MICHIGAN STATE
UNIVERSITY

April 4, 2012

MEMORANDUM

To: Trustee Finance Committee

From: Fred L. Poston

Subject: **Project Approval - Authorization to Proceed**
South Campus Anaerobic Digester

RECOMMENDATION

BE IT RESOLVED that the Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with the project entitled South Campus Anaerobic Digester, and to approve a budget of $5,100,000 subject to governmental regulatory approvals and upon other terms and conditions as may be acceptable to the Vice President for Finance and Operations and Treasurer.

BACKGROUND

Program Need:

The Anaerobic Digestion Research and Education Center (ADREC) is actively engaged in academic and industrial research and education. A research anaerobic digester has gone online, providing a large-scale integrated research system. The proposed second phase of the anaerobic digestion system would be based on a different digester technology and integrate additional biogas utilization equipment, both of which would improve MSU's capacity and competitiveness for national research grants and industrial support (research, training, and pilot testing). The proposed system would also enhance nutrient management on South Campus, improving the environmental and economic sustainability of the farms.

Description of the Project:

The South Campus Anaerobic Digester project is located at the Dairy Research, Teaching, and Extension Center on south campus in the Agriculture District. This project includes several storage tanks, a two-stage anaerobic digester, liquid manure storage and biogas utilization system. The anaerobic digester will improve the manure management on South Campus, divert organic food waste from the East Lansing wastewater treatment plant and landfill and provide a source of renewable energy to campus.

OFFICE OF THE
VICE PRESIDENT FOR
FINANCE AND
OPERATIONS

Fred L. Poston
Vice President and
Treasurer

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The Design-Builder is UTS.

Based on an assessment of the factors stated in the Project Planning and Approval process concerning Project Labor Agreements (PLA), the Vice President for Finance and Operations and Treasurer has determined that a PLA would not be required for this project.

Communication Feedback:
The campus community was given opportunities to provide feedback during the planning phase and any concerns have been addressed in the project design.

The Office of Campus Planning and Administration has reviewed this project and found it to be consistent with the Campus Master Plan and Planning Principles. The Campus Infrastructure Planning Work Group also supports the recommendation to proceed with the project.

As construction proceeds, the schedule will be reviewed with the campus community.

Project Cost and Timetable:
The budget for this Design Build project is $5,100,000 which is being funded by revenues derived from the digester products.

Construction is planned to begin in September 2012, with substantial completion in June 2013, and final completion by August 2013.

cc: R. Flinn, M. Haas, J. Kacos, G. Klein, B. Kranz, B. Latta, K. Lindahl, M. McCabe, J. Mumma, R. Nestle, D. Quinney, C. Reid, D. Kirk, D. Buhler, S. Pueppke

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South Campus Anaerobic Digester - Location

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Generalized Process Flow for MSU Anaerobic Digester

