



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

February 25, 2011

SUBJECT: FAU 2332 (Bolcum Road)
Project BHOS-00D1(639)
Section 03-14185-02-BR
Kane County
Contract No. 63521
Item 082
March 11, 2011 Letting
Addendum (A)

TO PROSPECTIVE BIDDERS:

Due to clarify information necessary to revise the following:

**Proposal – Schedule of Prices - pages 2, 3, 4, 5, 6 & 7.
Added Soils Report.**

Plans – Sheet 5 & 26.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Scott Stitt
Acting Engineer of Design and Environment.

A handwritten signature in black ink, reading "Ted B. Walschleger" with a small "P.E." to the right.

By: Ted B. Walschleger
Engineer of Project Development
and Implementation

FAU 2332
 03-14185-02-BR
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63521

ECMS002 DTGECM03 ECMR003 PAGE 2
 RUN DATE - 02/23/11
 RUN TIME - 183106

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0001050	AGG SUBGRADE 12	SQ YD	2,357.000 X	=			
Z0013797	STAB CONSTR ENTRANCE	SQ YD	75.000 X	=			
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000 X	=			
Z0042002	POROUS GRAN EMB SUBGR	CU YD	1,495.000 X	=			
Z0046304	P UNDR FOR STRUCT 4	FOOT	145.000 X	=			
Z0065000	SET PILES IN ROCK	EACH	6.000 X	=			
Z0076600	TRAINEES	HOUR	500.000 X	=	0.80		400.00
20100110	TREE REMOV 6-15	UNIT	72.000 X	=			
20100210	TREE REMOV OVER 15	UNIT	204.000 X	=			
20101000	TEMPORARY FENCE	FOOT	30.000 X	=			
20200100	EARTH EXCAVATION	CU YD	410.000 X	=			
20201200	REM & DISP UNS MATL	CU YD	2,460.000 X	=			
20300100	CHANNEL EXCAVATION *	CU YD	416.000 X	=			
20400800	FURNISHED EXCAVATION	CU YD	1,040.000 X	=			
21001000	GEOTECH FAB F/GR STAB	SQ YD	2,357.000 X	=			

* Revised 2-25-11

FAU 2332
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 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63521

ECMS002 DTGECM03 ECMR003 PAGE 3
 RUN DATE - 02/23/11
 RUN TIME - 183106

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
21101505	TOPSOIL EXC & PLAC	CU YD	365.000	X	=		
25000210	SEEDING CL 2A	ACRE	0.250	X	=		
25000400	NITROGEN FERT NUTR	POUND	248.000	X	=		
25000500	PHOSPHORUS FERT NUTR	POUND	248.000	X	=		
25000600	POTASSIUM FERT NUTR	POUND	248.000	X	=		
25100630	EROSION CONTR BLANKET	SQ YD	7,260.000	X	=		
28000250	TEMP EROS CONTR SEED	POUND	303.000	X	=		
28000305	TEMP DITCH CHECKS	FOOT	50.000	X	=		
28000400	PERIMETER EROS BAR	FOOT	2,220.000	X	=		
28000500	INLET & PIPE PROTECT	EACH	3.000	X	=		
28100105	STONE RIPRAP CL A3	SQ YD	21.000	X	=		
28100107	STONE RIPRAP CL A4	SQ YD	517.000	X	=		
28200200	FILTER FABRIC	SQ YD	538.000	X	=		
31101100	SUB GRAN MAT B	CU YD	55.000	X	=		
40600200	BIT MATLS PR CT	TON	3.000	X	=		

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ECMS002 DTGECM03 ECMR003 PAGE 4
 RUN DATE - 02/23/11
 RUN TIME - 183106

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
40600625	LEV BIND MM N50	TON	105.000 X	=			
40600982	HMA SURF REM BUTT JT	SQ YD	153.000 X	=			
40603080	HMA BC IL-19.0 N50	TON	872.000 X	=			
40603335	HMA SC "D" N50	TON	418.000 X	=			
42001430	BR APPR PVT CON (FLX)	SQ YD	46.000 X	=			
44000100	PAVEMENT REM	SQ YD	1,798.000 X	=			
44300200	STRIP REF CR CON TR	FOOT	730.000 X	=			
48101500	AGGREGATE SHLDS B 6	SQ YD	110.000 X	=			
48102100	AGG WEDGE SHLD TYPE B	TON	24.000 X	=			
48203029	HMA SHOULDERS 8	SQ YD	560.000 X	=			
50100100	REM EXIST STRUCT	EACH	1.000 X	=			
50104000	BRIDGE RAIL REMOVAL	FOOT	186.000 X	=			
50105220	PIPE CULVERT REMOV	FOOT	33.000 X	=			
50200100	STRUCTURE EXCAVATION	CU YD	186.000 X	=			
50200300	COFFERDAM EXCAVATION	CU YD	58.000 X	=			

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ILLINOIS DEPARTMENT OF TRANSPORTATION
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CONTRACT NUMBER - 63521

ECMS002 DTGECM03 ECMR003 PAGE 5
RUN DATE - 02/23/11
RUN TIME - 183106 *

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
50202901	COFFERDAM LOCATION 1	EACH	1.000 X	=		=	
50300225	CONC STRUCT	CU YD	85.700 X	=		=	
50300255	CONC SUP-STR	CU YD	237.500 X	=		=	
50300260	BR DECK GROOVING	SQ YD	553.000 X	=		=	
50300265	SEAL COAT CONC	CU YD	24.800 X	=		=	
50300280	CONCRETE ENCASEMENT	CU YD	4.200 X	=		=	
50300300	PROTECTIVE COAT	SQ YD	671.000 X	=		=	
50500105	F & E STRUCT STEEL	L SUM	1.000 X	=		=	
50500505	STUD SHEAR CONNECTORS	EACH	1,920.000 X	=		=	
50800205	REINF BARS, EPOXY CTD	POUND	64,540.000 X	=		=	
50800515	BAR SPLICERS	EACH	72.000 X	=		=	
51201600	FUR STL PILE HP12X53	FOOT	300.000 X	=		=	
51201800	FUR STL PILE HP14X73	FOOT	192.000 X	=		=	
51202305	DRIVING PILES	FOOT	300.000 X	=		=	
51203600	TEST PILE ST HP12X53	EACH	2.000 X	=		=	

* Revised 2-25-11

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ECMS002 DTGECM03 ECMR003 PAGE 6
RUN DATE - 02/23/11
RUN TIME - 183106 *

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
51204650	PILE SHOES	EACH	12.000 X				
51500100	NAME PLATES	EACH	1.000 X				
52100520	ANCHOR BOLTS 1	EACH	30.000 X				
54215547	MET END SEC 12	EACH	2.000 X				
59100100	GEOCOMPOSITE WALL DR	SQ YD	54.000 X				
60100060	CONC HDWL FOR P DRAIN	EACH	6.000 X				
60100945	PIPE DRAINS 12	FOOT	100.000 X				
60103500	PIPE DRAINS CS 12	FOOT	29.000 X				
60107600	PIPE UNDERDRAINS 4	FOOT	439.000 X				
60235300	INLETS TA T1F CL	EACH	2.000 X				
63000001	SPBGR TY A 6FT POSTS	FOOT	437.500 X				
63100085	TRAF BAR TERM T6	EACH	4.000 X				
63100167	TR BAR TRM T1 SPL TAN	EACH	4.000 X				
63200310	GUARDRAIL REMOV	FOOT	1,028.000 X				
66600105	FUR ERECT ROW MARKERS	EACH	6.000 X				

* Revised 2-25-11

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
67000400	ENGR FIELD OFFICE A	CAL MO	8.000 X	=			
67100100	MOBILIZATION	L SUM	1.000 X	=			
72000100	SIGN PANEL T1	SQ FT	35.000 X	=			
72400100	REMOV SIN PAN ASSY TA	EACH	7.000 X	=			
72400500	RELOC SIN PAN ASSY TA	EACH	2.000 X	=			
73000100	WOOD SIN SUPPORT	FOOT	126.000 X	=			
78000200	THPL PVT MK LINE 4	FOOT	6,080.000 X	=			
78200410	GUARDRAIL MKR TYPE A	EACH	10.000 X	=			
78200420	GUARDRAIL MKR TYPE B	EACH	4.000 X	=			
78201000	TERMINAL MARKER - DA	EACH	4.000 X	=			

TOTAL \$

* Revised 2-25-11

- NOTE:
1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
 2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
 3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
 4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

Bolcum Road Bridge
Over Ferson Creek
Kane County

F.A.U. 2332
Job. No. C-91-140-04
Sec. 03-14185-02-BR

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Revised 2-25-11



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Geotechnical & Environmental Engineering



Construction Materials Engineering & Testing



Laboratory Testing of Soils, Concrete & Asphalt



Geo-Environmental Drilling & Sampling

**Subsurface
Investigation**

**Bolcum Road over
Ferson Creek**

S.N. 045-3042

Kane County

**Robert H. Anderson
& Associates, Inc.**

GEOTECHNICAL GROUP

CAROL STREAM

Local Office
October 13, 2004



TESTING SERVICE CORPORATION

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Mr. John Ritchie, S.E., P.E.
Robert H. Anderson & Associates, Inc.
220 West River Drive
St. Charles, Illinois 60174

Re: Bolcum Road over Ferson Creek
S.N. 045-3042
Kane County
TSC Project No. L-60,780

RECEIVED

OCT 18 2004

ROBERT H. ANDERSON
& ASSOC., INC.

Dear Mr. Ritchie:

This report presents results of the subsurface investigation performed for improvements to the bridge structure carrying Bolcum Road over Ferson Creek. The Geotechnical study was performed in accordance with TSC Proposal No. 29,890 (Revised) dated March 6, 2004 and the attached General Conditions, which are incorporated herein by reference.

The existing structure was apparently constructed in 1959 and consists of a three span bridge which has a length of 93 feet. The structure supports the two lane pavement and has a width of 26 feet. The original plans for the bridge show the abutments are supported on timber piles and the two piers on 14-inch precast concrete piles.

It is our understanding the improvements will include replacement of the existing bridge with a two span structure. The abutments are to be moved back slightly, lengthening the bridge. One bridge pier is to be constructed, approximately midway between the existing piers. It is our understanding the width of the bridge will remain approximately the same.

Summary of Work Performed

The subsurface investigation has included three structure borings, two bridge deck cores and two pavement cores. Reference is made to the appended Location Plan showing the specific boring and core locations where station, offset and elevations are shown.

Soil sampling in each boring was performed in conjunction with the Standard Penetration Test, for which driving resistance to a 2" split-spoon sampler (inblows per 6" interval) provides an indication of the relative density of granular materials and consistency of cohesive soils. Each of the structure borings was extended to refusal on the rock surface with rock cores being taken at SB-1 and SB-3. Reference is made to the appended boring logs which indicate subsurface stratigraphy, results of field and laboratory tests and groundwater observations.

Bridge Deck Cores

The bridge deck cores and testing were performed in accordance with criteria outlined in BDE Procedure Memorandum 26-02A. Two representative areas of the bridge deck were cored with a 2-inch core barrel. The

cores extended about 1 to 2 inches into the concrete deck. At the completion of coring the core holes were backfilled and compacted with cold patch asphalt.

The core samples were broken down by using the Gravimetric Reduction Method to release any potential asbestos fibers. The material was then analyzed by using Polarized Light Microscopy (PLM) to determine if asbestos fibers were present. TEM Incorporated in Glen Ellyn (101732-0) performed the asbestos testing. Appended to this report is a copy of their letter and data sheet of test results. The test results did not detect any asbestos containing material in the core samples.

Pavement Composition

Appended to this report is a detailed summary of Pavement Core Results. The asphalt thickness on the bridge deck was 5.3 inches at C-1 and 5.1 inches at C-2. Core 3 was located about 150 feet west of the bridge and C-4 about 150 feet east of the bridge. Each of these cores encountered about 7.0 to 7.3 inches of asphalt over 11 inches of crushed Gravel subbase. The asphalt core samples were in good condition and were comprised of about 1.6 to 1.9 inches of surface course materials over binder course. Boring SB-2, located adjacent to the east abutment, encountered about 7 inches of asphalt over 18 inches of Sand and Gravel Fill.

Discussion of Boring Results

Boring SB-1 was located at the top of the creek embankment just north of the west abutment. This boring encountered dark brown Clay Loam (topsoil) to a depth of about 5.5 feet. Boring SB-2 also encountered black Clay Loam (topsoil) and black Organic Clay to 8 feet underlying the pavement. The moisture contents for the organic soils were relatively high at this boring (25-40%).

