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MPCA, MAR Division PLR/SS Section

#### Phase II Environmental Site Assessment

Hi-Lake Shopping Center 2100-2218 East Lake Street Minneapolis, Minnesota

Prepared for

Wellington Management, Inc.

#### **Professional Certification:**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Geologist under the laws of the State of Minnesota.

MINNESON

Michael L. Bratrud, PG

Associate Principal License Number: 30030

May 27, 2004

Project BL-04-03622A

Braun Intertec Corporation



**Braun Intertec Corporation** 11001 Hampshire Avenue S Minneapolis, MN 55438 Phone: 952,995,2000
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Web: braunintertec.com

May 27, 2004

Project BL-04-03622A

Mr. Steve Wellington Wellington Management, Inc. 1625 Energy Park Drive, Suite 100 St. Paul, Minnesota 55108

Dear Mr. Wellington:

Re:

Phase II Environmental Site Assessment, Hi-Lake Shopping Center Site,

2100-2218 East Lake Street, Minneapolis, Minnesota

As requested, Braun Intertec Corporation conducted a Phase II environmental site assessment (ESA) at the Hi-Lake Shopping Center site in Minneapolis, Minnesota. The purpose of the Phase II ESA was to evaluate if previous uses of the site had impacted soil or groundwater at the site.

If you have any questions regarding the enclosed Phase II ESA or the project in general, please call Jennifer Force at (952) 995-2454 or Mike Bratrud at (952) 995-2430.

Sincerely,

BRAUN INTERTEC CORPORATION

Jennifer A. Force, PG

Project Manager

Michael L. Bratrud, PG

Associate Principal

Enclosure:

Phase II Environmental Site Assessment

c: Mr. Rol

Mr. Robert Devolve, Leonard, Street and Deinard

Mr. A. Peter Hilger, Portfolio Design Services, Inc.

Ms. Shannon Hoagland, Leonard, Street and Deinard

-Phase II esa-Hi-Lake Shopping Ctr

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#### Phase II Environmental Site Assessment Hi-Lake Shopping Center Site Minneapolis, Minnesota

#### 1.0 Introduction

Wellington Management, Inc. retained Braun Intertec Corporation (Braun Intertec) to conduct a Phase II environmental site assessment (ESA) of the Hi-Lake Shopping Center site in Minneapolis, Minnesota (site). A site location map is included as Figure 1. The purpose of the Phase II ESA was to evaluate if previous uses of the site had impacted soil or groundwater at the site. The scope of work, laboratory analytical results, and conclusions from the Phase II ESA are summarized herein.

#### 2.0 Background

#### 2.1 Location

The site is located within the southeast quarter of the southwest quarter of Section 36, Township 29 North, Range 24 West, in the city of Minneapolis, Hennepin County, Minnesota, and is located northwest of the intersection of East Lake Street and Hiawatha Avenue at 2100-2218 East Lake Street. A site location map is included as Figure 1.

The site is currently occupied by an "L" shaped retail shopping center, an associated paved parking lot, and two out-lot buildings that house fast-food restaurants. Current tenants in the shopping center include a hardware store, a discount department store, a rental center, an H&R Block, a discount tobacco store, a laundromat, and a resale building supply store.

The site is bordered on the north by 29th Street East with a warehouse located beyond, on the east by the Hiawatha Avenue Bridge with a retail development located beyond, on the south by Lake Street with a YMCA located beyond, and on the west by 21st Avenue with a cemetery located beyond. The site is located in a mixed residential, commercial, and industrialized area of Minneapolis.

A site map is included as Figure 2.

#### 2.2 Previous Environmental Investigations

In May 2000, Bay West, Inc. (Bay West) completed a Phase I ESA of the site, the results of which were summarized in a report entitled:

• Phase I Environmental Assessment, Hi-Lake Shopping Center, Minneapolis and dated May 15, 2000.

The scope of work for the Phase I ESA included a review of available historical records, and a limited site reconnaissance. The results of the Phase I ESA indicated that the Twin City Rapid Transit Company used the site for streetear storage from 1910 to 1955. A barn was located on the southern portion of the site, and a freight elevator was located in the streetcar barn. A series of several railroad tracks were located to the north of the barn. According to City of Minneapolis records, a gas station was located on the southwest corner of the site from 1950 through 1954. Two 4,000-gallon underground storage tanks (USTs) were associated with the gas station, and according to city records were removed in 1954. The current shopping center was constructed in 1957. A second gas station also was constructed in the southwest portion of the site in 1957. According to City of Minneapolis records one 560-gallon, drain-oil UST and two 6,000-gallon, gasoline USTs were located at the gas station. According to fire department files, the gasoline USTs were installed "30 feet from Lake Street sidewalk" and that the drain-oil tank was located at the southeast corner of the building. The fire department files also indicate that two pumps for the gas station were located 20 feet from the 21st Avenue sidewalk and 18 feet from the Lake Street sidewalk. According to Building Permit Files the gas station was demolished in 1974. During the Phase I ESA, no records were found related to the removal of the USTs. According to the Phase I ESA, a drycleaners operated in the northeast corner of the shopping center from 1958 to 1972. A 250-gallon, above-ground storage tank (AST), which was associated with an auto-parts store, was observed during the site reconnaissance on the north side of the shopping center. The Phase I ESA concluded that "historical property use, specifically the usage as a streetcar storage yard and gasoline filling station (southwest portion of the property on two occasions), impacts could exist to the site subsurface soils and ground water."

Following the Phase I ESA, Bay West completed a Phase II ESA at the site to evaluate potential environmental impacts associated with the historical streetcar, petroleum retail, and dry-cleaning operations. The scope of work for the Phase II ESA included conducting geophysical surveys to evaluate if USTs associated with the former gas station were present, advancement of 13 soil borings, and collection and analyses of soil samples. Soil borings were located in the southwest corner of the site near the location of the former gas station, near the former streetcar barn and storage yard, and near the former drycleaners. Based on the results of the geophysical survey, two possible UST locations were identified. A third anomaly was identified as a possible buried foundation. During the Phase II ESA, a photoionization detector (PID) reading of 6 parts per million (ppm) was observed at a depth of 2 feet to 4 feet below ground surface (bgs) in one of the soil borings located north of the former streetcar barn. A black, "ash/charcoal-like material" also was observed in this interval. "Slight

black staining" was observed in a second boring (GP-6) advanced in this area at a depth of 6 feet bgs. No other PID readings above background or other indications of contamination were observed in the other soil borings.

Analytical results from the Phase II ESA indicated that no metals, volatile organic compounds (VOCs), or individual semi-volatile organic compounds (SVOCs), were detected at concentrations above the Residential Soil Reference Values (SRVs) or Soil Leaching Values (SLVs). In addition, metals concentrations were within the expected range for background concentrations. Diesel-range organics (DRO) and low concentrations of VOCs were detected in a soil sample collected near the former gas station. In addition, the benzo(a)pyrene (BaP) equivalent, which is a calculated value based on the value based on the concentrations of carcinogenic polynuclear aromatic hydrocarbons (PAHs), for a sample collected from GP-6 of black stained material was 4.4 milligrams per kilogram (mg/kg); this value exceeds the Industrial SRV of 4 mg/kg for the BaP equivalent.

