



**Hatch Mott  
MacDonald**

2601 Cranberry Square  
Morgantown, WV 26508  
T 304.212.4390 F 304.594.2814  
[www.hatchmott.com](http://www.hatchmott.com)

May 5, 2009

Mr. Chuck Bowman, Buyer  
West Virginia Department of Environmental Protection  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

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WV PURCHASING  
DIVISION

**RE: RFQ #14619**  
**Expression of Interest for Site Characterization Study, Leachate Management & Closure Cap Design, and Quality Assurance/Quality Control for the South Charleston Landfill**  
**HMM MDWP00FE01**

Dear Mr. Bowman:

Hatch Mott MacDonald (HMM) is pleased to submit this Expression of Interest (EOI) to provide site engineering services to the West Virginia Department of Environmental Protection (WVDEP) for the South Charleston Landfill. HMM has been providing solid waste landfill design and closure services to public and private clients since the inception of our waste management division in 1982.

By selecting HMM, the WVDEP can assure itself of an engineering firm which has completed design, permitting, construction management and post-closure operations, monitoring and maintenance services on landfills ranging in size from 10 to 300 acres. We have successfully delivered these services on complex landfill site projects, developing closure systems which feature innovative sustainable design elements all at the lowest cost to our clients. In addition, our closure designs have incorporated community-enhancing facilities including a community center (with indoor pool and skate rinks), a distribution center, 18-hole golf course, recreational facilities and recycling centers. Many of these projects involved determination of the extent of landfilled area (site characterization) as well as waste mining and relocation, gas and odor management, differential settlement management and creative project aesthetics management. This work has allowed many of the sites to be returned to active and beneficial use. These successful projects have been completed on challenging sites ranging from very old C&D landfills to relatively "fresh" municipal solid waste landfills.

The South Charleston Landfill closure project will be managed by Gary Facemyer, PE, who divides his time between the Morgantown, WV and Charleston, WV offices of HMM. Gary will work with designers and engineers in our local offices in order to execute this work. Additional senior technical expertise from our Millburn, NJ headquarters will round out the project team and ensure that the WVDEP benefits from our local area representation as well as our decades of experience with landfill closure design and construction management. Mr. Facemyer has direct experience with landfill closure design and construction in West Virginia through his experience on the Pine Creek Omar and City of Montgomery landfill sites.

West Virginia is a strategic area of focus for our business, as evidenced by the rapid growth of our Morgantown office and the recent establishment of an office in Charleston managed by Mr. Facemyer. We have hired veteran staff and we have selected landfill design, permitting, and closure services as a target market area for West Virginia because of our history of successful landfill closure projects and the many related technical overlaps with AML projects, including heavy construction, slope stabilization, refuse reprocessing, stream mitigation, subsidence, and the like. Our West Virginia offices have a total staff of 45 professionals. Our in-house capabilities include civil, mechanical, and mining engineers, CAD designers, geologists, environmental scientists, biologists, and construction management specialists. The offices are located to service any part of the state, and are equipped with state-of-the-art technology and tools including Trimble GPS units that are used by our field staff on a regular basis. We have also invested in large format color plotters and scanners to give our staff cutting edge capabilities to deliver the highest quality drawings, specifications, and report documents possible.

The HMM project team for the South Charleston Landfill closure project will be joined by NGE Consultants, who will provide drilling and geotechnical testing services as well as QA/QC services to the team. Aerial mapping will be provided by Blue Mountain as identified herein.

Representative project briefs have been included in this submittal to demonstrate our capabilities similar to those required for the South Charleston project. References and contact numbers have been provided on the project briefs. HMM maintains a strong corporate QA/QC philosophy for all the work we do illustrated by the fact that we are ISO 9001:2000 certified.

We appreciate the opportunity to submit this Expression of Interest and look forward to establishing a successful working relationship on this project. Please contact either of the undersigned with any questions you may have.

Very truly yours,

**Hatch Mott MacDonald**



**Gary Facemyer, PE**  
**Senior Project Manager**  
T 304.356.3011 F 304.357.9222  
[gary.facemyer@hatchmott.com](mailto:gary.facemyer@hatchmott.com)



**Richard L. Steinhart, PE**  
**Senior Vice President**  
T 412.497.2910 F 412.497.294  
[richard.steinhart@hatchmott.com](mailto:richard.steinhart@hatchmott.com)

**Cover Letter**

**Section 1 – CQQ**

**Section 2 – Corporate History & Experience**

**Section 3 – Purchasing Affidavit**

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
LANDFILL CLOSURE CONSULTANT QUALIFICATION QUESTIONNAIRE**

PROJECT NAME South Charleston Landfill Closure Design & QA/QC		DATE (DAY, MONTH, YEAR) May 5, 2009	FEIN 16-1006700
1. FIRM NAME Hatch Mott MacDonald LLC	2. HOME OFFICE BUSINESS ADDRESS 27 Bleeker Street Millburn, NJ 07041		3. FORMER FIRM NAME Andrews & Clark, Inc. (1938) N. H. Bettigole, P.A., P.C. (1966) Bettigole Andrews Clark & Killam Associates, Inc. (1995)
4. HOME OFFICE TELEPHONE  973.379.3400	5. ESTABLISHED (YEAR)  1972	6. TYPE OWNERSHIP  CORPORATION	6A. WV REGISTERED DBE (DISAVANTAGED BUSINESS ENTERPRISE)  NO
7. PRIMARY OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. (name particular type) PERSONNEL EACH OFFICE 2601 Cranberry Square, Morgantown, WV 26508, 304.212.4390, Timothy M. Rice, Area Manager / Morgantown - 43			
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Richard L. Steinhart, PE, Vice President		8a. NAME, TITLE, & TELEPHONE NUMBER-OTHER PRINCIPALS Gary Facemyer, PE, Charleston Office Area Manager 304.356.3010	
9. NUMBER OF PERSONNEL BY DISPLINE ( <b>Bold Lettering Indicates Minimum Design Team Members</b> ) Detailed information On Team To Be Included			
<u>26</u> ADMINISTRATIVE	<u>5</u> ECOLOGISTS	<u>7</u> LANDSCAPE	<u>65</u> STRUCTURAL
<u>14</u> ARCHITECTS	<u>0</u> ECONOMISTS	ARCHITECTS	ENGINEERS
<u>0</u> BIOLOGIST	<u>35</u> ELECTRICAL	<u>23</u> MECHANICAL	<u>99</u> SURVEYORS
<u>273</u> CADD OPERATORS	ENGINEERS	ENGINEERS	
<u>8</u> CHEMICAL ENGINEERS	<u>17</u> ENVIRONMENTALISTS	<u>2</u> MINING	<u>760</u> OTHER
<u>215</u> CIVIL ENGINEERS	<u>26</u> ESTIMATORS	ENGINEERS	
<u>142</u> CONSTRUCTION	<u>28</u> GEOLOGIST	<u>0</u> PHOTOGRAMMETRISTS	
INSPECTORS	<u>0</u> HISTORIANS	<u>5</u> PLANNERS:	
<u>31</u> DESIGNERS	<u>1</u> HYDROLOGISTS	URBAN/REGIONAL	<b>1</b>
<u>0</u> DRAFTSMEN		<u>24</u> SANITARY	
		ENGINEERS	
		<u>0</u> SOILS ENGINEERS	
		<u>0</u> SPECIFICATION	
		WRITERS	
<b>TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>3</u></b>			
<b>*RPEs other than Civil must provide supporting documentation that qualifies them to supervise and perform this type of work.</b>			
10. If submittal is by joint venture, list participating firms & outline specific areas of responsibility (including administrative, technical, & financial) for each firm. Each participating firm must complete a "Consultant Confidential Qualification Questionnaire".			
10a. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? <input type="checkbox"/> YES <input type="checkbox"/> NO			

11. OUTSIDE KEY CONSULTANTS/ SUB-CONSULTANTS ANTICIPATED TO BE USED.

<b>NAME AND ADDRESS:</b> Novel Geo-Environmental, PLLC 171 Montour Run Road Moon Township, PA 15108	<b>SPECIALTY:</b> Geotechnical Testing / Drilling QA/QC	<b>WORKED WITH BEFORE</b>  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b> Blue Mountain Aerial Mapping 11023 Mason Dixon Highway Burton, WV 26562	<b>SPECIALTY:</b> Aerial Mapping	<b>WORKED WITH BEFORE</b>  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b> Triad Engineering 4980 Teays Valley Road St. Albans, WV 25177	<b>SPECIALTY:</b> Geotechnical Testing / Drilling QA/QC	<b>WORKED WITH BEFORE</b>  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b> REIC Laboratories	<b>SPECIALTY:</b> Analytical Laboratory	<b>WORKED WITH BEFORE</b>  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO

12. \*\*\*Note: *Personnel* refers to those who will be working directly on the project:

A. Are your firm's personnel experienced in Solid Waste Landfill Closure Design?

**YES** Description and Number of Projects:

HMM personnel are thoroughly familiar with and experienced in Solid Waste Landfill Closure Design. We have attached Personal History Statements of HMM's "core" landfill engineering team, and their decades of experience in landfill design will be made available to this project. These engineers and scientists have been directly involved in the 13 representative projects described in this document.

B. Are your firm's personnel experienced in Solid Waste landfill site characterization assessment and evaluation?

**YES** Description and Number of Projects:

The Hertel Superfund Landfill, Hanover Township Landfill, Southern Ocean County Landfill, and Woodbridge Township projects (descriptions of each are attached) all involved the determination of the "foot print" of existing landfills to determine the lateral extent of the waste. Techniques such as test borings and direct excavation were used to accomplish the objectives of characterizing and evaluating the landfills' extent.

NGE staff has performed landfill site characterizations and evaluations on four previous projects using various geophysical testing methods and subsurface sampling using standard auger drilling and geo-probe direct push sampling to assess soil and groundwater conditions and extent of waste as well as potential soil borrow areas.

C. Are your firm's personnel experienced in landfill closure construction inspection?

**YES** Description and Number of Projects:

Our engineering staff has direct and recent experience in provide construction inspection services for landfill closures. Joseph Koehler, PE (Personal History Statement attached) leads our group of engineers which provide construction inspection for landfill expansions and closures. Joe has over 30 years of engineering experience associated with solid waste management and civil engineering projects. HMM has performed construction inspection services on approximately 10 landfill projects.

D. Is your firm experienced in Aerial Photography and the Development of Contour Mapping?

**YES** Description and Number of Projects:

HMM subcontracts the actual aerial photography work. HMM solid waste and civil engineering staff provide GPS, surveying, aerial photographic interpretation, and production of the mapping for our landfill projects. HMM has provided these types of services on hundreds of projects.

E. Are your firm's personnel experienced in evaluating ground water contamination, such as may be associated with landfills?

**YES** Description and Number of Projects:

Groundwater assessment is a fundamental scientific and engineering task associated with the design of new and abandoned landfills, the assessment of a landfill's extent, and its final closure. Groundwater assessment, including hydrogeologic analysis and evaluation of contamination, is a core practice at HMM, and we have performed hundreds of projects involving these services. Our experienced personnel range from PhD-level geologists and seasoned engineers who evaluate existing data and define all necessary field evaluations (and interpret their results), seasoned geologists who oversee the installation of borings and log them in the field, to experienced field technicians who perform routine groundwater sample collection and monitoring. The data obtained from the groundwater investigations are used to select the most cost-effective cap and remediation approach.

NGE Staff has performed five (5) investigations to evaluate the hydrogeology, groundwater and surface water quality, beneficial use, and potential migration of leachate associated with landfills. These evaluations were performed to evaluate the nature and extent of contamination from the landfill as part of the Remedial Investigation (RI) Work Plan.

F. Are your firm's personnel experienced in Landfill Closure cost estimating?

**YES**

Every landfill design project performed by HMM has involved the preparation of cost estimates. In fact, HMM does not commence closure designs until a budget is established which allows us to design with financial objectives and the "end" in mind. We are cognizant of the need to "design against budget" on every project we perform, and we routinely use locally available materials and incorporate innovative design approaches into our work to minimize costs. We also balance the capital costs of a landfill closure design against the long-term maintenance costs associated with the project, and we include our clients in important project milestones (for example, the 30, 60, and 90 percent completion phases of a design) to present options and agree upon the selected approach. The Warren County project described in this Expression of Interest is an example of our acumen in estimating closure costs. The engineering estimate prepared by HMM for the Warren County Pollution Control Financing Authority District Landfill side slope closure was \$6.7 million; the low bid on the project was \$6.9 million. This construction project was accomplished on time and within budget.

NGE Staff has conducted cost estimating as part of closures conducted at three uncontrolled hazardous waste sites. Two sites were an existing solid waste landfill that had been found to contain hazardous materials/wastes. The remaining site required the design and construction of 2.5 acre landfill cell for the onsite disposal of contaminated soils.

**MULTIPLE CATEGORIES ARE INDICATED FOR STAFF WITH EXPERIENCE IN MORE THAN ONE CATEGORY, IN LIEU OF REPEATING BIOS.**

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)

13c. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)

NAME & TITLE (Last, first, Middle Int.)	YEARS OR EXPERIENCE		
	YEARS OF (type) EXPERIENCE:	YEARS OF (type) EXPERIENCE:	YEARS OF (name type) EXPERIENCE:
Nusser, Donald O.	30		

Brief Explanation of Responsibilities:

Mr. Nusser has worked over 25 years in the environmental consulting field. His work for public and private sector clients includes preparation of environmental assessments and environmental impact statements for solid waste (landfills, transfer stations, and recycling and resource recovery) facilities and other facilities including those in sensitive site locations, preparation of Phase I site assessments for identifying recognized environmental conditions on properties potentially purchased by clients, and project management and engineering for medium and large regional municipal wastewater authorities including plant expansions, resident inspection, sludge management and infiltration/inflow/SSE. He has also been responsible for siting, planning, designing and full service procurement of solid waste management facilities including landfills, resource recovery facilities, transfer stations and recycling facilities and soil and groundwater investigation and remediation projects, including the preparation of Sampling Plans and Remediation Plans; and management of large scale remedial construction projects which involved excavation and placement of large quantities of earth.

