks of settlement potential include use of helical piers which would not produce significant spoils. Helical piers would be installed into the hard clay and silty clay soils at depth. Design of this type of system is typically by a design build firm based on a geotechnical report.

The load bank may be placed on a slab on grade supported on the stiff sandy lean clay encountered at shallow depths. We do not anticipate undercutting to be needed at this location. It is our opinion that at this location total settlements will be less than 1 inch and differential settlements will be less than ½ inch.

We recommend that a subgrade reaction modulus of 140 pounds per square inch per inch of deflection (pci) be used in the design of the slab on grade provided the recommendations of

section 4.1 are followed. This value assumes a 1 foot plate is used to determine the modulus. The design modulus value should be adjusted for the size of the slab/mat foundation.

4.3 Shallow Foundations

The improvements are expected to be supported on structural slabs. We provide recommended allowable bearing capacity for each structure per the request for proposal in the event that shallow foundations are used.

The natural very stiff to hard lean clay and silty clay are suitable to support a foundation system with an allowable bearing capacity of 5,000 psf. Higher bearing capacities may be possible for these soils and we can review the However these soils were encountered at depths of 18 and 8.5 feet below grade at borings B-1 and B-2 respectively. The dense silty gravel layer at a depth of 5.5 feet at boring B-2 is also suitable for support of 5,000 psf.

The sandy lean clay encountered at a depth of 1-foot at B-2 is suitable for an allowable bearing capacity of 3,000 psf.

The sandy silty clay fill at B-1 is not suitable for support of shallow foundations. If the fuel tank is planned to be supported by shallow foundations the footing areas should be undercut by at least 2 feet and replaced with compacted fill. The excavation should extend at least 1.5 feet wider than the footing on all sides. The bottom of the excavation should be well compacted to reduce potential settlement. The over-excavation can then be filled to grade with engineered fill placed in lifts not exceeding 12 inches and compacted to at least 98% of the Standard Proctor density (ASTM D698). For a footing supported on subgrade prepared by a 2-foot undercut the design allowable bearing capacity can be up to 1,500 psf.

4.4 Seismic Site Classification

Site soils were assigned a site class in accordance with the International Building Code (IBC) classification system. Based on the definitions in IBC Table 1615.1.1, it is our opinion that the appropriate classification for the site is Class D, "Stiff Soil Profile". Based on site class D, and mapped spectral response acceleration S_s and S_1 for the site area, the site coefficient F_a and F_v from the Wisconsin Enrolled Commercial Building Code 2002 are 1.2 and 1.7, respectively.

4.5 Other Considerations

The soils under the slabs will be subject to frost effects. To reduce frost potential a minimum of 3 feet of coarse granular fill low in fines (less than 5 percent passing #200 sieve) or stone could be used. It should be noted that 3-feet of excavation and replacement is recommended at the fuel tank location (see section 4.2). Where this option is used we recommend a geotextile separator fabric be used to prevent contamination of the granular material from the surrounding clayey soils.

If fuel lines or other connections are sensitive to differential movement we recommend that the project design consider the differential effects which could occur. In addition to the estimated settlement at the fuel tank location there could also be frost effects to consider.

The soluble sulfates results varied greatly. The result at B-1 sample 2 was 1,040 mg/kg (parts per million). The other results were 17.2 and 198 parts per million.

Where excavation below subgrade is required we recommend a 20% expansion value be used in determining the difference between the in-place volume and the volume of the excavated material when handled in a truck. The value for conversion of imported fill in a truck to a compacted condition is dependant on the type of material used. For the purposes of estimating a similar 20% value can be used.

Standard of Care

Our exploration was limited to evaluating subsurface soil and groundwater conditions pertaining to the proposed project. GESTRA Engineering did not perform any environmental, chemical, or hydrogeologic testing as these were not part of our work scope.

This report should be made available in its entirety to bidding contractors for information purposes. The soil borings and site sketch should not be detached from this report. Our report is not valid if used for purposes other than what is described in the report. All OSHA regulations such as those regarding proper sloping and temporary shoring of excavations should be followed during the entire construction process.

GESTRA has presented our professional opinions in this report in the form of recommendations. Our opinions are based on our understanding of current project information and related accepted engineering practices at the time of this report. Other than this, no warranty is implied or intended.

Sincerely,

GESTRA Engineering, Inc.

Report Prepared By:

Nayan Saha, EIT
Staff Geotechnical Engineer

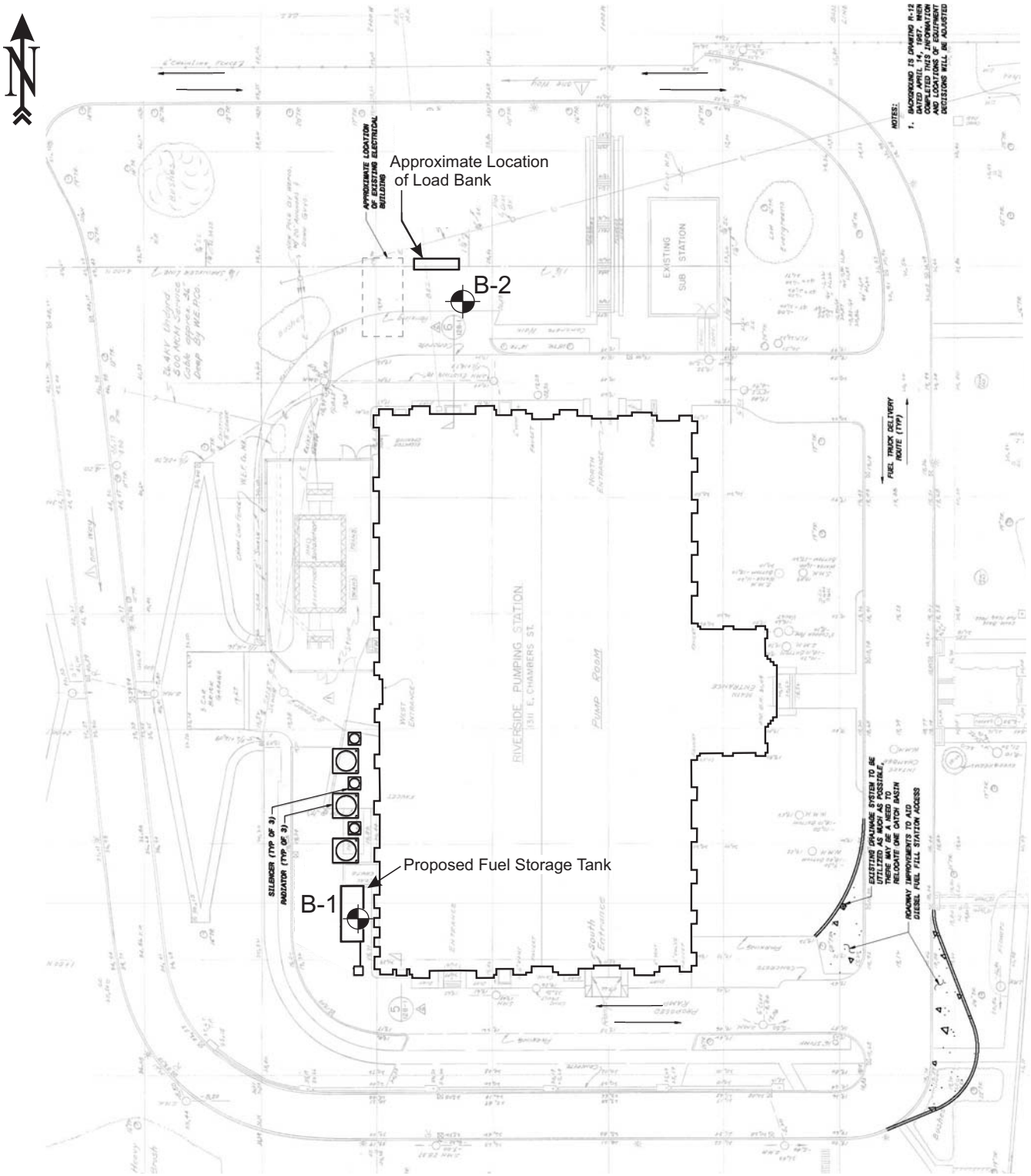
Report Reviewed By:

