Mile-Hi Water Supply
Level II Study

FINAL REPORT

Prepared For:
Wyoming Water Development Commission

JUNE 2009

Prepared by:

CONSULTING, LLC
5830 East 2nd Street
Casper, Wyoming 82609
Phone: 307-473-8184
Fax #: 307-265-4672
# Table of Contents

## Section 1 - Introduction

- Background ........................................................................................................................................... 1  
- Study Purpose ....................................................................................................................................... 4  
- Acknowledgements ............................................................................................................................... 4  

## Section 2 - Service Area and Water Demand Projections

- Water Service Area ................................................................................................................................. 5  
- Preferred Water Supply Alternative ....................................................................................................... 5  
- Population and Growth ............................................................................................................................ 6  
- Water Demands ....................................................................................................................................... 7  
- Water Demand Projections ...................................................................................................................... 8  

## Section 3 - Conceptual Design and Cost Estimates

- Conceptual Design ................................................................................................................................. 9  
  - Type of Water Supply System .................................................................................................................. 9  
  - DEQ Rules and Regulations ................................................................................................................... 10  
  - Hydraulic Modeling ................................................................................................................................. 11  
- Surface Features .................................................................................................................................... 11  
  - Subsurface Conditions ............................................................................................................................. 12  
  - Existing Utilities ...................................................................................................................................... 12  
  - Right-of-Way Constraints ....................................................................................................................... 12  
  - Directional Drilling Opportunities ........................................................................................................ 13  
- Design Features of Conceptual Plan ....................................................................................................... 13  
- Land and Right-of-Way Acquisition Needs ............................................................................................. 16  
- Permitting and Licensing Needs ............................................................................................................ 17  
- Environmental Mitigation ........................................................................................................................ 17  
- Cost Estimates ....................................................................................................................................... 18  

## Section 4 - Economic Analysis, Project Financing and Implementation

- Debt Financing Plan ................................................................................................................................. 20  
- Water System Debt Assessment ............................................................................................................. 21  
- Water User Rates ................................................................................................................................... 23  
- One Time Connection Costs to New Customers ..................................................................................... 24  
- Implementation ....................................................................................................................................... 25
LIST OF FIGURES

FIGURE 1-1  VICINITY MAP
FIGURE 1-2  PROPERTY OWNERSHIP MAP
FIGURE 3-1  WATER SYSTEM PRELIMINARY LAYOUT

LIST OF TABLES

TABLE 2-1  WATER DEMAND ESTIMATES
TABLE 3-1  PROJECT COST ESTIMATE
TABLE 4-1  ESTIMATED DEBT ASSESSMENT COSTS SUMMARY
TABLE 4-2  O&M COSTS FOR USER RATES
TABLE 4-3  TENTATIVE IMPLEMENTATION SCHEDULE

APPENDICES

APPENDIX A  RESOLUTION OF DISTRICT FORMATION
APPENDIX B  CWRWS LETTER TO SERVICE
APPENDIX C  HYDRAULIC ANALYSIS
APPENDIX D  ENVIRONMENTAL ASSESSMENT
SECTION 1 - INTRODUCTION
SECTION 1 - INTRODUCTION

This section of the Level II Study provides background information about the Mile-Hi Water Supply Study, describes the purpose of the Study, gives a summary of the sections of the Study, and acknowledges some of the people who were influential in the successful completion of this Study.

BACKGROUND

The Mile-Hi Improvement and Service District, herein after referred to as “District,” is located approximately 1-1/2 miles west of the Town of Mills, and 6 miles west of the City of Casper, Wyoming in Natrona County, as shown in Figure 1-1. The District is located south of Zero Road, east of 7 Mile Road, includes the 6 Mile Road area, and is north of Poison Spider Road. The area is rural residential, and is zoned rural agriculture. The District is composed of rural properties which range in size from 2 to 20 acres. Many of the properties receive irrigation water from the Casper Alcova Irrigation District (CAID) system. The residents in the area receive potable water from private shallow wells. Due to the recent and ongoing drought, and changes in irrigation practices, water levels in the individual domestic wells in the area have fallen, and sulfate/nitrate levels are increasing beyond treatable levels. Many of the properties have very limited water, and some have no potable water at all, forcing some of the residents to haul water to meet daily domestic needs. Residents in the area are interested in a stable water supply and wish to establish a reliable central domestic water system.

In the fall of 2007, the Mile-Hi area residents organized, and submitted an application to the Wyoming Water Development Commission (WWDC) for a Level II Feasibility Study. The purpose of the study was to determine if it is feasible for the area to construct a water supply system to serve the residents of the area. In December 2008, the residents submitted a petition to the Natrona County Commissioners to form an Improvement and Service District which would make them eligible for state and federal funding programs. The Natrona County Commissioners approved the District’s formation in January 2008 (the Resolution is attached as Appendix A). A map of the District boundary is presented in Figure 1-2. In March of 2008, the Wyoming State Legislature approved funding for the Level II Study through the WWDC planning program. In June of 2008, the WWDC contracted with 609 Consulting, LLC to perform the Level II Study.
STUDY PURPOSE
The purpose of this Level II Study is to determine the feasibility of constructing a water supply system to serve the residents of the District. At the direction of the WWDC, the Study includes service area delineation, current and projected water demands, conceptual designs and cost estimates, an economic analysis, and an environmental assessment.

This Study is divided into four sections, and is intended to follow the usual format, and address the subjects normally required by the state funding agencies. The four sections of the Study are highlighted as follows:

- **Section I - Introduction**
- **Section II - Service Area and Water Demand Projections**
- **Section III - Conceptual Design and Cost Estimates**
- **Section IV - Economic Analysis, Project Financing and Implementation**

ACKNOWLEDGEMENTS
Many people assisted in the preparation and completion of this Study. Listed below, are a few of the people whose assistance and input were valuable and greatly appreciated.

- Wyoming Water Development Commission staff: Jon Wade, Barry Lawrence, and Ted Coyer for assistance and administration of the contract, progress meetings, coordination and direction.
- Floyd Field and Ann MacKinnon, WWDC Commissioners for their participation and support.
- Larry Bolton, Ben Taucher, Ken Barbe, and Steve Deveraux of the Mile-Hi Board of Directors for their assistance, guidance and support.
- Central Wyoming Regional Water System: David Hill, Director for his support, assistance and guidance.
- David Drell, attorney for the District.
- Natrona County Board of Commissioners for their assistance and support.
SECTION 2 – SERVICE AREA AND WATER DEMAND PROJECTIONS
This section of the Study identifies the District’s water service area, discusses the preferred water supply alternatives, and presents population growth and corresponding water demand projections for current and future populations.

**WATER SERVICE AREA**

The Mile-Hi Improvement and Service District (District), was formed in 2008 for the primary purpose of pursuing a water supply system. The District boundary was presented previously in Figure 1-2. The properties included in the initial District boundary were limited to only those properties that indicated a desire to be a part of the proposed water system. As can be seen in the Figure 1-2, there is a total of 57 platted lots within the District area. However, only 35 of them are currently included in the District. It is believed that as time goes by, many, if not all of the properties in the area will join the District and become water system customers. Therefore, for the purpose of this Study, the service area is considered as the 57 properties shown in Figure 1-2.

**PREFERRED WATER SUPPLY ALTERNATIVE**

There are three different municipal-type water systems in proximity of the District. The Town of Mills water system is located to the east of the District. The Central Wyoming Regional Water system (CWRWS) is located to the west, the north and the south of the District. The Lakeview Improvement and Service District is located adjacent to the District to the west, and is currently served by the CWRWS. The Vista West water system is supplied by the City of Casper, and is located directly north of the District, along the north side of Zero Road. Therefore, the District is surrounded by public water systems, the nearest of which are the CWRWS and Vista West water system.

In terms of alternative water supply systems, there are really only two systems available to the District; The Town of Mills and CWRWS. The Vista West water system is not considered as a feasible alternative water supply because it is a privately owned system, and is not adequately sized to serve the long term needs of the District. The nearest Mills water supply line is located approximately 1-1/2 miles east of 6 Mile Road. Conversations were initiated between the District
and the Town of Mills early in the course of the Study. There was not a great deal of interest in
the Town of Mills providing water service to the District because of the distance between the
District and the town’s outer limits. In addition, conversations with the town’s planning
consultant indicated that if the District wanted to become a Mills water customer, the District
would be required to annex to the Town of Mills. Annexation would mean that the District
would be required to install a municipal type water system with fire protection capabilities,
construct a sewer system, pave its roadways, and perhaps install sidewalks and street lighting.
The Town would own and operate the District’s water system and other infrastructure facilities.
In return, Mills would provide police and fire protection, trash collection and other municipal
services for the District. The annexation requirements would create a financial burden on the
properties in the District and would make the water system economically not feasible.

