SECTION VI - WATER MANAGEMENT ISSUES AND GOALS

The Board of Directors has developed the following list of issues and goals that it feels are imperative for the long-term success of the Company. Issues are first presented and discussed, with a goal for each issue listed at the end of the discussion. Section VII then presents "Candidate Measures" which have been identified by the Board of Directors to meet the goals listed below.

Issue I-1: Deteriorated and Outdated Water Diversion Dams and Other Project Structures

Diversion Structures

Several of the diversion structures utilized to divert water to each system pond are in need of repair and/or upgrade. As the demands on the systems have increased over the past 20 years, the ability of many of our current diversions to accurately measure and distribute the water has become inadequate.

The Company's management would like to upgrade as many of our diversion structures as possible to incorporate more accurate and automated water-measuring and reading devices. This will most likely be accomplished with grant money or by utilizing cost sharing from available programs.

The Company's current diversion structures and measuring devices are also very labor intensive for the water-master. Upgrading these structures to incorporate more automated and easier reading apparatuses will assist the Company long term.

Creek Crossings

Several creek crossings must be made by the Company's water-master to divert and measure water. These crossings should be upgraded to create a safer environment for crossing.

PRV Structures

The Company has several pressure-reducing stations that are concrete constructed and approximately 4-feet deep. There have been instances of domestic animals falling in with no ability to get out. Covers need to be installed at these stations to provide a safer environment for both people and animals.

➢ Goal G-1: Bring existing diversion dams and other project structures to current technology and standards.

Issue I-2: Lack of Adequate Storage and Regulation Capacity

Freeman-Allred Pond

As previously mentioned in this management plan, the Company at one time had the rights to build an approximately 400 acre-foot storage reservoir to store spring runoff for use later in the season during low water availability. The Company would now like to explore the feasibility of building this storage reservoir. As the Company has significant challenges with the current demand on the available water, it is believed that this could help solve many of these problems.

Pond Enlargements

As many of the regulating ponds were not originally constructed to the maximum capacity allowed for these types of ponds, management would like to look into the feasibility of enlarging as many of these ponds as possible. This would create more storage capacity and would help the Company with managing its total water-rights. This obviously is a long-term goal that would probably best be addressed along with the solutions to the City System capacity problems.

Relocating and Enlarging Crawford Pond

As this system experiences pressure problems through most of the water year, it has been suggested that the Company relocate this pond to a higher elevation to create better flow. This pond is one of the smallest ponds relative to its system demand and could be enlarged at the same time it is relocated.

It has also been suggested that the Crawford system be split into two systems with two ponds, with the second located at a higher elevation to relieve the pressure problems.

Relocating and Enlarging Chimney Pond

In 1980, when the Chimney system was put under a pressurized sprinkler system, there was a temporary pond built to get the system up and running. This pond was intended to be relocated to a higher elevation after the completion of the project. Due to lack of funding at project completion, and the fact that the temporary pond seemed to be working adequately, it was not relocated to its originally intended permanent location.

Since that time, due to additional system usage demands, there is a pressure problem on this system during peak flow. If the pond were relocated to a higher elevation as was originally intended, the system would function better during peak usage.

- **Goal G-2: Increase storage/regulating capacity within the system.**

Issue I-3: Deteriorating Conveyance Systems

Concrete-lined Canal on the Flat

This ditch is used to transfer water from the Canal Creek main diversion structure to the Flat pond and to the transmission line that moves Canal Creek water to the North Fields pond. This cement ditch has had several repairs in the last few years and is still in need of repairs as its condition continues to deteriorate. The best solution is to replace this ditch with underground PVC piping, which will eliminate the need for constant repair and will also eliminate water waste from evaporation and seepage.

Chimney System Flume Ditch

This PVC line is used to feed water to the Chimney system lower pump station pond. There appears to be leakage and damage to this underground pipe system. Initial investigation indicates that the best solution is to replace the lower portion of this line with new PVC pipe.