The BaP equivalent of 4.4 mg/kg is a value that was recalculated by Braun Intertec. Braun Intertec recalculated the BaP equivalents for the samples collected during the 2000 Phase II ESA using the reporting limit if the compound was not detected at or above the reporting limit instead of zero, as was done previously. It is our professional opinion that even though use of the reporting limit results in a more conservative calculation of the BaP equivalent, it is more representative of site conditions because compounds might be present in the sample at concentrations just below the reporting limit, but above the method detection limit.

In February 2004, Bay West completed an additional Phase I ESA of the site. Conditions at the site and historic data reviewed for the site was similar to the Phase I ESA conducted in 2000 by Bay West.

#### 3.0 Investigative Procedures

The scope of work for the Phase II ESA included the following:

- Conduct environmental monitoring during advancement of 13 soil borings (ST-A through ST-M) that were completed as part of the geotechnical assessment for the site.
- Conduct environmental monitoring during excavation of test pits to evaluate presence of USTs associated with former gas station.
- Advancement of three additional soil borings at the site (ST-N through ST-P) to evaluate
  potential impacts from former dry cleaners and AST.
- Collection and chemical analyses of soil samples from the borings and test pits.

• Collection and chemical analyses of groundwater samples collected from temporary wells installed in soil borings ST-K, ST-N, and ST-P.

The following sections outline the work effort for the Phase II ESA. Fieldwork for the Phase II ESA was conducted between May 7 and May 12, 2004. Methods and procedures that were used during the investigation are included in Appendix A. Sampling locations are shown on Figure 2.

#### 3.1 Soil Borings

Soil borings were performed to obtain soil samples for visual inspection, on-site monitoring, and chemical analyses. During the Phase II ESA, 16 soil borings were advanced at the site to depths ranging from 10.5 feet to 54.1 feet bgs using 3.25-inch inside-diameter, hollow-stem augers in accordance with Braun Intertec SOP No. 5200. The locations of soil borings ST-A through ST-M were determined by Wellington Management, Inc. and were completed for geotechnical purposes. The locations of soil borings ST-N through ST-P were determined by Braun Intertec and were completed for environmental purposes. In general, soil samples were collected at 2.5-foot intervals to a depth of 15 feet and then at 5-foot intervals to the termination depth of the boring.

Upon completion, the soil borings were abandoned in accordance with MDH regulations.

#### 3.2 Test Pits

A total of five test pits (TP-1 through TP-5) were completed at the site to evaluate anomalies that were identified during the previous geophysical surveys at the site, which might represent USTs or buried foundations. Test pits also were advanced in areas where USTs might have been installed based on information contained in fire department records (see Section 2.2).

The test pits were dug using a backhoe to depths ranging from 6 feet to 13 feet bgs; because of possible building footings in test pits TP-4 and TP-5, these test pits were not advanced below 6 feet bgs. The type of soil and non-soil fill was described and recorded on a test pit log, and following field evaluation and sampling, the excavated material was replaced in the excavation.

#### 3.3 Soil Classification and Monitoring

A Braun Intertec environmental field technician monitored the subsurface materials encountered at each soil boring and test pit location. Soils were classified in the field in accordance with ASTM D 2487 "Unified Soils Classification System" and ASTM D 2488 "Recommended Practice for Visual and Manual Description of Soils." Soil discoloration and odors also were documented if detected.

In addition, soil samples were screened for the presence of organic vapors with a PID using both direct readings from each sample and the headspace method of analysis recommended in "Soil Sample Collection and Analysis Procedures," MPCA Tanks and Emergency Response Section Fact Sheet #3.22 (April 1996). The sample used for the bag headspace measurements was not used for chemical analysis. The PID was equipped with a 10.6-eV lamp and calibrated at least daily to an isobutylene standard. The PID was operated in accordance with Braun Intertec SOP No. 9003.

#### 3.4 Groundwater Evaluation

Following advancement of soil borings ST-K, ST-N, and ST-P, temporary monitoring wells were installed in the soil borings to evaluate groundwater quality near the former dry cleaner. Based on groundwater flow direction at nearby sites, groundwater flow direction at the site is assumed to be to the west, and the temporary wells were placed in areas in the presumed upgradient and downgradient directions from the former dry cleaner.

After advancing the borings approximately 20 feet below the water table, a temporary monitoring well was constructed in the hollow-stem auger and used to collect groundwater samples for laboratory chemical analyses. The temporary wells were constructed with 1-inch PVC screen and riser pipe. New dedicated polyethylene tubing fitted with a stainless-steel check-ball valve was used to collect groundwater samples from each of the temporary wells.

After the groundwater samples were collected, the boreholes were grouted to the surface through a tremie pipe using neat cement grout in accordance with Minnesota Department of Health (MDH) requirements. All groundwater sampling equipment was cleaned with soap and water prior to the collection of each sample.

#### 3.5 Chemical Analysis

Soil samples were collected from the borings and test pits from intervals with elevated PID readings or where soil staining and/or odors were encountered. If no indications of contamination were encountered based on field monitoring, a soil sample was not collected for chemical analysis.

Soil samples collected at the site were analyzed for a combination of the following parameters:

- VOCs using United States Environmental Protection Agency (EPA) Method 8260.
- SVOCs using EPA Method 8270.
- Gasoline-range organics (GRO) using the Wisconsin Department of Natural Resources (WDNR) Method.
- Total lead using EPA Method 6010.

Chemical parameters were selected based upon previous land use in that portion of the site and field observations.

Groundwater samples that were collected during the Phase II ESA were analyzed for VOCs using EPA Method 8260.

#### 4.0 Phase II ESA Results

#### 4.1 Geologic Conditions

In general, the soil borings and test pits encountered between 2 feet and 12 feet of fill consisting of silty sand, clayey sand, and sand overlying loose to medium-dense sands. Soil boring ST-K, which was advanced to a depth of 54 feet bgs, encountered weathered shale at 45 feet bgs. Soil borings ST-N, and ST-P, which also were advanced below the water table, were terminated in hard, sandy lean clay at a depth of 50 feet bgs.

Debris consisting of brick and concrete was observed in soil boring ST-H at depths between 2 feet and 12 feet bgs. Debris consisting of brick and concrete also was observed in all of the test pits advanced at the site (i.e., TP-1 through TP-5). In addition, former building foundations were encountered in test pits TP-1, TP-4, and TP-5. In test pit TP-1, the former foundations were oriented north to south, and in test pits TP-4 and TP-5, the former foundations were oriented east to west.

During the Phase II ESA, groundwater was encountered at depths ranging from 23 feet to 29 feet bgs.

Soil boring logs are included in Appendix B.

