

Brian Foster, E. I. T.
BG Consultants, Inc.
4806 Vue Du Lac Place
Manhattan, KS 66503

Geohydrology Section
Kansas Geological Survey
1930 Constant Avenue
Lawrence, KS 66047
September 5, 2008

Dear Mr. Foster:

I am replying to your letter concerning the City of Emmet improvements to their wastewater treatment system. The soils in the area are silty clay to clay in texture and are relatively impermeable. The ground-water table in the area is fairly shallow.

The main question I have concerns whether the lagoon will be lined or not. If a leak should ever occur in the lagoon, contamination of the ground water in the area could occur. I presume that KDHE requires a liner but if not I would strongly suggest it. In addition, the location of the lagoon is near a stream. I presume that the engineering design includes some sort of berm or levee in case of flooding in the area.

I think the project should occur if the above suggestion is given consideration. The above comments are based on regional geologic conditions and limited information available to the KGS at the time of writing and cannot be used in substitute for a detailed site characterization. Other geologic conditions, not discussed here, or for which the KGS has no knowledge, may affect the viability or safe operation of this facility or property. Geotechnical engineering and design are outside the purview of the KGS. It is the responsibility of the applicant to produce any detailed site characterizations, geotechnical or environmental testing, or design by a licensed professional geologist or engineer to complete the project.

Sincerely,

A handwritten signature in cursive script that reads 'Margaret A. Townsend'.

Margaret A. Townsend
Hydrogeologist

July 03, 2008

Kansas Geological Survey
University of Kansas
1930 Constant Ave.
Lawrence, KS 66047-3726

RE: Environmental Review – Emmett, KS –Sanitary Sewer System Improvements

Dear Sirs:

The City will be applying for a Rural Development Loan and Grant from the United States Department of Agriculture and a Department of Commerce Block Grant. The City will also consider KDHE SRF Funding for this project. The proposed improvements will include expansion of the current lagoon facility, construction of a new lift station and partial replacement/repair to the collection lines. The majority of the improvements will be situated within City right of way. The proposed improvements to the waste water treatment facility will require land acquisition.

The improvements will be in the City of Emmett located in Sections 34 and 35, Township 8S, Range 12E, Pottawatomie County, Kansas.

I am attaching the explanation of alternatives and an aerial map of the proposed improvements. The existing lines are shown and any replacement/rehabilitation would be in the same location.

Please submit your response to BG Consultants, Inc., 4806 Vue Du Lac Place, Manhattan KS 66503.

Please contact me at (785) 537-7448 Ext. 1113 with any questions you might have.

Sincerely,



Brian J. Foster, E.I.T.

Enc.



Also

Lawrence, KS. • Hutchinson, KS • Emporia, KS

SECTION 1

INTRODUCTION

1.1 REPORT OBJECTIVE

This evaluation has been prepared for the purpose of planning improvements to the wastewater system currently serving the City of Emmett, Kansas. This report provides an analysis of the existing collection system, lift station, and 2-cell lagoon facility. This assessment will provide the necessary information to make an informed decision for the long term future needs of the City.

1.2 EXECUTIVE SUMMARY

1.2.1 OVERVIEW:

The City has been issued an Administrative Order by KDHE mandating that they improve the wastewater treatment facility and repair sources of inflow & infiltration (I & I). The current wastewater treatment facility is undersized for the current population. Several I & I issues were identified by smoke testing and the City has corrected most of these issues. The lift station has been retrofitted in the past and is currently in critical condition. The lift station is unreliable and bypass pumping had to be performed in the recent past. Immediate improvements to the system have been required by KDHE. The City has already been assessed a penalty for violating their permit, future non-compliance will not be tolerated.

1.2.2 ALTERNATIVES:

Several possible alternatives were examined and were discussed with the City. A summary of the alternatives are listed below

- NO ACTION – This is determined to be not an option due to the unreasonable response regarding public health and KDHE compliance.
- 3 CELL NON-DISCHARGING LAGOON – Due to the current population and the size requirements this is not considered a viable option.
- 3 CELL CONTINUOUSLY DISCHARGING LAGOON – This would be the most economical way to provide sufficient treatment.
- MECHANICAL PLANT – A mechanical plant is typically more desirable to a larger community than the size of Emmett. The initial cost of a mechanical plant and monthly operation is too cost prohibitive to be considered.
- LIFT STATION REPLACEMENT – The existing lift station is unreliable and is in need of replacement.
- COLLECTION LINE REPAIR/REPLACEMENT – Initial investigations have identified possible problems in the gravity collection mains. These collection lines need to be televised, evaluated and necessary repairs completed.

