Fuller Mossbarger Scott & May
ENGINEERS

10018
International Boulevard
Cincinnati, Ohio
45246-4839

513-860-1070
513-860-1073 FAX

EXHIBIT
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June 4, 2003

O.1.8.4.CN0462003

Kathy Dorman
Storm Water Engineer
City of Mason
Engineering and Building Department
6000 Mason-Montgomery Road
Mason, Ohio 45040

RE: Proposal
Muddy Creek Detention Basin Design
Mason, Warren County, Ohio

Dear Kathy:

As requested, we are pleased to submit this proposal for the referenced project. We have assembled a project team that is highly qualified and dedicated to helping the City of Mason with this project. All of the work for this project will be coordinated out of our Cincinnati office. Several of our team members have assisted the City of Mason with previous projects.

Thank you for the opportunity to submit this proposal. We understand the importance of this project to the City of Mason and are dedicated to making it a success.

Respectfully submitted,

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

Stan A. Harris, P.E.
Associate

SAH/lfb

RECEIVED
2:32pm
JUN 04 2003
CITY OF MASON
TAX DEPT.

Fuller Mossbarger Scott & May

FMSM ENGINEERS

City of Mason
Engineering and Building Department

Project Manager
Stan Harris, PE

Wetlands	Geotechnical Investigation	Hydrology/Hydraulics	Design
Nicole Clements	Eric Kistner, PE	Jim Latchaw, PE Scott Peyton, EI	Vince Severance, PE John Banton, PE

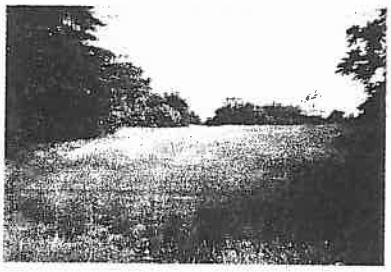
Structure Design	Geographic Information Systems (GIS)
Dan Back, PE	Nick Hoyes

Support Services

CADD	Clerical	Laboratory	Drilling

Organization Chart

5. Project Understanding



Proposed Site of Dam for Regional Detention Basin.

FMSM has reviewed the Request for Proposal (RFP) and performed preliminary reconnaissance of the proposed project area. We understand that flooding occurred on Davis Run during the July 17, 2001 storm. A hydrologic and hydraulic study prepared for the City showed that flooding on Davis Run is largely due to backwater effects from the Muddy Creek. The Muddy Creek drains about 2,100 acres at its confluence with Davis Run, or about twice as much drainage area as Davis Run. However, because of development in the Muddy Creek watershed, it produces about 5 times as much runoff at the confluence.

A preliminary study has been performed to size a detention basin on Muddy Creek to help control flooding on Davis Run. The results showed that a 12-acre basin with a storage volume of approximately 110 acre-feet, would reduce flooding on Davis Run. The proposed detention basin site is shown on Figure 1.

Proposed Detention Basin Area.

An important criteria is limiting the 100-year flood elevation to the top of the twin culverts under Tylersville Road. The design of the basin must also consider aesthetics because the site will also function as a park area and the northwest 11 acres of the site will be used for a future State of Ohio MRDD facility. Tree removal must be limited to the basin area. Design will include preparation of the required permit applications and the development of construction drawings and specifications. The dam must be designed in accordance with ODNR standards.