#### 4.2 Organic Vapor Screening Results

The soil samples retrieved from the soil borings and test pits were examined by a Braun Intertec environmental technician for staining and other apparent signs of contamination. In addition, the soil samples were screened for the presence of organic vapors with a PID. The PID was equipped with a 10.6-eV lamp and was calibrated to an isobutylene standard. The PID was used to test fresh surfaces of soil retrieved and to perform headspace analyses.

No PID readings above 0.0 part per million (ppm) were detected in the soil samples collected from the soil borings at the site. During advancement of the test pits, elevated PID readings, petroleum-like odors, and staining were observed in soil as summarized below:

Test Pit	Depth	Observations
TP-1	2 feet to 3 feet	Petroleum-like odor and a PID reading of 2.4 ppm
TP-2	3 feet to 12 feet	Petroleum-like odor, staining, and a PID reading of 424 ppm.  Contamination appeared thickest in southwest corner of test pit and thinned to the north and east.
TP-3	8 feet to 12 feet	Petroleum-like odors and staining. No indications of contamination observed at 13 feet
TP-4	2 feet to 3 feet	Petroleum-like odors and staining. PID readings range from 3.4 ppm <sup>3</sup> to 9.4 ppm.
TP-5	1 foot to 2 feet	Stained soil and petroleum-like odor. PID reading of 16.9 ppm

#### 4.3 Soil Analytical Testing Results

The analytical testing results for soil samples collected during the Phase II ESA are summarized in Table 1. The table also includes MPCA SRVs and SLVs for comparison purposes. Laboratory analytical reports and chain-of-custody forms are included in Appendix C.

The analytical results for soil samples indicate:

- Several petroleum-related VOCs were detected in samples collected from test pits TP-1, TP-2, and TP-5 including ethyl benzene, naphthalene, and total xylenes. With the exception of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene, none of the VOCs were detected at concentrations greater than the Residential SRVs. The concentrations of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene detected in test pit TP-2 also are greater than the Industrial SRV established for those compounds. Benzene, ethylbenzene, and naphthalene were detected at concentrations greater than the SLVs in test pit TP-2.
- No SVOCs were detected in the soil samples at concentrations greater than the laboratory reporting limit.
- Lead was detected in samples collected from test pits TP-1 and TP-2. However, concentrations of lead detected were less than the Residential SRV and the SLV and within the expected range for background concentrations.
- GRO was detected in samples collected from test pits TP-1, TP-2, and TP-5 at concentrations ranging from 31 mg/kg to 980 mg/kg. No SRV or SLV is established for GRO.

#### 4.4 Groundwater Analytical Testing Results

The analytical testing results for groundwater samples collected during the Phase II ESA are summarized in Table 2. The table also includes Health Risk Limits (HRLs) established by the MDH for drinking water for comparison purposes. Laboratory analytical reports and chain-of-custody forms are included in Appendix C.

The analytical results indicate that one VOC; 1,2-dichloroethane; was detected in groundwater samples collected from ST-N and ST-P. Soil boring ST-N was advanced on the west side of the building in the presumed downgradient direction from the dry cleaner, and soil boring ST-P was advanced on the east side of the building in the presumed upgradient direction from the dry cleaner. The concentrations of 1,2-dichloroethane detected ranged from 27 micrograms per liter ( $\mu$ g/l) to 43  $\mu$ g/l; both of these concentrations exceed the HRL of 4  $\mu$ g/l established for the compound.

#### 5.0 Conclusions

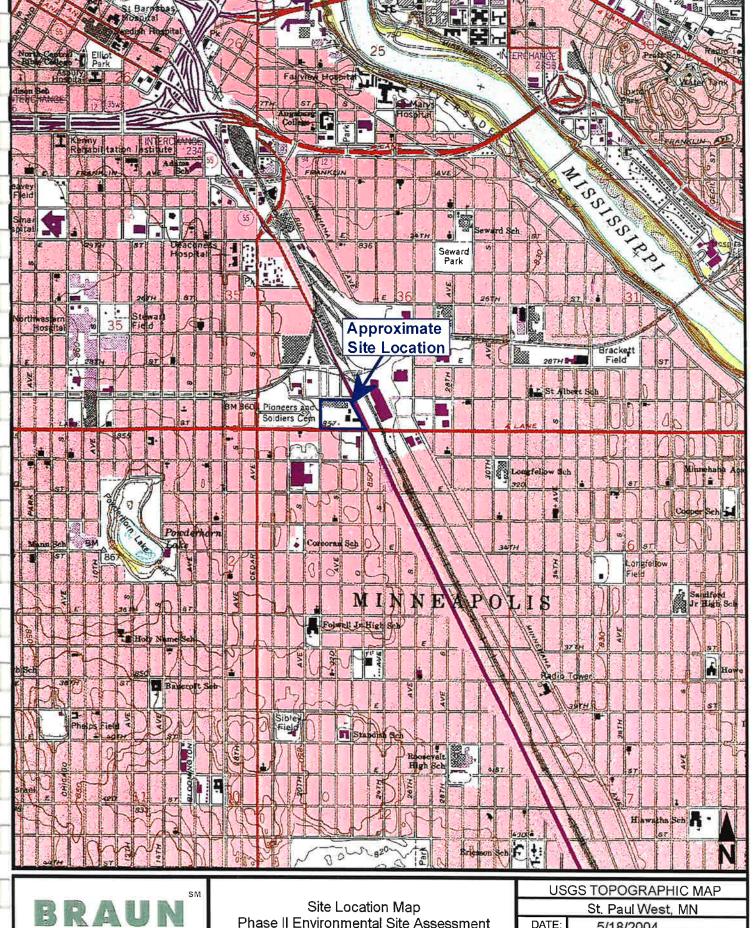
No USTs were encountered on the southwest portion of the site near the former gas station; however, petroleum-impacted soil was encountered in this area, which appears to be associated with the former USTs. PID headspace readings ranging from 2.4 ppm to 424 ppm were observed in soil collected from the test pits. Petroleum-like odors and staining also were observed in the test pits. Two petroleum-related VOCs were detected in soil samples collected from the test pits; 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were detected at concentrations exceeding the Industrial SRVs established for those compounds. Concentrations of petroleum-related VOCs detected in TP-2 also exceeded the SLVs. GRO were detected in soil samples collected from the test pits at concentrations ranging from 31 mg/kg to 980 mg/kg. In addition, debris including brick and concrete and former building foundations were encountered in the test pits advanced on the southwest portion of the site. Following detection of the petroleum contamination, a release was reported to the state duty officer. No indications of contamination were observed in soil samples collected from the soil borings.

Groundwater impacts also are present at the site. One VOC, 1,2-dichloroethane, was detected in two of the three groundwater samples collected at concentrations exceeding the HRL for that compound. Because impacted groundwater was detected during the Phase II ESA, it is our professional opinion that this constitutes a reportable release under Minnesota Statute.

#### 6.0 Assessment Limitations

The analyses and conclusions submitted in this report are based on our field observations and the results of laboratory chemical analyses of soil and groundwater samples collected from the soil borings and test pits completed for this project.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same location. No other warranty is made or intended.