Each of the borings otherwise encountered Sand or Sand/Gravel materials. The SPT blow counts were mostly between 10 and 20 blows per foot (bpf) in SB-1 and SB-2, but were mostly higher in SB-3. It should be noted the SPT blow counts in SB-1 and SB-2 were obtained using a CME automatic hammer, which has high efficiency, and a rope and cathead hammer was used in SB-3.

Each of the borings was extended to refusal on the dolomite rock surface. At SB-1 and SB-3, there was evidence of a possible Cobble and Boulder zone overlying the rock surface. The refusal elevation for the apparent rock surface sloped down from west to east across the bridge site. Boring SB-1, adjacent to the west abutment, encountered the apparent rock surface about 10.5 feet higher in elevation than SB-2 at the east abutment.

Rock core samples were taken at Borings SB-1 and SB-3 using NX core barrel and equipment. Photographs of the core samples are appended to this report. The rock core at SB-1 extended from 23.5 to 39 feet and at SB-3 from 31.5 to 41.5 feet. The top 5.5 feet of rock core at SB-1 resulted in poor sample recovery (48%) and low Rock Quality Designation (RQD=13%). These results are indicative of poor rock quality with numerous fractures and jointing. The remainder of the rock core at SB-1, and the core obtained from SB-3, resulted in full sample recovery (100%) and high RQD values (82-85%), reflecting mostly minor to moderate fracturing of the

rock. It should be noted that cobbles and boulders overlying the rock surface can make defining the surface somewhat improbable.

The creek water level elevation varied from about elevation 745.6 to 746.4 during our field work. Free groundwater was encountered in SB-1 and SB-2 at elevations about equal to or just below this level. Note that the free groundwater was associated with water bearing layers of Sand in each boring.

Conclusions and Recommendations

Scour Potential

Each of the borings has encountered Sand below the streambed elevation. The potential for scour may be significant enough as to rule out certain types of foundations. Grain size analysis has been performed for two representative samples of Sand from the bridge pier boring (SB-3) in order to provide data for scour analysis. These samples were taken 4 to 8 feet beneath the streambed. The results of the grain size analysis are appended to this report.

Spread Footings

The potential for scour will probably rule out spread footing foundations. It is noted that the existing abutments and piers are supported on piles. Spread footings at the abutments would need to extend beneath the soft black Clay and topsoil, which would then require footing construction beneath the water table in Sand. If spread footings are considered a viable option, then TSC should be contacted to provide recommendations for bearing support and construction considerations.

Steel H-Piles

The depth to rock is not enough to properly allow for the support of friction piles. Driven piles for a deep foundation system would probably best consist of point bearing steel H-piles which are driven to refusal. However, a scour analysis may also rule out this type of foundation system due to lack of lateral support to the piles once the streambed soils have been eroded.

The design loads for steel H-piles driven to refusal on rock should be controlled by the allowable stress in the steel section. A maximum compressive stress of 9,000 psi is typically used for IDOT projects.

The following summarizes the estimated tip elevations for steel H-piles driven to refusal. TSC has not been furnished the footing elevations in order to calculate the corresponding length of piles.

Point Bearing Steel H-Piles

Boring	Location	Estimated Pile Refusal	
		Depth in Boring	Tip Elevation
SB-1	West Abutment	23.5 feet	726.3
SB-3	Center Pier	31.5 feet	722.1
SB-2	East Abutment	36.0 feet	717.8

It should be expected that the refusal elevations will vary across each abutment and pier due to variations in cobbles, boulders and weathered rock surface. Test piles should be driven at each substructure unit prior to ordering piles for production driving. It is recommended that the steel H-piles be provided with metal pile shoes (pile points) due to the presence of cobbles and possible boulders which overlie the Dolomite rock.

Drilled Concrete Shafts

As previously mentioned, a scour analysis may rule out steel H-piles. For this condition, the only viable option will be to support the abutments and pier on vertical concrete shafts which are drilled sufficiently into the Dolomite rock to design for lateral loads.

The high water table and Sand stratigraphy indicate difficult conditions for drilled shaft construction. It is recommended that the drilled shafts include permanent casing in order to confirm the integrity of the shaft diameter. It will be required to perform the shaft excavations by wet slurry methods with the slurry always maintained above the free water elevation (~747). Also, it will probably not be possible to dewater the shafts prior to concrete placement. Therefore concrete would need to be placed by tremie methods through the slurry.

The vertical concrete shafts for the bridge abutments and piers would typically have diameters of 3.0 to 4.0 feet. The required embedment into rock would probably be based on analysis of lateral load capacity and the amount of fracturing and jointing within the Dolomite rock. The rock cores taken at SB-1 and SB-2 generally indicate good quality to the dolomite rock (RQD>75%) except for the top 5.5 feet (elevation 726.3 to 720.8) in SB-1 which was severely fractured. Past experience with similar projects in this area indicate that the Dolomite should have an average compressive strength of at least 8,000 psi. Once the method of lateral load analysis has been determined for the drilled concrete shafts, recommendations for input parameters will be made.

Removal of Unsuitable Soils

Boring SB-2 was drilled through the pavement adjacent to the east abutment and encountered relatively soft black organic Clay underlying the pavement. The organic Clay revealed high moisture contents (31-40%) and extended to a depth of 8 feet below top of pavement.

It is recommended that consideration be given to removal and replacement of the soft organic Clay at the east approach embankment to the new bridge structure. The lateral extent of this material has not been determined since there was only one boring on the east side of the bridge. It may be possible to perform additional subgrade borings at a later stage of design. Otherwise the unsuitable organic Clay should be estimated to extend a limited distance back from the east abutment (<30 feet). Replacement fill should consist of Porous Granular Embankment-Subgrade (PGES) materials.

Boring SB-1, located north of the west abutment, encountered a dark brown Clay Loam (topsoil) to 5.5 feet. This soil was in a very stiff condition with moderate moisture contents (20-22%). Normal roadway construction would require removal of this soil to a depth of about 2.0 feet below top of subgrade. There is no confirmation that this was done during roadway construction.

Groundwater Management

Excavations or footing construction which occur below the water table (approx. elevation 747) in Sand will encounter problems associated with groundwater seepage. Construction of a pile supported footing for the bridge pier will require a cofferdam. Drilled concrete shafts with permanent casing may eliminate a cofferdam. All other excavations or activities performed below the stream elevation must take into account the water bearing Sand and associated problems with seepage and flowing soil conditions. This includes use of permanent casing and drilling slurry for drilled concrete shafts as well as continuous pumping from wells or a well point system for shallower excavations.

Closure

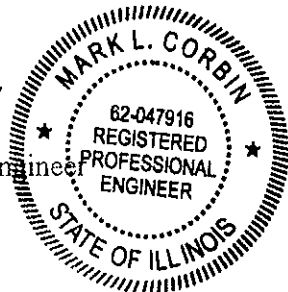
The analysis and recommendations submitted in this report are based upon the data obtained from the three (3) soil borings, two (2) bridge deck cores and two (2) pavement cores performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings, the nature and extent of which may not become evident until during the course of construction. If variations are then identified, recommendations contained in this report should be re-evaluated after performing on-site observations.

It has been a pleasure to assist you with this work. Please call if there are any questions or if we may be of further service.

Respectfully submitted,

TESTING SERVICE CORPORATION

Mark L. Corbin
Mark L. Corbin
Registered Professional Engineer
Illinois No. 062-047916





TESTING SERVICE CORPORATION

GENERAL CONDITIONS

Geotechnical and Construction Services

1. PARTIES AND SCOPE OF WORK: "This Agreement" consists of Testing Service Corporation's ("TSC") proposal, TSC's Schedule of Fees and Services, Client's written acceptance thereof, if accepted by TSC, and these General Conditions. The terms contained in these General Conditions are intended to prevail over any conflicting terms in this Agreement. "Client" refers to the person or entity ordering the work to be done or professional services to be rendered by TSC (except where distinction is necessary, either work or professional services are referred to as "services" herein). If Client is ordering the services on behalf of another, Client represents and warrants that Client is the duly authorized agent of said party for the purpose of ordering and directing said services, and in such case the term "Client" shall also include the principal for whom the services are being performed. Prices quoted and charged by TSC for its services are predicated on the conditions and the allocations of risks and obligations expressed in these General Conditions. Unless otherwise stated in writing, Client assumes sole responsibility for determining whether the quantity and the nature of the services ordered by Client are adequate and sufficient for Client's intended purpose. Client shall communicate these General Conditions to each and every third party to whom the Client transmits any report prepared by TSC. Unless otherwise expressly assumed in writing, TSC shall have no duty to any third party, and in no event shall TSC have any duty or obligation other than those duties and obligations expressly set forth in this Agreement. Ordering services from TSC shall constitute acceptance of TSC's proposal and these General Conditions.

2. SCHEDULING OF SERVICES: The services set forth in this Agreement will be accomplished in a timely and workmanlike manner. If TSC is required to delay any part of its services to accommodate the requests or requirements of Client, regulatory agencies, or third parties, or due to any cause beyond its reasonable control, Client agrees to pay such additional charges, if any, as may be applicable.

3. ACCESS TO SITE: Client will arrange and provide such access to the site as is necessary for TSC to perform its services. TSC shall take reasonable measures and precautions to minimize damage to the site and any improvements located thereon as a result of its services or the use of its equipment; however, TSC has not included in its fee the cost of restoration of damage which may occur. If Client desires or requires TSC to restore the site to its former condition, TSC will, upon written request, perform such additional work as is necessary to do so and Client agrees to pay to TSC the cost thereof plus TSC's normal markup for overhead and profit.

4. CLIENT'S DUTY TO NOTIFY ENGINEER: Client represents and warrants that Client has advised TSC of any known or suspected hazardous materials, utility lines and underground structures at any site at which TSC is to perform services under this Agreement.

5. DISCOVERY OF POLLUTANTS: TSC's services shall not include investigation for hazardous materials as defined by the Resource Conservation Recovery Act, 42 U.S.C. § 6901, et seq., as amended ("RCRA") or by any state or Federal statute or regulation, in the event that hazardous materials are discovered and identified by TSC, TSC's sole duty shall be to notify Client.

6. MONITORING: If this Agreement includes testing construction materials or observing any aspect of construction of improvements, TSC will report its test results and observations as more specifically set forth elsewhere in this Agreement. Client shall cause all tests and inspections of the site, materials and work to be timely and properly performed in accordance with the plans, specifications, contract documents, and TSC's recommendations. No claims for loss, damage or injury shall be brought against TSC unless all tests and inspections have been so performed and unless TSC's recommendations have been followed.

TSC's services shall not include determining or implementing the means, methods, techniques or procedures of work done by the contractor(s) being monitored or whose work is being tested. TSC's services shall not include the authority to accept or reject work or to in any manner supervise the work of any contractor. TSC's services or failure to perform same shall not in any way operate or excuse any contractor from the performance of its work in accordance with its contract. "Contractor" as used herein shall include subcontractors, suppliers, architects, engineers and construction managers.

7. ROOF INVESTIGATIONS: Should it be necessary to make roof cuts, Client agrees to provide a roofing contractor of Client's choice to make such cuts, to remove samples as directed by TSC personnel and to promptly make necessary patches or repairs. In the event that a roof contractor is not so provided by Client, Client agrees that TSC may make and remove such cuts as TSC deems necessary in the course of the investigation and Client assumes all risks of damage to the roof system and the building which may arise as a result thereof.

8. LIMITATIONS OF PROCEDURES, EQUIPMENT AND TESTS: Information obtained from borings, observations and analyses of sample materials shall be reported in formats considered appropriate by TSC unless directed otherwise by Client. Such information is considered evidence, but any inference or conclusion based thereon is, necessarily, an opinion also based on engineering judgment and shall not be construed as a representation of fact. Subsurface conditions may not be uniform throughout an entire site and ground water levels may fluctuate due to climatic and other variations. Construction materials may vary from the samples taken. Unless otherwise agreed in writing, the procedures employed by TSC are not designed to detect intentional concealment or misrepresentation of facts by others.

9. SAMPLE DISPOSAL: Unless otherwise agreed in writing, test specimens or samples will be disposed immediately upon completion of the test. All drilling samples or specimens will be disposed sixty (60) days after submission of TSC's report.

10. TERMINATION: This Agreement may be terminated by either party upon seven days prior written notice. In the event of termination, TSC shall be compensated by Client for all services performed up to and including the termination date, including reimbursable expenses.

