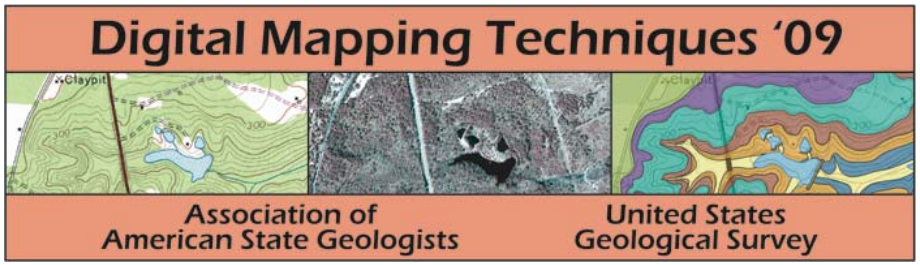
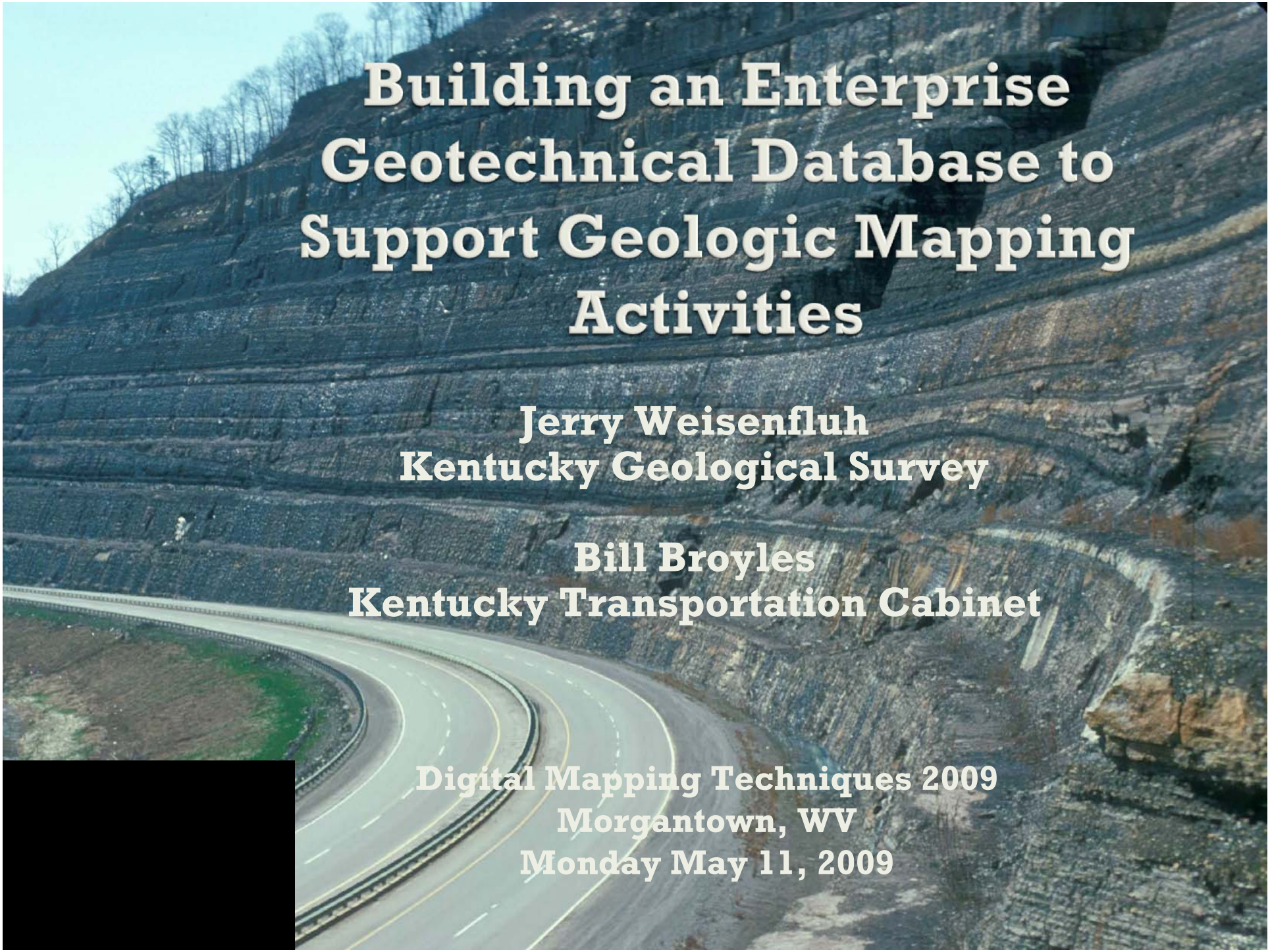


The following was presented at DMT'09 (May 10-13, 2009).