WISCONSIN DOUG BATH E 36254 Milwaukee, WI PROFESSIONAL ENGINEER

Doug Bath, PE
Senior Engineer

Appendix I

Borehole Layout Plan
Boring Log Nomenclature,
and Test Boring Logs



= BOREHOLE LOCATION

GESTRA Engineering, Inc.
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: (414) 933-7444
Fax: (414) 933-7844

Project Name & Location: MWW Riverside Milwaukee, WI	Scale: 1 in = 100 ft
Drawing Title: Borehole Layout Plan	Checked by: DB
Project No.: 09012-10	Date: April 12, 2009

GENERAL NOTES

DRILLING AND SAMPLING SYMBOLS

SYMBOL	DEFINATION
HSA	3 1/4" I.D. hollow Stem Auger
RWB	Rotary Wash Boring (Mud Drilling)
_FA	4", 6" or 10" Diameter Flight Auger
_HA	2", 4" or 6" Hand Auger
_DC	2 1/2" , 4" , 5" or 6" Steel Drive Casing
_RC	Size A, B, or N Rotary Casing
PD	Pipe Drill or Cleanout Tube
CS	Continuous Split Barrel Sampling
DM	Drill Mud
JW	Jetting Water
SB	2" O.D. Split Barrel Sample
_L	2 1/2" or 3 1/2" O.D. SB Liner Sample
_T	2" or 3" Thin Walled Tube Sample
3TP	3" Thin Walled Tube (Pitcher Sampler)
_TO	2" or 3" Thin Walled Tube (Osterberg Sampler)
W	Wash Sample
B	Bag Sample
P	Test Pit Sample
_Q	BQ, NQ, or PQ Wireline System
_X	AX, BX, or NX Double Tube Barrel
CR	Core Recovery – Percent
NSR	No Sample Recovered, classification based on action of drilling, equipment and/or material noted in drilling fluid or on sampling bit.
NMR	No Measurement Recorded, primarily due to presence of drilling or coring fluid.
▼	Water Level Symbol

TEST SYMBOLS

SYMBOL	DEFINATION
WC	Water Content - % of Dry Wt. – ASTM D 2216
OC	Organic Content - % of Dry Wt. – ASTM D 2974
DD	Dry Density – Pounds Per Cubic Foot
LL, PL	Liquid and Plastic Limit – ASTM D 4318

Additional Insertions in Last Column

Qu	Unconfined Comp. Strength-psf – ASTM D 2166
Pq	Penetrometer Reading – Tons/Square Foot
Ts	Torvane Reading – Tons/Square Foot
G	Specific Gravity – ASTM D 854
SL	Shrinkage Limits – ASTM D 427
OC	Organic Content – Combustion Method
SP	Swell Pressure - Tons/Square Foot
PS	Percent Swell
FS	Free Swell – Percent
pH	Hydrogen Ion Content. Meter Method
SC	Sulfate Content – Parts/ Million, same as mg/L
CC	Chloride Content - Parts/ Million, same as mg/L
C*	One Dimensional Consolidation – ASTM D 2453
Qc*	Triaxial Compression
D.S.*	Direct Shear – ASTM D 3080
K*	Coefficient of Permeability – cm/sec
D*	Dispersion test
DH*	Double Hydrometer – ASTM D 4221
MA*	Particle Size Analysis – ASTM D 422
R	Laboratory Receptivity, in ohm – cm – ASTM G 57
E*	Pressuremeter Deformation Modulus – TSF
PM*	Pressuremeter Test
VS*	Field Vane Shear – ASTM D 2573
IR*	Infiltrometer Test – ASTM D 3385
RQD	Rock Quality Designation – Percent

*See attached data sheet or graph

WATER LEVEL

Water levels shown on the boring logs are the levels measured in the borings at the time and under the conditions indicated. In sand, the indicated levels may be considered reliable ground water levels. In clay soil, it may not be possible to determine the ground water level within the normal time required for test borings, except where lenses or layers of more pervious waterbearing soil are present. Even then, an extended period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed texture soils may not indicate the true level of the ground water table. Perched water refers to water above an impervious layer, thus impeded in reaching the water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

DENSITY TERM	"N" VALUE	CONSISTENCY TERM	"N" VALUE
Very Loose	0-4	Very Soft	0-2
Loose	4-10	Soft	2-4
Medium Dense	10-30	Medium Stiff	4-8
Dense	30-50	Stiff	8-16
Very Dense	Over 50	Very Stiff	16-30
		Hard	Over 30

Standard "N" Penetration: Blows Per Foot of a 140 Pound Hammer Falling 30 inches on a 2 inch OD Split Barrel Sampler

Lamination	Up to 1/2" thick stratum
Layer	1/2" to 6" thick stratum
Lens	1/2" to 6" discontinuous stratum, pocket
Varved	Alternating laminations of clay, slit and /or fine grained sand or colors thereof
Dry	Powdery, no noticeable water
Moist	Below saturation
Wet	Saturated, above liquid limit
Water bearing	Pervious soil below water

RELATIVE GRAVEL PROPORTIONS

CONDITION	TERM	RANGE
Coarse Grained Soils	trace of gravel	2-14%
	with gravel	15-49%
Fine Grained Soils		
15-29% + No. 200	trace of gravel	2-14%
15-29% + No. 200	with gravel	15-29%
30% + No. 200	trace of gravel	2-14%
30% + No. 200	with gravel	15-24%
30% + No. 200	gravelly	25-49%

RELATIVE SIZES

Boulder	Over 12"
Cobble	3" - 12"
Gravel	
Coarse	3/4" - 3"
Fine	#4 – 3/4"
Sand	
Coarse	#4 - #10
Medium	#10 - #40
Fine	#40- #200
Silt & Clay	- # 200, Based on Plasticity

SOILS CLASSIFICATION FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 - 83

(Based on Unified Soil Classification System)