1.2.3 RECOMMENDATIONS:

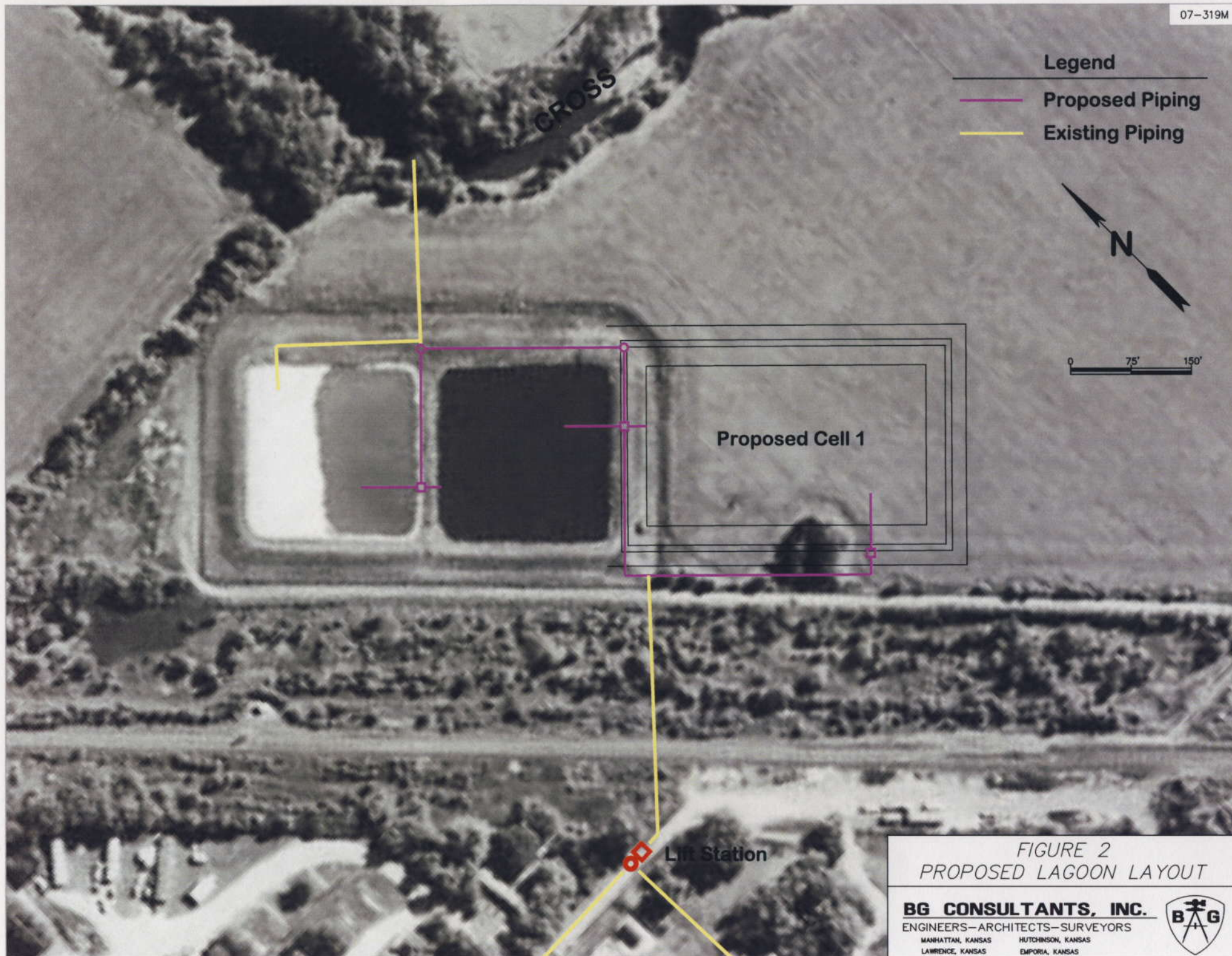
Based on the data contained within this report, the following improvements are recommended for the City of Emmett:

- **3 CELL CONTINUOUSLY DISCHARGING LAGOON** – It is recommended that the City improve their wastewater treatment plant to a 3-Cell continuously discharging lagoon. This would require the construction of an addition cell with lagoon piping. Additional land would have to be acquired for the new Cell. This option would provide the current and future residence with reliable wastewater treatment.
- **LIFT STATION REPLACEMENT** – It is recommended the City replace their existing lift station. The new lift station would include a new wet well, with a duplex pump system. A standby power supply is also recommended to be installed with the new lift station.
- **COLLECTION LINE REPAIR/REPLACEMENT** – It is recommended that the City perform a video inspection of the existing collection system. Upon completion of this inspection problem can be identified and evaluated. Problem can then be prioritized and repair recommendations be made.