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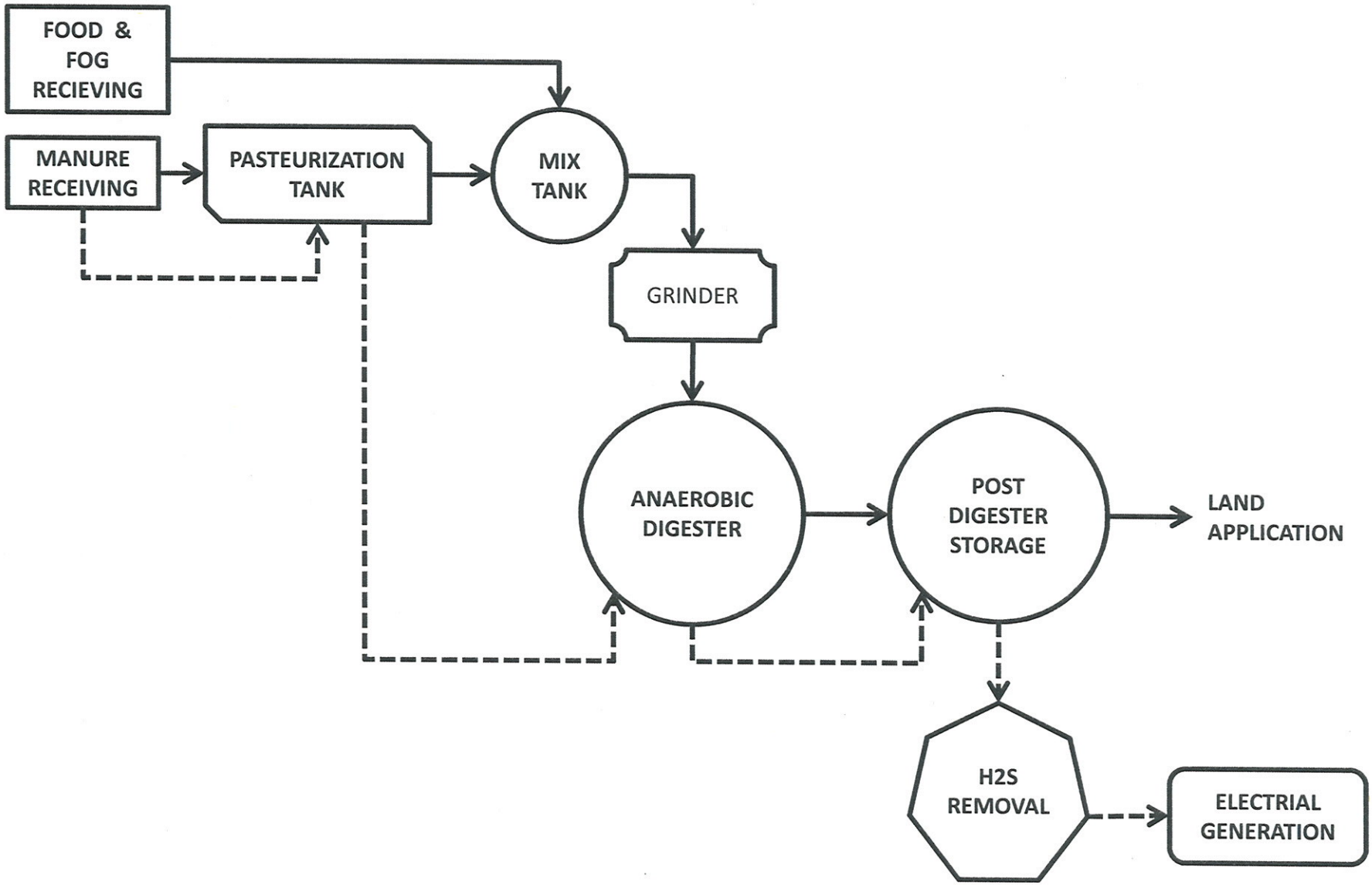