The other alternative water supply for the District is the CWRWS. The nearest CWRWS
pipeline is a 16-inch diameter transmission line aligned along the south side of Zero Road,
adjacent to the District’s northern boundary (see Figure 3-1 in the next section also). The
CWRWS has agreed to serve the District; a letter of approval is attached as Appendix B. The
primary advantages of becoming a customer of the CWRWS are that the system has adequate
capacity to serve the District needs, and there are no annexation requirements. The District will
be able to purchase water at a metered connection to the CWRWS transmission line, and sell
water to its customers. The District will be required to operate and maintain the water system
within the District and to maintain a water rate structure and budget that supports the water
system operation. The District will also be required to pay the CWRWS System Investment
Charge (SIC) for every tap that is installed in the District’s water system. The CWRWS SIC
costs are discussed in Section 4.

Based upon the requirements of both water system alternatives described above, the preferred
water system alternative is the CWRWS.

**POPULATION AND GROWTH**

Typically, water distribution systems are expected to have a useful life of 50 years. And
typically, population projections are made for the 50-year planning period to determine the
system’s water demand, and to size the piping system for the 50-year population. The District
currently has about 35 property owners, which equates to a population of approximately 112, based on 3.2 persons per household in Natrona County. The District is bounded on the north by the Vista West subdivisions and on the west by the Lakeview Improvement and Service District. Any growth to the east and south will be limited because of existing developments. Rather than attempting to project a 50-year population for the District, this Study assumes the future population of the District will be limited to the number of platted lots in the District area. For the purpose of estimating water demands, it is assumed that all the properties in the District area will eventually become water system customers. The total number of water customers/taps is projected to be 57 at complete in fill. The equivalent population of 57 properties is approximately 182. Therefore, for this Study, the 50-year design flows and pipeline sizing will be for 57 rural residential properties, or a population of 182.

WATER DEMANDS

There are three water usage figures that are used in evaluating water demands. The first is the “average day demand”, or ADD. The ADD is calculated by dividing the total water use in the system throughout the year by the service area population, and then dividing again by 365 days. Several studies performed over the past 10 years have identified the ADD for residential use in the rural areas around the CWRWS area to be about 150 gallons per capita per day (gpcpd). This usage figure may be somewhat high for the District area because there is a separate system that is used for irrigation. However, in order to be conservative, the ADD for the District area is assumed to be 150 gpcpd.

The second water usage figure is “peak day demand” or PDD. PDD is defined as the highest water usage experienced during a 24-hour period. The PDD usually occurs in the summer when irrigation watering is at its peak. PDD is used to size the pumping facilities in the water system. The previously referenced studies have identified the PDD for residential use as being 3 times the ADD, or in the District’s case, 450 gpcpd.

The third water usage figure is the “peak hour demand”, or PHD. PHD is the peak water usage observed at a point in time due to daily cyclical water demands. The PHD is used to size the water transmission and distribution system piping. The previously referenced studies have identified the PHD in the service area to be 6 times the ADD, or 900 gpcpd in the District.
WATER DEMAND PROJECTIONS
The water demand projections for the District’s water service area are presented in Table 2-1. The current peak hour demand for the District is estimated to be 100,800 gallons per day, or 70 gallons per minute (gpm). The expected peak hour demand at full development is estimated to be 163,800 gallons per day, or 114 gpm.

Table 2-1 – Water Demand Estimates

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>ADD Gallons/Day</th>
<th>PDD Gallons/Day</th>
<th>PHD Gallons/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>112</td>
<td>16,800</td>
<td>50,400</td>
<td>100,800</td>
</tr>
<tr>
<td>Full Development</td>
<td>182</td>
<td>27,300</td>
<td>81,900</td>
<td>163,800</td>
</tr>
</tbody>
</table>
SECTION 3 – CONCEPTUAL DESIGN AND COST ESTIMATES
SECTION 3 - CONCEPTUAL DESIGN AND COST ESTIMATES

This section of the Study presents the conceptual design for the proposed water supply system for the District and corresponding cost estimates.

CONCEPTUAL DESIGN

The conceptual design for the water system improvements is shown on Figure 3-1. Several considerations went into the development of the conceptual design, including the type of supply system, DEQ Rules and Regulations, hydraulic modeling, surface features, subsurface conditions, existing utilities, and right-of-way constraints. Each of these considerations and corresponding impact on the water system design are discussed below.

TYPE OF WATER SUPPLY SYSTEM

There are two types of water supply systems available to the District: a municipal type water system and a rural type water system. Because the District will be a customer of the Central Wyoming Regional Water System (CWRWS), and a major CWRWS transmission pipeline is aligned adjacent to the District, the District has the opportunity to choose whether to have a municipal or rural water supply system. A municipal water system is one that meets all the functional requirements of a water system serving a municipality, i.e. domestic demands for household use, plus lawn and garden watering use, plus fire flows. The primary requirements of a municipal water system include having the ability to deliver a large enough volume of flow and pressure to provide fire flows of at least 1,500 gallons per minute on a day when the demand on the water system is at peak level. A municipal type water system would also need to have fire hydrants spaced at about 500-foot intervals throughout the area. In addition, isolation valves would need to be located at every block, or at 400 to 600-foot intervals.

A rural type water system is one that is sized to meet only the domestic water needs of the water users, and is not sized to deliver irrigation flows or large volumes needed to provide fire flows. The sizing requirements for a rural water system are less stringent than a municipal type system. There are no fire hydrants in a rural type water system. Valve spacing requirements are not as
stringent as for municipal type systems, and can be as far apart as deemed prudent for maintenance. Obviously, a rural type water system is smaller and less expensive than a municipal type water system.

During the course of the Study, several evaluations and discussions were had at meetings with the District board about selecting the type of water system. First of all, in a municipal type system, the minimum pipeline size would be required to be 8-inch diameter, where in a rural type system the pipe sizing could be considerably less. Secondly, the District has large lots and a municipal type system would require hydrant spacing at 400 to 600-foot intervals, resulting in the need for many fire hydrants. The nearest fire department is several miles away, and even if the system was capable of providing fire flows, the reaction time may be too long to provide relief during a fire episode. And finally, cost estimates for both types of systems indicated that the District was probably not able to afford the higher costs for a municipal type water system. Therefore, the District Board unanimously decided to eliminate a municipal type water system, and pursue a rural water type water system.

DEQ RULES AND REGULATIONS
Once the type of system was selected, the most important considerations are the requirements of the Wyoming Department of Environmental Quality (DEQ) for a rural water supply system. These requirements are summarized as follows:

- The system must be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. The normal working pressure in the distribution system must not be less than 35 psi.
- Where dead-end water mains occur, they are to be provided with a flushing hydrant or blow-off for flushing purposes.
- Isolation valves must be provided on water mains so that inconvenience and sanitary hazards will be minimized during repairs.
- All water lines and service lines shall be constructed below frost line, with at least 5-1/2 feet of soil cover.
HYDRAULIC MODELING
Current practice in the area requires that the water system sizing be based on a hydraulic model. A hydraulic model was developed for the proposed water system alignment to determine the pipeline sizing needed to adequately serve the current and future demands of the water system. The water system demands discussed previously in Section 2 were used in the model. The demands were distributed throughout the water system to correspond to existing homes and future developments. The goal of the hydraulic modeling was to size the water system to provide for the projected water demands at a minimum working pressure of 50 psi. The hydraulic modeling methods and results are presented in Appendix C.

SURFACE FEATURES
There are several surface features that were considered in developing the conceptual design of the water system, including paved and graveled roadways, irrigation ditches, pastures, and wetland-type areas. Each feature is discussed below:

- There are three roadways in the District that are used to access the properties. 6 Mile Road is a County roadway and has an asphalt surface. The other roadways are Mile Hi Drive and Horseshoe Road. Both are graveled private roadways. In general, the water line alignments will be planned to follow the roadways in order to make the pipelines available for maintenance and to limit the number of easements needed if the lines are located on private property. The design of the water delivery system will need to be planned to minimize disturbance of the roadways and private properties (if necessary). In addition, any disturbance to the roadways and private properties will need to be restored to pre-existing conditions, or better.
- The area is irrigated with surface water through a series of ditches from the Casper Alcova Irrigation District (CAID). The ditches carry water during the irrigation season which runs from May 1 to September 1. The irrigation system ditches have 100-foot rights-of-way, and the water pipelines cannot be aligned in the CAID rights-of-ways. In addition, if the pipelines must cross under the ditches, the ditches may not be disturbed by excavation, and must be bored.
- Pipeline alignments will need to cross pasture lands in order to serve all properties. The pastures are privately owned and any disturbances from excavation must be restored to satisfy the property owner.
• There are areas in the District that may be considered as wetland-type areas. These areas have formed from irrigation seepage and poor drainage. These areas must be avoided for pipeline alignments, because of the potential for wetlands disturbance, and because of the higher costs associated with construction in wet and unstable conditions.