11. PAYMENT: Client shall be invoiced periodically for services performed. Client agrees to pay each invoice within thirty (30) days of its receipt. Client further agrees to pay interest on all amounts invoiced and not paid or objected to in writing for valid cause within sixty (60) days at the rate of twelve (12%) per annum (or the maximum interest rate permitted by applicable law, whichever is the lesser) until paid and TSC's costs of collection of such accounts, including court costs and reasonable attorney's fees.

12. WARRANTY: TSC's professional services will be performed, its findings obtained and its reports prepared in accordance with this Agreement and with generally accepted principles and practices. In performing its professional services, TSC will use that degree of care and skill ordinarily exercised under similar circumstances by members of its profession. In performing physical work in pursuit of its professional services, TSC will use that degree of care and skill ordinarily used under similar circumstances. This warranty is in lieu of all other warranties or representations, either express or implied. Statements made in TSC reports are opinions based upon engineering judgment and are not to be construed as representations of fact.

Should TSC or any of its employees be found to have been negligent in performing professional services or to have made and breached any express or implied warranty, representation or contract, Client, all parties claiming through Client and all parties claiming to have in any way relied upon TSC's services or work agree that the maximum aggregate amount of damages for which TSC, its officers, employees and agents shall be liable is limited to \$50,000 or the total amount of the fee paid to TSC for its services performed with respect to the project, whichever amount is greater.

In the event Client is unwilling or unable to limit the damages for which TSC may be liable in accordance with the provisions set forth in the preceding paragraph, upon written request of Client received within five days of Client's acceptance of TSC's proposal together with payment of an additional fee in the amount of 5% of TSC's estimated cost for its services (to be adjusted to 5% of the amount actually billed by TSC for its services on the project at time of completion), the limit damages shall be increased to \$500,000 or the amount of TSC's fee, whichever is the greater. This charge is not to be construed as being a charge for insurance of any type, but is increased consideration for the exposure to an award of greater damages.

13. INDEMNITY: Subject to the provisions set forth herein, TSC and Client hereby agree to indemnify and hold harmless each other and their respective shareholders, directors, officers, partners, employees, agents, subsidiaries and division (and each of their heirs, successors, and assigns) from any and all claims, demands, liabilities, suites, causes of action, judgments, costs and expenses, including reasonable attorneys' fees, arising, or allegedly arising, from personal injury, including death, property damage, including loss of use thereof, due in any manner to the negligence of either of them or their agents or employees. In the event both are negligent or at fault, then any liability shall be apportioned between them pursuant to their pro rata share of negligence or fault. TSC and Client further agree that their liability to any third party shall, to the extent permitted by law, be several and not joint. The indemnities provided hereunder shall not terminate upon the termination or expiration of this Agreement.

14. SUBPOENAS: TSC's employees shall not be retained as expert witnesses except by separate, written agreement. Client agrees to pay TSC pursuant to TSC's then current fee schedule for any TSC employee(s) subpoenaed by any party as an occurrence witness as a result of TSC's services.

15. OTHER AGREEMENTS: TSC shall not be bound by any provision or agreement (i) requiring or providing for arbitration of disputes or controversies arising out of this Agreement, (ii) wherein TSC waives any rights to a mechanics lien or (iii) that conditions TSC's right to receive payment for its services upon payment to Client by any third party. These General Conditions are notice, where required, that TSC shall file a lien whenever necessary to collect past due amounts. This Agreement contains the entire understanding between the parties. Unless expressly accepted by TSC in writing prior to delivery of TSC's services, Client shall not add any conditions or impose conditions which are in conflict with those contained herein, and no such additional or conflicting terms shall be binding upon TSC. The unenforceability or invalidity of any provision or provisions shall not render any other provision or provisions unenforceable or invalid. This Agreement shall be construed and enforced in accordance with the laws of the State of Illinois. In the event of a dispute arising out of or relating to the performance of this Agreement, the breach thereof or TSC's services, the parties agree to try in good faith to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association as a condition precedent to filing any demand for arbitration, or any petition or complaint with any court. Should litigation be necessary, the parties consent to jurisdiction and venue in an appropriate Illinois State Court in and for the County of DuPage, Wheaton, Illinois or the Federal District Court for the Northern District of Illinois. Paragraph headings are for convenience only and shall not be construed as limiting the meaning of the provisions contained in these General Conditions.

PAVEMENT CORE RESULTS

(Each component of pavement section listed from top down.)

Bolcum Road Bridge Deck

CORE 1 Sta. 121+93, 6' RT
5.3" Total Asphalt Thickness over concrete deck
Core sample tested for asbestos determination

CORE 2 Sta. 122+57, 6' LT
5.1" Total Asphalt Thickness over concrete deck
Core sample tested for asbestos determination

Bolcum Road Pavement

CORE 3 Sta. 120+28, 6' LT
1.1" Surface Course
0.8" Surface Course (not bonded to underlying lift)
5.4" Bit. Agg. Mixture (BAM) (possibly 5 separate lifts)
7.3" Total Asphalt Thickness (Good condition)
11" Crushed Gravel Subbase (well-graded, 1.0" to fines)
~18.5" depth - Subgrade

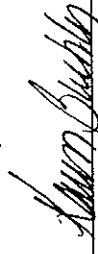
CORE 4 Sta. 124+22, 6' RT
0.8" Surface Course
0.8" Surface Course
5.4" Bit. Agg. Mixture (BAM) (possibly 5 separate lifts)
7.0" Total Asphalt Thickness (Good condition)
11" Crushed Gravel Subbase (well-graded, 1.0" to fines)
~18" depth - Subgrade

BULK ASBESTOS SAMPLE EVALUATION - ASPHALT SAMPLES
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE NVLAP LAB ID 101130-0

Company Name: Testing Service Corporation		Client Project Ref: L-60,780							
Contact: Mark Corbin		Project Location: Bridge Deck Bolcum Rd.							
Address: 360 South Main Place		TEM Project: 39470							
Carol Stream IL 60188-2404		Analyzed by: Karen Buehler							
		Date Analyzed: 7/28/04							
Sample Information		Fibrous Materials		Non-Fibrous Materials					
Client Sample ID	TEM ID.	ACM	COLOR	Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent	Filler	Comments
C-1	181149	N/D	Chrysotile	N/D	6.79	Organic Mtl.	52.56		
Bolcum Road over Ferson Creek			Amosite	N/D	40.65	Acid Soluble			
C-2	181150	N/D	Chrysotile	N/D	8.46	Organic Mtl.	58.52		
Bolcum Road over Ferson Creek			Amosite	N/D	33.02	Acid Soluble			

Samples were analyzed following the procedures contained in the EPA Method 600/R-93/116, July 1993. This report applies only to samples tested.
 SLM: The optical resolution of polarized light microscopy limits the size of fibers that are visible. In samples where very small fibers may be present, the asbestos fibers may be smaller than the resolution limit of a polarized light microscope. In those cases, the result of the PLM analysis is not conclusive where the sample is reported as non-asbestos. Samples that are expected to contain small fibers (such as floor tile samples) and that are reported as non-asbestos by PLM should be further analyzed by transmission electron microscopy.

Key: ACM = Asbestos Containing Material as defined in USEPA NESHAP Regulation; TR = Trace; N/D = None Detected

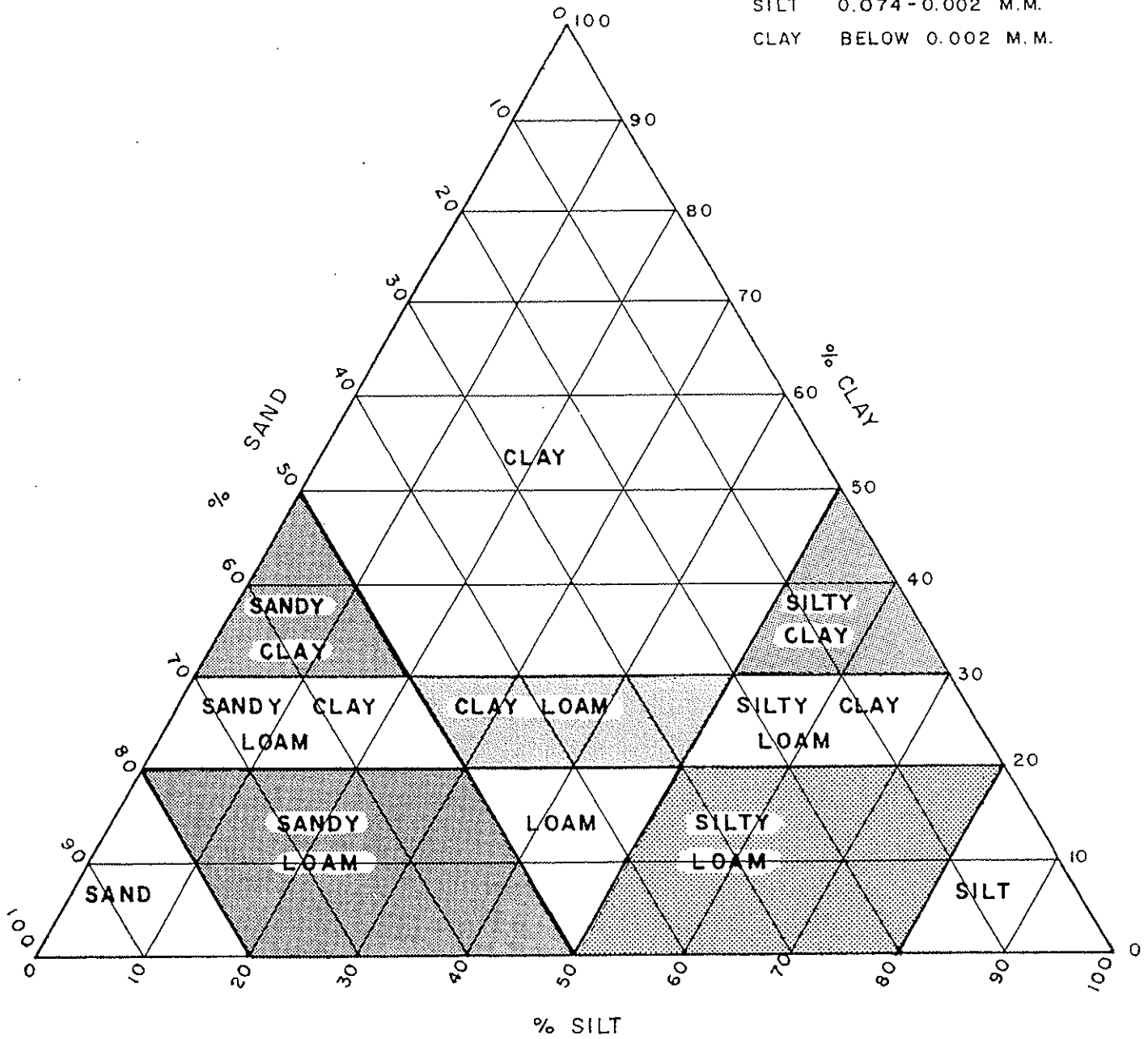

 Signature of Analyst

TESTING SERVICE CORPORATION

I D H TEXTURAL CLASSIFICATION CHART

SIZE LIMITS

SAND	2.0 - 0.074	M.M.
SILT	0.074 - 0.002	M.M.
CLAY	BELOW 0.002	M.M.

