# Technical Report Writing

**By**

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*Faculty of Engineering,*

*Ain Shams University*

# Contents

- Engineers and Writing
- Characteristics of Technical Style
- Organization of Formal Report
- Example of Complete Report
- Word Processing
  - formatting, tables
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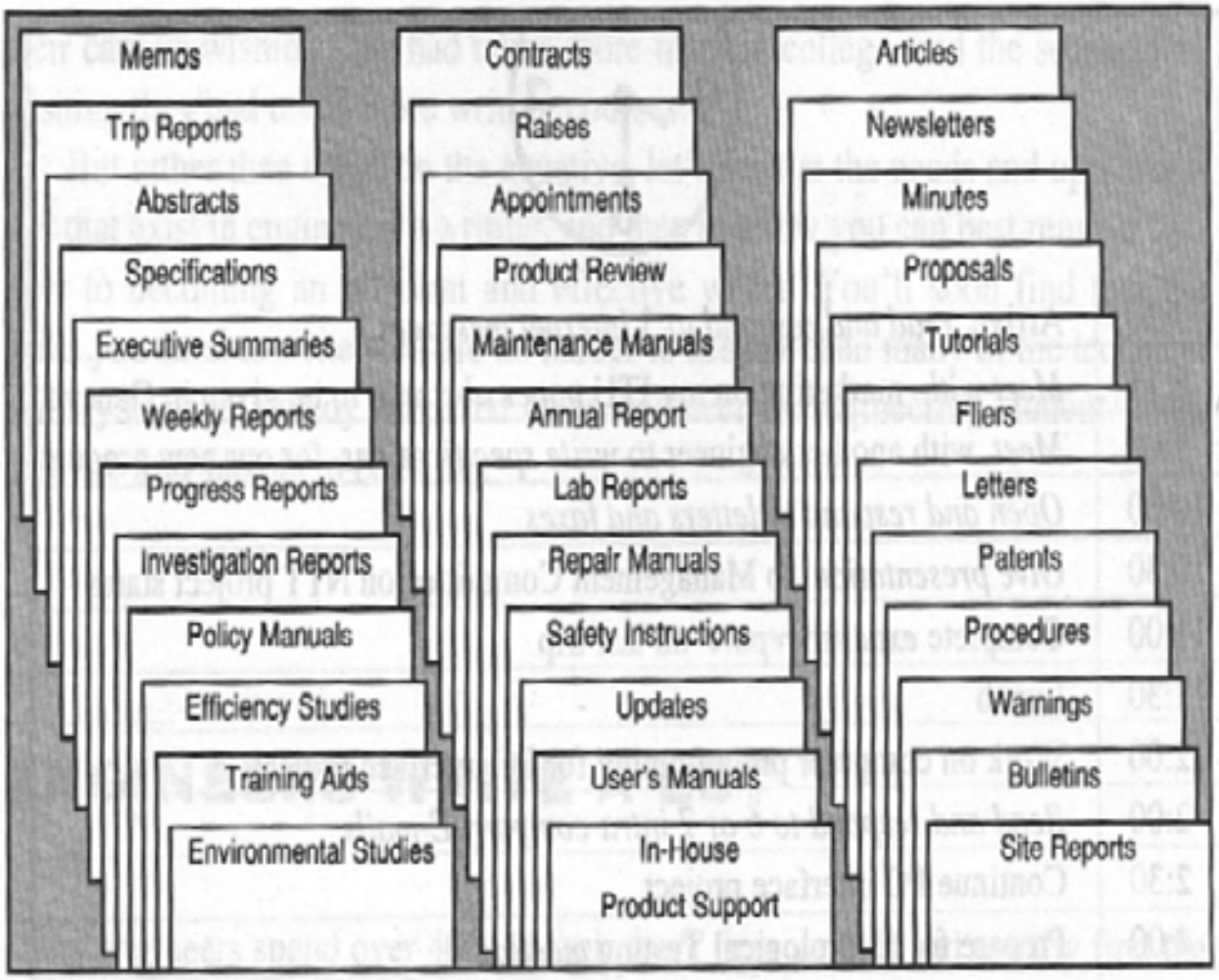
  - pie and line charts


| | |
|---|---|
| 7:30 | Arrive, *read and respond to 3 Internet messages* |
| 8:15 | *Meet with* marketing on my ITU *paper abstract* to be given in Geneva |
| 9:00 | *Meet* with another engineer to *write specifications* for our new product |
| 10:00 | *Open and respond to letters and faxes* |
| 10:30 | *Give presentation* to Management Committee on NTT project status |
| 11:00 | Complete *expense report* on last trip |
| 11:30 | Lunch |
| 12:00 | Work on computer programming for PC interface project |
| 2:00 | *Read and respond to 6 or 7 intra-company E-mails* |
| 2:30 | Continue PC interface project |
| 4:00 | Prepare for Hydrological Testing *meeting* |
| 5:00 | Leave for the day |