Phase II Environmental Site Assessment
Hi-Lake Shopping Center
Lake Street and Hiawatha Avenue
Minneapolis, MN

0	GS TUPUGK	APHIC MAP
	St. Paul W	lest, MN
DATE:	5/18/200	)4
JOB NO:	BL-04-0	)3622A
SCALE:	1:24,000	FIGURE NO:
DRAWN BY:	FER	1

Tables

Hi-Lake Shopping Center Minneapolis, Minnesota Project BL-04-03622A Soil Analytical Results Table 1

			S	Sample Identifier			Residential Soil	Industrial Soil	Tier I Soil
	CAS No.	TP-1 (11)	TP-2 (8')	TP-4 (2')	TP-5 (1')	ST-K-50'	Reference Value	Reference	Leaching Value
Compound/Parameter		5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/11/2004	(mg/kg)	Value (mg/kg)	(mg/kg)
Volatile Organic Compounds (mg/kg)									
Benzene	71-43-2	< 0.050	0.61	< 0.067	< 0.050	< 0.050	1.5	4	0,034
Ethyl Benzene	100-41-4	< 0.050	7.3	< 0.067	< 0.050	< 0.050	200	200	4.7
Isopropylbenzene (cumene)	98-82-8	< 0.050	1.5	< 0.067	< 0.050	< 0.050	30	87	18
p-Isopropyltoluene	9-87-66	< 0.050	0.83	< 0.067	0.061	< 0.050	NE	NE	NE
Naphthalene	91-20-3	0.063	8.7	< 0.067	0.27	< 0.050	10	28	7.5
n-Propylbenzene	103-65-1	< 0.050	5.2	< 0.067	< 0.050	< 0.050	30	93	NE
1.3.5-Trimethylbenzene	95-63-6	< 0.050	14	< 0,067	0.065	< 0.050	5	5	NE
1.2.4-Trimethylbenzene	108-67-8	< 0.050	48	290'0>	0.27	< 0.050	4	01.	NE
0-Xylene	108-38-3/106-42-3	< 0.050	30	< 0.067	< 0.050	< 0.050	110	248	45
m.p-Xylenes	95-47-6	< 0.050	0.51	< 0.067	< 0.050	< 0.050	011	248	45
Semi-Volatile Organic Compounds (mg/kg)									
Total SVOCs		NA	NA	ON	ND	NA	1,200	5,260	50
Metals (mg/kg)									
Lead, Total	7439-92-1	7.4	15	< 3.7	< 3.7	NA	400	700	525
Other Parameters (mg/kg)			ESS CARREST		Same of the				
Gasoline Range Organics		31	086	< 10	32	NA	NE	NE	NE
Composition of the composition o									1

# Notes:

 $mg/kg = Milligrams\ per\ kilogram.$  < - Compound/parameter was not detected above the laboratory reporting limit indicated. NE =Not Established

ND = Not detected.

NA = Not analyzed for.

SRV - 1999 Soil Reference Value eastablished by the Minnesota Pollution Control Agency.

SLV - November 1999 Soil Leaching Value established by the Minnesota Pollution Control Agency.

Shaded cells indicate concentration exceeds Industrial SRV.

Table 2
Groundwater Analytical Results
Hi-Lake Shopping Center
Minneapolis, Minnesota
Project BL-04-03622A

		0,1	Sample Identifier		Joilth Disk
	CAS No.	ST-K-52'	ST-N-50'	ST-P-50'	limit (1104/1)
Compound/Parameter		5/12/2004	5/12/2004	5/11/2004	(1/gn) IIIIII
Volatile Organic Compounds (ug/L)					
1,2-Dichloroethane	107-06-02	< 2.0	43	27	4

# Notes:

ug/l = Micrograms per liter.

Compound/parameter was not detected above the laboratory reporting limit indicated.
 HRL - January 2001 Health Risk Limit established by the Minnesota Department of Health.

Appendix B

Soil Boring Logs

# BRAUN SHE NTERTEC

		ct BL-04-03622	BORING	3:	v.	ST-A	
Hi-La Hiawa	ke Shopp atha and	CAL EVALUATION bing Center Redevelopment Lake Street Iinnesota	LOCAT	ION: S	ee attac	hed sketch.	
DRILL	ER: J.C.	METHOD: 3 1/4" HSA Autohammer	DATE:	5/1	7/04	SCALE:	1'' = 4'
Depth feet 0.0		Description of Materials (ASTM D2488 or D2487)		BPF	WL	Tests or	Notes
	FILL	FILL: Silty Sand, fine- to medium-grained, with Grave brown, moist.	el, dark - -			17	
3.0	FILL	FILL: Silty Sand, with a trace of Gravel, black, moist,	loose.	6			
4.0	FILL	FILL: Silty Sand, dark brown, moist, loose.		4			
9.0	GD.		Î E	7			
-	SP	POORLY GRADED SAND, fine-grained, light brown grayish-brown, moist, loose to medium dense.  (Alluvium)	to	<u>N</u> 13			-
			- -	17			
15.5				8			
		END OF BORING.  Water not observed with 14 feet of hollow-stem auge ground.	r in the				
-		Water not observed to cave-in depth of 9 feet immedi withdrawing the auger.	ately after				
-		Boring immediately backfilled.	<u> </u>				
			_				
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			-				
			=				
-,.,			-				



Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota	See attached sketch.  5/7/04 SCALE: 1" =  F WL Tests or Notes
Depth feet ASTM Description of Materials BPF 0.0 Symbol (ASTM D2488 or D2487)  0.7 FILL FILL: 4 inches of Bituminous over 5 inches of Aggregate Base.  FILL Silty Sand, fine-grained, with a trace of Gravel, black to darkbrown, moist.	1.
feet ASTM Description of Materials 0.0 Symbol (ASTM D2488 or D2487)  0.7 FILL FILL: 4 inches of Bituminous over 5 inches of Aggregate Base.  FILL Silty Sand, fine-grained, with a trace of Gravel, black to darkbrown, moist.	F WL Tests or Notes
FILL: Silty Sand, fine-grained, with a trace of Gravel, black to darkbrown, moist.	
brown, moist.	
	8
8.0   XX	
SM loose.	
10.0 (Alluvium) W 11	1
SP POORLY GRADED SAND, fine-grained, light brown, moist, medium dense to loose.  (Alluvium)	
15.5 — 7	
END OF BORING.  Water not observed with 14 feet of hollow-stem auger in the ground.  Water not observed to cave-in depth of 9 feet immediately after withdrawing the auger.	
Boring immediately backfilled.	



