

STATE OF MICHIGAN
 DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
 PROCUREMENT
 P.O. BOX 30026, LANSING, MI 48909
 OR
 530 W. ALLEGAN, LANSING, MI 48933

**NOTICE
 OF
 CONTRACT NO. 071B4300032**
 between
THE STATE OF MICHIGAN
 and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
Michigan State University Hannah Administration 426 Auditorium Road, Room 2 East Lansing, MI 48824	David Lusch PH.D.	lusch@msu.edu
	TELEPHONE	CONTRACTOR #, MAIL CODE
	(517) 335-8497	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR:	MDEQ	Brant Fisher	517-284-6515	fisherb@michigan.gov
BUYER:	DTMB	Mike Breen	517-241-7720	breenm@michigan.gov

CONTRACT SUMMARY:				
DESCRIPTION: Descriptive Contract Title (Not always the same language as provided in MAIN)				
Michigan Groundwater Mgmt Tool - MDEQ				
INITIAL TERM	EFFECTIVE DATE	INITIAL EXPIRATION DATE	AVAILABLE OPTIONS	
3 years	January 14, 2014	January 14, 2017	2, one year options	
PAYMENT TERMS	F.O.B	SHIPPED	SHIPPED FROM	
N/A	N/A	N/A	N/A	
ALTERNATE PAYMENT OPTIONS:			AVAILABLE TO MiDEAL PARTICIPANTS	
<input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
MINIMUM DELIVERY REQUIREMENTS:				
N/A				
MISCELLANEOUS INFORMATION:				
N/A				
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION:			\$510,634.00	

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N/A			
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N/A			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION:		\$510,634.00	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the solicitation #084R3200023. Orders for delivery will be issued directly by the Department of Technology, Management & Budget through the issuance of a Purchase Order Form.

Notice of Contract #: 071B4300032

FOR THE CONTRACTOR:	FOR THE STATE:
Michigan State University Firm Name	Signature
Authorized Agent Signature	Jeff Brownlee, Chief Procurement Officer Name/Title
Authorized Agent (Print or Type)	DTMB Procurement Enter Name of Agency
Date	Date



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Article 1 – Statement of Work (SOW)

1.000 Project Identification

1.001 PROJECT REQUEST

The State of Michigan (SOM), through the Michigan Department of Technology, Management & Budget (MDTMB), with assistance from the Center for Shared Solutions and the Michigan Department of Environmental Quality (MDEQ), is issuing a contract for maintenance and enhancements to the Drinking Water Geographic Information Systems (DWGIS) and Michigan Groundwater Management Tool (MGMT) software and the geocoding and processing for spatial display of data on water chemistry throughout Michigan.

This project will provide embellishments to the DWGIS software and add additional information layers to the architecture of the application and provide a reconstruction and streamlining of the functionality of the MGMT software. Both applications will be brought into compliance with SOM architecture and software standards and include enhancements, which have been described herein, that neither application has in its current form. The selected vendor will manage the project from initiation to closing. This will include the full project life cycle, including business requirements, design, development, testing, and production deployment of the DWGIS and MGMT software in their modified form.

The State seeks to have services begin upon award of the contract by August 2013, with full implementation of the contract by three years. The negotiated contract resulting from this RFP will have three years, with two one-year options to provide continued maintenance and implementation of enhancements to the products (as identified and authorized by the MDEQ) while in use by the SOM. Optional years will be at the sole discretion of the SOM and based upon the acceptable performance, pricing of the selected Contractor and funding availability as determined by the SOM.

The SOM will assign one Project Manager to represent MDTMB and MDEQ on this project. This Project Manager is the only person authorized to accept or reject work performed by the contractor. This project manager will be referred to as the “MDTMB Project Manager”. The MDTMB Project Manager will work closely with the MDEQ Subject Matter Experts, but only the MDTMB Project Manager has the authority to approve or accept work by the Contractor.

1.002 BACKGROUND

In August 2003, Michigan PA 148 mandated the DEQ conduct a statewide inventory of Michigan’s ground water resources, commonly referred to as the Groundwater Inventory and Mapping (GWIM) project. In completing the GWIM project, the DEQ engaged groundwater experts at the U.S. Geological Survey – Michigan Water Sciences Center and mapping experts at MSU’s Remote Sensing & Geographic Information System (RSGIS) and Institute of Water Research (IWR). Building on datasets originally pioneered during the initial stages of the SWAP, RSGIS and IWR provided for the development of innovative geospatial processing capabilities that contributed greatly to the GWIM project.

The effort resulted in several unique products including a data extraction program that analyzes lithologic data in the Wellogig database to create new information which describes in three-dimensions the variability of several key geologic and hydrogeological parameters throughout Michigan. Specifically, the extraction created datasets which provide estimates of groundwater yield for both the glacial deposits and bedrock aquifers throughout Michigan. All of this information was mapped. The GWIM project also provided maps of aquifer recharge rates, static water levels for the groundwater, base flow estimates for streams and rivers, and water use. All of the data and maps created by the GWIM project have historically been made available to the public through a web-based, geo-spatial mapping application that is hosted and maintained for the DEQ by RS&GIS.

As part of Michigan’s Source Water Assessment Program (SWAP) the Department of Environmental Quality (DEQ) followed up the GWIM project with an investment in the development of a couple of very innovative tools with application to groundwater modeling and ground water resource management. The development of the tools was driven by the desire on the part of the DEQ to transition the SWAP from its earlier assessment phase to a more comprehensive groundwater protection strategy utilizing newly developed groundwater modeling software coupled with state-of-the-art geographic information systems. This effort culminated in the



development of the Michigan Groundwater Management Tool (MGMT) and the Drinking Water Geographic Information System (DWGIS) software applications.

MGMT is a software platform that utilizes spatially compiled groundwater data and allows for the automated analysis of ground water flow. As a tool in ground water modeling the software allows for the interactive mapping of ground water flow directions based on available data. The MGMT software is employed by the DEQ in conjunction with existing groundwater databases, such as those generated during the GWIM project, to analyze and assess groundwater flow and ultimately delineate wellhead protection areas for community and non-community public water supplies throughout Michigan. The ODWMA uses products from the MGMT effort to provide outreach at the local level focusing on the protection of community and non-community public water supplies.

MGMT has been completed and functional. However, there are inefficiencies in the system platform that need to be corrected. More importantly, there is a wealth of newly acquired ground water related data that needs to be pre-processed and made amenable to manipulation within the MGMT software environment. This SOW includes MGMT system improvements and data processing. The new MGMT system will have an upgraded look and feel from the existing systems with a more efficient means of data processing and result output functions.

The DWGIS is an ArcGIS Server-based, intranet mapping application being deployed within the State of Michigan's geospatial IT infrastructure by the Center for Shared Solutions. DWGIS has been customized to meet the spatial data handling and business practice needs of the ODWMA. DWGIS is also a fully functional system platform with the ability to incorporate a number of other functional data handling and analysis needs. The ODWMA intends to obtain modifications and enhancements to the DWGIS software platform to make it amenable to the spatial review and analysis of water chemistry results and the creation of reports to meet the business needs of the ODWMA. The DWGIS software has a login module that will register a user's preference in data coverage and report generation. The software also includes a reporting module that will include a set of standard reports and an advanced query system to generate ad-hoc queries which can be stored, retrieved and modified.

1.100 Scope of Work and Deliverables

1.101 IN SCOPE

The Contractor will provide services for the complete and successful enhancement of applications, development of new tools, the conversion of data and the addition of functionalities that do not exist in the current MGMT or DWGIS applications.

During the maintenance period there may be further enhancements that the SOM may request.

This project consists of the following scope:

- Business Requirements Analysis
- Facilitated Joint Application Design (JAD) Sessions
- Validation and Verification
- Application Design for Enhancements
- Application Development and Testing
- Implementation
- Training and Documentation
- End user
- System Administration training
- Maintenance and Support
- Knowledge Transfer/Transition

A more detailed description of the software, services (work) and deliverables sought for this project is provided in Article 1, Section 1.104, Work and Deliverables.



1.102 OUT OF SCOPE

Hardware installation or hardware maintenance, security administration within State's LAN/WAN networks and desktop support are out of the scope of this ITB.

The information gathered and managed by MGMT and DWGIS may be exported manually for use in many other applications. But no interfaces to external systems will be required or be a part of the scope of this project.

1.103 ENVIRONMENT

The links below provide information on the State's Enterprise information technology (IT) policies, standards and procedures which includes security policy and procedures, IT strategic plan, eMichigan web development and the State Unified Information Technology Environment (SUITE).

Contractors are advised that the State has methods, policies, standards and procedures that have been developed over the years. Contractors are expected to provide proposals that conform to State IT policies and standards. All services and products provided as a result of this RFP must comply with all applicable State IT policies and standards. Contractor is required to review all applicable links provided below and state compliance in their response.

Enterprise IT Policies, Standards and Procedures:

<http://www.michigan.gov/dmb/0,1607,7-150-56355-107739--,00.html>

All software and hardware items provided by the Contractor must run on and be compatible with the MDTMB Standard Information Technology Environment. Additionally, the State must be able to maintain software and other items produced as the result of the Contract. Therefore, non-standard development tools may not be used unless approved by MDTMB. The Contractor must request, in writing, approval to use non-standard software development tools, providing justification for the requested change and all costs associated with any change. The MDTMB Project Manager must approve any tools, in writing, before use on any information technology project.

It is recognized that technology changes rapidly. The Contractor may request, in writing, a change in the standard environment, providing justification for the requested change and all costs associated with any change. The State's Project Manager must approve any changes, in writing, and MDTMB, before work may proceed based on the changed environment.

Enterprise IT Security Policy and Procedures:

http://www.michigan.gov/documents/dmb/1310_183772_7.pdf

http://www.michigan.gov/documents/dmb/1310.02_183775_7.pdf

http://www.michigan.gov/documents/dmb/1325_193160_7.pdf

http://www.michigan.gov/documents/dmb/1335_193161_7.pdf

http://www.michigan.gov/documents/dmb/1340_193162_7.pdf

http://www.michigan.gov/documents/dmb/1350.10_184594_7.pdf

The State's security environment includes:

- MDTMB Single Login.
- MDTMB provided SQL security database.
- Secured Socket Layers.
- SecureID (State Security Standard for external network access and high risk Web systems)

IT Strategic Plan:

<http://www.michigan.gov/itstrategicplan>

IT eMichigan Web Development Standard Tools:

http://www.michigan.gov/documents/som/Look_and_Feel_Standards_302051_7.pdf



The State Unified Information Technology Environment (SUITE):

Includes standards for project management, systems engineering, and associated forms and templates – must be followed: <http://www.michigan.gov/suite>. The contractor will be required to assist the MDTMB Project Manager and Business Analyst to complete the SUITE related documentation

Agency Specific Technical Environment

The applications will comply with State of Michigan Department of Technology, Management and Budget Development Standards.

- Web application: Windows 2008 server, .NET environment using Framework 4 and languages and technologies such as C# and ASP.NET.
- Desktop Workstations, Operating System: Windows XP & Windows 7
- Software/Tools : Office 2010, ARC GIS 10.1
- Database: SQL 2008
- Reporting Tools: SQL Server Reporting Service
- Network, firewall

Refer to **Appendix A - DWGIS Application Production Environment** for current web hosting & network environment

1.104 Work And Deliverable

The Contractor shall provide the services and staff and otherwise do all things necessary or incidental to provide the functionality required for the State’s business operations, in accordance with the requirements as set forth below. All requirements are considered mandatory unless they are marked as desirable.

The services provided for this project will include initiation and planning, Validation of requirements, development, testing, implementation and support of the software applications for the MDEQ-ODWMA. Services to be performed involve enhancements to the existing functionality of the MGMT and DWGIS applications, Geocoding water chemistry data, outreach training and data entry.

For the purpose of preparing proposals, Vendors should contemplate that the system will be installed and in operation by contract end date.

The following table represents a high level summary of all the modules/sub-projects. All requirements must be met, and other work and specifics regarding required deliverables for each sub-project and stages within the sub-projects are specified in this RFP. These deliverables described in this section are not all inclusive. The contractor will need to support SOM to prepare the documents required for the SUITE/SEM processes.

SUB PROJECTS	REQUIRED/ DESIRED	TITLE	PRODUCT/DELIVERABLE
I	Required	Enhancements to the MGMT Software	Enhancements as identified in the requirements
II	Required	WaterChem Geocoding, Data Display and Reports	Geocoding WaterChem data, creation of map products and development of query/report tool for DWGIS application
III	Required	DWGIS and Source Water Assessment	Provide workflow to conduct assessments using user preferences and Site Report
IV	Required	Outreach, Education and Facilitation	Outreach facilitation utilizing source water protection products produced by the finalized MGMT software
V	Required	Wellogic Data Entry	All backlogged water well and pump records entered into Wellogic database

The State of Michigan, Center for Shared Solutions (CSS) hosts DWGIS application and the Contractor must work with CSS staff to implement the enhancements for DWGIS.



This project comprises of six subprojects which have unique deliverables. In compliance with the State of Michigan Systems Engineering Methodology (SEM) and SUITE each sub-project will be performed under distinct phases, each with its own set of deliverables. Upon the conclusion of each phase for the sub-project and the submission of all deliverables required in the phase, the DTMB Project Manager will provide written acceptance if all the work and deliverables have been satisfactorily completed. The Contractor may, after receipt of such acceptance, submit an invoice for the milestone payment associated with the completed phase for that sub-project. The Contractor may commence work on the subsequent phase after acceptance of the prior phase. For the purposes of the initial project schedule submitted with the proposal, the contract should include twenty (20) business days for reviews by the SOM. In the event that the work and deliverables are not acceptable to the DTMB Project Manager the Contractor shall correct the issues noted and re-submit by a date, as specified by the Project Manager.

The sub-projects like the data entry and outreach training are not development projects. Some of the services or deliverables described below may not apply to them.

A. Business Requirements Verification and Validation and Project Planning

A detailed description of the business requirements which identifies the enhancements and other requirements are provided in Appendix B. The contractor shall review and analyze these requirements along with the current application to verify the requirements.

The Contractor's Responsibilities for Requirements Verification and Validation

The Contractor will hold Joint Application Design (JAD) sessions before each sub-project commences. During this meeting the Contractor shall verify and validate the requirements documentation for each sub-project and document the new functionality in detail and anticipated design changes. The analysis will also include a review of database tables and views for necessary updates and changes

- Review, validate, and update, if necessary, the business requirements provided by the State of Michigan
- Will review the current web applications and document further functional requirements necessary including potential enhancements
- The Contractor is to update the project plan to include changes to the code for the sub-project
- The Contractor is to update the project schedule to more fully define the development effort and efforts to prepare the test cases for the sub-project

The State's Responsibilities for Requirements Verification and Validation

- Coordinate State of Michigan resources as needed
- The DTMB Project Manager will coordinate with the ODWMA Project Manager to schedule and attend meetings to continue providing any needed business requirements
- Provide work area for Contractor's staff when on site
- Provide conference rooms for JAD session(s), when needed
- Define project standards and controls required by the SOM
- The DTMB Project Manager, MDEQ - ODWMA Project Manager and appropriate program and technical subject matter experts will participate in the JAD sessions.
- The DTMB Project Manager and MDEQ - ODWMA Project Manager will solicit comments from the stakeholders on the business and technical requirements considered during this phase
- Review and complete SEM documents and verify accuracy/provide comments

Deliverable(s)

The Contractor shall work with the DTMB Project Manager to complete the following

- Requirements Traceability Matrix (initial) - SEM 0401
- Validated Business and Technical Requirements Specification - SEM 0402



Acceptance Criteria

If the deliverable documents are in accordance with the SUITE methodology and templates (see section 1.103) and are acceptable to the DTMB Project Manager, in coordination with the MDEQ – ODWMA Project Manager, the DTMB Project Manager will provide written acceptance. The Contractor shall not commence work on next Phase until they have received written acceptance of all deliverables required under this Phase.

SUB PROJECT I - Enhancements to the MGMT Software

Part 1: Mapping Hydraulic Conductivity

- **MSU-CEE** will verify and validate all business requirements pertaining to hydraulic conductivity mapping

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will verify and validate all business requirements pertaining to MGMT software modifications and improvements
- **MSU-CEE** will assist DTMB with use-case document with business rules, if required
- **MSU-CEE** will assist DTMB PM to develop SEM 0401 & 0402, if required

Part 3: Mapping SWL Elevations

- **MSU-CEE** will verify and validate all business requirements pertaining to mapping SWL elevations

Part 4: Mapping Bedrock Top Elevations

- **MSU-CEE** will verify and validate all business requirements pertaining to mapping bedrock-top elevations

Part 5: MGMT Support and Training

- **MSU-CEE** will verify and validate all business requirements pertaining to MGMT support and training

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will assist DTMB with use-case document with business rules
- **MSU-RSGIS** will assist DTMB PM to develop SEM 0401 & 0402

SUB PROJECT III - DWGIS and Source Water Assessment

- **MSU-RSGIS** will schedule and participate in one or more SWAP procedure development meetings.
- **MSU-RSGIS** will review, validate, and update, if necessary, the business requirements provided by SoM.
- **MSU-RSGIS** will outline and storyboard the DWGIS SWAP work flow tutorial.
- **MSU-RSGIS** will edit the DWGIS SWAP work flow tutorial outline/storyboard in response to ODWMA staff review.
- **SoM** will coordinate State of Michigan resources as needed.
- **DTMB PM** will coordinate with the ODWMA PM to schedule and attend meetings to continue providing any needed business requirements.
- **SoM** will provide work area for MSU-RSGIS staff when on site.
- **SoM** will provide conference rooms for JAD session(s), when needed.
- **DTMB PM, ODWMA PM** and appropriate program and technical subject matter experts will participate in the SWAP procedure development meetings.



- **DTMB PM, ODWMA PM** will solicit comments from the stakeholders on the business and technical requirements considered during this phase.

SUB PROJECT IV - Outreach, Education and Facilitation

Part 1: Facilitating Source Water Protection Workshops

- **MSU-IWR** staff will meet with ODWMA staff to determine when and where the four (4) source water protection workshops are to be held.

Part 2: Source Water Protection Evaluation Using MGMT Products

- **MSU-IWR** staff will meet with ODWMA staff to discuss and finalize the educational strategies for the target audiences.
- **MSU-IWR** staff will meet with NTNC ODWMA staff and LHD representatives to scope a training evaluation plan for each outreach program type (three main audiences).
- **ODWMA staff** will meet with MSU-IWR to discuss and finalize the educational strategies for the target audiences.
- **NTNC ODWMA staff** and LHD representatives will meet with MSU-IWR to scope a training evaluation plan for each outreach program type (three main audiences).

SUB PROJECT V - Wellogic Data Entry

- **MSU-RSGIS** will schedule and attend a Wellogic data-entry training provided by ODWMA-Well Construction Program staff.

ODWMA-Well Construction Program staff will provide training (at MSU) in Wellogic data-entry.

B. RESERVED

C. RESERVED

D. APPLICATION DESIGN

Application Design will be in accordance with the Validated Business and Technical Requirements Specification Document and the Requirements Traceability Matrix that were developed and accepted in previous phase.

This Application design document will include:

- A detailed description of the enhancements as described in the Business and Technical Requirements documents
- A full description of changes in functionality and enhancements proposed in previous Phase and how they will be incorporated into the new design
- The prioritization of development activities as agreed upon between the DTMB Project Manager, the MDEQ - ODWMA Project Manager and the Contractor's Project Manager.

The following must be provided and are to be considered indicative but not all inclusive of the subjects covered by the system Application Design:

- Use-case document with business rules
- Changes to the Database structure
- Proposed changes in User Interface

The Contractor's Responsibilities for Application Design

The Contractor will support the DTMB Business Analyst to fill out SEM Functional Design document
The Contractor shall update the project plan to include a work plan for the development effort



The State's Responsibilities for Application Design

- Monitoring and oversight of the Application design work by the Contractor as needed
- Answer questions and provide information when requested by the Contractor
- Review any interim deliverables as agreed upon between the DTMB Project Manager and the Contractor's Project Manager
- The DTMB Project Manager and MDEQ - ODWMA Project Manager will discuss bi-weekly status reports with the Contractor's Project Manager

Deliverable(s)

The Contractor shall work with the DTMB Project Manager and the MDEQ - ODWMA Project Manager to prepare the following documents:

- Requirements Traceability Matrix (Updated) - SEM 0401
- Business Requirements Specification (Final) - SEM 0402
- Functional Design Document - SEM 0501

Acceptance Criteria

High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501.

If the documents for this phase are in accordance with the SUITE methodology and templates (and are acceptable to the DTMB Project Manager, in coordination with the MDEQ - ODWMA Project Manager), the DTMB Project Manager will provide written acceptance. The Contractor shall not commence work on next phase until they have received written acceptance of all deliverables required under this phase.

Application Design

SUB PROJECT I - Enhancements to the MGMT Software

Part 1: Mapping Hydraulic Conductivity

- **MSU-CEE** will schedule and attend Joint Application Design sessions
- **MSU- CEE** will write K mapping protocol document
- **MSU- CEE** will meet with ODWMA staff to amend/approve K mapping protocol document
- **ODWMA** staff will approve amended K mapping protocol document

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will schedule and attend Joint Application Design sessions
- **MSU- CEE** will assist DTMB PM to complete SEM 0401 & 0402, if required
- **MSU- CEE** will write application design document
- **MSU- CEE** will meet with ODWMA staff to amend/approve application design (functionality)
- **ODWMA** staff will approve amended application design (functionality)
- **MSU- CEE** will propose solutions for estimating K using Wellogic lithologies and deliver a conceptual software design to ODWMA
- **ODWMA** will amend/approval the K estimation conceptual design

Part 3: Mapping SWL Elevations

- **MSU-CEE** will schedule and attend Joint Application Design sessions
- **MSU- CEE** will write SWL mapping protocol document
- **MSU- CEE** will meet with ODWMA staff to amend/approve SWL mapping protocol document
- **ODWMA** staff will approve amended SWL mapping protocol document

Part 4: Mapping Bedrock Top Elevations

- **MSU-CEE** will schedule and attend Joint Application Design sessions
- **MSU- CEE** will write bedrock-top mapping protocol document
- **MSU- CEE** will meet with ODWMA staff to amend/approve bedrock-top mapping protocol document



- **ODWMA** staff will approve amended bedrock-top mapping protocol document

Part 5 – MGMT Support and Training

- **MSU-CEE** will schedule and attend Joint Application Design sessions
- **MSU- CEE** will write detailed MGMT training syllabus
- **MSU- CEE** will meet with ODWMA staff to amend/approve detailed MGMT training syllabus
- **ODWMA** staff will approve amended detailed MGMT training syllabus

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

Part 1: Correction, Cleaning and Geocoding the MDEQ WaterChem Database

- **ODWMA** will provide an extract of all usable records in the WaterChem database
- **MSU-RSGIS** will investigate the delivered WaterChem database to determine optimum database cleaning protocols and provide detailed descriptions for enhancements to be documented through the Business and Technical Requirements process. An intense review of the database subset will be conducted for the planned cleaning and standardization procedures and methods. The prioritization of development activities will be agreed upon between the DTMB Project Manager, the MDEQ - ODWMA Project Manager and the MSU RS&GIS Project Manager.

Part 2: Statewide WaterChem Database Mapping Products

- **MSU-RSGIS** will schedule and attend Joint Application Design sessions
- **MSU-RSGIS** will assist DTMB PM to complete SEM 0401 & 0402
- **MSU-RSGIS** will write application design document
- **MSU-RSGIS** will meet with ODWMA staff to amend/approve application design (functionality)

Part 3: WaterChem Database Query/Report Tool in DWGIS

- **MSU-RSGIS** will schedule and attend Joint Application Design sessions
- **MSU-RSGIS** will assist DTMB PM to complete SEM 0401 & 0402
- **MSU-RSGIS** will write application design document
- **MSU-RSGIS** will meet with ODWMA staff to amend/approve application design (functionality)

Application Design is not applicable to SUB PROJECT III, IV and V

E. Application Development

Enhancements to the application will be made in accordance with the functional requirements documents that were developed in previous phase and as accepted by the DIT Project Manager.

The Contractor must update the test plan to test the enhancements. The test plan will also include user acceptance testing by DTMB and ODWMA staff using test scripts developed by the Contractor and approved by the DTMB Project Manager, in coordination with the MDEQ - ODWMA Project Manager.

The Contractor's Responsibilities for Development

The Contractor is to perform the development of enhancements/fixes for the requirements/issues identified in the previous phases. The Contractor is to update the project schedule to demonstrate their progress.

The code is to be written, organized and documented in accordance with accepted industry standards or as superseded by DTMB direction.

The Contractor will develop a written test plan with schedule for:

- Unit testing involves testing to a level to ensure the application works. This will be accomplished by the Contractor prior to submitting code to the DTMB and MDEQ - ODWMA staff for testing.
- System testing involves validating that all of the functions work in unison. This will be done by the Contractor prior to submitting code to the SOM to test.
- Integration testing to ensure that the components of the system work properly together.

The Contractor will develop test scripts that will thoroughly test the enhancements made to the sub-project.



The Contractor must produce an initial Training Plan to identify the training approaches, methods, schedules, and tools.

The State's Responsibilities for Development

- Monitoring and oversight of the development work by the Contractor
- Answer questions and provide information when requested by the Contractor
- Review any interim deliverables as may be agreed upon among the MDEQ - ODWMA Project Manager , the DTMB Project Manager and the Contractor's Project Manager
- Participate in the development of test plans, scripts and schedule
- Participate in the development of user acceptance test criteria
- State staff will be available as needed.

Deliverable(s)

The Contractor shall submit the following to the MDEQ - ODWMA Project Manager and the DTMB Project Manager:

- Requirements Traceability Matrix (updated) - SEM 0401
- Test Plan (final) including scripts and schedule - SEM 0602
- Interactive web based defect tracking system (if BugTracker.NET is not used)
- Installation Plan (initial) - SEM 0702
- Installation Guide for QA /Production (Initial)

Acceptance Criteria

High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501.

If the documents for this phase are in accordance with the SUITE methodology and templates and are acceptable to the DTMB Project Manager, in coordination with the MDEQ – ODWMA Project Manager, the DTMB Project Manager will provide written acceptance for each deliverable. The Contractor shall not commence work on next phase until they have received written acceptance of all deliverables required under this phase.

SUB PROJECT I - Enhancements to the MGMT Software

Part 1: Mapping Hydraulic Conductivity

- **MSU-CEE** will develop an automated filter for extracting usable K estimates from Wellogig lithologies.
- **MSU-CEE** will develop pilot interpolations, identify best methods/ grids/parameters for glacial K mapping.
- **MSU-CEE** will review pilot glacial K results with SOM staff.
- **ODWMA** will review the pilot glacial K results and approve the best methods/grids/parameters.
- **MSU-CEE** will incorporate glacial K into MGMT.
- **MSU-CEE** will develop an automated filter for extracting usable bedrock K estimates.
- **MSU-CEE** will develop pilot interpolations, identify best methods/grids/parameters.
- **MSU-CEE** will review pilot bedrock K results with SOM staff.
- **ODWMA** will review the pilot bedrock K results and approve the best methods, grids, parameters.
- **MSU-CEE** will process statewide bedrock K (including islands).
- **MSU-CEE** will incorporate bedrock K layers into MGMT.



Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will provide the modifications identified in DEQ List 1 - Fisher 2011.
- **MSU-CEE** will provide the modifications identified in DEQ list 2, Mandle 2011.