Memos
Trip Reports
Abstracts
Specifications
Executive Summaries
Weekly Reports
Progress Reports
Investigation Reports
Policy Manuals
Efficiency Studies
Training Aids
Environmental Studies
Contracts
Raises
Appointments
Product Review
Maintenance Manuals
Annual Report
Lab Reports
Repair Manuals
Safety Instructions
Updates
User's Manuals
In-House
Product Support
Articles
Newsletters
Minutes
Proposals
Tutorials
Fliers
Letters
Patents
Procedures
Warnings
Bulletins
Site Reports

# Characteristics of Technical Style

- **Objectivity**
  - neutrality, absence of bias
- **Precision**
  - concrete language, exact dimensions and units, well-defined terms
- **Clarity**
  - word choice, completeness, correctness
- **Economy**
  - fewest words for the desired meaning
- **Audience**
  - general, technicians, experts, executive, mixed

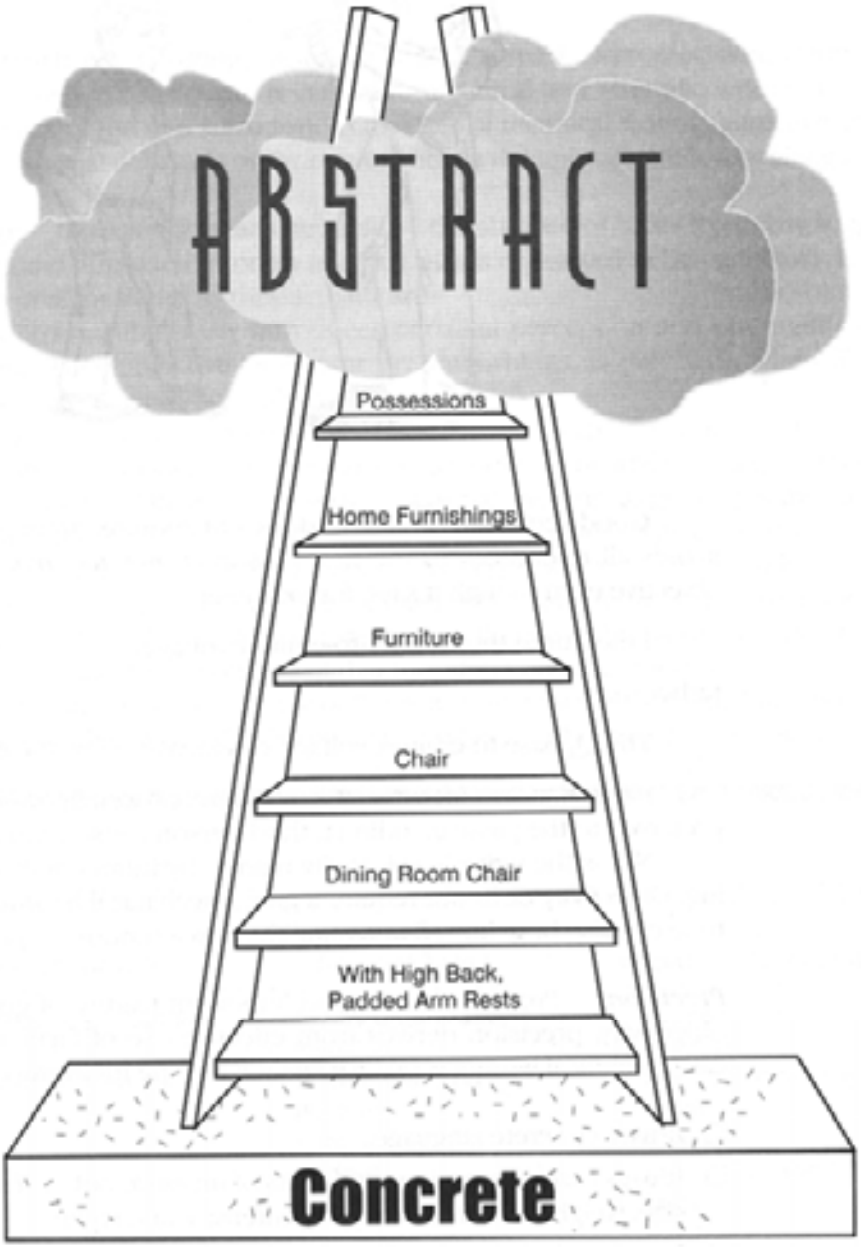
# Objectivity

- Means neutrality or the absence of bias
- ***Subjectivity*** means personal perception, with emotions
- Denotative (as in dictionary) vs connotative (subjective meaning)
- Impersonality not required

| Positive Connotation | Denotative Meaning (Neutral Term) | Negative Connotation |
|---|---|---|
| public service organization | public organization | bureaucracy |
| financier | investor | speculator |
| information management | data processing | number crunching |
| educator | teacher | pedant |
| thrifty | economical | cheap |
| financial plan | budget | fiscal straitjacket |
| executive | manager | boss |
| prudent | cautious | timid |
| bold | adventurous | reckless |
| wonder drug | patent medicine | quack remedy |
| marketing | selling | peddling |