The contents are provisional and will be superseded by a paper in the DMT'09 Proceedings.

See also earlier Proceedings (1997-2008)
http://ngmdb.usgs.gov/info/dmt/



Building an Enterprise Geotechnical Database to Support Geologic Mapping Activities

Jerry Weisenfluh
Kentucky Geological Survey

Bill Broyles
Kentucky Transportation Cabinet

Digital Mapping Techniques 2009
Morgantown, WV
Monday May 11, 2009

KYTC conducts hundreds of geotechnical projects per year

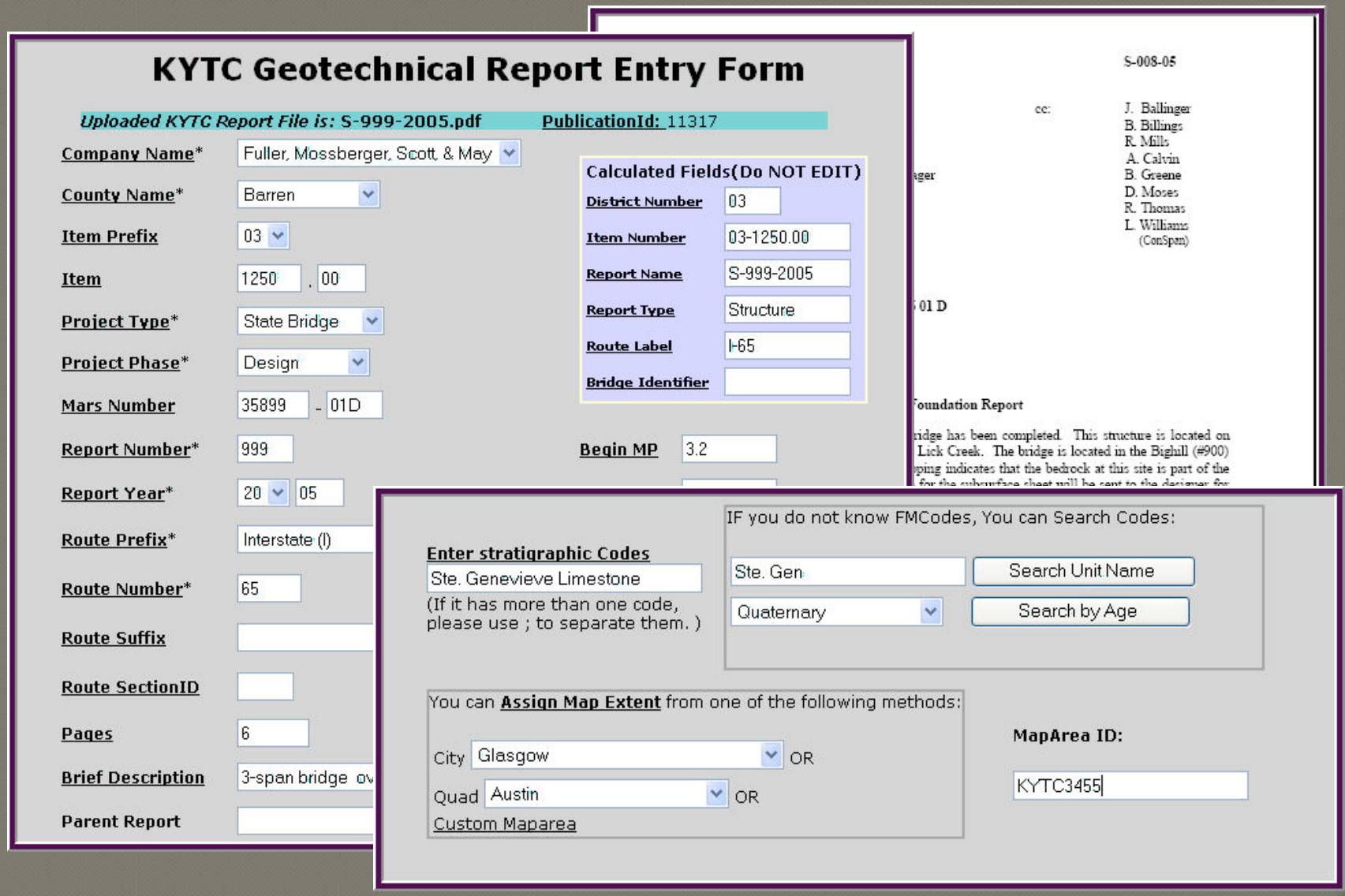
Results in thousands of borings including:

