

Michigan Department of Environmental Quality Environmental Science and Services Division (ESSD) FY06 Grant Application Cover Sheet

Completion of this form is required in order to receive grant consideration.



(Authorized by 1994 PA 451).

Project Name: Huron Cı	eek Watershed M	anagement Pla	n
Project Location (Prima	ry County): Hough	ton Waterbody	Type(s): River
Waterbody Name: Huro	n Creek HUC Cod	le: 04020103	
Project includes/impacts Project includes Phase			es* (select one) *Further evaluation list ne)
Organization Name: Ce	nter for Water & S	ociety, Michiga	- n Technological University
Organization Address: (street name and #	e) 1400 Townse	nd Drive
(city, zip code) Hou	ighton MI, 4993	1-1295
Organization FAX #:906	5-487-3371 Orga	nization Phone	: 906-487-2531
Contact Person: Alex M	ayer, Professor of	Geological and	I Environmental Engineering
Contact's E-Mail : asma	yer@mtu.edu		_
Grant Type: ☐ Developing an appro ☐ Implementing an ap ☐ Implementing an ap	proved watershed	management p	
Watershed Plan Watershed Plan	Name: NA is approved No D	ate(s) of appro	val NA
Grant Amount Requeste	ed: \$19,095 + Loc	cal Match: \$42	,667 = Project Total: \$61,762
Senate District Number	(s): 38		
Representative District I	Number(s):110		
Person w/ Grant Accept	ance Authority: C	Dr. David Reed,	Vice President for Research
Signature:		Da	ite:
(Official use only)			
Received:	DEQ District: _	Trackir	ng code:
			EQP 5835 (revised 7/03)



Michigan Department of Environmental Quality Environmental Science and Services Division (ESSD) Grant Application, Standard Statements

(Authorized by 1994 PA.451).

Completion of this form is required in order to receive grant consideration.

The Nonpoint Source (NPS) Pollution Program requires certain standards to be followed. To meet these requirements, applicants must indicate compliance by initialing <u>each</u> statement below. Failure to agree to any of these requirements will render the application ineligible.

For Implementation Projects:

Applicant confirms that the proposed project is in a watershed with a plan approved as neeting the United States Environmental Protection Agency (USEPA) 9 Minimum Measures or Watershed Planning or that these elements will be addressed prior to the end of the project (initial here) Applicant agrees that the proposed project is in compliance with all applicable state laws and rules or will result in compliance with state laws and rules (initial here) Applicant agrees that they are willing to follow NPS Program site plan procedures (meaning that engineered plans will be submitted to a NPS Program Engineer for review and approval prior to the implementation of Best Management Practices) (initial here) Applicant agrees that all applicable permits will be obtained prior to the implementation of the site plan (initial here). Applicant commits to conducting an evaluation of the effectiveness of the project, including a commitment to provide monitoring data or other information that documents improvement in evater quality, the reduction of pollutant loads, or other project outcomes (initial here) Applicant agrees to follow Quality Assurance/Quality Control procedures for any water quality monitoring or social surveys conducted as part of the project (initial here)
For Planning Projects:
Tot Flamming Frojects.
Applicant agrees to follow State and Federal Guidance for watershed planning (the final vatershed management plan will meet the funding requirements under both the Clean Michigan Initiative (CMI) rules and Section 319 guidance) (initial here)
Applicant commits to conducting an evaluation of the effectiveness of the project, including a commitment to provide monitoring data or other information that documents improvement in vater quality, the reduction of pollutant loads, or other project outcomes (initial here)
Applicant agrees to follow Quality Assurance/Quality Control procedures for any water quality monitoring or social surveys conducted as part of the project.
This is page 2 of all proposals. Attach to page 1 and continue on the next page. EQP 5839 (revised 12/04)

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Project Description for Huron Creek Watershed Management Plan

A. Statement of water quality concerns and issues

General description of watershed. The Huron Creek watershed is located (lat. 47° 07' N long. 88° 34' W) in Houghton County in the Upper Peninsula of Michigan. Figure 1 in Appendix A shows the boundaries of the watershed and the location of the creek. The roughly three-square-mile watershed encompasses much of the new commercial development for the City of Houghton and Portage Township. Land use in the Huron Creek watershed is predominately forested land (40%), commercial and residential property (20%), and wetlands (20%). Additional land can be categorized as rangelands (16%) and agriculture (4%). Land use maps can be found in Figures 2 and 3 in Appendix A for 1978 and the present, respectively. Huron Creek empties into the Portage Canal, which is hydraulically connected to the source of drinking water for the City of Houghton. Huron Creek is on the "Further Evaluation" section of the 303d list, primarily due to water quality concerns associated with landfill leachate and commercial development upstream.

<u>Current water quality conditions.</u> Infrequent water quality monitoring has taken place within the watershed over the past decade. The majority of the sampling efforts have focused on the former Houghton City landfill located next to the stream (see Figure 4 in Appendix A). In a 2002 bioassay that included sites downstream of the landfill, the MDEQ rated the *macro-invertebrate community* within Huron Creek as "*poor*." Leachate from the landfill is visibly seeping into the creek in at least six locations along Huron Creek. The discharging *leachate* contains elevated concentrations of *iron* (20,000 ppb), *ammonia* (NH₃-400 ppb), and *total dissolved solids* (530,000 ppm). Downstream of the landfill, mercury (19.6 μg/L) and total copper (39 μg/L) concentrations have been measured that exceed Rule 57 aquatic life protection values. Excessive *iron* concentrations of 1400mg/l also have been recorded downstream from the landfill. Orange staining of the creek bottom by iron floc (known as "yellow boy") is obvious for a quarter mile downstream of the landfill. The iron floc is likely responsible for the poor to none-observable ratings of macro-invertebrate quality in the vicinity and downstream of the landfill. In addition to water quality concerns associated with the landfill, mining residuals, stream modification, and failing septic tanks may also be contributing metals, sediments, and harmful bacteria.

Needs and problems to be addressed. Figure 4 in Appendix A shows the areas of concern that have been identified to date. The primary concerns in the watershed are associated with *past mining activities*, *landfills*, *aging septic tanks*, and *commercial development*. Two copper mines operated within the watershed during the copper boom from 1852 to 1945. These mines ran stamping mills that created an excess of stamp sands that may be leaching *copper*, *arsenic*, and/or *mercury* into the watershed. Erosion of stamp sands from deposits located directly on the stream banks have contributed to sediment buildup in the stream.

Two landfills are located within the boundaries of the Huron Creek watershed. The first landfill opened in the 1950's and was closed in the early 1970's. The boundaries and impact of this landfill is reasonably well defined. This capped *landfill* is *leaching* flocculent slime, high levels of dissolved solids, and ammonia, affecting water quality and recreational use of the stream. The second landfill opened upon the closure of the first. The boundaries, period of operation, and impacts of this landfill have not been investigated sufficiently.

A number of residential zones in the watershed have aging *septic systems* with inefficient drain fields. Water chemistry and microbiological testing have not yet focused on the potential impacts of septic tanks.

Beginning in the late 1970's, impervious surfaces in the watershed have increased due to commercial development. Runoff from roofs and parking lots containing *road salts*, *sediments*, and *pollutants* associated with automobiles is a potential cause for concern. In the early 1990s, a section of the creek was re-routed and surrounding wetlands were removed for development of a major business. When this business expanded in the summer of 2005, Huron Creek was relocated for a second time and another section of wetland was removed.

Summary of past and ongoing watershed activities. In the 20th century, the creek and nearby watershed were a recreational resource for local residents; however, the commercial development has diminished the attractiveness of the creek. The City of Houghton has also seen an increase in the community's desire for improving and using the Houghton Waterfront Park (located at the mouth of the creek). The Houghton City Planning Commission is currently evaluating the current use of the commercial corridor on Highway M-26 as well as new residential expansion in the watershed. The City of Houghton and the MDEQ are currently discussing solutions to address the landfill leachate problem, including the potential for constructing a landfill leachate collection system. Portage Township is considering expanding its sewer system to include the houses that are presently utilizing septic systems.

Students from the Houghton-Portage School District and Michigan Technological University have used the creek and the watershed as a "laboratory" approximately 200 secondary and 100 university students have studied land use impacts on water quality in the watershed. The Western Upper Peninsula Center for Science, Mathematics and Environmental Education trained over 50 secondary school teachers how to integrate watersheds in to natural and social science classroom activities.

Recent activities by faculty and students participants in the Michigan Tech Center for Water & Society (CWS) include the following.