Part 3: Mapping SWL Elevations

- **MSU-CEE** will remove invalid SWL values and outliers from UP and islands data.
- **MSU-CEE** will develop a new method for SWL processing.
- **MSU-CEE** will pilot test the new SWL processing in UP glacial aquifers.
- **MSU-CEE** will pilot test the new SWL processing in UP bedrock aquifers.
- **MSU-CEE** will review results of the UP pilot tests with SOM staff.
- **ODWMA** will amend/approve the new SWL processing methods in UP glacial and bedrock aquifers.
- **MSU-CEE** will process glacial SWL for the UP and islands.
- **MSU-CEE** will process bedrock SWL for the UP and islands.
- **MSU-CEE** will incorporate UP glacial and bedrock SWL data into MGMT.
- **MSU-CEE** will remove invalid SWL values and outliers from LP and islands data.
- **MSU-CEE** will pilot test the new SWL processing in LP glacial aquifers.
- **MSU-CEE** will pilot test the new SWL processing in LP bedrock aquifers.
- **MSU-CEE** will review results of the LP pilot tests with SOM staff.
- **ODWMA** will amend/approve the new SWL processing methods in LP glacial and bedrock aquifers.
- **MSU-CEE** will process glacial SWL for the LP and islands.
- **MSU-CEE** will process bedrock SWL for the LP and islands.
- **MSU-CEE** will incorporate LP glacial and bedrock SWL data into MGMT.

Part 4: Mapping Bedrock Top Elevations

- **MSU-CEE** will develop an automated filter for extracting usable rock top elevations.
- **MSU-CEE** will develop a new method for processing bedrock-top elevations.
- **MSU-CEE** will pilot test the new method for processing bedrock-top elevations for the UP.
- **MSU-CEE** will review UP bedrock-top elevation pilot results with SOM staff.
- **ODWMA** will amend/approve the new method for processing bedrock-top elevations in the UP.
- **MSU-CEE** will process bedrock-top elevations for the entire UP.
- **MSU-CEE** will incorporate the UP bedrock-top elevation layer into MGMT.
- **MSU-CEE** will pilot test the new method for processing bedrock-top elevations in the LP.
- **MSU-CEE** will review LP bedrock-top elevation pilot results with SOM staff.
- **ODWMA** will amend/approve the new method for processing bedrock-top elevations in the LP.
- **MSU-CEE** will process bedrock-top elevations for the entire LP.
- **MSU-CEE** will incorporate the LP bedrock-top elevation layer into MGMT.



SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

Part 1: Correction, Cleaning and Geocoding the MDEQ WaterChem Database

- **ODWMA** will provide an extract of all usable records in the WaterChem database.
- **MSU-RSGIS** will implement all database scrubbing techniques outlined in the application design.
- **MSU-RSGIS** will create a new reference table from the usable wells in the WaterChem database and assign Wellogic IDs from the Wellogic database where available. Records matches from Wellogic to WaterChem will be based on WSSN/Well Number, cleaned/standardized addresses, and any other methods isolated in the application design process.
- **MSU-RSGIS** will geocoding all usable well addresses in WaterChem that could not be linked to a Wellogic in the previous steps. This geocoding process will be based on the standardized addresses remaining in WaterChem without a well ID assigned in the reference table. Two passes will be made on addresses. The first with latest version of the Michigan Framework and second with the Tiger Census geography. XY values will be transferred to the new reference table. Only automated geocoding procedures will be implemented. No manual geocoding will be conducted.
- **MSU-RSGIS** will test the ability to query well ID's in the reference table returning any matched analytes in the WaterChem database.

Part 2: Statewide WaterChem Database Mapping Products

- **MSU-RSGIS** will construct a feature class in a file geodatabase from the WaterChem reference table and deliver it to CSSTP.
- **CSSTP** will construct and host an ArcGIS feature service to be utilized in development of the query/report tool in the DWGIS application.
- **CSSTP** will move the WaterChem reference table into the development environment.

Part 3: WaterChem Database Query/Report Tool in DWGIS

- **CSSTP** will provide an approved advanced template to MSU-RSGIS.
- **CSSTP** will provide graphic design work and consultation to MSU-RSGIS for any adjustments required in the migration to the approved advanced template.
- **MSU-RSGIS** will migrate the existing DWGIS application to the approved advanced template.
- **MSU-RSGIS** will program the DWGIS WaterChem Query Tool User Interface to include:
 - Analyte selection module
 - Sample date selection module
 - Output options template
 - Query location specification tools
- **MSU-RSGIS** will program the spatial display of a query set from the WaterChem feature service.
- **MSU-RSGIS** will program a customizable text report output option (.pdf format).

Application Development does not apply to SUB PROJECT III, IV and V

F. Implementation

The enhancements to the application will be packaged by the vendor and provided to DTMB for installation.

The Contractor will test the enhancements in accordance with the test plan and schedule, developed in previous phase for each application component and also test the integrated system. Unless otherwise specified, the Contractor will pre-test the application prior to MDEQ - ODWMA program area subject matter experts beginning their testing. The Contractor will use the State's BugTracker.NET product with a web-tracking log to record testing errors or anomalies by the Contractor and State staff with the ability to record the outcome for addressing the problem. The Contractor will work with the program area subject matter experts to address any errors or anomalies.

The Contractor shall work with the SOM database and web hosting teams to define the configuration of the test and production environments.



The Contractor's Responsibilities for Implementation

Prior to commencement of testing, the Contractor will conduct a "testing kick-off meeting" with appropriate SOM staff in order to orient SOM staff on the test methodology and schedule.

The Contractor will conduct tests in accordance with the approved test plan and the test schedule. All tests will be conducted in the presence of the DTMB Project Manager or other person(s) as designated by the DTMB Project Manager. All changes to the application(s) shall result in testing the entire system (regression testing) to be sure all software functionality is maintained. The Contractor shall utilize the test scripts to perform uniform system-wide testing.

Contractor testing will include:

- Unit Testing: Involves testing of each screen/component to ensure that the individual component works as expected and meets the functionality identified in the requirements
- Integration Testing: Involves validating that all functions work in unison.

The Contractor will coordinate with the DTMB Project Manager and MDEQ - ODWMA Project Manager, to configure the application in the test environment after the Contractor has performed successful initial unit testing of the specific application. Then the MDEQ - ODWMA program area subject matter experts will begin User Acceptance Testing. The Contractor will correct all faults, "bugs", defects and deficiencies identified during UAT unless specifically agreed to, in writing, by the DTMB Project Manager.

Test errors will be reviewed to determine root cause and corrective action. The Contractor is responsible to correct the problems and request a re-test until the State is satisfied with the results. This review, its results, corrective actions and re-test will be recorded in the test results document.

During the testing, the Contractor shall include, within the bi-weekly status reports, a statement that the project is either on schedule or provide a proposed revised schedule. The status reports will include any key decisions and issues discussed during the previous week, if applicable. Each status report is to list any decisions or data that the Contractor is waiting for from the MDEQ - ODWMA or the DTMB staff or, if there is not anything that the Contractor is waiting for the status report is to so state. The report will also include a discussion of any errors on the web-tracking log that have not been addressed. The Contractor shall also include other pertinent information impacting the project as may be added by the MDEQ - ODWMA or DTMB Project Manager.

Final quality assurance acceptance testing must be performed at the State-hosting center and will mirror the States production environment. The Contractor is responsible for fixing any and all faults, "bugs", defects, and/or deficiencies in the software identified during the Testing phase to the satisfaction of the State unless specifically agreed to, in writing, by the DTMB Project Manager.

The State's Responsibilities for Implementation

- Validate system installation on test and production environments
- Perform user acceptance testing and participate in integration testing with the Contractor
- Validate/accept test scripts and testing results
- The DTMB Project Manager will assemble the test team in coordination with the MDEQ - ODWMA Project Manager and the Contractor. The test team will conduct acceptance testing
- The DTMB Project Manager will coordinate server access, security, or the network needed for testing and production environments
- Signoff on system installation

Deliverable(s)

- User Acceptance Testing Results
- Requirements Traceability Matrix (Final) - SEM 0401
- Test Case (Final) - SEM 0606
- Test Reports (Final) SEM 0603.
- Installation Guide (Final)
- Resolution, to the satisfaction of the State, for all faults, "bugs", defects, and/or deficiencies in the software identified during the User Acceptance Testing
- Installation package
- Final Source Code



Acceptance Criteria

High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501.

If the documents for this phase are in accordance with the SUITE methodology and templates (see section 1.103) and are acceptable to the DTMB Project Manager, in coordination with the MDEQ - ODWMA Project Manager, the DTMB Project Manager will provide written acceptance for each deliverable. Written acceptance for the deliverable "Resolution, to the satisfaction of the State, for all faults, 'bugs', defects, and/or deficiencies in the software identified during the Testing phase" will not be provided until the State certifies, in writing to the Contractor, that all known issues have been resolved to the satisfaction of the State. The Contractor shall not commence work on next phase until they have received written acceptance of all deliverables required under this phase.

SUB PROJECT I - Enhancements to the MGMT software

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will develop a use-case document with business rules for the revised MGMT.
- **MSU-CEE** will develop test scripts for detecting bugs in the revised MGMT.
- **MSU-CEE** will assist ODWMA staff with Use Case Testing.
- **ODWMA** staff will conduct Use Case Testing on the revised MGMT.
- **MSU-CEE** will correct any software coding problems found during Use Case testing.
- **MSU-CEE** will assist ODWMA staff with their User Acceptance Testing.
- **ODWMA** staff with conduct User Acceptance Testing of the revised MGMT.
- **MSU-CEE** will correct any software deficiencies identified by UAT.
- **MSU-CEE** will deliver a fully functional, stable version of the revised MGMT to ODWMA.

Testing and Implementation does not apply to Parts 1, 3, 4, 5

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will assist DTMB with test script creation for the updated DWGIS with WaterChem Query Tool.
- **MSU-RSGIS** will assist ODWMA and DTMB-CSSTP staff with Use Case Testing.
- **MSU-RSGIS** will correct any software coding problems found during Use Case testing.
- **MSU-RSGIS** will assist ODWMA staff with their User Acceptance Testing (UAT) of the updated DWGIS with WaterChem Query Tool.
- **ODWMA staff** will conduct UAT of the updated DWGIS with WaterChem Query Tool.
- **MSU-RSGIS** will correct software deficiencies identified by UAT.
- **MSU-RSGIS** will assist DTMB-CSSTP with implementation of the WaterChem Database Query Tool and feature service within the updated DWGIS.
- **CSSTP** will implement the WaterChem Database Query Tool and feature service within the updated DWGIS.

Testing and Implementation does not apply to SUB PROJECTs III, IV

SUB PROJECT V - Wellogic Data Entry

- **MSU-RSGIS** will enter at least 7000 paper water well and pump record forms into the Wellogic system during contract Year-1.



- **MSU-RSGIS** will enter at least 3500 paper water well and pump record forms into the Wellogic system during contract Year-2.
- **MSU-RSGIS** will provide supervision of the data-entry technicians.
- **MSU-RSGIS** will meet periodically with ODWMA-Well Construction Program staff to address any Wellogic data-entry problems.

ODWMA-Well Construction Program staff will meet periodically with RSGIS staff to address any Wellogic data-entry problems.

G. Training

The Contractor must work with the business users and provide documentation in accordance with the training plan and training schedule, and as approved by the DTMB Project Manager. The Contractor must provide on-site System Administration and Technical Training for the State DEQ and DTMB staff.

The Contractor will work with the DTMB Project Manager to identify the appropriate individuals that will be trained as outlined in Training Plan. Contractor must also update the Training Plan as initiated during the Development phase of this project. The Contractor will conduct a formal review of the Training Plan with the State. This review shall be thorough, and meeting minutes must be taken describing the action items requiring follow-up by the Contractor. The State will formally accept the Training Plan in writing upon the Contractor's remediation of all outstanding action items related to the plan.

The Contractor's Responsibilities for Training

The Contractor will provide Technical and System Administrators training that will include training on all of the configuration options available to the System Administrator and how to use them. Technical training will include an overview of components that make up the solution and any technical details to install the application.

The State Staff Responsibilities for Training

- The DTMB Project Manager, in coordination with the MDEQ - ODWMA Project Manager, will identify MDEQ and DTMB staff for System Administration and Technical training
- Participate in the training materials formal review with the Contractor and provide feedback and formal acceptance, in writing.
- Provide and schedule training rooms

Deliverable(s)

- System Administrator training for DTMB staff
- Technical training to MDEQ staff as deemed necessary.
- Training materials, if any

All training manuals, training plans and other documentation provided become the property of the State.

Acceptance Criteria

High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501.

If the deliverables for this phase are in accordance with the SUITE methodology and templates (see section 1.103) and upon approval of all documents and the required training, the DTMB Project Manager, in coordination with the MDEQ - ODWMA Project Manager, will provide written acceptance for this Phase.

SUB PROJECT I - Enhancements to the MGMT software

THERE IS NO TRAINING COMPONENT IN PART 1, 2, 3, 4 AND 5

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will provide on-site system administration and technical training for the State DEQ and DTMB staff



SUB PROJECT III - DWGIS and Source Water Assessment

- **MSU-RSGIS** will compile the DWGIS SWAP work flow tutorial in PowerPoint.
- **MSU-RSGIS** will narrate the DWGIS SWAP work flow tutorial using Adobe Presenter.
- **MSU-RSGIS** will publish the narrated DWGIS SWAP work flow tutorial as a self-executing PDF.
- **MSU-RSGIS** will deliver the narrated DWGIS SWAP work flow tutorial to the ODWMA PM for review.
- **MSU-RSGIS** will deliver the revised narrated DWGIS SWAP work flow tutorial to the ODWMA PM.
- **ODWMA PM** will identify MDEQ staff for Technical training.
- **ODWMA PM** will review the narrated DWGIS SWAP work flow tutorial and provide feedback and formal acceptance, in writing.

SUB PROJECT IV - Outreach, Education and Facilitation

Part 1: Facilitating Source Water Protection Workshops

- **MSU-IWR** will provide outreach facilitation for up to four (4) source water protection workshops focused on source water protection roles, responsibilities and best practices for (a) ODWMA District staff, (b) environmental health staff from local health departments, and (c) licensed operators of the community and non-transient, non-community public water supply systems.
- **MSU-IWR** staff will make all local arrangements, including the reservation of the meeting and dining facilities and the procurement of the lunch meal that will be provided to the workshop participants.
- **MSU-RSGIS** will compile digital shapefiles of the PWHPAs on a base map showing labeled roads, lakes and rivers, as well as the appropriate isolation-distance circles for each Type I and Type II well and groundwater flow directions for all of the community and non-transient, non-community water supply systems in the selected MDEQ Districts.
- **MSU-IWR** will print color, 8.5" x 11" PWHPA maps for each of the community and non-transient, non-community water supply systems that register for the workshops.
- **MSU-IWR** will provide copies of other training materials for the workshop, including water well and pump records, Source Water Assessment scores, Wellhead Protection Program information (for municipal water supplies) and source water protection checklists/training materials (for non-community and privately owned community water supplies).
- **ODWMA** staff will provide digital shapefiles of the Provisional Wellhead Protection Areas (PWHPAs) and the groundwater flow direction for all of the community and non-transient, non-community water supply systems in the selected MDEQ Districts.
- **ODWMA** staff will provide the water well and pump records and Source Water Assessment scores for all of the community and non-transient, non-community water supply systems in the selected MDEQ Districts.

Part 2: Source Water Protection Evaluation Using MGMT Products

- **MSU-IWR** will develop and pilot test a variety of outreach materials and delivery methods designed to familiarize public water supply operators with MGMT Source Water Protection (SWP) products.
- **MSU-IWR** staff will compile existing WHP/SWP training materials and update them, as appropriate, to reflect current contact information and regulations.



- **MSU-IWR** suggests that outreach efforts be aimed at three main audiences: (1) the operators of small community and non-transient, non-community public water supplies who did **not** attend one of the MGMT “roll out” workshops; (2) ODWMA District staff; and (3) local health department EH staff.
- **MSU-IWR** staff proposes to assess the status of both DEQ District staff and local health department staff in implementing SWP activities.
- **MSU-IWR** staff will summarize the status of current SWP implementation efforts and provide recommendations to the ODWMA PM for furthering SWP efforts, including an assessment of training needs for both DEQ District staff and LHD program staff.
- **MSU-IWR** staff will develop and deliver to the ODWMA PM a training materials outline, drawing from existing materials and workshop presentations.
- **MSU-IWR** staff will develop draft training materials and meet with ODWMA staff to critique and revise, as necessary, these materials.
- **MSU-IWR** will finalize the content and form of the training materials and the proposed delivery method, in consultation with appropriate ODWMA staff. It is most likely that the training materials will consist of PDF pamphlets and booklets, as well as asynchronous, self-narrated, on-line instruction modules (PDF). All such materials can be easily accessed and used with only the free *Adobe Reader* software.
- **MSU-IWR** staff will finalize the evaluation plan for the various outreach programs and deliver the plan to the ODWMA PM.
- **MSU-IWR** will pilot test the training materials and delivery method with the operators of small community and non-transient, non-community public water supplies within one MDEQ District (to be chosen by the ODWMA PM) who did **not** attend one of the MGMT “roll out” workshops.
- **MSU-IWR** staff will conduct the post-training evaluation assessment and report the results to the ODWMA PM.
- **MSU-IWR** staff will revise, as necessary, the training materials and deliver electronic copies of them to the ODWMA PM.
- **MSU-IWR** has budgeted for all of the above activities to be completed during Year-1 of the contract.
- **MSU-IWR** will facilitate statewide training programs for Community and NTNC Public Water Supplies, as well as in-service training for ODWMA District staff and LHD EH staff, during Year-2 and Year-3 of the contract.
- **ODWMA staff** will critique the draft training materials and communicate needed changes to MSU-IWR.

There is no training component to SUB PROJECT V

H. Documentation

The Contractor must work with the business users and DTMB Project Manager to provide the deliverable documents and support DTMB in completing the SEM documentation.

Deliverable(s)

- All updates Documents from the previous phases.

Acceptance Criteria

High-level acceptance criteria for Document Deliverables are listed in Section 1.501.

SUB PROJECT I - Enhancements to the MGMT Software

Part 1: Mapping Hydraulic Conductivity



- **MSU-CEE** will document all workflows and procedures associated with mapping glacial and bedrock aquifer K values and deliver this documentation to the ODWMA PM.
 - **MSU-CEE** will create Federal Geographic Data Committee (FGDC) compliant metadata for the glacial and bedrock aquifer K layers.

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will produce a draft graphical user guide (i.e., documentation) for the revised MGMT software and submit it to the ODWMA PM for approval.
- **ODWMA PM** will amend/approve the MGMT documentation.
- **MSU-CEE** will deliver a final graphical user guide (i.e., documentation) for the revised MGMT software to the ODWMA PM.

Part 3: Mapping SWL Elevations

- **MSU-CEE** will document all workflows and procedures associated with mapping SWLs in the glacial and bedrock aquifers and deliver this documentation to the ODWMA PM.
 - **MSU-CEE** will create FGDC compliant metadata for the glacial and bedrock aquifer SWL layers.

Part 4: Mapping Bedrock Top Elevations

- **MSU-CEE** will document all workflows and procedures associated with mapping the bedrock-top elevations and deliver this documentation to the ODWMA PM.
 - **MSU-CEE** will create FGDC compliant metadata for the bedrock-top elevation layer.

Part 5 – MGMT Support and Training

- **MSU-CEE** will deliver master copies of all MGMT training materials to the ODWMA PM.

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will document all workflows and procedures through database programming and geocoding components.
- **MSU-RSGIS** will create FGDC compliant metadata for the WaterChem feature service
- **MSU-RSGIS** will complete the SEM documentation.

Documentation is not applicable to SUB PROJECT III and V

SUB PROJECT IV - Outreach, Education and Facilitation

MSU-RSGIS will provide all training documents including agendas, evaluation forms, presentation materials and workshop packets.

I. RESERVED

J. Maintenance and Support

The State of Michigan wishes to contract Maintenance for two years for maintenance and support of the system. The maintenance period will commence upon the completion of enhancements and final acceptance of the system by the DTMB Project Manager.

The Contractor's Responsibilities for Maintenance and Support

During the maintenance period the Contractor will provide replacement copies, code patches, or corrective services to correct any error, malfunction or defect in the DWGIS and MGMT system. All associated documentation must be also be updated.

Software Maintenance and Support duties will include, but are not limited to:

1. System Maintenance, including Product Patches and Remedial Maintenance (unscheduled)
2. Service Level Agreement (SLA) for ongoing Support
3. Performance Maintenance
4. Documentation Updates



The Contractor agrees to use Contractor's standard procedures for problem prioritization and escalation. The Contractor shall correct any errors that the State reports or which the Contractor identifies within a reasonable (and agreed upon) period depending on the severity of the error as outlined below. It is the expectation of the State that Contractor response (not necessary resolution) of reported issues be handled in the following manner:

- Critical issue – A problem or issue impacting a large number of users (10 or more) or any mission critical issue affecting a single user. Contractor to provide a response within thirty (30) minutes of contact by the State
- High Priority issue – A problem or issue impacting a significant number of users (1 through 9) that prevents the user(s) from performing their business in a normal fashion. Contractor to provide a response to the State within one (1) hour.
- Medium Priority issue – A problem that is an annoyance but has only minor impact on users. Contractor to provide a response the next business day.
- Low Priority issue – Technical questions or “how to” issues. Contractor to provide a response no later than the end of the next business day.

For resolution of reported problems (issues) it is the expectation of the State that Contractor resolution be handled in the following manner:

- Critical issue – Resolution within 2 business days
- High Priority issue – Resolution within one week.
- Medium Priority issue – Resolution within two weeks
- Low Priority issue – Resolution at the next release

The Contractor will conduct maintenance meetings with appropriate SOM staff regarding production, hosting and the database maintenance issues. In coordination with the MDEQ Project Manager, the DTMB Agency Services Business Analyst, and SOM specialists, the Contractor will maintain the systems in accordance with the approved Maintenance plan (SEM-0302) or other supporting documentation.

The State's Responsibilities for Maintenance and Support

- Answer questions and provide information when requested by the Contractor
- Provide access to SOM specialists when requested by the Contractor as specified in the (SEM-0301) Maintenance plan.
- Provide access to SOM facilities and equipment that is necessary to the vendor
- DTMB Agency Services Business Analyst will monitor all aspects of the maintenance plan as specified in the (SEM-0301) Maintenance plan.

Deliverables for Maintenance and Support

- Maintenance of existing software
- Technical Support
- Installation and configuration of fixes to the DWGIS and MGMT application production environment as specified in the Maintenance Plan (Final) - SEM 0301
- Follow the Maintenance Plan (Final) - SEM 0301
- Yearly Invoice for each year submitted by Vendor
- Management Reports (Status Reports). Include the following:
 - Uptime and explanation of any interruptions
 - Listing of items completed during the reporting period
 - Listing of items planned during the upcoming reporting period
- Regular updates to the defect tracking tool content as necessary
- Updates to documentation, including training materials, as/if required
- Release notes



Acceptance Criteria for Maintenance and Support:

If the documentation for this phase are in accordance with the SUITE methodology and templates (see Maintenance Plan (Final) - SEM 0301) and upon approval of all documents and all required training, the DTMB Agency Services Business Analyst, in coordination with the MDEQ Project Manager, will provide written acceptance for a given yearly maintenance period.

Upon receipt of the DTMB Agency Services written acceptance of the previous year's maintenance the Contractor may submit an invoice for the next year of maintenance.

Maintenance and Support

SUB PROJECT I - Enhancements to the MGMT software

Maintenance and Support does not apply to Parts 1, 3 and 4

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will meet with the ODWMA Project Manager prior to the first maintenance year to determine the appropriate procedures for problem prioritization and escalation and to determine the appropriate response times for resolution of reported problems.
- **MSU-CEE**, in coordination with the ODWMA PM and SOM specialists, will develop a Maintenance Plan (SEM-0301) and submit it to the ODWMA PM for approval.
- **ODWMA PM** will amend/approve the Maintenance Plan (SEM-0301).
- **MSU-CEE** will provide 150 hours of MGMT maintenance in each of the two years after delivery of the modified/improved software (i.e., beginning in Year 2 of the 3-year contract). The second year (Year 3 of the contract) includes maintenance of the interactive interpolation module in MGMT.
- **MSU-CEE** will provide replacement copies, code patches, or corrective services to correct any error, malfunction or defect in the MGMT system during the maintenance period. If appropriate, all associated documentation and training materials will also be updated.
- **MSU-CEE** will correct any errors that the State reports or which MSU-CEE identifies within a reasonable (and agreed upon) period, depending on the severity of the error.
- **MSU-CEE** will install and configure corrections to the MGMT application as specified in the finalized Maintenance Plan.

Part 5 – MGMT Support and Training

- **MSU-CEE** will update the MGMT documentation if MGMT software maintenance requires such changes during the two-year maintenance period.

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will build all components of Sub-Project 2 to meet the supported technology environment of CSSTP. CSSTP, not RS&GIS, will maintain and support components of Sub-Project 2 after the “Go Live” date.
- **CSSTP** will develop a Maintenance Plan (SEM-0301) for DWGIS and submit it to the ODWMA PM for approval.
- **ODWMA PM** will amend/approve the DWGIS Maintenance Plan (SEM-0301).
- **CSSTP** will implement the final Maintenance Plan (SEM-0301) for DWGIS.

There is no Maintenance and Support on SUBPROJECT III, IV and V



K. Knowledge Transfer/Transition

The contractor must respond to any questions raised by DEQ and DTMB staff about the changes made to the system and the related documentation.

Deliverable(s)

- Transfer of knowledge to perform system maintenance to DTMB staff
- Transfer of all final up-to-date documentation

Acceptance Criteria

High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501.

Knowledge Transfer/Transition

SUB PROJECT I - Enhancements to the MGMT software

Part 1: Mapping Hydraulic Conductivity

- **MSU-CEE** will deliver all workflows and procedures associated with mapping glacial and bedrock aquifer K values to the ODWMA PM.

Part 2: MGMT Software Modifications and Improvements

- **MSU-CEE** will deliver approved documentation for MGMT to the ODWMA PM.

Part 3: Mapping SWL Elevations

- **MSU-CEE** will deliver all workflows and procedures associated with mapping SWLs in the glacial and bedrock aquifers to the ODWMA PM.

Part 4: Mapping Bedrock Top Elevations

- **MSU-CEE** will deliver all workflows and procedures associated with mapping the bedrock-top elevations to the ODWMA PM.

Part 5 – MGMT Support and Documentation

- **N/A**

SUB PROJECT II - WaterChem Geocoding, Data Display and Reports

- **MSU-RSGIS** will transfer all final up-to-date documentation to DEQ and DTMB staff

Knowledge Transfer/Transition does not apply to SUB PROJECT III, IV and V

L. RESERVED

II. Requirements

A. Technical/General System Requirements

Technical requirements are documented in **Appendix B - Technical and Functional Requirements**

B. Functional Requirements

Functional requirements are documented in **Appendix B - Technical and Functional Requirements** and all these requirements are mandatory.

1.200 Roles and Responsibilities

1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES

A. Contractor Staff

The competence of the personnel the Contractor proposes for this project will be measured by the candidate's education and experience with particular reference to experience on similar projects as described in this Statement of Work. The Contractor has committed that staff identified in its proposal will actually perform the assigned work.



The Contractor has identified a Single Point of Contact (SPOC). The duties of the SPOC shall include, but not be limited to:

- supporting the management of the Contract,
- facilitating dispute resolution, and
- advising the State of performance under the terms and conditions of the Contract.

The State reserves the right to require a change in the current SPOC if the assigned SPOC is not, in the opinion of the State, adequately serving the needs of the State.