Last Chance System Open Ditch (Pond Inlet)

This open, unlined earthen ditch is approximately 1.3 miles long and feeds the Last Chance pond. To better conserve water, management would like to replace this unlined ditch with PVC pipe.

➢ **Goal G-3: Rehabilitate and Upgrade Deteriorating Conveyance Systems.**

Issue I-4: Unique Challenges within the City System

Due to the growth in the city that has occurred since the installation of its pressurized system, there have been extreme strains put on the system's capacity. With the field systems, the Company has had the ability to implement procedures and policies that have assisted in over-use problems. However, the City System has unique issues that have been very difficult to address.

With city water-users utilizing various types of watering equipment, ranging from drip systems to automatically controlled sprinkler systems, it is very difficult to measure and manage water-use and water over-use.

Another key concern deriving from an audit of the City System is that approximately 90 acres within the city boundaries, originally designed into the system, have never utilized water or paid an assessment. As the city continues to grow in population, owners of these previously vacant lots will request water. There is concern that with these additions, capacity and pressure problems could arise.

Several options have been discussed, ranging from installing an additional pond, dividing the current system that is fed from the city pond, and/or installing meters on each city lot user to better control and manage water-use.

Every option that has been discussed has very unique challenges. Management would like to collect as much input as possible before addressing this issue. There has been a committee of city share-holders established to help with developing some strategies and solutions to this problem.

➢ **Goal G-4: Develop a strategy for addressing the challenges within the City System.**

Issue I-5: Lack of Easements for Conveyance Facilities

When the Company installed the pressure irrigation systems, there were numerous miles of underground main feed lines installed without any record of easements. The Company has been advised by legal counsel to get prescriptive easements recorded on all underground lines that do not have risers coming off them to adequately establish their presence.

➢ **Goal G-5: Acquire prescriptive easements for all regulating ponds' main inlet and outlet piping where no easement exists.**

Issue I-6: Flood Irrigation – 3rd, 4th, and 5th North System

This is the last significant agricultural system that is still flood irrigated. The Company would like to put these lands under a pressurized irrigation system. The current challenge with this project would be to obtain funding through governmental programs to help with cost sharing of this project, as this system is primarily made up of small individually owned farms. This project would put an extreme burden financially on individuals and is hard to justify without some type of cost support. However, the Company sees this project as a very significant conservation goal as this land is one of the farthest systems to deliver water to and through canals and ditches, which results in major water loss due to seepage and evaporation.

➢ **Goal G-6: Explore feasibility of converting the 3rd, 4th, and 5th North System to a pressurized sprinkler system.**

Issue I-7: Improving Water Management

As discussed in Section V and other areas of the report, the Company has taken a progressive approach to managing and improving the project in recent years. This is evidenced, in part, by the efforts taken to plan and prepare this report. We would like to continue this progressive management approach and have identified several improvement goals which are presented in this section of the report.

Pressure Irrigation System Acreage Audits

During 2005, the Company began the process of completing an audit on all of our pressurized irrigation systems. The intent of this audit is, first, to assure that all acres utilizing a pressurized irrigation system are being assessed, and second, to collect data to be used to better manage each system.

This audit consisted of using GPS equipment to map out all agricultural land being watered by a sprinkler system and then downloading this information into a computer program to detail the acreage of each systems use.

For completing the City System, records were acquired from the county recorder's office showing land ownership. This information was used to complete the audit for the city lots part of that system.

Currently, we are approximately 80% compete on these audits and hope to finalize this project in the spring of 2008.

Completing these audits will give the Company's management the ability to see where each system stands in its feed capacity, resulting in better decisions regarding future improvements to each one.

Class B Stock Management

The Company has approximately 7,600 shares of outstanding Class B stock, with the ability to issue an additional 7,400 shares (up to 15,000 shares). This is a secondary or high water-right to be used by these share-holders when all Class A water is being utilized and there is excess water available within the Company's water-rights.

At this time the Company is managing its Class B water on a very limited basis. We allow all share-holders to use water as needed during high spring runoff and then restrict the water-use when there is not sufficient water to meet all the needs of the Class A share-holders.