Soundings
Rock cores
Soil samples

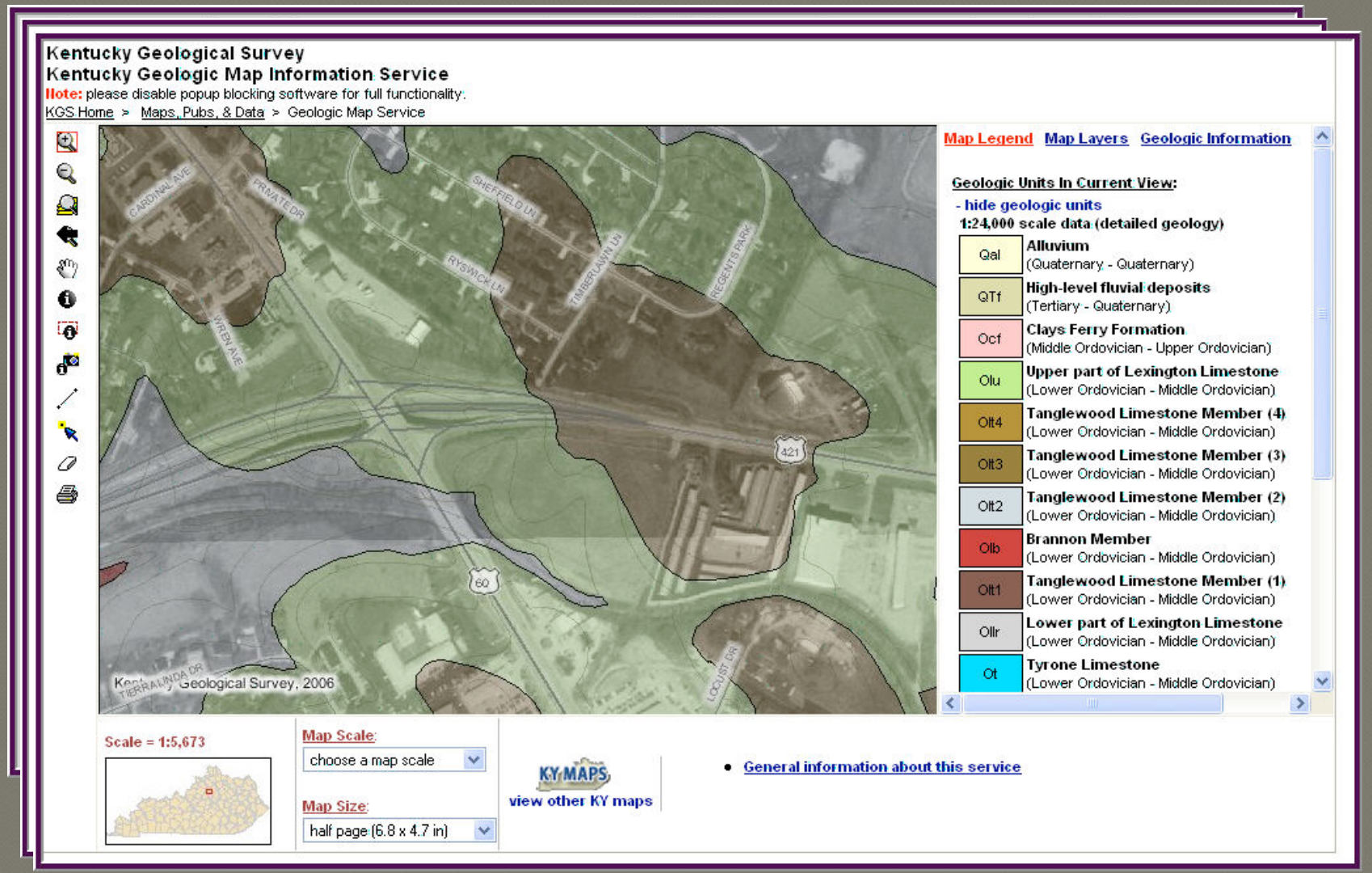
7,000 reports since 1956

- Depth to bedrock
- Soil composition , properties, and behaviors
- Rock lithology and physical properties
- Water table readings
- Fracture measurements