**SUBSURFACE CONDITIONS**
Planning for the water system will need to take into account the subsurface soil conditions and the groundwater table. In September, test pit excavations were made along the proposed pipeline alignments to evaluate soil conditions and groundwater depths. These test pit excavations indicated that the soils are generally silty/sand and no shallow bedrock was discovered. Groundwater levels range from 3 to 5 feet below the surface and are assumed to be higher during the irrigation season than non-irrigation times.

**EXISTING UTILITIES**
Existing utilities, particularly underground utilities, will need to be avoided when planning alignments for the water system. During the course of arranging for the test pit excavations, utility companies were notified and located their utilities in the areas of the excavations. Existing utilities are generally located along the roadway borrow ditches, and include electrical power (Rocky Mountain Power), cable tv (Bresnan Communications), telephone (Qwest Communications), and natural gas (KN Energy). Most of these utilities are buried at depths ranging from 18 to 36 inches and need to be accurately located during the design phase of the project.

**RIGHT-OF-WAY CONSTRAINTS**
Existing rights-of-way will present constraints to the design of and alignments for the water supply pipelines. As determined early in the course of the Study, because the CWRWS transmission pipeline is located along the south right-of-way of Zero Road, along with several other buried utility lines, there is not an easy way to locate another water main for the District along the Zero road right-of-way. If an alignment along Zero Road is needed, the alignment needs to be on private properties. For that reason, an alignment along Zero Road was not considered affordable or feasible.
As indicated previously, the planned alignments for the water system are proposed to follow existing roadways wherever possible. 6 Mile Road is a County roadway, dedicated to public use. The right-of-way width is 60 feet, and it appears that there is adequate space to construct a water line along the east side of the road right-of-way. The other two roadways are platted roadways, but it appears they have not been dedicated to public use. The properties along both Horseshoe Road and Mile Hi Drive border on the centerline of the two roads, and therefore, the property owners theoretically own those two roadways. The buried utilities mentioned above have been located within the two roadways, and there does not appear to be any easement agreements with the utility companies for using the roadways as public rights-of-way for the utility companies. Further evaluation of the roadway ownership issue needs to be made during the design of the system to clarify that the proposed water system can be constructed within the existing roadways similar to the utilities that currently exist within the road rights-of-way. As for the pipeline alignments which need to cross private property, easement agreements will need to be obtained for constructing the water lines on these properties.

DIRECTIONAL DRILLING OPPORTUNITIES

Opportunities for directional drilling techniques were investigated during the course of the Study. There is one paved roadway in the District, and several wetland areas along the proposed pipeline alignments. Discussions with local directional drilling contractors indicate that water service lines could easily be installed under paved roadways thereby avoiding pavement cuts and repairs. In terms of wetlands areas, directional drilling may be a more cost effective solution than trenching and dewatering operations. Directional drilling may be performed through wet and unstable soils areas for distances up to 300 feet. Typically, directional drilling is performed using HDPE piping. If directional drilling is performed for portions of the project, PVC to HDPE transitions will be required.

DESIGN FEATURES OF CONCEPTUAL PLAN

The conceptual design of the proposed water supply system for the Mile-Hi system is presented in Figure 3-1. The conceptual design has been developed in accordance with the design considerations previously discussed. The goal of the conceptual design is to locate and align the
water mains so that every property in the District has access to a water main. Some of the significant design elements and features of the conceptual design are highlighted below:

- An 8-inch tap will be made to the CWRWS at the intersection of 6 Mile Road and Zero Road. The tap will need to be a “hot tap” or “live tap” so that the CWRWS transmission pipeline will not need to be shut down. The maximum pressure available at the point of connection to the CWRWS is 58 psi, so the pressure in the District water system will never exceed the available pressure at the connection point.

- Very near the CWRWS tap location, a master meter vault will need to be constructed to measure all the flows going to the District and for subsequent billing purposes. The meter vault will need to be designed and constructed to meet CWRWS standards, and electrical service will be required for the meter operation.

- The water main planned to be aligned along 6 Mile Road will need to be located along the eastern side of 6 Mile Road. There is an active irrigation ditch along the western side of the roadway that will not allow ample space for a water line. It is expected that the roadway will be disturbed by construction, and the roadway will need to be resurfaced following installation of the water line.

- The 8-inch water main serving the District will extend from the 6 Mile Road alignment westward across private properties to serve the Mile Hi Drive area. The exact location of the alignment has not been determined, and should be further evaluated in the design phase. The right-of-way width should be a minimum of 20 feet.

- The water main for the Mile Hi Drive residents will be located along the roadway, off the traveled road surface, and preferably along the borrow ditch to avoid as much disturbance of the roadway as possible. It is assumed that a “blanket-type easement” can be obtained from the property owners to construct the water line in the existing roadway right-of-way.

- An 8-inch water main from Mile Hi Drive will be extended westward to serve the residents on Horseshoe Road. An easement will be needed to construct the water main through private property. The exact location of the alignment has not been determined, and should be further evaluated in the design phase. The permanent right-of-way width should be a minimum of 20 feet, although 30 feet is preferred. Where space allows, an additional 20-foot wide temporary easement is recommended during construction to provide ample working and operating space for the contractor.
• The water main serving the residents along Horseshoe Road will be aligned along the roadway, off the traveled road surface, and preferably along the borrow ditch to avoid as much disturbance of the roadway as possible. It is assumed that a “blanket-type easement” can be obtained from the property owners to construct the water line in the existing roadway right-of-way.

• An un-metered emergency connection will need to be provided for redundancy of the water supply. The emergency connection will be kept closed except for the rare occasion that the metered connection is closed down. The un-metered connection will be constructed by making another connection to the CWRWS transmission line along Zero Road. No master meter vault will be required by the CWRWS, but the valve on the connection will be required to be kept closed unless needed.

• Flushing hydrants will be located at the ends of dead-end mains, and at locations that are favorable for flushing the water lines for maintenance. These flushing hydrants will be similar to fire hydrants.

• Isolation valves are located to minimize service disruptions during maintenance.

• All areas along 6 Mile Road will be re-paved and restored to pre-existing condition.

• All areas along both Mile Hi Drive and Horseshoe Road will be re-graveled and restored to pre-existing condition.

• All areas within the easements for water lines across private property will be seeded and returned to pre-existing condition to satisfy the property owner.

• Water meters will be located in buried “meter pits” and will be located in public rights-of-way or easements dedicated to the District, and as close to the property lines as possible. A touch read meter system will be provided to allow efficient meter reading for the District operator.

**LAND AND RIGHT-OF-WAY ACQUISITION NEEDS**

Nearly all of the proposed water lines are planned to be located in established road rights-of-way. Where the proposed water line alignment crosses private property, a right-of-way must be obtained from the property owner in the form of an easement agreement. The easement agreement contains a legal description of the property to be granted to the District for the
right-of-way. Once the parties have executed the easement agreement, it is filed with the County Clerks office, and the right-of-way becomes recorded as an integral part of the property. The following are the portions of the water system are identified where rights-of-way will be required to construct the proposed water system (see Figure 3-1 also):

- For the pipeline connecting 6 Mile Road to Mile Hi Drive.
- For the pipeline connecting Mile Hi Drive to Horseshoe Road.
- For the area of the master meter vault, perhaps to provide adequate space needed to construct, operate and maintain the master meter vault.
- For the pipelines constructed in Mile-Hi Drive and Horseshoe Road which are private roadways, and may not be dedicated to public use.

**PERMITTING AND LICENSING NEEDS**

In order to design and construct the water system, several permits will need to be acquired. The primary permitting needs for the project are highlighted below:

- All water mains and meter pits aligned within the County road rights-of-way require a permit from the Natrona County Road and Bridge Department. The permit will define how the roadways and borrow ditches will be restored.
- A DEQ Permit to Construct will be required prior to construction of the water system.
- A permit or license will be required from the Casper Alcova Irrigation District for crossing under the supply or waste ditches.
- The US Army Corps of Engineers (ACOE) usually requires a permit for a water main to cross under a surface water or drainage ditch. Conversations with ACOE representatives indicate the ditch crossings are covered under the “nationwide” permit, and a project specific permit is not required. However, ACOE notification, and coordination are required under the existing nationwide permit.