SOIL ENGINEERING

		Criteria for Assigning GroupSymbols and Group Names Using Laboratory Tests [A]		Soil Classification[B] Group Symble	Group Name
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less Less than 5% fines [C]	Cu≥ 4 and 1≤ Cc ≤3[E]	GW	Well graded gravel [F]
			Cu< 4 and/or 1> Cc >3[E]	GP	Poorly graded gravel [F]
		Gravels with Fines more than 12% fines [C]	Fines Classify as ML or MH	GM	Silty gravel [F.G.H.]
			Fines classify as CL or CH	GC	Clayey gravel [F.G.H.]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean sandss Less than 5% fines [D]	Cu≥ 6 and 1≤ Cc ≤3[E]	SW	Well graded sand [I]
			Cu< 6 and/or 1> Cc >3[E]	SP	Poorly graded sand [I]
		Sands with Fines more than 12% fines [D]	Fines Classify as ML or MH	SM	Silty sand [G.H.I]
			Fines classify as CL or CH	SC	Clayey sand [G.H.I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid Limit less than 50	inorganic	PI >7 and plots on or above " A" line	CL	Lean clay [K.L.M]
			PI<4 or plots below " A " line	ML	Silt [K.L.M]
		organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [K.L.M.N] Organic Silt [K.L.M.O]
	Silts and Clays Liquid Limit 50 or more	inorganic	PI plots on or above " A " line	CH	Fat clay [K.L.M]
			PI plots below " A " line	MH	Elastic silt [K.L.M]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [K.L.M.P] Organic Silt [K.L.M.Q]
Highly organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat
Fibric Peat > 67% Fibers		Hemic Peat 33 % - 67 % Fibers		sapric	Peat < 33% Fibers

[A] Based on the material passing the 3-in (75- mm)sieve

[B] If field sample contained cobbles or boulders, or both. add with cobbles or boulders, or both to group name

[C] Gravels with 5 to 12 % fines require dual symbols:
GW - GM well-graded gravel with silt
GW - GC well-graded gravel with clay
GP - GM poorly-graded gravel with Silt
GP - GC poorly-graded gravel with clay

[D] Sands with 5 to 12 % fines require dual symbols:
SW -SM well-graded sand with silt
SW - SC well-graded sand with clay
SP - SM poorly-graded sand with Silt
SP - SC poorly-graded sand with clay

[E] $Cu = \frac{D_{60}}{D_{10}}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name

[G] If fines classify as CL-ML, use dual symbol GC-GM. or SC-SM

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in hatched area, soil is a CL_ML silty clay
If soil contains 15 to 29% plus No. 200, add, "with sand" or " with gravel", whichever is predominent

[L] If soil contains ≥ 30% plus No.200, predominantly sand, add "sandy" to the group name

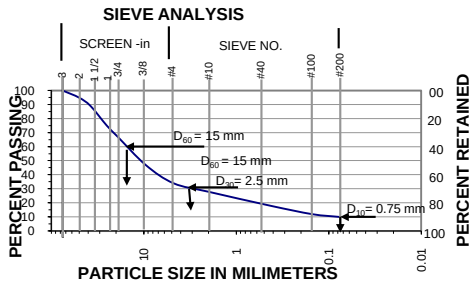
[M] If soil contains ≥ 30% plus No.200, predominantly gravel add "gravelly" to the group name

[N] PI ≥4 and plots on or above "A" Line

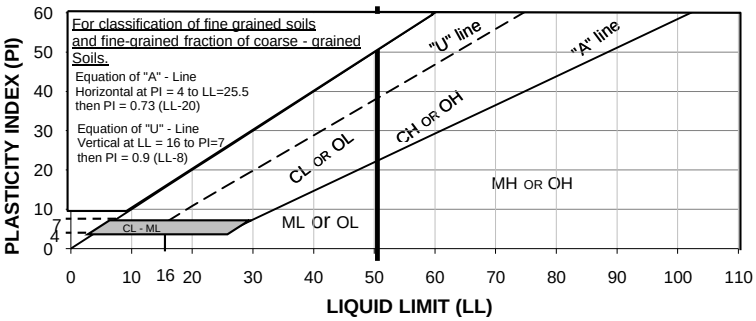
[O] PI < 4 or plots below "A" Line

[P] PI plots on or above "A" Line

[Q] PI plots below "A" Line



$Cu = \frac{D_{60}}{D_{10}} = \frac{15}{0.075} = 200$ $C_c = \frac{(D_{30})^2}{D_{60} X D_{10}} = \frac{(2.5)^2}{15X\ 0.075} = 5.6$



Geotechnical -Structural- Pavement - Construction Materials

SOIL BORING LOG

Gestra Engineering Inc.
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: 414-933-7444, Fax: 414-933-7844

PROJECT NAME: MWW Riverside	DATE DRILLING STARTED: 4/7/2009	PAGE NUMBER: 1 of 1	BORING NUMBER: B-1
PROJECT LOCATION: Milwaukee, Wisconsin	DATE DRILLING ENDED: 4/7/2009	PROJECT NUMBER: 09012-10	DRILLING RIG: CME 55
BORING DRILLED BY: FIRM: Gestra, CREW CHIEF: A. Woerpel	FIELD LOG: DB	NORTHING	DRILLING METHOD: 3¼" HSA
	LAB LOG / QC: D. Bath	EASTING	SURFACE ELEVATION: 98.83 ft

Number and Type	Recovery (in)	Blow Counts	N - Value	Depth (ft)	Elevation	Soil Description and Geological Origin for Each Major Unit	USCS Classification	Unconfined Comp. Strength (Q_u or Q_p) (tsf)	Liquid Limit	Plasticity Index	Moisture Content (%)	Comments
						ASPHALT (6")						
						CONCRETE (9")						Drilled on B-1 survey mark - No offset
SS - 1	9	2/2/4	6			FILL, sandy silty clay, brown, moist, stiff		1.00			16	Wet density = 133 pcf Dry density = 111 pcf
SS - 2	11	3/2/3	5	5	93.8	3/4" piece of gravel in catcher at bottom of Sample 2		1.00			18	
SS - 3	11	5/5/4	9					1.00			23	
SS - 4	9	2/2/1	3	10	88.8	FILL, silty sand, moist, black, very loose					18	
SS - 5	9	1/1/1	2			3" wet zone at 11.8'-12'						
						SILTY CLAY, gray-brown, wet, soft	CL-ML					
						LEAN CLAY, light gray, moist, stiff						
SS - 6	16	2/5/4	9	15	83.8			1.00	28	11	20	
							CL					
SH - 7	4										23	Shelby Tube from 16'-18' bgs (24" Push)
SH - 8	18					LEAN CLAY, with 1/16" silt seams throughout, gray, moist, very stiff		3.49			22	Shelby Tube from 18'-19.5' bgs (18" Push) Wet density= 135 pcf Dry density= 111 pcf
				20	78.8							
SS - 9	18	6/9/12	21	25	73.8		CL	3.50			18	
SS - 10	18	5/7/10	17	30	68.8	End of boring at 30'		3.50			20	

WATER & CAVE-IN OBSERVATION DATA

WATER ENCOUNTERED DURING DRILLING: 11.8 ft.	CAVE DEPTH AT COMPLETION: N/A ft.	WET ☐ DRY ☐
WATER LEVEL AT COMPLETION: N/A ft.	CAVE DEPTH AFTER HOURS: N/A ft., 0 hrs.	WET ☐ DRY ☐
WATER LEVEL AFTER 3 HOURS: 26 ft.		

NOTE: Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected.