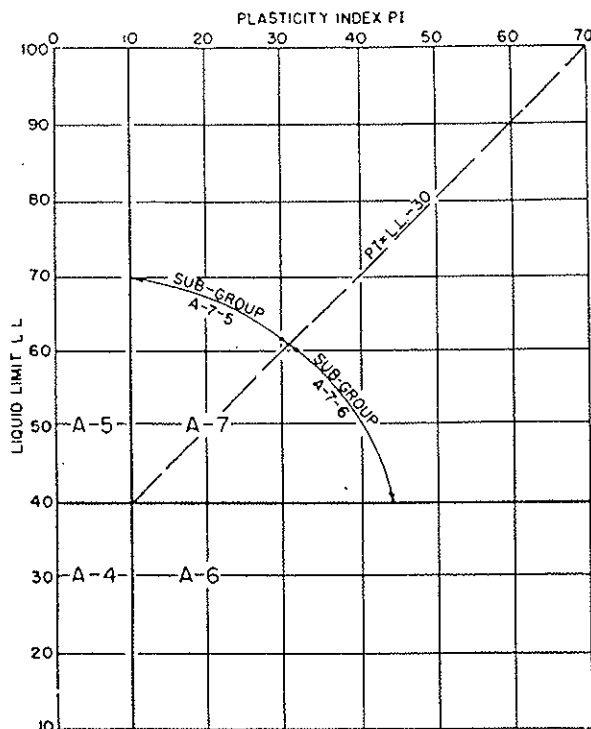


TESTING SERVICE CORPORATION AASHTO CLASSIFICATION CHART

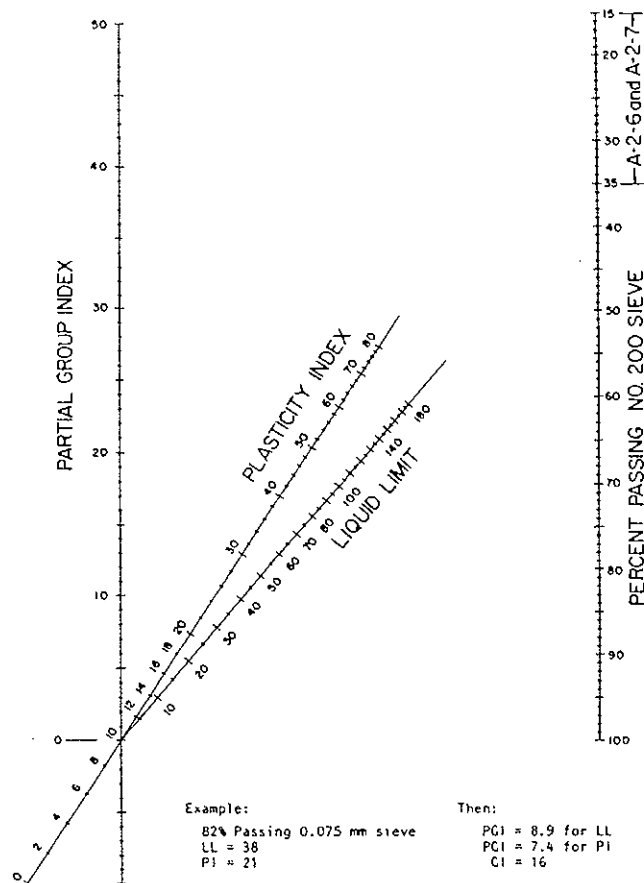
Group Index (GI) = $(F-35)[0.2+0.005(LL-40)]+0.01(F-15)(PI-10)$
 where F = % Passing 0.075 mm sieve, LL = Liquid Limit,
 and PI = Plasticity Index

When working with A-2-6 and A-2-7 subgroups the Partial Group Index (PGI) is determined from the PI only.

When the combined Partial Group Indices are negative, the Group Index should be reported as zero.



Liquid Limit and Plasticity Index Ranges for the A-4, A-5, A-6 and A-7 Subgrade Groups



Example:
 82% Passing 0.075 mm sieve
 LL = 38
 PI = 21

Then:
 PGI = 8.9 for LL
 PCI = 7.4 for PI
 CI = 16

AASHTO SOIL CLASSIFICATION SYSTEM

General Classification	Granular Materials (35% or less passing No. 200)							Silt-Clay Materials (more than 35% passing No. 200)			
	A-1		A-3	A-2				A-4	A-5	A-6	A-7 A-7.5, A-7.6
Group Classification	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				
Sieve analysis, % passing:											
No. 10	50 max	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No. 40	30 max	50 max	51 min	.....	.....	.....	.....	.....	.....	.....	.....
No. 200	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing No. 40:											
Liquid limit	.....	.....	.....	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity index	6 max	.....	N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min†
Usual types of significant constituent materials	Stone fragments, gravel and sand		Fine sand	Silty or clayey gravel and sand				Silty soils		Clayey soils	
General rating as sub-grade	Excellent to good						Fair to poor				

† Plasticity index of A-7-5 subgroup is equal to or less than LL minus 30. Plasticity index of A-7-6 subgroup is greater than LL minus 30.

TESTING SERVICE CORPORATION

457 East Gundersen Drive
Carol Stream, Illinois

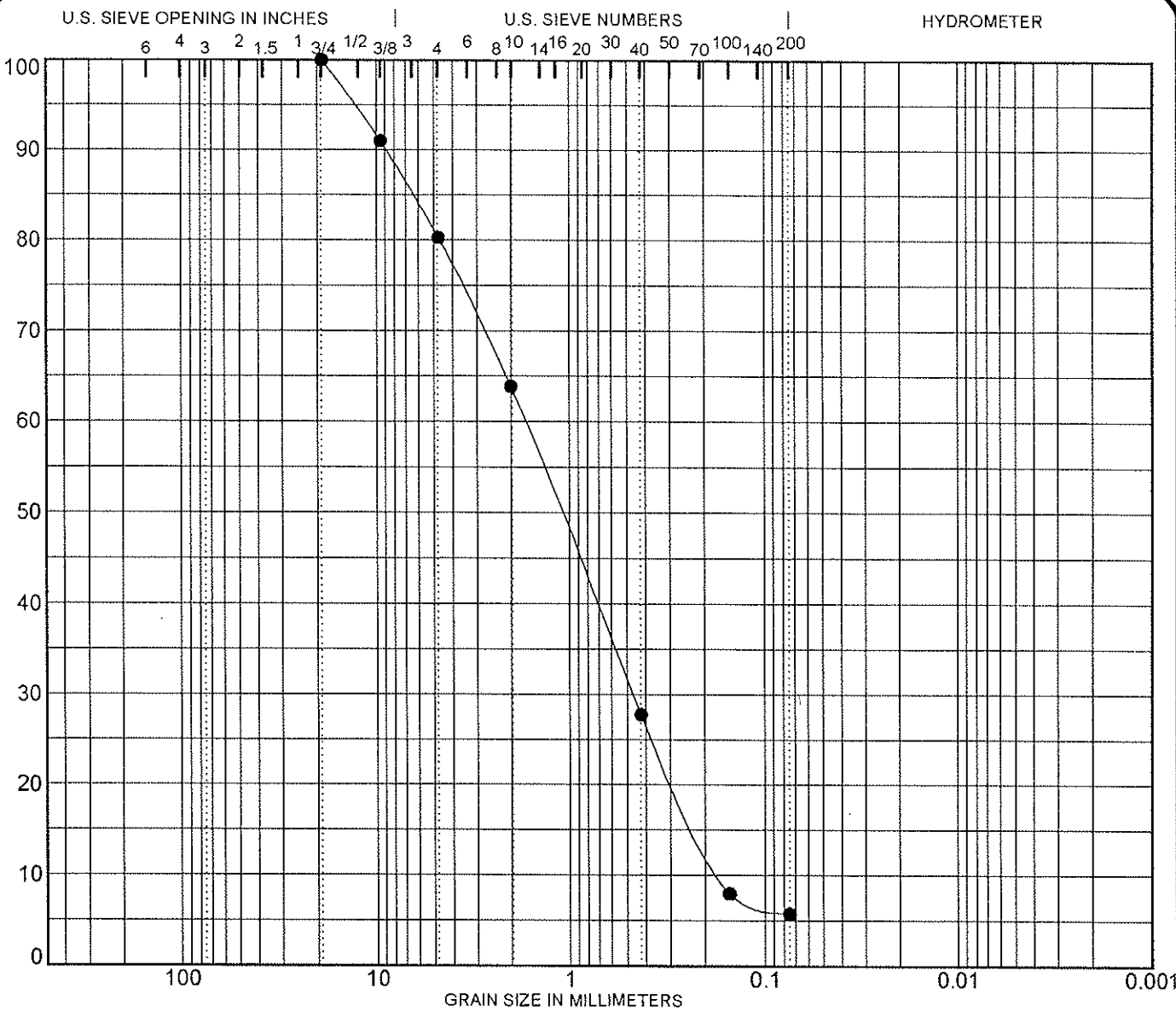
CLIENT: Robert H. Anderson & Assoc.
220 West River Drive
St. Charles, Illinois 60174

TSC Job No. L - 60,780
October 12, 2004

PROJECT: Bolcum Road over Ferson Creek
Kane County

SOIL TEST DATA

LOCATION	Sta. 122+25, 6' RT	Sta. 122+25, 6' RT		
BORING NUMBER	SB-3	SB-3		
SAMPLE NUMBER	3	4		
DEPTH IN FEET	16 - 17.5	18.5 - 20		
HRB CLASSIFICATION & GROUP INDEX	A-1-b	A-1-b		
UNIFIED CLASSIFICATION	SP	SP		
GRAIN SIZE CLASSIFICATION	Med. Dense Gray SAND, some Gravel	Dense Gray SAND, some Gravel		
GRADATION - PASSING 1" SIEVE %				
GRADATION - PASSING 3/4" SIEVE %	100	100		
GRADATION - PASSING 3/8" SIEVE %	91.0	91.3		
GRADATION - PASSING # 4 SIEVE %	80.3	82.6		
GRADATION - PASSING # 10 SIEVE %	63.9	68.7		
GRADATION - PASSING # 40 SIEVE %	27.8	35.5		
GRADATION - PASSING # 100 SIEVE %	8.0	10.3		
GRADATION - PASSING # 200 SIEVE %	5.8	7.6		
GRAVEL %	36.1	31.3		
SAND %	58.1	61.1		
SILT %	5.8% Fines	7.6% Fines		
CLAY % (<0.002 MM)				
LIQUID LIMIT %				
PLASTIC LIMIT %				
PLASTICITY INDEX %				
NATURAL MOISTURE CONTENT %				
LIQUIDITY INDEX				



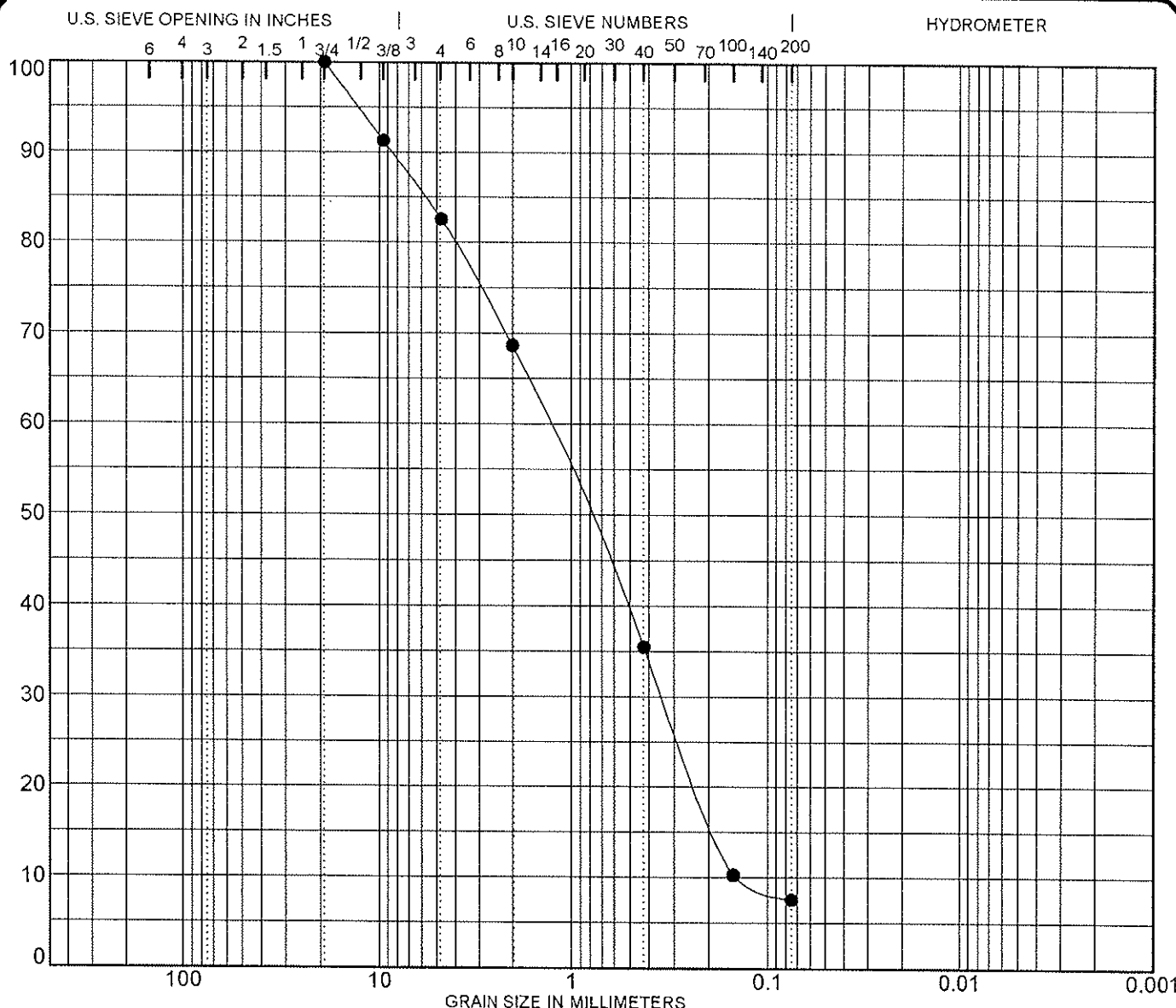
COBBLES	GRAVEL		SAND			ASTM D 422
	coarse	fine	coarse	medium	fine	