- Summer 2005: Archival research and communication with local residents, major landowners, and government officials were used to identify past land use in the watershed, land use trends, and land use conflicts within the watershed.
- Fall-Winter 2005-6: Bio-physical characterization of the creek and its watershed, including delineation of watershed boundaries, water quality and bio-assay monitoring, soil coverage and bedrock geology, depths of sediments, and wetland delineation.
- Fall-Winter 2005-6: Assessment of the role of stakeholders in the watershed, including identifying and contacting potential watershed advisory council members and further interviews of major stakeholders. Over a dozen potential project partners were recruited (see section D. Partners and Related Funding). A public information meeting on the watershed has been organized and will occur on March 21, 2006.

B. Project Goals and Objectives

There are three primary project goals, as given in the list below. Following each goal are the objectives required to achieve each goal. The tasks associated with each goal are found in the Work Plan. Goal 1: Monitor water quality to identify pollutants and critical areas in the Huron Creek Watershed

- Gather data and create maps of watershed bio-physical characteristics
- Identify critical areas and prioritize in terms of threat to water quality
- Screen previous monitoring data, develop monitoring plan (see Figure 6 in Appendix A for sampling locations) including an approved Quality Assurance Project Plan (QAPP), perform stream monitoring, and develop sustainable monitoring system

Goal 2: Improve water quality in the Huron Creek Watershed by addressing areas that are contributing pollutants to the creek

- Research Best Management Practices (BMPs) for improvement of water quality in critical areas need to be developed, including both physical improvements and policies for water quality protection
- Identify and describe alternative BMPs for improvement of water quality, including preliminary designs, costs, and descriptions of pros and cons for each alternative BMPs
- Complete watershed management plan for approval by DEO.

Goal 3: Educate local citizens and landowners about water quality issues in the Huron Creek Watershed

- Form a self sustaining watershed advisory committee (WAC)
- Develop and implement watershed publicity program

The project manager will be Dr. Alex Mayer, a hydrologist with 25 years experience in research, teaching and outreach activities in water resources. Dr. Mayer will lead a team of qualified undergraduate students. Dr. Mayer and the students will work under the umbrella of the CWS with the partners listed in

Section D. Partners and Related Funding. The WAC is ultimately responsible for identifying and recommending alternatives for improving the watershed. The final watershed management plan will be a product of close cooperation between the CWS, the project partners, and the WAC.

The budget for the project is detailed in the budget sheets following the Project Description. The budget includes salary and benefits for the project manager and students, supplies for assessing watershed bio-physical characteristics (GIS imagery, GPS unit, flow measurement device), water quality monitoring supplies (water testing supplies), items associated with WAC and other public outreach efforts (Watershed Day event expenses, conference room rental, publicity materials and postage), computer supplies (for report writing, tracking data, producing publicity materials, etc.), producing copies of final report, and travel (within watershed and for training).

The budget indicates that Michigan Technological University will supply all of the local cost share (67% of the total project cost), primarily in the form of salaries and fringes. However, we expect that the time that the watershed council, community volunteers, and project partners (see section D. Partners and Related Funding) contribute to the project will also contribute significantly as local cost share. We will document this time and the associated cost according to MDEQ guidelines.

C. Organization Information

The Michigan Tech Center for Water and Society (CWS) will be the responsible organization. The mission of CWS is to support research, education, and outreach in all disciplines at Michigan Tech related to water issues (http://www.mtcws.mtu.edu/). The goal of CWS is to establish Michigan Tech as a state, regional, national and international leader in these disciplines and, in particular, in interdisciplinary, community-based approaches to solving water-related problems. CWS participants include faculty and students with interests in a broad range of activities that are relevant to watershed management, from physical, chemical, and biological studies of watershed systems, to social studies of the interactions of communities and stakeholders in watersheds. CWS participants also have significant experience in working with the public on natural resource issues.

Given the previous, intensive activity of CWS in studying Huron Creek and its watershed, we will be able to develop a watershed management plan for Huron Creek at a very low cost while maintaining professional quality. The project manager will be Dr. Alex Mayer, Director of the CWS and a hydrologist with 25 years experience in research, teaching and outreach activities in water resources. Dr. Mayer will lead a team of six senior civil, environmental, or geological engineering, students in the context of the course Fall/Spring 2006-7 GE4900/4910 course, Geological Engineering Senior Design Project. The project team will have access to a wide range of water quality sampling and analysis equipment in the laboratories in the Department of Geological & Mining Engineering & Sciences. The sampling and analysis work will be supervised by technicians with decades of experience in quality assurance/quality control for water quality sampling and analysis.

The CWS is a relatively new organization (founded in fall 2005) and has not had any previous MDEQ grants. However, the university has received many grants from MDEQ in the last decade, all of which have been carried out successfully.

D. Partners and Related Funding

Following is a list of organizations who have indicated an interest in participating in the development of the watershed management plan. Each of these organizations has submitted a letter of interest (see Appendix C).

Partner	Role in Watershed	Service Commitment*
City of Houghton	Municipality encompassing ~ 33% of watershed	provide information,
	and majority of residential-commercial activity	potential participant in WAC
Moyle Construction, Inc.	Largest landowner and developer	potential participant in WAC

Partner	Role in Watershed	Service Commitment*
B-H-K Child Development	Agency involved in childhood education and	provide information,
Board	major landowner	potential participant in WAC
11 2 1		provide guidance in aquatic
Trout Unlimited	fish	habitat aspects, potential
		participant in WAC
Copper Country Mental	Located directly on stream, user of stream for	potential participant in WAC
Health Services	recreation	
Friends of the Land of	Local non-governmental organization with	potential participant in WAC
Keweenaw	environmental interests	
Houghton Keweenaw	Michigan conservation district encompassing	provide guidance, potential
Conservation District	watershed	participant in WAC
Houghton Rotary Club	Organization with local representatives from	potential participant in WAC
	business and community organizations, active in	
	improving stream	
Houghton-Portage	Local school district, already use stream in	potential participant in
Township Schools	science and social studies classes	WAC, participation in
		sustained monitoring
Keweenaw Land Trust	Land conservancy organization	potential participant in WAC
Keweenaw Memorial	Active in wide range of outdoor recreation in	potential participant in WAC
Fitness Center	community, future site location next to stream	
National Resource	Local office responsible for resource	provide guidance in
Conservation Service	management issues, including soil and water	technical and public
office	resource protection	participation aspects
Portage Township	Municipality encompassing ~ 67% of watershed	
		potential participant in WAC
Wal-Mart	Largest business in watershed, located directly	Provide information,
	next to stream	potential participant in WAC
Western UP Health		provide guidance in public
Department	in area, including issues related to water quality	health protection, potential
		participant in WAC

WAC: Watershed Advisory Council

E. Project Sustainability

Upon the completion of the watershed management plan for Huron Creek, a sustainable structure for stream monitoring and protection will have been firmly established. The CWS will continue to maintain and organize the WAC. Given the proposed alternatives for improvements and suggested sources for funding these alternatives, the CWS-WAC will follow up by applying for funding for the improvements. Components of this sustainable system will include water quality monitoring, community involvement, watershed action days and continued education on watersheds. The water quality monitoring system will be insured through the commitment of faculty at Michigan Tech who have used and will continue to use the creek in their courses, by recruiting and training citizen volunteers, and through the continued involvement of the local schools. The CWS-WAC also will continue to serve as a link for public information on the watershed and creek.

Future land use in the watershed points towards further commercial and residential development. The potential impacts of the future development will be discussed in the WAC and other public venues.

F. Evaluation

The success of this project will be assessed by the following metrics associated with each objective.

Objective 1: Form a self sustaining watershed council

- 1. Number of stakeholders attending meetings, workshops, classes and presentations.
- 2. Agenda and minutes for each meeting.

 Objective 2: Develop and implement watershed publicity program
- 1. Updated web page showing watershed activities
- 2. Number of brochures, newsletters, and articles produced and sent/handed out.
- 3. Number of workshops, classes and presentations offered to the public.
- 4. Number of volunteer hours and materials donated to the project.
- 5. Brochures, newsletters and articles published Objective 3: Gather data and create maps that show physical characteristics
- 1.Land use, sub-watershed, waste disposal, and geology map of the watershed
- 2. Geophysical surveys of soil types and ground water levels.
- 3. Road crossing inventory is performed.
- 4. Geomorphology study of the stream is conducted. Objective 4: Identify critical areas
- 1. List of land use, waste disposal, and storm water runoff practices.
- 2. List of past and potential problems.
- 3. List of existing regulations that pertain to critical areas
 - 4. Maps of critical areas

Objective 5: Collect historical data

1. Summary of historical data

Objective 6: Develop monitoring plan

- 1. Locations, parameters, and frequency of monitoring
- 2. QAPP submitted and approved by the DEQ.