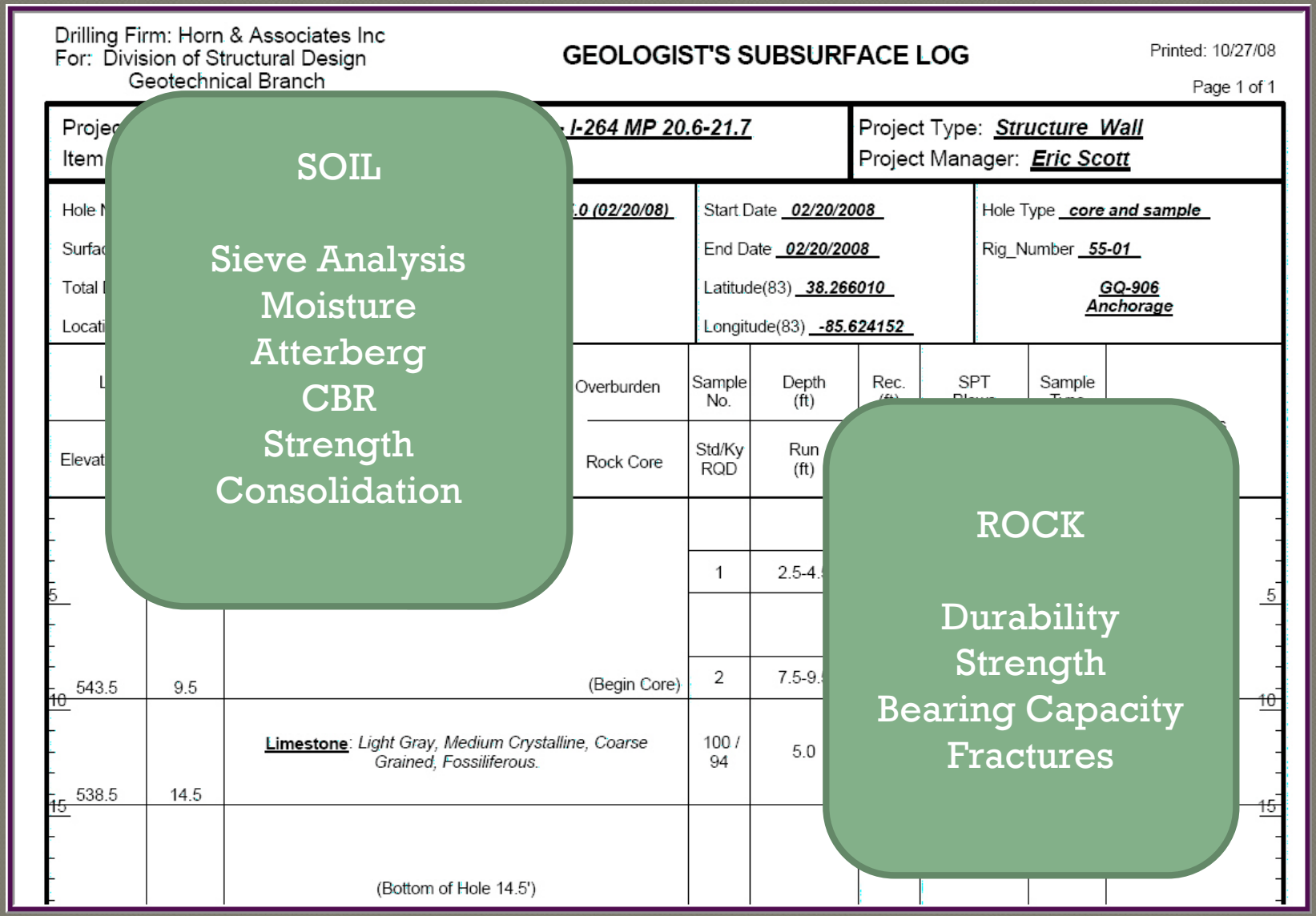
Geotechnical Report Data Input



Accessing Report Contents and Context



Drillhole Data



Drilling Firm: Horn & Associates Inc
For: Division of Structural Design
Geotechnical Branch

GEOLOGIST'S SUBSURFACE LOG

Printed: 10/27/08

Page 1 of 1

Proje… — …I-264 MP 20.6-21.7 — Project Type: *Structure Wall*
Item … — Project Manager: *Eric Scott*

Hole N… — …0 (02/20/08) — Start Date *02/20/2008* — Hole Type *core and sample*
Surfac… — End Date *02/20/2008* — Rig_Number *55-01*
Total … — Latitude(83) *38.266010* — *GQ-906 Anchorage*
Locati… — Longitude(83) *-85.624152*

			Overburden	Sample No.	Depth (ft)	Rec.	SPT	Sample
Elevat…			Rock Core	Std/Ky RQD	Run (ft)			
5				1	2.5-4.…			
10 543.5	9.5		(Begin Core)	2	7.5-9.…			
		Limestone: *Light Gray, Medium Crystalline, Coarse Grained, Fossiliferous.*		100 / 94	5.0			
15 538.5	14.5							
		(Bottom of Hole 14.5')						