SPECIMEN IDENTIFICATION		SIEVE	% PASS
Boring: SB-3		3"	100.0
Sample: 3		2"	100.0
Depth: 16.0'-17.5'		1-1/2"	100.0
		1"	100.0
NOTES :		3/4"	100.0
		3/8"	91.0
		#4	80.3
		#10	63.9
		#40	27.8
		#100	8.0
		#200	5.8

PROJECT Bolcum Road over Ferson Creek JOB NO. L - 60,780
 LOCATION Kane County, Illinois DATE October 11, 2004
 SB-3

GRADATION SHEET
 Testing Service Corporation
 Carol Stream, IL 60188

ASTM D422-60780A GPJ TSC ALL GDT 10/12/04



COBBLES	GRAVEL		SAND			ASTM D 422
	coarse	fine	coarse	medium	fine	

SPECIMEN IDENTIFICATION		SIEVE	% PASS
Boring: SB-3		3"	100.0
Sample: 4		2"	100.0
Depth: 18.5'-20.0'		1-1/2"	100.0
		1"	100.0
NOTES :		3/4"	100.0
		3/8"	91.3
		#4	82.6
		#10	68.7
		#40	35.5
		#100	10.3
		#200	7.6

PROJECT LOCATION Bolcum Road over Ferson Creek JOB NO. L - 60,780
Kane County, Illinois DATE October 11, 2004
 SB-3

GRADATION SHEET
 Testing Service Corporation
 Carol Stream, IL 60188

ASTM D 422 60780A.GPJ TSC ALL.GDT 10/2004

TESTING SERVICE CORPORATION

LEGEND FOR BORING LOGS (FPS Units)

SAMPLE TYPE:

All soil samples were taken in accordance with the Standard Penetration Test, for which driving resistance to a 2 inch split-spoon sampler provides an indication of the relative density of granular materials and consistency of cohesive soils.

Rock core samples were taken using NX core barrel and equipment in Borings SB-1 and SB-3.

FIELD AND LABORATORY TEST DATA:

- BLOWS** = Standard Penetration Resistance in Blows per 6 inch interval.
W% = In-Situ Water Content in percent
Qu = Unconfined Compressive Strength in tons per square foot (tsf).
P = Hand Penetrometer Measurement; Max. Reading = 4.5+ tsf
B = Bulge failure using modified Rimac spring tester
S = Shear failure using modified Rimac spring tester

SOIL DESCRIPTION:

<u>MATERIAL</u>	<u>PARTICLE SIZE RANGE</u>
BOULDER	Over 12 inch
COBBLE	12 - 3 inch
Coarse GRAVEL	3 - ¾ inch
Small GRAVEL	¾ inch to No. 10 Sieve
Coarse SAND	No. 10 Sieve to No. 40 Sieve
Fine SAND	No. 40 Sieve to No. 200 Sieve
SILT and CLAY	Passing No. 200 Sieve

COHESIVE SOILS

<u>CONSISTENCY</u>	<u>Qu (tsf)</u>
Very Soft	Less than 0.3
Soft	0.3 to 0.6
Medium Stiff	0.6 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	4.0 and over

COHESIONLESS SOILS

<u>RELATIVE DENSITY</u>	<u>N</u>
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 and over

MODIFYING TERM

Trace
Little
Some

PERCENT BY WEIGHT

1 - 10
10 - 20
20 - 35

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 7/8/04

Date Completed 7/8/04

ROUTE _____ DESCRIPTION Bolcum Road over Ferson Creek

SECT. _____ STRUCT. NO. 045-3042 DRILLED BY TSC L-60,780

COUNTY Kane LOCATION South End East Abutment S. 8-SW ¼, TWP. 40 N, RNG. 8 E

Boring No. _____ Station _____ Offset _____	D E P T H	B L O W S	Qu tsf	W %	Surface Water Elev. _____ Groundwater Elev.: when drilling _____ at Completion _____ after _____ Hrs. _____	D E P T H	B L O W S	Qu tsf	W %
Surface Elev. <u>753.80</u> ft									
7" Asphaltic Concrete <u>753.20</u>									
FILL - Brown SAND and GRAVEL, damp A-1 <u>751.80</u>		7 6 6		4.7 25.3	Medium dense gray SAND, little gravel, saturated A-1-b		7 7 9		14.5
Medium stiff black CLAY LOAM (topsoil), very moist A-7-6 <u>748.30</u>		3 4 4 -5	S 0.7 10%	30.7	<u>725.80</u>		5 7 7		22.4
Soft black ORGANIC CLAY, trace fibrous roots, very moist A-7-6 <u>745.80</u>		4 4 5	B 0.5 15%	39.7	Medium dense gray fine SAND, trace gravel, saturated A-1-b & A-3				
(trace small organic seam at 9 feet) <u>740.80</u>		7 6 5 -10		12.6			8 8 10		18.3
Medium dense gray well-graded SAND with some gravel, saturated A-1 <u>740.80</u>		6 6 7		10.2	Auger Refusal at 36.0' Probable Rock Surface				
Medium dense gray fine to medium SAND, trace to little gravel, saturated A-1-b <u>735.80</u>		6 6 6 -15		12.5	Diedrich D-120 Truck Rig (#282) CME Automatic Hammer				
		7 7 7		11.2	3.25" (83 mm) ID HSA				
		7 8 8 -20		13.4					
Medium dense gray SAND and GRAVEL, saturated A-1 <u>728.80</u>		7 8 9		8.0					
		8 9 11 -25		9.6					

I:\DOT_BORING\0780\DOT.GD, 08/04

SPT. (N) = Sum of last two blow values in sample (Qu) B=Bulge S=Shear P=Penetration Test Stations. Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 8/26/04

Date Completed 8/26/04

ROUTE _____ DESCRIPTION Bolcum Road over Ferson Creek

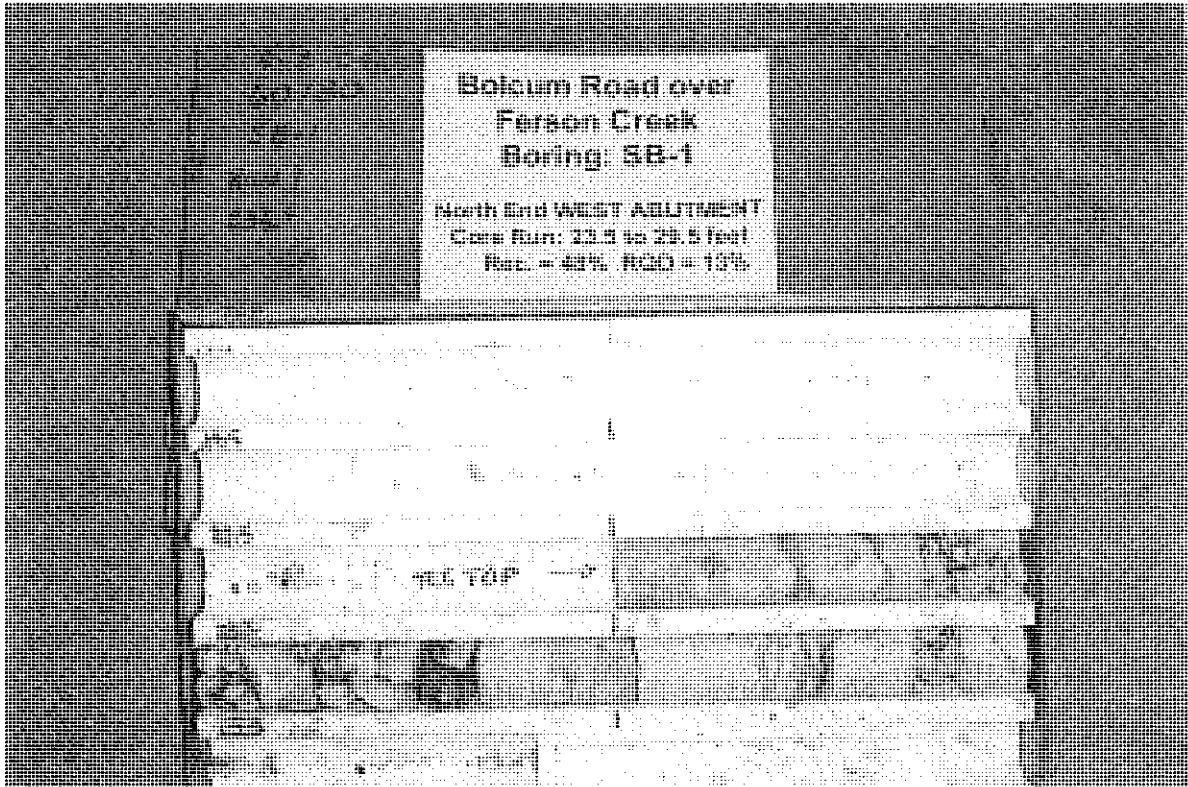
SECT. _____ STRUCT. NO. 045-3042 DRILLED BY TSC L-60,780

COUNTY Kane LOCATION Center of Bridge S. 8-SW ¼, TWP. 40 N, RNG. 8 E

Boring No. <u>SB-3</u>	D	B	L	O	W	Qu	W	Surface Water Elev. _____	D	B	L	O	W	Qu	W
Station <u>122+25</u>	E P T H	B L O W S				tsf	%	Groundwater Elev.: _____	E P T H	B L O S			tsf	%	
Offset <u>6.00ft RT</u>								when drilling <u>745.6</u>							at Completion <u>745.6</u>	after _____ Hrs. _____
Surface Elev. <u>753.59</u> ft															
Asphalt & Concrete Bridge Deck															
<u>751.89</u>								Very dense gray SAND, little to some gravel, trace clay, saturated A-1-b				13 29 50/5"		16.5	
								<u>725.59</u>							
Air Void								Very dense gray sandy GRAVEL with Cobbles and Boulders, saturated A-1-a				54 50/5"			
				-5				<u>722.09</u>				100/4"		10.5	
								<u>745.59</u>							
Water (Creek)								Dolomite, light-medium gray, silty, thin bedded, numerous thin clay partings, dense, white chert module at 35 feet							
				-10				<u>741.59</u>							
Loose dark gray and brown clayey SAND, trace organic, saturated A-2-4							30.5	Core Run 31.5 to 41.5 feet Recovery = 100% RQD = 82%							
								<u>740.09</u>							
								-15							
Medium dense medium to fine SAND, trace gravel, saturated A-1-b								End of Core @ 41.5 feet							
								<u>735.59</u>							
Dense gray SAND, little to some gravel, saturated A-1-b								Gus Pech GP-750 Truck Rig (#217) Rope and Cathead Hammer							
								<u>733.09</u>							
								-20							
Medium dense to dense gray SAND and GRAVEL, occasional Cobbles, (rock fragments recovered), saturated A-1-a								Rock Core with NX Core Barrel							
								<u>728.59</u>							
								-25							
								-50							

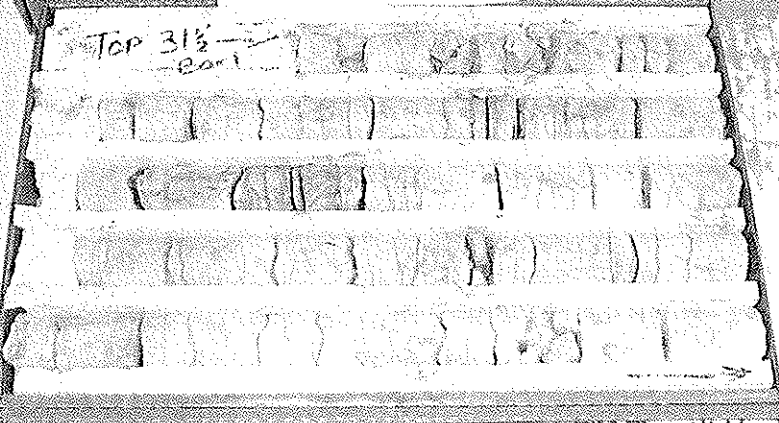
ILLUJTBORING 00780 GFDJ ILLUJTDGT 8/12/04

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test Stations, Depths, Offset, and Elevations are in Feet



Bolcum Road over
Ferson Creek
Boring: SB-3
Center of Bridge
Core Run 1: 31.5 to 41.5 feet

TOP 31 1/2 feet



Bottom Box 2

END 41 1/2



TESTING SERVICE CORPORATION

Corporate Office:

360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

Local Office:

457 E. Gundersen Drive, Carol Stream, IL 60188-2492
630.653.3920 • Fax 630.653.2726

Local Office
January 18, 2010

Mr. Andy Underwager
Wills Burke Kelsey Associates, Ltd.
116 W. Main Street, Suite 201
St. Charles, Illinois 60174

Re: L-68,780A
Bolcum Road over Ferson Creek
S.N. 045-3042
Kane County

Dear Mr. Underwager:

This letter is an addendum to our original subsurface investigation report dated October 13, 2004 (TSC Job No. L-68,780). The original report documents the findings of the subsurface exploration and presents recommendations based on the ASD/LFD method. This addendum presents updated recommendations for bridge design based on the LFRD method. For convenience, the logs for the three (3) structure borings performed as part of the original subsurface exploration have been enclosed with this letter.