# Precision

- Concrete language
- Exact dimensions of size, weight, volume, etc.
- Well-defined technical terms


ABSTRACT
Possessions
Home Furnishings
Furniture
Chair
Dining Room Chair
With High Back,
Padded Arm Rests
Concrete

# Clarity

- Completeness
  - Journalist's mind: where, when, who, why and how?
- Correctness
  - usage, punctuation, grammar
- Examples
  - Misplaced modifiers
  - Careless punctuation

# Clarity Examples

- Misplaced modifiers
  - Training sessions will be offered at several sites *covering the operational characteristics of the equipment.*
  - Training sessions *covering the operational characteristics of the equipment* will be offered at several sites

# Clarity Examples

- Careless punctuation
  - The proposal which deals with administrative computing was discussed at today's meeting.
  - The proposal, which deals with administrative computing, was discussed at today's meeting.
  - The proposal dealing with administrative computing was discussed at today's meeting.

# Economy

- Fewest words for the desired meaning
- Hints to make concise writing:
  - Delete unneeded words or phrases
  - Substitute single words for phrases
  - Avoid there is, it is constructions
  - Limit use of passive voice
  - Revise indirect sentences into direct forms.

# Redundant Expressions

*actual* experience
*advance* planning
assemble *together*
*basic* fundamentals
blue *in color*
*close* proximity
collaborate *together*
*complete* monopoly
*completely* eliminated
consensus *of opinion*
elliptic *in shape*
*end* result
*expensive* luxury
few *in number*
*first* began
filled *to capacity*
*final* outcome
*mutual* cooperation
*necessary* prerequisite
*original* source
*past* history
*future* plans
*personal* opinion
the reason is *because*
revert *back*
small *in size*
throughout *the whole*
*true* love

# Phrases versus Verbs

| *Phrases* | *Verbs* |
|---|---|
| bear in mind | remember |
| bring about | cause |
| afford an opportunity | allow |
| are of the opinion that | think/believe |
| come into contact with | meet/touch |
| give consideration to | consider |
| has the ability to | can |
| has a need for | needs |
| held a meeting | met |
| inquired as to | asked |
| made a decision | decided |
| make application to | apply |
| produced an improvement | improved |
| reached the conclusion | concluded |
| takes exception to | disagrees |

| *Wordy* | *Concise* |
|---|---|
| a large number of | many |
| as a general rule | usually |
| as far as . . . is concerned | about |
| at the present time | now |
| at that point in time | then |
| at such time as | when |
| by means of | by |
| due to the fact that | because |
| for the purpose of | for |
| in addition | also |
| in all probability | probably |
| in length/height | long/high |
| in many/most cases | often/usually |
| in order to | to |
| in regard to | about |
| in spite of the fact that | despite |
| in the event that | if |
| in the near future | soon |
| in the vicinity of | near |
| of the order of magnitude of | about |
| on the basis of | by, from |
| prior to | before |
| subsequent to | after |
| through the use of | by, with |
| until such time as | until |
| with reference to | about |
| with the exception of | except |

# Economy Examples

- Wordiness
  - There are three assumptions on which this proposal is based.
  - *This proposal is based on three assumptions.*
- Passive voice
  - Many of these tasks are now performed by office computers.
  - *Office computers now perform many of these tasks.*

# Economy Examples

- Indirectness
  - In an article that was published in Computerworld, there is an explanation of this phenomenon that has been so puzzling to so many.
  - *A Computerworld article explains this puzzling phenomenon.*

# Adaptation to Audience

- General
  - define technical terms, use graphics, focus on how to use
- Technicians
  - focus on construction, installation and servicing, use graphics
- Experts
  - design or evaluation of technology
- Executives
  - costs, personnel, company politics, summary and conclusions
- Mixed
  - clear summary, non-technical language, details in appendix

# Checklist for Effective Technical Style

| Yes | No | |
|---|---|---|
| ☐ | ☐ | Are my sentences generally short and uncomplicated? |
| ☐ | ☐ | Are my sentences varied in structure and length? |
| ☐ | ☐ | Are my words as short and simple as they can be, given my message? |
| ☐ | ☐ | Is my tone suited to my purpose? |
| ☐ | ☐ | Am I presenting things factually and impartially? |
| ☐ | ☐ | Am I using specific terms and precise dimensions when these are needed? |
| ☐ | ☐ | Am I giving complete information? |
| ☐ | ☐ | Am I using the language correctly, to clarify instead of confuse my meaning? |
| ☐ | ☐ | Can I cut out words and reduce phrases to single words? |
| ☐ | ☐ | Am I using constructions that are active, direct, and efficient? |
| ☐ | ☐ | Are my technical terms appropriate to my readers? |
| ☐ | ☐ | Have I shaped my presentation to suit the reader's priorities and pressures? |

