Scope of Work

1. SURVEY REACH "A" – CTH B TO KEGONSA DAM

1.1. *Survey Preparation* – Inter-Fluve will prepare staff, field equipment, and field maps for the survey effort. Inter-Fluve will communicate with the City of Stoughton prior to conducting survey activities to identify possible access points, base station setup locations, and existing control.

1.2. *Bathymetric Survey of Reach "A"* – An aquatic catamaran drone (Hydrone) equipped with sonar and RTK GPS will be used to survey existing bathymetry in the reach. Two Inter-Fluve staff will control the drone from a nearby boat. Inter-Fluve staff will augment the Hydrone's collected data points with select RTK-GPS survey of water surface elevations, bank top and toe, and other significant hydraulic or geomorphic features.

1.3. *Depth of Refusal Investigation* – A depth of refusal (DOR) survey will survey up to 20 cross-sections within the survey reach. This assumes fine sediment probing and investigation of historic floodplain and channel bed areas. RTK-GPS will be used to measure the point location and elevation of the top of bed. Sand or gravel deposits deeper than 3.0 feet would require additional equipment and would require an amendment if investigation of those areas is desired.

1.4. *Hydraulic Survey* – Up to six cross sections of the Yahara River will be surveyed immediately upstream and downstream (within 500 feet) of the Lake Kegonsa Dam. Dam features (i.e. spillway crests, abutments) will be surveyed. Additionally, up to six cross sections will be surveyed immediately upstream and downstream of the CTH B bridge. Bridge deck, abutment, high chord, and low chord elevations will also be surveyed.

1.5. *Data Processing and Map Preparation:* Inter-Fluve will process collected data in AutoCAD Civil3D or GIS and prepare bathymetric and sub-surface figures. Publicly available LiDAR data will be used to create terrains in upland areas and areas inaccessible to the survey crew. One bathymetric map of the survey reach will be prepared, along with cross-sections corresponding to DOR survey cross sections. Maps and figures will be prepared on 11x17" PDF in electronic format. Raw data will be provided to the City upon request.

2. SURVEY REACH "B" – MAIN ST. BRIDGE TO CTH B

2.1. *Survey Preparation* – Inter-Fluve will prepare staff, field equipment, and field maps for the survey effort. Inter-Fluve will communicate with the City of Stoughton prior to conducting survey activities to identify possible access points, base station setup locations, and existing control.

2.2. *Bathymetric Survey of Reach "A"* – An aquatic catamaran drone (Hydrone) equipped with sonar and RTK GPS will be used to survey existing bathymetry in the reach. Two Inter-Fluve staff will control the drone from a nearby boat. Inter-Fluve staff will augment the

Hydrone's collected data points with select RTK-GPS survey of water surface elevations, bank top and toe, and other significant hydraulic or geomorphic features.

2.3. *Depth of Refusal Investigation* – A depth of refusal (DOR) survey will survey up to 20 cross-sections within the survey reach. This assumes fine sediment probing and investigation of historic floodplain and channel bed areas. RTK-GPS will be used to measure the point location and elevation of the top of bed. Sand or gravel deposits deeper than 3.0 feet would require additional equipment and would require an amendment if investigation of those areas is desired.

2.4. *Hydraulic Survey* –Up to six cross sections will be surveyed at the bridges within the survey reach, including the footbridge upstream of the Stoughton Dam impoundment and the Cooper's Causeway bridge. Bridge deck, abutment, high chord, and low chord elevations will be surveyed.

2.5. *Data Processing and Map Preparation:* Inter-Fluve will process collected data in AutoCAD Civil3D or GIS and prepare bathymetric and sub-surface figures. Publicly available LiDAR data will be used to create terrains in upland areas and areas inaccessible to the survey crew. One bathymetric map of the survey reach will be prepared, along with cross-sections corresponding to DOR survey cross sections. Maps and figures will be prepared on 11x17" PDF in electronic format. Raw data will be provided to the City upon request.

<u>Deliverables</u>

- Bathymetric survey and DOR cross section figures as described.
- Raw data will be provided to the City upon request in an agreed-upon format.

<u>Assumptions</u>

- Survey data will be collected will be collected in an agreed-upon datum prior to survey.
- Survey data collection will not proceed in adverse conditions. Inter-Fluve will keep the City abreast of survey progress and identify any unforeseen conditions impeding progress.
- Significant meetings or reports during and/or after the collection effort are not included by can be added via addendum.
- Hydraulic survey and DOR cross sections will be co-located with existing HEC-RAS model cross sections when practicable.
- Wetland delineation is not included in this Scope of Work.
- Preparation of hydraulic model geometry files is not included.