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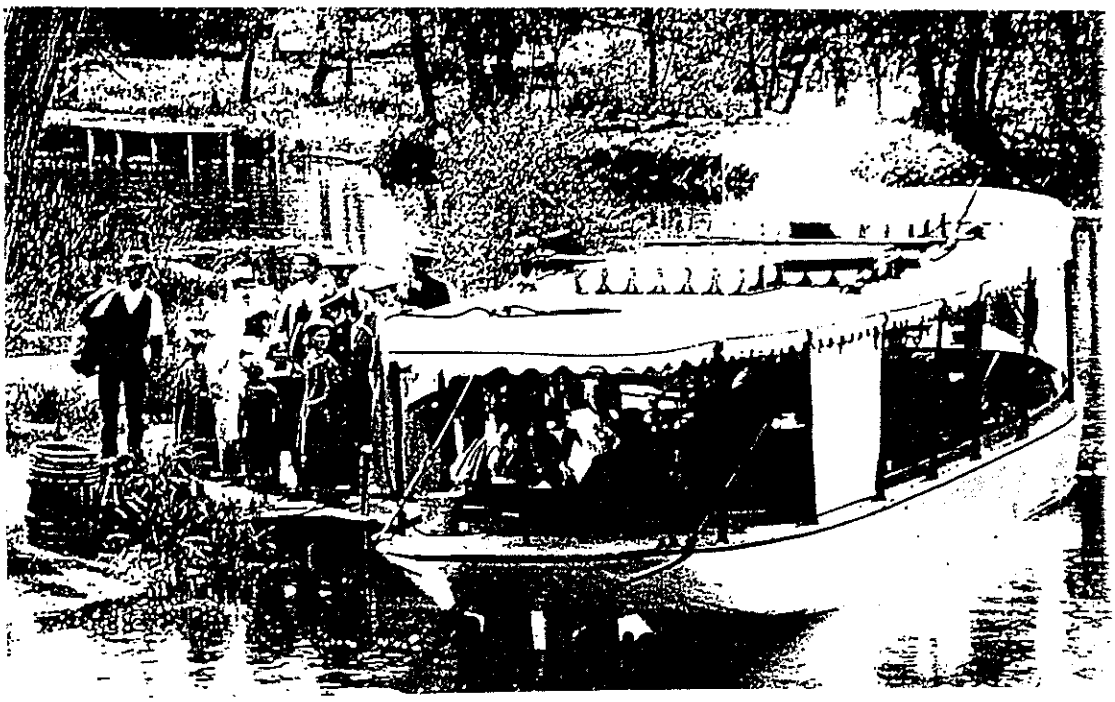
The Pelican River Navigation Restoration Project



An Undergraduate Thesis submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Landscape Architecture

by Steven Wayne Iverson

The Pelican River Navigation Restoration Project

AN UNDERGRADUATE THESIS SUBMITTED TO THE FACULTY OF
THE DEPARTMENT OF ARCHITECTURE
AND LANDSCAPE ARCHITECTURE

BY
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF BACHELOR OF LANDSCAPE ARCHITECTURE

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TABLE OF CONTENTS

I. INTRODUCTION

The Northern Pacific train from Fargo huffed to a stop, and hot, tired men, women and children gratefully piled out of the train and into three seated buggies waiting by the station.

Their luggage was loaded speedily, and the team of horses started on a familiar route south through the town to a dock on Detroit Lake, where the passengers happily boarded a steamship. Eager with anticipation, the tourists relaxed as the whistles blew, mooring lines were cast off and the "Lady of the Lake" moved smoothly out into the lake.

An hour later, carefree with the dust and dirt and noise of the city forgotten, the passengers disembarked at Shoreham for a weekend at the lakes, mingling with the crowds who had come for the daily mail.

Those scenes were duplicated on many summer days between 1890 and World War I, a period which saw the summer resort and tourist business expand from a few cottages to the thriving role it plays today in the economy of this Becker County Seat.

Excerpt from the July 18, 1954 edition of the Fargo Forum

Between 1890 and 1918, when The Pelican River Navigation Company was running daily excursions, Lake Sallie was inaccessible by any other means, and was thought of as wilderness. That was a part of the experience people coming here wanted to have, to get away from the noise and dust of the city and relax.

The automobile spelled the death of the Navigation Company because it was much faster at getting people to the vacation areas. At that time, technology was advancing at a rapid rate, and people were anxious to advance with it, making our society hunger for faster and easier ways of doing things, leaving a simple and relaxing experience like the one previously mentioned to history.

However, I feel this advancement of our culture has come back around full circle, to the point where people would welcome the opportunity to slow down and have a chance to relax at their own pace. The relaxing experience of traveling down the Pelican River one hundred years ago is still replicable today. Although a good share of the area has become developed, there are still portions of the system left intact that reflect the wilderness feeling that attracted people here 100 years ago, thus affording the opportunity to recall the relaxing feeling people riding down the river had then.

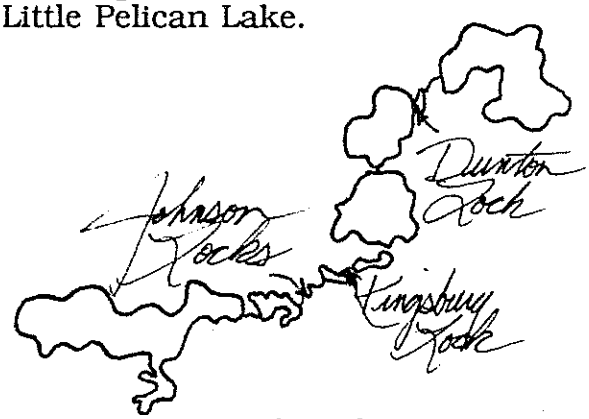
II. SITE HISTORY

In the summer of 1882 a group of Detroit Lakes businessmen, headed by Frederick W. Dunton, had an ambitious plan to open a new water route from Detroit Lakes to Pelican Lake, and on to Breckenridge. The plan was to widen the river channel of the Pelican and Otter Tail rivers and

build locks for steamboat traffic. The Detroit Lake and Pelican River Slack Water Navigation Company was formed with $250,000 in capital stock, but nothing was ever done to implement the plans.

That was until 1888 when a new group consisting of John K. West, George Hamilton, and Jeff Irish incorporated the Pelican Valley Navigation Company. On September 1st,work commenced building a small dam at the outlet of Detroit Lake to stop the river's flow. This permitted dredging of the channel to Muskrat Lake.

Building the waterway was no small task. The Pelican River was a shallow, crooked stream which had to be dredged to become navigable. The dredging had to be done with scrapers, shovels, and wheelbarrows. Locks also had to be constructed to raise or lower the boats from one elevation to another. The Kingsbury lock (at Buck's Mills) had a 12 foot drop and was the biggest of the three locks in the water course. The Dunton Lock with a 5'11" drop between Muskrat Lake and Lake Sallie was the first lock built. The third lock, called Johnson locks, with a two foot drop, was located a half a mile up the Pelican River from Little Pelican Lake.



After the Dunton Locks were completed between Muskrat Lake and Lake Sallie, the "Lady of the Lake", a wood burning, twin propelled steamship made its maiden trip on July 25, 1889 from Detroit Lake to Lake Sallie. This proud boat continued daily service until 1902, when it ended up in the "bone yard" at the bottom of Muskrat Lake. Many of the other steamboats followed a similar fate. The remains can still be seen when the water is low. During World War II, the scrap iron was stripped from all the boats to aid in the war effort.

Some of the later boats included the "Mayflower", "Waterwitch", "Shoreham", "Dakota", "Robert Fulton", and the "Pelican".

Business was booming for the Pelican Valley Navigation Company. In 1891 more than 4,000 people made the round trip from Detroit Lakes to Shoreham on Lake Melissa. This success encouraged John West to extend his waterway south of Lake Melissa to a point on the river known as Buck's Mills. As previously mentioned, Kingsbury Lock had a 12 foot drop. It took until 1908 to build Kingsbury Lock due to large rocks and sticky clay in the channel.

Captain West's dream of opening Pelican Lake up to tourists finally was realized on July 8, 1908 when he piloted the "Waterwitch" through the channel and into Little Pelican Lake.

The terminal of the Pelican Valley Navigation Company on Little Pelican Lake was on the

southwest side of the lake at Pelican Inn, for many years a famed summer spot. Here the passengers were transferred to smaller boats and then taken on to different locations on Big Pelican Lake.

At the height of operations, the Pelican Valley Navigation Company had three boats making the trip daily from Detroit Lakes to Pelican Lake, with stops at Dunton Locks, Fairhaven, Shoreham, and Buck's Mills. Operation of these boats was not always an easy task. To keep the channels open, John West had to keep a floating dredge in operation continuously.

In the summer the boats were a means of daily contact with the outside world. The average boat carried 35 to 40 passengers, luggage, freight, and mail. Besides the fact that the boats opened Pelican Lake to the outside world, they also opened up the outside world to Pelican Lake. Local residents could depart from Pelican Lake and be in Detroit Lakes in three hours. The trip cost only 50 cents including a meal stop at Shoreham on Lake Sallie.