**ENVIRONMENTAL MITIGATION**

As a part of this Study, an Environmental Assessment (EA) was performed. The EA is required when federal funding agencies such as the State Revolving Loan Fund (SRF) are involved. Results of the EA are highlighted below. The Environmental Report is included in its entirety in Appendix D.
• A cultural resource survey must be conducted prior to the ground disturbance activities, primarily in those areas not previously disturbed by development, road construction, etc.
• A wetland delineation must be conducted to determine the acreage and boundaries of wetlands, if any, impacted by construction of the project, and appropriate US Army Corps of Engineers permits obtained prior to commencing construction.
• A survey for threatened, endangered, and candidate species, as well as for raptor nests will need to be conducted prior to any construction activities. If any listed species or raptor nests are found that might be impacted by the project, a mitigation plan coordinated through the US Fish and Wildlife Service will need to be developed to mitigate any impacts.
• Depletions, if any, from the North Platte river will need to be evaluated and a cost calculated for payment to the US Fish and Wildlife Foundation.
• Mitigation efforts will need to be planned for and executed during construction to limit runoff and erosion, control dust, and re-vegetate disturbed lands.

COST ESTIMATES

Cost estimates for the proposed water system are shown in Table 3-1. The total project cost is estimated to be $1,339,338 and is based on year 2009 construction costs (5% inflation). The estimate was prepared using costs from recent similar work in the greater Casper area. Right-of-way costs where needed for the pipelines were estimated at $4.50 per linear foot. The engineering and contingency cost formulas shown are as required by the WWDC. Project component eligibility and financing plans are discussed in the next section.
### TABLE 3-1 - Project Cost Estimate

#### WWDC ELIGIBLE ITEMS

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Final Design and Specifications</td>
<td></td>
<td></td>
<td></td>
<td>$85,000</td>
</tr>
<tr>
<td>Permitting and Mitigation</td>
<td></td>
<td></td>
<td></td>
<td>$5,000</td>
</tr>
<tr>
<td>Legal Fees</td>
<td></td>
<td></td>
<td></td>
<td>$10,000</td>
</tr>
<tr>
<td>Acquisition of Access and Right-of-way</td>
<td></td>
<td></td>
<td></td>
<td>$10,000</td>
</tr>
</tbody>
</table>

**Construction Costs**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization and Bonds</td>
<td>1</td>
<td>LS</td>
<td>$30,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Traffic Control</td>
<td>1</td>
<td>LS</td>
<td>$25,000</td>
<td>$25,000</td>
</tr>
<tr>
<td>8-inch Live Tap 16-inch on CWR</td>
<td>1</td>
<td>LS</td>
<td>$12,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>6-inch Live Tap on 16-inch CWR</td>
<td>1</td>
<td>LS</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Asphalt Repairs, Zero Rd</td>
<td>70</td>
<td>SY</td>
<td>$40</td>
<td>$2,800</td>
</tr>
<tr>
<td>Meter Vault</td>
<td>1</td>
<td>LS</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>8-inch Piping, Fittings</td>
<td>3,550</td>
<td>LF</td>
<td>$30</td>
<td>$106,500</td>
</tr>
<tr>
<td>8-inch Gate Valve</td>
<td>1</td>
<td>EA</td>
<td>$2,200</td>
<td>$2,200</td>
</tr>
<tr>
<td>6-inch Piping, Fittings</td>
<td>6,850</td>
<td>LF</td>
<td>$26</td>
<td>$178,100</td>
</tr>
<tr>
<td>6-inch Gate Valve</td>
<td>9</td>
<td>EA</td>
<td>$1,900</td>
<td>$17,100</td>
</tr>
<tr>
<td>4-Inch Piping, Fittings</td>
<td>4,150</td>
<td>LF</td>
<td>$22</td>
<td>$91,300</td>
</tr>
<tr>
<td>4-inch Gate Valve</td>
<td>3</td>
<td>EA</td>
<td>$1,500</td>
<td>$4,500</td>
</tr>
<tr>
<td>Flush Hydrant Assembly</td>
<td>7</td>
<td>EA</td>
<td>$4,000</td>
<td>$28,000</td>
</tr>
<tr>
<td>Canal Crossing/Directional Bore</td>
<td>300</td>
<td>LF</td>
<td>$100</td>
<td>$30,000</td>
</tr>
<tr>
<td>Power to Vault</td>
<td>1</td>
<td>LS</td>
<td>$5,000</td>
<td>$5,000</td>
</tr>
<tr>
<td>Seeding and Mulching</td>
<td>1,100</td>
<td>LF</td>
<td>$2</td>
<td>$2,200</td>
</tr>
<tr>
<td>Water Line ID Posts</td>
<td>30</td>
<td>EA</td>
<td>$200</td>
<td>$6,000</td>
</tr>
<tr>
<td>Asphalt Repair, 6 Mile Rd.</td>
<td>5,500</td>
<td>SY</td>
<td>$25</td>
<td>$137,500</td>
</tr>
<tr>
<td>Driveway Repairs</td>
<td>20</td>
<td>EA</td>
<td>$300</td>
<td>$6,000</td>
</tr>
<tr>
<td>20-Foot Wide Gravel Surfacing</td>
<td>3,900</td>
<td>TON</td>
<td>$15</td>
<td>$58,500</td>
</tr>
<tr>
<td>Select Fill</td>
<td>2,100</td>
<td>CY</td>
<td>$15</td>
<td>$31,500</td>
</tr>
<tr>
<td>Foundation Material</td>
<td>500</td>
<td>CY</td>
<td>$20</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

**Construction Cost Subtotal No. 1 (CCS No. 1)** | $874,200 |

**Engineering Services During Construction (10% CCS No. 1)** | $87,420 |

**Construction Cost Subtotal No. 2 (CCS No. 2)** | $961,620 |

**Contingency (15% of CCS No. 2)** | $144,243 |

**Construction Cost Total (CCT)** | $1,105,863 |

**TOTAL ESTIMATED PROJECT COST - WWDC Eligible(2008)** | $1,215,863 |

#### WWDC ELIGIBLE ITEMS (CONTINUED)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWDC Grant (67%of CCT)</td>
<td></td>
<td></td>
<td></td>
<td>$814,628</td>
</tr>
<tr>
<td>SLIB Grant (1/2 of 33%)</td>
<td></td>
<td></td>
<td></td>
<td>$200,617</td>
</tr>
<tr>
<td>WWDC Loan (1/2 of 33%,30 yr/4%)</td>
<td></td>
<td></td>
<td></td>
<td>$200,618</td>
</tr>
</tbody>
</table>

**Cost Per Lot (35 Lots)** | $5,732 |

**Annual Assessment Per Lot - WWDC Eligible** | $331 |

**Monthly Assessment Per Lot - WWDC Eligible** | $28 |

#### SLIB ELIGIBLE ITEMS

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Meter Pits and Services</td>
<td>35</td>
<td>EA</td>
<td>$2,750</td>
<td>$96,250</td>
</tr>
<tr>
<td>Fire Hydrants</td>
<td>4</td>
<td>EA</td>
<td>$4,000</td>
<td>$16,000</td>
</tr>
</tbody>
</table>

**Construction Cost Subtotal** | $112,250 |

**Contingency (10% of Subtotal)** | $11,225 |

**TOTAL ESTIMATED PROJECT COST - SLIB ELIGIBLE** | $123,475 |

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLIB Grant (50%)</td>
<td></td>
<td></td>
<td></td>
<td>$61,737</td>
</tr>
<tr>
<td>SLIB Loan 50% (5.31%,30yr)</td>
<td></td>
<td></td>
<td></td>
<td>$61,738</td>
</tr>
</tbody>
</table>

**Cost per Lot (35 Lots)** | $1,764 |

**Annual Assessment Per Lot - SLIB Eligible** | $118 |

**Monthly Assessment Per Lot - SLIB Eligible** | $10 |

**COMBINED PROJECT COSTS - WWDC ELIGIBLE + SLIB ELIGIBLE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Cost - WWDC + SLIB Eligible</td>
<td>$1,339,338</td>
</tr>
<tr>
<td>Total Cost per lot - WWDC + SLIB Eligible</td>
<td>$7,496</td>
</tr>
<tr>
<td>Total Annual Assessment Per Lot - WWDC + SLIB Eligible</td>
<td>$450</td>
</tr>
<tr>
<td>Total Monthly Assessment Per Lot - WWDC Eligible + SLIB Eligible</td>
<td>$37</td>
</tr>
</tbody>
</table>
SECTION 4 –ECONOMIC ANALYSIS
SECTION 4- ECONOMIC ANALYSIS, PROJECT FINANCING AND IMPLEMENTATION

This section presents an economic analysis for the proposed water supply project. The intent of this section is to provide the financial information necessary to determine the end cost to users under the funding scenarios involving Wyoming Water Development Commission (WWDC) assistance and other state and federal funding.