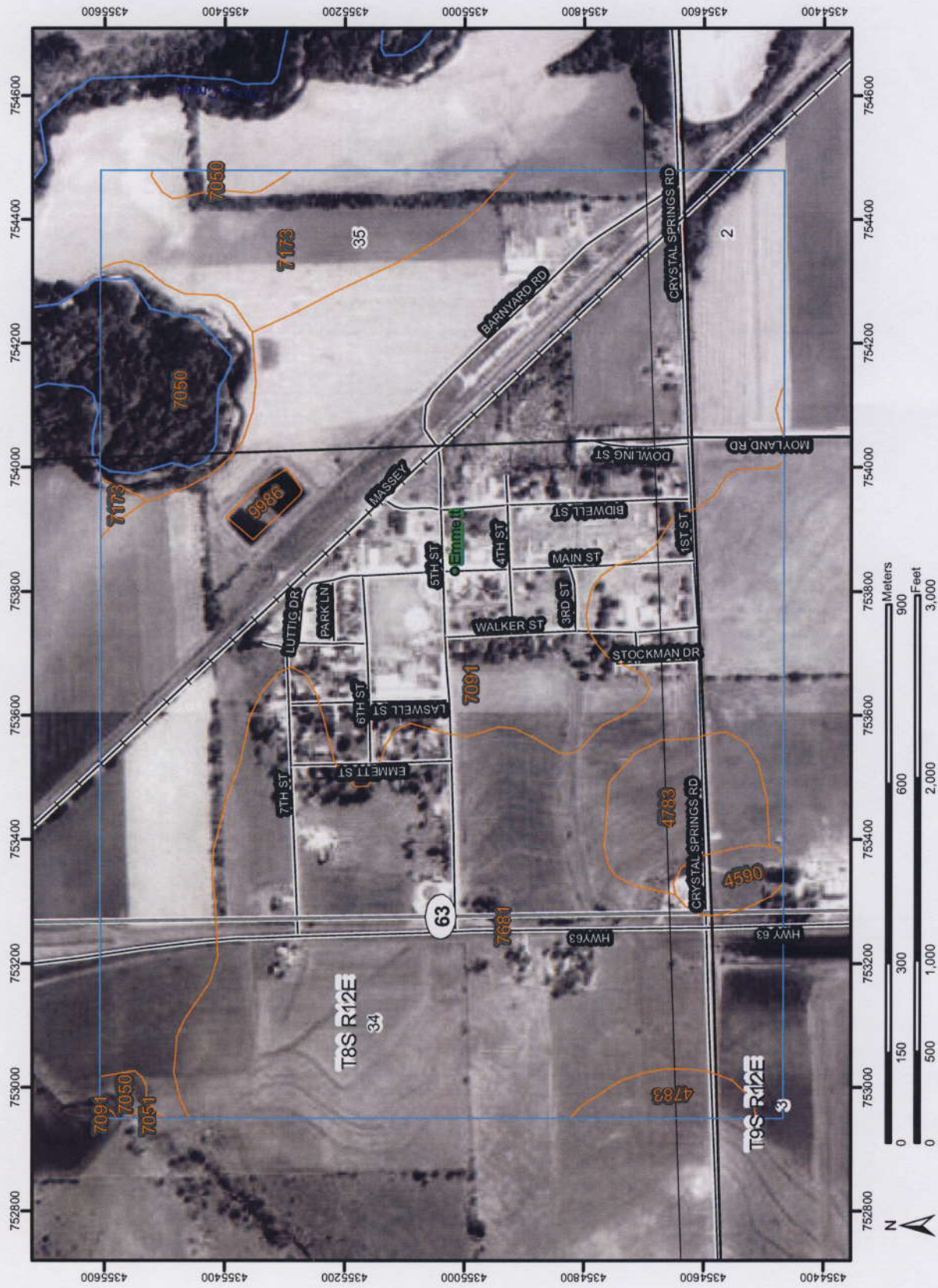
The above mentioned improvements will provide the City with a reliable sanitary system for current and future City residents.

END OF SECTION





Soil Map-Pottawatomie County, Kansas
(Emmet, KS Pottawatomie Cty)



Soil Map—Pottawatomie County, Kansas
(Emmet, KS Pottawatomie Cty)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

-  Very Stony Spot
-  Wet Spot
-  Other

Special Line Features

-  Gully
-  Short Steep Slope
-  Other

Political Features

Public Land Survey

-  Township and Range
-  Section

Municipalities

-  Cities
-  Urban Areas

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails

Roads

-  Interstate Highways
-  US Routes
-  State Highways
-  Local Roads
-  Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 14N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pottawatomie County, Kansas
Survey Area Data: Version 6, Dec 28, 2007

Date(s) aerial images were photographed: 10/6/1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Map Unit Legend

Pottawatomie County, Kansas (KS149)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4590	Clime-Sogn complex, 3 to 20 percent slopes	4.0	0.9%
4783	Tully silty clay loam, 3 to 7 percent slopes	17.9	4.0%
7050	Kennebec silt loam, occasionally flooded	23.3	5.2%
7051	Kennebec silt loam, frequently flooded	0.1	0.0%
7091	Wabash silty clay, occasionally flooded	212.5	47.7%
7173	Reading silty clay loam, rarely flooded	28.0	6.3%
7681	Wymore silty clay loam, 1 to 3 percent slopes	158.3	35.5%
9986	Miscellaneous water	1.7	0.4%
Totals for Area of Interest (AOI)		445.8	100.0%