EDUCATION (DEGREE, YEAR, SPECIALIZATION)

MS, New Jersey Institute of Technology (NJIT), 1975, Civil Engineering  
BS, NJIT (Newark College of Engineering), 1974, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:

Air & Waste Management Association  
Solid Waste Association of North America

REGISTRATION (Type, Year, State)

Professional Engineer, Civil, 24GE02596600, 1979, NJ  
Professional Planner, 33LI00279800, 1983, NJ

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**13c. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)**

NAME & TITLE (Last, First, Middle Int.) Facemyer, Gary	YEARS OF EXPEIRENCE		
	YEARS OF EXPERIENCE (name type): 32	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):

**Brief Explanation of Responsibilities:**  
 Mr. Facemyer has been responsible for planning, permitting, design and construction of public works projects for more than 30 years. His duties have included project management, project engineer, quality assurance/quality control, schedules, personnel, company resources, business/market development, clients and profit. He has served as a Project Manager/Project Engineer on various water, wastewater, site development, solid waste landfill, earthen dam, geotechnical investigation, abandoned mine reclamation, hazardous waste site and many other civil engineering projects. His experience includes project planning and design, managing construction bid and award, construction oversight and inspection and project closeout.

Mr. Facemyer has specific WVDEP Landfill Closure Assistance Program (LCAP) experience. He was responsible for the site characterization study, design concept, engineering design, preparation of site closure drawings and specifications for the recently bid Pine Creek/Omar LCAP project while employed by others. He was also responsible for the Montgomery LCAP project providing site characterization, design concept, engineering design, preparation of interim site closure drawing and specifications, permits and performing all quality assurance documentation. The project included an interim cap, leachate collection, storage and transportation to the city's wastewater treatment plant by constructing a gravity collection system to serve the community and the landfill. Mr. Facemyer has also been responsible for other WV landfill site characterizations and closure plans, new cell construction including the permitting and quality control/quality assurance documentation.

**EDUCATION (Degree, Year, Specialization)**  
 BS, WV Institute of Technology, 1976, Civil Engineering

<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> American Society of Civil Engineers American Council of Engineering Companies/West Virginia WV Society of Professional Surveyors	<b>REGISTRATION (Type, Year, State)</b> Professional Engineer- 18676, 1995, KY; 27128, 2002, MD; PE56731, 1993, OH; PE042965R 1992, PA; 0402 024022, 1993, VA; 8287, 1980, WV Registered Surveyor – WV
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**13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)**

NAME & TITLE (last, first, middle Int.) Mullen, Brendan M.	YEARS OF EXPEIRENCE		
	YEARS OF EXPERIENCE (name type): 26	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):

**Brief Explanation of Responsibilities:**  
 Mr. Mullen has worked extensively on landfills, transfer stations and other solid waste-related projects. These include site investigation and remediation, landfill closure plan development, solid waste characterization studies and the preparation of Preliminary Environmental and Health Impact Statements (PEHISs) for proposed sanitary landfills. His sanitary landfill site selection and design experience includes supervising site preparation, drainage, liner placement and cover importation for a 15-acre landfill site. His landfill design experience also includes the completion of the design of a new landfill for a confidential client in Florida.

**EDUCATION (Degree, Year, Specialization)**  
 MBA, 2003, Rutgers University  
 BS, Sligo Institute of Technology, 1986, Environmental Science  
 Diploma, Sligo Institute of Technology, 1981, Water Engineering

<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> National Solid Waste Management Association Solid Waste Association of North America	<b>REGISTRATION (Type, Year, State)</b> Professional Engineer #GE38346, 1994, NJ Board Certified Environmental Engineer, AAEE, 2007 NJDEP UST License - All Categories #0013412, 1994, NJ
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<b>13c. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)</b>			
NAME & TITLE (last, first, middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)
Koehler, Joseph J.	34		
Brief Explanation of Responsibilities Mr. Koehler has been involved in civil and environmental engineering projects which include the design and construction of solid waste transfer stations, landfills and recycling facilities, groundwater and soil remediation systems, recreational facilities, sanitary/storm sewer separations, sanitary and domestic water facilities, pump stations and fuel facilities. He is experienced in initial field studies, preparation of plans, specifications and bid documents, project management and construction management.			
EDUCATION (Degree, Year, Specialization) BS, Tri-State University, 1975, Environmental Engineering			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers		REGISTRATION (Type, Year, State) Professional Engineer #GE33876, 1989, NJ NJDEP UST License - All Categories #0011225, 1992, NJ	
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<b>13c. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)</b>			
NAME & TITLE (last, first, middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):
Lynes, Robert J.	31		
Brief Explanation of Responsibilities: Mr. Lynes is experienced in several areas of civil and environmental engineering with an emphasis on solid waste projects including landfills. His responsibilities have included preparation of feasibility studies, initial field studies, preparation of plans, specifications and bid documents, construction supervision and engineering, obtaining permits from various federal, state and local government agencies and meeting with clients, the public and various overseeing agencies.			
EDUCATION (Degree, Year, Specialization) BS, University of Maryland, 1977, Civil Engineering			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers New Jersey Society of Professional Engineers		REGISTRATION (Type, Year, State) Professional Engineer #28226, 1982, NJ NJDEP UST License - All Categories #0011226, 1992, NJ OSHA Hazardous Waste Site Operations	
<b>13a.PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)</b>			
NAME & TITLE (last, first, middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)
Manners, Vincent P.	2		
Brief Explanation of Responsibilities Mr. Manners' current responsibilities include assisting with the design and permitting of various municipal projects including recycling centers. These tasks include site grading, layout, and design of various athletic fields, municipal, and solid waste facilities. His duties also include construction management and preparing contract drawings and specifications. Recently, Mr. Manners collaborated on the development of a model for leachate runoff using Hydrologic Evaluation of Landfill Performance (HRLP) software.			
EDUCATION (Degree, Year, Specialization) BS, New Jersey Institute of Technology, 2007, Civil Engineering			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers		REGISTRATION (Type, Year, State) Engineer-in-Training #13943, 2008, NJ	

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NAME & TITLE (last, first, middle int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):
Redmond, Roy J.	27		

**Brief Explanation of Responsibilities:**  
 As a Senior Project Geologist, Mr. Redmond is a remediation specialist and has been responsible for all phases of project management, from scope-of-services proposals to final reports and presentations. His responsibilities include supervising a staff of geologists, creating project teams, establishing project needs, scheduling and coordinating contractors, maintaining contact with clients and governmental agencies, cost analysis and budget tracking, and ensuring the timely completion of all projects. The majority of projects completed under Mr. Redmond's direction involve remedial investigations and the design of remedial systems for soil and groundwater contamination. The remedial investigations consist of extensive hydrogeological investigations from site characterization through computer modeling to determine impact on potential receptors. He has prepared remedial design concepts and coordinated with engineering staff for the final remedial design package. He oversees the permitting and implementation of the remedial systems and monitors remedial system performance and efficacy. Mr. Redmond has managed numerous hydrogeological investigations concerned with contaminated groundwater. The investigations include determining the source of the contamination, delineating the extent of the contamination based on the nature of the contaminants and the site geology, aerial photograph interpretation, and determining contaminant transport.

**EDUCATION (Degree, Year, Specialization)**

MS, 1982, Geology, Lehigh University  
 BA, 1979, Geology, Rutgers University

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

American Geophysical Union  
 Association of Groundwater Scientists and Engineer

**REGISTRATION (Type, Year, State)**

Professional Geologist 1994, PA; 1995, NC; NJDEP UST License - Subsurface #0012166, NJ, 1992; OSHA Hazardous Waste Site Operations, 1984; OSHA Hazardous Waste Site Ops. Supervisor; OSHA Hazard Communications Training

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NAME & TITLE (last, first, middle int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):
Starcher, Robert W.	24		

**Brief Explanation of Responsibilities**  
 Since joining Hatch Mott MacDonald (HMM) in 1987, Dr. Starcher has been in responsible charge of geologic and hydrogeologic investigations and other projects that make use of his expertise in geology, biology, physical sciences, applied mathematics and statistics, conceptual and numerical modeling, pattern recognition, and computer programming. Dr. Starcher provides technical guidance in matters of aquifer remediation and diversion permitting, environmental impact assessment and sustainability, wastewater and stormwater disposal, watershed evaluation, environmental hazards, and construction dewatering. He also reviews computations and technical reports and provides training to staff at all levels, especially with regard to developing geostatistical, geotechnical, and hydrogeologic skills. Dr. Starcher also provides hydrogeologic support to HMM's branch and regional offices across the United States and Canada.

**EDUCATION (Degree, Year, Specialization)**

PhD, Geological Sciences, Rutgers University, 1987; MS, Geology, Michigan State University, 1982; BS, Geology, Michigan State University, 1977

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

Association of Groundwater Scientists and Engineer  
 National Ground Water Association

**REGISTRATION (Type, Year, State)**

Professional Geologist 2005, PA; 1999, WY; 1999, MN  
 NJDEP UST License - Subsurface #0012580, NJ, 1992  
 OSHA Hazardous Waste Site Ops. Supervisor  
 OSHA Confined Space Entry  
 OSHA Hazard Communications Training

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NAME & TITLE (last, first, middle Int.)	YEARS OF EXPEIRENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPEIRENCE (name type):	YEARS OR EXPEIRENCE (name type):
Henning, Brian E.	16		

**Brief Explanation of Responsibilities:**  
 Mr. Henning has extensive experience in the investigation and remediation of contaminated soil and groundwater and the preparation and implementation of corrective actions in accordance with RCRA and CERCLA requirements. He has also provided design and construction management services for hazardous waste projects, including asbestos abatement, as well as solid waste facilities. As Project Manager, his responsibilities include budget and schedule management, including cost estimating and project staffing, contractor and subcontractor selection and coordination, interfacing with State and Federal regulatory agencies, design alternatives evaluations and managing permitting processes.

**EDUCATION (Degree, Year, Specialization)**  
 MBA, Webster University, 2003, Business Administration  
 BS, The Citadel Military College, 1993, Civil Engineering

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**  
 American Society of Civil Engineers  
 National Society of Professional Engineers  
 Solid Waste Association of North America

**REGISTRATION (Type, Year, State)**  
 Professional Engineer: #19822, 1999, SC; #026151, 2000, GA;  
 #00109519, 2004, TN; #55724, 1999, FL  
 OSHA Hazardous Waste Site Operations

**13a.PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)**

NAME & TITLE (last, first, middle Int.)	YEARS OF EXPEIRENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPEIRENCE (name type):	YEARS OR EXPEIRENCE (name type):
Delatour, Robert J.	31		

**Brief Explanation of Responsibilities:**  
 Mr. Delatour has extensive experience in environmental engineering and hydrology, including the site investigation and remedial design of solid and hazardous waste projects. His experience includes hydrological and engineering investigations at both liquid and solid waste disposal facilities. He has participated in or managed a number of landfill investigations. The scope of these projects has included site selection studies, preparation and evaluation of landfill design, preparation of landfill closure/post-closure maintenance plans, hydrogeological investigations and preparation of environmental impact statements.

**EDUCATION (Degree, Year, Specialization)**  
 MS, Johns Hopkins University, 1978, Environmental Engineering  
 BS, St. Lawrence University, 1975, Geology

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**  
 National Ground Water Association  
 New Jersey Water Environment Association  
 Water Environment Federation

**REGISTRATION (Type, Year, State)**  
 Professional Engineer #29944, 1984, NJ  
 Professional Engineer #PE-040339-R 1990, PA,  
 NJDEP UST License - All Categories #0009732, 1992, NJ  
 OSHA Hazardous Waste Site Operations, 1987

**MULTIPLE CATEGORIES ARE INDICATED FOR STAFF WITH EXPERIENCE IN MORE THAN ONE CATEGORY, IN LIEU OF REPEATING BIOS.**

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project) (Furnish Complete data but keep to essentials)**

NAME & TITLE (Last, first, Middle Int.)  Nottingham, John, E.	YEARS OR EXPERIENCE		
	YEARS OF (type) EXPERIENCE: 21	YEARS OF (type) EXPERIENCE:	YEARS OF (name type) EXPERIENCE:

**Brief Explanation of Responsibilities:**  
Oversee and direct geotechnical aspects of project including: geotechnical drilling, determination of borrow source areas; borrow area volume calculations, determination of appropriate QA/QC testing and monitoring procedures for NGE.

**EDUCATION (DEGREE, YEAR, SPECIALIZATION)**  
Bachelor of Science in Civil Engineering, 1987, WVU, Specialization – Civil and Geotechnical Engineering  
Masters of Science in Civil Engineering, 1995, WVU, Specialization – Geotechnical Engineering

<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:</b> American Society of Civil Engineering (ASCE) West Virginia Chapter of AIA	<b>REGISTRATION (Type, Year, State)</b> Professional Engineering, 1994, WV Professional Engineering, 2007, VA Professional Surveyor, 1996, WV
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**13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)**

NAME & TITLE (Last, First, Middle Int.)  Nottingham, Larry C.	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type): 42	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):

**Brief Explanation of Responsibilities:**  
Provide technical expertise to assist with geotechnical aspects of the site characterization study to include geotechnical drilling, determination of borrow source areas, borrow area volume calculations, determination of appropriate QA/QC testing and monitoring procedures for NGE.