Special vacation trains were set up by the Northern Pacific Railroad to bring passengers into Detroit Lakes from the Dakotas, Northwest Minnesota, and Manitoba. There were 14 passenger trains a day. Buggies always met the trains and carried the vacationers to the docks on Detroit Lake where the passengers boarded one of the steam boats.

The automobile brought the death of the Pelican Valley Navigation Company about 1918. The boats were too big and slow to compete with the horseless carriages. Some of the old steamboats were dismantled and hauled away. Others vanished beneath the waves of Muskrat Lake, leaving only memories of this colorful period of the Pelican River.

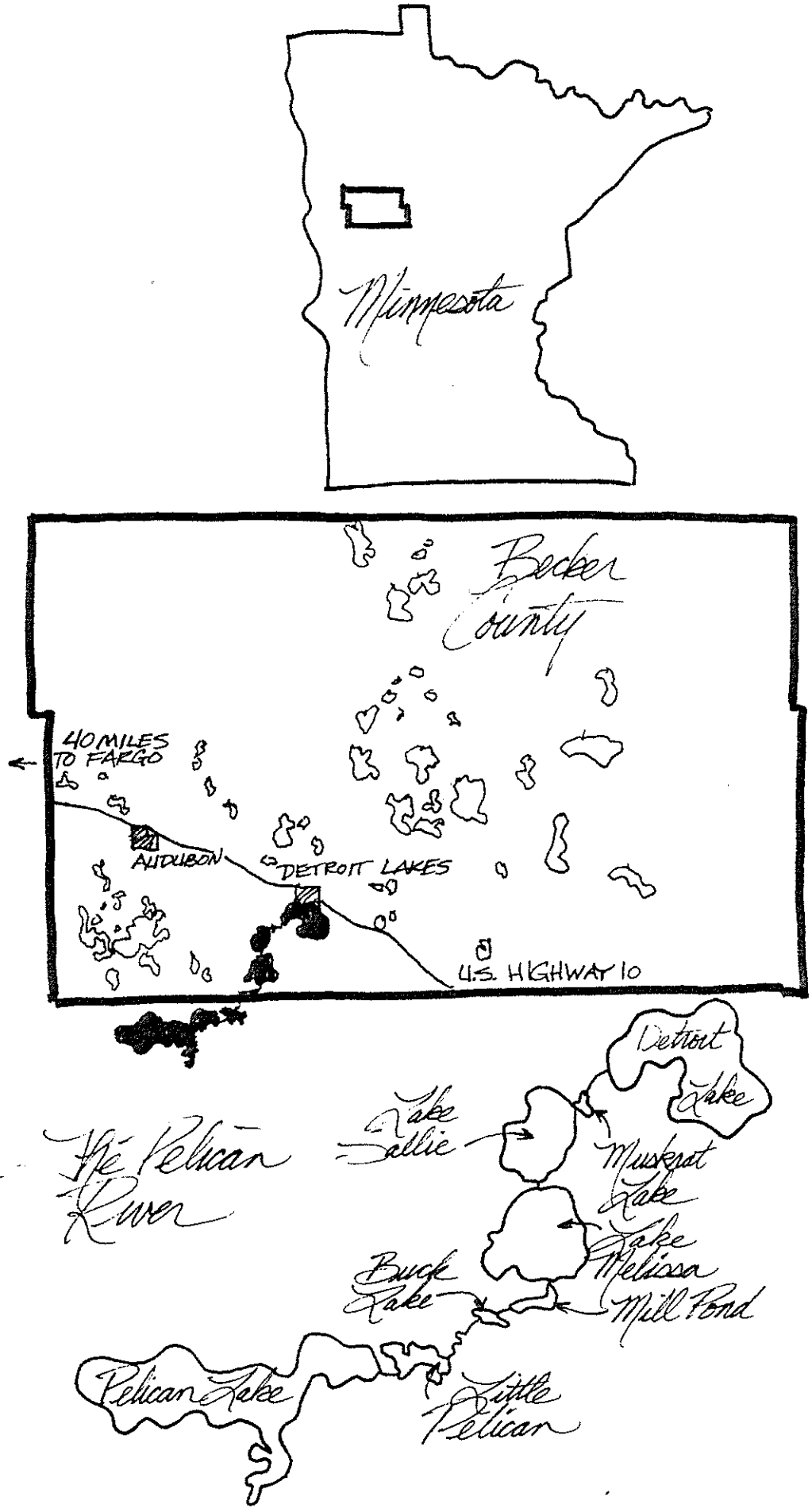
III. SITE LOCATION

(Refer to the map on the next page.)

The origin of the corridor is at the west outlet of Detroit Lake, in the city of Detroit Lakes, Minnesota. Detroit Lakes is 45 miles east of Fargo, ND, and approximately 240 miles northwest of Minneapolis/St. Paul.

For the most part, the remainder of the river lies in Lake View Township of Becker County, Minnesota. The southern portions of the chain lie in Pelican Lake Township of Ottertail County.

The site is a portion of the Pelican River corridor, nearly 10 miles long that runs through five large lakes and two less significant ones. For the purpose of this project and the need to specify a limit of development, the 300 foot width either side of the river that is under the jurisdiction of the Shoreland Management Act will become the project limits. This act holds limitations on all waterways in the state.


Minnesota
Becker County
40 MILES TO FARGO
AUDUBON
DETROIT LAKES
U.S. HIGHWAY 10
Detroit Lake
Lake Sallie
The Pelican River
Muskrat Lake
Lake Melissa
Buck Lake
Mill Pond
Pelican Lake
Little Pelican

IV. PROJECT DESCRIPTION

The Pelican River Navigation System was an entrepreneurial endeavor thats main purpose was the provision of a place for city dwellers to come and relax. People visiting here in the late 1800's to early 1900's viewed the area south of Detroit Lakes as "the wilderness", and were attracted here by the opportunity to experience that. The following paragraphs illuminate the critical issues that pertain to the restoration of the system.

First is the topic of historic restoration, in the sense that this system has not fully functioned for over 75 years. By investigating the sites rich history and analyzing it's present state, I should be able to generate a plan proposal that may or may not be identical to the system that existed 100 years ago. In other words, the history may be reflected in some portions in an updated element, or it may be respected in areas where time has made it appropriate for that particular element to be left as it is. The important issue in restoring this system is to restore the feelings the users had when they used the past system. As a designer, it is my hope that the system as a whole will give a full spectrum of recreational activities, from passively viewing natural habitats, to waterskiing and fishing. It is possible to experience a site for what it was even though it may not be in the perfect image of how it was. One of the things that can be done to accomplish this is to identify the modern users and what each one would specifically need to add to their enjoyment of the system as a whole. Therefore, this becomes a modern day recollection of relaxation and recreation, as much as it is of a waterway. However, the design vocabulary of what relaxation meant to the old system and what it means to the present may be different. In 1900, people appreciated the opportunity to simply enjoy their surroundings for what they were. Today, the same place will have to appeal to a variety of expectations, not just people who enjoy the pure surroundings but people needing gasoline, food, and entertainment. It is my intention that the relationship between the "old" and "new" is respectful of the old, by maintaining the contextual continuity of any area that becomes developed for new uses. Again, this does not necessarily mean restoring elements to their former condition, rather to be aware of and bring attention to what they were.

In conjunction with the active recreational opportunities associated with the waterway, there is a great opportunity to interact with the site through historic and natural elements. There are occurrences and elements found along the course of the river that should not be permitted to simply vanish from existence. Two examples of these occurrences are the fact that the channel between Detroit Lake and Muskrat Lake was dredged specifically to permit boat traffic, and the modern day rules and regulations

implemented by the Department of Transportation which could be interpreted and effectively illustrated in the river corridor. The recognition of and successful integration into the new system of these old elements is paramount to recalling the "spirit" of the old system.

Finally, there is the issue of conserving the natural habitats adjacent to the river. What this means is that any built element will attempt not to disturb the surrounding land any more than necessary, but will still be able to fulfill the needs of the users in that space.

V. PERSONAL OBJECTIVES

My initial proposal called out four specific objectives. The overall scope of the project has led to the refinement of these four into two more specific wishes for what I wish to accomplish through the completion of this project.

First, I hope to enhance my general knowledge by researching historical restoration projects. This will aid in my understanding of what the real issues of restoration are, and this understanding will hopefully in turn lead to a more carefully considered plan than one that would simply take the remnants of the system and put them back together without any sensitivity to their real significance or economic feasibility.

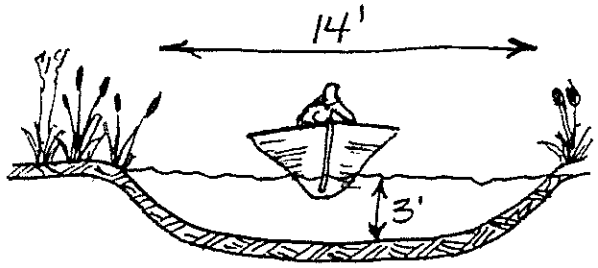
Secondly, I expressed the need to explore low impact construction techniques. This along with careful placement of built elements will help present a sensitive design solution that caters to the human user and preserves the natural environment. To further support that, I should be able to identify areas that may be more sensitive than others, and avoid development through those areas.