DEBT FINANCING PLAN

Typically three sources of financing have been available for cooperatively financing the design and construction of rural water supply projects. The three funding agencies are summarized as follows:

- Wyoming Water Development Commission (WWDC) – Recently, the WWDC has been providing grant and loan funding in a 67:33 grant-loan ratio. Loans are typically available at an interest rate of 4% for a term of up to 30 years, although some terms may be longer. Eligible water system components usually include water transmission pipelines, booster stations, water storage tanks and flushing hydrants.

- State Revolving Loan Fund (SRF) – The program is known as the Wyoming Drinking Water State Revolving Fund. The program receives money from the federal government and is administered by the State Lands and Investments Board (SLIB), and is only a loan fund. This loan fund can be used for all components of a water system. Currently, loans are available at an interest rate of 2½% for a term of up to 20 years.

- State Lands and Investments Board (SLIB) – The SLIB is composed of five elected state officials. The SLIB currently provides grant and loan funding in a 50:50 loan-grant ratio. Loans are currently available at an interest rate of 5.31%, for a term of up to 30 years. Eligible water system components typically include all portions of the water system including fire hydrants, water services and meter pits.
The total project is estimated to cost $1,339,338 as shown in Table 3-1 previously. The WWDC eligible project cost is $1,215,863, and the SLIB eligible portion of the project cost is $123,475. The proposed financing plan for the project includes funding all WWDC eligible components ($1,215,863) with a grant for $814,628 from the WWDC, which is 67% of the WWDC eligible cost. The remaining 33% of the WWDC eligible cost not funded by the WWDC grant is proposed to be funded through two sources: 1) a loan from the WWDC for $200,618; and, 2) a grant of $200,617 from the SLIB. The SLIB eligible portion of the project ($123,475) will be funded with a loan of $61,738 and grant for $61,737 from the SLIB. For the purpose of this Study, and in an effort to be conservative, the SRF funds have not been included in the funding mix. However, the SRF funding program is certainly an alternative to the WWDC and SLIB loan portions of the project. The proposed funding plan is highlighted as follows:

**WWDC Eligible Portions of the Project ($1,215,863)**
- A WWDC grant of $814,628.
- A SLIB grant for $200,617.
- A WWDC loan for $200,618 to be repaid at an interest rate of 4% for 30 years.

**SLIB Eligible Portions of the Project ($123,475)**
- A loan of $61,738 and a grant of $61,737 from the SLIB to fund the new meters and remote readout system. The SLIB loan would be repaid at an interest rate of 5.31% for a period of 30 years.

**WATER SYSTEM DEBT ASSESSMENT**

The financing plan proposes that a large portion of the project cost will be paid by State grants, totaling $1,076,982. The remaining portion of the project cost not funded through grants totals $262,356. If the total non-grant portion of the project cost is divided equally among the 35 properties in the District, the cost per property would be $7,496. There are several methods for each property to pay its $7,496 share of the project cost. One common method is for the property owner to pay it off either with cash, or by obtaining a personal loan.

Another method for obtaining the non-grant portion of the project cost is for the District to borrow the funds on behalf of the property owners. In order to borrow the funding, by State
Statute, the District must hold a public hearing to consider adoption of a resolution authorizing an assessment on each property in the District that benefits from the water project. If no more than 30% of the property owners to be assessed object to the assessment, the District can adopt a resolution which authorizes the assessment to repay the debt. If more than 30% of the property owners to be assessed object to the assessment, the District cannot adopt the resolution, and another resolution cannot be considered for a year.

Once the District authorizes the assessment, and the loans are obtained, the District will need to work with the County Assessor to develop an assessment roll of properties to be assessed for repayment of the water system debt. The County will then issue the water system debt assessment and include it with the annual property tax assessment. The County will reimburse the collected assessments to the District on a quarterly basis. The District will make its annual loan payment from the collected assessments.

The debt assessment for the project will be based upon the two loans that the District will need to acquire from the WWDC and SLIB. The number of properties actually benefiting, and therefore subject to the assessment, is assumed to be 35 properties. The estimated debt assessment cost under the proposed financing plan is shown in Table 4-1, and is estimated to be $450 per year for each property.

### Table 4-1 Estimated Debt Assessment Costs Summary

<table>
<thead>
<tr>
<th>Financing Component</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWDC Loan</td>
<td>$200,618</td>
</tr>
<tr>
<td>WWDC Loan Conditions</td>
<td>$4%, 30yr</td>
</tr>
<tr>
<td>Total Cost Per Property (35 Properties)</td>
<td>$5,732</td>
</tr>
<tr>
<td>Assessment Cost per Year per Property-WWDC Eligible</td>
<td>$331.31</td>
</tr>
<tr>
<td>SLIB Loan</td>
<td>$61,738</td>
</tr>
<tr>
<td>SLIB Loan Terms</td>
<td>5.31%, 30yr</td>
</tr>
<tr>
<td>Total Cost Per Property (35 Properties)</td>
<td>$1,764</td>
</tr>
<tr>
<td>Assessment Cost per Year per Property-SLIB Eligible</td>
<td>$118.36</td>
</tr>
<tr>
<td>Total Debt Cost Per Property (35 Properties)</td>
<td>$7,496</td>
</tr>
<tr>
<td>Total Combined Assessment Costs /Year/Property</td>
<td>$450</td>
</tr>
</tbody>
</table>
WATER USER RATES
The water user rate set by the District must be adequate to account for all the operating expenses of the District’s water system. Table 4-2 presents the estimated operation and maintenance (O&M) costs for the proposed system with 35 taps. The annual operating budget is estimated to be $20,430. These costs are based on the current District operating budget, and budgets from other similar districts in the area. The resulting average water user cost will be $49 per month for 4,000 gallons. The current CWRWS wholesale rate for water is $1.37 per 1,000 gallons purchased.

Table 4-2
Mile-Hi Water Supply Project
Operation and Maintenance Costs For User Rates
Prepared by: 609 Consulting, LLC

<table>
<thead>
<tr>
<th>Description</th>
<th>Monthly Unit</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator Wages</td>
<td>$300</td>
<td>$3,600</td>
</tr>
<tr>
<td>Materials and Supplies</td>
<td>$25</td>
<td>$300</td>
</tr>
<tr>
<td>Regional Water Cost (4000 gal/mo/home)</td>
<td>$190</td>
<td>$2,280</td>
</tr>
<tr>
<td>Water Sampling</td>
<td>N/A</td>
<td>$300</td>
</tr>
<tr>
<td>Bookeeping</td>
<td>$200</td>
<td>$2,400</td>
</tr>
<tr>
<td>Repairs</td>
<td>N/A</td>
<td>$1,000</td>
</tr>
<tr>
<td>Emergency Fund</td>
<td>N/A</td>
<td>$500</td>
</tr>
<tr>
<td>Sinking Fund ($300K@4%/30yr.)</td>
<td>$400</td>
<td>$4,800</td>
</tr>
<tr>
<td>Bonding</td>
<td>N/A</td>
<td>$150</td>
</tr>
<tr>
<td>Liability Insurance</td>
<td>N/A</td>
<td>$1,000</td>
</tr>
<tr>
<td>Legal</td>
<td>N/A</td>
<td>$600</td>
</tr>
<tr>
<td>Advertising</td>
<td>N/A</td>
<td>$200</td>
</tr>
<tr>
<td>Engineering</td>
<td>N/A</td>
<td>$500</td>
</tr>
<tr>
<td>Stamps/Mailings</td>
<td>$25</td>
<td>$300</td>
</tr>
<tr>
<td>Audit</td>
<td>N/A</td>
<td>$2,500</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$20,430</td>
</tr>
<tr>
<td>Avg. cost per user/month</td>
<td></td>
<td>$48.64</td>
</tr>
</tbody>
</table>

Typical Use Rate :  $35/mo/tap = $35.00
Plus $3.50/1000 gal = $14.00
Total = $49.00
ONE TIME CONNECTION COSTS TO NEW CUSTOMERS

In addition to the ongoing water system debt assessment costs and water use fees, there will be several “one-time” costs associated with new customers connecting to the water system. The one-time costs to each property will vary considerably depending on the requested service tap size and the distance from the home to the meter pit at the water main. These connection costs are the responsibility of the property owner and are not eligible to be paid with either state or federal grants or loans. It is estimated for new customers that these costs could range from $2,000 to $5,000. A summary of the primary one-time connection costs is given below.