**EDUCATION (Degree, Year, Specialization)**  
Bachelor of Science in Civil Engineering, 1965, Civil Engineering, West Virginia Institute of Technology  
Master of Science in Civil Engineering, 1966, Geotechnical Engineering, University of Pittsburgh  
Doctor of Philosophy, 1975, Geotechnical Engineering, University of Florida

<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> Member, American Society of Civil Engineers Member, National Society of Professional Engineers	<b>REGISTRATION (Type, Year, State)</b> Professional Engineer, 1969, WV; 1985, KY; 1985, OH; 2006, PA
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**13b. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE QA/QC (Furnish complete data but keep to essentials)**

NAME & TITLE (last, first, middle Int.)  Brown, Dencil, E.	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type): 10	YEARS OF EXPERIENCE (name type):	YEARS OR EXPERIENCE (name type):

**Brief Explanation of Responsibilities:**  
Oversight of field drilling activities and QA/QC monitoring and testing for NGE.

**EDUCATION (Degree, Year, Specialization)**  
BS, Civil Engineering Technology, Bluefield State College, 2000  
BS, Architectural Engineering Technology, Bluefield State College, 2000

<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> Air and Waste Management Association Society of American Military Engineers	<b>REGISTRATION (Type, Year, State)</b> Registered Professional Engineer, 2008, WV OSHA 1910.120 40-hour HAZWOPER Training, 2005
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14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE THIS PROJECT (name project)

**FIELD EQUIPMENT**

**Sampling Equipment (water/solid)**

Ponar Dredge (solids underwater)  
Automatic Water Samplers  
Hand Augers (soil)  
EnCore™ Samplers  
Disposable Field Filters, 0.45 micron  
Bailers (disposable Polyethylene, PVC, Teflon)  
Groundwater Pumps

**Safety Equipment**

O2, LEL, H2S, CO Meter  
Hazmat Kit/Draeger Tubes  
Tripod Confined Space Entry System  
Personal Protective Equipment (PPE)

**General Equipment**

Air Compressor (electric powered, 110V)  
Digital Camera  
Electric 110V-220V Generator (gas powered)  
Jar Test Apparatus  
Settling Column  
Field Kits (HACH)  
Metering Pumps (0-500 ml/min)

**Measuring Instruments**

Marsh McBirney T2000 Flow Meter (open channel)  
Fluorometer (water flow open channel)  
Polysonics Flow Meter (closed pipe)  
Water Level Recorder  
Water Level Indicator (wells, tanks)  
Interface Layer Probe (wells, tanks)  
Recording Rain Gauge  
pH/Conductivity/Temp Meter  
pH/Temp Meter  
ORP Meter  
Specific Conductivity/Temp Meter  
Photoionization Detector

**Surveying Equipment**

Portable Rangefinder  
Brunton Compass  
Total Station with Data Collector  
GPS Submeter Unit  
GPS RTK (Portable Base + Rover)

**GPS RTK (Complete Unit)**

**General Office**

Microsoft Word  
Microsoft Excel  
Microsoft PowerPoint  
Microsoft Project  
Microsoft Outlook  
Adobe CS2 Suite

**Design and Modeling**

AutoCAD 2007  
AutoDesk Land Desktop 2007 (civil/site)  
Autodesk Civil 3D 2007 (civil/site)  
MicroStation V8 2004  
FlowMaster 2005 (flow design)  
InfoWorks CS (hydraulic modeling)  
XP-SWMM (hydraulic modeling)  
InfoSewer (hydraulic analysis)  
HEC-RAS (open channel modeling)  
PENTOXSD for Windows (effluent limits)  
WQM 7.0 (BOD/NH3 wasteload allocation)  
HELP (Landfill Hydrologic Evaluation Model)

**GIS and Database**

ArcGIS (GIS mapping and database mgmt.)  
SQLServer (database management)  
Oracle (database management)  
Microsoft Access (simple databases)

**OFFICE EQUIPMENT**

Oce TDS 450 B/W Plotter (high speed, wide format)  
Oce TCS 500 Color Plotter (high speed, wide format)  
Oce Wide Format Color Scanner

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD ASSOCIATED WITH OR RELATING TO LANDFILL CLOSURE OR CONSTRUCTION.				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Dukes Parkway Landfill Municipal & Asbestos LF Somerville, NJ	Somerset County, NJ Michael Amorosa Engineering Dept. PO Box 3000 Somerville, NJ	Closed LF Yearly Monitoring	\$41,550 (\$1M Construction)	85%
Southern Ocean LF Municipal LF Waretown, NJ	Ocean County, NJ Ernest Kuhlwein PO Box 2191 Toms River, NJ	Closed LF Yearly Operation and Monitoring	\$85,000 (current fee) (\$10M Construction)	5%
Hertel LF Superfund Site Plattekill, NY	Dave Miller Ford Motor Co. 240 Town Center Drive Dearborn, MI	Closed LF Ongoing Operation & Monitoring of Superfund LF	\$504,000 \$2.7M Construction)	80%
Olbry's LF Municipal LF Monroe, NJ	Estate of Eleanor Olbrys 370 Rue Road Monroe, NJ	Closed LF Yearly Monitoring	\$12,000 (current fee)	85%
Lincoln Park West LF LF Closure Jersey City, NJ	Hudson County NJ Norman Guerra 574 Summit Ave Jersey City, NJ	Waste Disruption and Closure Design Permit Applications	\$17,000,000	90%
Pollution Control Financing Authority of Warren County (PCFAWC) District LF Oxford, NJ	James Williams PCFAWC Mount Pisgah & Quarry Road PO Box 587 Oxford, NJ 07863	Leachate Treatment from LF & Operation Treatment Plant	\$150,000	5%
TOTAL NUMBER OF PROJECTS:		TOTAL ESTIMATED CONSTRUCTION COSTS:		
# 6		\$ >\$30,000,000		

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS RELATING TO LANDFILL CLOSURE AND CONSTRUCTION.

PROJECT NAME, TYPE, AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST:	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
NONE					

**17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD (List 5 to 7)**

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
<b>Warren County District LF</b> Design, permitting, EIS, and O&M Manual for vertical landfill expansion.	Pollution Control Financing Authority of Warren County (PCFAWC) Mount Pisgah & Quarry Road PO Box 587 Oxford, NJ 07863	\$10,000,000	2008	No
<b>Warren County District LF</b> Design and Construction Management Services for a 20-acre partial LF closure.	PCFAWC Mount Pisgah & Quarry Road PO Box 587 Oxford, NJ 07863	\$6,000,000	2007	Yes
<b>Stream Mitigation/Restoration Project</b> , Southwestern, PA Stream mitigation and restoration of approximately 21,000 lineal feet of stream affected by longwall mining.	Confidential Coal Client	\$5,000,000	2007	Yes
<b>Stream Monitoring</b> , Southwestern, PA Stream monitoring of approximately 13,000 lineal feet of stream affected by longwall mining.	Confidential Coal Client	\$4,600,000	2007	N/A
<b>Pond Restoration and Sealing Project</b> , Mannington, WV Restoration and liner installation on pond affected by longwall mining.	Confidential Coal Client	\$30,730	2007	Yes
<b>Program Management Services</b> , Washington DC Providing overall program management of the water distribution system including planning, engineering design and engineering design management services, Master Plan and Operations review and update in support of DCWASA's on-going capital improvement program in excess of \$500m.	District of Columbia Water & Sewer 5000 Overlook Avenue, SW, 5 <sup>th</sup> Fl Washington DC 20032-5397	\$9,500,000	2006	N/A
<b>Crow's Nest Wash Plant</b> , Westmoreland County, PA Developed a permit for the reprocessing of coal waste products at a site in PA. The site was part of an abandoned surface mine and coal waste pile.	Donald F. Dargle Palmer Management Group 13 Elm Street, Suite 300 Cohasset, MA 02025	\$300,000	2006	Yes
<b>Tampa Bay Seawater Desalination Facility Modifications</b> , Appollo Beach, FL Serving as the Engineer of Record for the project. Responsible for structural, architectural, electrical, mechanical and site related design and review of process design for the planned modifications. Also providing construction engineering services	American Water Pridesa, LLC 13041 Wyandotte Road Gobsonton, FL 33534	\$24,000,000	2007	Yes
<b>Lost Creek Flood Study</b> , Lost Creek, WV Project involved performing a FEMA flood study to revise the floodplain boundaries along Lost Creek. Services included creation of a hydraulic model based on new survey data and completion of all necessary FEMA documentation to support the floodplain revision.	Harrison County Planning Commission 301 West Main Street Clarksburg, WV 26301	\$60,000 (fee)	2005	No



18. COMPLETED WORK WITHIN LAST 5 YEARS IN WHICH YOUR FIRM HAS BEEN A SUBCONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK WHICH YOUR FIRM WAS RESPONSIBLE) LIST 5 TO 7.

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
<p><b>Columbus Crossover Taxiway, Port Columbus International Airport, Columbus, OH:</b>                      Preliminary structural design engineering for the taxiway bridge(s) including an investigation of bridge types, structural systems, de-icing systems, costing and development of structural design considerations for final design.</p>	<p>Columbus Airport Authority                      4600 International Gateway                      Columbus, OH 43219</p>	<p>\$30.87 M                      (Construction)</p>	<p>2006</p>	<p>Yes</p>	<p>RWA Associates</p>
<p><b>Westport Railroad Station, Westport, CT</b>                      As part of an ADA compliance upgrade, a pedestrian tunnel had to be constructed under four live Metro-North Railroad tracks, which also carry the East Coast Main Line service between Boston and New York. HMM completed a feasibility study and subsequently designed and provided on site supervision for the construction of a 75 ft long jacked tunnel.</p>	<p>Connecticut Department of Transportation                      2800 Berlin Turnpike, P.O. Box 317546                      Newington, CT 06131-7546</p>	<p>\$2.5 M                      (Construction)</p>	<p>2003</p>	<p>Yes</p>	<p>TAMS Consultants</p>
<p><b>Easterly Advanced Facilities Plan, Cleveland, OH</b>                      QA/QC of geotechnical data collection and reporting, feasibility and selection of tunnel and shaft excavation and lining systems. 30% design of tunnel linings and construction cost estimates for all tunnel construction contracts. This project involved 16-mi of CSO tunnels, from 20 to 27-ft in finished diameter and as deep as 200 feet traversing primarily through Chagrin Shale.</p>	<p>Northeast Ohio Regional Sewer District                      3826 Euclid Ave.                      Cleveland, OH 44115-2504</p>	<p>\$166,000                      Fee</p>	<p>2003</p>	<p>Yes</p>	<p>Haley &amp; Aldrich, Inc.</p>

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the WV Department of Environmental Protection.

HMM will form a team ideally suited to meeting WVDEP's objectives for this project, attaining the project goals, and exceeding WVDEP's expectations. The team will consist of the HMM professionals identified herein, coupled with our identified subcontractors. In addition, the team will have access to more than 1800 scientists, engineers, and technicians throughout HMM. The work will be principally performed in the Charleston, WV and Morgantown, WV offices of HMM and will be directly supported by engineers and scientists with decades of experience in landfill closure services including: site characterization (investigations, surveys and mapping, extent of waste determinations); engineering design (capping systems, grading plans & cross sections, leachate and gas management systems, and storm water controls); permitting; preparation of construction bid documents (closure plans and specs); and construction management and QA/QC. In selecting HMM for this work, the WVDEP is assured of a team which is:

- familiar with the working procedures of the WVDEP;
- experienced in providing landfill closure design services for WV sites;
- locally based, with available technical support from within HMM;
- sensitive to the budget constraints associated with projects and experienced in providing landfill closure design solutions commensurate with these budgets; and,
- able to apply innovative techniques associated with landfill closure designs to minimize costs while assuring compliance with all applicable regulations and attainment of project goals.

Mr. Gary Facemyer, PE, recently opened the Charleston office for HMM to expand the company's ability to serve WVDEP. Specifically, the Abandoned Mine Land and Reclamation (AML) office (we currently have completed one project, are anticipating a second purchase order, and have been recently selected for a third AML project) and the Landfill Closure Assistance Program (LCAP). HMM has made strategic hires of personnel that have previous experience in these markets. As can be seen in this CQQ, Mr. Facemyer has specific and recent experience in the LCAP program, has recent WV experience in landfill closure, characterization, planning, design, permitting, QA/QC and construction. HMM has selected subconsultants with WV landfill experience.

**Novel Geo-Environmental, LLC (NGE)**, is an 8(a) Certified, full-service environmental and geotechnical consulting firm, that continues to expand their services. Led by a management team that averages over 15 years of experience, NGE provides quality geotechnical and environmental services to its clients. Their management staff includes professional engineers, geologists, consultants, construction managers, and foremen with experience in a broad range of technical disciplines. With offices located in Pennsylvania and West Virginia, NGE performs the majority of our work with our in-house, OSHA 40-hour trained professional staff, construction equipment operators, and field technicians. Their major service areas are summarized as follows:

#### **Environmental Services**

- NGE has conducted numerous site assessments, both Phase I and II, under various protocols and state requirements. Typically Phase I ESA's involve industrial acquisition projects. Phase II ESA's have been performed on a variety of sites including redevelopment projects.
- NGE personnel have the technical knowledge and experience to make remedial design plans a reality. Numerous types of remedial systems such as soil and groundwater treatment, pump and treat, solvent/oil recovery, and sediment stabilization have been successfully implemented. Numerous clients have chosen NGE to provide ongoing operational and maintenance services for long term remediation projects. Through commitment of qualified staff, particularly two licensed remediation specialists, NGE has demonstrated the ability to successfully manage various types of systems and the associated reporting requirements.
- NGE has been hired by several industrial clients to manage environmental concerns while they are either opening new facilities, or expanding facilities currently in operation. Through these arrangements, NGE has worked on site development, been responsible for permitting, contractor oversight related to environmental matters, and conducted negotiations with regulatory agencies on the facility's behalf.