VI. PROJECT OBJECTIVES

1. Restore the Pelican River to the point where it is again possible to drive a boat between Detroit Lake and Pelican Lake.

A. Definition of Navigability as it pertains to the river:

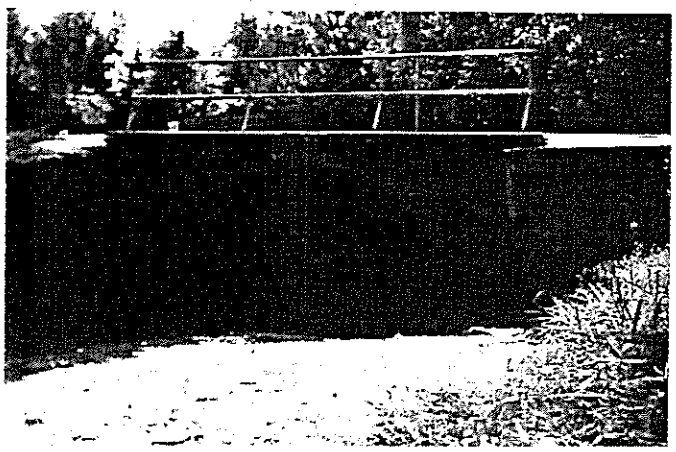
For the purpose of this project, it will be assumed that any channel at least 3 feet deep and 14 feet wide will be considered navigable. This will allow virtually all recreational watercraft up to 24 feet in length to pass through the channel, although it may not allow two vessels of this size to pass each other. This is not a great concern, however, as the channel varies greatly in it's overall width and two way passing will always be within visual distance.



2. Control runoff and erosion.
3. Enhance tourism in the Detroit Lakes area.

Above all, the main objective of this project is to restore the Pelican River Navigation system to the point where it is possible to ride in a boat from Detroit Lake to Pelican Lake.

Many things presently prevent this from happening. First of all is the bridge in Shoreham Village. Built in the Depression era, it only permits flow of the river through a large culvert. Smaller boats are able to pass, but an average family runabout is not. Secondly is the fact that Lake Sallie is nine inches higher than its neighbor Lake Melissa. When the river was fully operational, the channel was continually dredged to facilitate passage.



Next, the highest hurdle is that of Buck's Mills, where there was a large dam constructed for flour milling many years ago.

Finally, there are the remnants of a loch just northeast of Little Pelican Lake that may need to be resurrected.

Each one of these obstacles becomes a design problem by itself. Each have different engineering requirements, and each have differing contexts in which they lie. I will address each one in terms of its historical significance and the economic feasibility of what approach to take in solving the problem. In conjunction with that, I will be able to make recommendations on the aesthetic quality of each of the elements.

The wish to control runoff and erosion, and ultimately enhance water quality along the corridor may take a secondary role in the completion of this project, because after further investigation I have concluded that the determination of what areas get developed and what type of development takes place becomes more of a priority.

The objective of enhancing tourism in the Detroit Lakes area will be addressed by incorporating activities along the corridor that appeal to a broad range of users. These groups include tourists, people that live along the chain of lakes, fishermen,recreation enthusiasts, and nature lovers. Some areas will remain more natural, inviting people seeking a more passive and relaxing surrounding to them, while other places will entice people to actively participate within them. To summarize, the river will have more to attract people to it than simply allowing them to travel between the different lakes. In a sense, it becomes a convenient thoroughfare in a city.

VII. BUDGET ANALYSIS

A vast share of the funding for the

project will have to be privately donated. Therefore, the top priority of rebuilding the system is to increase public awareness of it. This could be done by holding dances, potluck picnics, flea markets, or any other attraction that would call attention to the cause while raising money for it. The Pelican River Navigation Restoration Association is a non-profit organization formed with the intent of someday restoring the river to be able to travel between Detroit Lake and Pelican Lake. They collect donations for this purpose and could also easily undertake the organization of events.

Corporate sponsorship is another option. Large corporations would receive sizable tax break incentives for donating to a historical restoration project such as this. Portions of the site could be named in honor of the entity that sponsored its reconstruction as an added incentive. Incidentally, the owners of one of the area's hottest summer bars and one of the area's fastest growing manufacturing companies are each strongly in favor of the project and may be the first such sponsors.

There is also the possibility of receiving tax money from Becker County, if the system can prove itself as a genuine draw for their tourism industry.

The system could very likely attract new, outside parties simply looking to make money by capitalizing on the movement of tourists and residents along the river. This could be by investing in the amenities that will further act in attracting people here, elements such as a restaurant, resort, bar, food shop, or the like.

Phasing of the project becomes a simple matter because of the budget constraints. It only becomes possible to make another portion of the river navigable as sufficient funds become available to do so. If it ever did happen that there was an amount large enough to raise the question of what to do next, the reconstruction follows the river's path south.

VIII. CASE STUDIES

Case study 1:
Clay, Grady (Vol. 66, No. 3, 1976, May) Whose time is this Place? Landscape Architecture, pp. 217-218.

This essay addressed the pitfalls of historical restoration projects as a whole. The reoccurring question is if a historical element should be returned to the point in time when it was constructed, or should it reflect changes in taste and use over time.

The essay goes on to give reasons why projects of this kind often fail. They are as follows:

1. Poor on site excavation practices destroy all existing evidence.
2. People simply are out to make the most out of a site for its current value, with little regard to its past.
3. The developer failed to get help from specialists and

outside forces to help identify problems and possibilities.

From there, more positive points are made. The writers feel that the finished project should explain the process of how the original element evolved into its present use with the changing of time. It also makes it clear that it is impossible to exactly recreate a site to how it may have been 200 years ago. However, it is possible to restore them to a moment in time that will protect its basic structure and intent.

Reaction:

I chose this article to gain an understanding of restoration in a broad sense versus a specific solution. When I begin schematic design, I will have to explore whether the corridor is reconstructed exactly how it was, how it would be done today, or somewhere in between. Now I feel there should be a balance because our past is too valuable of a commodity to lose. On the other hand it is also important that we are cognizant of the fact that we have changed as a society over time, and reflect that in the design. It must have appeal to the people, if not, the restored will become deceased again.

Case Study II:
(Vol. 78, No. 7, 1988, November), Doris Ranch Development Plan, Landscape Architecture, pp. 52-55.

Problem: The problem was to generate a facility development plan that recognized and protected the sites historic resources while incorporating a park and recreation district to make the site available for general use.

Concept: The overall idea was to increase public awareness of local agricultural history. To begin the Landscape Architects divided the site into management zones that reflected a foal of the project and also required a different design or management strategy from the others. They included visitor support, administrative and maintenance, historic, and environmental resource zones. Although the zones bordered on one another, it was their intent that each one would not intrude on the other while encouraging a diversity of visitors that could each enjoy the site in their own way.

Reaction: There is a great deal of similarity between this plan and my project. The concept of defining definite zones is something I felt may be appropriate, and now I am more convinced that it makes sense because my corridor possesses portions that are contextually entirely different from the area that adjoins them. Different areas of my site can support different activities from the others, and to identify each will be important because appealing to a variety of visitors is a goal of the project. Therefore, a high level of continuity will be necessary to make this channel read as "a" place, and not a series of places, making it a ribbon of experiences.

Case Study III:
Howlett, Catherine, (Vol. 77, No.

4, 1987, July/August), Second Thoughts, Landscape Architecture, pp. 52-55.

This article looks at the actual appropriateness and value of restoration and preservation projects. It states the following: "No one would put new arms on the Venus de Milo, yet in landscape conservation we mostly practice to fill in the appropriate materials even when documentation is lacking." This means that a project may simply use modern technology to magically resurrect something from mere fragments.

Reaction:

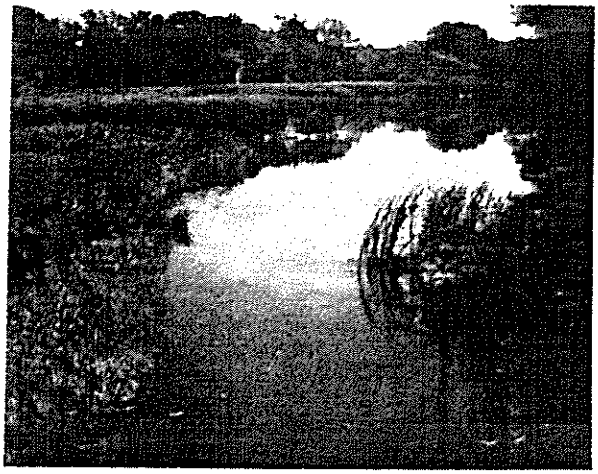
A restoration project is more than rebuilding the elements and making it look the way it did when it was functioning. Therefore, I must consider what the feelings and meanings were when the canal was operating. The canal was a victim of advancing technology, but that technology is inversely going to give it its life back. (The canal was built to provide a place of relaxation and enjoyment, the car made it faster and easier to get to the lake, and now our desire to get out of the car and slow down will justify restoration.)