The existing structure consists of a three-span bridge which has a length of 93 feet. The structure supports a two-lane pavement and has a width of 26 feet. The original plans for the bridge show the abutments are supported on timber piles and the two piers on 14-inch precast concrete piles.

The improvements will include replacement of the existing bridge. The abutments are to be moved back slightly, lengthening the bridge. One bridge pier is to be constructed, approximately midway between the existing piers. The replacement bridge will consist of a two-span structure with integral (open) type abutments, having an overall length of 105'-0" back-to-back of abutments. The center pier is to be constructed (concrete cased pile bent type) near the middle of the creek channel, with the wall extending below the streambed (Elev. \pm 741.6). The bridge deck will be widened to 33'-2" out to out and include two 12'-0" lanes and 3'-5" shoulders. The pier and abutments are to be supported on steel H-piles.

Seismic Considerations

The project site is located within eastern Kane County, lying just outside of the limits of the Village of St. Charles. The Spectral Acceleration values are expressed as percentage of gravity based on 7 percent probability of exceedance in 75 years. In accordance with Appendix 3.15.A of the IDOT Bridge Manual and the LRFD Code, following is a summary of seismic information:

Seismic Performance Zone (SPZ):	1
Design Spectral Acceleration at 1.0 sec (S_{D1}):	8.6
Design Spectral Acceleration at 0.2 sec (S_{D5}):	15.5
Soil Site Class:	D

Liquefaction is not considered to be an issue for the soils at the project site (medium dense to very dense sand/sand and gravel) based on estimated factors of safety (FS) against liquefaction in excess of 1.5. The exception is an approximate 1.5-foot thick layer of loose clayey sand that was found at the ground surface in Boring SB-3 (center pier) with an estimated FS on the order of 1.0. It

should be noted, however, that the bottom of the pier wall will be located approximately 2.5 feet below the bottom of the loose clayey sand layer. In summary, liquefaction is not considered to be a problem at the project site.

Scour Considerations

A scour analysis has been performed for this project. The results of this analysis are summarized in the following table.

	<u>West Abutment</u>	<u>East Abutment</u>	<u>Center Pier</u>
Depth of contraction scour:	3.00'	3.00'	3.00'
Depth of local scour:	1.89'	2.65'	4.66'
Total depth of scour:	4.89'	5.65'	7.66'

The abutments will be protected with rip-rap, so scour will not be an issue for the abutments. As shown in the above table, a total scour depth of about 7.7 feet has been predicted for the center pier. The streambed boring (SB-3) encountered all sand/sand and gravel soils to the top of rock; therefore, no reduction to the calculated scour depths is recommended.

Pile Foundations

The bridge pier and abutments are to be supported by steel H-piles. Two (2) typical pile sections have been evaluated in connection with them (HP 12x53 and HP 14x73). Nominal Required Bearing, Factor Resistance Available and Estimated Pile Lengths are summarized in the following tables. They have been prepared in connection with Design Guide 3.10.1, LRFD Geotechnical Pile Design Procedure.

TABLE 1

Bridge Support	Pile Designation	Nominal Required Bearing (kips) *	Factored Resistance Available (kips) **	Estimated Pile Lengths (Feet)
West Abutment	Steel HP 12x53	419	209	#
	Steel HP 14x73	578	289	#
East Abutment	Steel HP 12x53	419	209	#
	Steel HP 14x73	578	289	#
Center Pier	Steel HP 12x53	419	184	#
	Steel HP 14x73	578	259	#

* Nominal Required Bearing was based on the maximum nominal required bearing specified by IDOT Bridge Manual (2008).

** Factored Resistance Available computed using a geotechnical resistance factor of 0.5; reduction taken for scour (center pier) using a bottom elevation of scour of 733.9.

Estimated pile lengths for the three (3) bridge supports summarized in Table 2.

Static pile capacity analyses indicate that in order to develop the required nominal bearing, the H-piles will have to be extended to bedrock or the very dense cobble/boulder zone overlying bedrock (Boring SB-1). In regard to lateral load resistance, preliminary analysis performed with the LPILE program by Ensoft, Inc. indicates that H-piles driven to refusal on the top of rock for the center pier will not have sufficient lateral support to ensure displacement fixity. This is due to the relatively shallow bedrock in conjunction with the anticipated total scour depth of about 7.7 feet. In this regard, a total penetration depth of only 11 feet (below the bottom of scour elevation) is estimated at Boring SB-3 (center pier). In order to develop fixity at the bottom of the pile, it is recommended that the H-piles be set a minimum of 2 feet into the sound dolomite bedrock. The estimated pile length/tip elevation shown in Table 2 reflects this recommendation. HP12x53 and HP 14x73 piles would be installed within 18" and 20" diameter pre-cored holes, respectively. The annular space around the pile within the rock should be filled with concrete, while the annular space around the pile between the rock surface and bottom of the wall/encasement should be filled with concrete or clean sand. If pile resistance to lateral loads is not required, then the piles for the center pier can be driven to refusal on the top of rock at approximate Elevation 722 (i.e. the piles don't have to be set in rock). This elevation correlates to an estimated pile length of 16 feet at Boring SB-3.

TABLE 2

Bridge Support	Bottom of Abutment Cap or Pier Wall Elevation	Boring No.	Pile Designation	Nominal Required Bearing = 419 kips (HP 12x53) Nominal Required Bearing = 578 kips (HP 14x73)		Estimated Pile Length (Feet)*
				Depth (Feet)	Tip Elevation	
West Abutment	749.5	SB-1	HP 12x53	23	727	23
			HP 14x73	25	725	25
East Abutment	749.8	SB-2	HP 12x53	36	717	33
			HP 14x73	36	717	33
Center Pier	737.6	SB-3	HP 12x53	34	720	18
			HP 14x73	34	720	18

* Estimated pile length below bottom of abutment cap or pier wall elevation/pile encasement.

The above estimated pile lengths are being provided for contract estimates. The actual pile lengths should be determined during installation based on resistance to driving criteria. It is recommended that at least one test pile be driven at each abutment (and pier) prior to ordering piles for production driving. However, it would probably be advantageous to drive two test piles per substructure unit, located at each end of the abutment (or pier). It is recommended that the piles be provided with metal pile shoes (pile points) due to the hard driving that is anticipated.

The piles for the abutments are anticipated to be driven to refusal on the top of rock or very dense boulder zone/fractured rock. Practical refusal is typically taken as 20 blows per inch (bpi) with the hammer operating at the highest fuel setting/energy. The driving equipment should ideally be selected based on a wave equation analysis to better evaluate that the piles can be driven to the

required capacity at an adequate final penetration resistance and without inducing pile stresses that exceed allowable values. This will ultimately be confirmed during the driving of test piles. Dynamic pile testing may also be performed during test pile driving operations to more accurately assess the capacity being achieved by the piles (nominal driven bearing) and to establish the driving criteria.

Pier Construction

The center pier will be located near the middle of the creek where the excavation for the wall/pile encasement will extend to a depth of about 4 feet below the existing ground surface elevation at Boring SB-3. Saturated sand soils were found above and below this depth at the boring location. Therefore, extensive dewatering and/or the use of a cofferdam will likely be required for the construction of the center pier.

If temporary sheet pile walls are designed as cantilever type structures, conventional earth pressure methods (Rankine or Coulomb) may be utilized to calculate the lateral earth pressures. The following table summarizes soil parameters that may be utilized for the development of earth pressure diagrams. They were developed using the soil stratigraphy found in Boring SB-3 (center pier).

Soil Type	Elevation Range	Unit Weight (pcf) *	Shear Strength Parameters	
			c (psf)	ϕ (degrees)
Loose Clayey Sand	741.6 -740.1	53	0	30
Medium dense fine-medium Sand	740.1-735.6	60	0	32
Dense Sand	735.6-733.1	63	0	35
Med. dense - dense Sand and Gravel	733.1-728.6	65	0	36
Very Dense Sand/Sandy Gravel	728.6-722.0	70	0	40

c Cohesion Intercept in pounds per square foot (psf).

ϕ Angle of Internal Friction in degrees.

* Buoyant unit weight for soils below the water table in pcf.

Wills Burke Kelsey Associates, Ltd.
Bolcum Road over Ferson Creek, Kane County
L-68,780A - January 18, 2010


It has been a pleasure to assist you with this work. Please call if there are any questions or if we can be of further service.

Respectfully submitted,

TESTING SERVICE CORPORATION



Alfredo J. Bermudez
Registered Professional Engineer
Illinois No. 062-038559


Michael V. Machalinski, P.E.
Vice President

AJB:MVM:ab

Encl.



TESTING SERVICE CORPORATION

GENERAL CONDITIONS

Geotechnical and Construction Services

1. PARTIES AND SCOPE OF WORK: If Client is ordering the services on behalf of another, Client represents and warrants that Client is the duly authorized agent of said party for the purpose of ordering and directing said services, and in such case the term "Client" shall also include the principal for whom the services are being performed. Prices quoted and charged by TSC for its services are predicated on the conditions and the allocations of risks and obligations expressed in these General Conditions. Unless otherwise stated in writing, Client assumes sole responsibility for determining whether the quantity and the nature of the services ordered by Client are adequate and sufficient for Client's intended purpose. Unless otherwise expressly assumed in writing, TSC's services are provided exclusively for client. TSC shall have no duty or obligation other than those duties and obligations expressly set forth in this Agreement. TSC shall have no duty to any third party. Client shall communicate these General Conditions to each and every party to whom the Client transmits any report prepared by TSC. Ordering services from TSC shall constitute acceptance of TSC's proposal and these General Conditions.

2. SCHEDULING OF SERVICES: The services set forth in this Agreement will be accomplished in a timely and workmanlike manner. If TSC is required to delay any part of its services to accommodate the requests or requirements of Client, regulatory agencies, or third parties, or due to any cause beyond its reasonable control, Client agrees to pay such additional charges, if any, as may be applicable.

3. ACCESS TO SITE: TSC shall take reasonable measures and precautions to minimize damage to the site and any improvements located thereon as a result of its services or the use of its equipment; however, TSC has not included in its fee the cost of restoration of damage which may occur. If Client desires or requires TSC to restore the site to its former condition, TSC will, upon written request, perform such additional work as is necessary to do so and Client agrees to pay to TSC the cost thereof plus TSC's normal markup for overhead and profit.

4. CLIENT'S DUTY TO NOTIFY ENGINEER: Client represents and warrants that Client has advised TSC of any known or suspected hazardous materials, utility lines and underground structures at any site at which TSC is to perform services under this agreement.

5. DISCOVERY OF POLLUTANTS: TSC's services shall not include investigation for hazardous materials as defined by the Resource Conservation Recovery Act, 42 U.S.C. § 6901, et seq., as amended ("RCRA") or by any state or Federal statute or regulation. In the event that hazardous materials are discovered and identified by TSC, TSC's sole duty shall be to notify Client.