The Company would like to establish policies and procedures to address Class B stock so it can be utilized as it was intended. It should also be noted that Class B stock is not currently being assessed by the Company due the lack of established policies for its use. The Company believes that this secondary water-right should be assessed in some way as it is recognized as a valid water-right, and that these stock-holders do currently have and utilize their voting rights on voting issues placed before share-holders.

Water Management and Conservation Program

As discussed in Section V of this report, the Board of Directors has developed a good water management program. The board would like to build upon this program and continue to make it a significant part of the overall management of the Company's water supply.

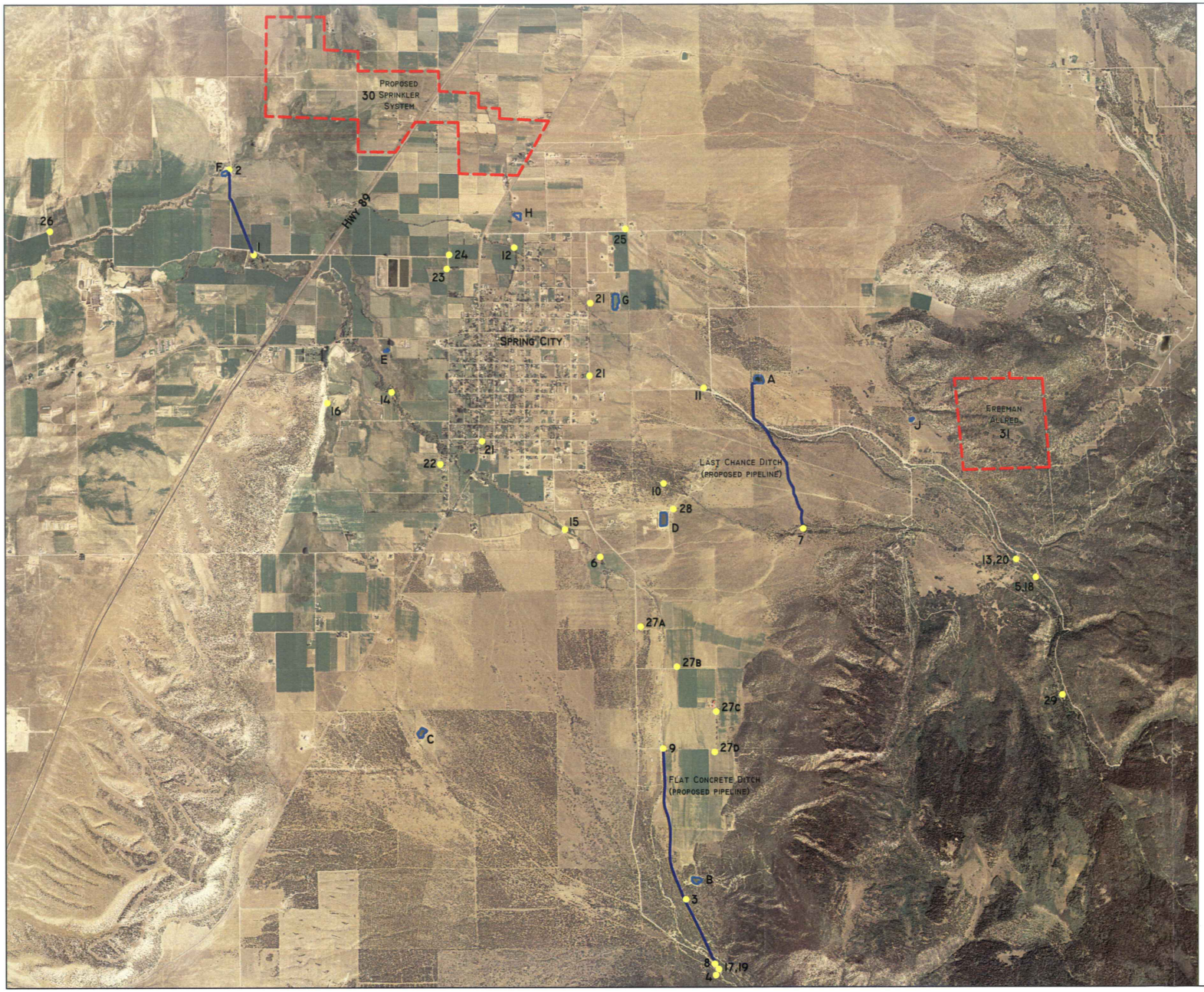
➢ **Goal-7: Continue proactive management for improved water management and conservation.**