#### **Geotechnical Services**

- NGE has the experienced staff and necessary resources to provide services to our clients throughout project development, design, and construction phases. These services include, site preparation recommendations, dam analysis and design, mine subsidence investigations, landslide analysis, pavement design, earthwork analysis and design, and geotechnical design for highway and airport projects.
- NGE has the resources and equipment to handle most any geotechnical drilling job, including highly portable hand operated equipment to track-mounted rotary drilling rigs.
- Their staff has extensive experience with foundation investigations for both government and private industry. NGE has successfully demonstrated that experience on DOH bridge projects, retaining walls, and cell tower sites, through the collection of subsurface data and formulation of engineering analyses.

- NGE is equipped with the latest instrumentation to provide cross-hole sonic logging (CSL) testing of drilled concrete shafts. CSL is a non-destructive means for testing the integrity of drilled shafts used in bridge abutments and piers.
- NGE offers inspections services to support a wide variety of construction projects, including highways, buildings and airports. Our technicians are qualified and certified in a variety of disciplines including concrete testing, soil compaction testing and asphalt inspection.

HMM appreciates the opportunity to interview for this project to better illustrate and demonstrate our managerial, technical and financial resources to complete this work in a professional and cost-efficient manner. The Morgantown office has grown to a staff of over 40 in 3 years and we want to do the same in the Charleston office. We want to provide these services to WVDEP/LCAP. WVDEP/LCAP is in our business model for the company and our West Virginia expansion.

20. The foregoing is a statement of facts

Signature: 

Title: Senior Vice President

Printed Name: Richard L. Steinhart, PE

Date: May 4, 2009

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[Corporate History & Experience]

## INTRODUCTION

With a lineage stretching back over a century, involvement in the design and construction of the most ambitious infrastructure projects and a multi-disciplined staff with comprehensive engineering skills, Hatch Mott MacDonald (HMM) possesses the practical knowledge and experience needed to meet the technical challenges of any given project. Our approach is strictly client-focused – with a corporate commitment to engineering excellence. HMM provides services for all aspects of engineering projects, from feasibility studies and surveys through design, to project and program management, construction management and supervision, start-up and operations.

## LOCAL OFFICES

HMM is headquartered in Millburn, New Jersey and has many offices throughout North America. Regionally, our offices are located at:

2601 Cranberry Square  
Morgantown, WV 26508  
T 304.212.4390  
F 304.594.2814

405 Capitol Street, Suite 601  
Charleston, WV 25301  
T 304.356.3010  
F 304.357.9222

Gateway View Plaza  
1600 West Carson Street  
Pittsburgh, PA 15219  
T 412.497.2900  
F 412.497-2901

## CONSULTING AREAS

The resources of HMM are available through the following consulting areas:

- ◆ Construction Engineering Services
- ◆ Contract Operations
- ◆ Environmental Compliance & Remediation
- ◆ Environmental Site Assessment & Remediation
- ◆ Geographical Information Systems
- ◆ Hazardous Waste Management
- ◆ Hydraulic Infrastructure Evaluation & Rehabilitation
- ◆ Hydrogeological Services
- ◆ Industrial Wastewater Management
- ◆ Information Technology & Management
- ◆ Mining Environmental Services
- ◆ Municipal Engineering and Planning
- ◆ Pipeline Services
- ◆ Rails-To-Trails Projects
- ◆ Recreational Facilities
- ◆ Recycling/Solid Waste Management
- ◆ Site Development Engineering
- ◆ Storage Tank Management
- ◆ Stormwater & Watershed Management
- ◆ Transportation Engineering
- ◆ Wastewater Engineering and Management
- ◆ Water Supply Management
- ◆ Wetland / Ecological Studies

## STAFFING

Hatch Mott MacDonald was formed as a joint venture between Hatch Associates of Canada, a leading design engineering firm, and Mott MacDonald, headquartered in London, an infrastructure and education consulting engineering firm. The combined resources of Hatch Associates and Mott MacDonald offer a worldwide engineering staff of over 20,000 people. In 2001, HMM acquired the environmental consulting firm of Killam Associates to offer water, wastewater and environmental services throughout North America. Our total US staff is now approximately 1,800 engineers, scientists and technical support personnel.

## MANAGEMENT STRATEGIES

HMM uses the "Project Team" approach to efficiently manage and complete projects on time and within specified budgets. A Project Manager directs the team and interfaces with the client to ensure an uninterrupted flow of information. Capable managers draw upon the versatile personnel at HMM to provide pertinent technical knowledge relative to a particular project.

Hatch Mott MacDonald's engineering professionals are fully supported by extensive computer resources (CADD, graphics, and an Information Technology staff), and highly trained field crews for surveying and environmental sampling and monitoring.

From the analysis stage to project implementation, the professional staff of HMM provides clients with cost-effective engineering and planning solutions for their environmental problems. HMM's outstanding reputation is based upon dedicated service to clients and demonstrated technical abilities.

Hatch Mott MacDonald is proud of its established reputation, which is based on efficient project management, technical expertise, and knowledge of regulatory requirements. These features are reflected in HMM's success at maintaining long-term client relationships. Experienced staff and an organizational approach make HMM extremely competent in meeting a client's needs, now and in the future.

The Morgantown office is staffed to provide four to five different design teams simultaneously. These teams generally consist of a Project Engineer and the necessary design drafting and support staff.

## EXPERIENCE AND QUALIFICATIONS

Hatch Mott MacDonald (HMM) is a full-service consulting engineering firm offering both public and private clients a complete range of services from conceptual, feasibility/ planning studies and environmental assessment through preliminary and detailed design to procurement, construction engineering inspection and project and construction management services, as well as operations and maintenance. Headquartered in New Jersey, HMM has hundreds of staff located in the northeast and Mid-Atlantic regions. More than 1,800 employees in 55 offices throughout the U.S. and Canada will support the local staff. This project will be performed from our Morgantown, WV office.

Our resources in the Appalachian Coal region have grown steadily over the past few years. HMM's focus on mining services has led to a staff of over 40 individuals in this service area. More specifically, the Morgantown office has 34 staff members dedicated to the mining and energy service area, including engineers, geologists, biologists, scientists, and support staff. This growth is attributed to our corporate commitment to the industry and the values established by HMM. Hatch, one of our parent companies, has been in business for 50 years and focuses on mining services on an international level.

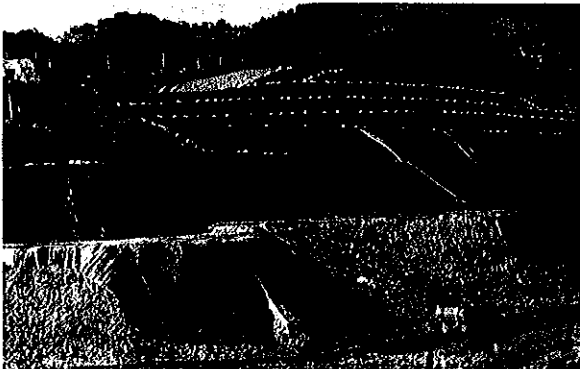
## Recycling/Solid Waste Management

HMM has furnished solid waste management services to many private and public sector clients. Our intent is to provide a comprehensive, objective evaluation of alternative systems appropriate for the types of waste to be managed, while addressing the client's concerns. These invariably include dependability, cost and public acceptance. Our goal is to objectively assist the client in implementing an integrated approach to solid waste management based upon specific project needs and optimizing the combined use of source reduction, recycling, landfills and resource recovery. Where appropriate, composting and transfer stations also are considered.



### Planning

- ◆ Solid Waste Management Plan Development
- ◆ Analysis of Solid Waste Composition
- ◆ Evaluation of Existing Disposal Practices
- ◆ Determination of Secondary Materials Markets
- ◆ Grant Application Assistance
- ◆ Technology Assessments
- ◆ Recycling/Source Separation Programs
- ◆ Closure Plans



### Investigative Studies

- ◆ Landfill Contamination Investigation & Delineation
- ◆ Environmental Impact Statements & Assessments
- ◆ Vehicle Routing Studies
- ◆ Feasibility Studies
- ◆ Expert Testimony
- ◆ Siting Studies
- ◆ Hydrogeologic Investigations

### Design

- ◆ New Sanitary & Industrial Waste Landfills
- ◆ Sanitary Landfill Closure/ Redevelopment
- ◆ Leachate Collection, Treatment & Disposal
- ◆ Sludge Disposal Facilities
- ◆ Solid Waste Separation & Processing Facilities
- ◆ Materials Recycling Facilities
- ◆ Bulky Waste Sorting Facilities
- ◆ Household Hazardous Waste Facilities
- ◆ Solid Waste & Recycling Collection Systems
- ◆ Transfer Stations
- ◆ Building Retrofits



### Construction Services

- ◆ Field Services
- ◆ Liaison Representation
- ◆ Construction Management

### Permitting

- ◆ Municipal Waste Facilities
- ◆ Industrial (Residual) Waste Facilities
- ◆ Material Recycling Facilities
- ◆ Incinerator Stacks
- ◆ Regulatory Agency Liaison

## Environmental Site Assessment and Remediation

For nearly two decades, HMM has performed Phase I/Phase II environmental site assessments at hundreds of sites. They have consulted with multi-national and local buyers of property, assisting them with their due diligence efforts prior to acquisition of new companies or properties. On properties where contamination is present in excess of acceptable levels, HMM has designed and implemented remediation measures. Such remediation projects have been completed under a variety of environmental programs, including CERCLA (Superfund), RCRA Corrective Action, ISRA, Pennsylvania Act 2 and other state Brownfield programs. Projects have been completed on numerous sites that have soil and/or groundwater contaminated with chlorinated solvents, petroleum from leaking storage tanks, heavy metals, PCBs, and other organic compounds. Our design engineers are specialists in groundwater collection and treatment, waste removal and facility closure design, and our field staff is fully equipped and instrumented, and appropriately trained and medically monitored.



### Environmental Site Assessments

- ◆ Phase I Site Assessments (ASTM)
- ◆ Transaction Screening Assessments
- ◆ Phase II Site Investigations
- ◆ Geophysical Surveys
- ◆ Monitoring Well Installations/Borings
- ◆ Soil, Air & Water Sampling
- ◆ Waste Sampling & Characterization
- ◆ Groundwater Flow Modeling
- ◆ Contaminant Transport Modeling
- ◆ QA/QC Plans



### Remedial Design

- ◆ Feasibility Studies / Alternatives Analysis
- ◆ Physical/Chemical Treatment
- ◆ Biological Treatment
- ◆ Thermal Treatment
- ◆ Recovery Well Designs
- ◆ Soil Vapor Extraction
- ◆ Air Sparging
- ◆ Hydraulic Containment
- ◆ Closure Plans
- ◆ Pilot & Demonstration Programs
- ◆ Cost Estimating
- ◆ Risk Based Corrective Action
- ◆ Natural Remediation Compliance Plans
- ◆ Permitting



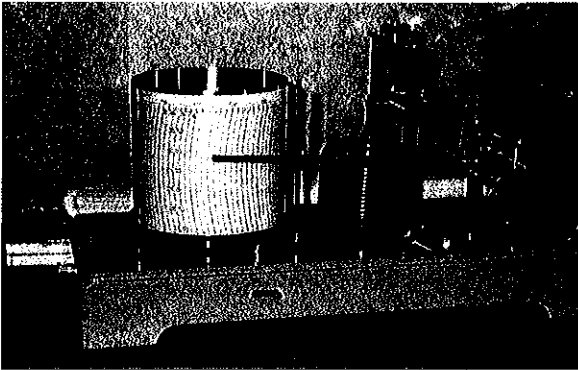
### Site Remediation

- ◆ Contract Administration
- ◆ Construction Oversight Services
- ◆ System Operations & Maintenance
- ◆ Closure Reporting
- ◆ Post-Remediation Monitoring
- ◆ Expert Testimony



## Hydrogeological Services

HMM's hydrogeological specialists are employed on a wide range of projects, from small urban properties to entire watersheds. The majority of our staff holds advanced degrees and are registered professionals. They evaluate and develop groundwater resources; delineate contamination and predict impacts on human and ecological receptors; provide the technical basis for the design of subsurface wastewater disposal, construction dewatering and aquifer remediation systems; generate hydrogeologic models, frame computer simulations and perform statistical analyses for risk assessments and resource prospecting; provide full technical assistance in permitting in all these areas; provide peer review for the work of outside hydrogeologists; advise legal counsel and provide expert testimony.