77	70	•	TOT 0 4 00	(00					_			
			t BL-04-03				BORING			ST	<b>-C</b>	5
			AL EVALUA			Ī	LOCATIO	DN: Se	ee atta	ched s	ketch.	
			ng Center Re ake Street	eaevelopmen	τ							20.
			nnesota							25		
DRILLI	ER:	J.C.		METHOD:	3 1/4" HSA Autohammer		DATE:	5/7	//04	5	SCALE:	1'' = 4'
Depth feet	AST	M		Descri	otion of Materials			BPF	WL		Tests or	Notes
0.0	Sym			(ASTM	D2488 or D2487)			DII	""		1 0313 01	Notes
	FILL		FILL: Silty S	and, with Grav	el, dark brown, moist.							
2.0							-					
	FILL		FILL: Poorly	Graded Sand,	fine-grained, with a Lean	Clay	seam,	16				
		$\bowtie$	brown, moist.				-	4				
4.0	FILL		FILL: Clavev	Sand fine-gra	ined, black, moist to wet							
		₩			mou, orden, moust to we	•	-	12				
		₩	19				_					
7.0	7777 T	$\bowtie$	TILL CIL C	1 ~								
	FILL	₩	FILL: Silty S	and, fine-grain	ed, dark brown, moist.			23				
9.0		$\bowtie$										
	SP		POORLY GR	ADED SAND,	ist, lo	ose.	V 5					
_				(		-	Ä					
							-					
							-	V 5				
				2			1	4				
-				0								
15.5								₹ 8				
-			END OF BOR	RING.			_	i				
			Water not obs	served with 14	feet of hollow-stem aug	er in 1	the _					
	1:		ground.			s.						
			Water not obs	served to cave- the auger.	in depth of 9 1/2 feet im	medi	ately after					
-			Boring immed	diately backfill	ed.		,=					
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										8		
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					77		T		3			
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			BL-04-036				BORING			ST-D	
			AL EVALUA				LOCATIO	DN: Se	e attac	hed sketch.	<u> </u>
			ng Center Re ake Street	development							
			nnesota								
DRILLE				METHOD: 3 1	./4" HSA Autoham	ımer	DATE:	5/7	/04	SCALE:	1'' = 4'
Depth feet	AST	T			n of Materials			BPF	WL	Tests or	
0.0	Syml		TILY . 4 * -l.	(ASTM D2	488 or D2487)		D	Drr	WL	1 ests of	Notes
0.7	FILL	<b>XXX</b>		es of Bituminous o Graded Sand and					-		
	LILL	$\otimes\!\!\otimes$	brown, moist.	Graded Sand and	Silly Salid, Willi a	i ii ace oi	Glavel,				
4		<b>XXX</b>					-	V 7			
		<b>XXX</b>					-	4			
		$\otimes\!\!\otimes$									
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			With a black	Clayer Cand lav-	of opposition of -1-	v 7 1/2 £	et	3			
		$\otimes$	will a black	Clayey Sand layer	y / 1/∠ 1€	.e	H				
9.0	SP	$\infty$	Dessible Fill 6	ing amaimed light l							
	SP		Possible Fill I	ine-grained, light l	orown, moist, 1009 uvium)	se.	1	M 5			
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15.5			END OF BOR	UNG.				A			
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			Water not obs ground.	served with 14 fee	t of hollow-stem	auger in	the _				
			Water not obs	served to cave-in o	lepth of 12 feet in	mmediate	ely after _				
			_	diately backfilled.			.=				
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L-04-0362					aun Intertec Corporati						ST-D page 1



Braun Project BL-04-03622 BORING: ST-E GEOTECHNICAL EVALUATION LOCATION: See attached sketch. Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota DRILLER: J.C. METHOD: 3 1/4" HSA Autohammer DATE: 5/7/04 SCALE: 1'' = 4'Depth feet **ASTM** Description of Materials WL **BPF** Tests or Notes 0.0 Symbol (ASTM D2488 or D2487) FILL XXX FILL: Silty Sand, fine-grained, with a trace of Gravel, brown, moist. 2.0 FILL FILL: Sandy Lean Clay, brown, moist. 12 4.0 SILTY SAND, fine-grained, dark brown to black, moist. SM 11 (Buried Topsoil) 6.0 sheet for explanation of abbreviations) SM SILTY SAND, fine-grained, dark brown, moist, loose. (Alluvium) 4 8 12.0 SP POORLY GRADED SAND, fine-grained, with a trace of Gravel, 21 brown, moist, medium dense. See Descriptive Terminology (Alluvium) 14.0 SP POORLY GRADED SAND, fine-grained, light brown, wet, medium dense. 19 15.5 (Alluvium) END OF BORING. Water not observed with 14 feet of hollow-stem auger in the ground. Water not observed to cave-in depth of 9 feet immediately after withdrawing the auger. Boring immediately backfilled. 0403622.GPJ BRAUN BASIC LOG BL-04-03622 Braun Intertec Corporation, Bloomington ST-E page I of !



			t BL-04-0362				BORING:			ST-F	
			AL EVALUAT				LOCATIO	DN: Se	ee attacl	ned sketch.	
			ng Center Rede	evelopment							
			ake Street innesota								
_										Tag. va	
DRILL	ER:	J.C.	N	ÆTHOD: 3	1/4" HSA Autob	lammer	DATE:	5/7	7/04	SCALE:	1'' = 4'
Depth feet	AST				on of Materials		ri.	BPF	WL	Tests or	Notes
0.0		bol			2488 or D2487			,			
0.7	FILL	$\bowtie$	FILL: 4 inches of FILL: Silty Sand								
2.0	FILL	$\bowtie$	dark brown, mois		ium-grameu, wi	in a trace or	Graver,				
2.0	FILL		FILL: Poorly Gr		ne- to medium-g	rained, brov	vn, moist.	7			
-	1	$\bowtie$			_		-	Δ			150
L											
		$\bowtie$						6			
	1	$\bowtie$						A C			
		$\bowtie$					29-				
allo		$\bowtie$			3		_				
8.0								6	1		
0.0	SP	XXX)	POORLY GRAI	DED SAND, fi	ine- to medium-	grained, wit	h a trace				
<u></u>			of Gravel, brown	i, moist, medii	ım dense.	- '	n=				
10.0					lluvium)			11			
Dian	SP		POORLY GRAI	DED SAND, f	ine-grained, bro	wn, moist, r	nedium	M			
<u></u>			dense to loose.	( A	lluvium)		_				
				(2.2			-	16	1 1		
2013								16			
20											
0101					-		-				
_ ,,,							-	9			
15.5			END OF BORIN	IG.				i i			
Nuc.							. 5				
8.0 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10.0 2001 10			Water not obser ground.	ved with 14 fe	eet of hollow-st	em auger in	the _				
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BRAUN BASIC LOG 0403622 GPJ BRAUN GDT 5/14/04 14:34							_				
3RAI											
DI 04 034					Denue Tetarina Corre	ention Discomi					CT E page 1 of