IX. SITE INVENTORY AND ANALYSIS

The portion of the Pelican river that will be addressed in this project begins at the outlet of Detroit Lake, running east to Muskrat Lake, through Dunton Locks into Lake Sallie and into a narrow channel on Sallie's south side. This channel spills out into the north side of Lake Melissa, and is picked up again on the south side where the channel widens into what is known as Mill Pond. Mill Pond is formed by a large dam at a place known as Buck's Mills, where the river pours over the dam, into a short, narrow stream, and into Buck Lake. The river continues on its way south from here into the northeast edge of Little Pelican Lake, and eventually into Big Pelican Lake, which is the ultimate destination of this restoration.

Although it is the "Pelican River", in a singular tense, there is a diversity of cultural and natural surroundings along the corridor, making for a variety of experiences for a potential user. These can be divided into three broad typologies, one being rural or no development in nature, two is moderate residential development, and three is intensive residential and commercial development.
The rural, or no development areas are simply that, rural. This does not detract from their importance in the context of the site as a whole, however. These areas offer the chance to experience natural habitats up close, to sit and enjoy a quiet, secluded spot, and generally promote a relaxed feeling with this seclusion. When the navigation company was operating, the oasis that drew people here was this idea of relaxing. So, these areas become very important in recalling the feelings of the old system. Some of the design implications associated with this typology are

how to permit people to interact with these natural areas without destroying them, and also determining where it is appropriate to implement this area of interaction.



The moderately developed or residential areas refer to those portions of the site where the natural course of the river is interrupted by an area of activity, whether it be a park or an area of housing along the shore of a lake. They do not however present any commercialized elements like a restaurant or grocery store. Basically, they are areas where the river and man coexist without either one taking precedent over the other. As a designer, I will have to determine which elements demanded by the user groups can be implemented in these areas without detracting from the unique aesthetic quality that these areas possess.

Finally are the areas of intense residential and/or commercial development. These are the areas where places such as restaurants, bars, hotels, and other commercial establishments are found. Since every user group will likely require some form of commercial service, it is logical that the implementation of these services will be found within these areas as to not disturb the other two, and also enhance the attractiveness of the existing facilities found in these areas.

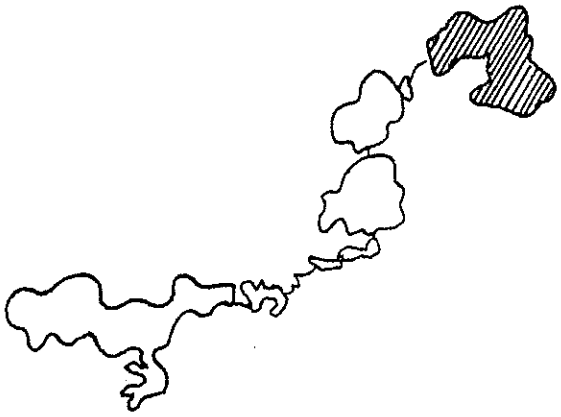
The characteristics of these surroundings become more meaningful if you look into the site further. As previously mentioned, the Pelican River is not a river in the way most people preconceive, but is a connection between various bodies of water. It is easier to think of this idea in terms of "lakes and links", with the areas between the lakes becoming the link to the rest of the system.

The following paragraphs analyze each of these lakes and links as an individual part of the system as a whole. Each are explored in terms of its associated uses, or its landscape typology; its functionality to the system as a whole in terms of what its attraction is and if it is presently

navigable; constraints set upon it by various laws and regulations; and finally a visual analysis

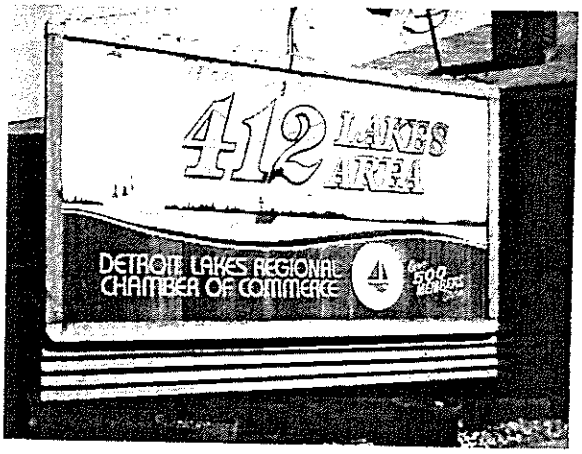
LAKES AND LINKS

1. **Detroit Lakes and Detroit Lake**



1.1 Land Use/Landscape Typology

Detroit Lake is obviously considered intensely developed and commercialized because of the numerous amenities offered to people in the area. On Detroit Lake itself there are no less than four restaurants/bars, six hotels or resorts, two time share condominium complexes, and a broad palette of recreational opportunities. Helping add to the controlled chaos of the city beach is a large marina that rents powerboats, sailboats, and just about anything else that floats. This may become the starting point of further development of a marina facility that could offer guided tours or chartered cruises. Whatever a tourist or person could possibly want or need from a recreational perspective is offered on or near the waterfront of Detroit Lake.



1.2 Functionality to the system and consumers

Detroit Lake is the epitome of recreation. For starters, it is billed as the sunfish capital of the world, attracting fishermen from all over the country to its shores to have a chance at catching a few of these little fighters. The lake is also associated with more active recreation. The annual water carnival attracts thousands of spectators for a boat parade, ski show, and fishing tournament, among many other activities. The area is also an annual mecca for people of all ages on the Fourth of July. If they are not there for the water or activity, they are there just to celebrate life with their fellow man. The winter months do little to slow down the activity associated with the lake. Small villages of ice fishing houses sprout up on the lake long before Christmas, giving their owners a retreat from the dreaded cabin fever. Snowmobilers flock to the lake also, as it is the head of a trail that ultimately leads northeastward to the Chippewa National Forest and Itasca State Park. Cross country skiers can also find a generous offering of trails in and around the area.

As far as the navigability of Detroit Lake is concerned, there is

farms, making it rural or undeveloped compared to the rest of the corridor.

2.2 Functionality to the system and consumers

In its present state, it is possible to go from Detroit Lake to Muskrat Lake without any restrictions except the height of the passage under Highway 59 may impede vessels over 10 feet in height, which might pose a minor problem for a few larger pontoons. It does not possess any built element to attract a consumer to it, but its natural setting helps to create an environment more conducive to relaxation.

2.3 Cultural and Manmade Influences

As stated, this area has little in the way of manmade influences pertaining to it. However, the natural habitats surrounding this portion of the river call for preservation as a result of our society realizing the importance of saving such environments from the grips of civilization.

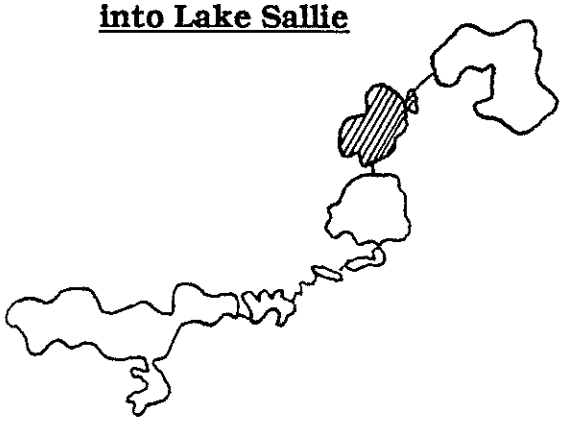
2.4 Design Constraints

The Pelican River falls under the heading of General Development, whose limitations and others are discussed in the technical information section.

2.5 Visual analysis

Although this portion of the river begins in the city limits of Detroit Lakes, it has a very rural look and feel to it. Once you exit from the openness of Detroit Lake, you enter into an almost confining channel of the river. Surrounded on both sides by tall grasses, reeds, and trees, your view is somewhat limited other than to where you are going or where you have been. This natural setting helps evoke a sense of seclusion and relaxation to a person traveling through this portion of the system.

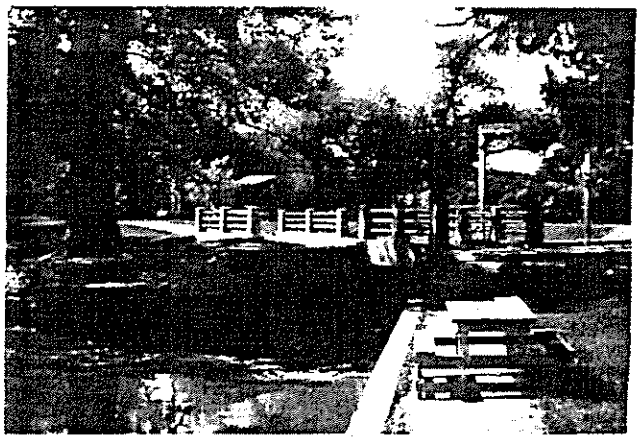
3. **Muskrat Lake and the link into Lake Sallie**



3.1 Land Use/Landscape Typology

Presently, this area carries the rural look and theme found in the link between here and Detroit Lake, but integrates activity into it, therefore making it medium development in terms of what type it is because man is utilizing the rivers edge for his uses. This entire portion of the site is known as Dunton Locks County Park. People coming here are

able to utilize picnic shelters, nature trails, or maybe visit the Department of Natural Resources Headquarters that is located here at the dam between Muskrat Lake and Lake Sallie.