### Groundwater Resources

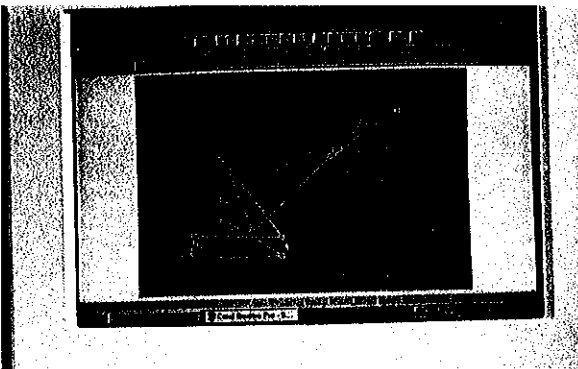
- ◆ Resource Evaluations
- ◆ Water Allocation Permits
- ◆ Well-Head Protection Area Delineation
- ◆ Diversion Impact Assessments

### Dewatering

- ◆ Dewatering System Design
- ◆ Temporary Water Allocation Permits
- ◆ Dewatering Permits-by-Rule

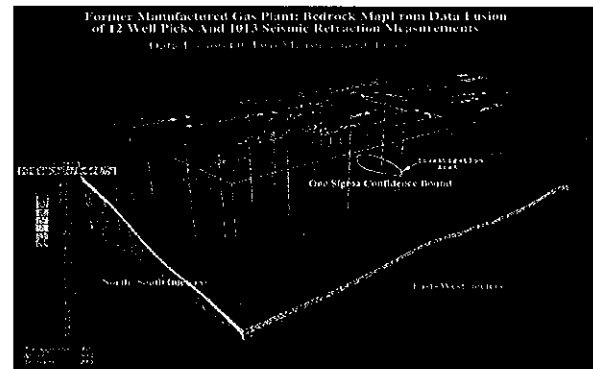
### Discharge to Groundwater

- ◆ Hydraulic Mounding Analysis
- ◆ Discharge to Groundwater Permits
- ◆ Dilution Modeling



### Remedial Design

- ◆ Plume Control
- ◆ Treated Wastewater Disposal System Design
- ◆ Contaminant Fate & Transport Modeling
- ◆ Technical Support for Natural Remediation
- ◆ Aquifer Reclassification
- ◆ Ground Water Chemistry
- ◆ Expert Testimony
- ◆ Peer Review



### Landfill Investigations

- ◆ Leachate Generation & Control Modeling
- ◆ Landfill Gas Venting System Design
- ◆ Aquifer Impact Assessments

### Aquifer Investigations

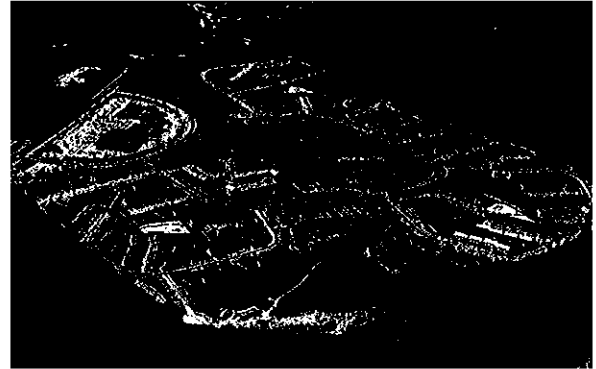
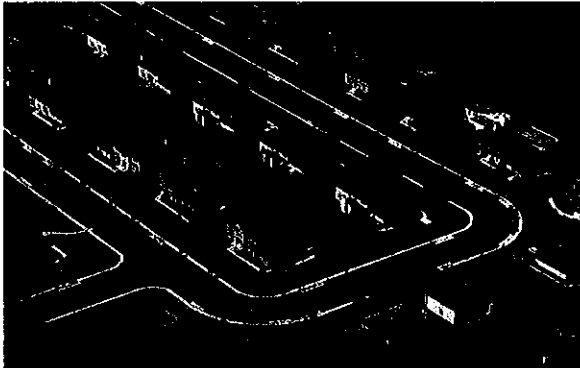
- ◆ Pumping Test Design & Analysis
- ◆ Aquifer Modeling
- ◆ Simulation of Groundwater Flow
- ◆ Aquifer/Surface Water Interaction Analyses

## Site Engineering

The complex array of federal, state and local regulations which impact development and redevelopment of property creates a need for highly specialized engineering services. HMM has the experience to recognize development constraints and opportunities which are often critical to a client's decision to proceed. Challenges posed by site terrain, infrastructure limitations, environmental constraints and regulations which impact development projects are addressed. Clients benefit not only from specialized development-related expertise but from the firm's diversified engineering and environmental resources, including specialists in water supply, wastewater and stormwater management.

## Residential Housing

- ◆ Master Planning
- ◆ Layout/Grading
- ◆ Roads & Curbs
- ◆ Sanitary Sewers/Storm Sewers
- ◆ Retention Basins
- ◆ Water Systems
- ◆ Sewage Treatment



## Planning

- ◆ Physical Site Suitability Survey
- ◆ Master Plans
- ◆ Site Topography & Grading
- ◆ Soil Erosion & Sediment Control Plans
- ◆ Access, Structures & Utilities
- ◆ Stormwater Management
- ◆ Roadway Design
- ◆ Landscape Architecture
- ◆ Cost Estimates

## Industrial/Commercial/Institutional

- ◆ Layout/Grading
- ◆ Roads and Parking
- ◆ Sanitary Sewers/Storm Sewers
- ◆ Retention Basins
- ◆ Water Systems
- ◆ Sewage & Industrial Waste Treatment/Pretreatment

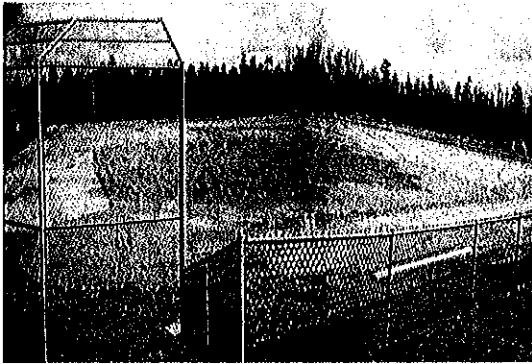
## Regulatory Compliance

- ◆ Stream Encroachment Applications
- ◆ Wetland Permits
- ◆ Sewage & Industrial Waste Treatment Plant Applications
- ◆ Soil Erosion & Sediment Control Plan Certification
- ◆ Inspection of Utility Construction



## Construction Engineering Services

HMM's established reputation in providing construction observation and project management services is based upon the firm's experienced professionals' technical expertise and knowledge of the construction field. Interaction with the firm's various design teams is undertaken so that the latest technologies will be implemented with the highest efficiency. State-of-the-art laser and computerized surveying equipment and techniques are employed for data gathering, processing, reporting and construction control.

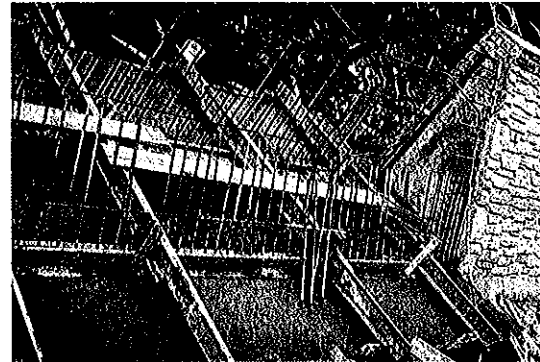


### Facilities

- ◆ Wastewater & Water Treatment Facilities
- ◆ Biosolids Removal Facilities
- ◆ Pumping Stations
- ◆ Dams & Dikes
- ◆ Materials Recycling Facilities
- ◆ Solid Waste Transfer Stations
- ◆ Vehicle Maintenance Facilities
- ◆ Parking Garages
- ◆ Storage Facilities
- ◆ Airport Hangars & Terminals
- ◆ Office & Administration Buildings
- ◆ CSO & SSO Rehabilitation
- ◆ Sanitary Sewers & Water Mains
- ◆ Recreational Facilities

### Project Management

- ◆ CPM Scheduling Review
- ◆ Cost Controls
- ◆ Shop Drawing Review
- ◆ Payment Requests Processing
- ◆ Change Order Management
- ◆ Record Plan Preparation
- ◆ Claims Avoidance/Dispute Resolution
- ◆ Progress Meetings
- ◆ Information Management



### Resident Engineering

- ◆ Construction Surveys
- ◆ Construction Observation
- ◆ Concrete Testing & Inspection
- ◆ Safety Monitoring

## Stormwater/Watershed Management

HMM is highly qualified in the many facets of watershed management. Personnel have undertaken investigations of dams, prepared flood control studies and master plans, stormwater management plans, flood plain delineations and designs for stream improvements, storm sewers, dams and various other types of flood control structures and appurtenances. Rehabilitation of old dams, design of new dams and design of related structures such as fish ladders and bypass channels, are readily accomplished by our staff with specialized expertise in flood control and water impoundment structures. Related services include assistance with lake management and small-scale hydroelectric power analyses.



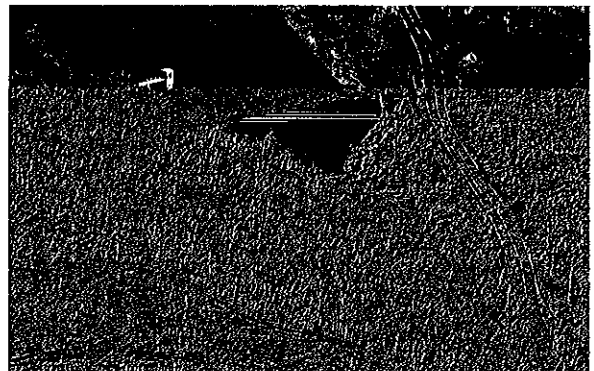
### Investigative & Planning Studies

- ◆ Hydrologic
- ◆ Hydraulic
- ◆ Economic
- ◆ Regulatory Dam Inspections
- ◆ Flood Plain Delineation
- ◆ Combined Sewer Overflow (CSO) Studies
- ◆ Recycle Studies
- ◆ Runoff Contaminant Studies
- ◆ Stormwater Pollution Prevention
- ◆ Watershed & Stream System Modeling
- ◆ Special Hydraulic Modeling
- ◆ Stream & Point Source Sampling
- ◆ Dam Breach Analysis
- ◆ Dam Classification Analysis



### Watershed Management Planning

- ◆ Total Daily Maximum Load Studies
- ◆ Drainage Basin Master Planning
- ◆ Flood Plain Management
- ◆ Regulatory Programs
- ◆ Local Ordinance Development
- ◆ Resource Inventories
- ◆ Non-point Source Management
- ◆ Urban-Suburban Runoff Control
- ◆ Industrial Site Stormwater Control



### Design Services

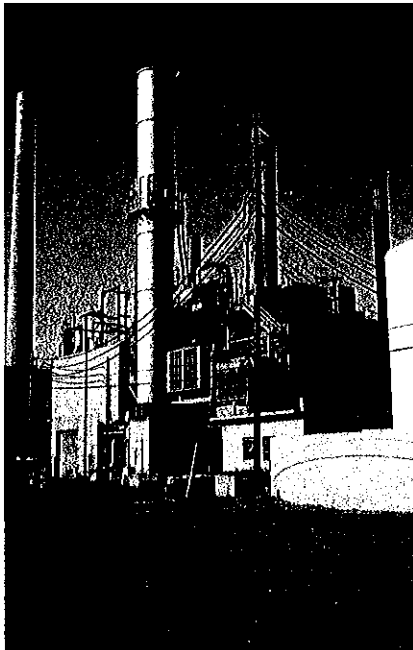
- ◆ Detention/Retention Systems
- ◆ Recycle Systems
- ◆ Waterway Improvements
- ◆ Dams
- ◆ Erosion Control
- ◆ Storm Sewers & Appurtenances
- ◆ Pump Stations & Force Mains
- ◆ Stormwater Treatment

## Environmental Compliance Services

Effective management of ongoing environmental compliance issues is often difficult, especially as many companies continue to cutback on non-production personnel. As a result, many EH&S managers find themselves overloaded with multiple tasks. HMM can be a valuable resource that EH&S managers can use to more effectively and efficiently manage their company's environmental obligations, stay up-to-date with current state and federal regulatory trends, identify areas where cost-effective waste reduction measures can be implemented, and receive an objective third-party review of the company's environmental compliance level and/or liabilities. HMM can add value to the company's bottom line and help the management team to refocus resources on product quality and customer service, while staying abreast of regulatory changes and compliance issues.

### Periodic Reporting

- ◆ Annual SARA Reports (312/313)
- ◆ Annual Air Emission Reports
- ◆ Monthly DMR Sampling / Reports
- ◆ POTW Pretreatment Sampling / Reports
- ◆ Hazardous Waste Biennial Reports
- ◆ Residual Waste Biennial Reports
- ◆ Chemical Analysis of Wastes
- ◆ Source Reduction Strategies
- ◆ Storage Tank Registrations / Inspections



### Contingency Planning

- ◆ Environmental Compliance Audits
- ◆ SPCC Plan Preparation / Recertification
- ◆ PPC Plan Preparation / Recertification
- ◆ Environmental Emergency Response Plans
- ◆ Storm Water Pollution Prevention Plans
- ◆ Hazard Communication Plans
- ◆ Risk Management Plans
- ◆ Training

### Wastewater Management

- ◆ NPDES Part I/ Part II Permit Applications
- ◆ POTW Permit Applications
- ◆ Storm Water Runoff Permit Applications
- ◆ Treatment Plant Troubleshooting
- ◆ Toxicity Reduction Evaluations

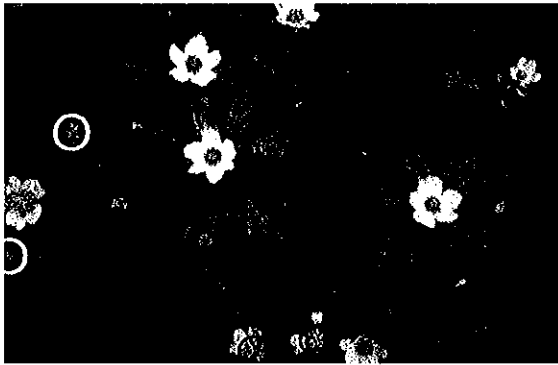


### Air Quality

- ◆ RFD Applications
- ◆ Plan Approval Applications
- ◆ Title V Permit Applications
- ◆ PSD / Permit Modifications
- ◆ System Testing / Balancing

## Ecological Services

Hatch Mott MacDonald provides a wide range of scientific and environmental expertise needed to successfully address complex environmental problems and to design practical, cost-effective solutions. HMM is committed to assisting its clients by guiding projects through both the regulatory process and the construction phase utilizing cost effective design and engineering while protecting and enhancing the environment. We have provided ecological services to many types of clients including public and private utilities, state and municipal authorities and agencies, commercial site developers, energy companies, residential and other private property owners, municipalities and institutions. Our scientists and field technicians have the necessary technical expertise required to design and execute ecologically-focused surveys and studies and the capability to set a strategic course of action for projects to be successfully licensed and permitted at all regulatory levels.