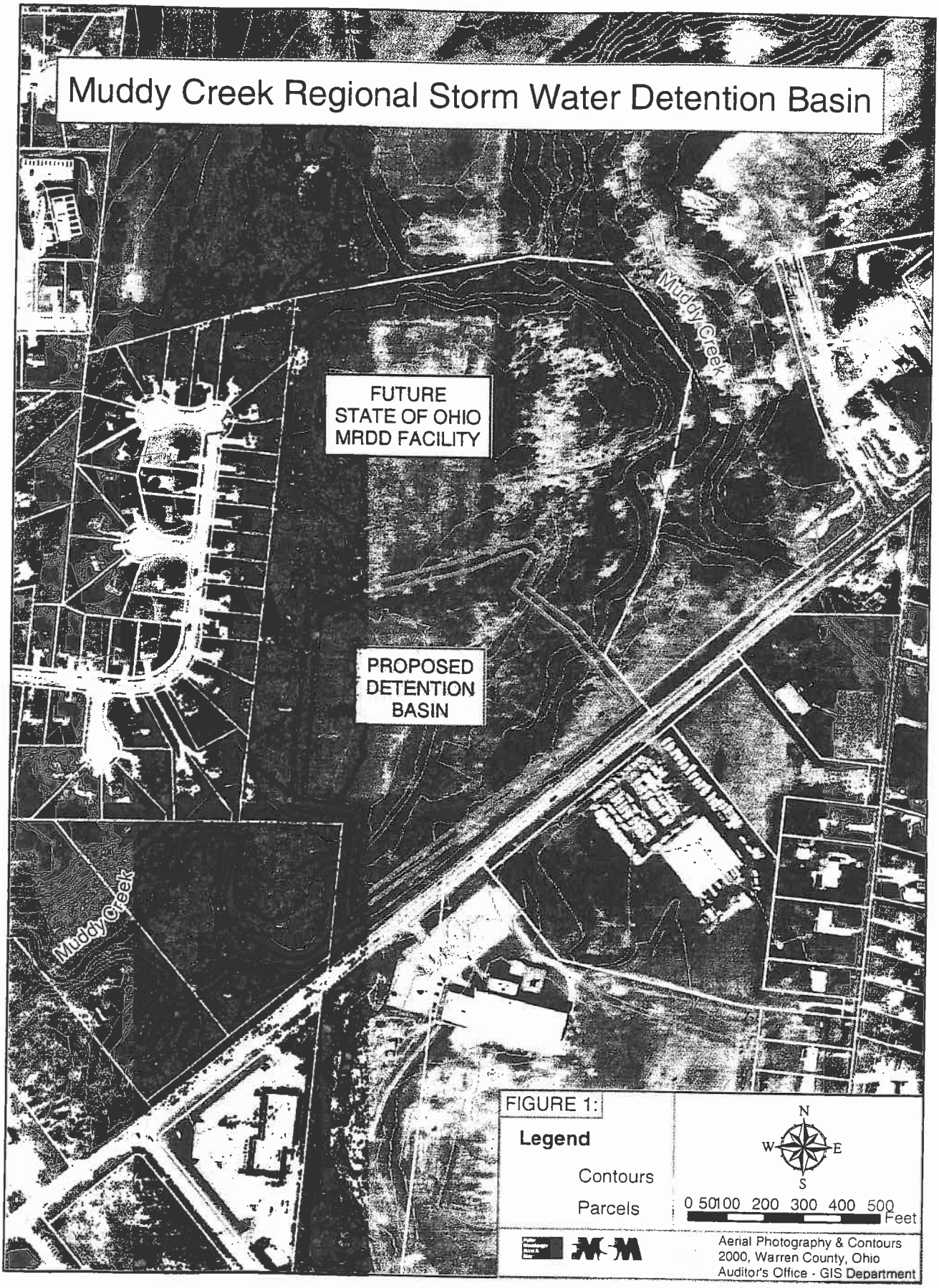
We have noted that the concept drawing for the dam shows the emergency spillway to be located within the embankment. FMSM recommends that it be located in the left abutment to prevent the potential for erosion of the embankment or the need for costly armoring. ODNR does not recommend locating emergency spillways within earth embankments.

6. Project Approach

Based on our understanding of project elements and requirements outlined in the RFP, FMSM proposes the following approach.

6.1. Project Kickoff Meeting

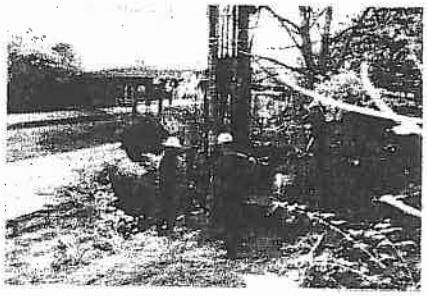
FMSM will meet with City of Mason to review project goals and constraints. Intermediate milestones for the project components (i.e. review of models, geotechnical investigation, etc.) will also be confirmed at the project kickoff meeting.