3.2 Functionality to the system and the consumers

Dunton Locks no longer serves as a lock permitting boat passage, so there has recently been a tram constructed between Muskrat and Lake Sallie to perform this feat. Although not very aesthetically pleasing, it does serve its function well, and is more economical than reconstructing the remnants of the lock already there. Visitors would be attracted to this portion of the system because of the opportunity to interact with nature and the seclusion it offers so close to civilization.

3.3 Cultural and manmade influences

The biggest cultural influence on this portion of the system is the park. People are coming here to enjoy the natural beauty that the park affords, not necessarily to participate in any active form of recreation. The Department of Natural Resources headquarters also may be able to have a more active role in enhancing the interpretive nature of the park. Somewhere on the bottom of Muskrat Lake is the "bone yard" of the ships that traveled the system 100 years ago, adding another place for educational interpretation of a historic element

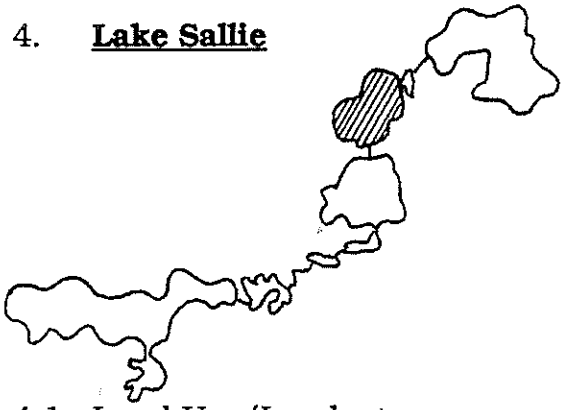
3.4 Design Constraints

Muskrat Lake is considered a Natural Environment lake, whose guidelines are addressed in the technical information section.

3.5 Visual Analysis

The area in and around Muskrat Lake has the same rural feel of the channel preceding it, but provides broader views than simply where you are going and where you have been. From any point on the shore of Muskrat, one can look across the water and see a background of dense deciduous forest. Looking straight west, you catch a glimpse of the horizon of trees on Lake Sallie. The view back east is mostly filled with vegetation, but does give way to a look at Highway 59. You still are enclosed, but not to the extent of the channel leading into here.

4. **Lake Sallie**



4.1 Land Use/Landscape Typology

I will consider Lake Sallie to be moderately developed because there are not a great deal of commercialized uses associated with it. Although the shore is solidly filled with residential development, the lack of resorts makes it only moderate in comparison to Detroit Lake's level of development.

4.2 Functionality to the system and consumers

Lake Sallie is entirely navigable by boat. Its attractiveness is in its fine fishing and ability to permit other forms of recreation on it.

4.3 Cultural and Manmade Influences

Lake Sallie was one of the first lakes in the Detroit Lakes area to have development of vacation homes or cabins where the owner did not live all year. This is evident today in the wide variety of homes along the beach. Some stand much as they did 100 years ago, except with fresh paint, while some are modern year-round homes that are worth several thousand dollars. This variety of homes can be used as an analogy to people because there is a great variety in views of what the river means to them as there is a great variety of lake homes.

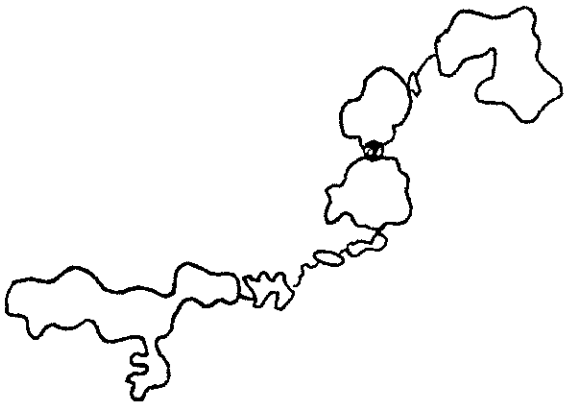
4.4 Design Constraints

Lake Sallie falls under the heading of General Development, see the technical section.

4.5 Visual analysis

Lake Sallie has always been one of the regions most recognizable lakes. This may be because it is a stereotypical Minnesota lake, having tree lined shores and sandy beaches running around it. However, this is the first place that the openness of Detroit Lake has been recalled, giving the viewer a panorama of a wide horizon, as opposed to the enclosure found in the two previous areas.

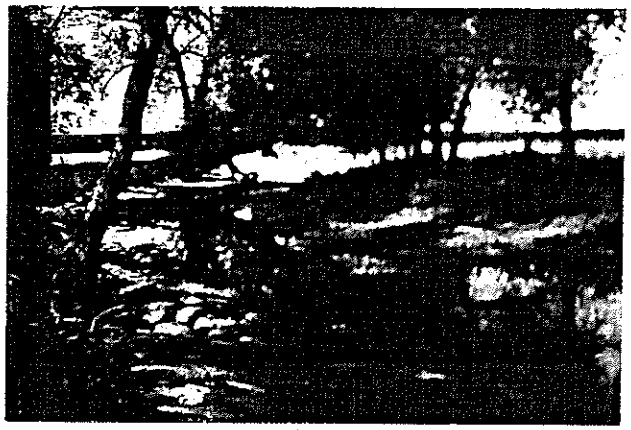
5. **Shoreham Village**



5.1 Land Use/Landscape Typology

Present day Shoreham is a small, yet busy village. It has a restaurant/bar that is only open during the summer months, a grocery store, craft and gift shop, a gas station and service garage, and a small convenience store

that sells bait and rents boats during the summer. The high level of residential development found along the lakes also continues through here along the channel of the river. All of these factors make Shoreham Village intensely developed and commercialized.



5.2 Functionality to system and consumers

This is the first place where progress through the Pelican River chain is impeded. The river channel through here was continually dredged when the Navigation company was operating, but there was no lock built. This problem of an unnavigable channel is compounded by a low bridge built over the river in the 1930's. To allow boat traffic between Sallie and Melissa, both of these problems will have to be addressed. The lock at the outlet into Lake Melissa was not part of the Navigation Company's efforts in the 1890's, however it may become a usable element in the new channel.

However, the village does fulfill its needs to the consumer by providing places to get food and other necessities.

5.3 Cultural and Manmade Influences

This is closely related to the functionality of the area. Because man built the bridge too low over the river through Shoreham, there is a need to address changing it to restore the entire system. There is also the question of whether or not dredging the channel here would be an accepted practice today, although the preliminary proposal of restoration in 1980 did not bring any definite opposition. There also are remnants of a lock not associated with the original Navigation Company at the outlet into Lake Melissa.

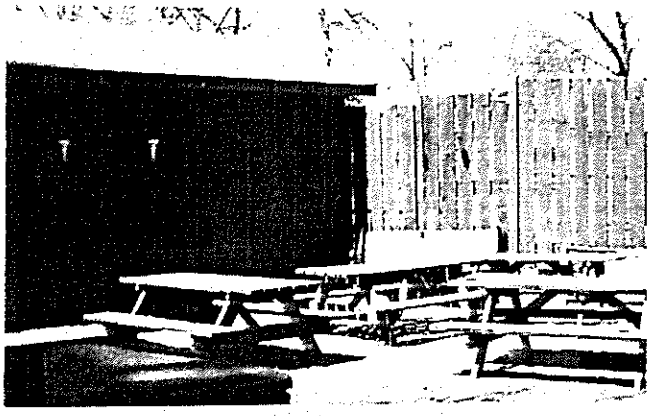
5.4 Design Constraints

Again, the river channel itself is considered General Development. Beyond that however, there are a large amount of historic elements still standing here that will demand more attention when designing any new facilities, in order to ensure the visual integrity of the present facilities are enhanced or at least maintained.

5.5 Visual Analysis

Even though every building surrounding the river at Shoreham may not be from the exact era of when boats passed through here, it still has a very historic look about it. The village emulates the early 1900's main street quite well, with the general store, the hitching post (gas station), and the saloon (Hotel Shoreham). The river passage itself is quite dark and solemn, with large trees blocking

out the suns light, and enclosing you again. Hotel Shoreham has close proximity to the water's edge, but does not do anything remotely close to taking advantage of it by having a small outbuilding and fence blocking the view into the present outdoor patio.



6. **Lake Melissa**

Also refer to the analysis of Lake Sallie, as the two lakes are virtually identical in every analyzed heading.

6.1 Land Use/Landscape Typology

I will consider Lake Melissa as moderately developed because there are not a great deal of commercialized uses associated with it. Although the shore is solidly filled with residential development, the lack of resorts makes it only moderate in comparison to Detroit Lake's level of development.

6.2 Functionality to the system and consumers

Lake Melissa is entirely navigable by boat. Its attractiveness is in its fine fishing and ability to permit other forms of recreation on it.

6.3 Cultural and Manmade Influences

Much like Lake Sallie, Melissa was also one of the first lakes to have development of vacation homes where the owner did not live all year. this is evident today in the wide variety of homes along the beaches. some stand much as they did 100 years ago, except with a coat of fresh paint, while some are modern year-round homes that are worth several hundred thousand dollars.