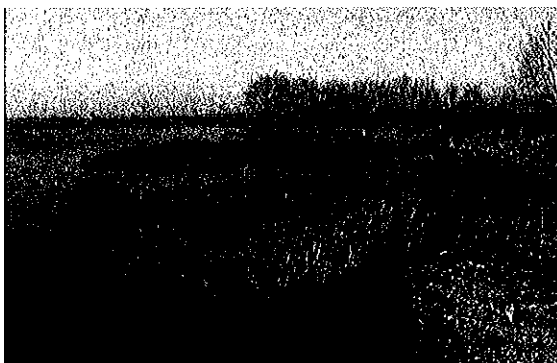


## Regulatory Compliance

- ◆ Agency Consultation and Coordination
- ◆ Ecological Resources Policy Development
- ◆ Environmental Audits
- ◆ Environmental Compliance Inspection
- ◆ Environmental Impact Statements and Assessments
- ◆ Environmental Monitoring
- ◆ Environmental Risk Assessment
- ◆ Expert Testimony and Litigation Support
- ◆ Federal, State and Local Permitting

## Environmental Technology

- ◆ Bioengineering
- ◆ Bioremediation and Phytoremediation
- ◆ Engineered Wetlands for Water Treatment
- ◆ Ecological Restoration



## Ecological Resource Surveys/Studies

- ◆ Biota and Ecosystem Baseline Surveys
- ◆ Ecological Resource Management
- ◆ Ecological Risk Assessment
- ◆ Habitat Evaluation and Assessment
- ◆ Rare, Threatened and Endangered Species Assessment
- ◆ Soils, Sediments and Water Quality Investigations
- ◆ Wetland Delineation and Assessment
- ◆ Wetland Mitigation, Replication and Monitoring

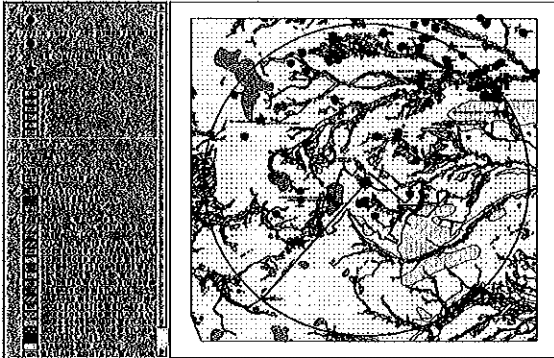


## Other Related Services

- ◆ Erosion and Sedimentation Control Plans
- ◆ GPS Survey
- ◆ GIS Applications
- ◆ Stormwater Management Plans
- ◆ Vegetation Management Plans
- ◆ Landscape Planting Plans

## Geographic Information Systems

Over the last decade, HMM has responded to its clients' growing needs for Geographical Information System (GIS) through investments in software, hardware and employee training. The ability of GIS to integrate central databases with mapping that can be shared throughout an organization, is making this information technology a standard for government agencies, utilities and private companies. HMM provides a full range of GIS services in the areas of: water/wastewater utility, stormwater utility, municipal government, hydrology and hydraulics, and natural resources.

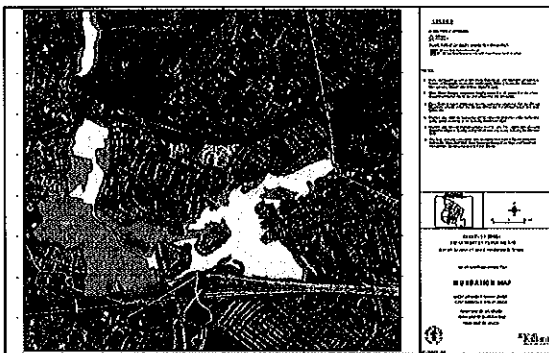


### Software Capabilities

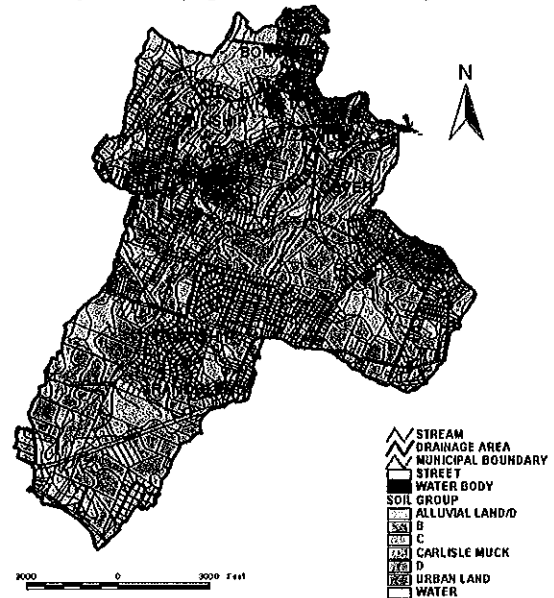
- ◆ Infrastructure Modeling
- ◆ Document Management
- ◆ Hydrologic/Hydraulic Modeling
- ◆ Groundwater Modeling
- ◆ Coordinate Geometry (COGO)
- ◆ Geographical Positioning Systems (GPS)
- ◆ Digital Elevation/Terrain Modeling
- ◆ Integration of Third Party Modeling Software
- ◆ Internet/Intranet

### Software Applications

- ◆ ARC/INFO©
- ◆ ArcView©
- ◆ ArcCAD
- ◆ ArcFM
- ◆ AutoCAD/AutoCAD Map
- ◆ Microstation



Major Soil Grouping In Jackson Brook Drainage Area

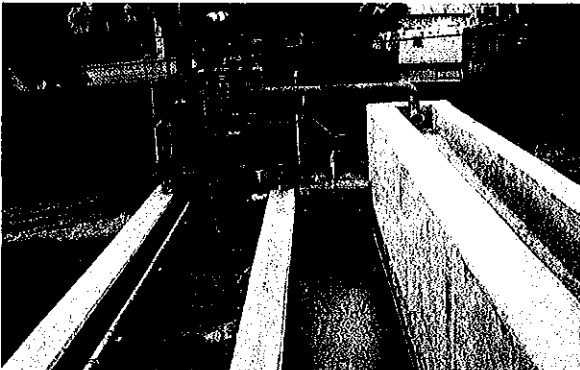


### Hardware Resources

- ◆ Hewlett-Packard 1055 & 755 Design Jet Plotters
- ◆ Dell Precision Workstation (750 MHz Processors with 256K RAM)
- ◆ Network through a 6300 Dell PowerEdge Server
- ◆ RAID-5 Array for Data Storage
- ◆ XEROX 8830 Scanners & Printers

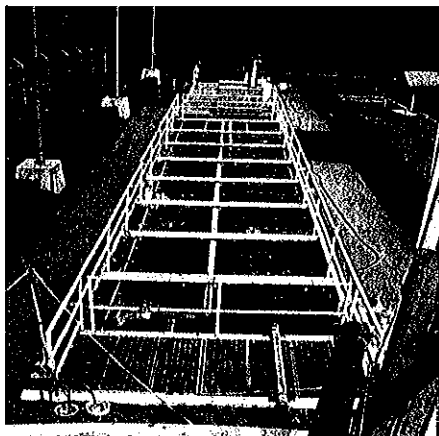
## Industrial Wastewater Management

HMM has served industrial clients for over 60 years. During that time, local, state and federal regulations have become increasingly more stringent as public concern has focused on environmental quality. Therefore, typical projects now include waste minimization and pollution prevention in addition to treatment. More data has become available regarding toxicity of certain chemical compounds, such as heavy metals. Consequently, many industrial wastewater studies now include priority pollutants such as metals and volatile organics as well as conventional pollutants such as pH, oil and grease, BOD and TSS.



### Regulatory Assistance

- ◆ Permit Applications
- ◆ Administrative Consent Orders
- ◆ Permit Negotiation
- ◆ Interim Limitations
- ◆ Baseline Monitoring Reports
- ◆ Compliance Audits
- ◆ Compliance (Sampling/Reporting) Monitoring



### Environmental Services

- ◆ ISO 14000 Gap Analysis & EMS
- ◆ Construction
- ◆ TTO Management Plans
- ◆ Waste Minimization Studies
- ◆ Spill Prevention Plans
- ◆ Pollution Prevention Plans

### Design

- ◆ Facility Conceptual & Final Designs
- ◆ Plant Facilities
- ◆ Raw Material Storage
- ◆ Pumping Stations
- ◆ Collection Systems
- ◆ Sludge Storage/Disposal
- ◆ Water Reuse
- ◆ Plant Modifications



### Investigative Studies

- ◆ Wastewater Surveys/Characterization Studies
- ◆ Treatability/Pilot Plant Studies
- ◆ Process Evaluation
- ◆ Infiltration/Inflow

### Plant Operational Assistance

- ◆ Troubleshooting
- ◆ O&M Manual Preparation
- ◆ Personnel Training
- ◆ Plant Optimization
- ◆ Laboratory Sampling & Analysis
- ◆ Start-up Assistance

### Environmental Site Assessments

- ◆ Environmental Site Audits
- ◆ Site Remediation
- ◆ Compliance Management



## Electrical Engineering

Members of HMM's Electrical Engineering Group possess expertise in the engineering, design and construction supervision of electrical power, control and instrumentation systems for a variety of facilities, including municipal and industrial wastewater treatment plants, collection systems and pumping stations and solid waste recycling facilities. Capabilities include preparation of contract specifications, drawings, documents and estimates; coordinating design and construction contracts; planning and implementing engineering studies; and investigating equipment operation and maintenance problems.

## Structural Engineering

An in-house Structural Engineering Group has been part of HMM's support services for decades. The Group works together to provide efficient and consistent designs based on knowledge and experience gained from hundreds of completed projects. Engineering practiced by the group is continually updated to reflect code changes and revisions. Personnel maintain memberships in ACI, AISC, CRSI and other professional organizations, keeping current knowledge of structural analysis and design in all areas of concrete and structural steel.

## Instrumentation and Controls

HMM has provided feasibility studies, design services, bid phase services and construction phase services for various instrumentation and control projects, including a number of SCADA systems. These systems have included combined water and sewer systems as well as self-sufficient systems. HMM is also experienced in multiple communication methods including dial-up telephone, leased-line telephone, spread-spectrum radio and fiber optic.

## Funding Assistance

HMM is experienced in the administrative and technical requirements for obtaining low interest loans or grants. The firm's wide range of professional services, including planning and engineering design, permit application expertise and familiarity with detailed loan program requirements enable clients to successfully meet the tight schedule of deadlines required to obtain these loans. We also provide valuable continuity through close involvement with the client and loan representatives.

## Permitting

Environmentally related projects invariably include the preparation of permit packages for various local, state and federal agencies. By virtue of its permit application preparation and follow-up procedures, HMM has developed good working relationships with various permitting bureaus. Related services include preparation of the permit application, review of permit provisions and negotiations with government agencies. The objective is to complete the application and implement the best-suited compliance strategy in an efficient and timely manner.

## Expert Testimony

Expert testimony has included appearances before municipal planning boards, boards of adjustment and water and sewerage authorities. Testimony has been given in arbitration proceedings and for other court-related matters dealing with water, sewerage, flood control, solid waste and other areas requiring technical and engineering expert opinions. Expert testimony has also been given in rate hearing cases, cases concerning capacity rights on water and sewer issues and cases dealing with contaminated sites.

## Project Experience

The Hatch Mott MacDonald (HMM) Team consists of experienced, successful professionals with a wealth of directly relevant experience and qualifications appropriate to the Landfill Closure Design and QA/QC project. Following are just a few project descriptions representative of the extremely relevant experience possessed by the HMM Team that will enable the team to perform to the highest level of competence.

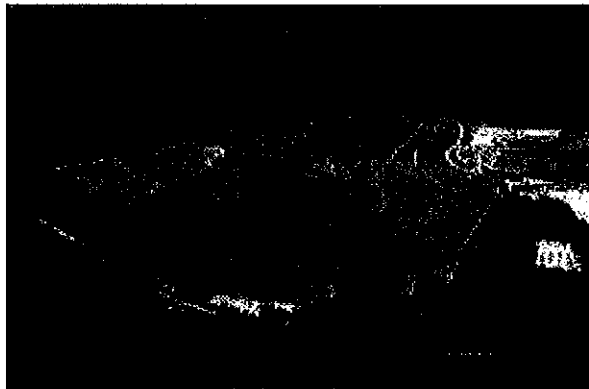
### *Southern Ocean Landfill*

<b>Client</b>	Ocean County Department of Solid Waste
<b>Reference</b>	Ernest Kuhlwein, PE, Director of Solid Waste, 732.506.5188
<b>Services</b>	Permit Application Packages Closure Design Construction Management Shop Drawing Review Quality Control Post-Closure Monitoring

#### **Project Description**

The Southern Ocean Landfill (SOLF) is located on a 283-acre tract in Ocean County, New Jersey. The privately owned landfill is comprised of two distinct disposal areas, a 50-acre unlined landfill area and a 12-acre lined landfill. In an effort to achieve proper closure, Ocean County entered into a partnership agreement with the New Jersey Department of Environmental Protection (NJDEP) to assume responsibility for the closure work. The NJDEP

provided a grant in the amount of \$15 million to the Ocean County Board of Chosen Freeholders to fund the proper closure and long-term post-closure operation, maintenance and monitoring of the 50-acre unlined landfill area.



#### **HMM Role**

The County retained HMM to complete permit application packages, prepare the engineering design and provide construction management services to close the 50-acre unlined landfill and, under a separate contract, to provide post-closure management services. The closure design included consolidation of waste areas within the landfill footprint and regrading to reduce steep sideslopes. The cap design consisted of a 12-inch landfill gas collection and bedding layer overlain by a 40-mil thick synthetic geomembrane cap, an 18-inch sand drainage layer (incorporating drainage

pipng in shallower topslope areas) and 6 inches of vegetated topsoil. The gas management system consisted of a network of perforated collection pipes placed in the sand layer which passively vents gases to the atmosphere. On the surface of the landfill, three miles of drainage swales and downchutes were constructed to convey stormwater runoff to retention basins at the base of the landfill.