## ABC Format: Formal Report

### Abstract

- Cover/title page
- Letter or memo of transmittal
- Table of contents
- List of illustrations
- Executive summary
- Introduction

### Body

- Discussion sections
- [Appendices—appear after text but support Body section]

### Conclusion

- Conclusions
- Recommendations

# Organizing a Formal Report

# Cover/Title Page

- attractive and informative
- includes four pieces of information
  - Project title
  - Client's name (prepared for)
  - Your name (prepared by)
  - Date of submission

# STUDY OF WILDWOOD CREEK

# WINSLOW GEORGIA

Prepared for:

The City of Winslow

Prepared by:

Christopher S. Rice, Hydro/Environmental Engineer
McDuff, Inc.

November 30, 1996

Uses graphic on title page to reinforce theme of environmental protection.

# Letter/Memo of Transmittal

- immediately after title page
- includes major point from report
- single spacing
- ragged edge
- one page

Mc Duff, Inc.

12 Peachtree Street
Atlanta, GA 30056
(404) 555-7524

McDuff Project #96-119
November 30, 1996

Adopt-a-Stream Program
City of Winslow
300 Lawrence Street
Winslow, Georgia 30000

Attention : Ms Elaine Sykes, Director

**STUDY OF WILDWOOD CREEK**
**WINSLOW, GEORGIA**

Lists project title as it appears on title page.

Gives brief statement of project information.

Provides major point from report.

We have completed our seven-month project on the pollution study of Wildwood Creek. This project was authorized on May 18, 1996. We performed the study in accordance with our original proposal No. 14-P72, dated April 24, 1996.

This report mentions all completed tests and discusses the test results. Wildwood Creek scored well on many of the tests, but we are concerned about several problems—such as the level of phosphates in the stream. The few problems we observed during our study have led us to recommend that several additional tests should be completed.

Thank you for the opportunity to complete this project. We look forward to working with you on further tests for Wildwood Creek and other waterways in Winslow.

Sincerely,

Christopher S. Rice, P.E.

Christopher S. Rice, P.E.
Hydro/Environmental Engineer

# Table of Contents

- very readable
  - white space, indenting, page numbers
- specific and concise
- low-level headings may be left
- list appendices
- use parallel form

Uses white space, indenting, and bold to accent organization of report.

# TABLE OF CONTENTS



## APPENDICES

# Formatting

- Font (style, size)
- Paragraph
  - Alignment: left, center, right,
    justified (left and right)
  - Line spacing: adapts to size of font
  - Indentation: temporary setting of margins
    Format/Paragraph or Ruler
    Special indents
    First line indent
    Hanging indent
  - Tabs setting:
    Default every ½ inch
    Left, right, center and decimal
    Leaders (Format/Tabs/Leader)

# List of Illustrations

- may be on separate page
- number, title and page number
- separate the list of  tables and figures

Includes illustration titles as they appear in text.

# LIST OF ILLUSTRATIONS

# Executive Summary

- for decision makers
- free of technical jargon
- one page
- important conclusions and recommendations
- no reference to body of report
- paragraph format
- written last

## EXECUTIVE SUMMARY

Summarizes purpose and scope of report.

The City of Winslow hired McDuff, Inc., to perform a pollution study of Wildwood Creek. The section of the creek that was studied is a one-mile-long area in Burns Nature Park, from Newell College to U.S. Highway 42. The study lasted seven months.

Describes major findings and conclusions.

McDuff completed 13 tests on four different test dates. Wildwood scored fairly well on many of the tests, but there were some problem areas. For example, high levels of phosphates were uncovered in the water. The phosphates were derived either from fertilizer or from animal and plant matter and waste. Also uncovered were small amounts of undesirable water organisms that are tolerant to pollutants and can survive in harsh environments.

Includes main recommendation from report text.

McDuff recommends that (1) the tests done in this study be conducted two more times, through spring, 1997, (2) other environmental tests be conducted, as listed in the conclusions and recommendations section, and (3) a voluntary cleanup of the creek be scheduled. With these steps, we can better analyze the environmental integrity of Wildwood Creek.

# Introduction

- project description
  - physical setting, reasons for the study
- scope information
  - objectives, necessary details
- report format
  - preview of main sections

# INTRODUCTION

Gives lead-in to introduction.

McDuff, Inc., has completed a follow-up to a study completed in 1990 by Ware County on the health of Wildwood Creek. This introduction describes the project site, scope of our study, and format for this report.

Briefly describes project.

## PROJECT DESCRIPTION

By law, all states must clean up their waterways. The State of Georgia shares this responsibility with its counties. Ware County has certain waterways that are threatened and must be cleaned. Wildwood Creek is one of the more endangered waterways. The portion of the creek that was studied for this report is a one-mile stretch in the Burns Nature Park between Newell College and U.S. Highway 42.