SOIL

Sieve Analysis
Moisture
Atterberg
CBR
Strength
Consolidation

ROCK

Durability
Strength
Bearing Capacity
Fractures

gINT® Drillhole Database

INPUT | OUTPUT | DATA DESIGN | REPORT DESIGN | SYMBOL DESIGN | DRAWINGS | UTILITIES

Main Group | Driller Forms | Geology Forms | Lab Testing | Rock Testing

Project | Drill Hole | Pay Estimate

Hole Number As Staked	Hole Complete	Station Footage (ft)	Offset (ft)	Hole Moved	Total Hole Depth (ft)	Surface Elevation (ft)	Latitude83	Longitude83	Hole Angle	Start Date	End Date	Hole Type	Observation Well
44	☐	55400	30	☐	6.5	726.27	37.53042802	-85.223101	-90	3/16/2008	3/16/2008	cut profile	☐
30	☐	52100	30	☐	6.8	716.26	37.52505566	-85.21532489	-90	3/17/2008	3/17/2008	cut profile	☐

INPUT | OUTPUT | DATA DESIGN | REPORT DESIGN | SYMBOL DESIGN | DRAWINGS | UTILITIES

Main Group | Driller Forms | Geology Forms | Lab Testing | Rock Testing

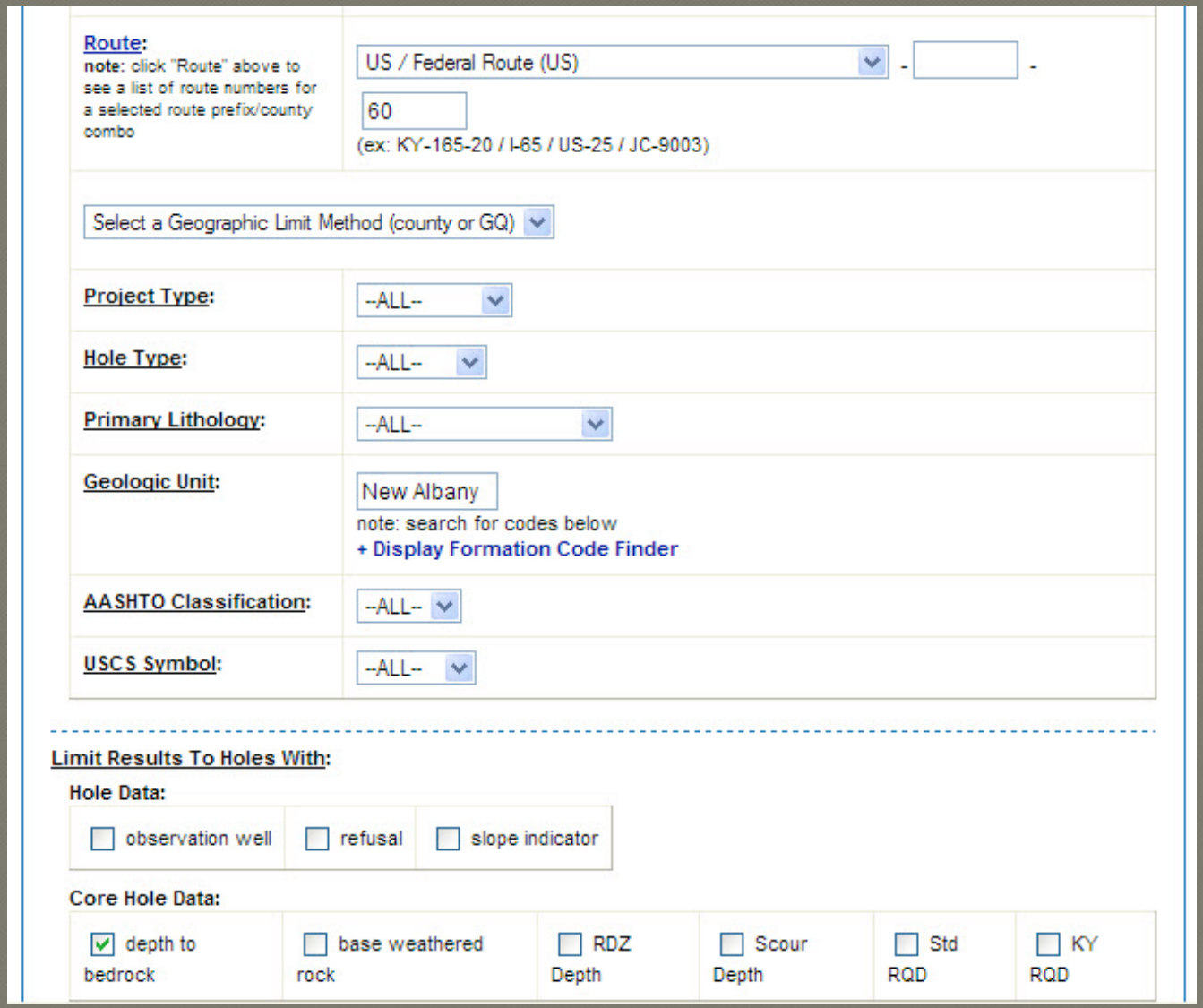
Geologist Lithology | Core Hole Geology | Hole Remarks | ABC