Objective 7: Perform stream monitoring

- 1. Monitoring data from six locations, referenced in Figure 6, Appendix A.
- 2. Parameters being tested according to the QAPP will include: dissolved oxygen, pH, conductance, total dissolved solids, alkalinity, copper, iron, manganese, nitrates, temperature, channel width and depth, stream habitat assessments, macroinvertebrate counts, stream discharge.
- 3. Analysis and summary of data collected (charts/graphs, etc)

Objective 8: Develop sustainable monitoring system

- 1. Number of volunteers that train and then test water quality samples.
- 2. Number of volunteer hours in data collection
- 3. Number of Michigan Tech classes that incorporate water testing into their curriculum.

Objective 9: Develop BMPs for each critical area

- 1. Design plans that include cost estimates for each alternative idea are prepared.
- 2. Potential sources for funding are identified for each alternative.
- 3. Photographs of critical areas and sites for BMPs
- 4. Data from road crossing survey

Objective 10: Processes for completion

- 1. Watershed management plan is completed, revised by the watershed council, and submitted to DEQ.
- 2. Evaluation is made on how well all DEQ protocols were followed.

Objective 11: Grant administration and close out

- 1. Quarterly status reports and a draft final report.
- 2. Submit release of claims statement.

G. Project Summary

Huron Creek watershed is 3 mi², composed of forested land (40%), commercial/residential property (20%), wetlands (20%), and rangelands/agriculture (20%). Huron Creek is on the "Further Evaluation" section of the 303d list and is highly impacted by mining activities, landfills, aging septic tanks, and commercial development. Elevated concentrations of iron, ammonia, dissolved solids, mercury, and copper have been observed. Project goals are to identify pollutants and critical areas, improve water quality by ameliorating critical areas, and to educate local citizens and landowners about the watershed. The goals will be achieved through developing a water quality monitoring system, forming a watershed management council, and identifying appropriate BMPs. This project will demonstrate how a watershed in a rapidly developing area can be protected and managed as a recreational resource. This project will be especially cost-effective, given previous efforts dedicated to characterizing the watershed and its stakeholders and the amount of local cost share.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL SCIENCE & SERVICES DIVISION

FY06 PROPOSAL BUDGET FORM (Authorized by 1994 P.A. 451)

Applicant Name:	Michigan T	echnologica	al l	Iniversity C	cente:	r for Water	& S	ociety
Project Name:							<u> </u>	Joioty
i roject name.	1101011 0100	on wateren	<u> </u>	Managonie	7116 1 10	<u> </u>		
STAFFING				GRANT		OCAL IATCH		
NAME & TITLE	HOURS	RATE	F	AMOUNT	Al	MOUNT		TOTAL
							\$	-
Alex Mayer (Professor) (Academic)	234.00	\$57.25		\$0.00	\$	13,396.50		13,396.50
Alex Mayer (Professor) (Summer)	120.00	\$57.25	(6,870.00		-	\$	6,870.00
Students	1680.00	\$10.00		\$0.00	\$	16,800.00	\$	16,800.00
STAFFING Subtotal			9	6,870	\$	30,197	\$	37,067
FRINGE BENEFITS (not to exceed 40%)								
NAME & TITLE		RATE						
			\$	-	\$	-	\$	-
Alex Mayer (Professor) (Academic)		40.00%	9	-	\$	5,358.60	\$	5,358.60
Alex Mayer (Professor) (Summer)		20.20%	0,	1,387.74	\$	-	\$	1,387.74
Students		0.00%	9,	-	\$	-	\$	-
FRINGE BENEFITS Subtotal				1,388		5,359		6,746
STAFFING AND FRINGE BENEFITS			0)	8,258	\$	35,556	\$	43,813
Subtotal CONTRACTUAL SERVICES	HOURS or	RATE or						
NAME	UNITS	TOTAL						
CONTRACTUAL SERVICES Subtotal			\$	-	\$	_	\$	-
SUPPLIES, MATERIALS AND			Ť		-		<u> </u>	
EQUIPMENT	•							
	QUANTITY							
GIS Imagery		\$1,000.00			\$	-	\$	1,000.00
GPS	1.00			400.00	\$	-	\$	400.00
Water Testing Supplies		\$1,500.00			\$	-	\$	1,500.00
Watershed Day	1.00	•		•		-	\$	748.00
Conference Room Rental		\$1,000.00			\$	-	\$	1,000.00
Publicity materials and postage		\$2,000.00			\$	-	\$	2,000.00
Computer Supplies	1.00			900.00	\$	-	\$	900.00
Flow measurement device	1.00	•		850.00	\$	-	\$	850.00
Copies of final report	5.00	\$100.00		500.00	\$	-	\$	500.00
		\$0.00		-	\$	-	\$	-
SUPPLIES AND MATERIALS Subtotal			\$	8,898	\$	-	\$	8,898
EQUIPMENT (any item over \$1000)								
EQUIPMENT Subtotal					\$	-	\$	-
SUPPLIES, MATERIALS AND EQUIPMENT Subtotal			\$	8,898	\$	-	\$	8,898

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL SCIENCE & SERVICES DIVISION

FY06 PROPOSAL BUDGET FORM (Authorized by 1994 P.A. 451)

MILEAGE (not to exceed \$.35/mile)	MILES	RATE						
	300	\$ 0.350	\$	105.00	\$	-	\$	105.00
	NIGHTS	RATE	•		•		•	
LODGING	2	\$70.00	\$	140.00	\$	-	\$	140.00
	QUANTITY	RATE						
MEALS	6	\$7.00	\$	42.00	\$	-	\$	42.00
)							
, ,	QUANTITY	RATE						
TRAVEL Subtotal			\$	287	\$	-	\$	287
COST-SHARE Subtotal: (NPS Grants Only)			\$		- \$	-	\$	-
PROJECT Subtotal			\$	17,443	\$	35,556	\$	52,999
Project Subtotal Percentage Split				32.91%	0	67.09%		
INDIRECT RATE (not to exceed 20% Staffing and Fringe Benefits)		20.00%	R	ATE				
INDIRECT COSTS (Summarize Below)			\$	1,651.60	\$	7,111.20	\$	8,762.60
TOTAL GRANT AND MATCH BUDGET			\$	19,095	\$	42,667	\$	61,762
SOURCES OF MATCH:		DOLL AR Y	VΔI	LUE COM	MIT	TED:	-	
		DOLLAR '		LUE COMI	MIT Ca		Tot	tal
		DOLLAR '	In	Kind	Ca		Tot	
Organization]	DOLLAR \	In \$∠					tal 42,667.00
SOURCES OF MATCH: Organization Michigan Technological University			In \$∠	Kind 12,667.00	\$	sh Total Match Must Equal Amount in	\$	42,667.00
Organization			In \$∠	Kind 12,667.00	\$	sh - - Total Match Must Equal Amount in	\$	
Organization Michigan Technological University			In \$∠	Kind 12,667.00	\$	sh Total Match Must Equal Amount in	\$	42,667.00
Organization Michigan Technological University			In \$∠	Kind 12,667.00	\$	sh Total Match Must Equal Amount in	\$	42,667.00

Huron Creek Watershed Management Plan: Work Plan

Task	Goal	Objective	Task and Product	Responsiblea	Percent of Effort ^b	
1		Form a self	Identify local businesses, governments, civic groups, non-profit groups, and residents that impact or are impacted by the watershed	CWS	d	
2		sustaining watershed	Recruit individuals from local businesses, governments, civic groups, non-profit groups and residents to serve on WAC	CWS	1	
3	Build	council	Hold initial meeting for WAC to determine council structure, meeting schedules, and initial charge to technical items	CWS	1	
4	Community		Organize monthly meetings for the watershed council	CWS	5	
5	Involvement		Develop web page for watershed	CWS	1	
6	in Watershed	Develop and	Develop publicity materials for informing local residents on watershed	CWS	2	
7		implement	Identify relevant media and media representatives	CWS	1	
8		watershed publicity	Identify and participate in appropriate, existing community events for publicity	CWS/WC/ PS	2	
9		program	Integrate watershed into local school curricula	CWS/PS	3	
10			Plan and put on Community Watershed Quality Day	CWS	2	
11		Gather data and	Identify available web and conventional sources for maps	CWS	d	
12	Physical Characteristics	create maps that show	Delineate watershed boundaries	CWS	d	
13	of Watershed	physical	Delineate stormwater runoff areas and storm sewers	CWS	3	
14	or watershed	characteristics				
15			Create a surface soil and bedrock geology maps	CWS	d	
16			Perform geophysical surveys to determine soil types and ground water levels	CWS	1	
17			Perform a road crossing inventory according to (RFP)	CWS	4	
18			Perform a geomorphology study of the watershed	CWS	4	
19			Collect available stream flow data; if necessary use synthetic streamflow data	CWS	3	