## SCOPE OF STUDY

The purpose of this project was to determine whether the health of the creek has changed since the previous study in 1990. Both physical and chemical tests were completed. The nine physical tests were as follows:

Uses bulleted list to emphasize scope of activities.

- Air temperature
- Water temperature
- Water flow
- Water appearance
- Habitat description
- Algae appearance
- Algae location
- Visible litter
- Bug count

The four chemical tests were as follows:

- pH
- Dissolved oxygen (DO)
- Turbidity
- Phosphate

## REPORT FORMAT

Provides "map" of main sections in report.

This report includes three main sections:

1. Field Investigation: a complete discussion of all the tests that were performed for the project
2. Test Comparison: charts of the test results and comparisons
3. Conclusions and Recommendations

# Discussion Sections

- from facts to opinions
  - collect, verify and analyze data to develop recommendations
- headings and sub-headings
- listings to break up long paragraphs
- illustrations
- excessive details in appendices

# FIELD INVESTIGATION

Wildwood Creek has been cited repeatedly for environmental violations in the pollution of its water. Many factors can generate pollution and affect the overall health of the creek. In 1990, the creek was studied in the context of a study of all water systems in Ware County. Wildwood Creek was determined to be one of the more threatened creeks in the county.

The city needed to learn if much has changed in the past six years, so McDuff was hired to perform a variety of tests on the creek. Our effort involved a more in-depth study than that done in 1990. Tests were conducted four times over a seven-month period. The 1990 study lasted only one day.

The field investigation included two categories of tests: physical tests and chemical tests.

## PHYSICAL TESTS

Amplifies information presented later in report.

The physical tests covered a broad range of environmental features. This section will discuss the importance of the tests and some major findings. The Test Comparison section on page 8 includes a table that lists results of the tests and the completion dates. The test types were as follows: air temperature, water temperature, water flow, water appearance, habitat description, algae appearance, algae location, visible litter, and bug count.

### Air Temperature

The temperature of the air surrounding the creek will affect life in the water. Unusual air temperature for the seasons will determine if life can grow in or out of the water.

Three of the four tests were performed in the warmer months. Only one was completed on a cool day. The difference in temperature from the warmest to coolest day was 10.5°C, an acceptable range.

### Water Temperature

The temperature of the water determines which species will be present. Also affected are the feeding, reproduction, and metabolism of these species. If there are one or two weeks of high temperature, the stream is unsuitable for most species. If water temperature changes more than 1° to 2°C in 24 hours, thermal stress and shock can occur, killing much of the life in the creek.

During our study, the temperature of the water averaged 1°C cooler than the temperature of the air. The water temperature did not get above 23°C or below 13°C. These ranges are acceptable by law.

**Water Flow**

The flow of the water will influence the type of life in the stream. Periods of high flow can cause erosion to occur on the banks and sediment to cover the streambed. Low water flow can decrease the living space and deplete the oxygen supply.

The flow of water was at the correct level for the times of year the tests were done—except for June, which had a high rainfall. With continual rain and sudden flash floods, the creek was almost too dangerous for the study to be performed that month.

In fact, in June we witnessed the aftermath of one flash flood. Figure 1 shows the creek with an average flow of water, and Figure 2 shows the creek during the flood. The water's average depth is 10 inches. During the flash flood, the water level rose and fell 10 feet in about one hour. Much dirt and debris were washing into the creek, while some small fish were left on dry land as the water receded.

Incorporates graphic into page of text.

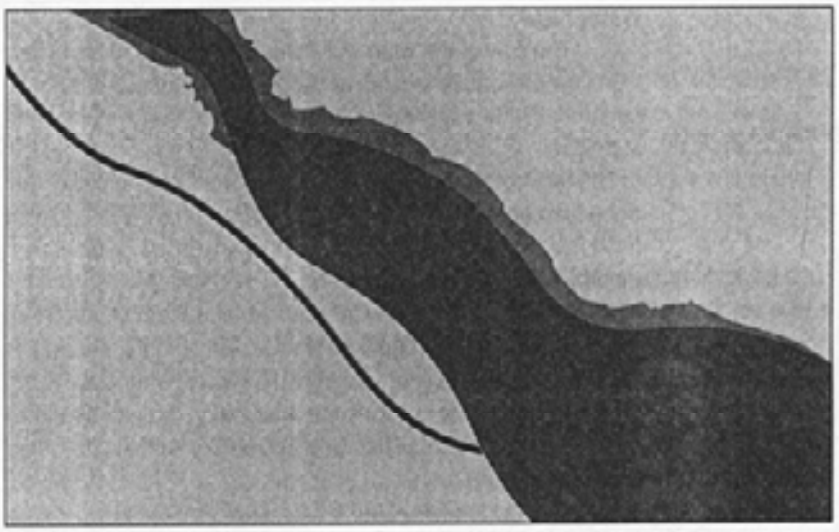


**FIGURE 2** Wildwood Creek—Flash Flood Water Level

Elaborates on importance of information shown in Table 1. Description parallels five items in table.