There is a rather non significant, but intriguing historic occurrence on Lake Melissa. The story goes that on a late fall day one year while the system was operating, possibly 1889 or 1890, a boat returning from Pelican Lake got caught in a storm here. The fire feeding the steam engine got knocked out from waves pouring over the sides of this ship, rendering the vessel helpless. In order to slow the sinking, the crew had to throw all the cargo overboard, which included a large amount of soda pop in bottles that have not been found to this day.

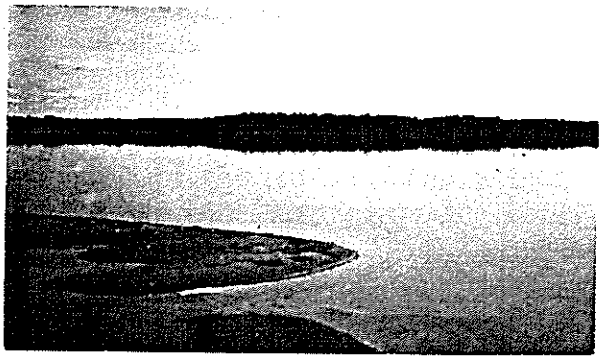
6.4 Design Constraints

Lake Melissa falls under the

heading of a General Development Lake by the Becker County Zoning Commission. See the technical section for further details.

6.5 Visual Analysis

Lake Melissa is also one of the areas most recognizable lakes. It also has tree lined shores and sandy beaches running around its perimeter. The enclosure of Shoreham Village is relieved by regaining the open feeling that the lake affords.



7. Buck's Mills Lakes and Links

7.1 Land Use/Landscape Typology

This widened area of the Pelican River is undeveloped and rural with the exception of the small bar/restaurant located adjacent to the dam. Mill Pond (the portion of the river just before the dam), is very similar to the first stretch of the river out of Detroit Lake, with dense vegetation surrounding you on both sides.

7.2 Functionality to the System and Consumers

The dam here is the second great obstacle needing to be addressed to permit boat passage through the entire chain. Since it is a 12 foot drop, the problem might not be addressed in the construction of a tram system similar to the one in Dunton Lock's Park, as the layout of the rails for the tram may be as difficult as putting a train track through the mountains.

The appeal to the consumer is not only the natural surroundings, but also to the secluded bar. This small, non publicized place could benefit from the exposure it would get if it were a stopping point of people going from lake to lake in the summer.

7.3 Cultural and Manmade Influences

Buck's Mills is similar to Shoreham Village in the respect that the manmade elements have caused the river to become

unnavigable, in this case a dam and a bridge too low for passage contribute to the problem.

It is also similar to Shoreham in historic significance, but the evidence of this history has vanished long ago. During the late 1800's a large sawmill did a thriving business out of Buck's Mills. The only existing element of that era is the dam, which powered the mill. There could be an opportunity to recall the look of the mill in a building to house a new restaurant and bar.

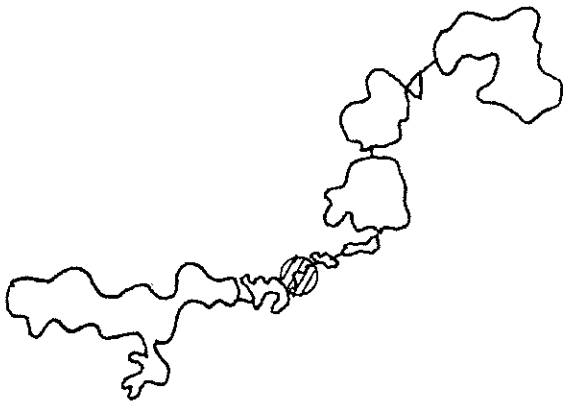
7.4 Design Constraints

The grade change the dam creates is the largest limitation on what could happen in this portion of the site. Once a boat gets through here and to Buck Lake, the engineering problems become much easier to address. As before, the river is considered General Development, but Mill Pond and Buck Lake are classified as Natural Environment Lakes.

7.5 Visual Analysis

This portion of the river is definitely the most natural looking. The shoreline is wildly overgrown with tall grasses, blending into the reed beds at the waterline, giving it an almost virgin look. The secluded feeling that the vegetation brings is compounded here by the awareness that you are in fact quite far from any sort of city environment. The gravel roads running into the dam area also enhance the rural look and feel of this portion of the system.

8. The Remainder of the River to Little Pelican Lake



8.1 Land Use/Landscape Typology

This final run of the river into Little Pelican is virtually identical to the first leg between Detroit Lake and Muskrat Lake. Only farm and pastureland surround the river's channel. Therefore, it is considered rural and undeveloped.

8.2 Functionality to the System and Consumers

Although I have not personally navigated the channel between Buck Lake and Little Pelican Lake, I am going to assume that it is navigable on the basis of my visual assessment.

The majority of the people that would be attracted to the experience they could have here would be those seeking refuge

from the rest of the commercialized world, which is consistent with the first portion of the system, and moreover, the original intent of the system itself, to be a refuge.

8.3 Cultural and Manmade Influences

There are not any man made structures or elements to dictate the direction of the design of this portion may take. Again, it may want to retain its present character to add to the feeling of relaxation sought when cruising in a boat from lake to lake.

8.4 Design Constraints

Again, the only things restricting what could happen here are the guidelines for General Development, set forth by the Department of Natural Resources and The Becker County Zoning Administration.

8.5 Visual Analysis

Again, as mentioned before, the vegetation on either side of the channel encloses you and makes it seem as if you are the only person who has ever been back in this area.

Vegetation:

As you may have assumed, the diversity in vegetation along the site is great. There are varieties of forest species, prairie grasses, wetland species, and aquatic plants too numerous to list. Their specific genus and species is secondary to the importance of being able to minimize the disruption of the habitats in which they live, in my design.

Some of the more commonly found tree varieties include Green Ash, Bur Oak, American Linden, Quaking Aspen, and Smooth Sumac. There are also examples of the relatively rare Black Willow along the nature trail.

The wetland and aquatic habitats include bullrushes, grasses, sedges, spikerushes, pickerelweed, and pondweeds, and cattails, to name a few.

Wildlife:

The diversity in wildlife follows the diversity in plant habitats. Numerous varieties of fish, birds, and mammals inhabit the wetlands, water, and sky.
A few of the most readily notable animals would be the whitetailed deer, beaver, muskrat, owls, herons, loons, northern pike, and sunfish.

Site Accessibility by Car:

Presently, the site can be visited by car, by accessing the following points:

US Highway 34 winds its way

along the east site of the river corridor, with access points into the site itself. Some of these access roads are; Becker County 22, which also crosses the river near Detroit Lakes; Becker County 19, which goes directly in and out of Dunton Locks County Park; County 108, that links east west between Sallie and Melissa, and also County 147 on the south edge of Melissa. A gravel township road winds its way through the Buck's Mills area, with its bridge also being an element of concern. The final point where roads cross the river before Pelican Lake is Ottertail 20, just south of Buck Lake. Since all lakes and links are accessible, no new access points will be necessary.

All of these points serve as restrictions of the river for navigation, with their narrow openings, or low clearances, with the exception of County 19. County 19 does not cross the river, but does run parallel to it, making it quite a scenic drive. It is also favorable in the way that it slows traffic down to speeds where people can react to the movements of pedestrians that may be using the park. This is by far the best point to access the system by car for this reason.

X. USER ANALYSIS

There is not a specific user group for this project. Instead, the final use will appeal to a wide variety of people. Each group and their respective requirements are identified below.

The proposed user groups of the new system are the following:

1. **Fishermen**, as each lake in the chain is known to have people fishing on them throughout the year.
2. **Recreational enthusiasts**, because as previously stated Detroit Lakes is a gathering point of such activities. The large lakes on the chain also provide such an environment.
3. **Residents and cottage owners** become a given user, as they have no choice but to be on part of the system.
4. **People interested in nature** will use the site because of the diversity in habitats made available to them. This will mostly occur in the links between the lakes.
5. **Out of state tourists** will be use the system purely on the basis of its unique qualities if nothing else. As previously stated, it is a thoroughfare providing a ribbon of experiences.

I feel theses groups are rather obvious, but there does not seem to be any evidence pointing to any other main heading of user. These groups were chosen on the basis of my first hand knowledge of the area and lakes.

USER NEEDS

1. **Fishermen** will have the desire for the following amenities.
   - A. Ease of physical access between lakes and the ability to do it quickly.
   - B. A place to buy bait and tackle.

C. A place to buy food.
D. A place to buy gas.
E. Access to resorts along the system.
F. Good fishing.
G. A place to park a trailer.
H. Access into the system by ramps.
I. Docks or slips at various places.
J. They will want the ability to experience different types of fishing. For instance, there is the opportunity to fish open water on any of the lakes, or their may be the chance to work the shoreline of a reed bed in a secluded area of the river channel itself.
K. It would also appeal to them to see their license fees at work through game management and things like warning signs for rocks and shallow water.
L. Safety.

