MEMORANDUM

TO: Randolph G. Moore  
Chairperson, Board of Regents

VIA: David Lassner  
President

VIA: Robert Bley-Vroman  
Chancellor

VIA: Kathy Cutshaw  
Vice Chancellor for Administration, Finance and Operations

FROM: Stephen Meder  
Interim Assistant Vice Chancellor

SUBJECT: APPROVAL OF CONSULTANT CONTRACT

SPECIFIC ACTION REQUESTED:
It is requested that the Board of Regents approve the consultant contract for:

- schematic design documents for campus-wide infrastructure trunk lines and utility corridors, with connecting utility easements taking the most direct route to each facility;
- schematic design documents for the implementation of campus-wide water catchment and gray water reuse;
- construction documents for the installation of utility trunk lines, easements, water catchment and reuse facilities under Campus Road from University Avenue through Varney circle, including stub outs for planned connections to adjacent areas in future phases of development; and
- construction administration of the installation project during construction.

RECOMMENDED EFFECTIVE DATE:
Upon Board of Regents approval

COST:
$1,490,403.00
PURPOSE:
The purpose of this project is to complete the following work:

- A schematic design of campus-wide infrastructure trunk lines, including in depth assessment of existing utilities, slopes, conflict resolution and re-routing, connections from an array of old lines to consolidated new trunk lines;
- A schematic design for easements taking direct routes from trunk lines to each facility to efficiently manage city and county and utility regulations and agreements, to clearly identify internal campus boundaries, and to maximize available areas for future development;
- A schematic design for the implementation of campus-wide storm water management including water catchment and gray water reuse; and
- Construction documents for the installation of trunk lines, easements, water catchment and reuse facilities, including stub outs for connections to adjacent areas for future phases of development.

BACKGROUND INFORMATION:
Pursuant to Board of Regents Policy RP8.201, Contracts and Official Documents, Section III.C., Consultant Contracts, all consultant contracts in excess of $1,000,000, expenses included, shall require the prior approval of the board.

WHY THESE IMPROVEMENTS ARE IMPORTANT:

A. This project is foundationally essential for the organization of existing infrastructure and to enable UHM to more quickly respond to changing needs and to make better resource management decisions in support of a 21st century campus. This step will be followed by schematic design for phased implementation of infrastructure consolidation projects over the next decade (as funding permits). It will organize complex, intersecting utility streams into a structure designed for plug-and-play modifications and upgrades in response to changes in curricula, technology, and environmental goals.

B. This project integrates with the implementation of the Landscape Master Plan Phase 1: Improvements for Campus Civic Spaces which include Campus Road, Varney Circle, McCarthy Mall, and Legacy Pathway. The landscaping and other above ground improvements will be designed in concert with the installation of much needed underground infrastructure upgrades to drainage, sewage, water, electrical, information technology (IT), and chilled water networks, along with code mandated updates to accessibility pathways, safe circulation routes, and enhanced lighting to best serve UHM now and in the future.

See Figure 1: Infrastructure Upgrades Integrated with LMP Phase 1
C. This project will address the City and County of Honolulu Department of Planning and Permitting (DPP) & Board of Water Supply (BWS) requirements impacting UHM building permits, including the following:

1. A campus-wide storm water management and water catchment and reuse system that will:
   - convey more than 227 cubic feet per second (cfs) of Mid-Pac water to appease DPP’s request;
   - reduce our potable water use;
   - redirect storm water from approximately 90% of our rainfall events to on-campus uses creating capacity in existing storm drains to convey larger storm events than currently possible, further protecting our facilities;
   - redirect rain water via irrigation reuse to the aquifer instead of the Manoa Stream; and
   - save millions of dollars while providing multiple environmental benefits.

See Figure 2: Proposed Water Catchment and Reuse Project

A more comprehensive solution to the threat of larger storm events lies in a collaborative effort by all watershed stakeholders. UHM is convening meetings to explore strategies to meet the larger Mānoa/Waikiki watershed challenges with the City and County, Department of Land and Natural Resources, Army Corps of Engineers, State representatives and large area stakeholders.

2. BWS is requiring water line easements for all lines leading to buildings with fire sprinkler system upgrades as a condition of permit approvals. The process for obtaining easements is expensive, time consuming, delaying project schedules, and resulting in a loss of options and control over campus areas.