6. MONITORING: If this Agreement includes testing construction materials or observing any aspect of construction of improvements, Client's construction personnel will verify that the pad is properly located and sized to meet Client's projected building loads. Client shall cause all tests and inspections of the site, materials and work to be timely and properly performed in accordance with the plans, specifications, contract documents, and TSC's recommendations. No claims for loss, damage or injury shall be brought against TSC unless all tests and inspections have been so performed and unless TSC's recommendations have been followed.

TSC's services shall not include determining or implementing the means, methods, techniques or procedures of work done by the contractor(s) being monitored or whose work is being tested. TSC's services shall not include the authority to accept or reject work or to in any manner supervise the work of any contractor. TSC's services or failure to perform same shall not in any way operate or excuse any contractor from the performance of its work in accordance

with its contract. "Contractor" as used herein shall include subcontractors, suppliers, architects, engineers and construction managers.

Information obtained from borings, observations and analyses of sample materials shall be reported in formats considered appropriate by TSC unless directed otherwise by Client. Such information is considered evidence, but any inference or conclusion based thereon is, necessarily, an opinion also based on engineering judgment and shall not be construed as a representation of fact. Subsurface conditions may not be uniform throughout an entire site and ground water levels may fluctuate due to climatic and other variations. Construction materials may vary from the samples taken. Unless otherwise agreed in writing, the procedures employed by TSC are not designed to detect intentional concealment or misrepresentation of facts by others.

7. DOCUMENTS AND SAMPLES: Client is granted an exclusive license to use findings and reports prepared and issued by TSC and any sub-consultants pursuant to this Agreement for the purpose set forth in TSC's proposal provided that TSC has received payment in full for its services. TSC and, if applicable, its sub-consultant, retain all copyright and ownership interests in the reports, boring logs, maps, field data, field notes, laboratory test data and similar documents, and the ownership and freedom to use all data generated by it for any purpose. Unless otherwise agreed in writing, test specimens or samples will be disposed immediately upon completion of the test. All drilling samples or specimens will be disposed sixty (60) days after submission of TSC's report.

8. TERMINATION: TSC's obligation to provide services may be terminated by either party upon (7) seven days prior written notice. In the event of termination of TSC's services, TSC shall be compensated by Client for all services performed up to and including the termination date, including reimbursable expenses. The terms and conditions of these General Conditions shall survive the termination of TSC's obligation to provide services.

9. PAYMENT: Client shall be invoiced periodically for services performed. Client agrees to pay each invoice within thirty (30) days of its receipt. Client further agrees to pay interest on all amounts invoiced and not paid or objected to in writing for valid cause within sixty (60) days at the rate of twelve (12%) per annum (or the maximum interest rate permitted by applicable law, whichever is the lesser) until paid and TSC's costs of collection of such accounts, including court costs and reasonable attorney's fees.

10. WARRANTY: TSC's professional services will be performed, its findings obtained and its reports prepared in accordance with these General Conditions and with generally accepted principles and practices. In performing its professional services, TSC will use that degree of care and skill ordinarily exercised under similar circumstances by members of its profession. In performing physical work in pursuit of its professional services, TSC will use that degree of care and skill ordinarily used under similar circumstances. This warranty is in lieu of all other warranties or representations, either express or implied. Statements made in TSC reports are opinions based upon engineering judgment and are not to be construed as representations of fact.

Should TSC or any of its employees be found to have been negligent in performing professional services or to have made and breached any express or implied warranty, representation or contract, Client, all parties claiming through Client and all parties claiming to have in any way relied upon TSC's services or work agree that the maximum aggregate amount of damages for which TSC, its officers, employees and agents shall be liable is limited to \$50,000 or the total amount of the fee paid to TSC for its services performed with respect to the project, whichever amount is greater.

In the event Client is unwilling or unable to limit the damages for which TSC may be liable in accordance with the provisions set forth in the preceding paragraph, upon written request of Client received within five days of Client's acceptance of TSC's proposal together with payment of an additional fee in the amount of 5% of TSC's estimated cost for its services (to be adjusted to 5% of the amount actually billed by TSC for its services on the project at time of completion), the limit on damages shall be increased to \$500,000 or the amount of TSC's fee, whichever is the greater. This charge is not to be construed as being a charge for insurance of any type, but is increased consideration for the exposure to an award of greater damages.

11. INDEMNITY: Subject to the provisions set forth herein, TSC and Client hereby agree to indemnify and hold harmless each other and their respective shareholders, directors, officers, partners, employees, agents, subsidiaries and division (and each of their heirs, successors, and assigns) from any and all claims, demands, liabilities, suits, causes of action, judgments, costs and expenses, including reasonable attorneys' fees, arising, or allegedly arising, from personal injury, including death, property damage, including loss of use thereof, due in any manner to the negligence of either of them or their agents or employees or independent contractors. In the event both TSC and Client are found to be negligent or at fault, then any liability shall be apportioned between them pursuant to their pro rata share of negligence or fault. TSC and Client further agree that their liability to any third party shall, to the extent permitted by law, be several and not joint. The liability of TSC under this provision shall not exceed the policy limits of insurance carried by TSC. Neither TSC nor Client shall be bound under this indemnity agreement to liability determined in a proceeding in which it did not participate represented by its own independent counsel. The indemnities provided hereunder shall not terminate upon the termination or expiration of this Agreement, but may be modified to the extent of any waiver of subrogation agreed to by TSC and paid for by Client.

12. SUBPOENAS: TSC's employees shall not be retained as expert witnesses except by separate, written agreement. Client agrees to pay TSC pursuant to TSC's then current fee schedule for any TSC employee(s) subpoenaed by any party as an occurrence witness as a result of TSC's services.

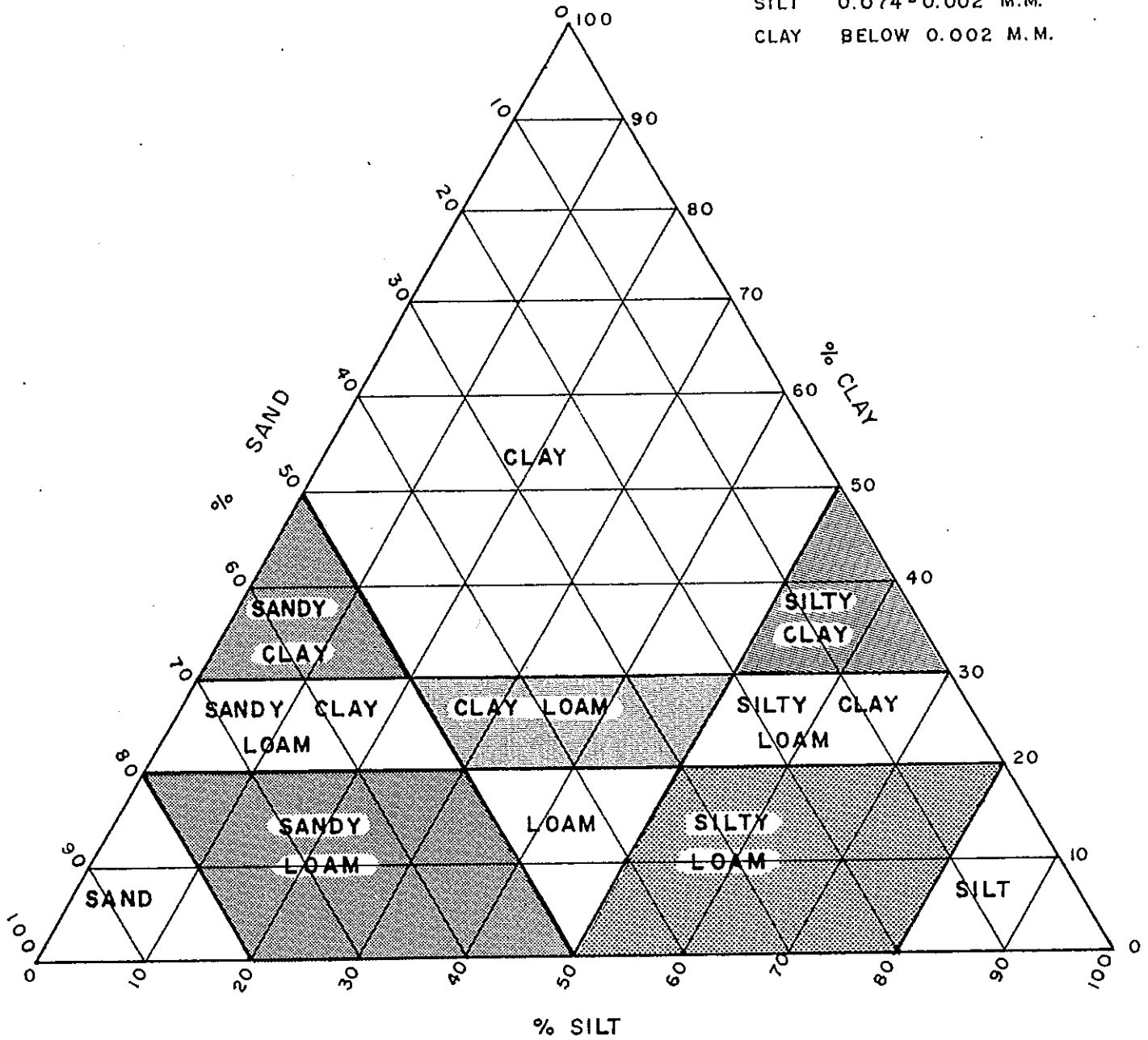
13. OTHER AGREEMENTS: TSC shall not be bound by any provision or agreement (i) requiring or providing for arbitration of disputes or controversies arising out of this Agreement or its performance, (ii) wherein TSC waives any rights to a mechanics lien or surety bond claim; (iii) that conditions TSC's right to receive payment for its services upon payment to Client by any third party or (iv) that requires TSC to indemnify any party beyond its own negligence. These General Conditions are notice, where required, that TSC shall file a lien whenever necessary to collect past due amounts. This Agreement contains the entire understanding between the parties. Unless expressly accepted by TSC in writing prior to delivery of TSC's services, Client shall not add any conditions or impose conditions which are in conflict with those contained herein, and no such additional or conflicting terms shall be binding upon TSC. The unenforceability or invalidity of any provision or provisions shall not render any other provision or provisions unenforceable or invalid. This Agreement shall be construed and enforced in accordance with the laws of the State of Illinois. In the event of a dispute arising out of or relating to the performance of this Agreement, the breach thereof or TSC's services, the parties agree to try in good faith to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association as a condition precedent to filing any demand for arbitration, or any petition or complaint with any court. Paragraph headings are for convenience only and shall not be construed as limiting the meaning of the provisions contained in these General Conditions.

TESTING SERVICE CORPORATION

I D H TEXTURAL CLASSIFICATION CHART

SIZE LIMITS

SAND	2.0 - 0.074	M.M.
SILT	0.074 - 0.002	M.M.
CLAY	BELOW 0.002	M.M.