IN EKIEL						
	ect BL-04-03622	BORING	:		ST-G	
	ICAL EVALUATION	LOCATION	ON: See		ned sketch.	
	ping Center Redevelopment					
Hiawatha and						
Minneapolis,		+			1	
DRILLER: J.C	. METHOD: 3 1/4" HSA Autohammer	DATE:	5/7/	04	SCALE:	1'' = 4'
Depth feet ASTM	<u> </u>		BPF	WL	Tests or	Notes
0.0 Symbo	(ASTM D2488 or D2487)  FILL: 4 inches of Bituminous over 5 inches of Aggrega	to Dana	1			
0.7 FILL	FILL: Silty Sand, fine- to coarse-grained, with a trace of					
2.0 FILL	dark brown, moist.  FILL: Poorly Graded Sand, fine-grained, with a trace of		M 9			
4.0	brown, moist.	Gravel,				İ
FILL	FILL: Silty Sand, fine-grained, with a trace of Gravel, d moist.	ark brown,	M 17			
	moist.	<u></u>				
	× .					
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<b>├</b>   ⊗		1				
11.0		9	21			
SP	POORLY GRADED SAND, fine-grained, brown, moist	, loose to				
-	medium dense. (Alluvium)	/ <del>-</del>	16			
15.5	· · · · · · · · · · · · · · · · · · ·		M I			
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15.5			8 🕅			
15.5	END OF BORING.	-	fi l			
	Water not observed with 14 feet of hollow-stem auger ground.	in the				
	Boring immediately backfilled.	œ-				
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		()	1			
		5 <del>34</del>				
BL-04-03622	Regun Intertee Corporation, Rico					ST G page 1 of 1



Braun Project BL-04-03622 BORING: ST-J GEOTECHNICAL EVALUATION LOCATION: See attached sketch. Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota DRILLER: Scott McLean METHOD: 3 1/4" HSA Autohammer DATE: 5/12/04 SCALE: 1'' = 4'Depth **ASTM** feet Description of Materials **BPF** WL Tests or Notes (ASTM D2488 or D2487) 0.0 Symbol 0.2 FILL FILL: 2 inches of Bituminous. FILL: Silty Sand, fine- to medium-grained, brown, moist. FILL 2.0 SP-POORLY GRADED SAND with SILT, fine- to medium-grained, 10 SM brown, moist, loose to very loose. (Possible Fill) 6 sheet for explanation of abbreviations 2 3 12.0 POORLY GRADED SAND, fine-grained, brown, moist, loose to SP 7 medium dense. (See Descriptive Terminology (Alluvium) 13 19.0 SM SILTY SAND, fine- to medium-grained, with Gravel and cobbles, brown to reddish-brown, moist, very dense. 52 (Glacial Till) 100/3 25.5 END OF BORING. 0403622.GPJ Water not observed with 25 feet of hollow-stem auger in the Water not observed to cave-in depth of 22 feet immediately after BRAUN BASIC LOG withdrawing the auger. Boring immediately backfilled. BL-04-03622 Braun Intertec Corporation, Bloomington ST-J page 1 of 1

ST-P page 1 of 2



Braun Project BL-04-03622 BORING: ST-P GEOTECHNICAL EVALUATION LOCATION: See attached sketch. Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota DRILLER: Scott McLean METHOD: 3 1/4" HSA Autohammer DATE: 5/12/04 SCALE: 1" = 4" Depth feet **ASTM** Description of Materials BPF WL Tests or Notes 0.0 Symbol (ASTM D2488 or D2487) FILL: Silty Sand, fine- to medium-grained, with a trace of Gravel, FILL 🔆 black, moist. 4 4.0 POORLY GRADED SAND with SILT, fine- to medium-grained, SP-SM with a trace of Gravel, brown, moist. 6 (Possible Fill) (See Descriptive Terminology sheet for explanation of abbreviations) 7.0 SP POORLY GRADED SAND, fine-grained, brown, moist, loose to 7 medium dense. (Alluvium) 12 11 6 19.0 SM SILTY SAND, fine- to medium-grained, with Gravel, reddish-brown, moist, very dense. 79 (Glacial Till) 5/14/04 14:34  $\nabla$ Ø100/5′ 0403622.GPJ **SRAUN BASIC LOG** 58 BL-04-03622

Braun Intertec Corporation, Bloomington



		ojec	t BL-04-03				BORING	:	ST	-P (cont.	)
Hi-Lal	ke Sh	oppi	AL EVALUARI CENTER REPORTED TO ALL EVALUATION OF THE PROPERTY		t		LOCATI	ON: Se		hed sketch.	,
	apoli	s, M	innesota McLean	METHOD:	3 1/4" HSA Autol	hommor	DATE:	E/1	2/04	SCALE:	111 - 41
Depth			WICLCAN				DATE.				1" = 4"
feet 32.0	AS7 Sym			(ASTM	otion of Materials D2488 or D2487	<u>'</u> )		BPF	WL	Tests of	r Notes
34.0			SILTY SAND reddish-brown	n, moist, very d	ım-grained, with ense. Till) <i>(continued)</i>	-	=				
-	CL		SANDY LEA	N CLAY, wet,	gray, hard. Glacial Till)		- - -	36 ∑ 36			
39.0	SP		POORLY GR grayish-brown	n, waterbearing	fine- to coarse-gr , very dense. .cial Outwash)	ained, with	Gravel,	58		*	
44.0	CL		SANDY LEA very stiff.		a trace of Gravel,	, gray, moist	to wet,	26			
50.5			END OF BOR	RING.				30			
-	Φ.		ground.		ith 50 feet of holl ed with bentonite		ger in the_				
je.							<del>-</del>		٥	2	
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-04-0362	2				Braun Intertec Corpo		·				ST-P page 2



Braun Project BL-04-03622 BORING: ST-H **GEOTECHNICAL EVALUATION** LOCATION: See attached sketch. Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota Scott McLean DRILLER: METHOD: 3 1/4" HSA Autohammer DATE: 5/12/04 SCALE: 1'' = 4'Depth feet **ASTM** Description of Materials BPF WL Tests or Notes Symbol 0.0 (ASTM D2488 or D2487) FILL 🔆 FILL: 4 inches of Bituminous over 7 inches of Aggregate Base. 1.0 FILL FILL: Lean Clay with Sand, dark brown, moist. 2.0 FILL FILL: Silty Sand, with pieces of brick and concrete, 26 reddish-brown, moist. 15 (See Descriptive Terminology sheet for explanation of abbreviations) FILL FILL: Poorly Graded Sand, fine-grained, with pieces of concrete, 12 grayish-brown, moist. 11 12.0 SP POORLY GRADED SAND, fine-grained, brown, moist, loose. 7 (Alluvium) 6 15.5 END OF BORING. Water not observed with 14 feet of hollow-stem auger in the Water not observed to cave-in depth of 13 feet immediately after withdrawing the auger. Boring immediately backfilled. UN BASIC LOG