2. **Water sport enthusiasts** will want:
   A. Ease of access between lakes and the ability to do it quickly.
   B. Clearly marked access points between the points of entry and departure on each lake.
   C. A place to buy gas.
   D. A place to buy food.
   E. Access to resorts along the system.
   F. Areas to prepare equipment.
   G. A shore area to serve as a social space, or drop off point.
   H. Access into the system by ramps.
   I. No limits on activities in the water areas of the system.
   J. Shallow water signs.
   K. Safety.

3. **Residents and cottage owners** need:
   A. Access to place of entertainment.
   B. The ability to visit friends on other lakes along the system.
   C. Exposure to a different experience along the system. They would be interested in discovering things like where the river actually leads, and what those areas look like.
   D. A place to buy gas.
   E. A place to buy food.
   F. Safety.

4. **Naturalists** will want to see:
   A. Sensitivity to the existing natural environment.
   B. The ability to access other habitats.
   C. An interpretation of natural elements to expose others to the beauty of nature.
   D. A place to rent a boat to further explore the channel.
   E. Parking.
   F. Safety.

5. **Out of state tourists** will require:
   A. A place to rent boats.
   B. The opportunity to experience a chartered ride or guided tour.
   C. Places to buy food.
   D. Access to entertainment

or activity.

E. The chance to experience the whole site and gain an understanding of the different elements and habitats it offers.
F. Parking at points where access into the corridor is possible by not going by boat
G. Safety

Although I have not had the opportunity to survey the residents and users of the lakes along the chain, I do feel that the greatest number of users of the system will be the residents along the system. This is simply because of the high level of development along the shores of the lakes Detroit, Sallie, Melissa, and Pelican would not allow any other group to import a number of people greater than their existing numbers.

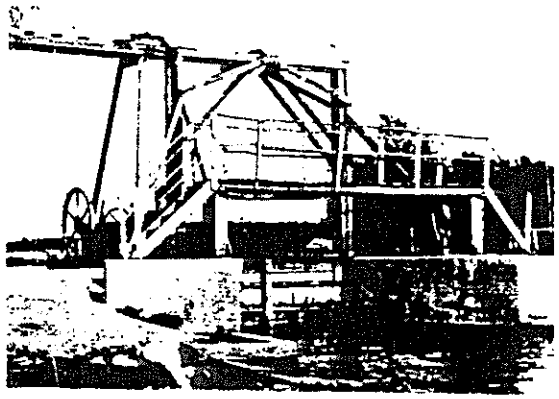
However, I do foresee the fishermen being the largest imported group because the Pelican River chain is one of the most commonly fished areas in the region. Each lake along the chain is presently a destination, but if there could be accessibility between all of them, their attractiveness would be enhanced even more because their would no longer be the task of loading up the boat to go to another lake, one would just drive there by water.

Here is a list of needs common to at least 3 of the 5 named user groups.

1. The ability to have unimpeded access between lakes in the chain.
2. A place created at a point of interest, natural or historic.
3. A place to buy food.
4. A place to buy gas.
5. Parking associated with boat ramps or areas to give accessibility without traveling to that point by boat.
6. An interpretive program for a further understanding of what the site was historically and its present state.
7. Safety becomes a given for boat and other vehicular traffic associated with the users.

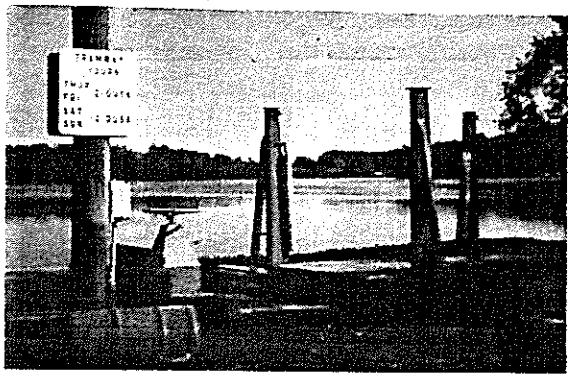
XI. PROGRAM ELEMENTS AND SPATIAL REQUIREMENTS

Loch systems: Due to the elevation difference between certain crucial areas, these are a crucial piece to solve the puzzle of being able to navigate the river. Each loch must be able to accommodate a vessel 12 feet in width, 24 feet in length, and a draft of 3 feet.



Tram system: These trams are an alternative solution to locks in

solving navigability. Presently,a tram operates between Muskrat Lake and Lake Sallie. It is a simple system where a watercraft drives onto a submerged platform under its own power, shuts off the motor, and waits for the operator to flip the switch that will turn the pulleys and cables that bring the platform across dry land on rails. This railed system is approximately 7 feet across, and length varies depending on the topography surrounding the area where it is built (steeper slopes mean greater distance). These are also significantly more economical than locks. However it has the drawbacks of being less than aesthetically pleasing, and it also has a substantial amount of impact on the strip of land it is built upon, especially during construction.



Interpretive gathering points: These are areas along the corridor that are identified as having enough natural or historic significance to have the opportunity to interpret them. They should be able to handle up to 20 people at any one time.

Walking paths: Since this is a corridor of water, large open lakes interfere with the opportunity to have a large interconnected path throughout the length of it. However, each portion of the river, where it runs through open land, will have a need for pedestrian circulation.

Gas Station: As a need of fishermen, recreational enthusiasts, and residents, this should be able to accommodate both boats and cars as clients. It should have no less than two pumps for cars and one for boats.

Convenience Store: This store will require the capacity to hold at least 15 people plus stock at a time. The biggest requirement is that food is readily available, not necessarily the quality.

Boat Slips: These should be able to accommodate boats up to 24 feet in length and 12 feet in width. This will accommodate all but possibly 10-15 large boats on Pelican Lake and obviously not Detroit Lake's Island Girl cruise ship, which is 65 feet long.

Parking: This will be determined based on site specific needs and conditions. Therefore, requirements are as needed.

XII. TECHNICAL INFORMATION

Becker County Zoning Administration guidelines for General Development Lakes

Frontage: 100 feet
Lots size: One half acre
Building setback from high water mark, to not include shelters or dock structures: 75 feet
Sewage disposal setback: 50 feet

Building permits and sewer

permits:

No person shall erect, alter, repair or move any building and or sewer or part thereof without first securing a building and/or sewer permit except that agricultural buildings shall be exempt, and except that no permit shall be required for an alteration provided no alterations are made to the external dimensions of the building.

Application for a building and/or sewer permit will be made to the Becker County Zoning Office on blank forms to be furnished by the County. Each application for a permit to construct or alter a building and/or sewer shall be accompanied by a Plan drawn to scale showing the dimensions of the lot to be built upon and the size and location of the building and/or sewer. Applications for any kind of building and/or sewer permit shall contain such other information as deemed necessary for the proper enforcement of the Becker County Ordinance or any other. The Zoning Administrator shall issue the building and/or sewer permit only after determining that the Plans, together with the application, comply with the terms of the Becker County Ordinance.

Permitted Uses:

Uses as defined in the Becker County Zoning Ordinance as Permitted in a Zoning District.

Conditional Uses:

Conditional use means a Land Use or Development as defined by the Becker County Ordinance that would not be appropriate generally but may be allowed with appropriate restrictions as provided by Official Controls upon a finding that certain conditions as detailed in the Becker County Zoning Ordinance exist, the Use or Development conforms to the Comprehensive Land Use Plan of the community and the Use is compatible with the existing neighborhood.

Accessory Uses:

A Use clearly incidental or accessory to the Principal Use of a lot or a building located on the same lot as the Accessory Use.

Yard, area and lot width and depth regulations:

Front yard setback of not less than:
85 feet from right of way of State Highway.
110 feet from right of way of an Expressway or four lane highway.
Not less than 115 feet from center line of a County Road.
Not less than 78 feet from center line of a township road.

There shall be a minimum interior side yard for buildings to include docks or other appurtenances projecting into Public Waters of ten feet.

There shall be a minimum rear yard setback having a depth of not less than 40 feet.

There should be a building setback of at least seventy five feet from the Normal High Water Mark.

Structures and extensions into public water services shall not be permitted beyond a distance greater than one third the lakeshore lot with, and in no case shall such structural extensions be greater than one hundred feet.

Every lot or plot of land on which a one family dwelling is erected shall have a minimum width of not less than one hundred feet at the building setback line (road right-of-way) and a minimum lot depth of not less than one hundred fifty feet.

Regulations:

A. Cornices, canopies or eaves may extend into the required front yard a distance not exceeding four feet six inches.
B. Fire escapes may extend into the required front yard a distance not exceeding four feet six inches.
C. A landing place or uncovered porch may extend into the required front yard to a distance not exceeding six feet if the landing place or porch has its floor no higher than the entrance floor of the building. An open railing no higher than three feet six inches may be placed around such places.

Normal High Water Mark:

Means a mark delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape. The Normal High Water Mark is commonly the point where the natural vegetation changes from predominantly terrestrial to transitional reeds and tall grasses.

Highwater elevation:

The following minimum setbacks for each class of public waters shall apply to all structures except boat houses, piers, and docks:

A. On Natural Environment Lakes and Streams, at least 200 feet from Normal High Water Mark.
B. On Recreational Development Lakes, at least 100 feet from the Normal High Water Mark.
C. On General Development Lakes, and also the river channel itself, at least 75 feet from the Normal High Water Mark.