All Key Personnel may be subject to the State's interview and approval process. Any key staff substitution must have the prior approval of the State. The State has identified the following as key personnel for this project:

- Project Manager
- System Architect
- Lead Developer/Analyst

The Contractor will provide a Project Manager to interact with the designated personnel from the State to insure a smooth transition to the new system. The project manager/technical lead will coordinate all of the activities of the Contractor personnel assigned to the project and create all reports required by State. The Contractor's project manager/technical lead responsibilities include, at a minimum:

- Manage all defined Contractor responsibilities in this Scope of Services.
- Manage Contractor's subcontractors, if any
- Develop the project plan and schedule, and update as needed
- Serve as the point person for all project issues
- Coordinate and oversee the day-to-day project activities of the project team
- Assess and report project feedback and status
- Escalate project issues, project risks, and other concerns
- Review all project deliverables and provide feedback
- Proactively propose/suggest options and alternatives for consideration
- Utilize change control procedures
- Prepare project documents and materials
- Manage and report on the project's budget

The Contractor will provide sufficient qualified staffing to satisfy the deliverables of this Statement of Work.

B. On Site Work Requirements

1. Location of Work

The work is to be performed, completed, and managed as follows: The Contractor will work out of their office. The SOM will provide workspace (work space, telephone, and access to a printer, copier, and fax machine) for the Contractor when on site at SOM offices.

2. Hours of Operation:

- a. Normal State working hours are 8:00 a.m. to 5:00 p.m. EST, Monday through Friday, with work performed as necessary after those hours to meet project deadlines. No overtime will be authorized or paid.
- b. The State is not obligated to provide State management of assigned work outside of normal State working hours. The State reserves the right to modify the work hours in the best interest of the project.
- c. Contractor shall observe the same standard holidays as State employees. The State does not compensate for holiday pay.

3. Travel:

- a. No travel or expenses will be reimbursed. This includes travel costs related to training provided to the State by Contractor.
- b. Travel time will not be reimbursed.



4. Additional Security and Background Check Requirements:

Contractor must present certifications evidencing satisfactory Michigan State Police Background checks ICHAT and drug tests for all staff identified for assignment to this project.

In addition, proposed Contractor personnel will be required to complete and submit an RI-8 Fingerprint Card for the National Crime Information Center (NCIC) Finger Prints, if required by project.

Contractor will pay for all costs associated with ensuring their staff meets all requirements.

1.202 STATE STAFF, ROLES, AND RESPONSIBILITIES

Agency should specify State personnel dedicated to project, and identify their associated roles and responsibilities.

The State will provide the following resources for the Contractor’s use on this project:

- Work space
- Minimal clerical support
- Desk
- Access to copiers and fax machine

The State project team will consist of
 MDEQ Executive Project Sponsor
 MDEQ Project Manager
 MDEQ Executive Subject Matter Experts (SME’s)
 DTMB Project Manager
 DTMB Business Analyst

Name	Agency/Division	Title	Phone/e-mail
Liane Shekter-Smith	Office of Drinking Water and Municipal Assistance	Chief	517.373.9523/ SHEKTERL@michigan.gov
Brant Fisher	Office of Drinking Water and Municipal Assistance	Environmental Engineer Specialist	517 241 1415 FisherB@michigan.gov
Sara Raja	DTMB Customer Service	Project Manager	517 373 8565 Rajas@michigan.gov

Executive Subject Matter Experts

The Executive Subject Matter Experts representing the business units involved will provide the vision for the business design and how the application shall provide for that vision. They shall be available on an as needed basis. The Executive SME’s will be empowered to:

- Resolve project issues in a timely manner
- Review project plan, status, and issues
- Resolve deviations from project plan
- Provide acceptance sign-off
- Utilize change control procedures
- Ensure timely availability of State resources
- Make key implementation decisions, as identified by the Contractor’s project manager, within 48-hours of their expected decision date.

Name	Agency/Division	Title	Phone/e-mail
Brant Fisher	MDEQ	SME	517 241 1415
Andy LeBaron	MDEQ	SME	517 241 1435



State Project Manager- (MDTMB and Agency)

MDTMB will provide a Project Manager who will be responsible for the State’s infrastructure and coordinate with the Contractor in determining the system configuration.

The State’s Project Manager will provide the following services:

- Provide State facilities, as needed
- Coordinate the State resources necessary for the project
- Facilitate coordination between various external contractors
- Facilitate communication between different State departments/divisions
- Provide acceptance and sign-off of deliverable/milestone
- Review and sign-off of timesheets and invoices
- Resolve project issues
- Escalate outstanding/high priority issues
- Utilize change control procedures
- Conduct regular and ongoing review of the project to confirm that it meets original objectives and requirements
- Document and archive all important project decisions
- Arrange, schedule and facilitate State staff attendance at all project meetings.

Name	Agency/Division	Title
Sara Raja	MDTMB	Project Manager
Brant Fisher	Agency	Project Manager

MDTMB shall provide a Contract Administrator whose duties shall include, but not be limited to, supporting the management of the Contract.

Name	Agency/Division	Title
Michael Breen	MDTMB	Buyer

1.203 OTHER ROLES AND RESPONSIBILITIES

In addition, the following SOM personnel/resources may be required at various stages of the project. The Contractor’s Project Manager must make every effort to provide the SOM with advance notice of when they may be required.

- Database Administrator
- Web Administrator
- Network Administrator
- Other SOM staff/resources as needed

1.300 Project Plan

1.301 PROJECT PLAN MANAGEMENT

Preliminary Project Plan

Contractor will provide a Preliminary Project Plan with the proposal for evaluation purposes, including necessary time frames and deliverables for the various stages of the project and the responsibilities and obligations of both the Contractor and the State.

1. In particular, the Preliminary Project Plan will include a MS Project plan or equivalent (check the SUITE/PMM standard):
 - a. A description of the deliverables to be provided under this contract.
 - b. Target dates and critical paths for the deliverables.
 - c. Identification of roles and responsibilities, including the organization responsible. Contractor is to provide a roles and responsibility matrix.
 - d. The labor, hardware, materials and supplies required to be provided by the State in meeting the target dates established in the Preliminary Project Plan.
 - e. Internal milestones
 - f. Task durations



2. The Preliminary Project Plan shall include the following deliverable/milestones for which payment shall be made.
 - a. Payment to the Contractor will be made upon the completion and acceptance of the deliverable or milestone, not to exceed contractual costs of the phase. A milestone is defined as complete when all of the deliverables within the milestone have been completed.
 - b. Failure to provide deliverable/milestone by the identified date may be subject to liquidated damages as identified in Article 2.

Note: A Final Project Plan will be required as stated in Article 1, Section 1.301 (C) Project Control.

Orientation Meeting

Upon 15 calendar days from execution of the Contract, the Contractor will be required to attend an orientation meeting to discuss the content and procedures of the Contract. The meeting will be held in Lansing, Michigan, at a date and time mutually acceptable to the State and the Contractor. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

Performance Review Meetings

The State will require the Contractor to attend monthly meetings, at a minimum, to review the Contractor's performance under the Contract. The meetings will be held in Lansing, Michigan, or by teleconference, as mutually agreed by the State and the Contractor. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

Project Control

1. The Contractor will carry out this project under the direction and control of MDTMB and MDEQ and MDEQ.
2. Within 30 working days of the execution of the Contract, the Contractor will submit to the State project manager(s) for final approval of the project plan. This project plan must be in agreement with Article 1, Section 1.104 Work and Deliverables, and must include the following:
 - The Contractor's project organizational structure.
 - The Contractor's staffing table with names and title of personnel assigned to the project. This must be in agreement with staffing of accepted proposal. Necessary substitutions due to change of employment status and other unforeseen circumstances may only be made with prior approval of the State.
 - The project work breakdown structure (WBS) showing sub-projects, activities and tasks, and resources required and allocated to each.
 - The time-phased plan in the form of a graphic display, showing each event, task, and decision point in the WBS.
3. The Contractor will manage the project in accordance with the State Unified Information Technology Environment (SUITE) methodology, which includes standards for project management, systems engineering, and associated forms and templates which is available at <http://www.michigan.gov/suite>
 - a. Contractor will use an automated tool for planning, monitoring, and tracking the Contract's progress and the level of effort of any Contractor personnel spent performing Services under the Contract. The tool shall have the capability to produce:
 - Staffing tables with names of personnel assigned to Contract tasks.
 - Project plans showing tasks, subtasks, deliverables, and the resources required and allocated to each (including detailed plans for all Services to be performed within the next 30 calendar days, updated semi-monthly).
 - Updates must include actual time spent on each task and a revised estimate to complete.
 - Graphs showing critical events, dependencies and decision points during the course of the Contract.
 - b. Any tool(s) used by Contractor for such purposes must produce information of a type and in a manner and format that will support reporting in compliance with the State standards.



1.302 REPORTS

Reporting formats must be submitted to the State's Project Manager for approval within 30 business days after the execution of the contract resulting from this RFP. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the contract.

- Bi-weekly Project status
- Updated project plan/schedule
- Summary of activity during the report period
- Accomplishments during the report period
- Deliverable status
- Action Item status
- Issues
- Change Control
- Repair status
- Maintenance Activity

The Contractor shall include, within the bi-weekly status reports, a statement that the project is on schedule or provide a proposed revised schedule. Each status report will include any key decisions and issues discussed during the previous week, if applicable. Each status report is to list any decisions or data that the Contractor is waiting for from the SOM or, if there is not anything that the Contractor is waiting for the status report is to so state. The Contractor shall also include other pertinent information impacting the project as may be added by the MDEQ - ODWMA or DTMB Project Manager.

1.400 Project Management

1.401 ISSUE MANAGEMENT

An issue is an identified event that if not addressed may affect schedule, scope, quality, or budget.

The Contractor shall maintain an issue log for issues relating to the provision of services under this Contract. The issue management log must be communicated to the State's Project Manager on an agreed upon schedule, with email notifications and updates. The issue log must be updated and must contain the following minimum elements:

- Description of issue
- Issue identification date
- Responsibility for resolving issue.
- Priority for issue resolution (to be mutually agreed upon by the State and the Contractor)
- Resources assigned responsibility for resolution
- Resolution date
- Resolution description

Issues shall be escalated for resolution from level 1 through level 3, as defined below:

Level 1 – Business leads

Level 2 – Project Managers

Level 3 – Executive Subject Matter Experts (SME's)

1.402 RISK MANAGEMENT

A risk is an unknown circumstance or event that, if it occurs, may have a positive or negative impact on the project.

The Contractor is responsible for establishing a risk management plan and process, including the identification and recording of risk items, prioritization of risks, definition of mitigation strategies, monitoring of risk items, and periodic risk assessment reviews with the State.

A risk management plan format shall be submitted to the State for approval within twenty (20) business days after the effective date of the contract resulting from the upcoming RFP. The risk management plan will be developed during the initial planning phase of the project, and be in accordance with the State's PMM



methodology. Once both parties have agreed to the format of the plan, it shall become the standard to follow for the duration of the contract. The plan must be updated bi-weekly, or as agreed upon.

The Contractor shall provide the tool to track risks. The Contractor will work with the State and allow input into the prioritization of risks.

The Contractor is responsible for identification of risks for each phase of the project. Mitigating and/or eliminating assigned risks will be the responsibility of the Contractor. The State will assume the same responsibility for risks assigned to them.

1.403 CHANGE MANAGEMENT

Change management is defined as the process to communicate, assess, monitor, and control all changes to system resources and processes. The State also employs change management in its administration of the Contract.

If a proposed contract change is approved by the Agency, the Contract Administrator will submit a request for change to the Department of Technology, Management and Budget, Procurement Buyer, who will make recommendations to the Director of DTMB-Procurement regarding ultimate approval/disapproval of change request. If the DTMB Procurement Director agrees with the proposed modification, and all required approvals are obtained (including State Administrative Board), the DTMB-Procurement Buyer will issue an addendum to the Contract, via a Contract Change Notice. Contractors who provide products or services prior to the issuance of a Contract Change Notice by the DTMB-Procurement, risk non-payment for the out-of-scope/pricing products and/or services.

The Contractor must employ change management procedures to handle such things as “out-of-scope” requests or changing business needs of the State while the migration is underway.

The Contractor will employ the change control methodologies to justify changes in the processing environment, and to ensure those changes will not adversely affect performance or availability.

1.500 Acceptance

1.501 CRITERIA

See the Acceptance Criteria identified in Section 1.104, Work and Deliverables for the different phases for the project/sub-projects. Acceptance Criteria is based upon the work agreed upon and the plan(s) developed for the work.

1.502 FINAL ACCEPTANCE

Along with the acceptance criteria identified in Section 1.104, Work and Deliverables, the following requirements of final acceptance apply:

- Documents are dated and in electronic format, compatible with State of Michigan software
- Requirements documents are reviewed and updated throughout the development process to assure requirements are delivered in the final product
- Draft documents are not accepted as final deliverables
- The documents will be reviewed and accepted in accordance with the requirements of the Contract and Appendices
- DTMB and MDEQ will review documents within a mutually agreed upon timeframe
 - a. Approvals will be written and signed by the DTMB Project Manager
 - b. Issues will be documented and submitted to the Contractor
 - c. After issues are resolved or waived, the Contractor will resubmit documents for approval within 30 days of receipt

1.600 Compensation and Payment

1.601 COMPENSATION AND PAYMENT

Method of Payment

Payment will be made based on deliverables as itemized in **Appendix C: Amended Project Cost Itemization**.

**Travel**

The State will not pay for any travel expenses, including hotel, mileage, meals, parking, etc. Travel time will not be reimbursed.

Out-of-Pocket Expenses

Contractor out-of-pocket expenses are not separately reimbursable by the State unless, on a case-by-case basis for unusual expenses, the State has agreed in advance and in writing to reimburse Contractor for such an expense at the State's current travel reimbursement rates.

If Contractor reduces its prices for any of the software or services during the term of this Contract, the State shall have the immediate benefit of such lower prices for new purchases. Contractor shall send notice to the State's MDTMB Contract Administrator with the reduced prices within fifteen (15) Business Days

Statements of Work and Issuance of Purchase Orders

- Unless otherwise agreed by the parties, each Statement of Work will include:
 1. Background
 2. Project Objective
 3. Scope of Work
 4. Deliverables
 5. Acceptance Criteria
 6. Project Control and Reports
 7. Specific Department Standards
 8. Payment Schedule
 9. Travel and Expenses
 10. Project Contacts
 11. Agency Responsibilities and Assumptions
 12. Location of Where the Work is to be performed
 13. Expected Contractor Work Hours and Conditions
- The parties agree that the Services/Deliverables to be rendered by Contractor pursuant to this Contract (and any future amendments of it) will be defined and described in detail in Statements of Work or Purchase Orders (PO) executed under this Contract. Contractor shall not be obliged or authorized to commence any work to implement a Statement of Work until authorized via a PO issued against this Contract. Contractor shall perform in accordance with this Contract, including the Statements of Work/Purchase Orders executed under it.

Invoicing

Contractor will submit properly itemized invoices to

DTMB – Financial Services
Accounts Payable
P.O. Box 30026
Lansing, MI 48909

or

DTMB-Accounts-Payable@michigan.gov

- Invoices must provide and itemize, as applicable:
 - Contract number;
 - Purchase Order number
 - Contractor name, address, phone number, and Federal Tax Identification Number;
 - Description of any commodities/hardware, including quantity ordered;
 - Date(s) of delivery and/or date(s) of installation and set up;
 - Price for each item, or Contractor's list price for each item and applicable discounts;
 - Maintenance charges;
 - Net invoice price for each item;



- Shipping costs;
- Other applicable charges;
- Total invoice price; and
- Payment terms, including any available prompt payment discount.

The State may pay maintenance and support charges on a monthly basis, in arrears. Payment of maintenance service/support of less than one (1) month's duration shall be prorated at 1/30th of the basic monthly maintenance charges for each calendar day.

Incorrect or incomplete invoices will be returned to Contractor for correction and reissue.

1.602 HOLDBACK

The State shall have the right to hold back an amount equal to 10 percent (10%) of all amounts invoiced by Contractor for Services/Deliverables. The amounts held back shall be released to Contractor after the State has granted Final Acceptance.



Article 2, Terms and Conditions

2.000 Contract Structure and Term

2.001 CONTRACT TERM

This Contract is for a period of 3 years beginning December 13 2013 through December 12, 2016. All outstanding Purchase Orders must also expire upon the termination for any of the reasons listed in **Section 2.150** of the Contract, unless otherwise extended under the Contract. Absent an early termination for any reason, Purchase Orders issued but not expired, by the end of the Contract's stated term, shall remain in effect for the balance of the fiscal year for which they were issued.

2.002 OPTIONS TO RENEW

This Contract may be renewed in writing by mutual agreement of the parties not less than 30 days before its expiration. The Contract may be renewed for up to 2 additional 1 year periods.

2.003 LEGAL EFFECT

Contractor accepts this Contract by signing two copies of the Contract and returning them to the DTMB-Procurement. The Contractor shall not proceed with the performance of the work to be done under the Contract, including the purchase of necessary materials, until both parties have signed the Contract to show acceptance of its terms, and the Contractor receives a contract release/purchase order that authorizes and defines specific performance requirements.

Except as otherwise agreed in writing by the parties, the State shall not be liable for costs incurred by Contractor or payment under this Contract, until Contractor is notified in writing that this Contract or Change Order has been approved by the State Administrative Board (if required), signed by all the parties and a Purchase Order against the Contract has been issued.

2.004 ATTACHMENTS & EXHIBITS

All Attachments and Exhibits affixed to any and all Statement(s) of Work, or appended to or referencing this Contract, are incorporated in their entirety and form part of this Contract.

2.005 ORDERING

The State must issue an approved written Purchase Order, Blanket Purchase Order, Direct Voucher or Procurement Card Order to order any Services/Deliverables under this Contract. All orders are subject to the terms and conditions of this Contract. No additional terms and conditions contained on either a Purchase Order or Blanket Purchase Order apply unless they are specifically contained in that Purchase Order or Blanket Purchase Order's accompanying Statement of Work. Exact quantities to be purchased are unknown; however, the Contractor will be required to furnish all such materials and services as may be ordered during the Contract period. Quantities specified, if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities.

2.006 ORDER OF PRECEDENCE

The Contract, including any Statements of Work and Exhibits, to the extent not contrary to the Contract, each of which is incorporated for all purposes, constitutes the entire agreement between the parties with respect to the subject matter and supersedes all prior agreements, whether written or oral, with respect to the subject matter and as additional terms and conditions on the purchase order must apply as limited by **Section 2.005**.

In the event of any inconsistency between the terms of the Contract and a Statement of Work, the terms of the Statement of Work shall take precedence (as to that Statement of Work only); provided, however, that a Statement of Work may not modify or amend the terms of the Contract. The Contract may be modified or amended only by a formal Contract amendment.

2.007 HEADINGS

Captions and headings used in the Contract are for information and organization purposes. Captions and headings, including inaccurate references, do not, in any way, define or limit the requirements or terms and conditions of the Contract.



2.008 FORM, FUNCTION & UTILITY

If the Contract is for use of more than one State agency and if the Deliverable/Service does not meet the form, function, and utility required by that State agency, that agency may, subject to State purchasing policies, procure the Deliverable/Service from another source.

2.009 REFORMATION AND SEVERABILITY

Each provision of the Contract is severable from all other provisions of the Contract and, if one or more of the provisions of the Contract is declared invalid, the remaining provisions of the Contract remain in full force and effect.

2.010 Consents and Approvals

Except as expressly provided otherwise in the Contract, if either party requires the consent or approval of the other party for the taking of any action under the Contract, the consent or approval must be in writing and must not be unreasonably withheld or delayed.

2.011 NO WAIVER OF DEFAULT

If a party fails to insist upon strict adherence to any term of the Contract then the party has not waived the right to later insist upon strict adherence to that term, or any other term, of the Contract.

2.012 SURVIVAL

Any provisions of the Contract that impose continuing obligations on the parties, including without limitation the parties' respective warranty, indemnity and confidentiality obligations, survive the expiration or termination of the Contract for any reason. Specific references to survival in the Contract are solely for identification purposes and not meant to limit or prevent the survival of any other section

2.020 Contract Administration

2.021 ISSUING OFFICE

This Contract is issued by the Department of Technology, Management and Budget, Procurement and Michigan Department of Environmental Quality (collectively, including all other relevant State of Michigan departments and agencies, the "State"). DTMB-Procurement is the sole point of contact in the State with regard to all procurement and contractual matters relating to the Contract. The DTMB-Procurement Contract Administrator for this Contract is:

Michael Breen, Buyer
Procurement
Department of Technology, Management and Budget
Mason Bldg, 2nd Floor
PO Box 30026
Lansing, MI 48909
Email BreenM@michigan.gov
Phone 517-241-7720

2.022 CONTRACT COMPLIANCE INSPECTOR

The Director of DTMB-Procurement directs the person named below, or his or her designee, to monitor and coordinate the activities for the Contract on a day-to-day basis during its term. **Monitoring Contract activities does not imply the authority to change, modify, clarify, amend, or otherwise alter the prices, terms, conditions and specifications of the Contract. DTMB-Procurement is the only State office authorized to change, modify, amend, alter or clarify the prices, specifications, terms and conditions of this Contract.** The Contract Compliance Inspector for this Contract is:

Brant Fisher – Environmental Engineer Specialist
Department - MDEQ
525 West Allegan, Lansing 48933
Email FisherB@michigan.gov
Phone 517 241 1415



2.023 PROJECT MANAGER

The following individual will oversee the project:

Sara Raja
DTMB Customer Service
Agency Services, DNR/DEQ/MDARD/DCH
Hollister Building, 5th Floor South
106 W. Allegan, Lansing, MI. 48933
Email rajas@michigan.gov
Phone 517 373 8565
Fax 517 241 8379

2.024 CHANGE REQUESTS

The State reserves the right to request from time to time any changes to the requirements and specifications of the Contract and the work to be performed by the Contractor under the Contract. During the course of ordinary business, it may become necessary for the State to discontinue certain business practices or create Additional Services/Deliverables. At a minimum, to the extent applicable, Contractor shall provide a detailed outline of all work to be done, including tasks necessary to accomplish the Additional Services/Deliverables, timeframes, listing of key personnel assigned, estimated hours for each individual per task, and a complete and detailed cost justification.

If the State requests or directs the Contractor to perform any Services/Deliverables that are outside the scope of the Contractor's responsibilities under the Contract ("New Work"), the Contractor must notify the State promptly before commencing performance of the requested activities it believes are New Work. If the Contractor fails to notify the State before commencing performance of the requested activities, any such activities performed before the Contractor gives notice shall be conclusively considered to be in-scope Services/Deliverables and not New Work.

If the State requests or directs the Contractor to perform any services or provide deliverables that are consistent with and similar to the Services/Deliverables being provided by the Contractor under the Contract, but which the Contractor reasonably and in good faith believes are not included within the Statements of Work, then before performing such Services or providing such Deliverables, the Contractor shall notify the State in writing that it considers the Services or Deliverables to be an Additional Service/Deliverable for which the Contractor should receive additional compensation. If the Contractor does not so notify the State, the Contractor shall have no right to claim thereafter that it is entitled to additional compensation for performing that Service or providing that Deliverable. If the Contractor does so notify the State, then such a Service or Deliverable shall be governed by the Change Request procedure in this Section.

In the event prices or service levels are not acceptable to the State, the Additional Services or New Work shall be subject to competitive bidding based upon the specifications.

(1) Change Request at State Request

If the State requires Contractor to perform New Work, Additional Services or make changes to the Services that would affect the Contract completion schedule or the amount of compensation due Contractor (a "Change"), the State shall submit a written request for Contractor to furnish a proposal for carrying out the requested Change (a "Change Request").

(2) Contractor Recommendation for Change Requests:

Contractor shall be entitled to propose a Change to the State, on its own initiative, should Contractor believe the proposed Change would benefit the Contract.

(3) Upon receipt of a Change Request or on its own initiative, Contractor shall examine the implications of the requested Change on the technical specifications, Contract schedule and price of the Deliverables and Services and shall submit to the State without undue delay a written proposal for carrying out the Change. Contractor's proposal shall include any associated changes in the technical specifications, Contract schedule and price and method of pricing of the Services. If the Change is to be performed on a time and materials basis, the Amendment Labor Rates shall apply to the provision of such Services. If Contractor provides a written proposal and should Contractor be of the opinion that a requested Change is not to be



- recommended, it shall communicate its opinion to the State but shall nevertheless carry out the Change as specified in the written proposal if the State directs it to do so.
- (4) By giving Contractor written notice within a reasonable time, the State shall be entitled to accept a Contractor proposal for Change, to reject it, or to reach another agreement with Contractor. Should the parties agree on carrying out a Change, a written Contract Change Notice must be prepared and issued under this Contract, describing the Change and its effects on the Services and any affected components of this Contract (a "Contract Change Notice").
 - (5) No proposed Change shall be performed until the proposed Change has been specified in a duly executed Contract Change Notice issued by the Department of Technology, Management and Budget, Procurement.
 - (6) If the State requests or directs the Contractor to perform any activities that Contractor believes constitute a Change, the Contractor must notify the State that it believes the requested activities are a Change before beginning to work on the requested activities. If the Contractor fails to notify the State before beginning to work on the requested activities, then the Contractor waives any right to assert any claim for additional compensation or time for performing the requested activities. If the Contractor commences performing work outside the scope of this Contract and then ceases performing that work, the Contractor must, at the request of the State, retract any out-of-scope work that would adversely affect the Contract.

2.025 NOTICES

Any notice given to a party under the Contract must be deemed effective, if addressed to the party as addressed below, upon: (i) delivery, if hand delivered; (ii) receipt of a confirmed transmission by facsimile if a copy of the notice is sent by another means specified in this Section; (iii) the third Business Day after being sent by U.S. mail, postage pre-paid, return receipt requested; or (iv) the next Business Day after being sent by a nationally recognized overnight express courier with a reliable tracking system.

State:

State of Michigan
 Procurement
 Attention:
 PO Box 30026
 530 West Allegan
 Lansing, Michigan 48909

Contractor:

Name: Michigan State University
 Address: 426 Auditorium Rd, Room 2
 East Lansing, MI 48824

Either party may change its address where notices are to be sent by giving notice according to this Section.

2.026 BINDING COMMITMENTS

Representatives of Contractor must have the authority to make binding commitments on Contractor's behalf within the bounds set forth in the Contract. Contractor may change the representatives from time to time upon giving written notice.

2.027 RELATIONSHIP OF THE PARTIES

The relationship between the State and Contractor is that of client and independent contractor. No agent, employee, or servant of Contractor or any of its Subcontractors shall be deemed to be an employee, agent or servant of the State for any reason. Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and Subcontractors during the performance of the Contract.

2.028 COVENANT OF GOOD FAITH

Each party shall act reasonably and in good faith. Unless stated otherwise in the Contract, the parties shall not unreasonably delay, condition or withhold the giving of any consent, decision or approval that is either requested or reasonably required of them in order for the other party to perform its responsibilities under the Contract.



2.029 ASSIGNMENTS

Neither party may assign the Contract, or assign or delegate any of its duties or obligations under the Contract, to any other party (whether by operation of law or otherwise), without the prior written consent of the other party; provided, however, that the State may assign the Contract to any other State agency, department, division or department without the prior consent of Contractor and Contractor may assign the Contract to an affiliate so long as the affiliate is adequately capitalized and can provide adequate assurances that the affiliate can perform the Contract. The State may withhold consent from proposed assignments, subcontracts, or novations when the transfer of responsibility would operate to decrease the State's likelihood of receiving performance on the Contract or the State's ability to recover damages.

Contractor may not, without the prior written approval of the State, assign its right to receive payments due under the Contract. If the State permits an assignment, the Contractor is not relieved of its responsibility to perform any of its contractual duties and the requirement under the Contract that all payments must be made to one entity continues.

If the Contractor intends to assign the contract or any of the Contractor's rights or duties under the Contract, the Contractor must notify the State in writing at least 90 days before the assignment. The Contractor also must provide the State with adequate information about the assignee within a reasonable amount of time before the assignment for the State to determine whether to approve the assignment.

