EXECUTIVE SUMMARY

This Combined Sewer Overflow Long Term Control Plan evaluates and recommends a plan for the village of Caldwell to control and eliminate the amount of untreated wastewater discharging into the West Fork of Duck Creek during wet weather events. This plan provides guidance on the development and implementation of a program that will minimize the impacts of combined sewer overflows on the environment with the long term goal of eliminating all overflows. Implementation of this plan will improve water quality and will benefit all residents of the surrounding communities.

During dry weather, the wastewater collection system effectively conveys all wastewater to the treatment plant without any overflows or bypasses. During storm events, the overflow structures become active. The village of Caldwell currently has 31 combined sewer overflows (CSOs). The system discharges an average annual flow of 102 million gallons of combined wastewater through these overflow structures into the West Fork of Duck Creek.

A study was performed for the village in October of 2003 by M•E Companies. The study recommended that the village eliminate all CSOs by separating the combined sewer system. The village has completed several small sewer improvement projects in recent years. These past improvements were done to improve the capacity of the sewer system, and were not intended to eliminate CSOs. To alleviate CSOs during rainfall events, a large-scale improvement project is necessary. In some areas existing sanitary sewers shall have inflow sources eliminated, while in others, new sanitary sewers will be constructed. In some cases, the installation of new storm sewers may be the most cost effective solution. The existing interceptor sewer will remain and has the capacity necessary to convey sanitary flows to the wastewater treatment plant. The construction improvements are to be implemented as part of the Long Term Control Plan (LTCP).

Integration of the Nine Minimum Control (NMC) measures is necessary until complete separation and elimination of the CSOs are achieved. These control measures are efforts to reduce the volume and improve the quality of overflows into the West Fork of Duck Creek. NMC measures can be implemented in a relatively short period and do not require engineering studies or major construction. The village has developed a comprehensive program to implement these control measures. We have reviewed these procedures and recommend the following improvements:

- Establish written logs to document the maintenance and operations of the collection system.
- Initiate public awareness campaign.
- Discuss CSO issues at Board of Public Affairs meetings.

Because of the size and complexity of the proposed construction improvements a multiple phase plan is scheduled for the different areas surrounding the village. Separation Areas A through G are scheduled for improvements based on their priority and required sequence. Prior to any construction, a comprehensive SSES will be conducted for each area. Results from this study

will form the basis for design and construction of the recommended improvements for each area. The first phase, Area C with the highest priority, is scheduled for construction in 2008. The total separation plan is scheduled over a period of 20 years with an estimated project cost of approximately $5.3 million. Note that project cost estimates should be viewed cautiously. Recommended improvements are subject to change significantly depending upon the results of the SSES for each area. Costs should be used only to provide an order of magnitude estimate for the investment the village will be required to undertake over the next 20 years.

The residents of Caldwell will be affected by the LTCP and shall have the opportunity to actively participate. As part of the LTCP the village shall notify the public and integrate their desires and requests to participate in the development and implementation process of the plan. Participation includes evaluation and selection of controls to improve CSO discharges. Discussions concerning priorities and values associated with community and recreation opportunities that are impacted from the CSO discharges shall be part of the public involvement.

5.0 PLANNED CONSTRUCTION PROJECTS

As previously state the village's long term goal is to eliminate all CSOs. However, since most of the mapping of the village's sanitary and storm sewer systems were lost in the flood of 1998, a comprehensive study or analysis is required for each project area. The SSES analysis will be used to conclusively define the existing systems and will form the basis for developing the recommended improvements which will eliminate the CSOs.

Construction of improvements shall be over a 20 year period and progress from one separation area to another in the following sequence: C, D, B, A, F, and E. The prioritization of the separation areas are based upon recent discussions with the village on the magnitude of the problem in each area and the Combined Sewer Overflow Analysis and Control Study, M•E Companies (2003). Current construction project costs and the respective schedules are listed in Table 5-1. Project costs have been adjusted using an inflation factor of 5% per year.

Note that project cost estimates should be viewed cautiously. Recommended improvements are subject to change significantly depending upon the results of the SSES for each area. Costs should be used only to provide an order of magnitude estimate for the investment the village will be required to undertake over the next 20 years.

TABLE 5-1
SCHEDULE FOR ELIMINATION OF CSOs

SEWER AREA	PROJECT COST	SSES	DESIGN	CONSTRUCTION
C	$157,500	JAN-MAY 2007	JUN - DEC 2007	MAR - OCT 2008
D	$264,300	JAN – MAY 2010	JUN - DEC 2010	MAR - OCT 2011
B	$2,216,200	JAN – MAY 2013	JUN - DEC 2013	MAR - OCT 2014
A	$684,100	JAN – MAY 2016	JUN - DEC 2016	MAR - OCT 2017
F	$757,300	JAN – MAY 2019	JUN - DEC 2019	MAR - OCT 2020
E	$1,210,400	JAN – MAY 2022	JUN - DEC 2022	MAR - OCT 2023
G	UNKNOWN(1)	JAN - MAY 2025	JUN - DEC 2025	MAR - OCT 2026
TOTAL	**$5,289,800**			

(1) Information on existing system is not known. SSES must be completed prior to the development of any cost estimate.