Our construction management services on the project included shop drawing review, construction oversight, quality control on all cap elements, contractor invoice processing, design interpretations, punchlist and as-built documentation.

As part of its design, HMM developed an innovative stormwater management design that achieved a zero discharge under compounded 100-year and subsequent 10-year storm events. This design was a key factor in securing the approval of the New Jersey Pinelands Commission. HMM also resolved issues related to hydrogen sulfide gas odors associated with the 12-acre adjoining landfill by specifying and installing a gas flare. We currently provide operation and maintenance of the flare.

HMM completed the design and construction management of a new leachate pumping station and force main for the lined landfill area. The new force main also conveyed condensate from the active gas management system to the leachate storage facility. The leachate storage facility consisted of an in-ground exposed geomembrane lined lagoon. HMM designed and oversaw the installation of surface aerators on the lagoon. Leachate from the lagoon is trucked to the Ocean County Utilities Authority (OCUA) treatment plant. HMM prepared procurement documents for the five-year leachate hauling contract.

HMM has provided post-closure monitoring of the active gas venting system on the 12-acre lined landfill and groundwater quality monitoring data review. We performed a statistical analysis of groundwater quality trends for 14 years of data and determined the cap had a positive effect on groundwater quality. The data supported a proposal to reduce monitoring from quarterly to annual.

### Project Highlights

Other tasks in HMM's scope of work included:

- ◆ Submission of the applications for the NJDEP Major Landfill Disruption and Landfill Closure Permits;
- ◆ Submission of a Pinelands Site Development Application;
- ◆ Preparation and submission of a Soil Erosion and Sediment Control Plan;
- ◆ Preparation of construction plans and specifications;
- ◆ Integration of the landfill closure measures into the site constraints (i.e. capping, grading, stormwater management, erosion control);
- ◆ Geotechnical studies;
- ◆ Preparation of a financial plan for post-closure monitoring and maintenance;
- ◆ Public bidding assistance;
- ◆ Full-time construction oversight and management for design compliance; and
- ◆ QA/QC testing of the capping system.

### Sustainability Elements of the Project

- ◆ Utilized soil generated from County road construction projects as a source of clean fill for cap grading and cap construction.
- ◆ Specified 10% recycled content in the synthetic geomembrane cap.
- ◆ Utilized residual crushed glass from the County recycling facility in construction of the gas venting and bedding layer.
- ◆ Utilized compost from the County leaf composting facility in construction of the vegetated topsoil layer.

### *Middlesex County Partial Landfill Closure*

<b>Client</b>	Middlesex County Utilities Authority (MCUA)
<b>Reference</b>	Richard Fitamant, PE, Executive Director 732.721.3800
<b>Services</b>	Construction Management Shop Drawing Review Design Interpretations Quality Control

#### Project Description

HMM was retained by the MCUA to design a partial closure for the Middlesex County Landfill in East Brunswick, New Jersey. The project involved the capping of a 20-acre portion of the sideslope of the currently operational landfill.

The design incorporated leachate seep control measures and a layered cap consisting of a sand gas drainage layer, a 40 mil textured HDPE geomembrane, a drainage layer that consisted of a 12-inch sand layer underlain by a tri-planar geonet geocomposite, a 12-inch soil fill layer and a six inch topsoil layer. The design was complicated by the fact that the landfill will continue to operate for at least another 15 years and additional lifts of waste will be

placed at elevations higher than the upper limit of the capped area. Therefore, the design had to accommodate future conditions that would prevail when the site was completely closed.

In addition, as the landfill continued to operate during the construction of the partial closure, the design of the stormwater management system had to accommodate the separation of the contact stormwater from the operational area of the landfill. Other features of the design included an active gas management system, leachate control manhole and pump station reconfiguration, and leachate pond and force main design.

HMM was retained by the MCUA to provide construction management services on the project, which included shop drawing review, construction oversight, quality control on all cap elements, contractor invoice processing, design interpretations, punchlist and as-built documentation.



### *Dukes Parkway Landfill Closure Plan*

<b>Client</b>	Schuller International, Inc. (formerly Manville Sales Corporation)
<b>Reference</b>	David E. Noyes, PE Manager, Environmental Projects 303.978.3125

#### **Project Description**

The client owned and operated a sanitary landfill for disposal of its own non-chemical industrial waste as well as municipal waste from the Borough of Manville. The landfill was in use from

the 1950s to 1995. According to NJDEP regulations, a closure/post-closure maintenance plan was required to be prepared for all existing landfills and filed with the State. HMM was retained to prepare the plan, which was originally submitted to NJDEP in January 1986.

The plan has required several subsequent revisions to accommodate the changing future disposal needs of the client related to Environmental Cleanup Responsibility Act (ECRA) remediation at their nearby plant site and to allow continued use of the site by the Borough. Municipal waste disposal ended in 1990 and the remaining capacity of the landfill was dedicated to disposal of ECRA cleanup and building demolition waste from the plant site. In addition, periodic topographic surveys have been performed to ensure that landfilling progresses in accordance with the proposed closure plan.

The closure plan addressed such design features as final contours, final capping and soil cover, final vegetative cover, run-off and erosion control, leachate control, groundwater monitoring, gas venting, and access control. In addition, a schedule of maintenance activities was prepared for the required 30-year, post-closure maintenance period.



The closure plan also incorporated cost estimates for closure and post-closure maintenance. A financial plan was developed to show year-to-year inflation adjusted expenditures for closure and the 30-year, post-closure maintenance period. The cost estimates have been used to prepare a plan for financing the closure/post-closure activities.

An impermeable cap was proposed for closure of the active and future landfill areas. No capping was proposed for the completed areas of the landfill. This decision was based on

several factors including the landfill age, historical waste composition, minimal gas generation as detected during a field survey, the presence of a well-established vegetative cover and the current recreational use of

part of the former landfill area. A computerized water balance model was used to design the final cover and predict post-closure leachate generation.

To minimize disturbance to adjacent wetlands and floodplains, runoff and erosion controls were accomplished using vegetative cover, erosion control blankets and sheet run-off of stabilized slopes.

Additional measures are included in the Soil Erosion and Sediment Control Plan prepared for the project.

A gas monitoring survey was performed at the site as part of the study. During the survey, minimal gas generation was recorded in the completed areas of the landfill. In addition, no off-site migration of explosive gases was observed. Proposed gas control measures included construction of interior gas vents in the capped landfill area. This measure was supplemented by a quarterly gas monitoring survey conducted around the landfill perimeter.

The Closure Plan was approved by NJDEP in March 1996. In July 1996, Schuller International sold the property. The new owner implemented the closure plan, and HMM provided construction management services. The project was completed in July of 1997.

### *Hertel Landfill Superfund Site Remedial Design Services*

<b>Client</b>	Hertel Steering Committee
<b>Reference</b>	David Miller 313.322.3761
<b>Services</b>	Work Plan Site Investigation Design Criteria Report Plans & Specifications Construction Phase Services

#### **Project Description**

HMM was retained to prepare a Remedial Design Work Plan, undertake a comprehensive site investigation and provide Remedial Design Services for the 80-acre Hertel Landfill Superfund Site in Plattekill, New York. The landfill operated from 1963 to 1977 when it was closed by state agencies as a result of allegations of illegal industrial dumping.

The site was investigated by New York State Department of Environmental Conservation (NYSDEC), Department of Health and Department of Law through 1981 when NYSDEC recommended that the site be placed on the National Priority List. USEPA placed the site on the NPL in June 1986 and completed a Remedial Investigation/ Feasibility Study (RI/FS) at the site in 1990, which provided a basis for the September 1992 ROD. The ROD recommended that the landfill be capped and that a groundwater collection and a UV Oxidation with a membrane microfiltration treatment system be installed.

HMM's initial work tasks included the development of a Remedial Design Work Plan. Following agency approval of the Work Plan, HMM performed the investigation under the oversight of the EPA and NYSDEC. The site investigation included a property and topographic survey, delineation of waste disposal area, wetlands delineation, subsurface bearing capacity investigation, hydrogeologic investigations including detailed modeling to quantify and qualify groundwater dynamics and contamination.



The investigation included extensive monitoring of environmental media (groundwater, surface water, soils, sediments and gaseous emissions) and off-site monitoring of potable water supplies.

Following completion of the field investigation program, HMM prepared a Design Criteria Report which utilized the results of the comprehensive site investigation and hydrogeological modeling to support an argument for a Record of Decision modification to remove the requirement for the post-closure groundwater pump and treat system. Following its detailed review of the basis of the model development

and results, the USEPA concurred with HMM's findings and committed to proceeding with the remedy implementation in the absence of a groundwater pump and treat system.

HMM completed the remedial design and prepared detailed construction plans and specifications. The design included waste excavation and re-consolidation on-site; excavation, sampling and disposal of encountered drums; landfill re-grading, methane venting and capping with 40 mil LLDPE. Construction was started in the Summer of 1997 and completed in the Spring of 1998. HMM provided construction management services to the Hertel Steering Committee. Additional tasks included USEPA reporting, air monitoring, construction documentation, groundwater quality monitoring and final project close-out.

### *Design of a Temporary Landfill Cap*

<b>Client</b>	Pollution Control Financing Authority of Warren County (PCFAWC) of Warren County
<b>Reference</b>	James Williams, Director 908.453.2174

#### **Project Description**

In an effort to reduce treatment costs for leachate at their ash landfill, the Pollution Control Financing Authority looked at a temporary landfill cover as a solution. HMM was retained by the Authority in June of 1997 to perform engineering design services for this project.

HMM's design consisted of an impermeable cap material being placed on the surface of the ash landfill with minimal surface preparation. The cap was installed in a "shingle" fashion to promote drainage off the cover with minimal infiltration through the seams. The runoff is directed into the existing site drainage system. The cover is designed to reduce the leachate generation such that the project will pay for itself within a span of a few years. This will allow the Authority to only pay for leachate treatment for the active areas of the landfill.

HMM was responsible for construction observation services and construction engineering throughout the construction period.

### *Partial Landfill Closure*

<b>Client</b>	Pollution Control Financing Authority of Warren County (PCFAWC) of Warren County
<b>Reference</b>	James Williams, Director 908.453.2174

#### **Project Description**

HMM was retained by the PCFAWC to design a partial closure for the Warren County District Landfill in White Township, New Jersey. The project involved the capping of a 20-acre



portion of the sideslope of the currently operational landfill.

The design comprised a layered cap consisting of a sand gas drainage layer, a 40 mil textured HDPE geomembrane, a drainage layer that consisted of a 12-inch sand layer underlain by a bi-planar geonet geocomposite, a 12-inch soil fill layer and a 12-inch topsoil layer. The design reflected the fact that the landfill will continue to operate and additional lifts of waste will be placed at elevations higher than the upper limit of the capped area. Therefore, the design had to accommodate future conditions that would prevail when the site was completely closed.

In addition, as the landfill continued to operate during the construction of the partial closure, the design of the stormwater management system had to include separation of the contact stormwater from the operational area of the landfill.

HMM was retained by the PCFAWC to perform construction management services on the project, which included shop drawing review, construction oversight, quality control on all cap elements, contractor invoice processing, design interpretations, punchlist and as-built documentation.

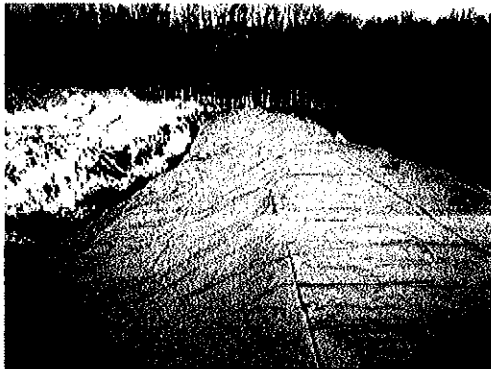
**Construction Oversight Whippany Paperboard Landfill Redevelopment**

<b>Client</b>	Township of Hanover, NJ
<b>Reference</b>	Gerardo Maceira, Township Engineer 973.428.2488

**Project Description**

HMM was retained by the Township of Hanover to complete a review of a Planning Board application for the redevelopment of the former Whippany Paperboard

Landfill. The proposed redevelopment included the excavation and redeposition of approximately 90,000 cy of landfill and cover material and the construction of a 275,000 sf fulfillment center for Tiffany and Company on the excavated area. Following the approval of the project, HMM was retained by the Township to perform oversight of the landfill redevelopment. Our tasks included:



- ♦ Design and oversaw landfill mining operation which displaced approximately 90,000 cy waste to a dedicated site location where it was stockpiled, compacted in lifts and graded.
- ♦ Conducted air monitoring which included gas and organic vapors and dust and was performed during excavation activities.
- ♦ Reviewed approved shop drawings for materials to be used during site construction.
- ♦ Reviewed all NJDEP permits and correspondences.
- ♦ Surveyed various site locations to determine if grades

complied with the design grades.

- ♦ Inspected and observed the application of the daily cover material and made sure contractor applied it in conformance with the approved NJDEP permit.
- ♦ Inspected the collection and storage of leachate and made sure the contractor handled and discharged the leachate in accordance with the NJDEP discharge permit.
- ♦ Inspected the installation of the active gas collection system which included manholes, piping, geocomposite, geotextile, liner and gas treatment equipment facility.
- ♦ Reviewed water and soil analysis results.
- ♦ Observed dynamic compaction.
- ♦ Observed the construction of the various capping layers to verify that they were in compliance with the approved design.
- ♦ Observed the handling of all site materials which included waste, overburden soil and topsoil. Observed the construction of a detention basins and storm sewers associated with the landfill.