2.030 General Provisions

2.031 RESERVED

2.032 MEDIA RELEASES

News releases (including promotional literature and commercial advertisements) pertaining to the RFP and Contract or project to which it relates shall not be made without prior written State approval, and then only in accordance with the explicit written instructions from the State. No results of the activities associated with the RFP and Contract are to be released without prior written approval of the State and then only to persons designated.

2.033 CONTRACT DISTRIBUTION

DTMB-Procurement retains the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by DTMB-Procurement.

2.034 PERMITS

Contractor must obtain and pay any associated costs for all required governmental permits, licenses and approvals for the delivery, installation and performance of the Services. The State shall pay for all costs and expenses incurred in obtaining and maintaining any necessary easements or right of way.

2.035 WEBSITE INCORPORATION

The State is not bound by any content on the Contractor's website, even if the Contractor's documentation specifically referenced that content and attempts to incorporate it into any other communication, unless the State has actual knowledge of the content and has expressly agreed to be bound by it in a writing that has been manually signed by an authorized representative of the State.

2.036 FUTURE BIDDING PRECLUSION

Contractor acknowledges that, to the extent this Contract involves the creation, research, investigation or generation of a future RFP; it may be precluded from bidding on the subsequent RFP. The State reserves the right to disqualify any Bidder if the State determines that the Bidder has used its position (whether as an incumbent Contractor, or as a Contractor hired to assist with the RFP development, or as a Vendor offering free assistance) to gain a competitive advantage on the RFP

2.037 FREEDOM OF INFORMATION

All information in any proposal submitted to the State by Contractor and this Contract is subject to the provisions of the Michigan Freedom of Information Act, 1976 Public Act No. 442, as amended, MCL 15.231, et seq (the "FOIA").



2.038 DISASTER RECOVERY

Contractor and the State recognize that the State provides essential services in times of natural or man-made disasters. Therefore, except as so mandated by Federal disaster response requirements, Contractor personnel dedicated to providing Services/Deliverables under this Contract shall provide the State with priority service for repair and work around in the event of a natural or man-made disaster.

2.040 Financial Provisions

2.041 FIXED PRICES FOR SERVICES/DELIVERABLES

Each Statement of Work or Purchase Order issued under this Contract shall specify (or indicate by reference to the appropriate Contract Exhibit) the firm, fixed prices for all Services/Deliverables, and the associated payment milestones and payment amounts. The State may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor shall show verification of measurable progress at the time of requesting progress payments.

2.042 ADJUSTMENTS FOR REDUCTIONS IN SCOPE OF SERVICES/DELIVERABLES

If the scope of the Services/Deliverables under any Statement of Work issued under this Contract is subsequently reduced by the State, the parties shall negotiate an equitable reduction in Contractor's charges under such Statement of Work commensurate with the reduction in scope.

2.043 SERVICES/DELIVERABLES COVERED

The State shall not be obligated to pay any amounts in addition to the charges specified in this Contract for all Services/Deliverables to be provided by Contractor and its Subcontractors, if any, under this Contract,.

2.044 INVOICING AND PAYMENT – IN GENERAL

- (a) Each Statement of Work issued under this Contract shall list (or indicate by reference to the appropriate Contract Exhibit) the prices for all Services/Deliverables, equipment and commodities to be provided, and the associated payment milestones and payment amounts.
- (b) Each Contractor invoice shall show details as to charges by Service/Deliverable component and location at a level of detail reasonably necessary to satisfy the State's accounting and charge-back requirements. Invoices for Services performed on a time and materials basis shall show, for each individual, the number of hours of Services performed during the billing period, the billable skill/labor category for such person and the applicable hourly billing rate. Prompt payment by the State is contingent on the Contractor's invoices showing the amount owed by the State minus any holdback amount to be retained by the State in accordance with **Section 1.600**.
- (c) Correct invoices shall be due and payable by the State, in accordance with the State's standard payment procedure as specified in 1984 Public Act No. 279, MCL 17.51 et seq., within 45 days after receipt, provided the State determines that the invoice was properly rendered.
- (d1) All invoices should reflect actual work done. Specific details of invoices and payments shall be agreed upon between the Contract Administrator and the Contractor after the proposed Contract Agreement has been signed and accepted by both the Contractor and the Director of Procurement, Department of Management & Budget. This activity shall occur only upon the specific written direction from DTMB-Procurement.

The specific payment schedule for any Contract(s) entered into, as the State and the Contractor(s) shall mutually agree upon. The schedule should show payment amount and should reflect actual work done by the payment dates, less any penalty cost charges accrued by those dates. As a general policy statements shall be forwarded to the designated representative by the 15th day of the following month.

The Government may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor must show verification of measurable progress at the time of requesting progress payments.

**2.045 PRO-RATION**

To the extent there are Services that are to be paid for on a monthly basis, the cost of such Services shall be pro-rated for any partial month.

2.046 ANTITRUST ASSIGNMENT

The Contractor assigns to the State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to the Contractor, toward fulfillment of this Contract.

2.047 FINAL PAYMENT

The making of final payment by the State to Contractor does not constitute a waiver by either party of any rights or other claims as to the other party's continuing obligations under the Contract, nor shall it constitute a waiver of any claims by one party against the other arising from unsettled claims or failure by a party to comply with this Contract, including claims for Services and Deliverables not reasonably known until after acceptance to be defective or substandard. Contractor's acceptance of final payment by the State under this Contract shall constitute a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still unsettled.

2.048 ELECTRONIC PAYMENT REQUIREMENT

Electronic transfer of funds is required for payments on State Contracts. Contractors are required to register with the State electronically at <http://www.cpexpress.state.mi.us>. As stated in Public Act 431 of 1984, all contracts that the State enters into for the purchase of goods and services shall provide that payment shall be made by electronic fund transfer (EFT).

2.050 Taxes**2.051 EMPLOYMENT TAXES**

Contractor shall collect and pay all applicable federal, state, and local employment taxes, including the taxes.

2.052 SALES AND USE TAXES

Contractor shall register and remit sales and use taxes on taxable sales of tangible personal property or services delivered into the State. Contractors that lack sufficient presence in Michigan to be required to register and pay tax must do so as a volunteer. This requirement extends to: (1) all members of any controlled group as defined in § 1563(a) of the Internal Revenue Code and applicable regulations of which the company is a member, and (2) all organizations under common control as defined in § 414(c) of the Internal Revenue Code and applicable regulations of which the company is a member that make sales at retail for delivery into the State are registered with the State for the collection and remittance of sales and use taxes. In applying treasury regulations defining "two or more trades or businesses under common control" the term "organization" means sole proprietorship, a partnership (as defined in § 701(a) (2) of the Internal Revenue Code), a trust, an estate, a corporation, or a limited liability company.

2.060 Contract Management**2.061 CONTRACTOR PERSONNEL QUALIFICATIONS**

All persons assigned by Contractor to the performance of Services under this Contract must be employees of Contractor or its majority-owned (directly or indirectly, at any tier) subsidiaries (or a State-approved Subcontractor) and must be fully qualified to perform the work assigned to them. Contractor must include a similar provision in any subcontract entered into with a Subcontractor. For the purposes of this Contract, independent contractors engaged by Contractor solely in a staff augmentation role must be treated by the State as if they were employees of Contractor for this Contract only; however, the State understands that the relationship between Contractor and Subcontractor is an independent contractor relationship.

2.062 CONTRACTOR KEY PERSONNEL

(a) The Contractor must provide the Contract Compliance Inspector with the names of the Key Personnel.



- (b) Key Personnel must be dedicated as defined in the Statement of Work to the Project for its duration in the applicable Statement of Work with respect to other individuals designated as Key Personnel for that Statement of Work.
- (c) The State shall have the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor shall notify the State of the proposed assignment, shall introduce the individual to the appropriate State representatives, and shall provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting written approval. In the event the State finds a proposed individual unacceptable, the State shall provide a written explanation including reasonable detail outlining the reasons for the rejection.
- (d) Contractor must not remove any Key Personnel from their assigned roles on the Contract without the prior written consent of the State. The Contractor's removal of Key Personnel without the prior written consent of the State is an unauthorized removal ("Unauthorized Removal"). Unauthorized Removals does not include replacing Key Personnel for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, resignation or for cause termination of the Key Personnel's employment. Unauthorized Removals does not include replacing Key Personnel because of promotions or other job movements allowed by Contractor personnel policies or Collective Bargaining Agreement(s) as long as the State receives prior written notice before shadowing occurs and Contractor provides 30 days of shadowing unless parties agree to a different time period. The Contractor with the State must review any Key Personnel replacements, and appropriate transition planning will be established. Any Unauthorized Removal may be considered by the State to be a material breach of the Contract, in respect of which the State may elect to exercise its termination and cancellation rights.
- (e) The Contractor must notify the Contract Compliance Inspector and the Contract Administrator at least 10 business days before redeploying non-Key Personnel, who are dedicated to primarily to the Project, to other projects. If the State does not object to the redeployment by its scheduled date, the Contractor may then redeploy the non-Key Personnel.

2.063 RE-ASSIGNMENT OF PERSONNEL AT THE STATE'S REQUEST

The State reserves the right to require the removal from the Project of Contractor personnel found, in the judgment of the State, to be unacceptable. The State's request must be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request must be based on legitimate, good faith reasons. Replacement personnel for the removed person must be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed personnel, the State agrees to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any incident with removed personnel results in delay not reasonably anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Service shall not be counted for a time as agreed to by the parties.

2.064 CONTRACTOR PERSONNEL LOCATION

All staff assigned by Contractor to work on the Contract shall perform their duties either primarily at Contractor's offices and facilities or at State facilities. Without limiting the generality of the foregoing, Key Personnel shall, at a minimum, spend at least the amount of time on-site at State facilities as indicated in the applicable Statement of Work. Subject to availability, selected Contractor personnel may be assigned office space to be shared with State personnel.

2.065 CONTRACTOR IDENTIFICATION

Contractor employees must be clearly identifiable while on State property by wearing a State-issued badge, as required. Contractor employees are required to clearly identify themselves and the company they work for whenever making contact with State personnel by telephone or other means.

2.066 COOPERATION WITH THIRD PARTIES

Contractor agrees to cause its personnel and the personnel of any Subcontractors to cooperate with the State and its agents and other contractors including the State's Quality Assurance personnel. As reasonably



requested by the State in writing, the Contractor shall provide to the State's agents and other contractors reasonable access to Contractor's Project personnel, systems and facilities to the extent the access relates to activities specifically associated with this Contract and shall not interfere or jeopardize the safety or operation of the systems or facilities. The State acknowledges that Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay or otherwise impeded Contractor's performance under this Contract with the requests for access.

2.067 CONTRACT MANAGEMENT RESPONSIBILITIES

Contractor shall be responsible for all acts and omissions of its employees, as well as the acts and omissions of any other personnel furnished by Contractor to perform the Services. Contractor shall have overall responsibility for managing and successfully performing and completing the Services/Deliverables, subject to the overall direction and supervision of the State and with the participation and support of the State as specified in this Contract. Contractor's duties shall include monitoring and reporting the State's performance of its participation and support responsibilities (as well as Contractor's own responsibilities) and providing timely notice to the State in Contractor's reasonable opinion if the State's failure to perform its responsibilities in accordance with the Project Plan is likely to delay the timely achievement of any Contract tasks.

The Contractor shall provide the Services/Deliverables directly or through its affiliates, subsidiaries, subcontractors or resellers. Regardless of the entity providing the Service/Deliverable, the Contractor shall act as a single point of contact coordinating these entities to meet the State's need for Services/Deliverables. Nothing in this Contract, however, shall be construed to authorize or require any party to violate any applicable law or regulation in its performance of this Contract.

2.068 CONTRACTOR RETURN OF STATE EQUIPMENT/RESOURCES

The Contractor shall return to the State any State-furnished equipment, facilities and other resources when no longer required for the Contract in the same condition as when provided by the State, reasonable wear and tear excepted.

2.070 Subcontracting by Contractor

2.071 CONTRACTOR FULL RESPONSIBILITY

Contractor shall have full responsibility for the successful performance and completion of all of the Services and Deliverables. The State shall consider Contractor to be the sole point of contact with regard to all contractual matters under this Contract, including payment of any and all charges for Services and Deliverables.

2.072 STATE CONSENT TO DELEGATION

Contractor shall not delegate any duties under this Contract to a Subcontractor unless the Department of Technology, Management and Budget, Procurement has given written consent to such delegation. The State shall have the right of prior written approval of all Subcontractors and to require Contractor to replace any Subcontractors found, in the reasonable judgment of the State, to be unacceptable. The State's request shall be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good faith reasons. Replacement Subcontractor(s) for the removed Subcontractor shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed Subcontractor, the State shall agree to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any such incident with a removed Subcontractor results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLA for the affected Work shall not be counted for a time agreed upon by the parties.

2.073 SUBCONTRACTOR BOUND TO CONTRACT

In any subcontracts entered into by Contractor for the performance of the Services, Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to Contractor by the terms of this Contract and to assume toward Contractor all of the obligations and responsibilities that Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and review all subcontracts, although Contractor may delete or mask any proprietary information, including pricing,



contained in such contracts before providing them to the State. The management of any Subcontractor shall be the responsibility of Contractor, and Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if Contractor had not subcontracted such performance. Contractor shall make all payments to Subcontractors or suppliers of Contractor. Except as otherwise agreed in writing by the State and Contractor, the State shall not be obligated to direct payments for the Services other than to Contractor. The State's written approval of any Subcontractor engaged by Contractor to perform any obligation under this Contract shall not relieve Contractor of any obligations or performance required under this Contract. A list of the Subcontractors, if any, approved by the State as of the execution of this Contract, together with a copy of the applicable subcontract is attached.

2.074 FLOW DOWN

Except where specifically approved in writing by the State on a case-by-case basis, Contractor shall flow down the obligations in **Sections 2.031, 2.060, 2.100, 2.110, 2.120, 2.130, and 2.200** in all of its agreements with any Subcontractors.

2.075 COMPETITIVE SELECTION

The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the Contract.

2.080 State Responsibilities

2.081 EQUIPMENT

The State shall provide only the equipment and resources identified in the Statement of Work and other Contract Exhibits.

2.082 FACILITIES

The State must designate space as long as it is available and as provided in the Statement of Work, to house the Contractor's personnel whom the parties agree will perform the Services/Deliverables at State facilities (collectively, the "State Facilities"). The Contractor shall have reasonable access to, and unless agreed otherwise by the parties in writing must observe and comply with all rules and regulations relating to each of the State Facilities (including hours of operation) used by the Contractor in the course of providing the Services. Contractor agrees that it shall not, without the prior written consent of the State, use any State Facilities or access any State information systems provided for the Contractor's use, or to which the Contractor otherwise gains access in the course of performing the Services, for any purpose other than providing the Services to the State.

2.090 Security

2.091 BACKGROUND CHECKS

On a case-by-case basis, the State may investigate the Contractor's personnel before they may have access to State facilities and systems. The scope of the background check is at the discretion of the State and the results shall be used to determine Contractor personnel eligibility for working within State facilities and systems. The investigations shall include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) Finger Prints. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check. Any request for background checks shall be initiated by the State and shall be reasonably related to the type of work requested.

2.092 SECURITY BREACH NOTIFICATION

If the Contractor breaches this Section, the Contractor must (i) promptly cure any deficiencies and (ii) comply with any applicable federal and state laws and regulations pertaining to unauthorized disclosures. Contractor and the State shall cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized use or disclosure. Contractor must report to the State in writing any use or disclosure of Confidential Information, whether suspected or actual, other than as provided for by the Contract within 72 hours of becoming aware of the use or disclosure or the shorter time period as is reasonable under the circumstances.



2.093 PCI DATA SECURITY STANDARD

(a) Contractors that process, transmit or store credit/debit cardholder data, must adhere to the Payment Card Industry (PCI) Data Security Standards. The Contractor is responsible for the security of cardholder data in its possession. The data may only be used to assist the State or for other uses specifically authorized by law.

(b) The Contractor must notify the CCI (within 72 hours of discovery) of any breaches in security where cardholder data has been compromised. In that event, the Contractor must provide full cooperation to the Visa, MasterCard, Discover and state Acquirer representative(s), and/or a PCI approved third party to conduct a thorough security review. The Contractor must make the forensic report available within two weeks of completion. The review must validate compliance with the current PCI Data Security Standards for protecting cardholder data.

(c) The Contractor must properly dispose of cardholder data, in compliance with DTMB policy, when it is no longer needed. The Contractor must continue to treat cardholder data as confidential upon contract termination.

(d) The Contractor must provide the CCI with an annual Attestation of Compliance (AOC) or a Report on Compliance (ROC) showing the contractor is in compliance with the PCI Data Security Standards. The Contractor must notify the CCI of all failures to comply with the PCI Data Security Standard.

2.100 Confidentiality

2.101 CONFIDENTIALITY

Contractor and the State each acknowledge that the other possesses and shall continue to possess confidential information that has been developed or received by it. As used in this Section, "Confidential Information" of Contractor must mean all non-public proprietary information of Contractor (other than Confidential Information of the State as defined below), which is marked confidential, restricted, proprietary, or with a similar designation. "Confidential Information" of the State must mean any information which is retained in confidence by the State (or otherwise required to be held in confidence by the State under applicable federal, state and local laws and regulations) or which, in the case of tangible materials provided to Contractor by the State under its performance under this Contract, is marked as confidential, proprietary or with a similar designation by the State. "Confidential Information" excludes any information (including this Contract) that is publicly available under the Michigan FOIA.

2.102 PROTECTION AND DESTRUCTION OF CONFIDENTIAL INFORMATION

The State and Contractor shall each use at least the same degree of care to prevent disclosing to third parties the Confidential Information of the other as it employs to avoid unauthorized disclosure, publication or dissemination of its own confidential information of like character, but in no event less than reasonable care. Neither Contractor nor the State shall (i) make any use of the Confidential Information of the other except as contemplated by this Contract, (ii) acquire any right in or assert any lien against the Confidential Information of the other, or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information to the other party. Each party shall limit disclosure of the other party's Confidential Information to employees and Subcontractors who must have access to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where (A) use of a Subcontractor is authorized under this Contract, (B) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the Subcontractor's scope of responsibility, and (C) Contractor obligates the Subcontractor in a written Contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access or continued access to the State's Confidential Information may be required to execute an acknowledgment that the employee has been advised of Contractor's and the Subcontractor's obligations under this Section and of the employee's obligation to Contractor or Subcontractor, as the case may be, to protect the Confidential Information from unauthorized use or disclosure.

Promptly upon termination or cancellation of the Contract for any reason, Contractor must certify to the State that Contractor has destroyed all State Confidential Information.



2.103 EXCLUSIONS

Notwithstanding the foregoing, the provisions in this Section shall not apply to any particular information which the State or Contractor can demonstrate (i) was, at the time of disclosure to it, in the public domain; (ii) after disclosure to it, is published or otherwise becomes part of the public domain through no fault of the receiving party; (iii) was in the possession of the receiving party at the time of disclosure to it without an obligation of confidentiality; (iv) was received after disclosure to it from a third party who had a lawful right to disclose the information to it without any obligation to restrict its further disclosure; or (v) was independently developed by the receiving party without reference to Confidential Information of the furnishing party. Further, the provisions of this Section shall not apply to any particular Confidential Information to the extent the receiving party is required by law to disclose the Confidential Information, provided that the receiving party (i) promptly provides the furnishing party with notice of the legal request, and (ii) assists the furnishing party in resisting or limiting the scope of the disclosure as reasonably requested by the furnishing party.

2.104 NO IMPLIED RIGHTS

Nothing contained in this Section must be construed as obligating a party to disclose any particular Confidential Information to the other party, or as granting to or conferring on a party, expressly or impliedly, any right or license to the Confidential Information of the other party.

2.105 RESPECTIVE OBLIGATIONS

The parties' respective obligations under this Section must survive the termination or expiration of this Contract for any reason.

2.110 Records and Inspections

2.111 INSPECTION OF WORK PERFORMED

The State's authorized representatives, at reasonable times and with 10 days prior notice, have the right to enter the Contractor's premises or any other places where work is being performed in relation to this Contract. The representatives may inspect, monitor, or evaluate the work being performed, to the extent the access will not reasonably interfere with or jeopardize the safety or operation of Contractor's systems or facilities. The Contractor must provide reasonable assistance for the State's representatives during inspections.

2.112 RETENTION OF RECORDS

(a) The Contractor must retain all financial and accounting records related to this Contract for a period of 4 years after the Contractor performs any work under this Contract (Audit Period).

(b) If an audit, litigation, or other action involving the Contractor's records is initiated before the end of the Audit Period, the Contractor must retain the records until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.

2.113 EXAMINATION OF RECORDS

(a) The State, upon 10 days notice to the Contractor, may examine and copy any of the Contractor's records that relate to this Contract any time during the Audit Period. The State does not have the right to review any information deemed confidential by the Contractor if access would require the information to become publicly available. This requirement also applies to the records of any parent, affiliate, or subsidiary organization of the Contractor, or any Subcontractor that performs services in connection with this Contract

(b) In addition to the rights conferred upon the State in paragraph (a) of this section and in accordance with MCL 18.1470, DTMB or its designee may audit the Contractor to verify compliance with the Contract. The financial and accounting records associated with the Contract shall be made available to DTMB or its designee and the auditor general, upon request, during the term of the Contract and any extension of the Contract and for 3 years after the later of the expiration date or final payment under the Contract.

2.114 AUDIT RESOLUTION

If necessary, the Contractor and the State will meet to review any audit report promptly after its issuance. The Contractor must respond to each report in writing within 30 days after receiving the report, unless the report



specifies a shorter response time. The Contractor and the State must develop, agree upon, and monitor an action plan to promptly address and resolve any deficiencies, concerns, or recommendations in the report.

2.115 ERRORS

- (a) If an audit reveals any financial errors in the records provided to the State, the amount in error must be reflected as a credit or debit on the next invoice and subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried forward for more than four invoices or beyond the termination of the Contract. If a balance remains after four invoices, the remaining amount will be due as a payment or refund within 45 days of the last invoice on which the balance appeared or upon termination of the Contract, whichever is earlier.
- (b) In addition to other available remedies, if the difference between the State's actual payment and the correct invoice amount, as determined by an audit, is greater than 10%, the Contractor must pay all reasonable audit costs.

2.120 Warranties

2.121 WARRANTIES AND REPRESENTATIONS

The Contractor represents and warrants:

- (a) It is capable in all respects of fulfilling and must fulfill all of its obligations under this Contract. The performance of all obligations under this Contract must be provided in a timely, professional, and workman-like manner and must meet the performance and operational standards required under this Contract.
- (b) The Contract Appendices, Attachments and Exhibits identify the equipment and software and services necessary for the Deliverable(s) to perform and Services to operate in compliance with the Contract's requirements and other standards of performance.
- (c) It is the lawful owner or licensee of any Deliverable licensed or sold to the State by Contractor or developed by Contractor under this Contract, and Contractor has all of the rights necessary to convey to the State the ownership rights or licensed use, as applicable, of any and all Deliverables. None of the Deliverables provided by Contractor to the State under neither this Contract, nor their use by the State shall infringe the patent, copyright, trade secret, or other proprietary rights of any third party.
- (d) If, under this Contract, Contractor procures any equipment, software or other Deliverable for the State (including equipment, software and other Deliverables manufactured, re-marketed or otherwise sold by Contractor under Contractor's name), then in addition to Contractor's other responsibilities with respect to the items in this Contract, Contractor must assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.
- (e) The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter into this Contract, on behalf of Contractor.
- (f) It is qualified and registered to transact business in all locations where required.
- (g) Neither the Contractor nor any Affiliates, nor any employee of either, has, must have, or must acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of its duties and responsibilities to the State under this Contract or otherwise create an appearance of impropriety with respect to the award or performance of this Agreement. Contractor must notify the State about the nature of the conflict or appearance of impropriety within two days of learning about it.
- (h) Neither Contractor nor any Affiliates, nor any employee of either has accepted or must accept anything of value based on an understanding that the actions of the Contractor or Affiliates or employee on behalf of the State would be influenced. Contractor must not attempt to influence any State employee by the direct or indirect offer of anything of value.
- (i) Neither Contractor nor any Affiliates, nor any employee of either has paid or agreed to pay any person, other than bona fide employees and consultants working solely for Contractor or the Affiliate, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.



- (j) The prices proposed by Contractor were arrived at independently, without consultation, communication, or agreement with any other Bidder for the purpose of restricting competition; the prices quoted were not knowingly disclosed by Contractor to any other Bidder; and no attempt was made by Contractor to induce any other person to submit or not submit a proposal for the purpose of restricting competition.
- (k) All financial statements, reports, and other information furnished by Contractor to the State as part of its response to the RFP or otherwise in connection with the award of this Contract fairly and accurately represent the business, properties, financial condition, and results of operations of Contractor as of the respective dates, or for the respective periods, covered by the financial statements, reports, other information. Since the respective dates or periods covered by the financial statements, reports, or other information, there have been no material adverse changes in the business, properties, financial condition, or results of operations of Contractor.
- (l) All written information furnished to the State by or for the Contractor in connection with this Contract, including its bid, is true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make the information not misleading.
- (m) It is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its departments that was terminated by the State or the department within the previous five years for the reason that Contractor failed to perform or otherwise breached an obligation of the contract.
- (n) If any of the certifications, representations, or disclosures made in the Contractor's original bid response change after contract award, the Contractor is required to report those changes immediately to the Department of Technology, Management and Budget, Procurement.

2.122 WARRANTY OF MERCHANTABILITY

Goods provided by Contractor under this agreement shall be merchantable. All goods provided under this Contract shall be of good quality within the description given by the State, shall be fit for their ordinary purpose, shall be adequately contained and packaged within the description given by the State, shall conform to the agreed upon specifications, and shall conform to the affirmations of fact made by the Contractor or on the container or label.

2.123 WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE

When the Contractor has reason to know or knows any particular purpose for which the goods are required, and the State is relying on the Contractor's skill or judgment to select or furnish suitable goods, there is a warranty that the goods are fit for such purpose.

2.124 WARRANTY OF TITLE

Contractor shall, in providing goods to the State, convey good title in those goods, whose transfer is right and lawful. All goods provided by Contractor shall be delivered free from any security interest, lien, or encumbrance of which the State, at the time of contracting, has no knowledge. Goods provided by Contractor, under this Contract, shall be delivered free of any rightful claim of any third person by of infringement or the like.

2.125 RESERVED

2.126 RESERVED

2.127 RESERVED

2.128 CONSEQUENCES FOR BREACH

In addition to any remedies available in law, if the Contractor breaches any of the warranties contained in this section, the breach may be considered as a default in the performance of a material obligation of this Contract.



2.130 Insurance

2.13.1 LIABILITY INSURANCE

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Contractor must provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that may arise out of, or result from, or are alleged to arise out of, or result from, the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.

(b) The Contractor waives all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.

(c) All insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.

(d) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.

(e) Unless the State approves otherwise, any insurer must have an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State.

(f) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Contractor must maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three (3) years following the termination of this Contract.

(h) The Contractor must provide, within five (5) business days, written notice to the Director of DTMB-Procurement if any policy required under this section is cancelled. The notice must include the applicable Contract or Purchase Order number.

(i) The minimum limits of coverage specified are not intended, and may not be construed, to limit any liability or indemnity of the Contractor to any indemnified party or other persons.

(j) The Contractor is responsible for the payment of all deductibles.

(k) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days' notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor, or require the Contractor to pay that cost upon demand.

(l) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

(m) The Contractor is required to pay for and provide the type and amount of insurance checked below:

(i) Commercial General Liability

Minimal Limits:

- \$2,000,000 General Aggregate Limit other than Products/Completed Operations;
- \$2,000,000 Products/Completed Operations Aggregate Limit;
- \$1,000,000 Personal & Advertising Injury Limit; and
- \$1,000,000 Each Occurrence Limit.