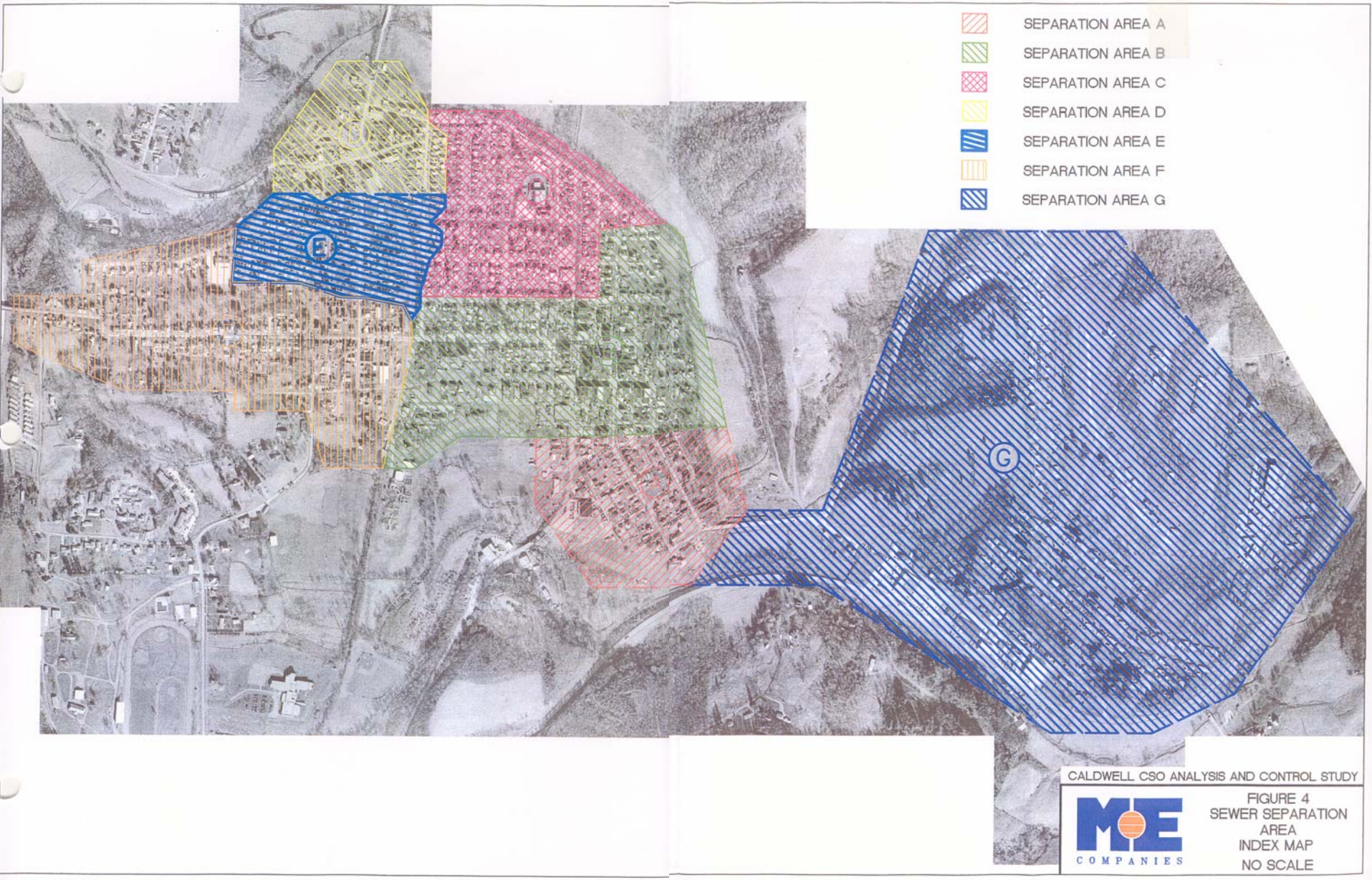
Detailed cost estimates are provided in Appendix A. These costs are based upon the quantities provided in the 2003 study and have been adjusted for inflation. Quantities have not been checked and are assumed to be correct.

6.0 CONCLUSIONS AND RECOMMENDATIONS

We recommend that the village of Caldwell proceed with separating the combined sewer system in accordance with the schedule in Table 5-1. The total estimated cost for eliminating all CSOs (excluding those in Area G) is approximately $5.3 million.

Currently the village has implemented many of the Nine Minimum Control measures to control and reduce CSOs and the adverse impacts of these discharges on water quality. Based upon an analysis of village procedures we recommend the following improvements to be implemented:

- Separate combined collection system to eliminate the CSOs.
- Integrate written documentation for operations and maintenance procedures to sewer collection system.
- Initiate public awareness campaign.
- Schedule public meetings to openly discuss any and all issues related to CSOs.



CALDWELL CSO ANALYSIS AND CONTROL STUDY

M&E COMPANIES

FIGURE 4
SEWER SEPARATION AREA
INDEX MAP
NO SCALE