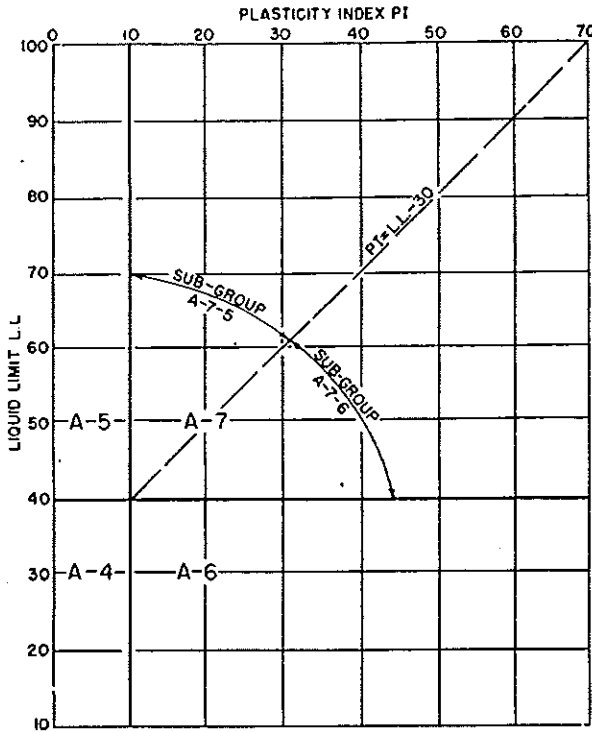


TESTING SERVICE CORPORATION AASHTO CLASSIFICATION CHART

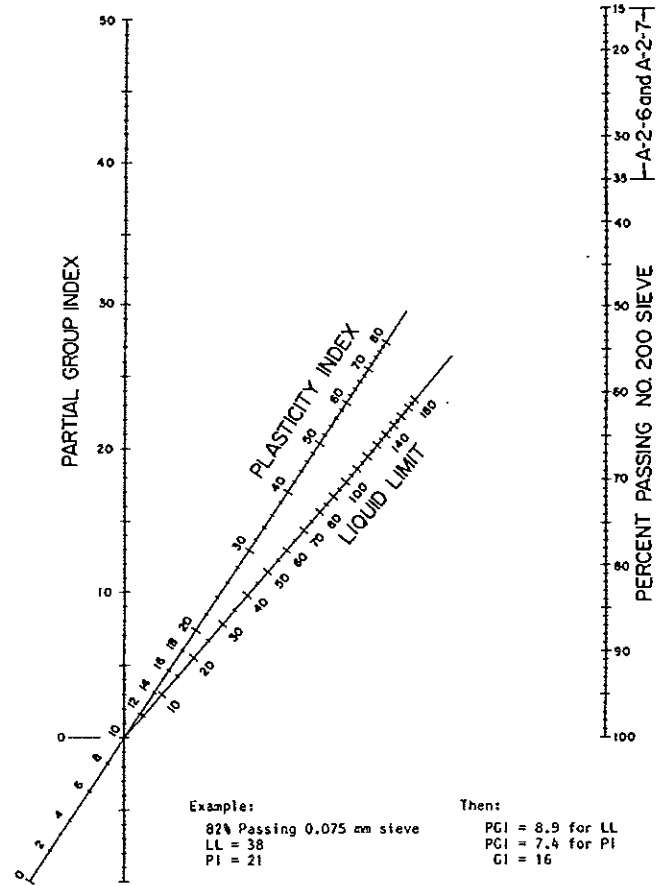
Group Index (GI) = (F-35)[0.2+0.005(LL-40)]+0.01(F-15)(PI-10)
 where F = % Passing 0.075 mm sieve, LL = Liquid Limit,
 and PI = Plasticity Index

When working with A-2-6 and A-2-7 subgroups the Partial Group Index (PGI) is determined from the PI only.

When the combined Partial Group Indices are negative, the Group Index should be reported as zero.



Liquid Limit and Plasticity Index Ranges for the A-4, A-5, A-6 and A-7 Subgrade Groups



AASHTO SOIL CLASSIFICATION SYSTEM

General Classification	Granular Materials (35% or less passing No. 200)							Silt-Clay Materials (more than 35% passing No. 200)			
	A-1		A-3	A-2				A-4	A-5	A-6	A-7 A-7-5, A-7-6
Group Classification	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				
Sieve analysis, % passing:											
No. 10	50 max	.....	.....	.....	.....	.....	.....	.....	.....	.....
No. 40	30 max	50 max	51 min	.....	.....	.....	.....	.....	.....	.....
No. 200	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing No. 40:											
Liquid limit	.....		.....	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min†
Usual types of significant constituent materials	Stone fragments, gravel and sand		Fine sand	Silty or clayey gravel and sand				Silty soils		Clayey soils	
General rating as subgrade	Excellent to good						Fair to poor				

† Plasticity index of A-7-5 subgroup is equal to or less than LL minus 30. Plasticity index of A-7-6 subgroup is greater than LL minus 30.

TESTING SERVICE CORPORATION

LEGEND FOR BORING LOGS

(FPS Units)

SAMPLE TYPE:

All soil samples were taken in accordance with the Standard Penetration Test, for which driving resistance to a 2 inch split-spoon sampler provides an indication of the relative density of granular materials and consistency of cohesive soils.

Rock core samples were taken using NX core barrel and equipment in Borings SB-1 and SB-3.

FIELD AND LABORATORY TEST DATA:

- BLOWS** = Standard Penetration Resistance in Blows per 6 inch interval.
W% = In-Situ Water Content in percent
Qu = Unconfined Compressive Strength in tons per square foot (tsf).
P = Hand Penetrometer Measurement; Max. Reading = 4.5+ tsf
B = Bulge failure using modified Rimac spring tester
S = Shear failure using modified Rimac spring tester

SOIL DESCRIPTION:

MATERIAL

BOULDER
COBBLE
Coarse GRAVEL
Small GRAVEL
Coarse SAND
Fine SAND
SILT and CLAY

PARTICLE SIZE RANGE

Over 12 inch
12 - 3 inch
3 - ¾ inch
¾ inch to No. 10 Sieve
No. 10 Sieve to No. 40 Sieve
No. 40 Sieve to No. 200 Sieve
Passing No. 200 Sieve

COHESIVE SOILS

<u>CONSISTENCY</u>	<u>Qu (tsf)</u>
Very Soft	Less than 0.3
Soft	0.3 to 0.6
Medium Stiff	0.6 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	4.0 and over

COHESIONLESS SOILS

<u>RELATIVE DENSITY</u>	<u>N</u>
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 and over

MODIFYING TERM

Trace
Little
Some

PERCENT BY WEIGHT

1 - 10
10 - 20
20 - 35

ILLINOIS DEPARTMENT OF TRANSPORTATION

Testing Service Corporation

STRUCTURE BORING LOG

Date Started 7/8/04

Date Completed 7/8/04

ROUTE _____ DESCRIPTION Bolcum Road over Ferson Creek

SECT. _____ STRUCT. NO. 045-3042 DRILLED BY TSC L-60,780

COUNTY Kane LOCATION South End East Abutment S. 8-SW 1/4, TWP. 40 N, RNG. 8 E

Boring No. <u>SB-2</u>	DEPTH	BLOW	Qu	W	Surface Water Elev.	DEPTH	BLOW	Qu	W
Station <u>122+75</u>			tsf	%	Groundwater Elev.:				
Offset <u>6.00ft RT</u>					when drilling <u>745.3</u>				
Surface Elev. <u>753.80</u> ft					at Completion <u>746.8</u>				
					after _____ Hrs. _____				
7" Asphaltic Concrete	753.20								
FILL - Brown SAND and GRAVEL, damp A-1	751.80	7 6 6		4.7 25.3			7 7 9		14.5
Medium stiff black CLAY LOAM (topsoil), very moist A-7-6	748.30	3 4 4	S 0.7 10%	30.7	725.80		5 7 7		22.4
Soft black ORGANIC CLAY, trace fibrous roots, very moist A-7-6	745.80	4 4 5	B 0.5 15%	39.7					
(trace small organic seam at 9 feet)	-10	7 6 5		12.6			8 8 10		18.3
Medium dense gray well-graded SAND with some gravel, saturated A-1	740.80	6 6 7		10.2	717.80				
Medium dense gray fine to medium SAND, trace to little gravel, saturated A-1-b	735.80	6 6 6		12.5					
	-15	7 7 7		11.2					
	-20	7 8 8		13.4					
Medium dense gray SAND and GRAVEL, saturated A-1	728.80	7 8 9		8.0					
	-25	8 9 11		9.6					

Medium dense gray SAND, little gravel, saturated A-1-b

Medium dense gray fine SAND, trace gravel, saturated A-1-b & A-3

Auger Refusal at 36.0' Probable Rock Surface

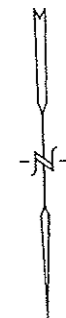
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer

3.25" (83 mm) ID HSA

ILDOT BORING 60780.GPJ IDOT.GDT 8/5/04

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test Stations, Depths, Offset, and Elevations are in Feet

SCALE: 1" = 20'



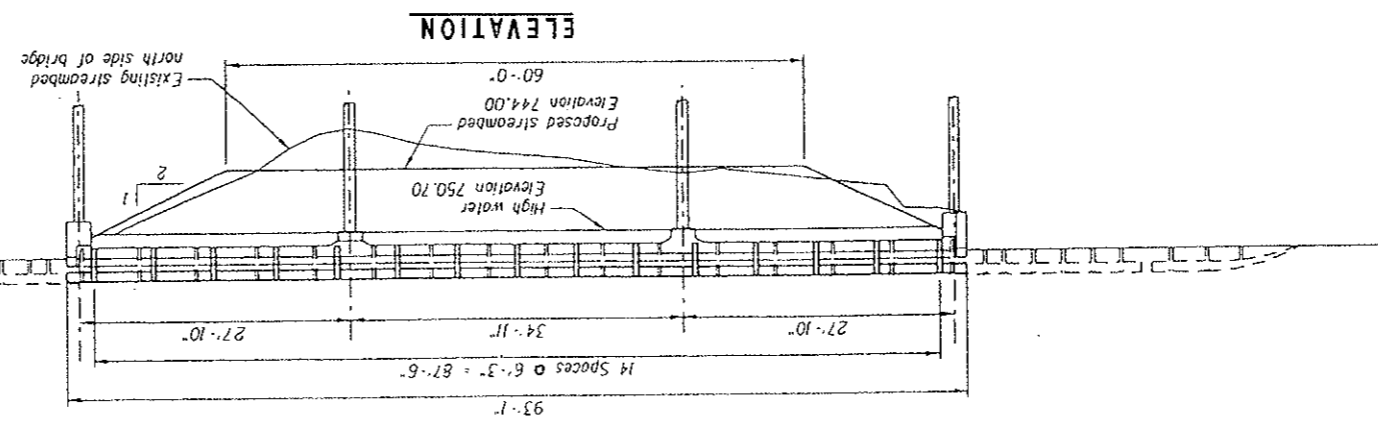
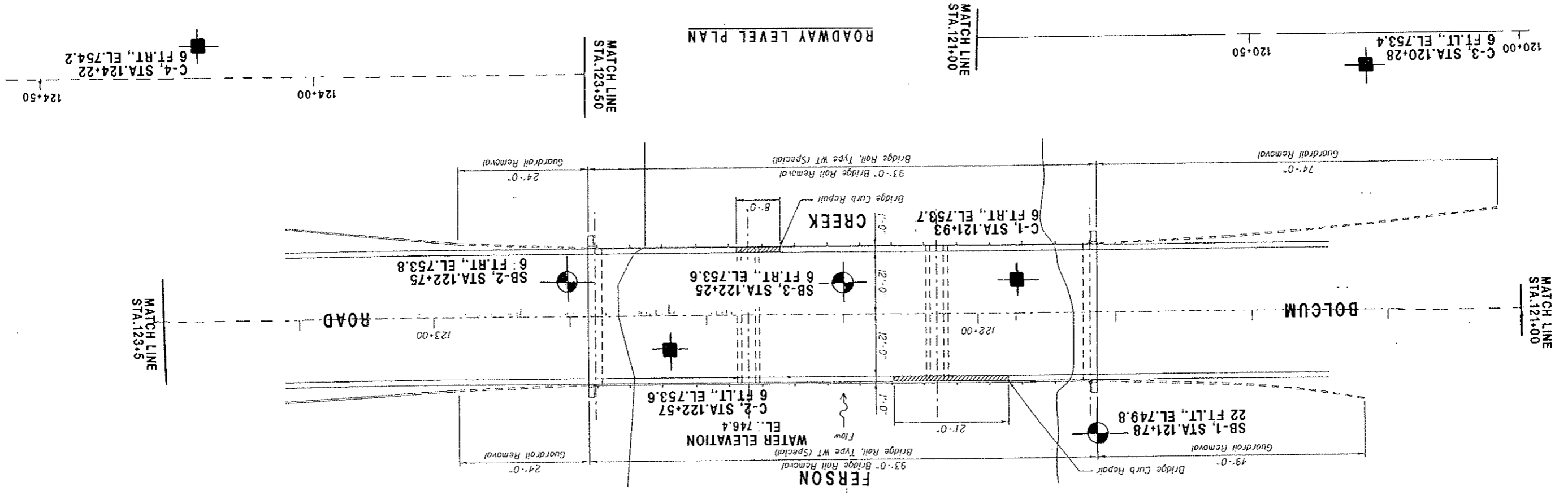
**BOLCUM ROAD
OVER FERSON CREEK
KANE COUNTY, ILLINOIS**

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

PAGE NO. 1	DRAWN BY: DJM
	CHECKED BY: SIK
	JOB NO.: L-60,780
	DATE: JUNE 2004

BORING LOCATION PLAN

ROADWAY LEVEL PLAN



ST. CHARLES TOWNSHIP
KANE COUNTY DIVISION OF TRANSPORTATION