	Fraun Project BL-04-03622 EEOTECHNICAL EVALUATION							BORING: ST-I						
				ATION edevelopmen	t	Ī	LOCATIO	DN: Se	e attacl	hed sketch.				
			ake Street	edevelopmen	ı									
Minne	apolis	, Mi	innesota								35			
RILLI	ER:	Scott	McLean	METHOD:	3 1/4" HSA Auto	hammer	DATE:	5/12	2/04	SCALE:	1'' = 4'			
Depth feet	AST	- 1	у.		otion of Material D2488 or D248			BPF	WL	Tests or	Notes			
0.0	Sym	WW 100	FILL: 4 inch		is over 5 inches		Base.							
0.8	FILL			Sand, fine-graine	ed, black, moist.		-							
2.0	SM	***	SII TV SANT	O, fine-grained,	(Topsoil)			M 6						
	(Possible Fill)						-							
								M 11						
							45 E							
7.0	SP		POORLY GF	RADED SAND,	, fine-grained, wi	th a trace of 0	Gravel,	] ] 11	[8]					
brown, moist, loose to medium dense. (Alluvium)					6	-	<u> </u>							
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19.0	SP		POORLY G	RADED SAND	, fine- to mediun	n-grained, wi	th Gravel	M 11						
			and cobbles,	brown, moist, r	(Alluvium)		() <del></del>	¥ ''						
	300		~				1 5							
							2/ <del>3</del>							
							S <del>-</del>	4	*					
25.5							-	30						
23.3			END OF BC	PRING.			-			vi				
			Water not of ground.	bserved with 25	feet of hollow-	stem auger ir	the -							
			Water not ol	bserved to cave awing the auge	e-in depth of 19 i	1/2 feet imme	ediately							
-			Boring imm	ediately backfi	lled.		-				8.			
							*	-						



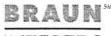
Brau	n Proj		BL-04-03	622		-	BORING	:		ST-K		
GEOT Hi-La Hiawa	ΓΕCΗΝ ke Sho atha an	NIC. ppir d La	AL EVALUA ng Center Ro ake Street nnesota	ATION	nt		LOCATIO	ON: Se		ed sketch.		
DRILL	ER: S	cott l	McLean	METHOD:	3 1/4" HSA Autob	nammer	DATE:	5/1:	2/04	SCALE:	1" = 4"	
Depth feet 0.0	ASTN Symb				iption of Materials 1 D2488 or D2487			BPF	WL	Tests or	Notes	
1.0	FILL	$\otimes$	FILL: 4 inche	es of Bitumino	ous over 7 inches of	f Aggregate	Base.			, i		
6.0	SP		Sand, dark bro	ADED SAND	o, fine-grained, brov (Alluvium)		=	8 8 8 7 10 9				72
24.0	SP		POORLY GF of Gravel, bro	RADED SANI own, moist, mo	D, fine- to medium- edium dense. (Alluvium)	-grained, wi	th a trace	14				
29.0	SP- SM		POORLY GF reddish-brow	RADED SANI n, waterbearin	O with SILT, fine-gg, medium dense. (Alluvium)	grained,		29	$  \nabla  $			



		t BL-04-03			BORING: ST-K (cont.)						
		CAL EVALU	JATION Redevelopment		LOCATIO	DN: Se	e attac	hed sketch.			
Hiawa		ake Street	e de la companya de l								
ORILLE		McLean	METHOD: 3 1/4" HSA Aut	ohammer	DATE:	5/1	2/04	SCALE:	1'' = 4'		
Depth feet 32.0	-ASTM Symbol		Description of Materia (ASTM D2488 or D248			BPF	WL	Tests of	Notes		
34.0		POORLY G reddish-brov	RADED SAND with SILT, fine- wn, waterbearing, medium dense. (Alluvium) (continued	grained,	_						
-	SP- SM	POORLY G with Gravel	RADED SAND with SILT, fine- and cobbles, brown, wet, very do (Glacial Outwash)	- to coarse-gra	nined,	51			8		
44.0	CL	SANDY LE very stiff.	EAN CLAY, with a trace of Grav (Glacial Till)	el, dark gray,	moist,	29					
49.0	SHALE	WEATHER	RED SHALE, gray, moist, hard.	1		59					
54.1									*		
		Water obse	ORING. sal on bedrock at 54.1 feet. erved at 29 feet with 30 feet of h mediately backfilled with benton		uger in the	100-1	/2"				
			e e		9			-	2		
-						7					



	et BL-04-03622	BORING	i.		ST-L	
Hi-Lake Shopp	CAL EVALUATION ing Center Redevelopment	LOCATI	ON: Se	ee attach	ed sketch.	
Hiawatha and I Minneapolis, M		G/				
	McLean METHOD: 3 1/4" HSA Autol	hammer DATE:	5/1	2/04	SCALE:	1'' = 4'
Depth feet ASTM 0.0 Symbol	Description of Materials (ASTM D2488 or D2487		BPF	WL	Tests or	Notes
0.9 FILL	FILL: 4 inches of Bituminous over 6 1/2 inches		IT			
FILL	FILL: Silty Sand, fine-grained, with pieces of black, moist.	brick, dark brown to - - -	12			
7.0 SP-	POORLY GRADED SAND with SILT, fine-g	rained brown moist	8 - M 7			a.
_ SM .	loose. (Alluvium)					
-	¥1	-	<u>N</u> 6	<		
- - 15.5	-	-	-			
- 10.0	END OF BORING.	2	Ħ			
	Water not observed with 14 feet of hollow-stear ground.	em auger in the				
-	Water not observed to cave-in depth of 13 fee withdrawing the auger.	et immediately after				
-	Boring immediately backfilled.	-				
		-			ŧ	
_		_	-			
3L-04-03622	Braun Intertec Corne	oration, Bloomington		LL		ST-L page 1 o



Braun Projec	t BL-04-03	6622		BORING			ST-M	
GEOTECHNIC Hi-Lake Shopp	CAL EVALU	ATION	nt			ee attac	hed sketch.	
Hiawatha and I Minneapolis, M			· ·				¥7	
DRILLER: Scott	McLean	METHOD:	3 1/4" HSA Autohammer	DATE:	5/1	2/04	SCALE:	1" = 4'
Depth feet ASTM 0.0 Symbol	- 90		ption of Materials D2488 or D2487)		BPF	WL	Tests or	Notes
FILL XXX	FILL: 4 inch		us over 7 inches of Aggrega	ate Base.				
1.0 FILL	FILL: Silty S moist.	Sand, fine- to m	edium-grained, dark brown	to black,	7			
4.0 SP	POORLY GH loose.		), fine-grained, light brown (Alluvium)	, moist,	7 - 7 - 7 - 7			
	ground.  Water not ob after withdra	served with 14		_				