This project will organize infrastructure trunk lines into efficient lines of conveyance along utility corridors under designated areas of permanent open space with easements identified from the trunk lines to each facility in the shortest, most direct route while sequestering increased campus areas for UH control and development. This system will be designed to:
   - develop a comprehensive easement agreement with BWS rather than making isolated singular agreements on a per-project basis;
   - provide a means for 24/7 access to utility lines for upgrades and additions with a minimum of above grade disruption;
   - include necessary upgrades to current infrastructure (i.e., drainage, water, sewer, electrical, information technology); and
   - provide a framework to accommodate expansion, upgrades, and new technologies for easy campus-wide conveyance (i.e., smart grid, renewable
energy, A/C chilled water loop, monitoring sensors for utility lines, water
catchment cisterns & filters, fiber optics lines)

3. DPP is asking UHM to start a discussion on rerouting all existing Lower Campus
sewer up to the Dole Street Lines because the University/Varsity Lines are at
capacity. All future Lower Campus projects already require force main pumping
to the Dole Street Lines but there is currently no organized approach to
accommodate future growth designed into the current conveyance system.

The proposed infrastructure trunk lines, easements, and water catchment and
reuse system will provide:

- a more cost effective and environmentally efficient system to redirect sewer
  away from the overtaxed University/Varsity system up to Dole Street;
- a predictable, organized, state of the art utility network with capacity to
  support future growth and technology improvements;
- a water catchment and reuse system that can skim water from sewer lines
  for gray water filtration and reuse to reduce the amount of wet sludge to be
  pumped up to Dole Street;
- a mechanism to retain and reuse rain water for irrigation and toilet use
  instead of letting it wash toward Manoa Stream and the ocean; and
- multiple environmental benefits while saving millions of dollars

See Figure 3: Conceptual Layout of Infrastructure Trunk Lines Consolidation

D. The current Drainage, Sewer, and Water Master Plan was contracted only to analyze
the capacity of the existing system to meet future demands posed by upgrades
shown in the 2007 Long Range Development Plan (LRDP). Due to new
circumstances of our climate (storm intensity, available resources, rising utility costs,
etc.) and substantial changes proposed for housing, student life, athletics, research,
and academic spaces, our utility plans are already obsolete. This project will
automatically upgrade our utility conveyance for Drainage, Sewer, Water, Electrical,
and IT services within a framework also designed to accept upgrades, new
technologies, and convey expanded needs campus-wide.

In summary, this project will:

- plan for the update of aging infrastructure lines for drainage, sewer, water, electrical,
  and IT conveyance;
- design interim connections from old to new during phased implementation;
- resolve current regulatory requirements involving infrastructure affecting UHM
  building permit applications;
- provide a framework to receive infrastructure upgrades to support future campus
growth and to organize conveyance to each facility while resolving potential utility
conflicts;
• plan for the installation of utility upgrades in concurrence with the upgrade of campus civic areas per Landscape Master Plan Implementation Project Phase I.
• facilitate installation of new utility systems such as campus-wide chilled water loops, smart and resilient electrical lines, fiber optic lines, and renewable energy distribution, all more easily installed and managed with the trunk lines at lower cost and disruption to campus function;
• provide a framework for saving millions of dollars by allocating money toward new best practices while reducing our consumption of potable water and fossil-fuel generated electricity;
• provide greater long term security and resiliency for the campus; and
• be foundational in support of a 21st Century campus that can respond to curricular changes and updated campus goals more quickly, and use available new technologies with a minimum of damage to existing campus facilities and disruption to daily campus function.

ACTION RECOMMENDED:
It is requested that the Board of Regents approve the consultant contract for:
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• construction documents for the installation of utility trunk lines, easements, water catchment and reuse facilities under Campus Road from University Avenue through Varney circle, including stub outs for planned connections to adjacent areas in future phases of development; and
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Attachments: Appendix
Figure 1: Infrastructure Upgrades Integrated with LMP Phase 1
Figure 2: Proposed Water Catchment and Reuse Project
Figure 3: Conceptual Layout of Infrastructure Trunk Lines Consolidation

c: Executive Administrator and Secretary to the Board Quinn
The principal proposal for improving the overall organization of the campus landscape is to connect and improve the campus civic spaces.
Normal, Illinois
Filtration Fountain
& Traffic Circle

- Catchment to offset potable use
- Reuse to reduce water bills
- Storm water reuse to minimize drain sizes
- Increases storm water management capacity
- Saves cost of larger installations
- LID strategies to recharge aquifer
- Reduces discharge to Manoa Stream
- Strive to retain or reuse all storm water

Princess Diana Memorial Fountain, London

Figure 2: Proposed Water Catchment and Reuse Project
• trunk lines under permanent open space
• organize infrastructure for growth
• reduce utility conflicts
• minimize easements
• preserve campus for UH
• minimize disruption during upgrades
• easy access for upgrades at lower costs
• facilitate installation of new systems

Conceptual Sketch of Trunk Line Loop

Figure 3: Conceptual Layout of Infrastructure Trunk Lines Consolidation