Lot of Record:

All lots which are a part of a subdivision legally recorded with the County Recorder or the Registrar of Titles, and lots described by metes and bounds, the deed to which has been recorded in the office of county Recorder or the Registrar of Titles prior to March 2, 1976, and in separate ownership from abutting lands, shall be considered to be Lots of Record and shall thereby be considered a legally buildable lot even though such lot may not conform to the minimum requirements of the Becker County Zoning Ordinance.

In Shoreland Areas, the lot must be in separate ownership from abutting lands and all sanitary and dimensional requirements of the Ordinance are complied with insofar as practical. When adjacent substandard parcels are in the same ownership, they shall be joined into one parcel and

shall no longer be allowed as individual building sites.

Sideyard requirements on a Lot of Record shall conform as near as possible to the requirements of this Ordinance. In such cases where compliance is not possible, a side yard requirement equal to ten percent of the lot width at the building line shall be required on each side of the lot, but in no case shall side yards be less than five feet.

Excavation/Land Alteration:

Grading, filling, excavations, and tree removal shall not be done to the property without first consulting the Becker County Zoning Administrator.

Becker County Zoning Administration Guidelines for Natural Environment Lakes

Frontage: 200 feet.
Lots size: Two acres.
Building setback from High Water Mark: 200 feet.
Sewage Disposal Setback: 150 feet.

All other guidelines previously addressed in general development are identical.

Wetland Types and Definitions:

As previously mentioned, the river corridor possesses a substantial area of land that is considered to be wetlands. A goal of this project is to avoid developing these areas, but at the same time allow a level of human interaction that will permit increased awareness of wetlands value and beauty.

My visual inventory of the river corridor discovered that there are three different types of wetlands readily identifiable in the areas adjacent to the river channel itself and in the lakes it runs through. Again beginning at Detroit Lakes, the edge of Detroit Lake has areas of Type 5, blending to 4, and finally Type 3 at the shore where the lake empties into the river; the channel between Detroit and Muskrat contains Types 3 and 4; Muskrat is predominantly Type 5; Lake Sallie has all three; Shoreham has some examples of Type 3; Lake Melissa is similar to Sallie by having all three; the Mill pond has areas of three and four; the channel from Buck Lake to Little Pelican has all three, as do Little and Big Pelican Lakes.

Type 3:

Inland shallow fresh marshes. Soil is usually waterlogged early during growing season; often covered with as much as 6 inches or more of water. Vegetation includes grasses, bullrushes, spikerushes and various other marsh plants such as cattails, arrowheads, pickerelweed and smartweeds. These marshes may nearly fill shallow lake basins or sloughs, or may border deep marshes on landward side. Also common as seep areas on irrigated lands.
They are classified as seasonally flooded or semipermanently flooded water regimes.

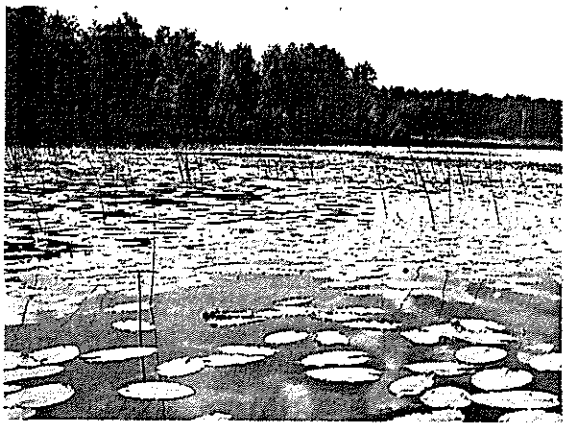
Type 4:

Inland deep fresh marshes. Soil is usually covered with 6" to 3' or more of water during the growing season. Vegetation includes cattails, reeds, bullrushes, spikerushes, and wildrice. In open areas, pondweeds, nalads, coontail, watermilfoils, waterweeds, duckweeds, waterlillies, or spatterdocks may occur. These deep marshes may completely fill shallow lake basins, potholes, limestone sinks and sloughs, or they may border open water in such depressions. They are considered to be semipermanently flooded, intermittently exposed, or permanently flooded.

Type 5:

Inland open fresh water. Shallow ponds and reservoirs are included in this type. Water is usually less than 10 feet deep and fringed by a border of emergent vegetation similar to open areas of Type 4.

They are classified as intermittently exposed or permanently flooded.



The most pertinent information from the Becker County Zoning Ordinance is Detroit Lake and Shoreham Village are C-1, Commercial Recreation, and Lakes Sallie and Melissa are both R-3, Lakeshore Residential.

Further reference to these zoning restrictions can be found in the Becker County Zoning Ordinance manual.

Conclusion:

Obviously, the task ahead is far from simple. Aside from the sheer size and scope of this

project, there are a variety of other considerations and problems that will influence the final design. Some of them include financing, land ownership, zoning regulations, and the Department of Natural Resources definitions and limitations of each area. I foresee the next five months progressing , in a large part, through the following process. First, I have to identify what areas presently are function by my definition of navigability, and also what specific elements (i.e. dams and bridges) impede progress. After that is accomplished and the needed structures are proposed, I will effectively have a "functional" masterplan of the system. In conjunction with that, I will further analyze each lake and link to determine which programmed uses can be appropriately developed in each of those areas. Then, I will have an "activities" masterplan which will no doubt obviously point out an area or many areas where a great deal of modification will take place. These areas will then become the detailed design areas, in which I hope to be able to actually get to the point of specifying materials and design of individual elements, as contextual continuity is of utmost importance in completion of this project.

In parting, I would like to say that I am more realistic than optimistic in my feelings of whether my plans would ever be considered in the restoration of this system. As with all things, economics often hold us back from doing what is appropriate or right. In the case of this project, the Pelican River Navigation System is what opened this area up to settlement and development, and ultimately the tourist attraction it is today. For that reason alone, it should be saved. However, the economic feasibility of reconstructing bridges and building locks and dams may be more than a hindrance, but a detriment. Therefore, I am hoping that the "fruits of my efforts" may be seen by influential people that have or could have interest in such an important endeavor, and they then use their influence to get the ball rolling again on resurrecting this system.

XII.THESIS SCHEDULE

December

Su	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

December 2-19 Further collection of site information. Preparation and assembly of written program. Generation of needed sketches and maps

December 20 Program due to primary critic at 4:30 P.M.

December 21-January 5, 1992 Christmas break

January 1992

Su	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

January 6 - 17 Further graphic preparation of site inventory and analysis

January 15 Presentation of program to classmates.

January 18 Begin conceptual design.

February

Su	M	T	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

January 27 Preliminary presentation of concepts.

January 28 Begin refinement of concept into masterplan

February 20 Final presentation of Masterplan and determination of areas of detailed development in spring quarter.

March

Su	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February 25-28 Finals

February 29-March 10 Band Tour

March 11 Begin detailed design of determined areas. Each area will ideally get 10-14 days of attention.

April

Su	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

April 6 Preliminary presentation of detailed development.

May

Su	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Note: In addition to these specified dates, there will be at least one weekly meeting with my primary critic to evaluate progress.

May 4 Project due at 4:30 P.M.

May 5 Thesis Exhibit in Memorial Union

May 11 Final review

May 19-22 Final exams

May 22 Thesis document due in Departmental office by 4:30 P.M.

May 23 Graduation

XIV. BIBLIOGRAPHY

Magazines:

1. Clay, Grady (Vol. 66, No.3, 1976, May), Whose time is this place? The emerging Science of Garden Preservation, Landscape Architecture, pp. 217-218.

2. Fitch, James (Vol. 66, No. 3, 1976, May), Preservation Requires Tact, Modesty and Honesty among Designers, Landscape Architecture, pp. 276-280.

3. Howett, Catherine (Vol. 77, No. 4, 1987, July/August), Second Thoughts, Landscape Architecture, pp. 52-55.

4. No author (Vol. 78, No. 7, 1988, November), Doris Ranch Development Plan, Landscape Architecture, pp. 62-63.

5. Little, David (1980, July), Dunton Locks County Park, Emphasis 412, pp.10-17.

Newspapers:

1. Martin, George (Vol. 6, No. 8, 1985, Winter), The Pelican River Waterways, The Otter Tail Record, pp. 1-4.

2. River Lock System Holds Key to Plan, (1985, August), Pelican Lake News, pp. 1,4.

3. A pleasant trip, (1892, June 30), Detroit Lakes Free Press, pp. 2.

4. Sveen, Lloyd, (1954, July 18), Steamboats Had Big Part in Shoreham Area Development, Fargo Forum, pp. 10.

5. Paine, Sylvia, (1980, August 31), Memories of Dunton Locks prevail, Fargo Forum, pp. C-1, C-11.

Miscellaneous:

1. Becker County Zoning Administration Waterfront Development Guidelines.

2. Department of Natural Resources Regulations for Waterfront Development.

3. Department of Natural Resources Division of Waters Wetland Types and Definitions.

4. Becker County Zoning Ordinance.

5. The Becker County Historical Society.

Personal Interview:

TeVogt,Clem,(1991,September), Telephone Interview.

Merritt, Bob, (1992, March), Telephone Interview