NIC										
			t BL-04-03			BORING	:		ST-N	
			AL EVALUA			LOCATIO	DN: S	ee attac	hed sketch.	
			ng Center Re Lake Street	edevelopment						
			innesota							
DRILL			McLean	METHOD: 3 1/4" HSA Auto	1	DATE.	<i>- 1</i> 1	2/04	CCATE	411 41
	J.C.	SCOR	IvicLean	METHOD: 3 1/4" HSA Auto	nammer	DATE:	5/1	2/04	SCALE:	1'' = 4'
Depth feet 0.0	AS7 Sym	- 1		Description of Materials (ASTM D2488 or D2487			BPF	WL	Tests or	Notes
0.7	FILL		FILL: 4 inche	es of Bituminous over 4 inches o		Base.	T			
	FILL		FILL: Silty S	and, fine- to medium-grained, w						
_0	FILL	$\bowtie$	\layer of Claye	y Sand, black, moist. and, fine-grained, dark brown, m	noist	/_				
		$\bowtie$	TIDE. SIRY S	and, inte-grained, dark brown, if	ioist.		4			
-		$\bowtie$				7				
-8		$\bowtie$				2			:-	
11		$\bowtie$				_	7			
20		$\bowtie$					Ÿ			
		$\bowtie$				7				
23						1	7			
70						2-	4			
9.0		$\bowtie$								
	SP		POORLY GR	ADED SAND, fine- to medium-	grained, bro	wn,	10			
			moist, mediur	n dense. (Alluvium)		-	10			
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	SP		POORLY GR	ADED SAND, fine- to coarse-gr	rained, with	a trace of	1 24			
			Gravel, brown	n, moist, medium dense. (Alluvium)			24			
=:				()		:-				
						F1				
04.0						_				
24.0	SM	П	SILTY SAND	), fine-grained, brown, moist, me	dium dense					
_	J.VI		JULI DAM	(Alluvium)	Januari delise.		19			
29				·			4			
			Va.º			§ <del>-</del>				
-:						-				
-						n-				
29.0										
	SP		POORLY GR	ADED SAND, fine-grained, red	dish-brown,		4	-		
			waterbearing,	medium dense. (Alluvium)		_	16			
-				(1 1114 114111)		, s-l				
31 -04-036	22			Braun Intertee Corne	White control to	Otto at time				CT M mass lof



Braun Project BL-04-03622 ST-N (cont.) BORING: GEOTECHNICAL EVALUATION LOCATION: See attached sketch. Hi-Lake Shopping Center Redevelopment Hiawatha and Lake Street Minneapolis, Minnesota DRILLER: Scott McLean METHOD: 3 1/4" HSA Autohammer DATE: 5/12/04 SCALE: 1'' = 4'Depth feet **ASTM** Description of Materials **BPF** WL Tests or Notes 32.0 Symbol (ASTM D2488 or D2487) POORLY GRADED SAND, fine-grained, reddish-brown, waterbearing, medium dense. (Alluvium) (continued) 34.0 SM SILTY SAND, with Gravel and cobbles, reddish-brown, moist, 34 dense. (Glacial Till) 39.0 CL SANDY LEAN CLAY, with a trace of Gravel, olive, wet, hard. 40.0 100/8 (Glacial Till) SP POORLY GRADED SAND, fine- to coarse-grained, with Gravel and cobbles, grayish-brown, waterbearing, very dense. (Glacial Outwash) X100/7' 49.0 CL SANDY LEAN CLAY, with a trace of Gravel, dark gray, wet, hard. 68 (Glacial Till) 50.5 END OF BORING. Water observed at 29 feet with 50 feet of hollow-stem auger in theground. Boring immediately backfilled with bentonite grout.



20 00	KIL										
			L-04-03				BORING	:		ST-O	
			EVALU.		4		LOCATION	ON: Se	ee attacl	ned sketch.	
	ike Snoj atha and			edevelopi	nent						
	eapolis,										
DRILL	_	cott McL		метно	D: 3 1/4" HSA Auto	hammer	DATE:	5/1	2/04	SCALE:	1" = 4"
	I I	7		METHO	D. 5 174 110A Aut		DATE.	5/1	2/04	SCALE.	1 - 4
Depth feet	ASTM	1		De	scription of Material	S		BPF	WL	Tests or	Notes
0.0	Symbo				TM D2488 or D248					2 2000 01	
0.2	FILL	X FII	L: 2 inch	es of Bitum	inous.						
-	FILL		L: Silty S wn, moist.		trace of Gravel piec	es and glass,	dark _	=:			
2.0	SP-	XXI			ND with SILT, fine-	to madium (	rained	M 6			
	SM	bro	wn, moist			to meanin-	granieu,	M G	1		
					(Possible Fill)						
							:-				
							-	11			
6.0	SP	III PO	ORI V CP	ADED SA	ND, fine-grained, lig	ht brown m	nist				
_	01	me	dium dens	se.		iii oi o wii, ili	O131,				
					(Alluvium)			12			
							4 <del>-</del>				
	13						-				
							-	M 10			
		EN	D OF BOI	RING.					1 1		
		W:	e ter not ob	served with	n 10 feet of hollow-s	tem auger in	the				
		gro	und.	SOLVED WIL	1 10 1001 01 H0H0W-3	tom augor m	tuic –				
10.5		Wa	ter not ob	served to c	ave-in depth of 8 fee	t immediate	ly after _				
		1		ediately bac	kfilled.		-				
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Hi-Lake Shop Hiawatha and Minneapolis,	Minnesota ott McLean		LOCATION	ON: Se		ST-P ned sketch.			
Depth feet ASTM 0.0 Symbo		METHOD: 3 1/4" HSA Autohammer	Center Redevelopment e Street lesota				411 41		
feet ASTM 0.0 Symbo			DATE:	5/12	2/04	SCALE:	1" = 4"		
FILL	1	Description of Materials (ASTM D2488 or D2487)		BPF	WL	Tests or	Notes		
4.0 SP- SM	black, moist.	Sand, fine- to medium-grained, with a tra RADED SAND with SILT, fine- to media of Gravel, brown, moist. (Possible Fill)		4					
7.0 SP	POORLY GE medium dens	RADED SAND, fine-grained, brown, mo se. (Alluvium)	ist, loose to	7 12 11 11					
19.0 SM	SILTY SANI reddish-brow	D, fine- to medium-grained, with Gravel, m, moist, very dense. (Glacial Till)	,	▼ 79 × 00/5	<u>\</u>				



Brau		ct BL-04-03		BORING	:	ST-	P (cont.)		
Hi-Lal Hiawa	ke Shopp tha and	CAL EVALU bing Center R Lake Street Iinnesota	ATION edevelopment	LOCATION: See attached sketch.					
DRILLI	ER: Sco	tt McLean	Lean METHOD: 3 1/4" HSA Autohammer DATE: 5			2/04 SCALE:		1" = 4"	
Depth feet 32.0	ASTM Symbol	SUTVSAN	Description of Materials (ASTM D2488 or D2487) D, fine- to medium-grained, with Gravel,		BPF	WL	Tests or	Notes	
34.0		reddish-brow	n, moist, very dense. (Glacial Till) (continued)	-					
_	CL	SANDY LEA	AN CLAY, wet, gray, hard. (Glacial Till)		36				
39.0				-					
	SP	POORLY Gl grayish-brow	RADED SAND, fine- to coarse-grained, waterbearing, very dense. (Glacial Outwash)	ith Gravel,	58				
44.0	CL	SANDY LE. very stiff.	AN CLAY, with a trace of Gravel, gray, m (Glacial Till)	oist to wet,	26				
50.5			RING.  wed at 23 feet with 50 feet of hollow-stem	auger in the	30				
		ground.  Boring imm	ediately backfilled with bentonite grout.	5= 8=	-				
	100	=92		-					
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2				-					
L-04-0362		E	Braun Intertec Corporation, Blo					ST-P page 1	