- **Regional Water System Investment Charge** – Typically, water districts charge a “tap” fee for installing a water service line and meter pit from the water main to the customer’s property line. The tap fee typically consists of two components: 1) the district’s installation fee, plus 2) a CWRWS system investment charge (SIC). Typical tap fees in local water districts currently range from $2,500 to $4,000 for a ¾-inch tap. For those Mile-Hi customers wanting taps prior to the water system construction, a customer will only be required to pay the system investment charge; no installation charge will be required since the District’s installation costs will be included in the total project construction cost. The current CWRWS SIC charges for a ¾-inch and a 1-inch tap are currently $600, and $1,002 respectively. Any District property owner wanting to delay receiving a tap past the time of construction will be required to pay the District’s installation tap fee plus the CWRWS SIC. The total tap fee for a customer receiving a tap after construction of the water system is expected to be approximately $3,200.

- **Service Line Installation** – The property owner will need to install the water service line from the meter pit to the house. The size of the service line will depend on the pressure and volume of flow needed at the house. Estimated construction costs for service line installation range from $6 to $10 per lineal foot of line. For a home located within 100 feet of the meter pit, the service line installation cost is estimated to be between $600 and $1,000. This cost will also depend on the disturbance to the property, and the type of rehabilitation (ie. sod, concrete replacement etc.) needed to restore the property after construction.

- **House Plumbing Conversion** – The existing house plumbing system will need to be connected to the new water service, and the well piping disconnected. The well may be
used for yard and livestock watering etc., but cannot be connected to the water system piping. Plumbing costs will vary depending upon each individual building and specific plumbing system, and are estimated to be around $500. The District and CWRWS will inspect the plumbing conversion to ensure a complete separation of the systems, and a nominal fee may be charged.

IMPLEMENTATION

The WWDC program consists of three levels: Level I is Reconnaissance; Level II is Feasibility; and, Level III is Design and Construction. This Level II Feasibility Study provides the preliminary design and cost estimates needed for the District to determine whether the project is feasible and affordable. In order for the proposed project to move to Level III, several steps will need to be successfully completed.

The first step is the successful adoption of a resolution authorizing the debt assessment to repay the construction loans. The District Board must notify the property owners in the District of its intent to adopt a resolution giving the District authority to incur debt to construct the water system improvements, and to repay the debt through assessments on those properties which receive a benefit from the project. The County Clerk must give notice (by advertisement in a local newspaper) to the owners of property to be assessed of the District’s intent to adopt the resolution, the nature of the project, the amount of the assessment, and the date of the meeting at which the proposed resolution will be adopted. If no more than 30% of the property owners who are subject to the assessment object to the project, the Board may adopt the resolution. If more than 30% of the property owners to be assessed object to the assessment, the resolution may not be adopted, and the resolution cannot be considered again for at least one year.

The resolution must be successfully adopted by the District Board before the District can expect to be seriously considered for state or federal funding assistance. WWDC funding applications for ongoing projects are accepted once a year, on or before October 1, and are reviewed through December. If funding is approved, it is done so by the Wyoming State Legislature in the upcoming legislative session. Applications for the SLIB loan funds are considered once per year by the Natrona County Commissioners. The SLIB application should be submitted at the beginning of the year to be considered by spring.
Assuming the debt assessment resolution is successfully adopted, and the District’s funding applications are accepted and approved, the Level III process can be initiated in the summer of 2009. The District can then begin the process of hiring a consultant to design the water project, provide easement and land acquisition services, and prepare bidding and construction documents. The design phase is expected to require 2 to 3 months. Once the bidding and construction documents are approved by the funding and regulatory agencies, the project can be advertised for bids. The bidding process normally requires 45 to 60 days before a construction contract is executed. Once a Contractor is hired, the construction process can begin, and should be completed within 4 to 6 months. As noted previously, because of the irrigation season and corresponding higher groundwater table, the construction will be less expensive if done between October and May. A tentative implementation schedule based on the above discussion is presented in Table 4-3.

Table 4-3 –Tentative Implementation Schedule

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1, 2008</td>
<td>Apply for Level III WWDC Funding</td>
</tr>
<tr>
<td>March 2009</td>
<td>WWDC Funding Approval</td>
</tr>
<tr>
<td>June 2009 - August 2009</td>
<td>Design and Easement Acquisition</td>
</tr>
<tr>
<td>August 15, 2009</td>
<td>Obtain DEQ and Other Permits</td>
</tr>
<tr>
<td>September 2009</td>
<td>Bidding Process</td>
</tr>
<tr>
<td>October 2009 - May 2010</td>
<td>Construction</td>
</tr>
</tbody>
</table>
RESOLUTION NO. 69 - 07

RESOLUTION DECLARING THE FORMATION OF MILE-HI IMPROVEMENT AND SERVICE DISTRICT AFTER ELECTION BY ELECTORS AND LANDOWNERS

WHEREAS, the Board of County Commissioners of Natrona County, Wyoming, has received a petition by landowners of Natrona County, Wyoming requesting the formation of Lakeview Improvement and Service District No. 2; and

WHEREAS, the Board held a public hearing on October 2, 2007 wherein support for and objections to the formation of said District were received; and

WHEREAS, the Board of County Commissioners has found that the establishment of the proposed District would serve the public convenience and necessity in that area and that the Petition to Form such District has been properly presented. The Board of County Commissioners amended the name to be Mile-Hi Improvement and Service District, excluding David B. and Harper Lee Park, Lot 22, Westcrest Ranches, and Evelyn Park, Lot 21, Westcrest Ranches; and added Dwight and Mary Lynn Parrill, located in the W1/2 of Sec 3, T33N, R80W; and David and Frances Sechrist, Lot 1, Westcrest Ranches.

NOW, THEREFORE, BE IT HEREBY resolved that the formation of the Mile-Hi Improvement and Service District is hereby established with the boundaries of said District described as follows:

Nichols Subdivision, Lots 1 and 2;
Westcrest Ranches Subdivision, Lots 1, 4, 7a, 7c, 8, 10, 10a, 11a, 12c1, 12b2, 12e2, 14, 15, 16, 17, 18, 19, 20, 21, 22;
The following properties in the W1/2 of Sec 3, T33N, R80W:
Dwight Parrill, et al;
George W. Reich, III, et ux;
Williams Farms, LLC;
Lawrence and Patricia Bolton Trust dated 3/18/02;
Sharon Sue Nichols;
Spirit Winds, LLC;
Larry J. Bence, et ux;
Ben T. Taucher, et ux;
The following properties in the E1/2 of Sec 4, T33N, R80W:
Nancy J. Rino, et al;
Gary R. Strong, et al;
Patric R. McMurry, et ux;
William H. Fitzgerald, et ux;
Charles E. Kunkel, et ux;

NATRONA COUNTY CLERK, WYOMING
Renee Vitto / Recorded: SAS
Nov 1, 2007 02:47:27 PM
Pages: 3
Total: $0.00
NC LEGAL
Scolly Downs, LLC
The following properties located within the SW¼ of Sec 4, T33N, R80W:
Scolly Downs, LLC
The following properties located within the S½ of Sec 4, T33N, R80W:
Mary Ellen Cook

FURTHERMORE, IT IS HEREBY RESOLVED that an election for organization of the Mile-Hi Improvement and Service District be held on the 4th day of January, 2008. The following electors are hereby appointed as judges of said election:

1. Chris Lindsey
2. Tracy Good
3. Renea Vitto

APPROVED AND ADOPTED this 2nd day of October, 2007.

BOARD OF COUNTY COMMISSIONERS
NATRONA COUNTY, WYOMING

ATTEST:

Renea Vitto, County Clerk

My term of office expires
January 6, 2011
April 28, 2008

Mr. Lawrence Bolton
Mile-Hi Improvement & Service District
P.O. Box 1717
Mills, WY 82644

Re: Wholesale Water Service Contract

Dear Mr. Bolton:

We have received your request regarding a wholesale water contract between the Central Wyoming Regional Water System Joint Powers Board and the Mile-Hi Improvement & Service District. A draft contract is being prepared by the attorney for the Joint Powers Board.

Because of budget meetings and other more urgent items, the consideration of the Mile-Hi Improvement & Service District wholesale service contract will take place at the RWS June or July meeting.

Mile-Hi Improvement & Service District appears to meet all the criteria for receiving wholesale water service from the Regional Water System Joint Powers Board. At this time, no concerns are anticipated.

Please be aware that system investment charges will be due when individual homeowners connect into the system. The current RWS system investment charges are $600 for each ¾” tap and $1,002 for each 1” tap. Please realize that these charges may increase in the near future.

Please feel free to contact me should you have any questions or concerns.