Huron Creek Watershed Management Plan: Work Plan

Task	Goal	Objective	Task and Product	Responsible	Percent of Effort ^b
20			Install system for measuring flow at creek mouth and begin collecting flow data	CWS	2
21			Review historical documents to determine past and current land use, waste disposal and storm water runoff practices	CWS	2
22	Identify		Travel watershed and document current land use, waste disposal and storm water runoff practices	CWS	2
23	Critical Areas	Identify critical	Interview government officials, professionals, and residents to determine past and current land use, waste disposal and storm water runoff practices	CWS	2
24		areas	Identify potential water quality problems associated with past and current land use, waste disposal and storm water runoff practices	CWS	2
25			Review water quality data and associated water quality concerns with critical areas	CWS	2
26			Review and assess existing regulations, ordinances and other policies that pertain to critical areas	CWS	3
27	Develop	Screen	Assemble existing water quality data from local government, Michigan Tech, DEQ, and public schools	CWS	d
28	Sustainable Water Quality	previous data	Screen existing water quality data to isolate data collected and analyzed using acceptable QAPPs	CWS	2
29	Monitoring	Develop	Identify locations, parameters, frequency	CWS	d
30	Plan	Monitoring plan	Develop QAPP and submit for approval to DEQ	CWS	2
31		Perform	Assemble supplies and equipment for sample collection and analysis	CWS	d
32		Stream Monitoring	Take water quality samples and perform analysis according to QAPP	CWS	5
33		Develop	Recruit and train water quality sampling volunteers	CWS	3
34		sustainable	Develop procedure for analyzing volunteer-collected samples	CWS	2
35		monitoring system	Identify classes at Michigan Tech with water quality sample collection and analysis component and incorporate into those classes	CWS	2
36	Develop	Research	Review critical areas and develop targets for ameliorating critical areas	CWS	3

Huron Creek Watershed Management Plan: Work Plan

Task	Goal	Objective	Task and Product	Responsible ^a	Percent of Effort ^b	
37	Alternatives for	BMPs for improvement	Review BMPs and completed designs used in other watersheds to solve similar problems	CWS	3	
38	improvement		Create a list of alternative BMPs for the improvements that are needed	CWS	4	
39	of critical	Identify and	Create design plans for each alternative	CWS	4	
40	areas	describe alternative	Iternative Prepare cost estimates for each alternative			
41		BMPs	Describe pros and cons for each alternative	CWS/WC	4	
42			Identify potential sources of funding for implementation of alternatives	CWS	4	
43	Develop	Complete plan	Write watershed management plan draft	CWS	4	
44	Watershed	for approval by DEQ	Hold public meeting on plan draft; revise accordingly	CWS	2	
45	Management Plan	,	Submit plan for DEQ approval	CWS	1	
46	Meet all DEQ	Grant	Develop and submit quarterly status reports following ESSD guidance	CWS	1	
47	protocols	administration	CWS	1		
48	protocois	and close out	Submit a release of claims statement on letterhead with the final report	CWS	1	

^aCWS: Michigan Tech Center for Water & Society; WC: Watershed Council; PS: Public Schools ^bd: task already completed or nearly complete

Timeline*

S) N	1 D) J	F	M A	M	J	J	A	Γask
For	m	a s	elf s	sust	taini	ing	wa	tei	rshe	ed council
d										Identify local businesses, governments, civic groups, non-profit groups, residents
X	x									Recruit individuals to serve on WAC
	X									Hold initial meeting for WAC
	x x	(x	X	X	хх	X	X	X	X	Organize monthly meetings for the watershed council
De	elo	p a	and	im	plei	nei	nt w	vat	ers	hed publicity program
	x x	(Develop web page for watershed
	Х	(x	(Develop publicity materials for informing local residents on watershed
X										Identify relevant media and media representatives
X		Х	۲ .			х	X	X	x	Identify and participate in appropriate, existing community events for publicity
	х	(X				Integrate watershed into local school curricula
					х	X	X			Plan and put on Community Watershed Quality Day
Ga	the	r d	ata	an	d cr	eat	e m	ap	s tl	hat show physical characteristics
d										Identify available web and conventional sources for maps
d										Delineate watershed boundaries
	х	(X								Delineate stormwater runoff areas and storm sewers
d										Create current and historical land use maps
d										Create a surface soil and bedrock geology maps
X	х	(Perform geophysical surveys to determine soil types and ground water levels
X	х	(Perform a road crossing inventory according to (RFP)
X	х	(Perform a geomorphology study of the watershed
X	х	(X	X	X	хх	X	X	X	X	Collect available stream flow data; if necessary use synthetic streamflow data
X	X									Install system for measuring flow at creek mouth and begin collecting flow data
Ide	ntif	fy (criti	ical	are	as				
	х									Review historical documents to determine past and current land use, waste disposal and storm water runoff practices
	х									Travel watershed and document current land use, waste disposal and storm water runoff practices
	х	(X	X							Interview to determine past and current land use, waste disposal and storm water runoff practices
	Х	_	X							Identify potential water quality problems associated with past and current land use, waste disposal and storm water runoff practices
Ш		Х	X	X	X					Review water quality data and associated water quality concerns with critical areas
										Review and assess existing regulations, ordinances and other policies that pertain to critical areas
	een	ı pı	revi	ous	s da	ta				
d										Assemble existing water quality data from local government, Michigan Tech, DEQ, and public schools