Deductible maximum:

\$50,000 Each Occurrence



Additional Requirements:

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that the insurance policy contains a waiver of subrogation by the insurance company.

The Products/Completed Operations sublimit requirement may be satisfied by evidence of the manufacturer's Commercial General Liability Insurance. The manufacturer must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the Commercial General Liability certificate and must provide evidence that the policy contains a waiver of subrogation by the insurance company.

(ii) RESERVED

(iii) Motor Vehicle

Minimal Limits:

If a motor vehicle is used in relation to the Contractor's performance, the Contractor must have vehicle liability insurance on the motor vehicle for bodily injury and property damage as required by law.

(iv) RESERVED

(v) Workers' Compensation

Minimal Limits:

The Contractor must provide Workers' Compensation coverage according to applicable laws governing work activities in the state of the Contractor's domicile. If the applicable coverage is provided by a self-insurer, the Contractor must provide proof of an approved self-insured authority by the jurisdiction of domicile.

For employees working outside of the state of the Contractor's domicile, the Contractor must provide certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

Additional Requirements:

The Contractor must provide the applicable certificates of insurance and a list of states where the coverage is applicable. Contractor must provide proof that the Workers' Compensation insurance policies contain a waiver of subrogation by the insurance company, except where such a provision is prohibited or limited by the laws of the jurisdiction in which the work is to be performed.

(vi) Employers Liability

Minimal Limits:

- \$100,000 Each Incident;
- \$100,000 Each Employee by Disease
- \$500,000 Aggregate Disease

Additional Requirements:

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the certificate.

(vii) Employee Fidelity (Crime)

Minimal Limits:

\$1,000,000 Employee Theft Per Loss

Deductible Maximum:

\$50,000 Per Loss

Additional Requirements:

Insurance must cover Forgery and Alteration, Theft of Money and Securities, Robbery and Safe Burglary, Computer Fraud, Funds Transfer Fraud, Money Order and Counterfeit Currency.

**Additional Requirements:**

Insurance should cover (a) unauthorized acquisition, access, use, physical taking, identity theft, mysterious disappearance, release, distribution or disclosures of personal and corporate information; (b) Transmitting or receiving malicious code via the insured's computer system; (c) Denial of service attacks or the inability to access websites or computer systems.

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the certificate.

 (x) Property Insurance

Property Insurance covering any loss or damage to the State-owned office space used by Contractor for any reason under this Contract, and the State-owned equipment, software and other contents of the office space, including without limitation, those contents used by Contractor to provide the Services to the State, up to its replacement value, where the office space and its contents are under the care, custody and control of Contractor. The State must be endorsed on the policy as a loss payee as its interests appear.

2.132 SUBCONTRACTOR INSURANCE COVERAGE

Except where the State has approved a subcontract with other insurance provisions, the Contractor must require any Subcontractor to purchase and maintain the insurance coverage required in Section 2.13.1, Liability Insurance. Alternatively, the Contractor may include a Subcontractor under the Contractor's insurance on the coverage required in that Section. The failure of a Subcontractor to comply with insurance requirements does not limit the Contractor's liability or responsibility.

2.133 CERTIFICATES OF INSURANCE

Before the Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor must provide evidence that the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents are listed as additional insureds as required. The Contractor must provide DTMB-Procurement with all applicable certificates of insurance verifying insurance coverage or providing, if approved, satisfactory evidence of self-insurance as required in Section 2.13.1, Liability Insurance. Each certificate must be on the standard "Accord" form or equivalent and **MUST IDENTIFY THE APPLICABLE CONTRACT OR PURCHASE ORDER NUMBER.**

2.140 Indemnification**2.141 GENERAL INDEMNIFICATION**

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortious acts of the Contractor or any of its subcontractors, or by anyone else for whose acts any of them may be liable.

2.142 CODE INDEMNIFICATION

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from any claim, loss, or expense arising from Contractor's breach of the No Surreptitious Code Warranty.

2.143 EMPLOYEE INDEMNIFICATION

In any claims against the State of Michigan, its departments, divisions, agencies, sections, commissions, officers, employees and agents, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract must not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.



2.144 PATENT/COPYRIGHT INFRINGEMENT INDEMNIFICATION

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that the action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of the equipment, software, commodity or service, or the use or reproduction of any documentation provided with the equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or service, or its operation, become or in the State's or Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor must at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if the option is not reasonably available to the Contractor, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if the option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Contractor has no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; (ii) use of the equipment in a configuration other than implemented or approved in writing by the Contractor, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Contractor under this Contract.

2.145 CONTINUATION OF INDEMNIFICATION OBLIGATIONS

The Contractor's duty to indemnify under this Section continues in full force and effect, notwithstanding the expiration or early cancellation of the Contract, with respect to any claims based on facts or conditions that occurred before expiration or cancellation.

2.146 INDEMNIFICATION PROCEDURES

The procedures set forth below must apply to all indemnity obligations under this Contract.

- (a) After the State receives notice of the action or proceeding involving a claim for which it shall seek indemnification, the State must promptly notify Contractor of the claim in writing and take or assist Contractor in taking, as the case may be, any reasonable action to avoid the imposition of a default judgment against Contractor. No failure to notify the Contractor relieves the Contractor of its indemnification obligations except to the extent that the Contractor can prove damages attributable to the failure. Within 10 days following receipt of written notice from the State relating to any claim, the Contractor must notify the State in writing whether Contractor agrees to assume control of the defense and settlement of that claim (a "Notice of Election"). After notifying Contractor of a claim and before the State receiving Contractor's Notice of Election, the State is entitled to defend against the claim, at the Contractor's expense, and the Contractor will be responsible for any reasonable costs incurred by the State in defending against the claim during that period.
- (b) If Contractor delivers a Notice of Election relating to any claim: (i) the State is entitled to participate in the defense of the claim and to employ counsel at its own expense to assist in the handling of the claim and to monitor and advise the State about the status and progress of the defense; (ii) the Contractor must, at the request of the State, demonstrate to the reasonable satisfaction of the State, the Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) the Contractor must periodically advise the State about the status and progress of the defense and must obtain the prior written approval of the State before entering into any settlement of the claim or ceasing to defend against the claim and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State has the right, at its own expense, to control the defense of that portion



of the claim involving the principles of Michigan governmental or public law. But the State may retain control of the defense and settlement of a claim by notifying the Contractor in writing within 10 days after the State's receipt of Contractor's information requested by the State under clause (ii) of this paragraph if the State determines that the Contractor has failed to demonstrate to the reasonable satisfaction of the State the Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State under this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

- (c) If Contractor does not deliver a Notice of Election relating to any claim of which it is notified by the State as provided above, the State may defend the claim in the manner as it may deem appropriate, at the cost and expense of Contractor. If it is determined that the claim was one against which Contractor was required to indemnify the State, upon request of the State, Contractor must promptly reimburse the State for all the reasonable costs and expenses.

2.150 Termination/Cancellation

2.151 NOTICE AND RIGHT TO CURE

If the Contractor breaches the contract, and the State in its sole discretion determines that the breach is curable, then the State shall provide the Contractor with written notice of the breach and a time period (not less than 30 days) to cure the Breach. The notice of breach and opportunity to cure is inapplicable for successive or repeated breaches or if the State determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage, or destruction of any real or tangible personal property.

2.152 TERMINATION FOR CAUSE

- (a) The State may terminate this contract, for cause, by notifying the Contractor in writing, if the Contractor (i) breaches any of its material duties or obligations under this Contract (including a Chronic Failure to meet any particular SLA), or (ii) fails to cure a breach within the time period specified in the written notice of breach provided by the State
- (b) reserved.
- (c) If the State chooses to partially terminate this Contract for cause, charges payable under this Contract shall be equitably adjusted to reflect those Services/Deliverables that are terminated and the State must pay for all Services/Deliverables for which Final Acceptance has been granted provided up to the termination date. Services and related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.
- (d) If the State terminates this Contract for cause under this Section, and it is determined, for any reason, that Contractor was not in breach of contract under the provisions of this section, that termination for cause must be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties must be limited to that otherwise provided in this Contract for a termination for convenience.

2.153 TERMINATION FOR CONVENIENCE

The State may terminate this Contract for its convenience, in whole or part, if the State determines that a termination is in the State's best interest. Reasons for the termination must be left to the sole discretion of the State and may include, but not necessarily be limited to (a) the State no longer needs the Services or products specified in the Contract, (b) relocation of office, program changes, changes in laws, rules, or regulations make implementation of the Services no longer practical or feasible, (c) unacceptable prices for Additional Services or New Work requested by the State, or (d) falsification or misrepresentation, by inclusion or non-inclusion, of information material to a response to any RFP issued by the State. The State may terminate this Contract for its convenience, in whole or in part, by giving Contractor written notice at least 30 days before the date of termination. If the State chooses to terminate this Contract in part, the charges payable under this Contract must be equitably adjusted to reflect those Services/Deliverables that are terminated. Services and related provisions of this Contract that are terminated for convenience must cease on the effective date of the termination.

**2.154 TERMINATION FOR NON-APPROPRIATION**

- (a) Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this Contract. If funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available, the State must terminate this Contract and all affected Statements of Work, in whole or in part, at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The State must give Contractor at least 30 days advance written notice of termination for non-appropriation or unavailability (or the time as is available if the State receives notice of the final decision less than 30 days before the funding cutoff).
- (b) If funding for the Contract is reduced by law, or funds to pay Contractor for the agreed-to level of the Services or production of Deliverables to be provided by Contractor are not appropriated or otherwise unavailable, the State may, upon 30 days written notice to Contractor, reduce the level of the Services or change the production of Deliverables in the manner and for the periods of time as the State may elect. The charges payable under this Contract shall be equitably adjusted to reflect any equipment, services or commodities not provided by reason of the reduction.
- (c) If the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by Contractor under this Section, the State must pay Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case may be and as determined by the State, to the extent funds are available. This Section shall not preclude Contractor from reducing or stopping Services/Deliverables or raising against the State in a court of competent jurisdiction, any claim for a shortfall in payment for Services performed or Deliverables finally accepted before the effective date of termination.

2.155 TERMINATION FOR CRIMINAL CONVICTION

The State may terminate this Contract immediately and without further liability or penalty in the event Contractor, an officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a criminal offense related to a State, public or private Contract or subcontract.

2.156 TERMINATION FOR APPROVALS RESCINDED

The State may terminate this Contract if any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services under Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. In that case, the State shall pay the Contractor for only the work completed to that point under the Contract. Termination may be in whole or in part and may be immediate as of the date of the written notice to Contractor or may be effective as of the date stated in the written notice.

2.157 RIGHTS AND OBLIGATIONS UPON TERMINATION

- (a) If the State terminates this Contract for any reason, the Contractor must (a) stop all work as specified in the notice of termination, (b) take any action that may be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that may be in Contractor's possession, (c) return all materials and property provided directly or indirectly to Contractor by any entity, agent or employee of the State, (d) transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which must be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of the items included compensation to Contractor for the provision of warranty services in respect of the materials), and (e) take any action to mitigate and limit any potential damages, or requests for Contractor adjustment or termination settlement costs, to the maximum practical extent, including terminating or limiting as otherwise applicable those subcontracts and outstanding orders for material and supplies resulting from the terminated Contract.
- (b) If the State terminates this Contract before its expiration for its own convenience, the State must pay Contractor for all charges due for Services provided before the date of termination and, if applicable, as a separate item of payment under this Contract, for Work In Process, on a percentage of completion basis at the level of completion determined by the State. All completed or partially completed Deliverables prepared by Contractor under this Contract, at the option of the State, becomes the State's property, and Contractor is entitled to receive equitable fair compensation for the Deliverables. Regardless of the basis for the termination, the State is not obligated to pay, or otherwise compensate, Contractor for any lost



expected future profits, costs or expenses incurred with respect to Services not actually performed for the State.

- (c) Upon a good faith termination, the State may assume, at its option, any subcontracts and agreements for services and deliverables provided under this Contract, and may further pursue completion of the Services/Deliverables under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

2.158 RESERVATION OF RIGHTS

Any termination of this Contract or any Statement of Work issued under it by a party must be with full reservation of, and without prejudice to, any rights or remedies otherwise available to the party with respect to any claims arising before or as a result of the termination.

2.160 Termination by Contractor

2.161 TERMINATION BY CONTRACTOR

If the State breaches the Contract, and the Contractor in its sole discretion determines that the breach is curable, then the Contractor will provide the State with written notice of the breach and a time period (not less than 30 days) to cure the breach. The Notice of Breach and opportunity to cure is inapplicable for successive and repeated breaches.

The Contractor may terminate this Contract if the State (i) materially breaches its obligation to pay the Contractor undisputed amounts due and owing under this Contract, (ii) breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for the Contractor to perform the Services, or (iii) does not cure the breach within the time period specified in a written notice of breach. But the Contractor must discharge its obligations under **Section 2.160** before it terminates the Contract.

2.170 Transition Responsibilities

2.171 CONTRACTOR TRANSITION RESPONSIBILITIES

If the State terminates this contract, for convenience or cause, or if the Contract is otherwise dissolved, voided, rescinded, nullified, expires or rendered unenforceable, the Contractor shall comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. If this Contract expires or terminates, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed 30 days. These efforts must include, but are not limited to, those listed in **Section 2.150**.

2.172 CONTRACTOR PERSONNEL TRANSITION

The Contractor shall work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties, to effect an orderly transition. The Contractor must allow as many personnel as practicable to remain on the job to help the State, or a specified third party, maintain the continuity and consistency of the services required by this Contract. In addition, during or following the transition period, in the event the State requires the Services of the Contractor's subcontractors or vendors, as necessary to meet its needs, Contractor agrees to reasonably, and with good-faith, work with the State to use the Services of Contractor's subcontractors or vendors. Contractor will notify all of Contractor's subcontractors of procedures to be followed during transition.

2.173 CONTRACTOR INFORMATION TRANSITION

The Contractor shall provide reasonable detailed specifications for all Services/Deliverables needed by the State, or specified third party, to properly provide the Services/Deliverables required under this Contract. The Contractor will provide the State with asset management data generated from the inception of this Contract through the date on which this Contractor is terminated in a comma-delineated format unless otherwise requested by the State. The Contractor will deliver to the State any remaining owed reports and documentation still in Contractor's possession subject to appropriate payment by the State.



2.174 CONTRACTOR SOFTWARE TRANSITION

The Contractor shall reasonably assist the State in the acquisition of any Contractor software required to perform the Services/use the Deliverables under this Contract. This must include any documentation being used by the Contractor to perform the Services under this Contract. If the State transfers any software licenses to the Contractor, those licenses must, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, Contractor may be required to freeze all non-critical changes to Deliverables/Services.

2.175 TRANSITION PAYMENTS

If the transition results from a termination for any reason, the termination provisions of this Contract must govern reimbursement. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after contract expiration that result from transition operations) at the rates agreed upon by the State. The Contractor will prepare an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

2.176 STATE TRANSITION RESPONSIBILITIES

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to reconcile all accounts between the State and the Contractor, complete any pending post-project reviews and perform any others obligations upon which the State and the Contractor agree.

- (a) Reconciling all accounts between the State and the Contractor;
- (b) Completing any pending post-project reviews.

2.180 Stop Work

2.181 STOP WORK ORDERS

The State may, at any time, by written Stop Work Order to Contractor, require that Contractor stop all, or any part, of the work called for by the Contract for a period of up to 90 calendar days after the Stop Work Order is delivered to Contractor, and for any further period to which the parties may agree. The Stop Work Order must be identified as a Stop Work Order and must indicate that it is issued under this **Section**. Upon receipt of the stop work order, Contractor must immediately comply with its terms and take all reasonable steps to minimize incurring costs allocable to the work covered by the Stop Work Order during the period of work stoppage. Within the period of the stop work order, the State must either: (a) cancel the stop work order; or (b) terminate the work covered by the Stop Work Order as provided in **Section 2.182**.

2.182 CANCELLATION OR EXPIRATION OF STOP WORK ORDER

The Contractor shall resume work if the State cancels a Stop Work Order or if it expires. The parties shall agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract shall be modified, in writing, accordingly, if: (a) the Stop Work Order results in an increase in the time required for, or in Contractor's costs properly allocable to, the performance of any part of the Contract; and (b) Contractor asserts its right to an equitable adjustment within 30 calendar days after the end of the period of work stoppage; provided that, if the State decides the facts justify the action, the State may receive and act upon a Contractor proposal submitted at any time before final payment under the Contract. Any adjustment will conform to the requirements of **Section 2.024**.

2.183 ALLOWANCE OF CONTRACTOR COSTS

If the Stop Work Order is not canceled and the work covered by the Stop Work Order is terminated for reasons other than material breach, the termination shall be deemed to be a termination for convenience under **Section 2.153**, and the State shall pay reasonable costs resulting from the Stop Work Order in arriving at the termination settlement. For the avoidance of doubt, the State shall not be liable to Contractor for loss of profits because of a Stop Work Order issued under this Section.



2.190 Dispute Resolution

2.191 IN GENERAL

Any claim, counterclaim, or dispute between the State and Contractor arising out of or relating to the Contract or any Statement of Work must be resolved as follows. For all Contractor claims seeking an increase in the amounts payable to Contractor under the Contract, or the time for Contractor's performance, Contractor must submit a letter, together with all data supporting the claims, executed by Contractor's Contract Administrator or the Contract Administrator's designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to Contractor or the time for Contractor's performance for which Contractor believes the State is liable and covers all costs of every type to which Contractor is entitled from the occurrence of the claimed event, and (c) the claim and the supporting data are current and complete to Contractor's best knowledge and belief.

2.192 INFORMAL DISPUTE RESOLUTION

(a) All disputes between the parties shall be resolved under the Contract Management procedures in this Contract. If the parties are unable to resolve any dispute after compliance with the processes, the parties must meet with the Director of Procurement, DTMB, or designee, to resolve the dispute without the need for formal legal proceedings, as follows:

- (1) The representatives of Contractor and the State must meet as often as the parties reasonably deem necessary to gather and furnish to each other all information with respect to the matter at issue which the parties believe to be appropriate and germane in connection with its resolution. The representatives shall discuss the problem and negotiate in good faith in an effort to resolve the dispute without the necessity of any formal proceeding.
 - (2) During the course of negotiations, all reasonable requests made by one party to another for non-privileged information reasonably related to the Contract shall be honored in order that each of the parties may be fully advised of the other's position.
 - (3) The specific format for the discussions shall be left to the discretion of the designated State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.
 - (4) Following the completion of this process within 60 calendar days, the Director of Procurement, DTMB, or designee, shall issue a written opinion regarding the issue(s) in dispute within 30 calendar days. The opinion regarding the dispute must be considered the State's final action and the exhaustion of administrative remedies.
- (b) This Section shall not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or under Section 2.193.
- (c) The State shall not mediate disputes between the Contractor and any other entity, except state agencies, concerning responsibility for performance of work under the Contract.

2.193 INJUNCTIVE RELIEF

The only circumstance in which disputes between the State and Contractor shall not be subject to the provisions of **Section 2.192** is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is that the damages to the party resulting from the breach shall be so immediate, so large or severe and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

2.194 CONTINUED PERFORMANCE

Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent the issue in dispute precludes performance (dispute over payment must not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in **Section 2.150**, as the case may be.



2.200 Federal and State Contract Requirements

2.201 NONDISCRIMINATION

In the performance of the Contract, Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, and marital status, physical or mental disability. Contractor further agrees that every subcontract entered into for the performance of this Contract or any purchase order resulting from this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required under the Elliot Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and any breach of this provision may be regarded as a material breach of the Contract.

2.202 UNFAIR LABOR PRACTICES

Under 1980 PA 278, MCL 423.321, et seq., the State shall not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled under section 2 of the Act. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, shall not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Under section 4 of 1980 PA 278, MCL 423.324, the State may void any Contract if, after award of the Contract, the name of Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of Contractor appears in the register.

2.203 WORKPLACE SAFETY AND DISCRIMINATORY HARASSMENT

In performing Services for the State, the Contractor shall comply with the Department of Civil Services Rule 2-20 regarding Workplace Safety and Rule 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor shall comply with Civil Service regulations and any applicable agency rules provided to the Contractor. For Civil Service Rules, see <http://www.mi.gov/mdcs/0,1607,7-147-6877---,00.html>.

2.204 PREVAILING WAGE

Wages rates and fringe benefits to be paid each class of individuals employed by the Contractor, its subcontractors, their subcontractors, and all persons involved with the performance of this Contract in privity of contract with the Contractor shall not be less than the wage rates and fringe benefits established by the Michigan Department of Licensing and Regulatory Affairs, Wage and Hour Division, schedule of occupational classification and wage rates and fringe benefits for the local where the work is to be performed. The term Contractor shall include all general contractors, prime contractors, project managers, trade contractors, and all of their contractors or subcontractors and persons in privity of contract with them.

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract in privity of contract with the Contractor shall keep posted on the work site, in a conspicuous place, a copy of all wage rates and fringe benefits as prescribed in the Contract. Contractor shall also post, in a conspicuous place, the address and telephone number of the Michigan Department of Licensing and Regulatory Affairs, the agency responsible for enforcement of the wage rates and fringe benefits. Contractor shall keep an accurate record showing the name and occupation of the actual wage and benefits paid to each individual employed in connection with this contract. This record shall be available to the State upon request for reasonable inspection.

If any trade is omitted from the list of wage rates and fringe benefits to be paid to each class of individuals by the Contractor, it is understood that the trades omitted shall also be paid not less than the wage rate and fringe benefits prevailing in the local where the work is to be performed.

2.210 Governing Law

2.211 GOVERNING LAW

The Contract shall in all respects be governed by, and construed according to, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of any other jurisdiction to the extent not inconsistent with, or pre-empted by federal law.



2.212 COMPLIANCE WITH LAWS

Contractor shall comply with all applicable state, federal and local laws and ordinances in providing the Services/Deliverables.

2.213 JURISDICTION

Any dispute arising from the Contract shall be resolved in the State of Michigan. With respect to any claim between the parties, Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections it may have to the jurisdiction on the grounds of lack of personal jurisdiction of the court or the laying of venue of the court or on the basis of forum non conveniens or otherwise. Contractor agrees to appoint agents in the State of Michigan to receive service of process.

2.220 Limitation of Liability

2.221 LIMITATION OF LIABILITY

Neither the Contractor nor the State is liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability does not apply to claims for infringement of United States patent, copyright, trademark or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorneys' fees awarded by a court in addition to damages after litigation based on this Contract.

2.230 Disclosure Responsibilities

2.231 DISCLOSURE OF LITIGATION

Contractor shall disclose any material criminal litigation, investigations or proceedings involving the Contractor (and each Subcontractor) or any of its officers or directors or any litigation, investigations or proceedings under the Sarbanes-Oxley Act. In addition, each Contractor (and each Subcontractor) shall notify the State of any material civil litigation, arbitration or proceeding which arises during the term of the Contract and extensions, to which Contractor (or, to the extent Contractor is aware, any Subcontractor) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of Contractor or any Subcontractor; or (ii) a claim or written allegation of fraud against Contractor or, to the extent Contractor is aware, any Subcontractor by a governmental or public entity arising out of their business dealings with governmental or public entities. The Contractor shall disclose in writing to the Contract Administrator any litigation, investigation, arbitration or other proceeding (collectively, "Proceeding") within 30 days of its occurrence. Details of settlements that are prevented from disclosure by the terms of the settlement may be annotated. Information provided to the State from Contractor's publicly filed documents referencing its material litigation shall be deemed to satisfy the requirements of this Section.

If any Proceeding disclosed to the State under this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about:

- (a) the ability of Contractor (or a Subcontractor) to continue to perform this Contract according to its terms and conditions, or
- (b) whether Contractor (or a Subcontractor) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in the Proceeding, which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations or public policy, then the Contractor must provide the State all reasonable assurances requested by the State to demonstrate that:
 - (1) Contractor and its Subcontractors will be able to continue to perform this Contract and any Statements of Work according to its terms and conditions, and
 - (2) Contractor and its Subcontractors have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in the Proceeding.
- (c) Contractor shall make the following notifications in writing:



- (1) Within 30 days of Contractor becoming aware that a change in its ownership or officers has occurred, or is certain to occur, or a change that could result in changes in the valuation of its capitalized assets in the accounting records, Contractor must notify DTMB-Procurement.
- (2) Contractor shall also notify DTMB Procurement within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership or officers.
- (3) Contractor shall also notify DTMB-Procurement within 30 days whenever changes to company affiliations occur.

2.232 CALL CENTER DISCLOSURE

Contractor and/or all subcontractors involved in the performance of this Contract providing call or contact center services to the State shall disclose the location of its call or contact center services to inbound callers. Failure to disclose this information is a material breach of this Contract.

2.233 BANKRUPTCY

The State may, without prejudice to any other right or remedy, terminate this Contract, in whole or in part, and, at its option, may take possession of the "Work in Process" and finish the Works in Process by whatever appropriate method the State may deem expedient if:

- (a) the Contractor files for protection under the bankruptcy laws;
- (b) an involuntary petition is filed against the Contractor and not removed within 30 days;
- (c) the Contractor becomes insolvent or if a receiver is appointed due to the Contractor's insolvency;
- (d) the Contractor makes a general assignment for the benefit of creditors; or
- (e) the Contractor or its affiliates are unable to provide reasonable assurances that the Contractor or its affiliates can deliver the services under this Contract.

Contractor will fix appropriate notices or labels on the Work in Process to indicate ownership by the State. To the extent reasonably possible, materials and Work in Process shall be stored separately from other stock and marked conspicuously with labels indicating ownership by the State.

2.240 Performance

2.241 TIME OF PERFORMANCE

- (a) Contractor shall use commercially reasonable efforts to provide the resources necessary to complete all Services and Deliverables according to the time schedules contained in the Statements of Work and other Exhibits governing the work, and with professional quality.
- (b) Without limiting the generality of **Section 2.241**, Contractor shall notify the State in a timely manner upon becoming aware of any circumstances that may reasonably be expected to jeopardize the timely and successful completion of any Deliverables/Services on the scheduled due dates in the latest State-approved delivery schedule and must inform the State of the projected actual delivery date.
- (c) If the Contractor believes that a delay in performance by the State has caused or will cause the Contractor to be unable to perform its obligations according to specified Contract time periods, the Contractor must notify the State in a timely manner and must use commercially reasonable efforts to perform its obligations according to the Contract time periods notwithstanding the State's failure. Contractor will not be in default for a delay in performance to the extent the delay is caused by the State.

2.242 SERVICE LEVEL AGREEMENT (SLA)

- (a) SLAs will be completed with the following operational considerations:

- (1) SLAs will not be calculated for individual Incidents where any event of Excusable Failure has been determined; Incident means any interruption in Services.
- (2) SLAs will not be calculated for individual Incidents where loss of service is planned and where the State has received prior notification or coordination.
- (3) SLAs will not apply if the applicable Incident could have been prevented through planning proposed by Contractor and not implemented at the request of the State. To invoke this consideration, complete documentation relevant to the denied planning proposal must be presented to substantiate the proposal.



- (4) Time period measurements will be based on the time Incidents are received by the Contractor and the time that the State receives notification of resolution based on 24x7x365 time period, except that the time period measurement will be suspended based on the following:
- (i) Time period(s) will not apply where Contractor does not have access to a physical State Location and where access to the State Location is necessary for problem identification and resolution.
 - (ii) Time period(s) will not apply where Contractor needs to obtain timely and accurate information or appropriate feedback and is unable to obtain timely and accurate information or appropriate feedback from the State.
- (b) Chronic Failure for any Service(s) will be defined as three unscheduled outage(s) or interruption(s) on any individual Service for the same reason or cause or if the same reason or cause was reasonably discoverable in the first instance over a rolling 30 day period. Chronic Failure will result in the State's option to terminate the effected individual Service(s) and procure them from a different vendor for the chronic location(s) with Contractor to pay the difference in charges for up to three additional months. The termination of the Service will not affect any tiered pricing levels.
- (c) Root Cause Analysis will be performed on any Business Critical outage(s) or outage(s) on Services when requested by the Contract Administrator. Contractor will provide its analysis within two weeks of outage(s) and provide a recommendation for resolution.
- (d) All decimals must be rounded to two decimal places with five and greater rounding up and four and less rounding down unless otherwise specified.