Sincerely,

[Signature]
Paul C. Bertoglio
Chairman

Cc: Gary R. Clough, City of Casper Public Services Director
David W. Hill, City of Casper Public Utilities Manager
Barry Lawrence, WWDC Project Manager
John Naquin, Water Treatment Plant Manager
Tim Rail, Water Distribution Superintendent
APPENDIX C
SECTION 1 – HYDRAULIC MODEL

This report describes the hydraulic modeling that was used to develop the pipeline sizes for the proposed Mile-Hi water supply system as presented in the Level II Study.

SOURCE OF SUPPLY

The proposed source of supply for the Mile-Hi Improvement and Service District (District) is the Central Wyoming Regional Water System (CWRWS). A 16-inch CWRWS water transmission pipeline is located along the south side of Zero Road, and it parallels the northern boundary of the District. The CWRWS pipeline conveys water to the Zone 2 water storage tanks located near the Natrona County International Airport, located approximately two miles north and northwest of the District. Two Zone 2 booster stations are located in the western portions of the CWRWS, the Mills/Mountain View and Airport booster stations. The two booster stations pump water from the Zone 1 system into the Zone 2 system in the western portion of the CWRWS supply system. The capacity of the 16-inch water transmission pipeline in the District area is estimated to be in excess of 2,500 gallons per minute (gpm).

HYDRAULIC MODEL

In order to analyze the proposed water system for the District, a hydraulic model was developed. The hydraulic model utilized the Bentley WaterGEMS V8 XM (WaterGEMS) hydraulic modeling software as developed by Haestad Methods, Inc. The WaterGEMS model employs the Hazen and Williams equations for analyzing and solving the pipe network system. The WaterGEMS model also uses a “link-node” description to develop a skeletal layout of the proposed water system. Figure 1 illustrates a generic link node description for simple water system components. The links represent pipelines and, in general, the nodes represent junctions along the pipelines. Links can also contain pumps or control valves (pressure sustaining, pressure reducing, altitude, etc.). Nodes occur at tees, crosses, transitions, and at water storage facilities (tanks or reservoirs). Nodes have defined elevations, and the water demands in the system are identified at the nodes; these demands can be associated with residential, commercial, park irrigation, or fire flow demands. The hydraulic model skeleton for the District hydraulic model is provided in Figure 2 (attached).
The distribution of water demands through the water system for the District was based on the assumption that all demands are residential demands; there are no commercial or park irrigation demands in the District. Residential water demands were distributed based on a physical count of the platted lots (57) in the District area. Each lot was assumed to have an average occupancy of 3.2 people per lot, developed or not. The total population served was estimated to be 182.

Three water usage figures were used in developing the hydraulic modeling scenarios and for sizing the proposed pipelines for the water delivery system. The first is the “average day demand”, or ADD. ADD is calculated by dividing the total water use in the system throughout the year by the service area population. Several studies performed over the past 10 years have identified the ADD for residential use in the rural areas around the CWRWS area to be about 150 gallons per capita per day (gpcpd). This usage figure may be somewhat high for the District area because a separate system can be utilized for irrigation. However, in order to be conservative, the ADD is assumed to be 150 gpcpd, which equates to 0.333 gallons per minute (gpm) per lot over the course of a 24-hour period.

The second water usage figure is “peak day demand” or PDD. PDD is defined as the highest water usage experienced during a 24-hour period. The PDD usually occurs in the summer when...
irrigation watering is at its peak. PDD is used to size the pumping facilities in the water system. The previously referenced studies have identified the PDD for residential use as being 3 times the ADD, or in the District’s case, 450 gpcpd. The PDD equates to 1.0 gpm per lot over the course of a 24-hour period.

The third water usage figure is the “peak hour demand”, or PHD. PHD is the peak water usage observed at a point in time due to daily cyclical water demands. The PHD is used to size the water transmission and distribution system piping. The previously referenced studies have identified the PHD in the service area to be 6 times the ADD, or 900 gpcpd. Therefore, the PHD equates to 2.0 gpm per lot. AWWA and DEQ design standards require system pressures greater than 35 pounds per square inch (psi) during normal operating conditions. A 35 psi minimum operating pressure is the critical design consideration for pipeline sizing and service areas in the water system.

MODELING GOALS
Several required goals were considered for the hydraulic modeling effort. As discussed previously, the maximum available pressure in the CWRWS transmission pipeline is 55 to 60 psi. AWWA standards recommend that operating pressures in water systems should range from 60 to 90 psi, so the available pressure barely meets the lower range of the AWWA recommended operating pressure. Therefore, the primary goal was to develop a water distribution system through the modeling effort that was large enough to provide a minimum pressure of 50 psi at every node/junction.

The secondary goal was to be able to provide a small level of fire flow capacity in the system, even though the system design was not intended to meet the fire flows required in municipal systems. Typically, fire flows in residential areas are required to be 1,000 to 1,500 gpm at each hydrant. Based on discussions with the nearby fire departments, the District wanted to be able to provide a fire flow of 300 gpm at each hydrant. The lower flow would not be adequate to meet residential fire flows in a municipal system, but would be adequate to enable fire trucks to fill quickly, and may allow the department to deliver up to three fire hose flows of 150 gpm each to manually fight a fire. The goal of the model was therefore to size the distribution system to be
able to deliver 300 gpm without dropping the pressure in the system below 20 psi during a peak
day demand occurring concurrently.

**DESCRIPTION OF MODELING PROCESS**
The total water demand of the District was calculated to be the PHD of 114 gpm plus the
minimum fire flow demand of 300 gpm for a total demand of 414 gpm. The model was therefore
developed to provide a minimum of 500 gpm at the source, the CWRWS pipeline connection.
The model was set up to serve 57 total lots through 16 nodes/junctions throughout the proposed
water system. Initial pipe sizing was estimated and the piping model skeleton was set up. ADD
demands of 0.33 gpm were assigned to each lot, and the model was run to evaluate pressures and
flows at each node/junction. Then, PDD demands of 1.0 gpm per lot were assigned to each lot,
and the model was run to evaluate pressures and flows at each node/junction. Finally, PHD
demands of 2.0 gpm were assigned to each lot, and the model was run to evaluate pressures and
flows at each node/junction. The pipeline skeleton was evaluated for pressure losses during PHD
to determine if the pipe sizes could be reduced or needed to be upsized and still meet the primary
goal of 50 psi. The final pipeline sizing was developed through several more model variations.
The modeling results are shown in a tabular format at the end of this report.

Once the final pipe sizing for the primary goal was determined, the secondary goal was analyzed
with the model. The pipeline skeleton from the above modeling effort was used to test the system
at reduced fire flow demands of 300 gpm. The model was run with fire demands of 300 gpm at
every hydrant during a peak day, and the model evaluated to determine whether system pressures
remained above 20 psi. The skeleton for the proposed system was adequate to be able to deliver
300 gpm without dropping system pressures below the 20 psi minimum. The modeling results
are shown in a tabular format at the end of this report.

**MODELING RESULTS**
The results of the hydraulic modeling are included at the end of this report. The proposed
pipeline sizing resulting from the modeling effort is shown in Figure 3 of the Level II Study.
Figure 2: Hydraulic Model Skeleton
### Mile-Hi Water Supply Study Hydraulic Modeling for Average Day Demand (ADD)

#### Pipeline Report

<table>
<thead>
<tr>
<th>Label</th>
<th>Start Node</th>
<th>Stop Node</th>
<th>Diameter (in)</th>
<th>Material</th>
<th>Hazen-Williams C ()</th>
<th>Flow (gpm)</th>
<th>Velocity (ft/s)</th>
<th>Headloss Gradient (ft/ft)</th>
<th>Length (User Defined) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td>61: R-1</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>18.99</td>
<td>0.12</td>
<td>0</td>
<td>1550</td>
</tr>
<tr>
<td>P-2</td>
<td>22: J-2</td>
<td>24: J-3</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>6.66</td>
<td>0.08</td>
<td>0</td>
<td>1050</td>
</tr>
<tr>
<td>P-3</td>
<td>24: J-3</td>
<td>26: J-4</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>4</td>
<td>0.05</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>P-4</td>
<td>26: J-4</td>
<td>55: J-18</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>1</td>
<td>0.01</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-5</td>
<td>30: J-6</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>-11</td>
<td>0.07</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-6</td>
<td>24: J-3</td>
<td>59: J-19</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>1.33</td>
<td>0.03</td>
<td>0</td>
<td>1300</td>
</tr>
<tr>
<td>P-7</td>
<td>30: J-6</td>
<td>34: J-8</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>9.67</td>
<td>0.06</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-8</td>
<td>34: J-8</td>
<td>32: J-7</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>1.33</td>
<td>0.03</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-9</td>
<td>34: J-8</td>
<td>37: J-9</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>8.34</td>
<td>0.05</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-10</td>
<td>39: J-10</td>
<td>37: J-9</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-0.33</td>
<td>0.01</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-11</td>
<td>37: J-9</td>
<td>41: J-11</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>8.01</td>
<td>0.09</td>
<td>0</td>
<td>700</td>
</tr>
<tr>
<td>P-12</td>
<td>41: J-11</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>6.34</td>
<td>0.07</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-14</td>
<td>47: J-14</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>-3.67</td>
<td>0.04</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-15</td>
<td>49: J-15</td>
<td>47: J-14</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-2</td>
<td>0.05</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-16</td>
<td>47: J-14</td>
<td>51: J-16</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>1.67</td>
<td>0.02</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>P-17</td>
<td>51: J-16</td>
<td>53: J-17</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>950</td>
</tr>
</tbody>
</table>