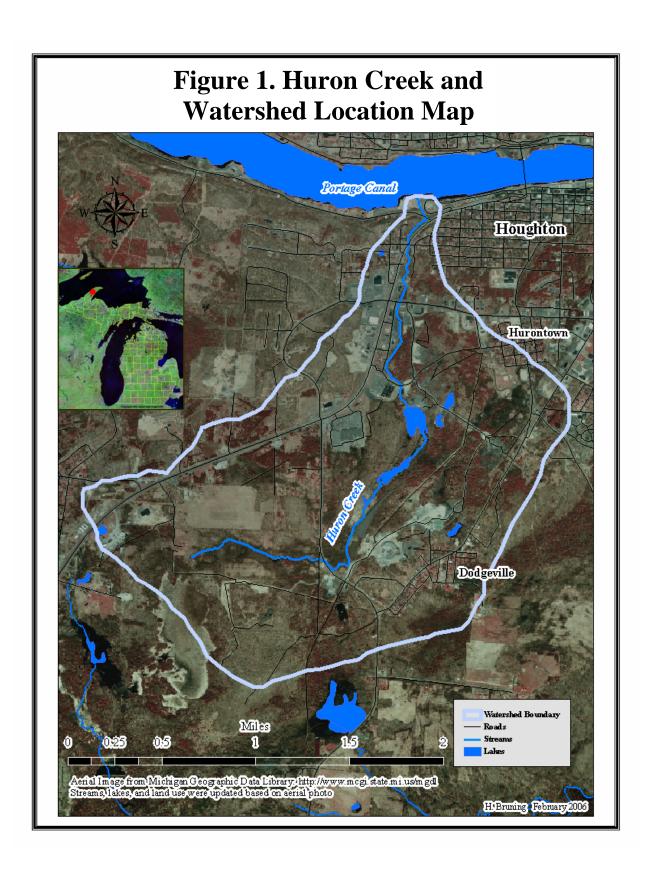
Timeline*

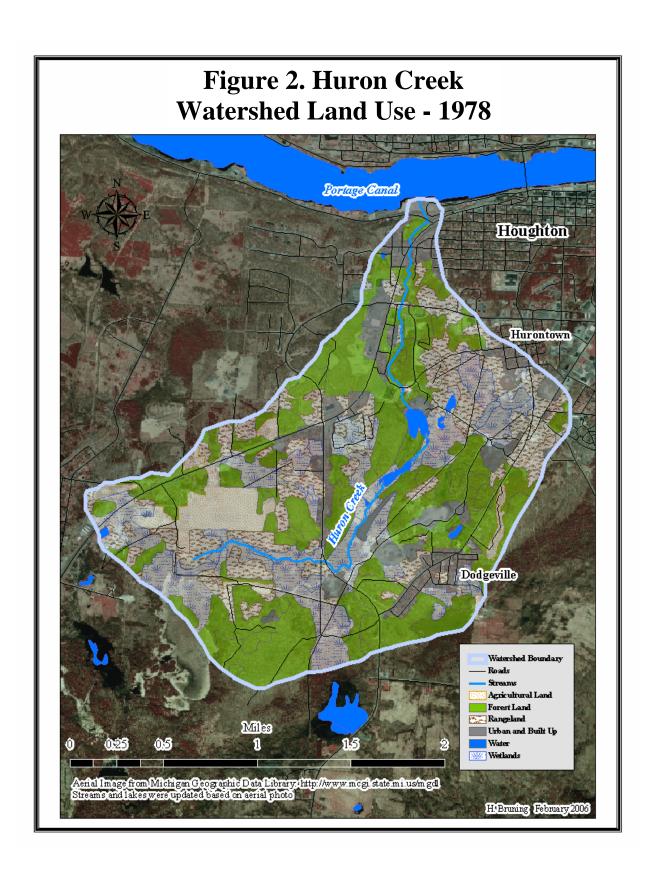
	1									
$S \cup S$	O N	D.	J F	M	4 N	1 J	J	A	Task	
	x x								Screen existing water quality data to isolate data collected and analyzed using acceptable QAPPs	
Dev	Develop Monitoring plan									
d									Identify locations, parameters, frequency	
X									Develop QAPP and submit for approval to DEQ	
Per	fori	m St	rean	ı N	Ion	itoı	in	ıg		
X									Assemble supplies and equipment for sample collection and analysis	
X		x		X		X			Take water quality samples and perform analysis according to QAPP	
Dev	velo	p su	stain	ab	le n	non	ito	orin	ng system	
				x 2	X				Recruit and train water quality sampling volunteers	
				x	x x				Develop procedure for analyzing volunteer-collected samples at Michigan Tech	
		x	x x	x	x x				Identify classes at Michigan Tech with water quality sample collection and analysis component and incorporate into those classes	
Res	sear	ch to	echni	iqu	es f	or	im	pre	ovement	
			X	x 2	x x				Review critical areas and develop targets for ameliorating critical areas	
			X	x 2	x x				Review completed designs and ideas used in other watersheds to solve similar problems	
				x 2	x x				Create a list of alternatives for the improvements that are needed	
					x x				Create design plans for each alternative	
				- 1	x x				Prepare cost estimates for each alternative	
					x x				Describe pros and cons for each alternative	
					x x				Identify potential sources of funding for implementation of alternatives	
Pro	ocess	ses f	or co	mj	olet	ion				
					X X				Write watershed management plan draft	
						X	Х		Hold public meeting on plan draft; revise accordingly	
					floor			х	Submit plan for DEQ approval	
Gra	ant a	adm	inist	rat	ion	an	d o	clos	e out	
	Х		Х)			X	Develop and submit quarterly status reports following ESSD guidance	
									Develop and submit a draft final report following ESSD guidance	
									Submit a release of claims statement on letterhead with the final report	
									·	

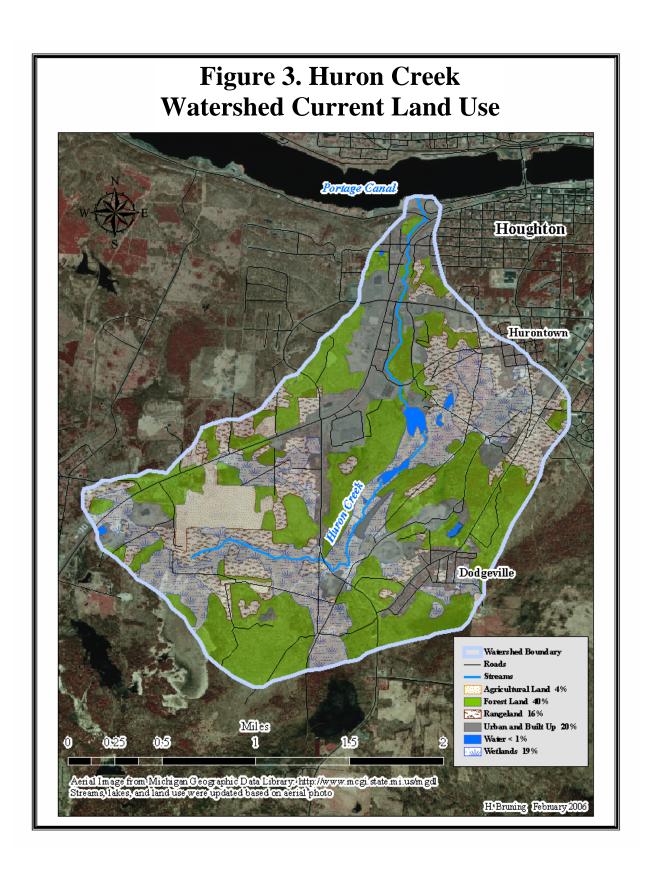
d: task already accomplished

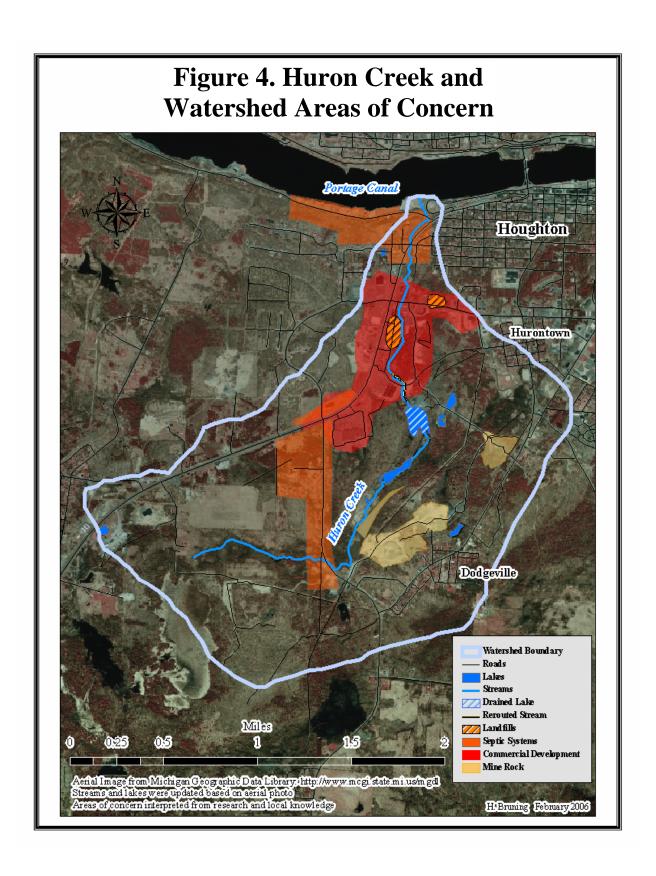
Appendix A: Maps

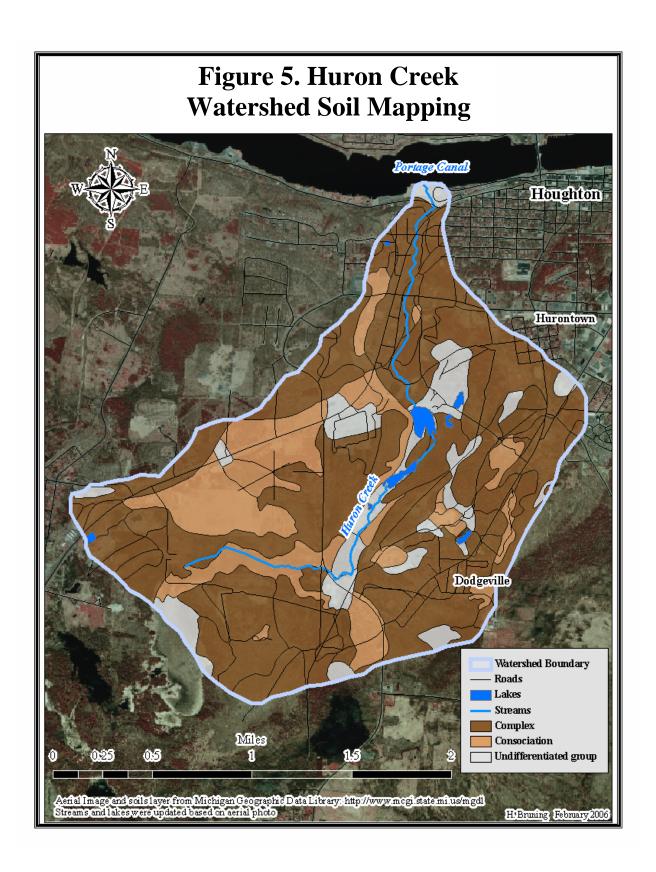
- 1. Location
- 2. 1978 Land Use
- Current Land Use
 Areas of Concern
- 5. Soils
- 6. Monitoring Locations

