

Kansas Department of Transportation

BUREAU OF MATERIALS AND RESEARCH GEOLOGY SECTION

TOPEKA, KANSAS

April 26, 1993

Proj.No. 024-075 K-3325-03
0.2 miles west of Missile Base Rd. East 2.4 miles
Sta.519+03.67 to Sta.557+58.16 .
Sta.594+04.61 to Sta.645+40.00
Pottawatomie County

MEMORANDUM TO: MR. WARREN SICK, P.E.
CHIEF, BUREAU OF DESIGN

ATTENTION: MR. JAMES O. BREWER, P.E.
ENGINEERING MANAGER / STATE ROAD OFFICE

SUBJECT: GEOLOGY REPORT

Three copies of the above referenced report are attached to this memorandum.

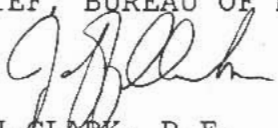
A mylar of the Geologic Section for the plans is also being forwarded with this report.

Geology has already been transferred to the original cross-section and plan-profile sheets and is in the process of being accepted.

A Final Design Geology Report will not be required for this project.

If any questions arise over the contents of this report, do not hesitate to contact the Geology Section.

LON S. INGRAM, P.E.
CHIEF, BUREAU OF MATERIALS AND RESEARCH


G.N. CLARK, P.E.
GEOTECHNICAL ENGINEER

LSI:GNC:LAR:jbc

cc: Project File (1)
G. N. Clark (1)
Bureau of Construction and Maintenance (3)
Bureau of Design, Road Section (3)
Regional Geology Offices (1)

BUREAU of MATERIALS and RESEARCH

GEOTECHNICAL UNIT
GEOLOGY SECTION

GEOLOGY REPORT

Proj.No. 024-075 K-3325-03

From 0.2 miles west of Missile Base Road East 2.4 miles
Sta.519+03.67 to Sta.557+58.16
Sta.594+04.61 to Sta.645+40.00