Summary

The following table summarizes the issues and goals described above.

Table 6-1
Summary of Issues and Goals

Issues	Goals
I-1: Deteriorated and outdated water diversion dams and other project structures.	G-1: Bring existing diversion dams and other project structures to current technology and standards.
I-2: Lack of adequate storage and regulation capacity.	G-2: Increase storage/regulating capacity within the system.
I-3: Deteriorating conveyance systems.	G-3: Rehabilitate and upgrade deteriorating conveyance systems.
I-4: Unique challenges within the City System.	G-4: Develop a strategy for addressing the challenges within the City System.
I-5: Lack of easements for conveyance systems.	G-5: Acquire prescriptive easements for all regulating ponds' main inlet and outlet piping where no easement exists.
I-6: Flood Irrigation - 3rd, 4th, 5th North System.	G-6: Explore feasibility of converting the 3rd, 4th, and 5th North System to a pressurized sprinkler system.
I-7: Improving water management.	G-7: Continue proactive management for improved water management and conservation.



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SCALE: 1" = 1600'

Diversion Structure Rehabilitation

Priority	Name
1	Chimney Flume Ditch Diversion
2	Chimney Pump Pond Diversion
3	Flat Pond Diversion
4	Crawforth Diversion
5	Oak Creek High Water Diversion
6	Canal/City Creek High Water Diversion
7	Last Chance Diversion
8	Flat Concrete Ditch Diversion
9	North Fields Pond Transmission Line Inlet Diversion
10	North Fields Pond Transmission Line East Inlet Diversion
11	North Fields Oak Creek Diversion
12	Chimney Upper Pond/3rd, 4th, 5th North Ditch Diversion
13	Pete Hansen Diversion
14	Chimney Seeps Diversion (Sherm's Pond)
15	Point Ditch Diversion - Upper
16	Point Ditch Diversion - Lower
17	Canal Creek Main Diversion

Creek Crossing Upgrades

Priority	Name
18	Oak Creek High Water Diversion
19	Canal Canyon Main Diversion
20	Crossing to Access Pete Hansen Diversion

Pressure Reducing Valve Structures

Priority	Name
21	3 - City PRV
22	1 - South Fields PRV
23	North Fields 1st North
24	North Fields 2nd North
25	1 - Last Chance
26	1 - Chimney
27a-d	4 - Flat

Other Structures - No Need for Rehabilitation

Priority	Name
28	City Pond Diversion
29	Oak Creek Main Diversion
30	Proposed Sprinkler System
31	Freeman Allred Project

Ponds

Priority	Name
A	Last Chance Pond
B	Flat System Pond
C	Crawford System Pond
D	City Southfield Pond
E	Chimney Seeps Pond
F	Chimney Pump Pond
G	North Fields Pond
H	Chimney Upper Pond
J	Pete Hansen Pond

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REVIEWED:
PROJECT LEADER: Eric Franson
PRINT DATE: Feb. 05, 2018

NO.	DATE	DESCRIPTION

REVISIONS

HORSESHOE IRRIGATION COMPANY

HORSESHOE IRRIGATION SYSTEM
PROJECT LOCATION MAP

JOB NO. SU 0000028

Hrshoe Irr Co-Loc Map (small).dwg
H:\CLIENTS\South Utah Area\Sanpete Co\Horseshoe Irrigation Company\Drawings

LAYOUT: Project Loc Map (11 x 17)

SHEET

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