SOIL BORING LOG

Gestra Engineering Inc.
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: 414-933-7444, Fax: 414-933-7844

PROJECT NAME: MWW Riverside	DATE DRILLING STARTED: 4/7/2009	PAGE NUMBER: 1 of 1	BORING NUMBER: B-2
PROJECT LOCATION: Milwaukee, Wisconsin	DATE DRILLING ENDED: 4/7/2009	PROJECT NUMBER: 09012-10	DRILLING RIG: CME 55
BORING DRILLED BY: FIRM: Gestra, CREW CHIEF: A. Woerpel	FIELD LOG: DB	NORTHING	DRILLING METHOD: 3¼" HSA
	LAB LOG / QC: D. Bath	EASTING	SURFACE ELEVATION: 100.5 ft

Number and Type	Recovery (in)	Blow Counts	N - Value	Depth (ft)	Elevation	Soil Description and Geological Origin for Each Major Unit	USCS Classification	Unconfined Comp. Strength (Q_u or Q_p) (tsf)	Moisture Content (%)	Comments
						TOPSOIL (4")				Surface elevation ~ 1' above of pavement
SS - 1	3	12/13/8	21			SANDY LEAN CLAY, with gravel, reddish brown, moist, stiff to very stiff	CL		24	Offset from stake: 5' South, 2' West and 3" lower
SS - 2	4	6/3/6	9	5	95.5				17	
SS - 3	9	26/13/18	31			SILTY GRAVEL, with sand, brown, moist, dense	GM			
SS - 4	16	15/16/16	32	10	90.5	SILTY CLAY, reddish gray, moist, hard	CL-ML	4.00	21	Wet density = 125 pcf Dry density = 103 pcf
SS - 5	16	8/13/20	33					**5.03**	17	Wet density = 130 pcf Dry density = 111 pcf
SH - 6	13			15	85.5			4.5+		Shelby Tube: 13'-15' bgs
						SILT, gray, wet, very dense				
SS - 7	18	13/21/30	51	20	80.5		ML			
						LEAN CLAY, gray, moist, hard	CL			
SS - 8	16	12/16/28	44	25	75.5	SILTY CLAY, gray, moist, very stiff	CL-ML	4.00 3.25	15	Sample 8A: 23.5'-24.5' Sample 8B: 24.5'-25'
						LEAN CLAY, varved, with 1/16" silt seams throughout, gray, moist, hard	CL			
SS - 9	16	8/15/19	34	30	70.5	End of boring at 30'		4.50	18	

WATER & CAVE-IN OBSERVATION DATA

WATER ENCOUNTERED DURING DRILLING: 18.5 ft.		CAVE DEPTH AT COMPLETION: N/A ft.	WET ☐ DRY ☐
WATER LEVEL AT COMPLETION: 18 ft.		CAVE DEPTH AFTER HOURS: N/A ft., 0 hrs.	WET ☐ DRY ☐
WATER LEVEL AFTER 0 HOURS: N/A ft.			

NOTE: Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected.

Appendix II

Geotechnical Lab Test Results and Environmental Lab Test Results

GESTRA Engineering, Inc
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: (414) 933-7444; Fax: (414) 933-7844

Laboratory Test Results of
Moisture Content, Organic Content, and Density of Soil

Project Name: MWW Riverside
Project Number: 09012-10
Project Location: Milwaukee, WI
ASTM Designation: **D2216, D 2974**

Date: April 10, 2009
Report To:

Boring Number	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1
Sample Number	1	2	3	4A	6	7	9	10
Cup Number	3	p2	s15	17	s8	14	11A	n1
Weight of Cup (g)	16.69	24.69	17.05	15.89	16.76	15.86	25.28	29.33
Weight of Wet Soil and Cup (g)	47.68	70.15	39.02	39.29	40.17	33.93	48.40	54.09
Weight of Dry Soil and Cup (g)	43.47	63.34	34.84	35.76	36.32	30.59	44.95	49.90
Weight of Soil and Cup After Burn (g)								
Diameter (in)								
Length(in)								
Moisture Content (%)	**16**	**18**	**23**	**18**	**20**	**23**	**18**	**20**
Organic Content (%)								
Wet Density (pcf)								
Dry Density (pcf)								

Boring Number	B-2	B-2	B-2	B-2	B-2	B-2	B-2	
Sample Number	1	2	4	5	8A	8B	9	
Cup Number	x23	k2	d2	3a	24a	a1	10	
Weight of Cup (g)	24.16	27.90	23.62	24.16	6.22	6.07	6.07	
Weight of Wet Soil and Cup (g)	46.79	54.83	68.47	54.54	34.82	36.47	26.49	
Weight of Dry Soil and Cup (g)	42.43	50.91	60.82	50.13	31.07	32.62	23.33	
Weight of Soil and Cup After Burn (g)								
Diameter (in)								
Length(in)								
Moisture Content (%)	**24**	**17**	**21**	**17**	**15**	**15**	**18**	
Organic Content (%)								
Wet Density (pcf)								
Dry Density (pcf)								

GESTRA Engineering, Inc
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: (414) 933-7444; Fax: (414) 933-7844

Laboratory Test Results of Moisture Content, Wet Density & Dry Density

Project Name:	MWW Riverside	Date:	4/10/2009
Project Number:	09012-10	Client:	
Projection Location:	Milwaukee, WI		

Sample Information

Type of Sample	Split spoon
Boring Number	B-1
Sample Number	S-1
Depth of Sample	1'-2.5'

Moisture Content Data		Density Calculation	
Cup number	x1	Diameter of sample (in)	1.387
Weight of Cup (g)	6.10	Height of sample (in)	1.206
Wet Weight of Sample & Cup (g)	70.16	Weight of sample (lb)	0.140
Dry Weight of Sample & Cup (g)	59.65	Volume of sample (ft^3)	0.001
Dry Weight of Sample w/o Cup (g)	53.55		
Wet Weight of Sample w/o Cup (g)	64.06	Wet Dencity (lbs/ft^3)	**133**
Moisture Content (%)	**20**	Dry Density (lbs/ft^3)	**111**

Sample Information

Type of Sample	Split spoon
Boring Number	B-2
Sample Number	S-4
Depth of Sample	8.5'-10'

Moisture Content Data		Density Calculation	
Cup number	e1	Diameter of sample (in)	1.397
Weight of Cup (g)	6.12	Height of sample (in)	1.065
Wet Weight of Sample & Cup (g)	60.13	Weight of sample (lb)	0.118
Dry Weight of Sample & Cup (g)	50.68	Volume of sample (ft^3)	0.001
Dry Weight of Sample w/o Cup (g)	44.56		
Wet Weight of Sample w/o Cup (g)	54.01	Wet Dencity (lbs/ft^3)	**125**
Moisture Content (%)	**21**	Dry Density (lbs/ft^3)	**103**

Reviewed By: N. Saha
GESTRA Engineering, Inc.