**Landfill Disruption and Closure Plan – Lincoln Park West Landfill**

<b>Client</b>	Hudson County Division of Parks and Recreation
<b>Reference</b>	Kenneth Jennings, Jr., Deputy Director 201.915.1388

**Project Description**

HMM was retained by the Hudson County Division of Parks and

Recreation to complete an application for approval by the New Jersey Department of Environmental Protection (NJDEP) for the disruption and closure of the Lincoln Park West Landfill in Jersey City. The 47-acre landfill comprises a 32-acre upland parcel and a 14-acre wetlands parcel. The project envisioned the excavation of the waste from the 14-acre wetland area with subsequent redeposition of the material on the upland portion of the site. The ultimate goal was the incorporation of the closed



landfill into a nine-hole golf course that encompassed adjacent non-landfill parcels.

HMM completed the solid waste disruption and landfill closure design aspects of the project. This involved the completion of grading plans, cross sections, development of capping scenarios and the completion of the necessary landfill disruption and closure permit applications. The project success was contingent upon the coordination and cooperation of several state and federal regulatory agencies including the USACOE, USFWS and multiple Divisions within the NJDEP. HMM was successful in securing the approval of the landfill disruption and closure plans in the second quarter of 2009. Project construction is anticipated to commence in late summer 2009.

***Vertical Expansion of Landfill***

<b>Client</b>	Pollution Control Financing Authority of Warren County (PCFAWC) of Warren County
<b>Reference</b>	James Williams, Director 908.453.2174

**Project Description**

HMM was retained by the Pollution Control Financing Authority (PCFA) of Warren County to prepare an application for approval by the New Jersey Department of Environmental Protection (NJDEP) for the vertical expansion of its currently permitted landfill in White

Township. The 45-acre landfill was originally designed and constructed to accept only ash and by-pass waste from the adjacent Resource Recovery Facility (RRF) located in Oxford Township. The operation of the RRF and the debt incurred through its construction costs were financed through tipping fees at the facility.

As a result of the dismantling of waste flow control by the Third Circuit Appellate Court on May 1, 1998, municipal waste generated in Warren County is no longer required to be disposed of at the Warren County RRF. In order for PCFA to meet debt obligations and continue to operate the RRF, cost effective disposal of ash and by-pass waste at their landfill was deemed necessary.

HMM planned and designed the proposed vertical expansion of the Warren County Landfill based on assumptions concerning present and future solid waste disposal rates provided by the PCFA. The expansion comprised an increase in the design elevation by 50 feet and an increase in the sideslope grades from 4:1 to 3:1.

HMM evaluated the existing subgrade and liner designs and found both to be accommodating to the vertical expansion. A passive gas venting system was incorporated into the design, as well as runoff and erosion control measures. Final cover and vegetation complied with the final cover configurations submitted in the Closure Plan approved by the NJDEP.

The design life of the landfill with the proposed vertical expansion was extended from the year 2014 to 2040 based on present and projected filling rates.

Included as part of the application package to the NJDEP were an Engineering Report and Drawings, a Geotechnical Report, an Addendum to the Environmental Health and Impact Statement, an Application for the appropriate NJDEP Permit Modification, and a Supplemental Operations and Maintenance Manual.





### *Landfill Closure and Redevelopment*

<b>Client</b>	Confidential Client
<b>Reference</b>	Newark, NJ

#### **Project Description**

This 12-acre site was used as a landfill in the late 1970s and was registered with the NJDEP for the disposal of construction and demolition waste. However, previous investigations had suggested that the disposal of industrial wastes may have also occurred.

The client contracted to purchase the landfill site for possible use as a parking lot. As a condition of the sale, the purchaser was allowed to investigate the nature and/or extent of contamination resulting from disposal activities as well as NJDEP permitting and remediation/closure requirements to be satisfied prior to development of the site.

The NJDEP identified control of the landfill leachate migration and groundwater contamination as important issues to be addressed by any remedial action plan. HMM was retained to assist in the investigation of site conditions, regulatory requirements, and remedial action alternatives. As an initial phase of study, HMM developed a conceptual redevelopment plan and evaluated the feasibility of groundwater recovery as a means of controlling leachate migration. If the NJDEP granted approval of the conceptual redevelopment plan and groundwater recovery system as a remedial action, the client would purchase the property and initiate the permitting process for proper closure and future development of the site as a parking lot.

In the initial phase, HMM reviewed existing data on hydrogeology and groundwater quality and performed preliminary aquifer tests using existing monitoring wells. HMM also negotiated with adjacent property owners for the installation of off-site monitoring wells. Several groundwater recovery options were evaluated including recovery wells, perimeter wellpoints and gravity underdrains. In addition, HMM investigated the feasibility of disposing of the recovered groundwater in the municipal sewer system.

Following the sale of the property in the early fall of 1989, HMM commenced work on the final closure and redevelopment plan. The plan addressed the regrading of the mounded landfill section and the provision of pavement caps on the leveled landfill surfaces. A clay cap was designed for the proposed sideslopes. Predictions of the leachate generation rate under the closure design were made using the HELP computer model. The closure design proposed the collection of contaminated groundwater by an underdrain system and piping it to an existing sanitary sewer for conveyance to a regional wastewater treatment facility. An active gas and flaring system was also included in the design.

### *Trash Rolloff Construction and Demolition Landfill*

<b>Client</b>	Trash Rolloff Inc.
<b>Reference</b>	Roger Granger 850.258.5165

#### **Project Description**

The Trash Rolloff Construction and Demolition (C&D) Landfill site is 43.5 acres and is located in Bay County Florida. The facility was a challenge to permit as it is also located in the proximity of the Deer Point Lake watershed, which is the County's potable water source. The facility was the first C&D landfill in the Florida panhandle to include a leachate collection and removal system. HMM was able to permit the facility using onsite clay material and a single membrane liner. The leachate collection and removal system was modeled and designed to minimize head on the liner and included pumping the leachate to a lined holding pond. The Northwest Florida DEP uses this site to evaluate the characteristics of leachate from a C&D landfill.

### *City Environmental Services Landfill of Panama*

<b>Client</b>	Waste Management of Bay County, Florida
<b>Reference</b>	Brian Dolihite 850.623.4302

#### **Project Description**

The City Environmental Services Landfill of Panama City site is approximately 34 acres and is located in Bay County, Florida. HMM services were obtained to renew the permit

and bring the site into compliance with the current regulations. The site has not received waste for approximately 10 years and monitoring during that time has detected the possibility of groundwater contamination. HMM included a leachate collection and removal system in the design and proposed the liner system to be constructed over the existing waste disposal areas. The grades of the liner system were critical to minimize removal of existing waste and to provide adequate slope for the leachate collection system.

### *Industrial Bypass Road*

<b>Client</b>	City of Perth Amboy, NJ
<b>Reference</b>	Donald H. Perlee, City Administrator 732.826.0290

#### **Project Description**

The City of Perth Amboy undertook the planning, design, and construction of approximately 3,600 feet of new industrial road from Route 35 to Grant Street in the City's southeast

industrial district. As a result of the development of the new road, approximately 400 trucks per day are diverted from residential streets. All alternative alignments were through a former landfill. HMM was retained by the City to evaluate the environmental impediments to the proposed project, and to provide a final alignment for the road between Route 35 and Grant Street. Because the alignments bordered the Raritan River and/or traversed sections of a former industrial landfill, the City retained HMM to perform an environmental constraints analysis of the alternate alignments to determine what, if any, unusual construction conditions were present at the site.

The selected recommendation stated that the roadway be placed along the top of the landfill to allow future commercial development of the closed landfill. The alignment also allowed the construction of a "rails-to-trails" path along the former landfill's toe-of-slope between Route 35 and Sheridan/ Patterson Streets. The alignment created public access to the waterfront and provided relief for the landlocked residential neighborhood in the area. Utilizing the former railroad bed and the Sheridan Street ROW, the path provided a convenient connection for bicycles and pedestrians between Route 35 and Patterson Street.

After a route was selected, HMM provided design services that included field investigations, borings and landfill stability analysis, waste classifications, roadway design, 300-foot bridge design, stormwater control design and a rails-to-trails design. We assisted the City with obtaining funding from NJDOT and local sources.

The path design included architectural lighting features, park benches and views of the river.

HMM also prepared and submitted a NJDEP Landfill Disruption Permit, NJDEP Wetlands and Stream Encroachment Permits, and a NJDEP Waterfront Development Permit along with other miscellaneous local permits for Soil Erosion and Stormwater Management as well as local building permits.

HMM's construction responsibilities included construction management, quality assurance, and quality control for the landfill closure and the coordination with the NJDOT.



## *McCullough's Emerald Links Golf Course*

<b>Client</b>	Egg Harbor Township Golf Corporation
<b>Reference</b>	James McCullough, Mayor 609.926.4000
<b>Services</b>	Site Plans Amended Landfill Closure Plan Water Supply Irrigation Stormwater Management Permitting Surveying Grading Construction Services

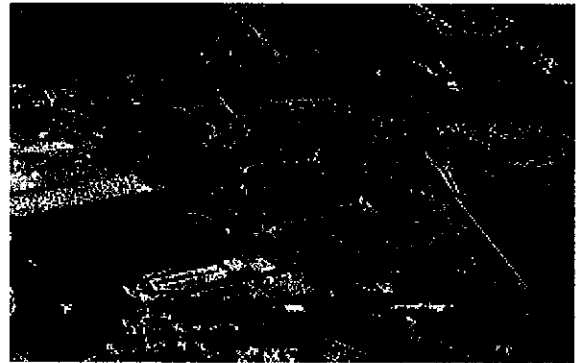
### **Project Description**

HMM was retained to assist with the planning, design, permitting and construction engineering of an 18-hole links-style golf course in Egg Harbor Township, Atlantic County, NJ.

The selected site for the golf course, a 170-acre closed municipal waste landfill, presented several unique challenges, including Conservation Agency approval, an amended landfill closure plan and coordination with the site operator. In addition, the closed landfill featured an active gas management system, several leachate and condensate pump stations and stormwater management structures, all of which had to be factored into the design

project. An added challenge to the project was the presence of a separate two-acre landfill adjacent to the 170-acre site. As part of the golf course design and construction, the smaller landfill was mined (excavated) and screened. The screenings were sampled and analyzed and the acceptable material was used as valuable sub-base fill material on-site.

HMM was responsible for the overall coordination of the golf course design team, which consisted of a golf course architect, an irrigation consultant and a geotechnical consultant. The geotechnical consultant assisted with side slope stability and differential settlement evaluations, and provided recommendations regarding dynamic compaction and surcharging in the tee box and greens areas. HMM prepared all the landfill impact analysis and infrastructure modifications design. In completing the irrigation design, HMM performed hydrologic modeling to develop the optimal design for an irrigation well. The irrigation and stormwater management system design incorporates a new lined pond, the excavation of which provided the needed fill to contour the golf course. The new pond and two existing ponds are interconnected hydraulically and are complemented by the well to ensure the site has a balanced irrigation water supply.



In terms of ancillary features, HMM designed the maintenance shop and golf cart storage building. The design of the enclosed buildings incorporated active gas venting, monitoring and alarm systems. HMM performed construction oversight on the project and golf play commenced on the new course in June 2002.

The golf course has been cited by Golf Digest as one of the most fascinating new golf courses of the year - "What a Story, What a Course". Using Golf Digest's 10-point scale (1 being unacceptable, 10 being absolutely perfect), McCullough's Emerald Golf Links is an 8.0

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## Landfill Redevelopment for Community Center

<b>Client</b>	Township of Woodbridge
<b>Reference</b>	Scott Thompson, Township Engineer 732.634.4500
<b>Services</b>	Site Investigation Permit Applications Design Geotechnical Studies Construction Inspection Funding Assistance

### Project Description

The Township of Woodbridge proposed to construct a community center on a site near the Woodbridge Mall. The site was operated as a municipal waste landfill from 1950 to 1966 and was closed prior to the passage of the current NJDEP regulations.

### HMM Role

HMM was retained to perform an environmental investigation and prepare a Landfill Closure Plan for the redevelopment of the former landfill. The plan included a 100,000 square foot facility containing an ice skating rink, roller rink, and swimming pool.



HMM worked with the site developers and their engineers to develop a cut and fill balance such that no material would be taken off-site, thereby reducing the project's overall cost. HMM also assisted in modifying the NJDEP Solid Waste permits when building modifications were made.



### Project Highlights

HMM's work tasks included the following:

- ♦ Preparation of a site investigation report in accordance with the NJDEP Technical Requirements for Site Remediation and the Solid Waste Regulations
- ♦ Submission of the applications for the NJDEP Landfill Disruption and Landfill Closure Permits
- ♦ Integration of the landfill closure measures into the site redevelopment plan (i.e. capping, grading, stormwater management)
- ♦ Design of the methane control systems for the new building and the site
- ♦ Geotechnical studies and recommendations for foundation design, slope stability, and settlement issues
- ♦ Design of a leachate collection system and pumping system
- ♦ Preparation and submission of various related NJDEP permits
- ♦ Construction inspection for improvements

[Purchasing Affidavit]

STATE OF WEST VIRGINIA  
Purchasing Division024**PURCHASING AFFIDAVIT****VENDOR OWING A DEBT TO THE STATE:**

*West Virginia Code* §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

**PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:**

If this is a solicitation for a public improvement construction contract, the vendor, by its signature below, affirms that it has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code*. The vendor **must** make said affirmation with its bid submission. Further, public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code* and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the *West Virginia Code* may take place before their work on the public improvement is begun.

**ANTITRUST:**

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

**LICENSING:**

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

Vendor's Name: Hatch Mott MacDonald  
 Authorized Signature: [Signature] Date: 4-28-09