Muddy Creek Regional Storm Water Detention Basin
FUTURE
STATE OF OHIO
MRDD FACILITY
PROPOSED
DETENTION
BASIN
Muddy Creek
Muddy Creek
FIGURE 1:
Legend
Contours
Parcels
N
W
E
S
0 50100 200 300 400 500
Feet
Aerial Photography & Contours
2000, Warren County, Ohio
Auditor's Office - GIS Department

6.2. Data Collection and Review

During this task, FMSM will review the preliminary models of the Muddy Creek and Davis Run, the existing flood insurance study, right-of-way drawings, and other plans made available by the Engineering and Building Department. FMSM will also contact the Ohio Department of Transportation (ODOT) to obtain copies of the construction drawings for the adjacent US 42 roadway and downstream culvert crossing. We understand that a detailed survey of the project area will be performed by a surveyor under contract with the City, and the results of that survey will also be reviewed.

6.3 Geotechnical Investigation



FMSM will perform a geotechnical investigation to determine foundation conditions as well as the suitability of soil in the basin area for use as engineered embankment.

FMSM will perform a subsurface investigation at the site to determine soil strata, engineering properties, and make recommendations regarding the suitability of soil in the basin area for use as embankment material. Three borings will be advanced along the proposed centerline of the dam and one each at the upstream and downstream toes. These borings will be advanced to the top of bedrock, or a maximum depth of 30 feet, whichever occurs first. Six additional borings will be advanced within the basin area to determine the depths and types of soil that will be excavated. These borings will be advanced to a depth of 15 feet or auger refusal. Standard Penetration Test (SPT) and undisturbed Shelby Tube samples will be obtained from the borings. All borings will be backfilled with soil cuttings after they are completed.

All field work will be performed under the supervision of a geotechnical engineer or geologist. Laboratory testing will be performed by FMSM's in-house laboratory and in accordance with ASTM standards. Natural moisture contents will be performed on all samples. Samples of the predominant horizons encountered will be subjected to engineering classification testing. Unconfined compressive strength tests will be performed on undisturbed Shelby Tube samples.

At the conclusion of the geotechnical investigation, a report will be prepared with graphic boring logs and the results of all soil tests. Bore hole locations will be identified on project drawings. The report will address the adequacy of the site to support an earth dam, parameters for design of the embankment, and suitability of the soil in the basin area for use as embankment material.

6.4. Wetland Delineation

A wetlands delineation and report will be performed and prepared in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual. The report will identify both jurisdictional wetlands and jurisdictional waters within the approximate 12 acre site. The report will include photographs of the site and determine the classification of the jurisdictional wetlands and waters, if any, on the site. Elements of the work include:

- Gather published data regarding soils, prior converted wetlands, etc. of the site
- Perform a field survey of the site recording existing vegetation, soils, and hydrologic conditions in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual.
- Prepare a report of findings, to include methodologies used, the completed US Army Corps of Engineers (USACE) data forms, photographs and maps.

If it is determined that wetlands will be impacted and mitigation will be required, FMSM can assist the City with development of mitigation plans. Since the need for mitigation is not known at this time, it would be premature to estimate costs for plan development.

6.5. Preliminary Hydrologic Model

FMSM will evaluate the existing SWMM model for possible upgrade or replacement by HEC-HMS; whichever is most cost effective.

Prior to completing the preliminary design, FMSM will review the results of work competed during the prior conceptual study. Earlier work identified a basin configuration, inundation elevations and other engineering design data. FMSM will evaluate the existing SWMM RUNOFF model for possible upgrade or replacement by HEC-HMS; whichever is most cost effective. Regardless of which model is used, City staff will be consulted before work is completed. This hydrologic model will serve as the base model for the work to be completed in support of the Letter of Map Change to be prepared once the design is finalized.

A preliminary design discharge will be determined that will be used to support the preliminary design phase of this project. The initial design discharge will be the 100-year storm event. Bulletin 71 will provide the storm event depth and distribution data. Input parameters that were previously calculated will be reviewed and modified as necessary, including sub-watershed delineation. FMSM will use the preliminary design discharge to estimate spillway dimensions, erosion protection measures and to further define the area affected by the maximum pool.

6.6. Develop Design Alternatives

Inlet of Tylersville Road culvert.