GESTRA Engineering, Inc
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: (414) 933-7444; Fax: (414) 933-7844

Laboratory Test Results of Atterberg Limits of Soil

Project Name:	MWW Riverside	Date:	April 13, 2009
Project Number:	09012-10	Client:	
Projection Location:	Milwaukee,WI		
ASTM Designation:	**D4318**		

Sample Information

Type of Sample	Split Spoon
Boring Number	B-1
Sample Number	S-6
Depth of Sample	13.5'-15'

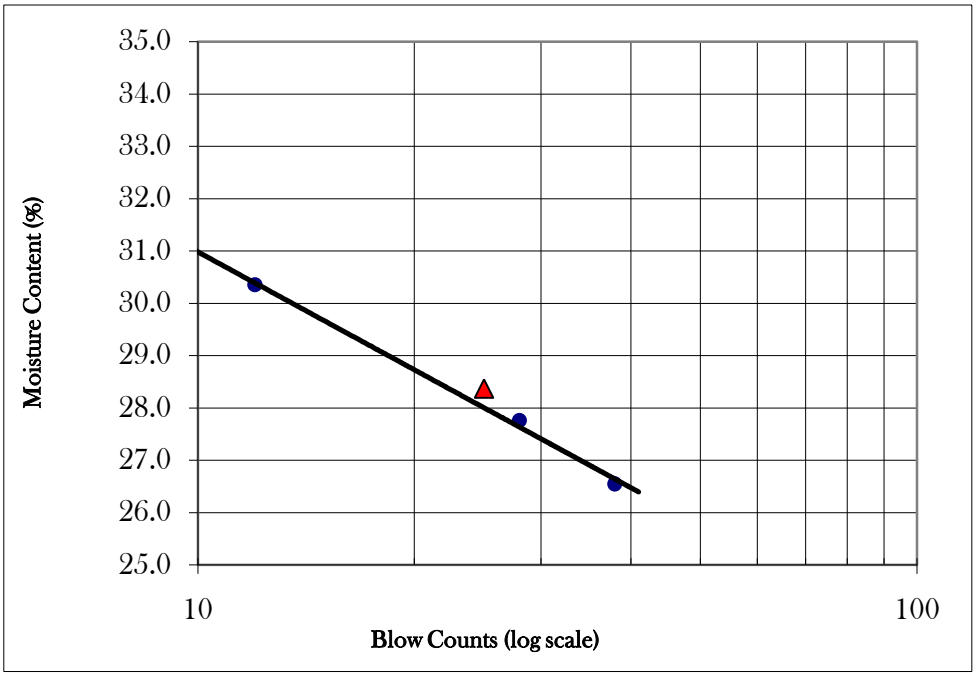
Determination of Liquid Limit

Cup Number	36	20	26
Weight of Cup (g)	15.88	15.81	15.99
Weight of Wet Soil and Cup (g)	39.95	41.58	51.03
Weight of Dry Soil and Cup (g)	34.90	35.98	42.87
Moisture Content (%)	26.6	27.8	30.4
Blow Counts	38	28	12

Determination of Plastic Limit

Cup Number	x1	u1
Weight of Cup (g)	6.11	5.95
Weight of Wet Soil and Cup (g)	8.32	8.04
Weight of Dry Soil and Cup (g)	8.00	7.75
Moisture Content (%)	16.9	16.1

Compilation of Test Results



Liquid Limit	28
Plastic Limit	17
Plasticity Index	11
USCS Symbol	**CL**

Performed by: KW

Reviewed By: N. Saha
GESTRA Engineering

GESTRA Engineering, Inc
1626 W. Fond Du Lac Ave.
Milwaukee, WI 53205
Phone: (414) 933-7444, Fax: (414) 933-7844

Laboratory Test Results of Unconfined Compressive Strength of Soil

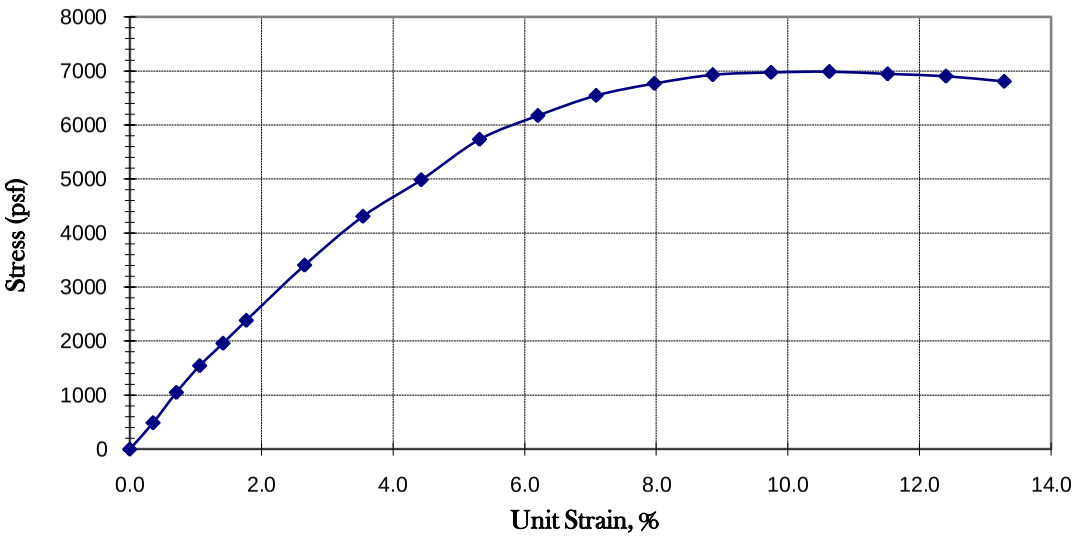
Project Name:	MWW Riverside	Date:	April 15, 2009
Project Number:	09012-10	Report To:	
Project Location:	Milwaukee		
ASTM Designation:	**D2166**		

Test Data

Deformation dial reading (0.001 in.)	Sample stress (psf)
0	0
20	489
40	1051
60	1546
80	1960
100	2384
150	3406
200	4309
250	4985
300	5734
350	6173
400	6546
450	6768
500	6929
550	6973
600	6987
650	6946
700	6903
750	6806
800	

Sample Information

Boring no.:	1	Diameter (in)	2.77
Sample no.:	8	Area (sq. in.):	6.04
Depth of Soil:	18'-20'	Height: (in.):	5.64
Description of Soil:	LEAN CLAY, gray, moist		
Strain Rate (in/min):	0.04		



UC Strength, Qu (psf)	**6,987**
Cohesion, c (psf)	3,494
Wet Density (pcf)	135
Dry Density (pcf)	111
Moisture Content (%)	22

Remarks

Stress governed failure.

Reviewed By: N. Saha

Geotechnical-Structural-Pavement-Construction Material

GESTRA Engineering
1626 W. Fond du Lac Avenue
Milwaukee, WI 53205
Phone: (414) 933 7444, Fax: (414) 933 7844

Laboratory Test Results of Moisture Content, Wet Density & Dry Density

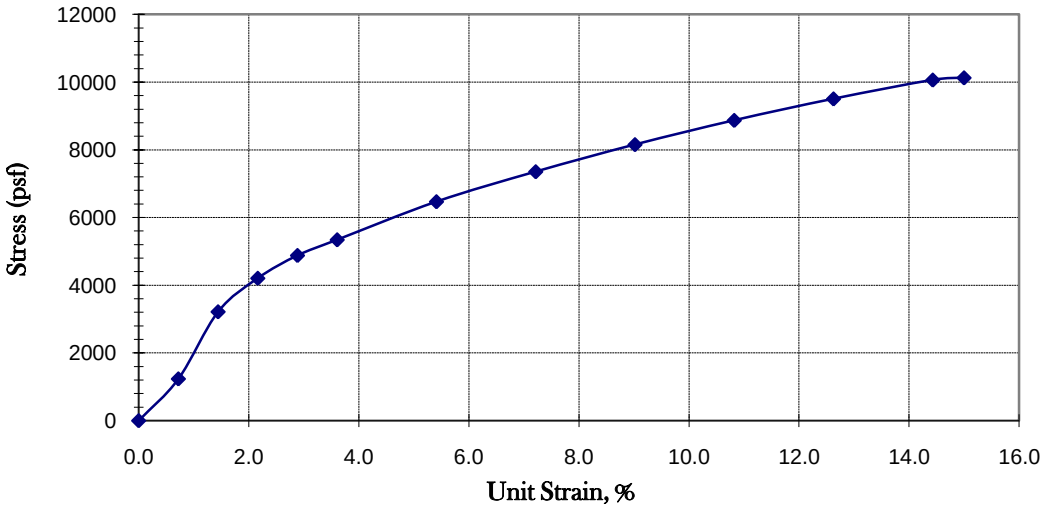
Project Name:	MWW Riverside	Date:	April 10, 2009
Project Number:	09012-10	Report to:	
Project Location:	Milwaukee, WI		
ASTM Designation:	**D2166**		