[Geology Forms group]

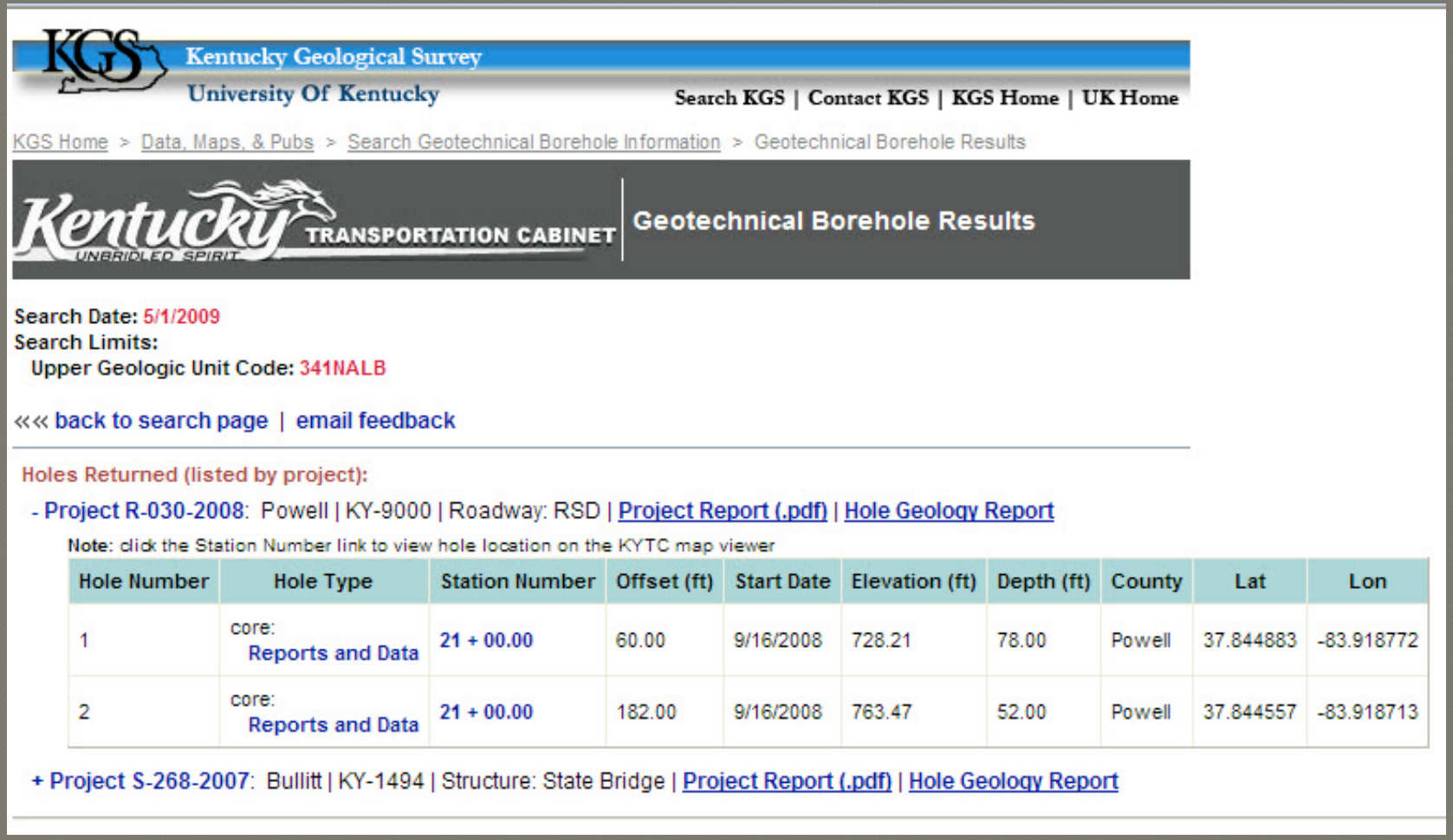
Top Depth (ft)	Bottom Depth (ft)	Primary Lithology	Description	Comments	Graphic
0	15.4	Limestone	Light Gray, Fine Crystalline, Laminated, Many Weathered Shale Partings to		
15.4	19.7	VOID			
19.7	35.2	Limestone (ND)	Dark Gray, Fine Grained and Crystalline, Highly Argillaceous, Many Shale		
35.2	43.9	Shale	Gray, Calcareous, w/Fine Grained Limestone Zones		
43.9	58.4	Limestone	Gray, Fine Crystalline, Laminated, Argillaceous Zones		
*					