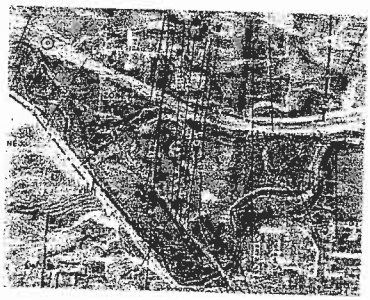
Upon completion of tasks 6.1 through 6.5, FMSM will develop design alternatives to control flooding at the confluence of Muddy Creek and Davis Run. Design criteria will include controlling the 100-year storm event and reducing the peak flow of Muddy Creek enough to have a free flow condition through the culvert at Tylersville Road. Other criteria to be considered include limiting increases in the 100-year water surface elevation upstream, energy dissipation, water quality, downstream erosion control, and protection of the downstream side of the dam.

FMSM will prepare a report summarizing project findings and proposed preliminary design alternatives. Design alternatives will reflect the findings of the geotechnical investigation, as well as the hydrologic and hydraulic analysis. Conceptual sketches and budgetary construction cost estimates will be provided for each alternative. At the conclusion of this task FMSM will meet with the City of Mason to present the report, discuss preliminary design alternatives, and provide a recommendation.

6.7. Permitting

FMSM will assist the City of Mason in obtaining state and federal permits for the proposed detention basin project. For the purpose of the cost estimate provided with this proposal, it is assumed that required permits will be limited to a 401 Water Quality Certification and NPDES permit from OEPA, a Corps of Engineers 404 Dredge and Fill Permit, and a ODNR Dam Safety Permit.

6.8 CLOMR and LOMR



FMSM will assist the City in preparing a LOMC application to update FEMA flood mapping of the study reach.

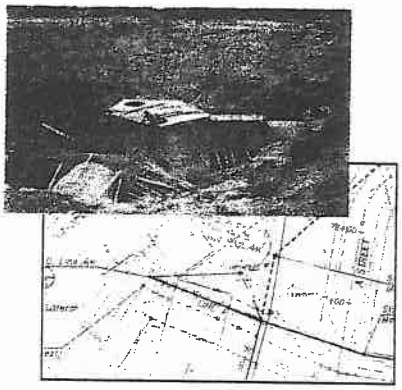
FMSM will prepare, submit and assist the City of Mason in obtaining approval of a Federal Emergency Management Agency (FEMA) LOMC (CLOMR or LOMR) for both Davis Run and Muddy Creek from Tylersville Road to the southern corporate limit. This work effort will include developing floodplain and floodway boundaries, developing floodplain mapping and profiles; and the preparation of a LOMC package for submission to FEMA.

Discharge estimates for the floodplain analysis will be determined using either SWMM RUNOFF or HEC-HMS. Values for the 10-, 50-, and 500-year storm events will be generated. The 100-year discharge data will be taken from the preliminary analysis performed earlier. Flood profiles for the 10-, 50-, 100-, and 500-year storms and the floodway associated with the 100-year water surface elevation will be estimated using a HEC-RAS model. The floodway will be computed assuming equal conveyance

reduction in the channel overbank areas. Encroachment of the floodplain during the floodway computations will not be permitted within the stream channel banks or if it results in greater than a 0.1-foot rise in the computed water surface elevation. Additionally, floodplain boundaries for the 100-, and 500-year storms will be developed. FMSM will use automated mapping software in conjunction with HEC-GeoRAS to transfer hydraulic model output to flood inundation maps.

FMSM will prepare the documentation for a LOMC application. The documentation will include: a narrative of methodology used to develop the LOMC; profile plots for the 10-, 50-, 100-, and 500-year floods; and an annotated FIRM showing the updated 100-year and 500-year flood boundaries, floodway limits, base flood elevations, and cross section locations. Application fees will be the responsibility of the City of Mason.

6.9. Final Design



FMSM will develop final construction drawings and documents suitable for bidding and constructing the proposed improvements.

Based upon City and regulatory agency feedback, FMSM will prepare final construction documents, suitable for bidding and constructing the project, for the selected improvement alternative. A final opinion of probable construction cost will also be prepared. Ten (10) paper copies and one mylar set of engineering plans will be provided to the City, along with an electronic copy in AutoCAD 2000 format.

6.10. Construction Services

FMSM will assist the City with construction administration services including bid review, shop drawing review, construction monitoring and invoice review. Full time observation will be required during construction of the dam. Periodic visits will be performed during other phases of work (clearing, excavation of basin soil, etc.)