Test Data

Deformation dial reading (0.001 in.)	Sample stress (psf)
0	0
20	1234
40	3217
60	4207
80	4880
100	5344
150	6469
200	7355
250	8154
300	8871
350	9506
400	10063
416	10063

Sample Information

Type of Sample:	Split Spoons
Boring Number:	B-2
Sample Number:	5
Depth of Sample:	11.5'-13'
Diameter (in)	1.38
Area (sq. in.):	1.51
Height: (in.):	2.77
Description of Soil:	LEAN CLAY, with silt lenses, gray, moist
Strain Rate (in/min):	0.042



UC Strength, Qu (psf)	**10,063**
Cohesion, c (psf)	5032
Wet Density (pcf)	130
Dry Density (pcf)	111
Moisture Content (%)	17

Remarks

Silt lenses observed throughout the sample.
Strain controlled failure.

Performed by: NS

Reviewed By: N. Saha
GESTRA Engineering

Geotechnical-Structural-Pavement-Construction Material

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

ACCOUNTS PAYABLE
GESTRA ENGINEERING
1626 W. FOND DU LAC AVE.
MILWAUKEE, WI 53205

Report Date *16-Apr-09*

Project Name MWW RIVERSIDE **Invoice #** E18805
Project # 09012-10

Lab Code 5018805A
Sample ID B1 S2
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	87.5	%			1	5021		4/13/2009	MDK	1
Wet Chemistry										
General										
Sulfate, Total	1040	mg/kg	8.5	26.5	1	160.2		4/14/2009	MDK	1

Lab Code 5018805B
Sample ID B1 S3
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	85.6	%			1	5021		4/13/2009	MDK	1
Wet Chemistry										
General										
Sulfate, Total	198	mg/kg	8.5	26.5	1	160.2		4/14/2009	MDK	1

Project Name MWW RIVERSIDE
Project # 09012-10

Invoice # E18805

Lab Code 5018805C
Sample ID B2 S2
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	91.6	%			1	5021		4/13/2009	MDK	1
Wet Chemistry										
General										
Sulfate, Total	17.2 "J"	mg/kg	8.5	26.5	1	160.2		4/14/2009	MDK	1

Lab Code 5018805E
Sample ID B1 S3
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 20	ug/kg	20	64	1	8260B		4/14/2009	CJR	1
Bromobenzene	< 34	ug/kg	34	107	1	8260B		4/14/2009	CJR	1
Bromodichloromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	1
Bromoform	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	1
tert-Butylbenzene	< 23	ug/kg	23	75	1	8260B		4/14/2009	CJR	1
sec-Butylbenzene	< 25	ug/kg	25	81	1	8260B		4/14/2009	CJR	1
n-Butylbenzene	< 35	ug/kg	35	110	1	8260B		4/14/2009	CJR	1
Carbon Tetrachloride	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	1
Chloroethane	< 23	ug/kg	23	73	1	8260B		4/14/2009	CJR	1
Chloroform	< 50	ug/kg	50	160	1	8260B		4/14/2009	CJR	1
Chloromethane	< 43	ug/kg	43	136	1	8260B		4/14/2009	CJR	1
2-Chlorotoluene	< 31	ug/kg	31	97	1	8260B		4/14/2009	CJR	1
4-Chlorotoluene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	1
1,2-Dibromo-3-chloropropane	< 37	ug/kg	37	118	1	8260B		4/14/2009	CJR	1
Dibromochloromethane	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	1
1,4-Dichlorobenzene	< 42	ug/kg	42	132	1	8260B		4/14/2009	CJR	1
1,3-Dichlorobenzene	< 41	ug/kg	41	130	1	8260B		4/14/2009	CJR	1
1,2-Dichlorobenzene	< 32	ug/kg	32	103	1	8260B		4/14/2009	CJR	1
Dichlorodifluoromethane	< 33	ug/kg	33	105	1	8260B		4/14/2009	CJR	1

Project Name MWW RIVERSIDE **Invoice #** E18805
Project # 09012-10

Lab Code 5018805E
Sample ID B1 S3
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2-Dichloroethane	< 24	ug/kg	24	75	1	8260B		4/14/2009	CJR	1
1,1-Dichloroethane	< 22	ug/kg	22	69	1	8260B		4/14/2009	CJR	1
1,1-Dichloroethene	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	1
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	92	1	8260B		4/14/2009	CJR	1
1,2-Dichloropropane	< 19	ug/kg	19	59	1	8260B		4/14/2009	CJR	1
2,2-Dichloropropane	< 115	ug/kg	115	365	1	8260B		4/14/2009	CJR	1
1,3-Dichloropropane	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	1
Di-isopropyl ether	< 15	ug/kg	15	48	1	8260B		4/14/2009	CJR	1
EDB (1,2-Dibromoethane)	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	1
Ethylbenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	1
Hexachlorobutadiene	< 50	ug/kg	50	159	1	8260B		4/14/2009	CJR	1
Isopropylbenzene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	1
p-Isopropyltoluene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	1
Methylene chloride	< 44	ug/kg	44	140	1	8260B		4/14/2009	CJR	1
Methyl tert-butyl ether (MTBE)	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	1
Naphthalene	< 117	ug/kg	117	373	1	8260B		4/14/2009	CJR	1
n-Propylbenzene	< 29	ug/kg	29	93	1	8260B		4/14/2009	CJR	1
1,1,2,2-Tetrachloroethane	< 25	ug/kg	25	79	1	8260B		4/14/2009	CJR	1
1,1,1,2-Tetrachloroethane	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	1
Tetrachloroethene	< 18	ug/kg	18	57	1	8260B		4/14/2009	CJR	1
Toluene	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	1
1,2,4-Trichlorobenzene	< 53	ug/kg	53	169	1	8260B		4/14/2009	CJR	1
1,2,3-Trichlorobenzene	< 87	ug/kg	87	277	1	8260B		4/14/2009	CJR	1
1,1,1-Trichloroethane	< 27	ug/kg	27	84	1	8260B		4/14/2009	CJR	1
1,1,2-Trichloroethane	< 30	ug/kg	30	94	1	8260B		4/14/2009	CJR	1
Trichloroethene (TCE)	< 20	ug/kg	20	65	1	8260B		4/14/2009	CJR	1
Trichlorofluoromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	1
1,2,4-Trimethylbenzene	< 20	ug/kg	20	63	1	8260B		4/14/2009	CJR	1
1,3,5-Trimethylbenzene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	1
Vinyl Chloride	< 17	ug/kg	17	56	1	8260B		4/14/2009	CJR	1
m&p-Xylene	< 33	ug/kg	33	104	1	8260B		4/14/2009	CJR	1
o-Xylene	< 15	ug/kg	15	47	1	8260B		4/14/2009	CJR	1