Plus #4 (%)	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (>.002) (%)	Clay (<.002) (%)	Colloid (<.001) (%)	AASHTO Symbol	AASHTO Group Index	USCS Symbol	USCS Group Name
0.0	0.0	6.0	5.6	39.1	49.3	42.4	A-7-6	(29)	CH	FAT CLAY
0.0	0.0	2.2	4.9	41.6	51.4	40.5	A-7-6	(36)	CH	FAT CLAY
10.8	18.0	11.4	8.7	38.8	23.1	16.5	A-6	(14)	CL	LEAN CLAY
0.0	0.0	5.5	7.1	49.5	37.8	27.8	A-7-6	(23)	CL	LEAN CLAY
24.9	24.9	16.7	13.9	34.3	10.3	7.0	A-4	(4)	CL-ML	SILTY CLAY

Searching for Drillhole Data



Search Results – Project List



Kentucky Geological Survey
University Of Kentucky

Search KGS | Contact KGS | KGS Home | UK Home

KGS Home > Data, Maps, & Pubs > Search Geotechnical Borehole Information > Geotechnical Borehole Results

Kentucky TRANSPORTATION CABINET
UNBRIDLED SPIRIT

Geotechnical Borehole Results

Search Date: 5/1/2009
Search Limits:
Upper Geologic Unit Code: 341NALB

«« back to search page | email feedback

Holes Returned (listed by project):

- Project R-030-2008: Powell | KY-9000 | Roadway: RSD | Project Report (.pdf) | Hole Geology Report

Note: click the Station Number link to view hole location on the KYTC map viewer

Hole Number	Hole Type	Station Number	Offset (ft)	Start Date	Elevation (ft)	Depth (ft)	County	Lat	Lon
1	core: Reports and Data	21 + 00.00	60.00	9/16/2008	728.21	78.00	Powell	37.844883	-83.918772
2	core: Reports and Data	21 + 00.00	182.00	9/16/2008	763.47	52.00	Powell	37.844557	-83.918713

+ Project S-268-2007: Bullitt | KY-1494 | Structure: State Bridge | Project Report (.pdf) | Hole Geology Report

Hole Geology Report

Kentucky TRANSPORTATION CABINET | KYTC Information Service
Kentucky Geological Survey

KGS Home > Data, Maps, & Pubs > KYTC Data Results

KYTC Geology Report (Project: R-030-2008)

Hole Geology Report:

Hole Number	Quadrangle	Hole Type	Elevation	Depth To Bedrock	Base Weathered Rock	RDZ	Scour Depth	Upper Geo Unit	Lower Geo Unit	Bedrock Lithology	ABC Report
1	Clay City	core	728.21	1		2		New Albany Shale	n/a	Bedrock: vegetated	
12	n/a	cut profile	649.28	4				n/a	n/a		
13	n/a	cut profile	652.5	5				n/a	n/a		
14	n/a	cut profile	763.663	4				n/a	n/a		
15	n/a	cut profile	738.702	3				n/a	n/a		
16	n/a	sample	628.544	38.5				n/a	n/a		
17	n/a	sample	606.39	16.5				n/a	n/a		
18	n/a	sample	611.305	20.4				n/a	n/a		
19	n/a	sample	610.926	21.4				n/a	n/a		
2	Clay City	core	763.467	4		4		New Albany Shale	n/a	Bedrock: shale	
3	n/a	fill profile	611.444	23				n/a	n/a		
4	n/a	fill profile	630.544	16.5				n/a	n/a		

Rock and Soil Sample Report

Kentucky TRANSPORTATION CABINET
UNBRIDLED SPIRIT

KYTC Information Service
Kentucky Geological Survey

KGS Home > Data, Maps, & Pubs > KYTC Data Results

KYTC Reports and Data (Project: S-268-2007 | Hole: 1002)

Logs (core and sample):
- Geologist Log (.pdf)
- Driller Log (.pdf)

+ Soil Summary:

Note: instruction place holder

Depth	Sample Type	Sample Number	Penetrometer	Description	Sieve Type	Proctor	CBR	Consolidation Report	QU Report	UU Report	CU Report
5 ft	ST	1	3.5	brw & grey clay	No Raw Data	NO	NO				
10 ft	ST	2	3.5	BRW & GREY CLAY	No Raw Data	NO	NO				
15 ft	ST	3	4	brw clay	No Raw Data	NO	NO				
20 ft	ST	4	3.5	brw grey clay	No Raw Data	NO	NO				