Complete Mix Anaerobic Digester System

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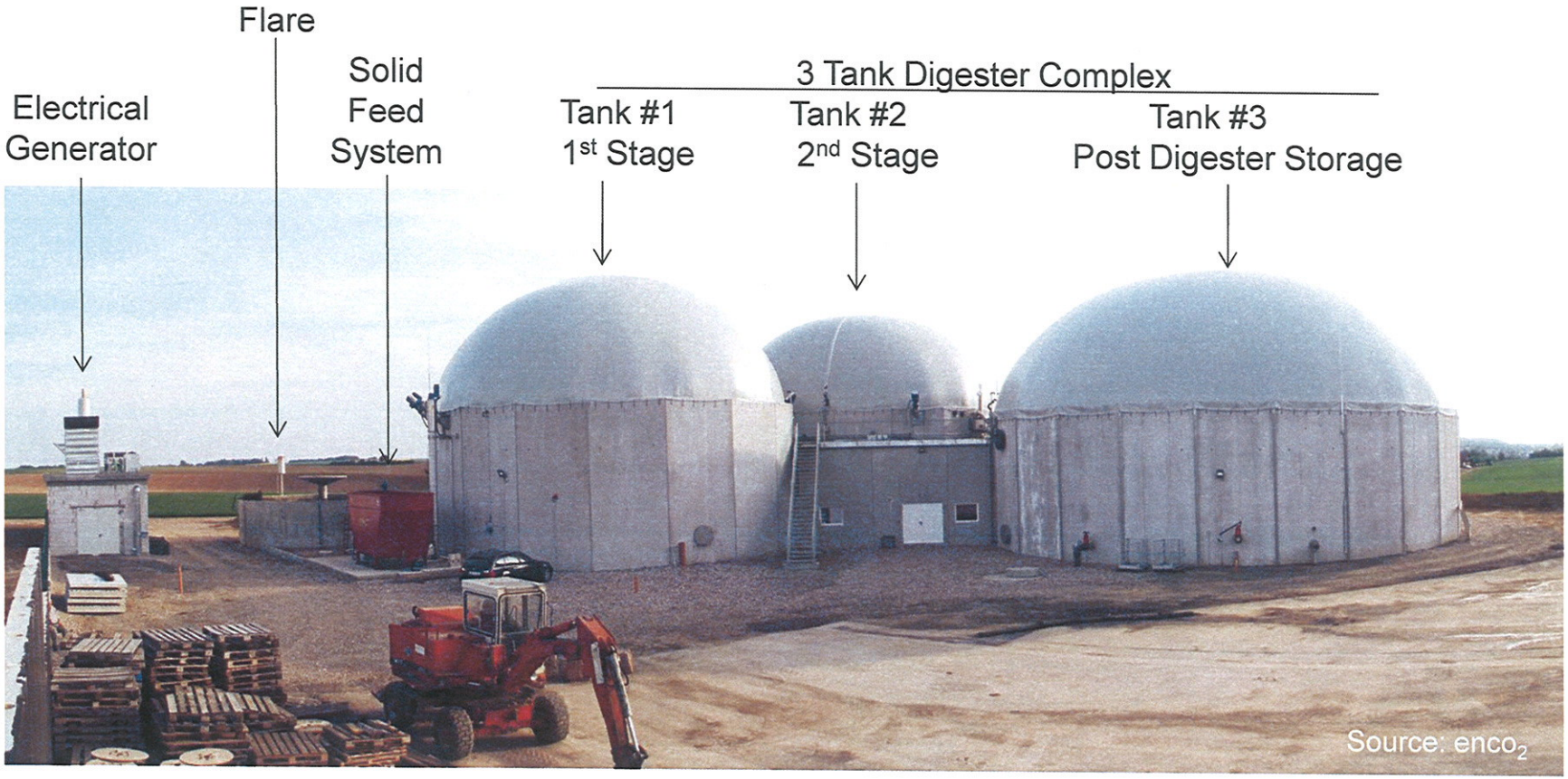

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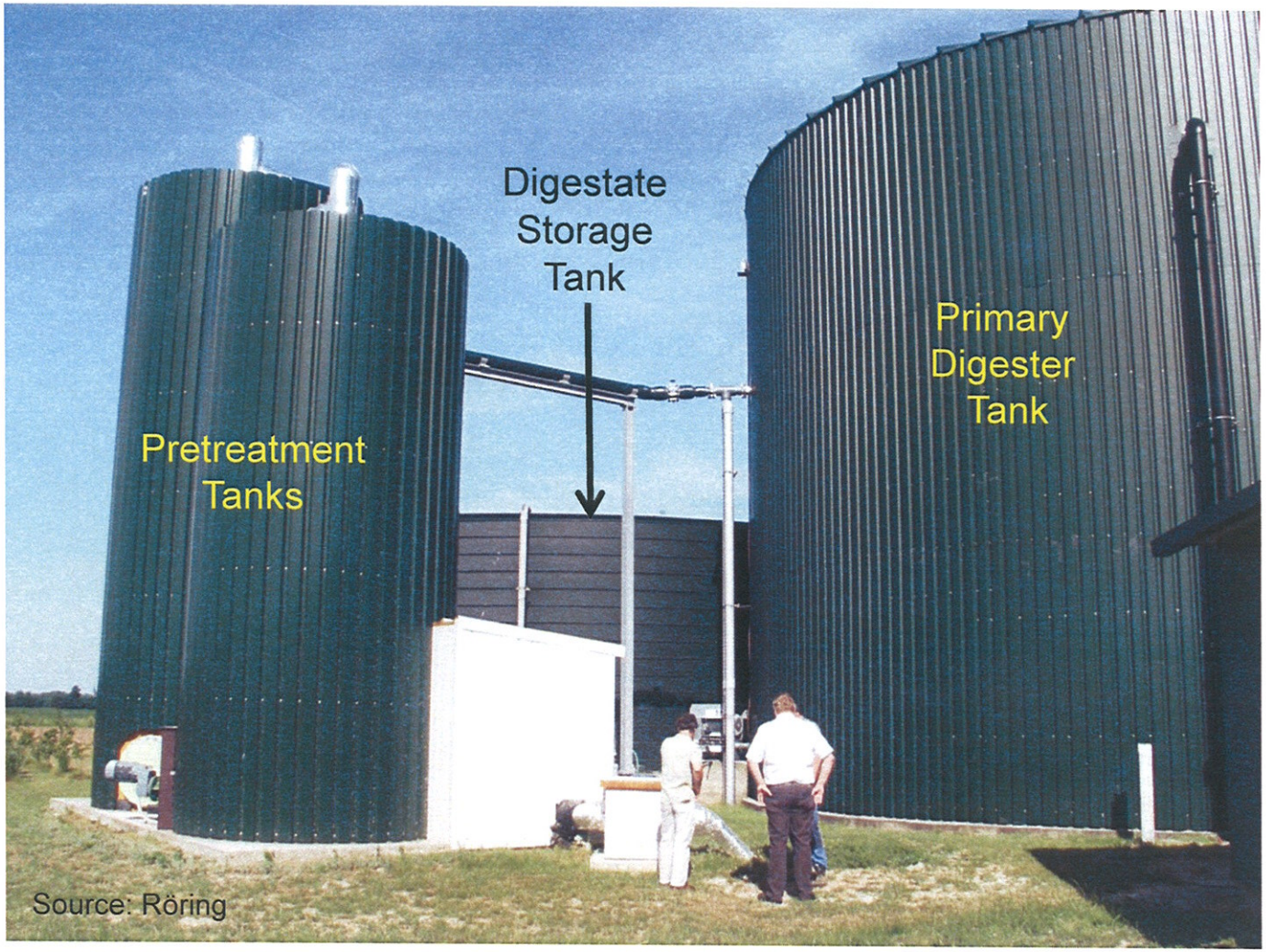