2.243 RESERVED

2.244 EXCUSABLE FAILURE

Neither party will be liable for any default, damage or delay in the performance of its obligations under the Contract to the extent the default, damage or delay is caused by government regulations or requirements (executive, legislative, judicial, military or otherwise), power failure, electrical surges or current fluctuations, lightning, earthquake, war, water or other forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, or acts or omissions of common carriers, fire; riots, civil disorders; strikes or other labor disputes, embargoes; injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused); or any other cause beyond the reasonable control of a party; provided the non-performing party and its Subcontractors are without fault in causing the default or delay, and the default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans or other means, including disaster recovery plans.

If a party does not perform its contractual obligations for any of the reasons listed above, the non-performing party will be excused from any further performance of its affected obligation(s) for as long as the circumstances prevail. But the party must use commercially reasonable efforts to recommence performance whenever and to whatever extent possible without delay. A party must promptly notify the other party in writing immediately after the excusable failure occurs, and also when it abates or ends.

If any of the above-enumerated circumstances substantially prevent, hinder, or delay the Contractor's performance of the Services/provision of Deliverables for more than 10 Business Days, and the State determines that performance is not likely to be resumed within a period of time that is satisfactory to the State in its reasonable discretion, then at the State's option: (a) the State may procure the affected Services/Deliverables from an alternate source, and the State is not be liable for payment for the unperformed Services/ Deliverables not provided under the Contract for so long as the delay in performance continues; (b) the State may terminate any portion of the Contract so affected and the charges payable will be equitably adjusted to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to Contractor as of a date specified by the State in a written notice of termination to the Contractor, except to the extent that the State must pay for Services/Deliverables provided through the date of termination.



The Contractor will not have the right to any additional payments from the State as a result of any Excusable Failure occurrence or to payments for Services not rendered/Deliverables not provided as a result of the Excusable Failure condition. Defaults or delays in performance by Contractor which are caused by acts or omissions of its Subcontractors will not relieve Contractor of its obligations under the Contract except to the extent that a Subcontractor is itself subject to an Excusable Failure condition described above and Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans or other means.

2.250 Approval of Deliverables

2.251 DELIVERY OF DELIVERABLES

A list of the Deliverables to be prepared and delivered by Contractor including, for each Deliverable, the scheduled delivery date and a designation of whether the Deliverable is a document ("Written Deliverable") or a Custom Software Deliverable is attached, if applicable. All Deliverables shall be completed and delivered for State review and written approval and, where applicable, installed in accordance with the State-approved delivery schedule and any other applicable terms and conditions of this Contract.

Prior to delivering any Deliverable to the State, Contractor will first perform all required quality assurance activities, and, in the case of Custom Software Deliverables, System Testing to verify that the Deliverable is complete and in conformance with its specifications. Before delivering a Deliverable to the State, Contractor shall certify to the State that (1) it has performed such quality assurance activities, (2) it has performed any applicable testing, (3) it has corrected all material deficiencies discovered during such quality assurance activities and testing, (4) the Deliverable is in a suitable state of readiness for the State's review and approval, and (5) the Deliverable/Service has all Critical Security patches/updates applied.

In discharging its obligations under this Section, Contractor shall be at all times (except where the parties agree otherwise in writing) in compliance with Level 3 of the Software Engineering Institute's Capability Maturity Model for Software ("CMM Level 3") or its equivalent.

2.252 CONTRACTOR SYSTEM TESTING

Contractor will be responsible for System Testing each Custom Software Deliverable in Contractor's development environment prior to turning over the Custom Software Deliverable to the State for User Acceptance Testing and approval. Contractor's System Testing shall include the following, at a minimum, plus any other testing required by CMM Level 3 or Contractor's system development methodology:

Contractor will be responsible for performing Unit Testing and incremental Integration Testing of the components of each Custom Software Deliverable.

Contractor's System Testing will also include Integration Testing of each Custom Software Deliverable to ensure proper inter-operation with all prior software Deliverables, interfaces and other components that are intended to inter-operate with such Custom Software Deliverable, and will include Regression Testing, volume and stress testing to ensure that the Custom Software Deliverables are able to meet the State's projected growth in the number and size of transactions to be processed by the Application and number of users, as such projections are set forth in the applicable Statement of Work.

Contractor's System Testing will also include Business Function Testing and Technical Testing of each Application in a simulated production environment. Business Function Testing will include testing of full work streams that flow through the Application as the Application will be incorporated within the State's computing environment. The State shall participate in and provide support for the Business Function Testing to the extent reasonably requested by Contractor. Within ten (10) days before the commencement of Business Function Testing pursuant to this Section, Contractor shall provide the State for State review and written approval Contractor's test plan for Business Function Testing.



Within five (5) Business Days following the completion of System Testing pursuant to this **Section**, Contractor shall provide to the State a testing matrix establishing that testing for each condition identified in the System Testing plans has been conducted and successfully concluded. To the extent that testing occurs on State premises, the State shall be entitled to observe or otherwise participate in testing under this Section as the State may elect.

2.253 APPROVAL OF DELIVERABLES, IN GENERAL

All Deliverables (Written Deliverables and Custom Software Deliverables) require formal written approval by the State, in accordance with the following procedures. Formal approval by the State requires that the Deliverable be confirmed in writing by the State to meet its specifications, which, in the case of Custom Software Deliverables, will include the successful completion of State User Acceptance Testing, to be led by the State with the support and assistance of Contractor. The parties acknowledge that the approval process set forth herein will be facilitated by ongoing consultation between the parties, visibility of interim and intermediate Deliverables and collaboration on key decisions.

The State's obligation to comply with any State Review Period is conditioned on the timely delivery of Deliverables being reviewed. If Contractor fails to provide a Deliverable to the State in a timely manner, the State will nevertheless use commercially reasonable efforts to complete its review or testing within the applicable State Review Period.

Before commencement of its review or testing of a Deliverable, the State may inspect the Deliverable to confirm that all components of the Deliverable (e.g., software, associated documentation, and other materials) have been delivered. If the State determines that the Deliverable is incomplete, the State may refuse delivery of the Deliverable without performing any further inspection or testing of the Deliverable. Otherwise, the review period will be deemed to have started on the day the State receives the Deliverable and the applicable certification by Contractor in accordance with this Section.

The State will approve in writing a Deliverable upon confirming that it conforms to and, in the case of a Custom Software Deliverable, performs in accordance with, its specifications without material deficiency. The State may, but shall not be required to, conditionally approve in writing a Deliverable that contains material deficiencies if the State elects to permit Contractor to rectify them post-approval. In any case, Contractor will be responsible for working diligently to correct within a reasonable time at Contractor's expense all deficiencies in the Deliverable that remain outstanding at the time of State approval.

If, after three (3) opportunities (the original and two repeat efforts), Contractor is unable to correct all deficiencies preventing State approval of a Deliverable, the State may: (i) demand that Contractor cure the failure and give Contractor additional time to cure the failure at the sole expense of Contractor; or (ii) keep this Contract in force and do, either itself or through other parties, whatever Contractor has failed to do, in which event Contractor shall bear any excess expenditure incurred by the State in so doing beyond the contract price for such Deliverable and will pay the State an additional sum equal to ten percent (10%) of such excess expenditure to cover the State's general expenses without the need to furnish proof in substantiation of such general expenses; or (iii) terminate this Contract for default, either in whole or in part by notice to Contractor (and without the need to afford Contractor any further opportunity to cure). Notwithstanding the foregoing, the State shall not use, as a basis for exercising its termination rights under this Section, deficiencies discovered in a repeat State Review Period that could reasonably have been discovered during a prior State Review Period.

The State, at any time and in its own discretion, may halt the UAT or approval process if such process reveals deficiencies in or problems with a Deliverable in a sufficient quantity or of a sufficient severity as to make the continuation of such process unproductive or unworkable. In such case, the State may return the applicable Deliverable to Contractor for correction and re-delivery prior to resuming the review or UAT process and, in that event, Contractor will correct the deficiencies in such Deliverable in accordance with the Contract, as the case may be.



Approval in writing of a Deliverable by the State shall be provisional; that is, such approval shall not preclude the State from later identifying deficiencies in, and declining to accept, a subsequent Deliverable based on or which incorporates or inter-operates with an approved Deliverable, to the extent that the results of subsequent review or testing indicate the existence of deficiencies in the subsequent Deliverable, or if the Application of which the subsequent Deliverable is a component otherwise fails to be accepted pursuant to **Section 2.080**.

2.254 PROCESS FOR APPROVAL OF WRITTEN DELIVERABLES

The State Review Period for Written Deliverables will be the number of days set forth in the applicable Statement of Work following delivery of the final version of the Written Deliverable (failing which the State Review Period, by default, shall be five (5) Business Days for Written Deliverables of one hundred (100) pages or less and ten (10) Business Days for Written Deliverables of more than one hundred (100) pages). The duration of the State Review Periods will be doubled if the State has not had an opportunity to review an interim draft of the Written Deliverable prior to its submission to the State. The State agrees to notify Contractor in writing by the end of the State Review Period either stating that the Written Deliverable is approved in the form delivered by Contractor or describing any deficiencies that shall be corrected prior to approval of the Written Deliverable (or at the State's election, subsequent to approval of the Written Deliverable). If the State delivers to Contractor a notice of deficiencies, Contractor will correct the described deficiencies and within five (5) Business Days resubmit the Deliverable in a form that shows all revisions made to the original version delivered to the State. Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Written Deliverable from Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Written Deliverable to confirm that the identified deficiencies have been corrected.

2.255 PROCESS FOR APPROVAL OF CUSTOM SOFTWARE DELIVERABLES

The State will conduct UAT of each Custom Software Deliverable in accordance with the following procedures to determine whether it meets the criteria for State approval – i.e., whether it conforms to and performs in accordance with its specifications without material deficiencies.

Within thirty (30) days (or such other number of days as the parties may agree to in writing) prior to Contractor's delivery of any Custom Software Deliverable to the State for approval, Contractor shall provide to the State a set of proposed test plans, including test cases, scripts, data and expected outcomes, for the State's use (which the State may supplement in its own discretion) in conducting UAT of the Custom Software Deliverable. Contractor, upon request by the State, shall provide the State with reasonable assistance and support during the UAT process.

For the Custom Software Deliverables listed in an attachment, the State Review Period for conducting UAT will be as indicated in the attachment. For any other Custom Software Deliverables not listed in an attachment, the State Review Period shall be the number of days agreed in writing by the parties (failing which it shall be forty-five (45) days by default). The State Review Period for each Custom Software Deliverable will begin when Contractor has delivered the Custom Software Deliverable to the State accompanied by the certification required by this **Section** and the State's inspection of the Deliverable has confirmed that all components of it have been delivered.

The State's UAT will consist of executing test scripts from the proposed testing submitted by Contractor, but may also include any additional testing deemed appropriate by the State. If the State determines during the UAT that the Custom Software Deliverable contains any deficiencies, the State will notify Contractor of the deficiency by making an entry in an incident reporting system available to both Contractor and the State. Contractor will modify promptly the Custom Software Deliverable to correct the reported deficiencies, conduct appropriate System Testing (including, where applicable, Regression Testing) to confirm the proper correction of the deficiencies and re-deliver the corrected version to the State for re-testing in UAT. Contractor will coordinate the re-delivery of corrected versions of Custom Software Deliverables with the State so as not to disrupt the State's UAT process. The State will promptly re-test the corrected version of the Software Deliverable after receiving it from Contractor.



Within three (3) business days after the end of the State Review Period, the State will give Contractor a written notice indicating the State's approval or rejection of the Custom Software Deliverable according to the criteria and process set out in this **Section**.

2.256 FINAL ACCEPTANCE

"Final Acceptance" shall be considered to occur when the Custom Software Deliverable to be delivered has been approved by the State and has been operating in production without any material deficiency for fourteen (14) consecutive days. If the State elects to defer putting a Custom Software Deliverable into live production for its own reasons, not based on concerns about outstanding material deficiencies in the Deliverable, the State shall nevertheless grant Final Acceptance of the Project.

2.260 Ownership

2.261 OWNERSHIP OF WORK PRODUCT BY STATE

The State owns all Deliverables, as they are work made for hire by the Contractor for the State. The State owns all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

2.262 VESTING OF RIGHTS

With the sole exception of any preexisting licensed works identified in the SOW, the Contractor assigns, and upon creation of each Deliverable automatically assigns, to the State, ownership of all United States and international copyrights, trademarks, patents, or other proprietary rights in each and every Deliverable, whether or not registered by the Contractor, insofar as any the Deliverable, by operation of law, may not be considered work made for hire by the Contractor for the State. From time to time upon the State's request, the Contractor must confirm the assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State may obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

2.263 RIGHTS IN DATA

The State is the owner of all data made available by the State to the Contractor or its agents, Subcontractors or representatives under the Contract. The Contractor will not use the State's data for any purpose other than providing the Services, nor will any part of the State's data be disclosed, sold, assigned, leased or otherwise disposed of to the general public or to specific third parties or commercially exploited by or on behalf of the Contractor. No employees of the Contractor, other than those on a strictly need-to-know basis, have access to the State's data. Contractor will not possess or assert any lien or other right against the State's data. Without limiting the generality of this Section, the Contractor must only use personally identifiable information as strictly necessary to provide the Services and must disclose the information only to its employees who have a strict need-to-know the information. The Contractor must comply at all times with all laws and regulations applicable to the personally identifiable information.

The State is the owner of all State-specific data under the Contract. The State may use the data provided by the Contractor for any purpose. The State will not possess or assert any lien or other right against the Contractor's data. Without limiting the generality of this Section, the State may use personally identifiable information only as strictly necessary to utilize the Services and must disclose the information only to its employees who have a strict need to know the information, except as provided by law. The State must comply at all times with all laws and regulations applicable to the personally identifiable information. Other material developed and provided to the State remains the State's sole and exclusive property.

2.264 OWNERSHIP OF MATERIALS

The State and the Contractor will continue to own their respective proprietary technologies developed before entering into the Contract. Any hardware bought through the Contractor by the State, and paid for by the State, will be owned by the State. Any software licensed through the Contractor and sold to the State, will be licensed directly to the State.



2.270 State Standards

2.271 EXISTING TECHNOLOGY STANDARDS

The Contractor must adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at <http://www.michigan.gov/dmb/0,4568,7-150-56355-108233--,00.html>;

2.272 ACCEPTABLE USE POLICY

To the extent that Contractor has access to the State computer system, Contractor must comply with the State's Acceptable Use Policy, see http://michigan.gov/cybersecurity/0,1607,7-217-34395_34476---,00.html. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State system. The State reserves the right to terminate Contractor's access to the State system if a violation occurs.

2.273 SYSTEMS CHANGES

Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the Project Manager. Any changes Contractor makes to State systems with the State's approval must be done according to applicable State procedures, including security, access and configuration management procedures.

2.274 ELECTRONIC RECEIPT PROCESSING STANDARD

All electronic commerce applications that allow for electronic receipt of credit/debit card and electronic check (ACH) transactions must be processed via the Centralized Electronic Payment Authorization System (CEPAS).

2.280 Extended Purchasing Program

2.281 RESERVED

2.290 Environmental Provision

2.291 ENVIRONMENTAL PROVISION

Energy Efficiency Purchasing Policy: The State seeks wherever possible to purchase energy efficient products. This includes giving preference to U.S. Environmental Protection Agency (EPA) certified 'Energy Star' products for any category of products for which EPA has established Energy Star certification. For other purchases, the State may include energy efficiency as one of the priority factors to consider when choosing among comparable products.

Environmental Purchasing Policy: The State of Michigan is committed to encouraging the use of products and services that impact the environment less than competing products. The State is accomplishing this by including environmental considerations in purchasing decisions, while remaining fiscally responsible, to promote practices that improve worker health, conserve natural resources, and prevent pollution. Environmental components that are to be considered include: recycled content and recyclables; energy efficiency; and the presence of undesirable materials in the products, especially those toxic chemicals which are persistent and bioaccumulative. The Contractor should be able to supply products containing recycled and environmentally preferable materials that meet performance requirements and is encouraged to offer such products throughout the duration of this Contract. Information on any relevant third party certification (such as Green Seal, Energy Star, etc.) should also be provided.

Hazardous Materials: For the purposes of this Section, "Hazardous Materials" is a generic term used to describe asbestos, ACBMs, PCBs, petroleum products, construction materials including paint thinners, solvents, gasoline, oil, and any other material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by the federal, state or local laws governing the protection of the public health, natural resources or the environment. This includes, but is not limited to, materials the as batteries and circuit packs, and other materials that are regulated as (1) "Hazardous Materials" under the Hazardous Materials Transportation Act, (2) "chemical hazards" under the Occupational Safety and Health Administration standards,



(3) “chemical substances or mixtures” under the Toxic Substances Control Act, (4) “pesticides” under the Federal Insecticide Fungicide and Rodenticide Act, and (5) “hazardous wastes” as defined or listed under the Resource Conservation and Recovery Act.

- (a) The Contractor shall use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material according to all federal, State and local laws. The State shall provide a safe and suitable environment for performance of Contractor’s Work. Before the commencement of Work, the State shall advise the Contractor of the presence at the work site of any Hazardous Material to the extent that the State is aware of the Hazardous Material. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor shall immediately stop all affected Work, notify the State in writing about the conditions encountered, and take appropriate health and safety precautions.
- (b) Upon receipt of a written notice, the State will investigate the conditions. If (a) the material is a Hazardous Material that may present a substantial danger, and (b) the Hazardous Material was not brought to the site by the Contractor, or does not result in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials, the State shall order a suspension of Work in writing. The State shall proceed to have the Hazardous Material removed or rendered harmless. In the alternative, the State shall terminate the affected Work for the State’s convenience.
- (c) Once the Hazardous Material has been removed or rendered harmless by the State, the Contractor shall resume Work as directed in writing by the State. Any determination by the Michigan Department of Community Health or the Michigan Department of Environmental Quality that the Hazardous Material has either been removed or rendered harmless is binding upon the State and Contractor for the purposes of resuming the Work. If any incident with Hazardous Material results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in a time as mutually agreed by the parties.
- (d) If the Hazardous Material was brought to the site by the Contractor, or results in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Material, or from any other act or omission within the control of the Contractor, the Contractor shall bear its proportionate share of the delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material according to Applicable Laws to the condition approved by applicable regulatory agency(ies).

Labeling: Michigan has a Consumer Products Rule pertaining to labeling of certain products containing volatile organic compounds. For specific details visit http://www.michigan.gov/deq/0,1607,7-135-3310_4108-173523--,00.html

Refrigeration and Air Conditioning: The Contractor shall comply with the applicable requirements of Sections 608 and 609 of the Clean Air Act (42 U.S.C. 7671g and 7671h) as each or both apply to this contract.

Environmental Performance: Waste Reduction Program - Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor's programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act (42 U.S.C. 6962, et seq.).

2.300 Deliverables

2.301 SOFTWARE

A list of the items of software the State is required to purchase for executing the Contract is attached. The list includes all software required to complete the Contract and make the Deliverables operable; if any additional software is required in order for the Deliverables to meet the requirements of this Contract, such software shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Statement of Work or Contract Change Notice). The attachment also identifies certain items of software to be provided by the State.



2.302 HARDWARE

A list of the items of hardware the State is required to purchase for executing the Contract is attached. The list includes all hardware required to complete the Contract and make the Deliverables operable; if any additional hardware is required in order for the Deliverables to meet the requirements of this Contract, such hardware shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Contract Change Notice). The attachment also identifies certain items of hardware to be provided by the State.

2.310 Software Warranties

2.311 RESERVED

2.312 RESERVED

2.313 RESERVED

2.314 RESERVED

2.315 RESERVED

2.320 Software Licensing

2.321 RESERVED

2.322 RESERVED

2.323 RESERVED

2.324 RESERVED

2.325 RESERVED

2.330 Source Code Escrow

Contractor will inform DTMB when the update to the MGMT module is scheduled for installation in State of Michigan laptops. Contractor will provide the release notes which lists the changes made in the new version

2.331 DEFINITION

2.332 DELIVERY OF SOURCE CODE INTO ESCROW

Contractor shall deliver a Source Code Escrow Package to the Escrow Agent, pursuant to the Escrow Contract, which shall be entered into on commercially reasonable terms subject to the provisions of this Contract within (30) thirty days of the execution of this Contract.

2.333 DELIVERY OF NEW SOURCE CODE INTO ESCROW

If at any time during the term of this Contract, the Contractor provides a maintenance release or upgrade version of the Licensed Software, Contractor shall within ten (10) days deposit with the Escrow Agent, in accordance with the Escrow Contract, a Source Code Escrow Package for the maintenance release or upgrade version, and provide the State with notice of the delivery.

2.334 VERIFICATION

The State reserves the right at any time, but not more than once a year, either itself or through a third party contractor, upon thirty (30) days written notice, to seek verification of the Source Code Escrow Package.



2.335 ESCROW FEES

The Contractor will pay all fees and expenses charged by the Escrow Agent.

2.336 RELEASE EVENTS

The Source Code Escrow Package may be released from escrow to the State, temporarily or permanently, upon the occurrence of one or more of the following:

- (a) The Contractor becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition of bankruptcy, suffers or permits the appointment of a receiver for its business or assets, becomes subject to any proceeding under bankruptcy or insolvency law, whether domestic or foreign;
- (b) The Contractor has wound up or liquidated its business voluntarily or otherwise and the State has reason to believe that such events will cause the Contractor to fail to meet its warranties and maintenance obligations in the foreseeable future;
- (c) The Contractor voluntarily or otherwise discontinues support of the provided products or fails to support the products in accordance with its maintenance obligations and warranties.

2.337 RELEASE EVENT PROCEDURES

If the State desires to obtain the Source Code Escrow Package from the Escrow Agent upon the occurrence of an Event in this **Section**, then:

- (a) The State shall comply with all procedures in the Escrow Contract;
- (b) The State shall maintain all materials and information comprising the Source Code Escrow Package in confidence in accordance with this Contract;
- (c) If the release is a temporary one, then the State shall promptly return all released materials to Contractor when the circumstances leading to the release are no longer in effect.

2.338 LICENSE

Upon release from the Escrow Agent pursuant to an event described in this **Section**, the Contractor automatically grants the State a non-exclusive, irrevocable license to use, reproduce, modify, maintain, support, update, have made, and create Derivative Works. Further, the State shall have the right to use the Source Code Escrow Package in order to maintain and support the Licensed Software so that it can be used by the State as set forth in this Contract.

2.339 DERIVATIVE WORKS

Any Derivative Works to the source code released from escrow that are made by or on behalf of the State shall be the sole property of the State. The State acknowledges that its ownership rights are limited solely to the Derivative Works and do not include any ownership rights in the underlying source code.



Glossary

Days	Means calendar days unless otherwise specified.
24x7x365	Means 24 hours a day, seven days a week, and 365 days a year (including the 366th day in a leap year).
Additional Service	Means any Services/Deliverables within the scope of the Contract, but not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Audit Period	See Section 2.110
Business Day	Whether capitalized or not, shall mean any day other than a Saturday, Sunday or State-recognized legal holiday (as identified in the Collective Bargaining Agreement for State employees) from 8:00am EST through 5:00pm EST unless otherwise stated.
Blanket Purchase Order	An alternate term for Contract as used in the States computer system.
Business Critical	Any function identified in any Statement of Work as Business Critical.
Chronic Failure	Defined in any applicable Service Level Agreements.
Deliverable	Physical goods and/or commodities as required or identified by a Statement of Work
DTMB	Michigan Department of Technology, Management and Budget
Environmentally preferable products	A product or service that has a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Such products or services may include, but are not limited to, those that contain recycled content, minimize waste, conserve energy or water, and reduce the amount of toxics either disposed of or consumed.
Excusable Failure	See Section 2.244.
Hazardous material	Any material defined as hazardous under the latest version of federal Emergency Planning and Community Right-to-Know Act of 1986 (including revisions adopted during the term of the Contract).
Incident	Any interruption in Services.
ITB	A generic term used to describe an Invitation to Bid. The ITB serves as the document for transmitting the RFP to potential bidders
Key Personnel	Any Personnel designated in Article 1 as Key Personnel.
New Work	Any Services/Deliverables outside the scope of the Contract and not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Ozone-depleting substance	Any substance the Environmental Protection Agency designates in 40 CFR part 82 as: (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or (2) Class II, including, but not limited to, hydro chlorofluorocarbons
Post-Consumer Waste	Any product generated by a business or consumer which has served its intended end use, and which has been separated or diverted from solid waste for the purpose of recycling into a usable commodity or product, and which does not include post-industrial waste.
Post-Industrial Waste	Industrial by-products that would otherwise go to disposal and wastes generated after completion of a manufacturing process, but do not include internally generated scrap commonly returned to industrial or manufacturing processes.
Recycling	The series of activities by which materials that are no longer useful to the generator are collected, sorted, processed, and converted into raw materials and used in the production of new products. This definition excludes the use of these materials as a fuel substitute or for energy production.
Deleted – Not Applicable	Section is not applicable or included in this RFP. This is used as a placeholder to maintain consistent numbering.
Reuse	Using a product or component of municipal solid waste in its original form more than once.