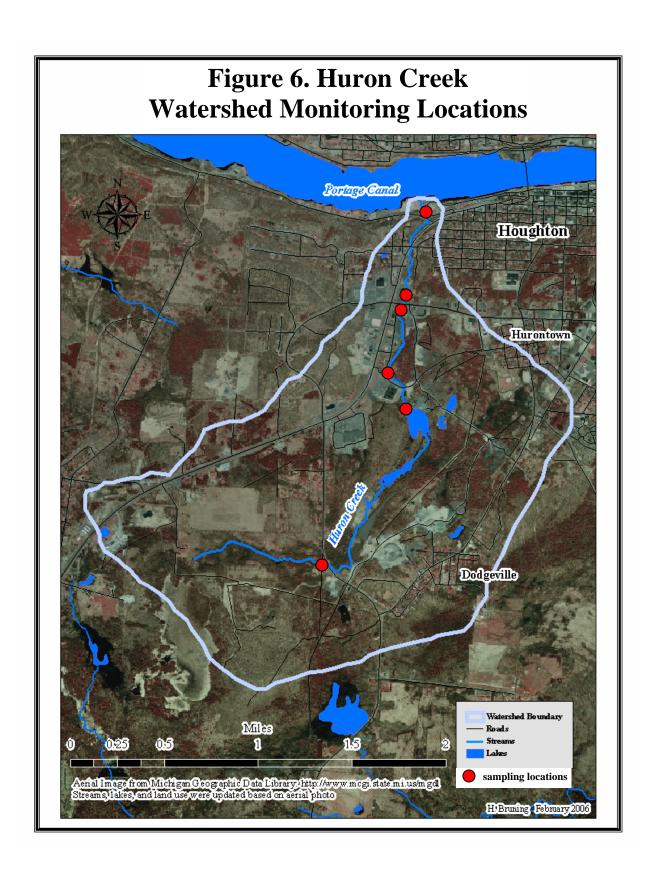












Appendix B: Independent Auditors Report



Amember of THE REHMANN GROUP

An Independent Member of Baker Tilly International

INDEPENDENT AUDITORS' REPORT AND ON COMPLIANCE AND OTHER MATTERS ON INTERNAL CONTROL OVER FINANCIAL REPORTING BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

November 4, 2005

Board of Control Michigan Technological University Houghton, Michigan

We have audited the financial statements of *Michigan Technological University* as of and for the year ended June 30, 2005 and have issued our report thereon dated November 4, 2005. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial statements contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

In planning and performing our audit, we considered *Michigan Technological University's* internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide an opinion on the internal control over financial reporting. Our consideration of the internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be material weaknesses. A material weakness is a reportable condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements caused by error or fraud in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control over financial reporting and its operation that we consider to be material weaknesses.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether *Michigan Technological University's* financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

This report is intended solely for the information and use of the Board of Control and management, and is not intended to be and should not be used by anyone other than these specified parties.

Rehmann Lohan

A member of THE REHMANN GROUP

An Independent Member of Baker Tilly International

INDEPENDENT AUDITORS' REPORT ON COMPLIANCE WITH REQUIREMENTS APPLICABLE TO EACH MAJOR PROGRAM AND INTERNAL CONTROL OVER COMPLIANCE IN ACCORDANCE WITH OMB CIRCULAR A – 133

November 4, 2005

Board of Control Michigan Technological University Houghton, Michigan

Compliance

We have audited the compliance of *Michigan Technological University* with the types of compliance requirements described in the *U.S. Office of Management and Budget (OMB) Circular A-133 Compliance Supplement* that are applicable to each of its major federal programs for the year ended June 30, 2005. Michigan Technological University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs. Compliance with the requirements of laws, regulations, contracts, and grants applicable to each of its major federal programs is the responsibility of Michigan Technological University's management. Our responsibility is to express an opinion on Michigan Technological University's compliance based on our audit.

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial statements contained in Government Auditing Standards, issued by the Comptroller General of the United States; and OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations. Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about Michigan Technological University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion. Our audit does not provide a legal determination on Michigan Technological University's compliance with those requirements.

In our opinion, *Michigan Technological University* complied, in all material respects, with the requirements referred to above that are applicable to each of its major federal programs for the year ended June 30, 2005.

Internal Control over Compliance

The management of *Michigan Technological University* is responsible for establishing and maintaining effective internal control over compliance with requirements of laws, regulations, contracts and grants applicable to federal programs. In planning and performing our audit, we considered *Michigan Technological University's* internal control over requirements that could have a direct and material effect on a major federal program in order to determine our auditing procedures for the purpose of expressing our opinion on compliance and to test and report on internal control over compliance in accordance with OMB Circular A-133.

Our consideration of the internal control over compliance would not necessarily disclose all matters in the internal control that might be material weaknesses. A material weakness is a reportable condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that noncompliance with applicable requirements of laws, regulations, contracts and grants caused by error or fraud that would be material in relation to a major federal program being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control over compliance and its operation that we consider to be material weaknesses.

Schedule of Expenditures of Federal Awards

We have audited the financial statements of *Michigan Technological University* as of and for the year ended June 30, 2005 and have issued our report thereon dated November 4, 2005. Our audit was performed for the purpose of forming an opinion on the financial statements taken as a whole. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by OMB Circular A-133 and is not a required part of the financial statements. Such information has been subjected to the auditing procedures applied in the audit of the financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the financial statements taken as a whole.

This report is intended solely for the information and use of the Board of Control, management, federal awarding agencies and pass-through entities, and is not intended to be and should not be used by anyone other than these specified parties.

Rehmann Johann

Appendix C. Letters of Commitment

- 1. B-H-K Child Development Board
- 2. City of Houghton
- 3. Copper Country Chapter of Trout Unlimited
- 4. Copper Country Mental Health Services
- 5. Friends of the Land of Keweenaw
- 6. Houghton Keweenaw Conservation District
- 7. Houghton Rotary Club
- 8. Houghton-Portage Township Schools
- 9. Keweenaw Land Trust
- 10. Keweenaw Memorial Fitness Center
- 11. Moyle Construction, Inc.
- 12. National Resource Conservation Service
- 13. Portage Township
- 14. Wal-Mart
- 15. Western UP Health Department

BHK CHILD DEVELOPMENT BOARD



700 Park Avenue Houghton, Michigan 49931

'Serving children and families through comprehensive early childhood education, health and family support services'

PHONE
(906) 482-3663
(800) 236-5657
EMAIL
bhk@bhkfirst.org
FAX
(906) 482-7FAX
WEB
www.bhkfirst.org

Crystal Verran Board Chairperson John Kirk Council Chairperson Rod Liimatainen Executive Director

February 28, 2006

Alex Mayer, Director Michigan Tech Center for Water & Society 1400 Townsend Drive Houghton, MI 49931

Dear Alex,

BHK Child Development Board (BHK) fully supports your organization's proposal to the Michigan Department of Environmental Quality to develop a watershed management plan for Huron Creek. We also would be excited to provide a member of our organization to serve on the project's Watershed Advisory Council.

BHK is a strong advocate of efforts to improve the quality of life for children and families in the Copper Country, particularly through thoughtful approaches which involve long-term planning and include diverse stakeholders. We are blessed with outstanding natural resources and must be continually vigilant in preserving the quality of these resources for future generations.

The Huron Creek project is particularly interesting to BHK for several reasons. First, the greater watershed includes three properties owned by BHK, two of which include preschool/childcare centers with outdoor play areas serving young children. Second, the creek runs through the City of Houghton's Kestner Waterfront Park, a popular summer play area for families with young children. Finally, the creek runs adjacent to Houghton's M-26 business corridor, the most vibrant, important and growing sector of private economic development in the region.

With these factors in mind, BHK understands the importance of striking a balance that maximizes water quality, ensures safe recreational opportunities to the community and encourages responsible economic development. All these things are crucial to the long-term health and welfare of our community and its children, and it is BHK's belief that each can be fostered in a mutually beneficial manner through this project's comprehensive watershed plan.