**Water Appearance**

The color of the water gives a quick but fairly accurate view of the health of the creek. If the water is brown or dirty, then silt or human waste may be present. Black areas of water may contain oil or other chemical products.

On each of the four test days, the water was always clear. Thus the appearance of the creek water was considered excellent.

**Habitat Description**

The habitat description concerns the appearance of the stream and its surroundings. An important criterion is the number of pools and the number of ripples—that is, points where water flows quickly over a rocky area. Both pools and ripples provide good locations for fish and other stream creatures to live and breed.

In describing habitat, McDuff also evaluates the amount of sediment at the bottom of the stream. Too much sediment tends to cover up areas where aquatic life lays eggs and hides them from predators. We also evaluate the stability of the stream banks; a stable bank indicates that erosion has not damaged the habitat. Finally, we observe the amount of stream cover. Such vegetation helps keep soil in place on the banks.

Wildwood Creek tested fairly well for habitat. The number of pools and ripples was about average for such creeks. Stream deposits and stream bank stability were average to good, and stream cover was good to excellent. For more detail about test results, see the chart in the Test Comparison section on page 8.

**Algae Appearance and Location**

Algae is naturally present in any creek. The amount of algae can be a warning of pollution in the water. If algae is growing out of control, disproportionate amounts of nutrients such as nitrogen or phosphate could be present. These chemicals could come from fertilizer washed into the creek. Excessive amounts of algae cause the oxygen level to drop when they die and decompose.

During the four studies, algae was everywhere, but it was especially heavy on the rocks in the ripples of the creek. The algae was always brown and sometimes hairy.

**Visible Litter**

Litter can affect the habitat of a creek. While some litter has chemicals that can pollute the water, other litter can cover nesting areas and suffocate small animals. Whether the litter is harmful or not, it is always an eyesore.

Gives specific details that support the report's conclusions and recommendations, which come later.

On all four test dates, the litter we saw was heavy and ranged from tires to plastic bags. Some of the same trash that was at the site on the first visit was still there seven months later.

**Bug Count**

The bug count is a procedure that begins by washing dirt and water onto a screen. As water drains, the dirt with organisms is left on the screen. The bugs are removed and classified. Generally, the lower the bug count, the higher the pollution levels. Bug counts were considered low to average.

Two types of aquatic worms were discovered every time during our count, but in relatively small amounts. In addition, the worms we observed are very tolerant of pollution and can live in most conditions. Finally, we observed only two crayfish, animals that are somewhat sensitive to pollution.

**CHEMICAL TESTS**

While physical tests cover areas seen with the naked eye, chemical tests can uncover pollutants that are not so recognizable. Certain chemicals can wipe out all life in a creek. Other chemicals can cause an overabundance of one life-form, which in turn could kill more sensitive animals.

A chart of results of chemical tests is included in the Test Comparison section on page 8. The chemical tests that McDuff performed were pH, dissolved oxygen (DO), turbidity, and phosphate.

## pH

The pH test is a measure of active hydrogen ions in a sample. The range of the pH test is 0-14. If the sample is in the range of 0-7.0, it is acidic; but if the sample is in the range of 7.0-14, it is basic. By law, the pH of a water sample must be within the range of 6.0 to 8.5.

For the tests we completed, the water sample was always 7.0, which is very good for a creek.

## Dissolved Oxygen (DO)

Normally, oxygen dissolves readily into water from surface air. Once dissolved, it diffuses slowly in the water and is distributed throughout the creek. The amount of DO depends on different circumstances. Oxygen is always highest in choppy water, just after noon, and in cooler temperatures.

In many streams, the level of DO can become critically low during the summer months. When the temperature is warm, organisms are highly active and consume the oxygen supply. If the amount of DO drops below 3.0 ppm (parts per million), the area can become stressful for the organisms. An amount of oxygen that is 2.0 ppm or below will not support fish. DO that is 5.0 ppm to 6.0 ppm is usually required for growth and activity of organisms in the water.

According to the Water Quality Criteria for Georgia, average daily amounts of DO should be 5.0 ppm with a minimum of 4.0 ppm. Wildwood Creek scored well on this test. The average amount of DO in the water was 6.9 ppm, with the highest amount being 9.0 ppm on November 11, 1996.

## Turbidity

Turbidity is the discoloration of water due to sediment, microscopic organisms, and other matter. One major factor of turbidity is the level of rainfall before a test.

Three of our tests were performed on clear days with little rainfall. On these dates, the turbidity of Wildwood Creek was always 1.0, the best that creek water can score on the test. The fourth test, which scored worse, occurred during a rainy period.

