Exhibit LA

Iowa Department of Natural Resources

Wastewater Engineering Section

Land Application Engineering Report Scope of Study Checklist

Project Name: _____

Meeting Location: _____

Date of Project Initiation Meeting: _____

Meeting Attendance List: _____

The **engineering report** shall contain pertinent information on the proposed site(s) including: location, geology, soil conditions, area for expansion, groundwater conditions and any other factors which may affect the feasibility and acceptability of the proposal. The **engineering report** shall also include pretreatment and storage requirements, a management program stating the objectives of the land application, the design application rates and monitoring. The source should be given for any information used by the consultant in design.

Design Standard Section		Subsection N/A to Scope
21.1	**GENERAL DESIGN CONSIDERATIONS**	
21.1.1	Site Considerations	
21.1.1.1	Site Identification	
21.1.1.2	Site Criteria Initial Groundwater Quality	
21.1.2	Groundwater	
21.1.2.1	Fieldwork Determination	
21.1.2.2	Initial Groundwater Quality	
21.1.3	Geological Information	
21.1.3.1	Soil Profile	
21.1.3.2	Soil Requirements	
21.1.4	Initial Wastewater Analysis	
21.1.5	Preapplication Treatment	
21.1.6	Land Application Facility	
21.1.6.1	Hydraulic Loading Rate	
21.1.6.2	Nitrogen Loading	
21.1.6.3	Phosphorous Loading	
21.1.6.4	Trace Element Loading	
21.1.6.5	Salinity Restrictions	
21.1.6.6	Disinfection	
21.1.6.7	Crops and Vegetation	
21.1.7	Storage Facility	
21.1.7.1	Storage Time	
21.1.7.2	Construction	
21.1.7.3	Reliability	
21.1.7.4	Storage Option	
21.1.8	Reliability	
21.1.8.1	General	
21.1.8.2	Equipment	

21.1.8.3	Manpower	
21.1.9	Monitoring Systems	
21.1.9.1	Frequency	
21.1.9.2	Parameters	
21.1.9.3	Location	
21.1.9.4	Operational	
21.1.10	Effluent and Groundwater Limitations	
21.1.10.1	Effluent	
21.1.10.2	Groundwater Limitations	
21.2	**SLOW RATE LAND APPLICATION**	
21.2.1	Site Criteria	
21.2.2	Groundwater	
21.2.2.1	Groundwater Table	
21.2.2.2	Underdrain	
21.2.3	Geology	
21.2.4	Topography	
21.2.5	Trace Element Limitations	
21.2.6	Storage Requirements	
21.2.7	Application Restrictions	
21.2.7.1	Application Based on Permeability	
21.2.7.2	Application Based on Limiting Factor	
21.2.7.3	Application During Frost and Runoff	
21.2.7.4	Application to Public Use Areas	
21.2.8	Resting or Drying Period	
21.2.9	Land Owner Agreements	
21.2.10	Water Rights	
21.3	**OVERLAND FLOW**	
21.3.1	Groundwater	
21.3.2	Geology	
21.3.3	Topography	
21.3.3.1	Slope	
21.3.3.2	Length of Travel	
21.3.4	Storage Requirements	
21.3.5	Overland Flow Facility Design	
21.3.5.1	Hydraulic Loading	
21.3.5.2	Nitrogen Loading	
21.3.5.3	Distribution System	
21.3.5.4	Vegetation	
21.3.5.5	Access	
21.3.5.6	Collection Ditches	
	Additional Items:	