Lab Code 5018805F
Sample ID B1 S1
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 20	ug/kg	20	64	1	8260B		4/14/2009	CJR	13
Bromobenzene	< 34	ug/kg	34	107	1	8260B		4/14/2009	CJR	13
Bromodichloromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
Bromoform	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
tert-Butylbenzene	< 23	ug/kg	23	75	1	8260B		4/14/2009	CJR	13
sec-Butylbenzene	< 25	ug/kg	25	81	1	8260B		4/14/2009	CJR	13
n-Butylbenzene	< 35	ug/kg	35	110	1	8260B		4/14/2009	CJR	13
Carbon Tetrachloride	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13

Project Name MWW RIVERSIDE
Project # 09012-10

Invoice # E18805

Lab Code 5018805F
Sample ID B1 S1
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Chloroethane	< 23	ug/kg	23	73	1	8260B		4/14/2009	CJR	13
Chloroform	< 50	ug/kg	50	160	1	8260B		4/14/2009	CJR	13
Chloromethane	< 43	ug/kg	43	136	1	8260B		4/14/2009	CJR	13
2-Chlorotoluene	< 31	ug/kg	31	97	1	8260B		4/14/2009	CJR	13
4-Chlorotoluene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
1,2-Dibromo-3-chloropropane	< 37	ug/kg	37	118	1	8260B		4/14/2009	CJR	13
Dibromochloromethane	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
1,4-Dichlorobenzene	< 42	ug/kg	42	132	1	8260B		4/14/2009	CJR	13
1,3-Dichlorobenzene	< 41	ug/kg	41	130	1	8260B		4/14/2009	CJR	13
1,2-Dichlorobenzene	< 32	ug/kg	32	103	1	8260B		4/14/2009	CJR	13
Dichlorodifluoromethane	< 33	ug/kg	33	105	1	8260B		4/14/2009	CJR	13
1,2-Dichloroethane	< 24	ug/kg	24	75	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethane	< 22	ug/kg	22	69	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethene	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
trans-1,2-Dichloroethene	< 29	ug/kg	29	92	1	8260B		4/14/2009	CJR	13
1,2-Dichloropropane	< 19	ug/kg	19	59	1	8260B		4/14/2009	CJR	13
2,2-Dichloropropane	< 115	ug/kg	115	365	1	8260B		4/14/2009	CJR	13
1,3-Dichloropropane	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13
Di-isopropyl ether	< 15	ug/kg	15	48	1	8260B		4/14/2009	CJR	13
EDB (1,2-Dibromoethane)	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
Ethylbenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Hexachlorobutadiene	< 50	ug/kg	50	159	1	8260B		4/14/2009	CJR	13
Isopropylbenzene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
p-Isopropyltoluene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
Methylene chloride	< 44	ug/kg	44	140	1	8260B		4/14/2009	CJR	13
Methyl tert-butyl ether (MTBE)	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
Naphthalene	< 117	ug/kg	117	373	1	8260B		4/14/2009	CJR	13
n-Propylbenzene	< 29	ug/kg	29	93	1	8260B		4/14/2009	CJR	13
1,1,2,2-Tetrachloroethane	< 25	ug/kg	25	79	1	8260B		4/14/2009	CJR	13
1,1,1,2-Tetrachloroethane	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
Tetrachloroethene	< 18	ug/kg	18	57	1	8260B		4/14/2009	CJR	13
Toluene	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
1,2,4-Trichlorobenzene	< 53	ug/kg	53	169	1	8260B		4/14/2009	CJR	13
1,2,3-Trichlorobenzene	< 87	ug/kg	87	277	1	8260B		4/14/2009	CJR	13
1,1,1-Trichloroethane	< 27	ug/kg	27	84	1	8260B		4/14/2009	CJR	13
1,1,2-Trichloroethane	< 30	ug/kg	30	94	1	8260B		4/14/2009	CJR	13
Trichloroethene (TCE)	< 20	ug/kg	20	65	1	8260B		4/14/2009	CJR	13
Trichlorofluoromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
1,2,4-Trimethylbenzene	< 20	ug/kg	20	63	1	8260B		4/14/2009	CJR	13
1,3,5-Trimethylbenzene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
Vinyl Chloride	< 17	ug/kg	17	56	1	8260B		4/14/2009	CJR	13
m&p-Xylene	< 33	ug/kg	33	104	1	8260B		4/14/2009	CJR	13
o-Xylene	< 15	ug/kg	15	47	1	8260B		4/14/2009	CJR	13

Project Name MWW RIVERSIDE **Invoice #** E18805
Project # 09012-10

Lab Code 5018805G
Sample ID B2 S2
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 20	ug/kg	20	64	1	8260B		4/14/2009	CJR	13
Bromobenzene	< 34	ug/kg	34	107	1	8260B		4/14/2009	CJR	13
Bromodichloromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
Bromoform	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
tert-Butylbenzene	< 23	ug/kg	23	75	1	8260B		4/14/2009	CJR	13
sec-Butylbenzene	< 25	ug/kg	25	81	1	8260B		4/14/2009	CJR	13
n-Butylbenzene	< 35	ug/kg	35	110	1	8260B		4/14/2009	CJR	13
Carbon Tetrachloride	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Chloroethane	< 23	ug/kg	23	73	1	8260B		4/14/2009	CJR	13
Chloroform	< 50	ug/kg	50	160	1	8260B		4/14/2009	CJR	13
Chloromethane	< 43	ug/kg	43	136	1	8260B		4/14/2009	CJR	13
2-Chlorotoluene	< 31	ug/kg	31	97	1	8260B		4/14/2009	CJR	13
4-Chlorotoluene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
1,2-Dibromo-3-chloropropane	< 37	ug/kg	37	118	1	8260B		4/14/2009	CJR	13
Dibromochloromethane	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
1,4-Dichlorobenzene	< 42	ug/kg	42	132	1	8260B		4/14/2009	CJR	13
1,3-Dichlorobenzene	< 41	ug/kg	41	130	1	8260B		4/14/2009	CJR	13
1,2-Dichlorobenzene	< 32	ug/kg	32	103	1	8260B		4/14/2009	CJR	13
Dichlorodifluoromethane	< 33	ug/kg	33	105	1	8260B		4/14/2009	CJR	13
1,2-Dichloroethane	< 24	ug/kg	24	75	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethane	< 22	ug/kg	22	69	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethene	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
trans-1,2-Dichloroethene	< 29	ug/kg	29	92	1	8260B		4/14/2009	CJR	13
1,2-Dichloropropane	< 19	ug/kg	19	59	1	8260B		4/14/2009	CJR	13
2,2-Dichloropropane	< 115	ug/kg	115	365	1	8260B		4/14/2009	CJR	13
1,3-Dichloropropane	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13
Di-isopropyl ether	< 15	ug/kg	15	48	1	8260B		4/14/2009	CJR	13
EDB (1,2-Dibromoethane)	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
Ethylbenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Hexachlorobutadiene	< 50	ug/kg	50	159	1	8260B		4/14/2009	CJR	13
Isopropylbenzene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
p-Isopropyltoluene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
Methylene chloride	< 44	ug/kg	44	140	1	8260B		4/14/2009	CJR	13
Methyl tert-butyl ether (MTBE)	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
Naphthalene	< 117	ug/kg	117	373	1	8260B		4/14/2009	CJR	13
n-Propylbenzene	< 29	ug/kg	29	93	1	8260B		4/14/2009	CJR	13
1,1,2,2-Tetrachloroethane	< 25	ug/kg	25	79	1	8260B		4/14/2009	CJR	13
1,1,1,2-Tetrachloroethane	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
Tetrachloroethene	< 18	ug/kg	18	57	1	8260B		4/14/2009	CJR	13
Toluene	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
1,2,4-Trichlorobenzene	< 53	ug/kg	53	169	1	8260B		4/14/2009	CJR	13
1,2,3-Trichlorobenzene	< 87	ug/kg	87	277	1	8260B		4/14/2009	CJR	13
1,1,1-Trichloroethane	< 27	ug/kg	27	84	1	8260B		4/14/2009	CJR	13
1,1,2-Trichloroethane	< 30	ug/kg	30	94	1	8260B		4/14/2009	CJR	13
Trichloroethene (TCE)	< 20	ug/kg	20	65	1	8260B		4/14/2009	CJR	13