## Phosphate

Phosphorus occurs naturally as phosphates—for example, orthophosphates and organically bound phosphates. Orthophosphates are phosphates that are formed in fertilizer, while organically bound phosphates can form in plant and animal matter and waste.

Phosphate levels higher than .03 ppm contribute to an increase in plant growth. If phosphate levels are above 0.1 ppm, plants may be stimulated to grow out of control. The phosphate level of Wildwood was always 0.5 ppm, considerably higher than is desirable.

## TEST COMPARISON

There was little change from each of the four test dates. The only tests that varied greatly from one test to another were air temperature, water temperature, water flow, and DO. On the basis of these results, it would appear that Wildwood Creek is a relatively stable environment.

Brings together test results for easy reference.

**TABLE 1** Physical Tests

| TEST DATES | 5/26/96 | 6/25/96 | 9/24/96 | 11/19/96 |
|---|---|---|---|---|
| Air Temperature in °C | 21.5 | 23.0 | 24.0 | 13.5 |
| Water Temperature in °C | 20.0 | 22.0 | 23.0 | 13.0 |
| Water Flow | Normal | High | Normal | Normal |
| Water Appearance | Clear | Clear | Clear | Clear |
| Habitat Description | | | | |
| Number of Pools | 2.0 | 3.0 | 2.0 | 5.0 |
| Number of Ripples | 1.0 | 2.0 | 2.0 | 2.0 |
| Amount of Sediment Deposit | Average | Average | Good | Average |
| Stream Bank Stability | Average | Good | Good | Good |
| Stream Cover | Excellent | Good | Excellent | Good |
| Algae Appearance | Brown | Brown/hairy | Brown | Brown |
| Algae Location | Everywhere | Everywhere | Attached | Everywhere |
| Visible Litter | Heavy | Heavy | Heavy | Heavy |
| Bug Count | Low | Average | Low | Average |

**TABLE 2** Chemical Tests

| Test | 5/26/96 | 6/25/96 | 9/24/96 | 11/19/96 |
|---|---|---|---|---|
| pH | 7.0 | 7.0 | 7.0 | 7.0 |
| Dissolved Oxygen (DO) | 6.8 | 6.0 | 5.6 | 9.0 |
| Turbidity | 1.0 | 3.0 | 1.0 | 1.0 |
| Phosphate | .50 | .50 | .50 | .50 |

# Creating a Table

- Menu and toolbars/ruler
- Gridlines
- Moving around
- Entering text
- Selecting in a table (cell, row, column)
- Changing column width
  - Menu or ruler (column dividers)
- Adding/deleting rows and columns
- Merging and splitting cells
- Adding borders and shading

# Conclusions and Recommendations

- exhaustive list for technical and management readers
- conclusions and recommendations can be separate

# CONCLUSIONS AND RECOMMENDATIONS

This section includes the major conclusions and recommendations from our study of Wildwood Creek.

## CONCLUSIONS

Draws conclusions that flow from data in body of report.

Generally, we were pleased with the health of the stream bank and its floodplain. The area studied has large amounts of vegetation along the stream, and the banks seem to be sturdy. The floodplain has been turned into a park, which handles floods in a natural way. Floodwater in this area comes in contact with vegetation and some dirt. Floodwater also drains quickly, which keeps sediment from building up in the creek.

Uses paragraph format instead of lists because of lengthy explanations needed.

However, we are concerned with the number and types of animals uncovered in our bug counts. Only two bug types were discovered, and these were types quite tolerant to pollutants. The time of year these tests were performed could affect the discovery of some animals. However, the low count still should be considered a possible warning sign about water quality. Phosphate levels were also high and probably are the cause of the large amount of algae.

We believe something in the water is keeping sensitive animals from developing. One factor that affects the number of animals discovered is the pollutant problems in the past (see Appendix A). The creek may still be in a redevelopment stage, thus explaining the small numbers of animals.

## RECOMMENDATIONS

On the basis of these conclusions, we recommend the following actions for Wildwood Creek:

Gives numbered list of recommendations for easy reference.

1. Conduct the current tests two more times, through spring 1997. Spring is the time of year that most aquatic insects are hatched. If sensitive organisms are found then, the health of the creek could be considered to have improved.
2. Add testing for nitrogen. With the phosphate level being so high, nitrogen might also be present. If it is, then fertilizer could be in the water.
3. Add testing for human waste. Some contamination may still be occurring.
4. Add testing for metals, such as mercury, that can pollute the water.
5. Add testing for runoff water from drainage pipes that flow into the creek.
6. Schedule a volunteer cleanup of the creek.

With a full year of study and additional tests, the problems of Wildwood Creek can be better understood.

# APPENDIX A

## Background on Wildwood Creek

Wildwood Creek begins from tributaries on the northeast side of the city of Winslow. From this point, the creek flows southwest to the Chattahoochee River. Winslow Wastewater Treatment Plant has severely polluted the creek in the past with discharge of wastewater directly into the creek. Wildwood became so contaminated that signs warning of excessive pollution were posted along the creek to alert the public.