BHK is excited to see this project come to fruition. I or another member of our staff will be glad to serve on the Watershed Advisory Council and help to guide the project. Please contact me if you have any questions or need additional support, and best of luck with the application.

Sincerely,

Rod Liimatainen Executive Director



CITY OF HOUGHTON

COMMUNITY OF EXCELLENCE

City Centre
616 Shelden Avenue • P.O. Box 606
Houghton, Michigan 49931
(906) 482-1700

March 7, 2006

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water and Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

As City Manager for the City of Houghton, I am writing this letter to show the City's support for the funding of the Huron Creek Management Plan. Huron Creek has gone through many environmental changes through the years. About one-third of the watershed for this creek is within the City of Houghton.

In the last 25 years, the area has undergone a lot of changes mostly with commercial development. During the last five years, many groups including the MDEQ, Houghton High School, and Michigan Technological University have been involved in the water quality assessment.

As areas of concern have been identified, the City has developed a plan to improve those areas. The City has a plan and a construction timetable to collect the proposals to do a methane assessment and response activity plan for the area over the old landfill. The assessment should be completed by the end of June 2006.

Now that the City is putting a considerable amount of time and money into the cleanup of the Huron Creek, we need to do a Watershed Management Plan to further improve the environmental quality of this creek. It is our hope that the DEQ will fund this valuable project.

We will be happy to cooperate in the formation of the plan by providing any information that you might need. As you suggested, we are also considering joining the Watershed Advisory Council, which will be created from volunteers representing the

various stakeholders in the watershed. We understand that the Watershed Advisory council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

If you have any questions please call me at (906) 483-4647 or e-mail citymanager@cityofhoughton.com.

Sincerely,

Scott MacInnes City Manager

SM/amv Word/document/scott/oldlandfill/DEQ 3-6-06



Copper Country Chapter P.O. Box 232 Hancock, MI 49930 2000 Michigan Chapter of the Year 2000 Silver Trout Award Winner 2004 MOWA Clean Waters Award

February 27, 2005

Alex Mayer
Center for Water and Society
Department of Geological and Mining Engineering and Sciences
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Dr. Mayer;

This letter is in support of the Michigan Department of Environmental Quality, Grant Application that is being submitted to develop a watershed management plan for Huron Creek.

Copper Country Chapter of Trout Unlimited is dedicated to conserving, protecting, and restoring the Copper Country's coldwater fisheries and their watersheds. More broadly, we believe that responsible management of all watersheds is important for a healthy fishery as well as a generally healthy environment for both fish and humans. An effective management plan for Huron Creek as described in your proposal is an important positive contribution to the local environment and coldwater fish habitat both within that watershed and broadly to the Copper Country region through general water quality improvement.

CCCTU would be interested in assisting with volunteer labor to assist with various surveys if the proposal is funded. As you may understand, our funding sources are limited, but we stand ready to offer our help and support in any way we practically can.

Although CCCTU was only organized in 1998, our membership has grown to around 100 members representing a cross-section of Keweenaw citizens. We enthusiastically support your efforts to obtain funding for this project on Huron Creek.

Sincerely,

Jim Baker

President, Copper Country Chapter Trout Unlimited



COPPER COUNTRY MENTAL HEALTH SERVICES

SERVING BARAGA, HOUGHTON, KEWEENAW & ONTONAGON COUNTIES

LAWRENCE J. POLLACK, Ph.D. Executive Director

VICKI MIKKOLA Associate Director

SUSAN D. SERAFINI Finance Director

LORA A. BULLEIT Human Resource Director March 7, 2006

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of the Copper Country Mental Health Services for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed. We think that it is worth exploring the improvement and maintenance of Huron Creek as a recreational resource for the community.

As you suggested, we are also considering joining Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal and to participating in the project.

Sincerely,

Lawrence J. Pollack, Ph.D., Executive Director Copper Country Mental Health Services

Junence Pollack

Houghton County

RICE MEMORIAL CENTER 901 W. Memorial Drive Houghton, MI 49931 (906) 482-9400 Fax: (906) 482-9794 **Keweenaw County**

CALUMET (CLK) CENTER 56938 Calumet Avenue Calumet, MI 49913 (906) 337-5810 Fax: (906) 337-2108 **Baraga County**

BARAGA CO CENTER HC <u>03</u> Box 957 L'Anse, MI 49946 (906) 524-5885 Fax: (906) 524-5866 **Ontonagon County**

ONTONAGON CO CENTER 515 Quartz Street Ontonagon, MI 49953 (906) 884-4804 Fax: (906) 884-4856 **Training & Prevention**

THE INSTITUTE 900 West Sharon Avenue Houghton, MI 49931 (906) 482-4880 Fax: (906) 482-7657 Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of the Friends of the Land of Keweenaw for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed.

I believe that the objectives in developing a watershed management plan for Huron Creek will be consistent with the mission of FOLK. Although we might characterize Huron Creek as an "urban" stream, it is important to improve and protect the stream and its watershed, along with the more natural areas of the Keweenaw Peninsula. FOLK is interested in supporting any efforts that contend with the impact of economic development on water quality.

As you suggested, we are also considering joining Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal and to participating in the project.

Sincerely,

Constance Sherry

Constance Sherry

President



Houghton Keweenaw Conservation District

600 E. Lakeshore Dr., Suite #2 Houghton, MI 49931

Phone: 906 482-0214 • Fax: 906 482-6074 • Web page: www.hkconserve.com

Mar. 1, 2006

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

Houghton Keweenaw Conservation District supports your efforts to develop a management plan for Huron Creek and to apply for a Michigan Department of Environmental Quality grant for this purpose.

The mission of the Houghton Keweenaw Conservation District is to promote the sound conservation practices and the wise use of our natural resources. A management plan for Huron Creek is consistent with our mission. We support your efforts and are also prepared to provide a representative to serve on the Watershed Advisory Council for Huron Creek.

Thank you for pursuing this project that will be of great benefit to our community.

Sincerely,

Sue Haralson, Administrator

Houghton Keweenaw Conservation District



Roger S. Helman, J.D., CFP PRESIDENT **Houghton Rotary Club**

P.O. Box 102, Houghton, Michigan 49931

office: 906.482.4280 email: superior_lalitude@charter.net facsimile: 906.482.6228 cellular: 906.370.1336 toll-free voicemail: 1.800.709.9177 website: HoughtonRotary.org

March 7, 2006

Mr. Alexander Mayer Department of Geological & Mining Engineering & Sciences Michigan Tech Center for Water & Society Michigan Technological University 1400 Townsend Drive Houghton, Michigan 49931

RE:

Huron Creek Watershed Proposal

Deal Alex:

Upon reviewing your documentation, the Houghton Rotary Board of Directors has agreed to endorse your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek, located in and around the City of Houghton. As we understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed.

The objective to develop a watershed management plan for Huron Creek is consistent with certain concerns of Houghton Rotary. Our club has been instrumental in the improvement of the Houghton Waterfront Park, which is where the creek's outlet is located. Moreover, Rotary International is currently emphasizing clean water as a focus for clubs worldwide.

As suggested, the club may consider joining the Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the council would be ultimately responsible for identifying and recommending alternatives for improving or maintaining water quality in the watershed.

On behalf of Houghton Rotary, I look forward to hearing about the progress of your proposal, and hope that our club will be in a position to participate in future watershed project endeavors.

Very truly yours,

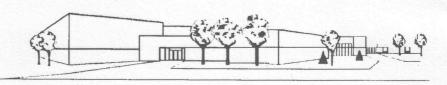
Roger S. Helman, J.D., CFP President, Houghton Rotary

mayer.030706

HOUGHTON-PORTAGE TOWNSHIP SCHOOLS

1603 Gundlach Road • Houghton, Michigan 49931 • (906) 482-0451 • Fax (906) 487-9764

Board of Education
Philip T. Foltz, President
Brad Baltensperger, Vice President
Susan Donnelly, Secretary
Nels Christopherson, Treasurer
Daniel Crane, Trustee
Mary Pachmayer, Trustee
Michael Reynolds, Trustee



Superintendent William J. Polkinghorne

An Equal Opportunity Employer

Web Site www.houghton.k12..mi.us

March 1, 2006

Dr. Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of the Houghton-Portage Township Public Schools for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed.

In the past, science teachers at the Houghton-Portage Township schools have used Huron Creek as a "laboratory" for demonstrating concepts of stream ecology for their students. For several years, the teachers and students have performed "Save Our Streams" surveys to assess the health of Huron Creek. We would like to continue the involvement of our local schools' students in the monitoring, maintenance and improvement of the stream.