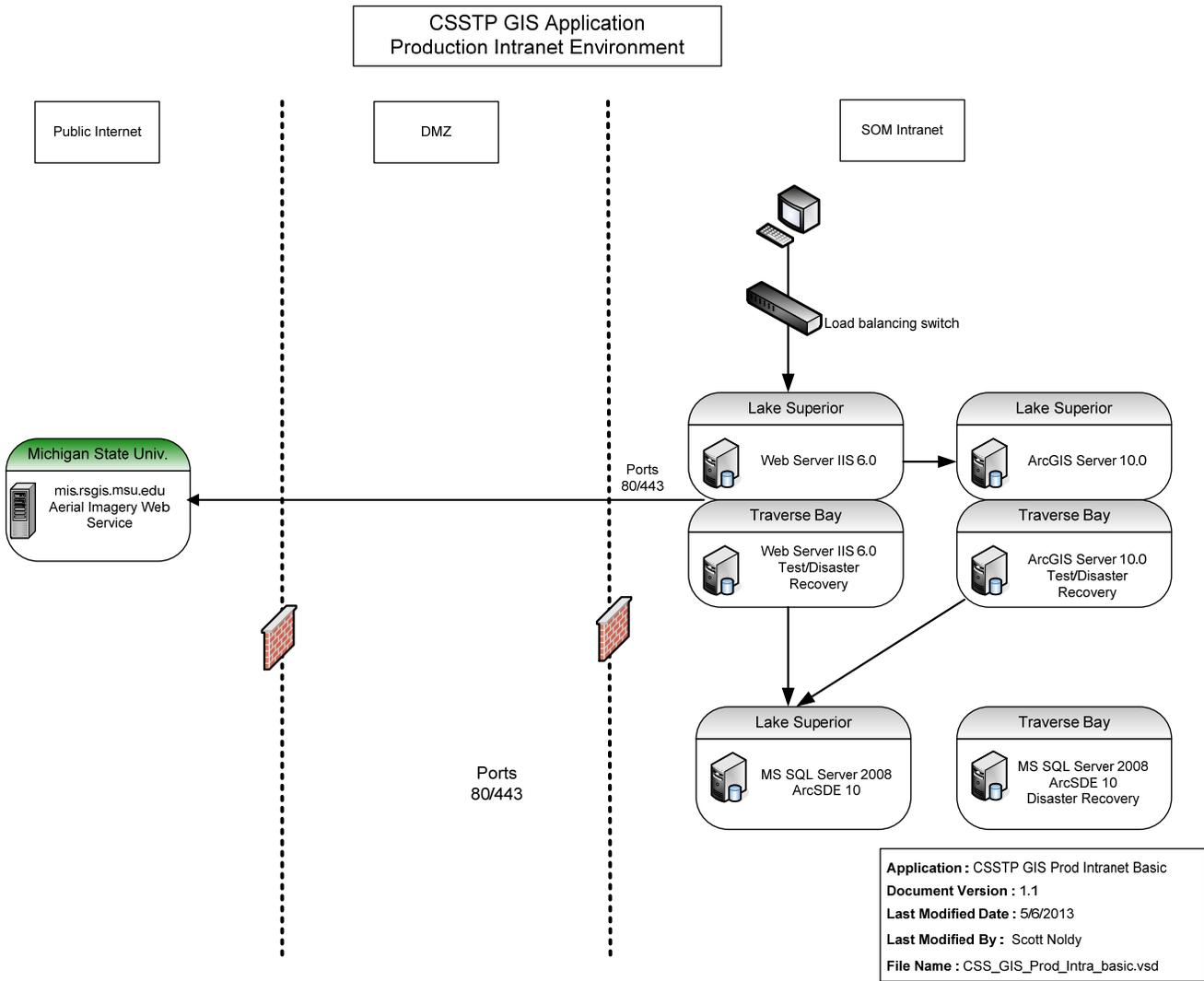


RFP	Request for Proposal designed to solicit proposals for services
Services	Any function performed for the benefit of the State.
Source reduction	Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, energy recovery, treatment, or disposal.
State Location	Any physical location where the State performs work. State Location may include state-owned, leased, or rented space.
Subcontractor	A company Contractor delegates performance of a portion of the Services to, but does not include independent contractors engaged by Contractor solely in a staff augmentation role.
Unauthorized Removal	Contractor's removal of Key Personnel without the prior written consent of the State.
Waste prevention	Source reduction and reuse, but not recycling.
Waste reduction and Pollution prevention	The practice of minimizing the generation of waste at the source and, when wastes cannot be prevented, utilizing environmentally sound on-site or off-site reuse and recycling. The term includes equipment or technology modifications, process or procedure modifications, product reformulation or redesign, and raw material substitutions. Waste treatment, control, management, and disposal are not considered pollution prevention, per the definitions under Part 143, Waste Minimization, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.
Work in Progress	A Deliverable that has been partially prepared, but has not been presented to the State for Approval.
Work Product	Refers to any data compilations, reports, and other media, materials, or other objects or works of authorship created or produced by the Contractor as a result of an in furtherance of performing the services required by this Contract.



Appendix A

DWGIS Application Production Environment





**Appendix B
Technical and Functional Requirements**

TECHNICAL REQUIREMENTS	MADATORY- M, OPTIONAL – O	BIDDER WILL MEET REQUIREMENT (YES, No)	COMMENTS
1. DWGIS SYSTEM			
a. DWGIS System should support ARC GIS 10.1	M	YES	
b. DWGIS system should meet the hosting requirements of Center for Shared Solutions.	M	YES	RSGIS will migrate the existing DWGIS application to the current CSSTP advanced template
2. MGMT SYSTEM			
a. MGMT System should support Windows 7 and SQL 2008	M	YES	
b. MGMT system should be packaged for installation in individual systems along with the installation Guide.	M	YES	
3. Training			
a. Must provide training documentation for the outreach program.	M	YES	
4. Maintenance and support			
a. Must provide functional and technical support during normal work hours (Mon-Fri 7am to 5pm)	M	YES	



Functional Requirements

This project is broken into five (5) interrelated sub-projects. Some of the five sub-projects have separate phases with corresponding products or milestones for payment. The products and milestones will act as criteria in the monitoring and payment on the project. The five sub-projects include:

- Completion of and enhancements to the MGMT software with the associated pre-processing of groundwater data to feed the application;
- Geocoding of data in the WaterChem database, the development of a query/report tool within DWGIS to analyze and spatially display the geo-located data, and the production of standardized chemistry mapping products for incorporation into the DWGIS application;
- Enhancement of the DWGIS intranet application to support “desk top” methods for maintaining and updating source water assessments;
- Outreach facilitation utilizing source water protection products produced by the finalized MGMT software and data;
- Entry of all backlogged water well and pump records into the Wellogig Database.

The five subprojects are discussed and described in greater detail in the sections below.

Subproject I – Enhancements to the MGMT Software

The MGMT subproject will consist of three phases – MGMT software modifications, enhancements and improvements; data processing and the creation of map products for use in the MGMT application; and the addition of a module to MGMT to provide for the interactive interpolation of hydraulic conductivity and static water elevation data. The result will be a tool with tremendous applicability in managing the groundwater resources of Michigan by providing the DEQ with an improved ability to map and model groundwater flow and advance the cause of the Source Water Protection Program (SWPP) to protect public health. The required upgrades and enhancement to MGMT will require the contractor obtain the source code for MGMT and have the qualifications and capabilities to provide the necessary alterations to the MGMT program.

Phase 1: MGMT Modifications and Improvements

This phase involves making changes to MGMT that will improve the efficiency and effectiveness of efforts to delineate wellhead protection areas for community and non-community public water supply wells throughout Michigan. This phase focuses on software issues and will deliver MGMT 2.0 by incorporating a cleanup of the applications interface and providing minor enhancements to the MGMT software’s data processing capabilities.

This phase will consist of specific tasks to provide the necessary function to the MGMT software interface. The specific tasks include:

1. Complete modifications to the software interface as specified in the section **REQUIRED MODIFICATIONS to the MGMT INTERFACE, TABLE OF CONTENTS / LAYER DISPLAY WINDOW.**
2. Complete modifications to the operation and structure of MGMT as identified section : **GENERAL ISSUES w/ the OPERATION OF MGMT** and
3. Provide ongoing software support and improvements to correct unforeseen problems in completing the MGMT enhancements.

The contractor will be expected to deliver the modifications to MGMT and also provide ongoing support throughout the remainder of the contract period.

REQUIRED MODIFICATIONS TO THE MGMT INTERFACE **TABLE OF CONTENTS / LAYER DISPLAY WINDOW**

PROGRAM SPLASH SCREEN

- Improve splash screen and update name to Michigan Groundwater Management Tool (MGMT)

WELLS

- Monitor Wells – remove from program interface
- Outliners – remove from program interface

**CONTAMINATION**

- Change to POTENTIAL CONTAMINANTS
- Plume – remove from program interface

CHEMICAL SAMPLING – Add and provide the following breakdown to chemical sampling

- Partial Chemistry
- Metals
- Organics

RIVERS – This layer and title is OK**ROADS** – Use standard nomenclature for displaying roads with following breakdown

- All Roads
- State Routes

WHPAs

- Traditional WHPAs
- Provisional WHPAs
 1. Community Water Supplies or Type I
 2. Non-Transient Non-community or NTNC Type II

LAKES – This layer and title is OK**WATERSHEDS** – This layer and title is OK**ECOLOGY** - Remove from program interface**REGION** - This layer and title is OK except remove the following from the program interface

- School
- State

GWFLOW – Provide the following display option breakdowns

- SWL
 1. Contours
 2. Velocity Vectors
 3. Color
- Drawdown
 1. Contours
 2. Color
- DWL – Change to “Stressed Surface” or “Pumped Surface”
 1. Contours
 2. Velocity Vectors
 3. Color

HYDROLOGY – Change to HYDRAULIC CONDUCTIVITY

- K - Drift
- K - Bedrock
- Remove Baseflow and Recharge (not used)

GEOLOGY – Change to ELEVATIONS

- DEM or Digital Elevation Map - This layer and title is OK
- Claytop – remove from program interface
- Claybottom – remove from program interface
- Bedrock – Change to Top-of-Bedrock

FORMATION ELEVATIONS, LP – add as a layer

- Place bedrock elevations within this layer: Jurassic thru Niagra

GLACIAL GEOLOGY

- Landsystems (Lusch)
- Quaternary Geology (Farrand and Bell)

BEDROCK GEOLOGY

- Lower Peninsula (Milstein)
- Upper Peninsula (Reed and Daniels)



GENERAL ISSUES WITH THE OPERATION OF MGMT

SIGNIFICANT FIGURES and INTERVALS

- Input and output should display no more than 1 significant figure (i.e. – heads 948.6, 874.5, etc.)
- Interval splits on display should be rounded to nearest 2, 5, 10, 20 or 25 depending on range

LAYERS AND LAYER SOURCE

- Modifications need to be made so LAYERS can be added to GROUPS
- File locations are hard-wired. They need to be provided as defaults with user override capabilities

MIXED UNITS

- Units need to be fixed so they can be changed globally

ADDITION OF WELLS

- Provide modification so a new well can be added to a GROUP of wells
- Amend Particle setting and FILE STORAGE

DATA FOLDERS

- Reorganize SWL folders into a more meaningful, hierarchical structure;
- Add interactive online help (e.g., sticky note) for each data folder;
- There are a massive number of preprocessed data sets. Identify the “best” data layers for wellhead delineation applications and make these the default layers

USER SPECIFIED CONDUCTIVITIES

- Allow using constant conductivity (interactively-specified) for particle tracking/wellhead delineation;
- Allow one-step adjustment of GWIM conductivity distribution by a constant factor.

WHPA DIGITIZATION AND LAYER VISIBILITY

- Allow manual/interactive creation of WHPA polygons that are too complex for accurate automated digitization
- Allow saving interactively-delineated WHPA polygons as a shape file
- Improve digitization to ensure that the delineated WHPAs can be mapped within MiGMT or in an external GIS environment at different scales.

EXPORT FEATURES AS SHAPEFILES

- Allow exporting particle pathlines as a shapefile
- Allow exporting queried/selected wells/features as a shapefile.

INTERACTIVE INPUT OF WHPA SHAPEFILE ATTRIBUTES

- Modify interface to allow interactive input of field names/attributes to be automatically included in WHPA attribute files;
- Allow automatic input of attributes from an existing user-specified well layer;
- Add options to allow automatic inclusion of WHPA model parameters and delineation method details (e.g., effective porosity, dispersivities, K source or K value, SWL source (raster layer name), aquifer type, WHPA creator (DEQ) in addition to attributes already included in the current version).

DRAWDOWN WELLS - Improve user interface for placing and computing well drawdown

- Add an option to turn off interfering wells outside the active model
- Modify to only allow adding particles to wells once.

PARTICLE SETTING - Improve particle setting interface and logic

- Add an option to allow defining total number or density of particles to be released;
- Add an option to allow placing particles only at wells with drawdown in one step;
- Allow selecting a particle set from the particle group list and have it highlighted in the model domain to see whether one wants to generate the WHPA;
- Streamline particle setting to avoid inputting the same parameters from different places inconsistently.

WHPA NAMING CONVENTION

- Add an option to allow automatic naming of WHPAs based on well system/owner or county/township.

UNITS AND UNIT CONVERSION



- Streamline/simplify unit system (e.g., no need to specify inches or centimeters as a length unit);
- Allow global change of units between Metric and English system in one step.

CONTOUR LABELING

- Improve customized contour labeling by allowing user to input data range and intervals.

VELOCITY VECTOR VISUALIZATION

- Improve the interface for editing velocity display parameters;
- Allow inputting vector size and vector density independently.

TIME CONTROL

- Provide a clock icon on the toolbar to open a window containing all the time options for drawdown and particle tracking calculations, and anything else that is time-dependent.

EXTERNAL DATA LAYERS

- Allow adding external data layers to any group in a way that is compatible with MGMT's interactive query system.

MULTIPLE MODEL MANAGEMENT TOOL

- Disable multiple model management menu when there are no multiple models in use.

VERTICAL CROSS-SECTIONS – Modify display options to improve the presentation of vertical cross-sections

- Improve intervals shown on the depth scale, rounded to the nearest integers (e.g., 20, 50, 100, etc);
- Add two additional boxes, one for depth interval, and the other for the number of intervals;
- Add an option for plotting horizontal dotted lines across the cross section to aid in determining depth or elevation.

GEOLOGY LAYER NAMING CONVENTION - Improve naming conventions and organization of geological data;

- Add a subgroup under geology called "Top and Extent" with the appropriate geologic formations added as member layers;
- Add surficial geology layer from Farrand and Bell to show surface glacial deposits;
- Rename DEM as "USGS 90m DEM";
- Rename "Glacial Geology" as "Glacial Land System";
- Rename "Bedrock" as "Bedrock Top";
- Rename "RockGeology" as "Bedrock Geology".

ATTRIBUTE VIEWER

- Add more parameters (e.g., storage coefficient, depth to water, depth to bedrock) in the attribute viewer;
- Use imperial units as default for all parameters displayed;
- Align parameter attributes/values.

PROGRAM EXIT

- Provide a button for program exit.
- Ensure that MGMT is removed from system memory after exit.

Phase 2: Data Processing, Development and Mapping of MGMT Datasets

This part aims at improving the state's ability to model groundwater flow and delineate wellhead protection areas throughout the state by addressing the unique differences and anomalies in applicable data sets. The data processing is particularly necessary to those datasets providing coverage in the Upper Peninsula (UP) of Michigan where irregularities in land surface topography, the scarcity of data, or both create considerable uncertainty in the development of the applicable datasets. Much of the reprocessing is also necessary as the dataset (Wellogis) from which the processing is done now contain many more records than when the same or similar products were originally created. This part will also address the significant issue of quality disparity between surface water DEM elevation data and groundwater data from Wellogis. All datasets created as a result of this part are to be amenable to consumption, use and analysis within the MGMT software application.

Mapping Static Water Elevations

Previous approaches in processing static water level (SWL) data failed to make the most effective use of the surface water information. This is important because the surface water elevations tend to be quite accurate



while ground water elevations tend to be very noisy. Combining the groundwater elevations with surface water data can significantly improve SWL interpolation, especially in the areas where groundwater data is sparse. A recent site-specific study shows that mixing the two sources of data with very different qualities has the effect of reducing/diluting the distorting effect of bad data and reduces the need to aggressively smooth out the noise in the combined dataset. In this project, we propose that Wellogic data be processed/denoised first before it is combined with the higher quality surface water elevations for interpolation. Recent work shows that such a two-step processing procedure provides resultant interpolation and groundwater flow patterns that are significantly more accurate, especially in areas around rivers. Additionally, there are a number of known man-made impoundments in the state and these man-made impoundments are not always connected with groundwater. Incorporation of water levels in and around these impoundments in SWL interpolations leads to locally wrong groundwater flow patterns. This problem will be fixed in this project.

This part will require execution of the following tasks:

1. Digitally “sample” major surface water features such as streams and lakes to create scatter points for surface water elevations. All sampling shall be based on high resolution National Hydrographic Datasets (NHDs) and digital elevation maps (DEMs) obtained from the USGS,
2. Determine sampling resolutions based on the size of surface water bodies, stream orders, and the density of water well record distributions,
3. Integrate the latest water well record data with the surface water scatter points;
4. Process the combined groundwater/surface water dataset for the bedrock aquifer over the entire Upper and Lower Peninsulas at resolutions of 270m and 540m,
5. Process the combined groundwater/surface water datasets for the glacial aquifer over the entire Upper and Lower Peninsulas at resolutions of 270m and 540m,
6. Perform smoothing of the interpolated SWEs in both bedrock and glacial aquifers, and
7. Incorporate the new preprocessed SWE surfaces into MGMT.

This part will provide preprocessed datasets of SWE for the bedrock and glacial aquifers over the extent of the Upper and Lower Peninsulas of Michigan. The processing of datasets will be provided at grid resolutions of 270 and 540 meters.

Mapping Top of Bedrock Elevations

Bedrock elevation maps created previously as part of the GWIM project were found to be greatly in error. DEQ has attributed this error to the scale at which the digital elevation maps (DEM) and corresponding bedrock elevation maps were created. The interpolation technique used in earlier mapping efforts was unable to accommodate the highly variable bedrock elevations, especially throughout the UP. The errors are particularly egregious in areas where the drift aquifer overlying the bedrock is thin and supporting data are sparse. The DEM errors frequently corrupted the bedrock projections resulting in errors from a few feet to 10 feet in many wells. Errors in some locations of 50 to 100 feet have been observed. Developing a way to account for the DEM errors will aid in providing a more accurate depiction of static water elevations and bedrock surfaces, especially in lieu of the additional water well records now available in Wellogic.

The contractor is to develop an algorithm to interpolate the top of bedrock elevations, taking into account the high variability in the top of bedrock and the closeness to or coincidence with the land surface. The new technique will improve the top of bedrock mapping accuracy and ensure the interpolated rock elevations under no circumstance exceed the land surface elevation inferred from the DEM. The newly mapped top of bedrock elevations will be incorporated into MGMT.

This part will require the following tasks:

1. Develop an interpolation scheme for representing the top of bedrock elevations,
2. Tie the interpolation scheme to surface water features where the bedrock is at or near the surface,
3. Complete programming to provide for the top of bedrock interpolation for the entire state
 - Upper Peninsula wide interpolation
 - Lower Peninsula wide interpolation,
4. Incorporate the new DEM and top of bedrock maps into MGMT at a grid spacing of 10 meters.



This part will provide preprocessed datasets of top of bedrock elevation over the entirety of the state. The processing of datasets will be provided such that a grid spacing of 10 meters is provided.

Mapping Hydraulic Conductivity

This part will entail calculating and mapping hydraulic conductivity (K) for the drift and bedrock aquifers of the Lower Peninsula (LP) and Upper Peninsula (UP) of Michigan. The mapping of K has been done previously. However, since the original processing of data to create statewide maps of K, a large number of records have been added to the enhanced Wellogic Database. The Center for Shared Solutions and Technology (CSST) recovered records previously deemed unusable because the records had no coordinate location information. CSST was able to assign a latitude and longitude to ~120,000 additional records existing in Wellogic based on a geocoding process using location information available on the records such as street address, or township, range, and section information. The assignment of latitude and longitude to existing records coupled with the submittal of new records has resulted in an additional ~150,000 records that can be used in the mapping of K. The new mapping of K will utilize in excess of 500,000 records from the enhanced Wellogic Database. The additional records should greatly aid in improving the resolution of groundwater flow regimes on a statewide basis.

This part of the project will be accomplished via statewide interpolation of K and mapping of said information in accordance with the following tasks:

1. LP-wide drift K interpolation and mapping using new enhanced Wellogic dataset,
2. LP-wide bedrock K interpolation and mapping using new enhanced Wellogic dataset,
3. UP-wide drift K interpolation and mapping using new enhanced Wellogic dataset,
4. UP-wide bedrock K interpolation and mapping using new enhanced Wellogic dataset.

This part will provide preprocessed datasets of hydraulic conductivity of both the LP and UP. Hydraulic conductivity distribution will be provided for both the drift in bedrock aquifers.

Subproject II – WaterChem Geocoding, Data Display and Reports

This subproject consists of three parts - cleaning the MDEQ WaterChem Database and assigning latitude/longitude coordinates to the sampling events based on street addresses (*i.e.*, geocode), producing a set of standardized, digital, statewide mapping products from the cleaned, geo-located WaterChem Database for incorporation into a map service that can be consumed by the DWGIS application, and developing a multi-function query/report tool within the DWGIS application that will generate customized, spatial displays and aspatial, text-based reports from the geolocated WaterChem Database.

The nature of the fourth subproject requires that the contractor (a) have a working knowledge of the structure and data contained within the WaterChem Database; (b) have at least three years of programming experience in the ArcGIS Server environment; (c) have at least one year of software programming experience with the source code of the DWGIS application; and (d) have a fluent knowledge of the requirements of an ArcGIS Server map service deployed in the context of the State of Michigan's geospatial IT infrastructure and prior experience assisting/facilitating such a deployment.

Part 1: Correction, Cleaning and Geocoding the MDEQ WaterChem Database

The MDEQ WaterChem Database contains more than 1.7 million records that store the concentrations of more than 170 analytes from the laboratory analysis of water samples submitted to the MDEQ Drinking Water Analysis Laboratory. Unfortunately, there is no link in the WaterChem Database to the Wellogic ID number for water samples that have been drawn from drinking water wells. As such, although the majority of water well records in Wellogic have been geolocated (*i.e.*, latitude/longitude coordinates have been determined), water sample analyses from these wells are not linked in any way. The only location information in the WaterChem Database is the address of the sample site (County, township, section, city, street, zip code).

There are numerous records in the WaterChem Database for which the sampled media was not groundwater. Prior to geocoding, the database must be cleaned by querying to ensure that only water well sample records will be assigned latitude/longitude coordinates. Although the WaterChem Database is dynamic, *i.e.*, records are being continuously added), for the purposes of this project the WaterChem Database as it exists on



October 1, 2012 is the file set that will be geocoded. Geocoding the well water sampling events will be based on the street addresses of the sample location using best available convergence-of-evidence techniques (e.g., the given street address occurs in the stated city or village and zip code).

Part 2: Statewide WaterChem Database Mapping Products

Once the WaterChem Database (10-01-12 version) has been cleaned and geocoded, the contractor will produce a set of standardized, digital, statewide mapping products in a format that is suitable for incorporation into an ArcGIS Server map service that can be consumed by the DWGIS application. The contractor must meet with ODWMA and DTMB-CSSTP staff prior to the production of these mapping products to determine the number, content and symbology of the various map layers that will be required.

The standardized, digital, statewide mapping products in a format that is suitable for incorporation into an ArcGIS Server map service that is consumable by the DWGIS application will be completed and delivered to DTMB-CSSTP

Part 3: WaterChem Database Query/Report Tool in DWGIS

At its core, the WaterChem Database is event-oriented - i.e., a record is generated for each **analysis** event. As such, a single water sample from one location and date can generate multiple records. Additionally, many of the sampling events for the same location occur from multiple dates (e.g., weekly, monthly, quarterly, etc.) A query tool is needed in DWGIS that will guide the end user through the numerous possible aggregation strategies that could be applicable for the WaterChem Database given its complicated, multiple table, many-to-one database structure. Examples of the flexible query options that the tool must support, but should not be limited to include the following: query one analyte, a selection of analytes or all analytes for a given location at one date or within a date range. Locations specification should include selectable buffer radius from an interactively located point or an interactive area query box or a selection from a pick list of Michigan counties or townships within counties. In the case of multitemporal queries (i.e., a data range), output options must include average analyte concentration with one standard deviation shown and minimum – maximum analyte concentrations for samples with detectable concentrations, as well as the proportion of all samples within the date range that returned a “non-detect” (ND).

The query/report tool must provide for a spatial display of the locations that meet a particular complex query statement (e.g., of all the WaterChem point locations on the screen, the highlighted ones met a query criteria like “within Ingham County, which WaterChem sample locations returned concentrations of Arsenic greater than 10 mg/l during the period January 1, 2000 and December 31, 2009”). The tool must also provide a customizable text report output option in .pdf format.

The contractor must meet with ODWMA staff to present their proposed list of supported query options prior to working on this part of the subproject. ODWMA Project Manager will be responsible for approving the final list of query options that this tool will support.

The WaterChem Database query/report tool in DWGIS will be completed and delivered to DTMB-CSSTP. The contractor will facilitate ODWMA and DTMB-CSSTP staff defining and testing Use Cases for the WaterChem Database query/report tool. The contractor will correct any software coding problems that are found by the Use Case testing. ODWMA staff will be responsible for User Acceptance Testing (UAT) of the DWGIS WaterChem Database query/report tool during the period. The contractor will be responsible for correcting any deficiencies in the software that are identified during the UAT. Such corrections should be made concurrently with the UAT, to ensure that the ODWMA business practice needs have been met. The fully functioning DWGIS WaterChem Database query/report tool, approved by the ODWMA Project Manager, will be completed and delivered to DTMB-CSSTP.

Subproject III - DWGIS and Source Water Assessment

Source water assessments were originally completed on all community and non-community public water supplies from 1998 to 2003 due to Environmental Protection Agency mandate. Ideally, such source water assessments would have been completed as a critique of ground water movement with analysis of the resulting potential impact to wells. Unfortunately, hydrogeologic studies to document the rate of ground water movement are difficult to conduct and expensive. As a result, the source water assessments were based upon



existing information and conducted as a critique of the point geology for the well; an evaluation of the well construction; a review of the maintenance and use; a review of chemical monitoring results; and a critique on the isolation of the wells from potential sources of contamination.

This phase of the overall project is intended to develop and document a new workflow within the Drinking Water GIS (DWGIS) intranet application to conduct “desk top” updates of existing source water assessments of community and non-community public water supplies. This enhanced capability within the DWGIS environment will be developed with the active participation of selected ODWMA staff. The “desk top” source water assessment procedures in the DWGIS will leverage the User Preferences and the Site Report tool in DWGIS and some of the new MGMT data products that are deliverables from subproject 1.101.1, such as the provisional wellhead protection areas. A recorded, on-line tutorial describing this new work flow will be developed within this subproject.

The “desk top” source water assessment updating procedure in the DWGIS will be developed (in partnership with selected ODWMA staff) and fully documented. One recorded, on-line tutorial describing the new work flow in the form of a self-executing, audio-narrated PowerPoint presentation in .pdf format will be developed and delivered to the ODWMA Project Manager by the project end date.

Subproject IV - Outreach, Education and Facilitation

The second sub-project will provide outreach education and facilitation in three parts. In Part 1 the contractor will provide outreach facilitation at “roll out” meetings to disseminate the source water protection products produced by the finalized MGMT software and data. For Part 2, the contractor will develop and pilot training on the Drinking Water GIS (DWGIS) intranet application and its use in support of a variety of business practices of the Office of Drinking Water and Municipal Assistance (ODWMA). In Part 3 the contractor will develop and pilot outreach materials and delivery methods designed to familiarize public water supply operators with the source water protection products produced by the finalized MGMT software and data.

Part 1: Facilitating Source Water Protection Workshops

The contractor will provide outreach facilitation for up to four (4) “roll out” workshops of the source water protection products produced by the finalized MGMT software from the modified and newly created datasets. These rollouts will consist of six-hour workshops with a focus on

1. DEQ District staff,
2. Environmental health staff from local health departments in the DEQ District
3. Licensed operators of the community and non-transient, non-community public water supply systems.

The contractor is required to meet with ODWMA staff to determine when and where workshops are to be held. Once the dates and general locations of the workshops are determined, it is the contractor’s responsibility to make all local arrangements, including the reservation of the meeting and dining facilities and the procurement of the lunch meal that will be provided to the workshop participants. The contractor is also responsible for the preparation and printing of the color, 8.5” x 11” Provisional Wellhead Protection Area maps for all the community and non-transient, non-community water supply systems that register for the workshops.

At least two MGMT “roll out” workshops will be scheduled and conducted by 12/31/2013. If ODWMA staff deem them necessary, up to two additional workshops must be scheduled and conducted by the end of the contract period.

Part 2: Source Water Protection Evaluation Using MGMT Products

For this part, the contractor will develop and pilot test outreach materials and delivery methods designed to familiarize public water supply operators with Source Water Protection evaluations using products produced by the finalized MGMT software and data. This pilot effort must focus on the operators of small community and non-transient, non-community public water supplies within one MDEQ District (to be chosen by the ODWMA Project Manager) WHO DID NOT ATTEND one of the previously delivered MGMT “roll out” workshops. As such, no face-to-face or one-on-one delivery approaches will be considered. The contractor shall propose one or more suitable training delivery approaches that may include, but should not be limited to, asynchronous, recorded, on-line instruction modules. If several different approaches appear to be viable, the contractor will



propose a limited pilot test of the outreach materials and delivery methods, as well as a post-training evaluation assessment protocol.