Today, all known wastewater discharge has been removed. The stream's condition has dramatically improved, but nonpoint contamination sources continue to lower the creek's water quality. Nonpoint contamination includes sewer breaks, chemical dumping, and storm sewers.

Another problem for Wildwood Creek is siltration. Rainfall combines with bank erosion and habitat destruction to wash excess dirt into the creek. This harsh action destroys most of the macroinvertebrates. At the present time, Wildwood Creek may be one of the more threatened creeks in Ware County.

# APPENDIX B

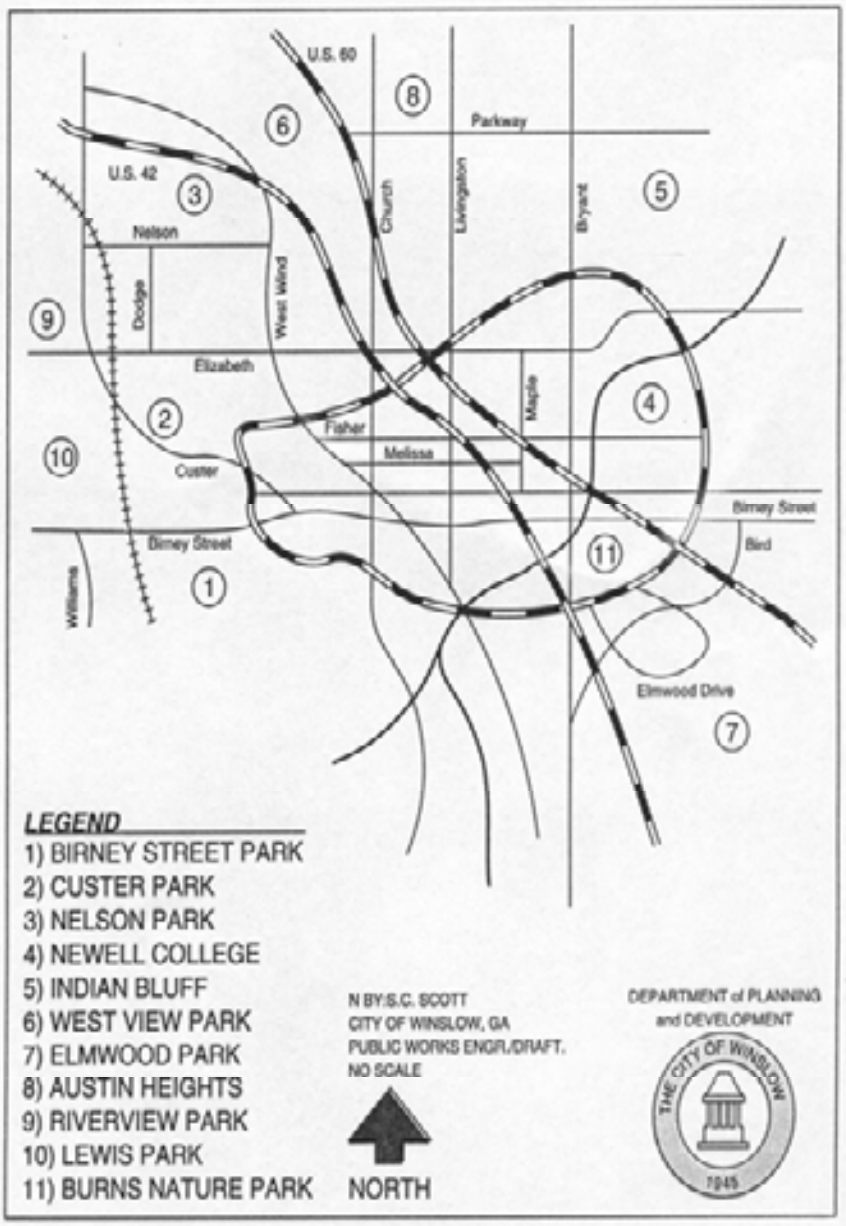
## Water Quality Criteria for Georgia

All waterways in Georgia are classified in one of the following categories: fishing, recreation, drinking, and wild and scenic. Different protection levels apply to the different uses. For example, the protection level for dissolved oxygen is stricter in drinking water than fishing water. All water is supposed to be free from all types of waste and sewage that can settle and form sludge deposits.

In Ware County, all waterways are classified as "fishing," according to Chapter 391-3-6.03 of "Water Use Classifications and Water Quality Standards" in the Georgia Department of Natural Resources *Rules and Regulations for Water Quality Control*. The only exception is the Chattahoochee River, which is classified as "drinking water supply" and "recreational."

## APPENDIX C

**Map 6**
**Location of City of Winslow**
**Parks and Recreation Facilities**



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