Proposed Digester Feedstock Blend

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Table 1: MSU South Campus Anaerobic Digester Feedstocks and Characteristics

Feedstock	Input Mass (ton/yr)	Total Solids (%)	Volatile Solids (% of TS)	Notes
Dairy manure	7,000	12	85	7 days per week, 52 weeks per year
Food waste	900	18	92	5 days per week, 40 weeks per year
Fruit & vegetable waste	3,900	11	95	5 days per week, 52 weeks per year
FOG	5,000	20	90	6 days per week, 52 weeks per year
Total	**16,800**			

Campus Biomass Management - Proposed

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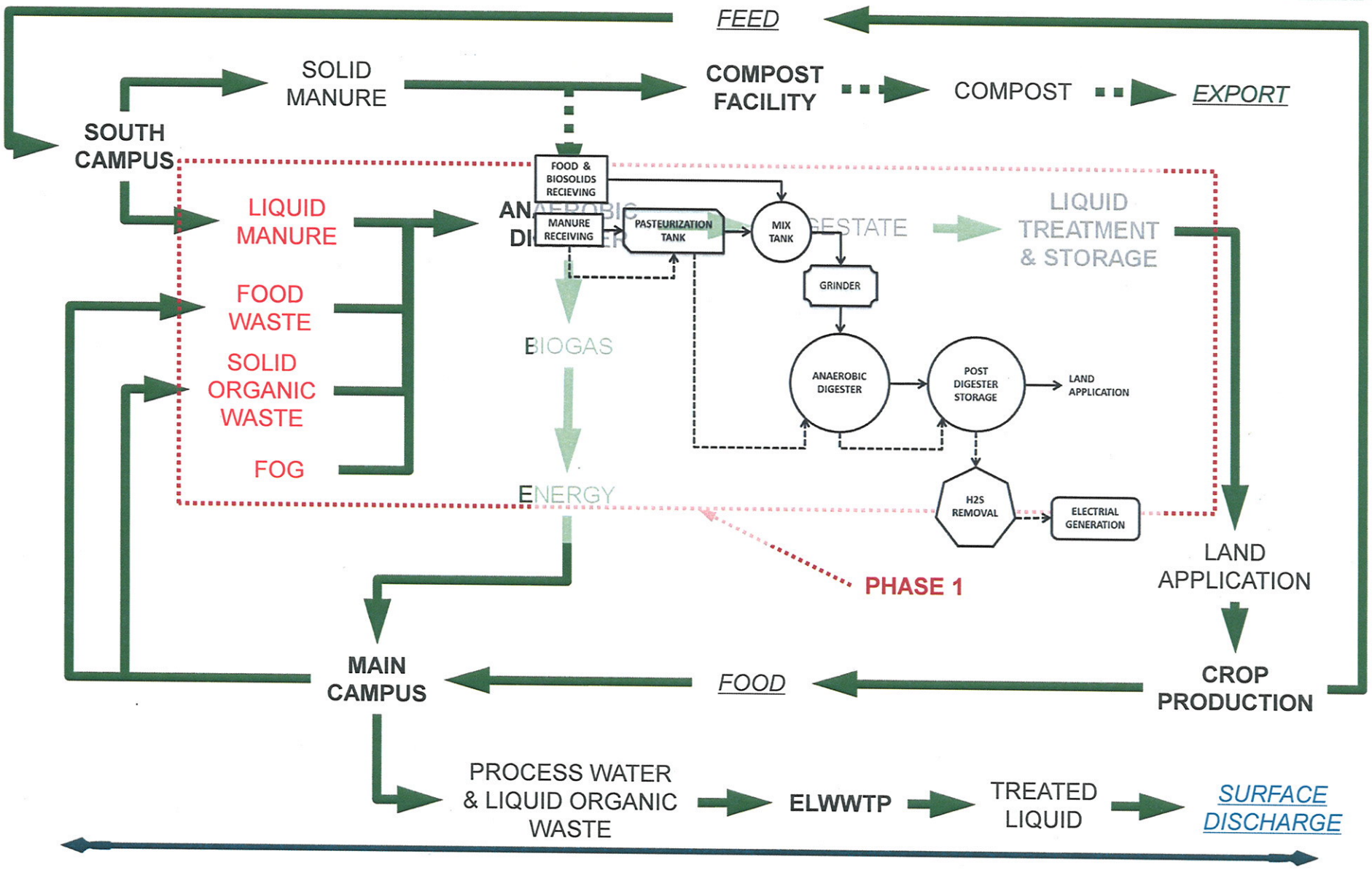