Project Name MWW RIVERSIDE **Invoice #** E18805
Project # 09012-10

Lab Code 5018805G
Sample ID B2 S2
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Trichlorofluoromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
1,2,4-Trimethylbenzene	< 20	ug/kg	20	63	1	8260B		4/14/2009	CJR	13
1,3,5-Trimethylbenzene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
Vinyl Chloride	< 17	ug/kg	17	56	1	8260B		4/14/2009	CJR	13
m&p-Xylene	< 33	ug/kg	33	104	1	8260B		4/14/2009	CJR	13
o-Xylene	< 15	ug/kg	15	47	1	8260B		4/14/2009	CJR	13

Lab Code 5018805H
Sample ID B2 S1
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 20	ug/kg	20	64	1	8260B		4/14/2009	CJR	13
Bromobenzene	< 34	ug/kg	34	107	1	8260B		4/14/2009	CJR	13
Bromodichloromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
Bromoform	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
tert-Butylbenzene	< 23	ug/kg	23	75	1	8260B		4/14/2009	CJR	13
sec-Butylbenzene	< 25	ug/kg	25	81	1	8260B		4/14/2009	CJR	13
n-Butylbenzene	< 35	ug/kg	35	110	1	8260B		4/14/2009	CJR	13
Carbon Tetrachloride	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Chloroethane	< 23	ug/kg	23	73	1	8260B		4/14/2009	CJR	13
Chloroform	< 50	ug/kg	50	160	1	8260B		4/14/2009	CJR	13
Chloromethane	< 43	ug/kg	43	136	1	8260B		4/14/2009	CJR	13
2-Chlorotoluene	< 31	ug/kg	31	97	1	8260B		4/14/2009	CJR	13
4-Chlorotoluene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
1,2-Dibromo-3-chloropropane	< 37	ug/kg	37	118	1	8260B		4/14/2009	CJR	13
Dibromochloromethane	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
1,4-Dichlorobenzene	< 42	ug/kg	42	132	1	8260B		4/14/2009	CJR	13
1,3-Dichlorobenzene	< 41	ug/kg	41	130	1	8260B		4/14/2009	CJR	13
1,2-Dichlorobenzene	< 32	ug/kg	32	103	1	8260B		4/14/2009	CJR	13
Dichlorodifluoromethane	< 33	ug/kg	33	105	1	8260B		4/14/2009	CJR	13
1,2-Dichloroethane	< 24	ug/kg	24	75	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethane	< 22	ug/kg	22	69	1	8260B		4/14/2009	CJR	13
1,1-Dichloroethene	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
trans-1,2-Dichloroethene	< 29	ug/kg	29	92	1	8260B		4/14/2009	CJR	13
1,2-Dichloropropane	< 19	ug/kg	19	59	1	8260B		4/14/2009	CJR	13
2,2-Dichloropropane	< 115	ug/kg	115	365	1	8260B		4/14/2009	CJR	13
1,3-Dichloropropane	< 21	ug/kg	21	67	1	8260B		4/14/2009	CJR	13
Di-isopropyl ether	< 15	ug/kg	15	48	1	8260B		4/14/2009	CJR	13
EDB (1,2-Dibromoethane)	< 21	ug/kg	21	66	1	8260B		4/14/2009	CJR	13
Ethylbenzene	< 16	ug/kg	16	52	1	8260B		4/14/2009	CJR	13
Hexachlorobutadiene	< 50	ug/kg	50	159	1	8260B		4/14/2009	CJR	13
Isopropylbenzene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
p-Isopropyltoluene	< 30	ug/kg	30	95	1	8260B		4/14/2009	CJR	13
Methylene chloride	< 44	ug/kg	44	140	1	8260B		4/14/2009	CJR	13

Project Name MWW RIVERSIDE
Project # 09012-10

Invoice # E18805

Lab Code 5018805H
Sample ID B2 S1
Sample Matrix Soil
Sample Date 4/7/2009

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Methyl tert-butyl ether (MTBE)	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
Naphthalene	< 117	ug/kg	117	373	1	8260B		4/14/2009	CJR	13
n-Propylbenzene	< 29	ug/kg	29	93	1	8260B		4/14/2009	CJR	13
1,1,2,2-Tetrachloroethane	< 25	ug/kg	25	79	1	8260B		4/14/2009	CJR	13
1,1,1,2-Tetrachloroethane	< 27	ug/kg	27	87	1	8260B		4/14/2009	CJR	13
Tetrachloroethene	< 18	ug/kg	18	57	1	8260B		4/14/2009	CJR	13
Toluene	< 23	ug/kg	23	72	1	8260B		4/14/2009	CJR	13
1,2,4-Trichlorobenzene	< 53	ug/kg	53	169	1	8260B		4/14/2009	CJR	13
1,2,3-Trichlorobenzene	< 87	ug/kg	87	277	1	8260B		4/14/2009	CJR	13
1,1,1-Trichloroethane	< 27	ug/kg	27	84	1	8260B		4/14/2009	CJR	13
1,1,2-Trichloroethane	< 30	ug/kg	30	94	1	8260B		4/14/2009	CJR	13
Trichloroethene (TCE)	< 20	ug/kg	20	65	1	8260B		4/14/2009	CJR	13
Trichlorofluoromethane	< 16	ug/kg	16	51	1	8260B		4/14/2009	CJR	13
1,2,4-Trimethylbenzene	< 20	ug/kg	20	63	1	8260B		4/14/2009	CJR	13
1,3,5-Trimethylbenzene	< 24	ug/kg	24	77	1	8260B		4/14/2009	CJR	13
Vinyl Chloride	< 17	ug/kg	17	56	1	8260B		4/14/2009	CJR	13
m&p-Xylene	< 33	ug/kg	33	104	1	8260B		4/14/2009	CJR	13
o-Xylene	< 15	ug/kg	15	47	1	8260B		4/14/2009	CJR	13

"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Code	*Comment*
1	Laboratory QC within limits.
13	Sample does not meet method specific weight requirements.

CWT denotes sub contract lab - Certification #445126660

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight.

Authorized Signature