Pottawatomie County

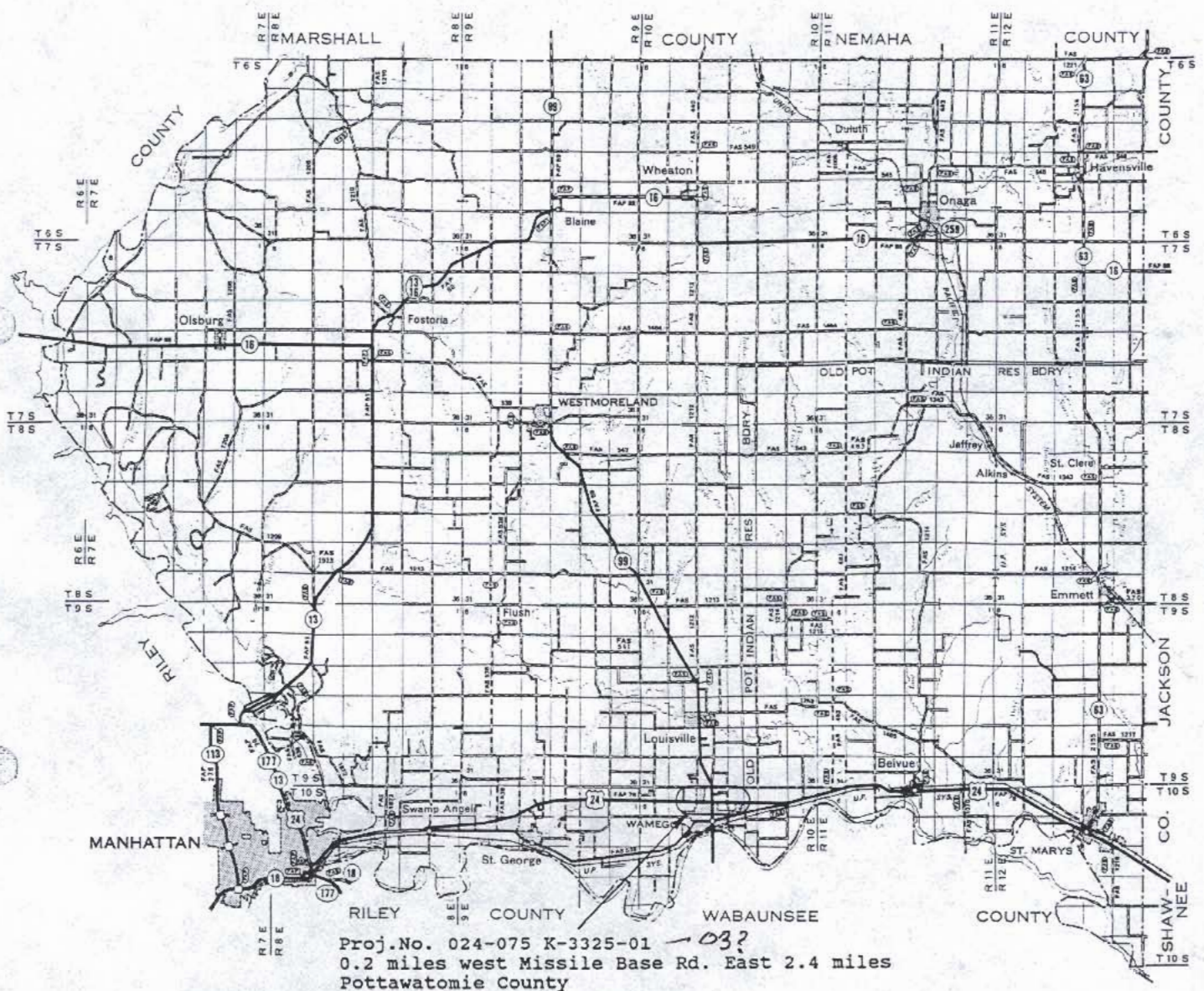


LAWRENCE A. ROCKERS
CHIEF GEOLOGIST

BY

Jeff Clarke, Geologist
Alex Kotoyantz, Regional Geologist

April, 1993



Proj.No. 024-075 K-3325-01 - 03?
 0.2 miles west Missile Base Rd. East 2.4 miles
 Pottawatomie County

ROADS AND ROADWAY FEATURES		ROAD SYSTEM DESIGNATION	
PRIMITIVE ROAD	-----	FEDERAL AID INTERSTATE HIGHWAY SYSTEM	===== 1
UNIMPROVED ROAD	-----	FEDERAL AID PRIMARY HIGHWAY SYSTEM	===== 2
GRAVEL AND DRAINED ROAD	-----	FEDERAL AID SECONDARY HIGHWAY SYSTEM	===== 3
SOIL SURFACED ROAD	-----	INTERSTATE NUMBERED HIGHWAY	===== 4
GRAVEL ON STONE ROAD - NOT GRADED OR DRAINED	-----	U.S. NUMBERED HIGHWAY	===== 5
GRAVEL ON STONE ROAD - GRADED AND DRAINED	-----	STATE HIGHWAY NUMBER OR STATE NUMBERED HIGHWAY	===== 6
GRAVEL ON STONE ROAD WITH STABILIZED SURFACE	-----	END OF DESIGNATED SYSTEM OR MARKED ROUTE	-----
BITUMINOUS ROAD-LOW TYPE PAVED ROAD	-----		
DIVIDED HIGHWAY	-----		
HIGHWAY WITH FULL CONTROL OF ACCESS AND INTERCHANGE	-----		



GENERAL HIGHWAY MAP
POTTAWATOMIE COUNTY
 KANSAS

KANSAS DEPARTMENT OF TRANSPORTATION
 BUREAU OF TRANSPORTATION PLANNING

1990

INTRODUCTION

The following Geology Report presents geological information obtained by the Kansas Department of Transportation through field study and is submitted for use in the design and construction of the above referenced project. It is to be used in reference to the formations that occur and with the potential engineering problems that may be affected by the geology of the project.

The report is divided into three sections for the purpose of grouping the information together and in the discussion of the different phases.

INDEX OF SECTIONS

SECTION I.....	GENERAL GEOLOGIC SECTION
SECTION II.....	GEOLOGY OF THE PROJECT
SECTION III.....	ENGINEERING GEOLOGY RECOMMENDATIONS

----- Division between soilmantle and bedrock

----- Division between Geologic Members and Formations

----- Change in type of material within the same Geologic Unit

----- Division between Rock and Common material within the unit

Fm. Formation

Mbr. Member

// Elevation of water table

Notes:

Bedrock and soilmantle which occur on this project are shown with the appropriate symbols on the cross-sections and plan-profile sheets.