As you suggested, we are also considering joining the Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal and participating in the project.

Sincerely,

William J. Polkinghorne Superintendent of Schools

WJP:sb

"Your public school system; there is no better place to learn"

a community partner dedicated to protecting the quality of life in the Keweenaw through land conservation



Alex Mayer

P.O. Box 750 • Houghton, Michigan 49931

Department of Geological and Mining Engineering and Sciences

1400 Townsend Drive

Houghton, MI 49931

Dear Alex,

The Keweenaw Land Trust (KLT) supports your application to the Michigan Department of Environmental Quality to fund development of a watershed management plan for Huron Creek. The KLT works to protect land and water resources to enhance the quality of life in the Keweenaw. The KLT has partnered with the Houghton Keweenaw Conservation District to protect intact natural wetland systems, but we also recognize the importance and value of work on impacted systems such as the Huron Creek watershed. The Huron Creek watershed includes residential areas and the system feeds into the Portage Waterway and then on to Lake Superior. Studying this watershed and developing appropriate management strategies will directly benefit the community as well as the terrestrial and aquatic ecosystems in this watershed. KLT is undertaking conservation projects in the Portage Watershed with plans to foster greater appreciation of this heavily utilized and perhaps under-appreciated community resource.

Presently, the Huron Creek watershed is a degraded system, impacted by past and present land uses. Much of the development directly affecting Huron Creek was poorly planned, with alterations to connected wetlands, significant stream bank erosion, and extensive non-point source pollution and storm runoff issues associated with commercial structures and parking lots along this creek. These issues justify the need for a watershed management plan in order to prevent further degradation and hopefully to prescribe remedies to restore components of this watershed. We anticipate that more development will occur in this watershed, and rather than oppose such development KLT voices the need to balance economic interests and development with goals of protection and stewardship of the area's natural resources. For example, the GEM Center for Science and Environmental Outreach at Michigan Tech University has published "Design Guidelines to Enhance Community Appearance and Protect Natural Resources." The knowledge and expertise exists locally to help achieve this balance and numerous examples demonstrate that resource protection and development can go hand in hand.

Bruce Petersen, a KLT board member and Natural Resources Conservation Service professional, is willing to serve on the Watershed Advisory Council representing KLT. With a Huron Creek watershed management plan in place and an active Watershed Advisory Council, this watershed and the community will benefit from protected and enhanced water resources. We commend your efforts and wish you every success with your application, development of a Huron Creek Watershed Management Plan and establishment of a Watershed Advisory Council.

Sincerely,

Com McDu

Evan McDonald, KLT-Executive Director

342 Hecla Street Laurium, Michigan 49913 906-337-7000 Fax: 906-337-4772 700 Sharon Avenue Houghton, Michigan 49931 906-482-8201 Fax: 906-482-2771

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of the Keweenaw Memorial Rehab and Fitness Center for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek.

As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed. I believe that the objectives in developing a watershed management plan for Huron Creek are consistent with the mission of Keweenaw Memorial Rehab and Fitness Center. One of our primary goals is to encourage the community to get outside and exercise. In this vein, we think that it is worth exploring the improvement and maintenance of Huron Creek as a recreational resource for the community.

As you suggested, we are also considering joining Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal and to participating in the project.

Sincerely,

Terry Smythe, Fitness Director



Phone (906) 482-3000 Fax (906) 482-3087

February 28, 2006

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of Moyle, Inc. for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the plan is to lay out alternatives for improving or maintaining water quality in the watershed.

As the major landowner and developer in the watershed, we think that development of such a plan is important and that our participation in developing the plan is critical. We believe that the proper management of the creek and surrounding watershed are important to the community and its growth.

We will be happy to cooperate with you by providing information that you might need. As you suggested, we are also considering joining Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

We look forward to working with you as the project evolves.

Sincerely,

Jeff Moyle

President



United States Department of Agriculture February 28, 2006

Natural Resources Conservation Service Michigan Tech University
Dept. of Geological & Mining Engineering & Sciences
1400 Townsend Drive
Houghton, MI 49931

Baraga Area Service Center 35 Ojibwa Industrial Park Road Rte. 1, P.O. Box 303

Baraga, MI 49908

Re: February 22, 2006 Letter, Huron Creek Watershed

Attn: Dr. Alex Mayer

VOICE: 906-353-8225

FAX: 906-353-8231

serving Baraga Houghton Keweenaw Ontonagon Counties My Agency, the USDA - NRCS, is very supportive of your Huron Creek watershed application to develop a watershed management plan. Both the NRCS and the Houghton/Keweenaw Conservation District have historically been involved with this heavily impacted watershed. For example; for years the Houghton High School's earth sciences class used this watershed as an "outdoor classroom" and I conducted a annual watershed tour with each new class of students.

Historically, the NRCS has been involved with a number of watershed applications and management plans within the four county area that I serve. This kind of study is consistent with our mission and goals of the Agency. My Agency can supply your students and their Senior Design Project with our watershed based, technical knowledge needed in this endeavor. I would also be happy to serve on the Huron Creek Watershed Advisory Council.

If there are ay questions – please call.

Thank you for your time.

Bruce Petersen NRCS – District Conservationist

CHARTER TOWNSHIP OF PORTAGE

Houghton, Michigan

"Progress our Goal"

Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex,

The purpose of this letter is to indicate the support of Portage Township for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed.

Water quality us one of the most important issues that we are currently grappling with in Portage Township. More than half of the Huron Creek watershed falls within the township's boundaries. We welcome the opportunity to discuss water issues that concern the watershed as a whole. This will greatly help our planning and development efforts in the near future.

We will be happy to cooperate with you by providing any information that you might need. You may be interested in attending one or more of our Township board meetings to tell the board and our residents about your project. As you suggested, we are also considering joining the Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal.

Sincerely,

William Bingham, Supervisor

47240 Green Acres Road, Houghton, Michigan 49931

Phone: (906) 482-4310 • Fax: (906) 482-4942 TDD: (800) 649-3777 • Tax ID# 38-6006265 Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water & Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

The purpose of this letter is to indicate the support of the Houghton Wal-Mart for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. As I understand it, the primary purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed.

As a major business in the watershed, we think that development of such a plan is important and that our participation in developing the plan is critical. We believe that a high quality creek and surrounding watershed are important to the community. Community and environment are both significant to Wal-Mart, as evidenced by the following quotes from the Wal-Mart website:

Community: We are focused on fostering and deepening these community partnerships because we know they're critical to our future. Good working relationships will ensure that we grow responsibly and intelligently, and help us build stronger communities—together.

(http://walmartstores.com/GlobalWMStoresWeb/navigate.do?catg=216)

Environment: Focusing on the environment is key to our mission to improve the quality of life for people around the world. Environmental leadership is critical to our future ability to grow and thrive as a company.

(http://walmartstores.com/GlobalWMStoresWeb/navigate.do?catg=217)

As you suggested, we are considering joining Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

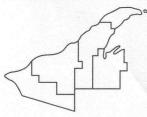
I look forward to hearing about the progress of your proposal and to participating in the project.

Sincerely,

Mike Palek, Manager

Houghton Wal-Mart Superstore

who All



Western Upper Peninsula District Health Department and Superior Home Nursing & Hospice Division

540 Depot Street, Hancock, Michigan 49930 Phone: (906) 482-7382

BRANCH OFFICES:

210 N. Moore St. Bessemer, MI 49911 Phone: 667-0200 303 Baraga Ave. L'Anse, MI 49946 Phone: 524-6142 408 Copper St. Ontonagon, MI 49953 Phone: 884-4485

February 27, 2006

Mr. Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Tech Center for Water and Society
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Alex:

This letter will convey the full support of the Western Upper Peninsula District Health Department for your proposal to the Michigan Department of Environmental Quality to fund the development of a watershed management plan for Huron Creek. I understand that the purpose of developing the watershed management plan is to lay out alternatives for improving or maintaining water quality in the watershed. I believe that the objectives in developing a watershed management plan for Huron Creek are consistent with the mission of Western Upper Peninsula District Health Department. We foresee that the management plan will address the suitability of the stream as a recreational and natural resource for our community.

As you suggested, we are also interested in joining the Watershed Advisory Council, which will be created from volunteers representing the various stakeholders in the watershed. We understand that the Watershed Advisory Council would be ultimately responsible for identifying and recommending alternatives for improving the watershed.

I look forward to hearing about the progress of your proposal and to participating in the project. We consider this a worthy project, and we support it without qualification.

Sincerely,

Guy St. Germain

Health Officer/Administrator

GSG/jf