6.11. Easement Services

FMSM will assist Mason in the procurement of appropriate 100-year floodplain easements for the Muddy Creek Regional Detention Basin. FMSM will supply a list of appraisers to Mason for consideration. The appraiser will submit an estimate of the fair market value for the easement. FMSM will supply support data to the appraiser and property owners. FMSM will also notify affected property owners upon the completion and approval of the final design. It is anticipated that there will be three meetings with each property owner during the acquisition process. Appraiser fees and payments to land owners for the actual easements will be the responsibility of the City of Mason.

7. Estimated Cost of Service and Schedule

7.1. Estimated Cost

Based on our project understanding and approach, FMSM has broken the project into the tasks outline in Table 1. A preliminary estimate of the required man-hours by job classification are presented in Table 2.

Table 1. Preliminary Estimate of Engineering Costs

	Work Task	Estimated Fee
1.	Kickoff Meeting	$ 1,150.00
2.	Data Collection and Review	$ 1,750.00
3.	Geotechnical Investigation	$12,660.00
4.	Wetlands Delineation	$ 2,160.00
5.	Hydrologic and Hydraulic Mod.	$ 3,940.00
6.	Develop Design Alternatives	$19,340.00
7.	Permitting	$12,990.00
8.	CLOMR and LOMR	$17,180.00
9.	Final Design	$24,260.00
10.	Construction Services	$25,200.00
11.	Easement Services	$ 7,540.00
	Totals:	$128,170.00

This estimate of fees is based on the following assumptions:

- Scope is limited to that outlined in the RFP and in this proposal.
- Survey data will be provided by City of Mason.
- Borings locations for the geotechnical investigation will be accessible with a truck-mounted drill rig.
- Permit fees will be paid by the City
- Channel cross sections will be required every 1,000-2,000 feet along Muddy Creek
- Information on culvert under US 42 can be obtained from ODOT plans

Table 2. Estimated Man-Hours by Job Classification

Work Task	Estimated Man-Hours								Direct Expenses	Totals
	PM	SPE	PE	ET	GS	GE	BIO	STE		
6.1. Kickoff Meeting	4	4	4						$ 50.00	$ 1,150.00
6.2. Data Collection and Review	4	8	8						$ 50.00	$ 1,750.00
6.3. Geotechnical Investigation	4	32		24		32		2	$ 6,590.00	$ 12,660.00
6.4. Wetlands Delineation	2	1		8			20	2	$ 100.00	$ 2,160.00
6.5. H&H Model	4	8	32		16				$ 100.00	$ 3,940.00
6.6. Develop Design Alternatives	16	80	120	60	8				$ 300.00	$ 19,340.00
6.7. Permitting	16	40	80	24	4			10	$ 200.00	$ 12,990.00
6.8. CLOMR and LOMR	8	40	80		40			4	$ 5,000.00	$ 17,180.00
6.9. Final Design	20	80	120	120				8	$ 400.00	$ 24,260.00
6.10. Construction Services	40	40		300					$ 500.00	$ 25,200.00
6.11. Easement Services	24	40			16			8	$ 100.00	$ 7,540.00
									Total	**$128,170.00**

Notes:
PM = Project Manager
SPE = Senior Project Engineer
PE = Project Engineer
ET = Engineering Technician
GS = GIS Specialist
GE = Geologist
BIO = Biologist
STE = Stenographer

7.2. Schedule

The City has identified a design completion deadline for this project by November 14, 2003. Assuming Notice to Proceed no later than July 1, FMSM is confident that design work can be completed by November 14, 2003. Table 3 identifies target milestones for the individual work tasks.

Table 3. Project Schedule

	Work Task	Completion Date
1.	Kickoff Meeting	July 1, 2003
2.	Data Collection and Review	July 8, 2003
3.	Geotechnical Investigation	August 1, 2003
4.	Wetlands Delineation	August 1, 2003
5.	H&H Model	August 1, 2003
6.	Develop Design Alternatives	September 30, 2003
7.	Permitting	To Be Determined
8.	CLOMR and LOMR	To Be Determined
9.	Final Design	October 31, 2003
10.	Construction Services	To Be Determined
11.	Easement Services	To Be Determined

[1] Completion dates for permitting and CLOMR/LOMR applications will be dependent on timely reviews by USACE, OEPA, ODNR and FEMA.