A Geology Report is available in which can be found additional information that pertains to the geology of the project.

ICES Abbreviations
(if applicable)

SoilMantle MANTLE

Rock Excavation R

Common Excavation C

Sandstone SS

Indian Cave Sandstone INCV

SYMBOL	MBR.	FM.	DESCRIPTION	THICKNESS
	SoilMantle		Glacial deposits Reworked till, silty to sandy clays. Tan to reddish brown. Chert gravel and erratics common.	0-150
	Indian Cave Sandstone		Sandstone, micaceous tan, iron stained. Cross-bedded Hardened at the surface yet soft with depth. Fine to coarse grained. Unknown origin and thickness.	0-150
		2		Not known

LEGEND

- SILTY CLAY
- SAND
- SILT
- SANDSTONE
- GRAVEL

Scale 1" = 5ft.



SECTION II

GEOLOGY OF THE PROJECT

Soil mantle is on the project consists of deep glacial deposits up to 150 feet thick. These deposits are primarily reworked glacial till and sandy to silty clays. The color of these deposits varies from light tan to a deeper, reddish color. There are areas of scattered chert gravel and glacial erratics all along the project.

Indian Cave Sandstone

This sandstone of unknown origin overlies the bedrock East of Sta.506+00, and is shown on the cross-sections between Sta.530+00 and Sta.539+00. It is a tan, micaceous, iron stained sandstone that has hardened at the surface yet is quite soft with depth. Even though there are areas of tight cementation, it will generally be *common* excavation.

SECTION III

ENGINEERING GEOLOGY RECOMMENDATIONS

Backslope recommendations in this report are based on the performance of the same or similar material on nearby slopes or from past experience on other projects. Additional information on the performance of mantle material can be found in the Soil Survey report for this project.

The project is split into several cut and fill sections. Slope recommendations and excavation classifications are as follows.

CUT AND FILL SECTION

First Begin Sta.519+03.67 to Sta.531+50

Excavation

All excavation in this section will be in the soil mantle and classified as *common*. All slopes should be placed on 3:1 or flatter.

Hydrology

Groundwater in this section does not appear to be a problem.

CUT SECTION

Sta.531+50 to Sta.533+50

Excavation

The Indian Cave Sandstone Member may be encountered in the ditch construction between Sta.531+50 and Sta.533+50. It will be *common* excavation and any slopes should be 3:1 or flatter. A VMF of 1.05 should be used with the sandstone.

Hydrology

Groundwater does not appear to be a problem in this area.

CUT AND FILL SECTION

Sta.533+50 to First End Sta.557+58

Excavation

Slopes and ditches in this section will be constructed in the soil mantle. All excavation will be *common* and slopes should be 3:1 or flatter.

Hydrology

Groundwater does not appear to be a problem in this area.

CUT AND FILL SECTION Second Begin Sta.595+05 to Second End Sta.645+40

Excavation

Slopes and ditches in this section will be constructed in the soil mantle. All excavation will be *common* and all slopes should be placed on 3:1 or flatter.

Hydrology

Again, groundwater will not be a problem in this area.

PLOTTING AND USE OF GEOLOGY

All geologic members and formations have been plotted on blue-line copies of the plan-profile and cross-section sheets. This information has been transferred onto the original sheets by the consultants.

These sheets indicate the boundaries between the soil mantle and the geologic units that occur on that particular cross-section. Also shown are the different types of material and the division between *common* and *rock* excavation within that unit.

ICES GEOLOGY ABBREVIATIONS

The following abbreviations were used on the cross-sections and further in this report to identify the various members on the project.

Soil Mantle	MANTLE
Indian Cave Sandstone	INCVSS
Common Excavation	C
Rock Excavation	R

SUBGRADING

Subgrading of rock shale will not be required for this project.

HYDROLOGY

Underdrains will not be necessary on this project.

CONCLUSIONS

A Final Design Geology Report will not be required for this project therefore this Geology Report concludes our work unless problems arise during construction.

The recommendations contained in this report will provide all necessary information pertaining to the geo-engineering aspects of the project. If any questions should arise pertaining to these recommendations, do not hesitate to contact the geology section.