+ Rock Sample Summary:

Slake Durability:

Depth	SDI Result	Jar Result
32 ft	86.65414	4
37 ft	97.4122	5

**No Strength Test Report For This Hole

Improving lithology characterization

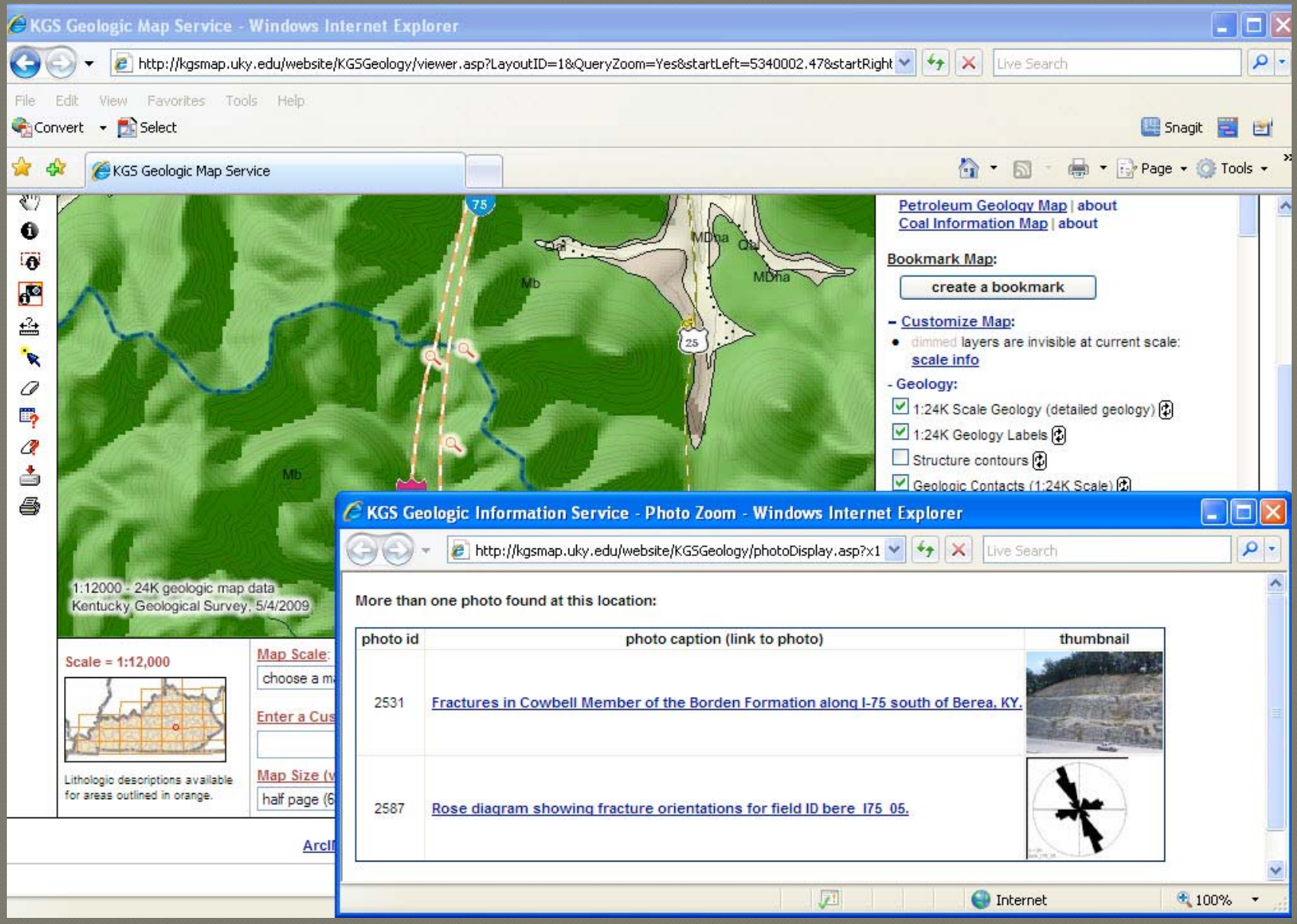
Established a representative collection of specmens from Kentucky Ordovician units

Developed a megascopic classification

Sonic Velocity Testing of Rock Core

Fracture Mapping for Cut Stability Predictions

Presenting Fracture Orientation Data



kgsweb.uky.edu/main.asp
KYTC Geotechnical Data