Background Information

MICHIGAN STATE
UNIVERSITY

April 13, 2011

Revised

MEMORANDUM

APPROVED
APR 15 2011
Board of Trustees
Michigan State University
V.P. Finance and Operations

To: Trustee Finance Committee

From: Fred L. Poston

Subject: **Authorization to Plan**
South Campus Anaerobic Digester

RECOMMENDATION

BE IT RESOLVED that the Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to plan for the project entitled South Campus Anaerobic Digester.

BACKGROUND

Program Need:

The Anaerobic Digestion Research and Education Center (ADREC) is actively engaged in academic and industrial research and education. In the spring of 2011, a research anaerobic digester will go online, providing a large-scale integrated research system. The proposed second phase of the anaerobic digestion system would provide additional research, teaching, and outreach opportunities for the Biosystems and Agricultural Engineering Department and ADREC.

This proposed project would include alternative digester technology and integrate additional biogas utilization equipment, both of which would improve MSU's capacity and competitiveness for national research grants and industrial support (research, training, and pilot testing).

The proposed system would also enhance nutrient management on South Campus Farms, improving the environmental and economic sustainability of the farms. At the university level, the project will provide an opportunity to further reduce the amount of landfill waste and the carbon footprint of campus, while providing a source of renewable energy.

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General Description of the Project:
The project is expected to include several storage tanks, a two stage anaerobic digester, liquid manure storage, and a biogas utilization system.

The anaerobic digester would improve the manure management on campus, divert organic food waste from the East Lansing Wastewater Treatment Plant and landfill, and provide a source of renewable energy to campus. The anaerobic digester would be located at the Dairy Cattle Teaching and Research Center on South Campus Farms.

Based on an assessment of the factors stated in the Project Planning and Approval process concerning Project Labor Agreements (PLA), the Vice President for Finance and Operations and Treasurer has determined that a PLA would not be required for this project.

Communication Plan:
During the planning phase, the campus community, including faculty and staff from AgBioResearch, Biosystems and Agricultural Engineering, Agriculture Product Center, MSU Power Plant, ORCBS, the Office of Campus Sustainability, and the City of East Lansing will be given an opportunity to provide feedback on the project as it is being designed. Input from the project planning team will also be solicited during design.

Preliminary Project Cost Information:
Based on current pricing information, the preliminary cost estimate is $3.5 million, which will be funded from revenues derived from the digester products and private donations.

cc: D. Brower, R. Flinn, J. Kacos, M. Haas, G. Klein, B. Kranz, K. Lindahl, M. McCabe, J. Mumma, R. Nestle, D. Quinney, C. Reid, B. Groves

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