The contractor shall design and submit for approval one or more suitable training delivery approaches. If acceptable to the Agency, the ODWMA Project Manager will approve one or more of the proposed training delivery approaches. The contractor will conduct the pilot test of the outreach materials and delivery methods. The contractor will conduct the post-training evaluation assessment and report the results to the ODWMA Project Manager. The contractor will also deliver electronic copies of all of the training materials that were delivered during the pilot test to the ODWMA Project Manager

Subproject V - Wellogic Data Entry

Wellogic is the Internet-based data entry program developed by the state of Michigan in 2000 to provide an easy method for water well drilling and pump installation contractors to submit water well records. Electronic well record submittal satisfies state and county water well record submittal requirements. Use of the Wellogic data entry program is voluntary, however, many water well and pump records are still submitted in paper form. Data entry from these hard-copy records has not been a priority activity within the ODWMA for the past several years. As a result, approximately 5000 paper water well and pump record forms are backlogged awaiting data entry into the Wellogic system. In addition, each year approximately 4500 new records are submitted to the DEQ.

The contractor will enter all of the backlogged water well and pump records into the Wellogic Database using the Wellogic Data Entry software and the associated processes developed by the DEQ. The contractor shall also provide for data entry on the 4500 water well records that are submitted annually throughout the course of the contract.

This fifth subproject requires that the contractor have a data entry supervisor who has at least five years of experience interpreting the content of the Michigan Water Well and Pump Record Form, EQP-2017 (2011 or 06/09 versions). All data entry personnel assigned to this subproject must be trained in Wellogic data entry either by the MDEQ Wellogic staff or their designees.

The contractor will enter all of the backlogged and newly submitted water well and pump records into the Wellogic Database on an ongoing basis throughout the duration of the contract.



Principal Investigator/Project Director: David P. Lusch
 Sponsor: MDEQ
 APP131829
 Title: MGMT, DWGIS and SWAP Outreach
 Project Period: 10/1/13 - 9/30/16

Appendix C: Amended Project Cost Itemization

	Effort (hours)	Rate (\$/hr)	2013 - 2014	2014 - 2015	2015 - 2016
			Costs	Costs	Costs
Overall Project Management (David P. Lusch, Ph.D.)	275	80	\$22,000		
	92	80		\$7,360	\$7,360
		Rates provided by Dr. Li (CEE) - lishug@egr.msu.edu Sampath: \$42/hr Liao: \$51.22/hr Li: \$102.86/hr			
Subproject I – Enhancements to the MGMT Software			2013 - 2014	2014 - 2015	2015 - 2016
Part 1: Mapping Hydraulic Conductivity	effort (hours)	Rate (\$/hr)	Costs	Costs	Costs
<i>Task 1.1.1: Processing statewide drift K (including islands)</i>					
Li Sub-Task 1.1.1.1: Business requirements verification and validation,	8	102.86	\$823		
Sub-Task 1.1.1.2: Application Design Document	8	102.86	\$823		
Sub-Task 1.1.1.3: Software implementation, Sampath					
1.1.1.3.1: Develop an automated filter extracting usable estimates	20	42	\$840		



	1.1.1.3.2: Develop pilot interpolations, identify best methods/grids/parameters	20	42	\$840		
	1.1.1.3.3: Review pilot results with SOM staff	8	102.86	\$823		
	1.1.1.3.4: Process drift K - confined aquifer statewide	80	42	\$3,360		
	1.1.1.3.5: Process drift K - unconfined aquifer statewide	80	42	\$3,360		
	1.1.1.3.6: Incorporate drift K into MGMT	8	42	\$336		
	Sub-Task 1.1.1.4: Technical oversight and supervision, Li	20	102.86	\$2,057		
	Sub-Task 1.1.1.5: Software testing, Li	20	102.86	\$2,057		
	Task 1.1.1 Subtotal	272		\$15,319		
	Task 1.1.2: Processing statewide bedrock K (including islands)					
Li	Sub-Task 1.1.2.1: Business requirements verification and validation,	8	102.86	\$823		
	Sub-Task 1.1.2.1: Application design document	8	102.86	\$823		
	Sub-Task 1.1.2.2: Software implementation, Sampath					
	1.1.2.2.1: Develop an automated filter extracting usable estimates	15	42	\$630		
	1.1.2.2.2: Develop pilot interpolations, identify best methods/grids/parameters	20	42	\$840		
	1.1.2.2.3: Review pilot results with SOM staff	8	102.86	\$823		
	1.1.1.3.4: Process bedrock K - confined aquifer statewide	80	42	\$3,360		
	1.1.1.3.4: Process bedrock K - unconfined aquifer statewide	80	42	\$3,360		
	1.1.2.2.6: Incorporate bedrock K into MGMT	8	42	\$336		
	Sub-Task 1.1.2.3: Technical oversight and supervision, Li	20	102.86	\$2,057		
	Sub-Task 1.1.2.4: Software testing, Li	20	102.86	\$2,057		
	Task 1.1.2 Subtotal	267		\$15,109		
	Part 1 Subtotal			\$30,428		
	Part 2: MGMT Software Modifications and Improvements			2013 - 2014	2014 - 2015	2015 - 2016



	effort (hours)	Rate (\$/hr)	Costs	Costs	Costs
Task 1.2.1: provide the corrections as identified in DEQ List 1 - Fisher 2011					
Sub-Task 1.2.1.1: Business requirements verification and validation, Li	8	102.86	\$823		
Sub-Task 1.2.1.2: Application design document	8	102.86	\$823		
Sub-Task 1.2.1.3: Software Implementation, Liao	130	51.22	\$6,659		
Sub-Task 1.2.1.4: Technical oversight and supervision, Li	20	102.86	\$2,057		
Sub-Task 1.2.1.5: Software testing, Li	20	102.86	\$2,057		
Task 1.2.1 Subtotal	186		\$12,419		
Task 1.2.2: provide the corrections to the items as identified in DEQ list 2, Mandle 2011					
Sub-Task 1.2.2.1: Business requirements verification and validation, Li	16	102.86	\$1,646		
Sub-Task 1.2.2.2: Software Implementation, Liao	220	51.22	\$11,268		
Sub-Task 1.2.2.3: Technical oversight and supervision, Li	30	102.86	\$3,086		
Sub-Task 1.2.2.4: Software testing, Li	35	102.86	\$3,600		
Task 1.2.2 Subtotal	301		\$19,600		
Part 2 Subtotal			\$32,019		
Part 3 -Mapping SWL Elevations			2013 - 2014	2014 - 2015	2015 - 2016
	effort (hours)	Rate (\$/hr)	Costs	Costs	Costs
Task 1.3.1 - UP and islands SWL processing					
Sub-Task 1.3.1.1: Business requirements verification and validation, Li	8	102.86	\$823		
Sub_Task 1.3.1.2. Application design document	8	102.86	\$823		
Sub-Task 1.3.1.3: Software implementation, Sampath					
a) Removing invalid values and outliers	20	42	\$840		
b) New method for SWL processing	60	42	\$2,520		
c) SWL processing pilot testing – drift aquifer	20	42	\$840		
d) SWL processing pilot testing – bedrock aquifer	20	42	\$840		



e) Review pilot results with SOM staff	8	102.86	\$823		
f) UP and islands SWL processing – drift aquifer	100	42	\$4,200		
g) UP and islands SWL processing – bedrock aquifer	100	42	\$4,200		
h) Incorporate UP SWL data into MGMT	8	42	\$336		
Sub-Task 1.3.1.4: Technical oversight and supervision, Li	20	102.86	\$2,057		
Sub-Task 1.3.1.5: Software testing, Li	20	102.86	\$2,057		
Task 1.3.1 Subtotal	392		\$20,359		
Task 1.3.2 - LP wide SWL processing					
Sub-Task 1.3.2.1: Business requirements verification and validation, Li	8	102.86	\$823		
Sub_Task 1.3.2.2. Application design document	8	102.86	\$823		
Sub-Task 1.3.2.3: Software implementation, Sampath					
a) Removing invalid values and outliers	15	42	\$630		
b) New method for SWL processing	4	42	\$168		
c) SWL processing pilot testing – drift aquifer	8	42	\$336		
d) SWL processing pilot testing – bedrock aquifer	8	42	\$336		
e) Review pilot results with SOM staff	8	102.86	\$823		
f) LP wide SWL processing – drift aquifer	140	42	\$5,880		
g) LP wide SWL processing – bedrock aquifer	140	42	\$5,880		
h) Incorporate LP SWL data into MGMT	8	42	\$336		
Sub-Task 1.3.2.4: Technical oversight and supervision, Li	20	102.86	\$2,057		
Sub-Task 1.3.2.5: Software testing, Li	30	102.86	\$3,086		
Task 1.3.2 Subtotal	397		\$21,178		
Part 3 Subtotal			\$41,537		
Part 4 -Mapping Bedrock Top Elevations					
	effort (hours)	Rate (\$/hr)	2013 - 2014 Costs	2014 - 2015 Costs	2015 - 2016 Costs



Task 1.4.1 - UP and islands bedrock top processing					
Li	Sub-Task 1.4.1.1: Business requirements verification and validation,	8	102.86	\$823	
	Sub-Task 1.4.1.2. Application design document	8	102.86	823	
	Sub-Task 1.4.1.3: Software implementation, Sampath				
	a. Automated filter extracting usable rock top elevations	20	42	\$840	
	b. New method for bedrock top processing	80	42	\$3,360	
	c. Pilot testing for UP bedrock top interpolation	30	42	\$1,260	
	d. Review pilot results with SOM staff	4	102.86	\$411	
	e. UP wide bedrock top processing	100	42	\$4,200	
	f. Incorporate bedrock top into MGMT	8	42	\$336	
	Sub-Task 1.4.1.4: Technical oversight and supervision, Li	20	102.86	\$2,057	
	Sub-Task 1.4.1.5: Software testing, Li	40	102.86	\$4,114	
	Task 1.4.1 Subtotal	318		\$18,225	
Task 1.4.2 - LP bedrock top processing					
Li	Sub-Task 1.4.2.1: Business requirements verification and validation,	8	102.86	\$823	
	Sub-Task 1.4.2.2. Application design document	8	102.86	\$823	
	Sub-Task 1.4.2.3: Software implementation, Sampath				
	a. Automated filter extracting usable rock top elevations	15	42	\$630	
	b. New method for bedrock top processing	4	42	\$168	
	c. Pilot testing for LP bedrock top interpolation	8	42	\$336	
	d. Review pilot results with SOM staff	4	102.86	\$411	
	e. LP wide bedrock top processing	180	42	\$7,560	
	f. Incorporate bedrock top into MGMT	8	42	\$336	
	Sub-Task 1.4.2.4: Technical oversight and supervision, Li	20	102.86	\$2,057	
	Sub-Task 1.4.2.5: Software testing, Li	20	102.86	\$2,057	
	Task 1.4.2 Subtotal	275		\$15,202	



Part 4 Subtotal			\$33,426		
Part 5 – MGMT Support and Training					
	effort (hours)	Rate (\$/hr)	2013 - 2014 Costs	2014 - 2015 Costs	2015 - 2016 Costs
	<i>Task 1.5.1: Year 2 software support and maintenance, Liao</i>	150		\$7,914	
	<i>Task 1.5.2: Year 3 software support and maintenance, Liao</i>	150			\$8,151
	<i>Task 1.5.3: Software documentation, a graphical guide</i>	160			\$8,694
Part 5 Subtotal				\$7,914	\$16,845
Subproject I Total			\$137,410	\$7,914	\$16,845
		\$80/hr (Staff) and \$30/hr (Technician) are CGA-approved rates for RS&GIS	2013 - 2014 Costs	2014 - 2015 Costs	2015 - 2016 Costs
Subproject II – WaterChem Geocoding, Data Display and Reports			Effort (hours)	Rate (\$/hr)	Costs
Part 1: Correction, Cleaning and Geocoding the MDEQ WaterChem Database					
	<i>Task 2.1.1: Business Requirements Verification and Validation - GEOCODING</i>				
	Sub-Task 2.1.1.1: Schedule and attend Joint Application Design session #1 (2 staff @ 4-hr meeting)		8	80	\$640
	Sub-Task 2.1.1.2: Schedule and attend Joint Application Design session #2 (2 staff @ 4-hr meeting)		8	80	\$640
	Sub-Task 2.1.1.3: Assist DTMB PM to complete SEM 0401 & 0402		8	80	\$640
	Sub-Task 2.1.1.4: Write application design document		8	80	\$640



	Task 2.1.1 Subtotal	32	80	\$2,560		
Task 2.1.2: Programming geocoding protocol						
	Sub-Task 2.1.2.1: WaterChem subset investigation to determine optimum database cleaning protocols. A pilot study.	40	30	\$1,200		
	Sub-Task 2.1.2.2: Review and planning of database cleaning and standardization procedures and methods.	16	80	\$1,280		
	Sub-Task 2.1.2.3: Creation of WellChem and Wellogic pivot table in database to assign Wellogic IDs to WaterChem records based on WSSN/Well Number matches.	20	30	\$600		
	Sub-Task 2.1.2.4: Creation of WellChem and Wellogic pivot table in database to assign Wellogic IDs to WaterChem records based on cleaned/standardized addresses.	80	30	\$2,400		
	Sub-Task 2.1.2.5: Geocoding of all WellChem unique addresses that could not be linked to a Wellogic ID. Transfer XY values back to the pivot table.	40	30	\$1,200		
	Sub-Task 2.1.2.6: Metadata tracking and documentation of database standardization and linking procedures.	16	30	\$480		
	Sub-Task 2.1.2.7: Project management of all workflows and procedures through database programming and geocoding components.	32	80	\$2,560		
	Task 2.1.2 Subtotal	244		\$9,720		
	Part 1 Subtotal	276		\$12,280		
Part 2: Statewide WaterChem Database Mapping Products				2013 - 2014		
		effort (hours)	Rate (\$/hr)	Costs		
Task 2.2.1: Business Requirements Verification and Validation - WaterChem Map Services						
	Sub-Task 2.2.1.1: Schedule and attend Joint Application Design session #1 (2 staff @ 4-hr meeting)	8	80	\$640		
	Sub-Task 2.2.1.2: Schedule and attend Joint Application Design session #2 (2 staff @ 4-hr meeting)	8	80	\$640		
	Sub-Task 2.2.1.3: Assist DTMB PM to complete SEM 0401 & 0402	8	80	\$640		
	Sub-Task 2.2.1.4: Write application design document	8	80	\$640		



	Task 2.2.1 Subtotal	32	80	\$2,560		
Task 2.2.2: Map Service Testing & Implementation						
	Sub-Task 2.2.2.1: Use-case document with business rules	8	80	\$640		
	Sub-Task 2.2.2.2: Changes to the Database structure	8	80	\$640		
	Sub-Task 2.2.2.3: Proposed changes in User Interface	8	80	\$640		
	Task 2.2.2 Subtotal	24	80	\$1,920		
	Part 2 technical oversight and supervision	12	80	\$960		
	Part 2 Subtotal	68		\$5,440		
Part 3: WaterChem Database Query/Report Tool in DWGIS				2013 - 2014		
		effort (hours)	Rate (\$/hr)	Costs		
	Task 2.3.1: Business Requirements Verification and Validation - WC Query/Report Tool					
	Sub-Task 2.3.1.1: Schedule and attend Joint Application Design session #1 (2 staff @ 4-hr meeting)	8	80	\$640		
	Sub-Task 2.3.1.2: Schedule and attend Joint Application Design session #2 (2 staff @ 4-hr meeting)	8	80	\$640		
	Sub-Task 2.3.1.3: Assist DTMB PM to complete SEM 0401 & 0402	8	80	\$640		
	Sub-Task 2.3.1.4: Write application design document	32	80	\$2,560		
	Sub-Task 2.3.1.5: Meet with ODWMA staff to ammend/approve application design (functionality)	8	80	\$640		
	Task 2.3.1 Subtotal	64	80	\$5,120		
	Task 2.3.2: Migrate existing DWGIS application to CSSTP advanced template	240	80	\$19,200		
	Task 2.3.3: Program the DWGIS WaterChem Query Tool User Interface					



Sub-Task 2.3.3.1: Analyte selection module	40	80	\$3,200		
Sub-Task 2.3.3.2: Sample date selection module	40	80	\$3,200		
Sub-Task 2.3.3.3: Output options template	40	80	\$3,200		
Sub-Task 2.3.3.4: Query location specification tools	40	80	\$3,200		
Task 2.3.3 Subtotal	160	80	\$12,800		
Task 2.3.4: Spatial display of query set	40	80	\$3,200		
Task 2.3.5: Customizable text report output option (.pdf format)	40	80	\$3,200		
Task 2.3.6: Software Testing					
Sub-Task 2.3.6.1: Use-case document with business rules	8	80	\$640		
Sub-Task 2.3.6.2: Test Script Creation	16	80	\$1,280		
Sub-Task 2.3.6.3: Assist ODWMA and DTMB-CSSTP staff with Use Case Testing	8	80	\$640		
Sub-Task 2.3.6.4: Correct any software coding problems found during Use Case testing	24	80	\$1,920		
Sub-Task 2.3.6.5: Assist ODWMA staff with their User Acceptance Testing	8	80	\$640		
Sub-Task 2.3.6.6: Correct software deficiencies identified by UAT	40	80	\$3,200		
Sub-Task 2.3.6.7: Assist DTMB-CSSTP with implementation of WaterChem Database Query Tool within DWGIS	48	80	\$3,840		
Task 2.3.6 Subtotal	152	80	\$12,160		
Part 3 Technical Oversight and Supervision	140	80	\$11,200		
Part 3 Subtotal	836		\$66,880		
Subproject II Total			\$84,600		



			2013 - 2014	2014 - 2015	2015 - 2016
	effort (hours)	Rate (\$/hr)	Costs	Costs	Costs
Subproject III – DWGIS and Source Water Assessment					
<i>Task 3.1: Schedule and attend SWAP procedure development meeting #1 with ODWMA staff.</i>	4	80		\$320	
<i>Task 3.2: Schedule and attend SWAP procedure development meeting #2 with ODWMA staff.</i>	4	80		\$320	
<i>Task 3.3: Schedule and attend SWAP procedure development meeting #3 with ODWMA staff.</i>	4	80		\$320	
<i>Task 3.4: Outline and storyboard the DWGIS SWAP work flow tutorial.</i>	20	80		\$1,600	
<i>Task 3.5: Edit the DWGIS SWAP work flow tutorial outline/storyboard in response to ODWMA staff review.</i>	8	80		\$640	
<i>Task 3.6: Compile the DWGIS SWAP work flow tutorial in PowerPoint.</i>	40	80		\$3,200	
<i>Task 3.7: Narrate the DWGIS SWAP work flow tutorial using Adobe Presenter.</i>	40	80		\$3,200	
<i>Task 3.8: Publish the narrated DWGIS SWAP work flow tutorial as a self-executing PDF.</i>	8	80		\$640	
Subproject III Total				\$10,240	
Subproject IV – Outreach, Education and Facilitation					
Part 1: Facilitating Source Water Protection Workshops					
		(sal + fringe)/1832			
<i>Task 4.1.1: Saginaw Bay District (299 WHPAs)</i>					
<i>Ruth Kline-Robach</i>	28	52.88	\$1,481		
Sub-Task 4.1.1.1: Draft timeline and location					



Sub-Task 4.1.1.2: Reserve meeting space and dining facilities, contact speakers					
Sub-Task 4.1.1.3: Draft agenda and workshop evaluation					
Sub-Task 4.1.1.4: Finalize agenda					
Sub-Task 4.1.1.5: Present at Workshop					
<i>Student Hourly</i>	10	10.00	\$100		
Sub-Task 4.1.1.6: Assemble workshop packets					
Task 4.1.1 Personnel Subtotal	38		\$1,581		
Supplies (folders, copies of training materials)			\$200		
Generate WHPA Maps in ArcGIS (\$5/map)			\$1,500		
Color WHPA Map Printing (\$0.53/copy)			\$160		
Facility and Meal Fees (based on 100 attendees)			\$2,500		
Task 4.1.1 Supplies/Materials Subtotal			\$4,360		
Task 4.1.1 Subtotal			\$5,941		
Task 4.1.2: Lansing (541 WHPAs)					
<i>Ruth Kline-Robach</i>	28	52.88	\$1,481		
Sub-Task 4.1.2.1: Draft timeline and location					
Sub-Task 4.1.2.2: Reserve meeting space and dining facilities, contact speakers					
Sub-Task 4.1.2.3: Draft agenda and workshop evaluation					
Sub-Task 4.1.2.4: Finalize agenda					
Sub-Task 4.1.2.5: Present at Workshop					
<i>Student Hourly</i>	10	10.00	\$100		
Assemble workshop packets					
Task 4.1.2 Personnel Subtotal	38		\$1,581		
Supplies (folders, copies of training materials)			\$200		
Generate WHPA Maps (\$5/map)			\$2,705		
Color WHPA Map Printing (.53/copy)			\$287		
Facility and Meal Fees (based on 100 attendees)			\$2,500		



	Task 4.1.2 Supplies/Materials Subtotal			\$5,692		
	Task 4.1.2 Subtotal			\$7,273		
	Task 4.1.3: Jackson and Southeast MI (521 WHPAs)					
	<i>Ruth Kline-Robach</i>	28	52.88	\$1,481		
	Sub-Task 4.1.3.1: Draft timeline and location					
	Sub-Task 4.1.3.2: Reserve meeting space and dining facilities, contact speakers					
	Sub-Task 4.1.3.3: Draft agenda and workshop evaluation					
	Sub-Task 4.1.3.4: Finalize agenda					
	Sub-Task 4.1.3.5: Present at Workshop					
	<i>Student Hourly</i>	10	10.00	\$100		
	Assemble workshop packets					
	Task 4.1.3 Personnel Subtotal	38		\$1,581		
	Supplies (folders, copies of training materials)			\$200		
	Generate WHPA Maps (\$5/map)			\$2,605		
	Color WHPA Map Printing (\$.53/copy)			\$276		
	Facility and Meal Fees (based on 100 attendees)			\$2,500		
	Task 4.2.3 Supplies/Materials Subtotal			\$5,581		
	Task 4.1.3 Subtotal			\$7,162		
	Task 4.1.4: Upper Peninsula (154 WHPAs)					
	<i>Ruth Kline-Robach</i>	28	54.15		\$1,516	
	Sub-Task 4.1.4.1: Draft timeline and location					
	Sub-Task 4.1.4.2: Reserve meeting space and dining facilities, contact speakers					
	Sub-Task 4.1.4.3: Draft agenda and workshop evaluation					
	Sub-Task 4.1.4.4: Finalize agenda					
	Sub-Task 4.1.4.5: Present at Workshop					
	<i>Student Hourly</i>	10	10.00		\$100	
	Assemble workshop packets					
	Task 4.1.4 Personnel Subtotal	38			\$1,616	



Supplies (folders, copies of training materials)				\$200	
Generate WHPA Maps (\$5/map)				\$770	
Color WHPA Map Printing (\$.53/copy)				\$81	
Facility and Meal Fees (based on 50 attendees)				\$1,250	
Task 4.1.4 Supplies/Materials Subtotal				\$2,301	
Task 4.1.4 Subtotal				\$3,917	
Part 1 Subtotal				\$20,375	\$3,917
		Rate (\$/hr)	2013 - 2014	2014 - 2015	2015 - 2016
Part 2: Source Water Protection Evaluation Using MGMT Products	effort (hours)	(sal + fringe)/1832	Costs	Costs	Costs
<i>Task 4.3.1: Compile existing WHP training materials (all Part-3 tasks performed by Ruth Kline-Robach)</i>	15	52.88	\$793		
<i>Task 4.3.2: Update materials to reflect current contact information and regulations</i>	25	52.88	\$1,322		
<i>Task 4.3.3: Meet with DEQ staff to outline educational strategies for target audiences</i>	5	52.88	\$264		
<i>Task 4.3.4: Assess district and local health department status in implementing source water protection activities</i>	10	52.88	\$529		
<i>Task 4.3.5: Assess district DEQ staff status in implementing source water protection activities</i>	10	52.88	\$529		
<i>Task 4.3.6: Summarize current implementation efforts and provide recommendations for furthering SWP efforts</i>	25	52.88	\$1,322		
<i>Task 4.3.7: Assess training needs for LHD program staff</i>	10	52.88	\$529		
<i>Task 4.3.8: Assess training needs for district DEQ staff</i>	10	52.88	\$529		
<i>Task 4.3.9: Develop training materials outline, drawing from existing materials and workshop presentations</i>	10	52.88	\$529		
<i>Task 4.3.10: Develop draft training materials</i>	50	52.88	\$2,644		
<i>Task 4.3.11: Meet with DEQ staff to critique draft training materials</i>	5	52.88	\$264		
<i>Task 4.3.12: Finalize training materials and delivery method</i>	15	52.88	\$793		
<i>Task 4.3.13: Meet with NTNC DEQ staff and LHD representatives to scope</i>	5	52.88	\$264		



<i>evaluation planning effort</i>					
Task 4.3.14: Finalize evaluation plan for outreach programs	5	52.88	\$264		
Task 4.3.15: Conduct pilot training program	8	52.88	\$423		
Task 4.3.16: Evaluate pilot program	20	52.88	\$1,058		
Task 4.3.17: Training Programs for Community and NTNC Public Water Supplies (Statewide)	500	54.15		\$27,075	
Task 4.3.18: raining Programs for Community and NTNC Public Water Supplies (Statewide)	500	55.45			\$27,725
Part 2 Subtotal			\$12,057	\$27,075	\$27,725
Subproject IV Total			\$32,432	\$30,992	\$27,725
			2013 - 2014	2014 - 2015	2015 - 2016
Subproject V - Wellogic Data Entry		effort (hours)	Rate (\$/hr)	Costs	Costs
Task 5.1: Enter the 7000 paper water well and pump record forms into the Wellogic system (2 students)		1750	10	\$17,500	
Task 5.2: Data entry supervision (4 hr/week * 30 weeks)		120	80	\$9,600	
Task 5.3: Enter the 3500 paper water well and pump record forms into the Wellogic system (2 students)		875	10		\$8,750
Task 5.4: Data entry supervision (4 hr/week * 15 weeks)		60	80		\$4,800
Subproject V Total			27,100.00	\$13,550	
			2013 - 2014	2014 - 2015	2015 - 2016
ANNUAL GRAND SUBTOTAL			\$303,542	\$70,056	\$51,930
ANNUAL GRAND F&A (@ 20%)			\$60,708	\$14,011	\$10,386



ANNUAL GRAND TOTAL	\$364,250	\$84,067	\$62,316
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3 YEAR GRAND TOTAL =	\$510,634
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Ruth Kline-Robach	Salary	Fringe rate	Frige	Sal + Fring	hrs/year
					1832
YR 1 (2013)	\$70,481.00	0.3745	\$26,394.00	\$96,875.00	\$52.88
YR 2 (2014)	\$71,891.00	0.3799	\$27,303.00	\$99,194.00	\$54.15
YR 3 (2015)	\$73,328.00	0.3852	\$28,249.00	\$101,577.00	\$55.45



MGMT Training Syllabus

- a. Data processing fundamentals
- b. Making max use of the different data layers
- c. Data layer calculators
- d. MGMT functionalities & capabilities
 - i. Mapping SWLs in the glacial aquifer, multiple models
 - ii. Mapping SWLs in the bedrock aquifer, multiple models
 - iii. Mapping SWL temporal trends
 - iv. Mapping well drawdown and stressed SWL surface and
 - v. Mapping velocity patterns
 - vi. Mapping land surface elevation in high resolution
 - vii. Mapping sites of environmental concern & performing forward particle tracking from interactively selected and existing sites/points, polylines, and polygons
 - viii. Performing reverse particle tracking and delineating well head protection areas; caution in selecting time steps
 - ix. Creating WHPA shapefiles
 - x. Delineating source water for lakes, wetlands
 - xi. Visualizing lithologies and cross-sections
 - xii. 3D site visualization
- e. MGMT assumptions and limitations