2/11/2009
# Mile-Hi Water Supply Study Hydraulic Modeling for Peak Day Demand (PDD)

## Pipeline Report

<table>
<thead>
<tr>
<th>Label</th>
<th>Start Node</th>
<th>Stop Node</th>
<th>Diameter (in)</th>
<th>Material</th>
<th>Hazen-Williams C (m)</th>
<th>Flow (gpm)</th>
<th>Velocity (ft/s)</th>
<th>Headloss Gradient (ft/ft)</th>
<th>Length (User Defined) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td>61: R-1</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>57</td>
<td>0.36</td>
<td>0</td>
<td>1550</td>
</tr>
<tr>
<td>P-2</td>
<td>22: J-2</td>
<td>24: J-3</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>20</td>
<td>0.23</td>
<td>0</td>
<td>1050</td>
</tr>
<tr>
<td>P-3</td>
<td>24: J-3</td>
<td>26: J-4</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>12</td>
<td>0.14</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>P-4</td>
<td>26: J-4</td>
<td>55: J-18</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>3</td>
<td>0.02</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-5</td>
<td>30: J-6</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>-33</td>
<td>0.21</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-6</td>
<td>24: J-3</td>
<td>59: J-19</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>4</td>
<td>0.1</td>
<td>0</td>
<td>1300</td>
</tr>
<tr>
<td>P-7</td>
<td>30: J-6</td>
<td>34: J-8</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>29</td>
<td>0.19</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-8</td>
<td>34: J-8</td>
<td>32: J-7</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>4</td>
<td>0.1</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-9</td>
<td>34: J-8</td>
<td>37: J-9</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>25</td>
<td>0.16</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-10</td>
<td>39: J-10</td>
<td>37: J-9</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-1</td>
<td>0.03</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-11</td>
<td>37: J-9</td>
<td>41: J-11</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>24</td>
<td>0.27</td>
<td>0</td>
<td>700</td>
</tr>
<tr>
<td>P-12</td>
<td>41: J-11</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>19</td>
<td>0.22</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-13</td>
<td>47: J-14</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>-11</td>
<td>0.12</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-14</td>
<td>47: J-14</td>
<td>47: J-14</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-6</td>
<td>0.15</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-15</td>
<td>49: J-15</td>
<td>47: J-14</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>5</td>
<td>0.06</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>P-16</td>
<td>47: J-14</td>
<td>51: J-16</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>950</td>
</tr>
</tbody>
</table>

2/11/2009
### Mile-Hi Water Supply Study Hydraulic Modeling for Peak Hour Demand (PHD)
#### Pipeline Report

<table>
<thead>
<tr>
<th>Label</th>
<th>Start Node</th>
<th>Stop Node</th>
<th>Diameter (in)</th>
<th>Material</th>
<th>Hazen-Williams C</th>
<th>Flow (gpm)</th>
<th>Velocity (ft/s)</th>
<th>Headloss Gradient (ft/ft)</th>
<th>Length (User Defined) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td>61: R-1</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>114</td>
<td>0.73</td>
<td>0</td>
<td>1550</td>
</tr>
<tr>
<td>P-2</td>
<td>22: J-2</td>
<td>24: J-3</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>40</td>
<td>0.45</td>
<td>0</td>
<td>1050</td>
</tr>
<tr>
<td>P-3</td>
<td>24: J-3</td>
<td>26: J-4</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>24</td>
<td>0.27</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>P-4</td>
<td>26: J-4</td>
<td>55: J-18</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>6</td>
<td>0.04</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-5</td>
<td>30: J-6</td>
<td>22: J-2</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>-66</td>
<td>0.42</td>
<td>0</td>
<td>1150</td>
</tr>
<tr>
<td>P-6</td>
<td>24: J-3</td>
<td>59: J-19</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>8</td>
<td>0.2</td>
<td>0</td>
<td>1300</td>
</tr>
<tr>
<td>P-7</td>
<td>30: J-6</td>
<td>34: J-8</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>58</td>
<td>0.37</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-8</td>
<td>34: J-8</td>
<td>32: J-7</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>8</td>
<td>0.2</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-9</td>
<td>34: J-8</td>
<td>37: J-9</td>
<td>8</td>
<td>PVC</td>
<td>150</td>
<td>50</td>
<td>0.32</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-10</td>
<td>39: J-10</td>
<td>37: J-9</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-2</td>
<td>0.05</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>P-11</td>
<td>37: J-9</td>
<td>41: J-11</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>48</td>
<td>0.54</td>
<td>0</td>
<td>700</td>
</tr>
<tr>
<td>P-12</td>
<td>41: J-11</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>38</td>
<td>0.43</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-14</td>
<td>47: J-14</td>
<td>43: J-12</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>-22</td>
<td>0.25</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>P-15</td>
<td>49: J-15</td>
<td>47: J-14</td>
<td>4</td>
<td>PVC</td>
<td>150</td>
<td>-12</td>
<td>0.31</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>P-16</td>
<td>47: J-14</td>
<td>51: J-16</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>10</td>
<td>0.11</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>P-17</td>
<td>51: J-16</td>
<td>53: J-17</td>
<td>6</td>
<td>PVC</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>950</td>
</tr>
</tbody>
</table>

2/11/2009
### Mile-Hi Water Supply Study Hydraulic Modeling for Average Day Demand (ADD) Junction Report

<table>
<thead>
<tr>
<th>Junction</th>
<th>Elevation (ft)</th>
<th>Demand (gpm)</th>
<th>Hydraulic Grade (ft)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-2</td>
<td>5270</td>
<td>1.33</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-3</td>
<td>5270</td>
<td>1.33</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-4</td>
<td>5270</td>
<td>3</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-6</td>
<td>5270</td>
<td>1.33</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-7</td>
<td>5270</td>
<td>1.33</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-8</td>
<td>5270</td>
<td>0</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-9</td>
<td>5285</td>
<td>0</td>
<td>5400</td>
<td>49.7</td>
</tr>
<tr>
<td>J-10</td>
<td>5280</td>
<td>0.33</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-11</td>
<td>5280</td>
<td>1.67</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-12</td>
<td>5280</td>
<td>2.67</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-14</td>
<td>5280</td>
<td>0</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-15</td>
<td>5280</td>
<td>2</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-16</td>
<td>5280</td>
<td>1.67</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-17</td>
<td>5280</td>
<td>0</td>
<td>5400</td>
<td>51.9</td>
</tr>
<tr>
<td>J-18</td>
<td>5270</td>
<td>1</td>
<td>5400</td>
<td>56.2</td>
</tr>
<tr>
<td>J-19</td>
<td>5270</td>
<td>1.33</td>
<td>5400</td>
<td>56.2</td>
</tr>
</tbody>
</table>

2/11/2009
### Mile-Hi Water Supply Study Hydraulic Modeling for Peak Day Demand (PDD) Junction Report

<table>
<thead>
<tr>
<th>Junction</th>
<th>Elevation (ft)</th>
<th>Demand (gpm)</th>
<th>Hydraulic Grade (ft)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-2</td>
<td>5270</td>
<td>4</td>
<td>5399.9</td>
<td>56.2</td>
</tr>
<tr>
<td>J-3</td>
<td>5270</td>
<td>4</td>
<td>5399.8</td>
<td>56.2</td>
</tr>
<tr>
<td>J-4</td>
<td>5270</td>
<td>9</td>
<td>5399.8</td>
<td>56.2</td>
</tr>
<tr>
<td>J-6</td>
<td>5270</td>
<td>4</td>
<td>5399.9</td>
<td>56.2</td>
</tr>
<tr>
<td>J-7</td>
<td>5270</td>
<td>4</td>
<td>5399.9</td>
<td>56.2</td>
</tr>
<tr>
<td>J-8</td>
<td>5270</td>
<td>0</td>
<td>5399.9</td>
<td>56.2</td>
</tr>
<tr>
<td>J-9</td>
<td>5285</td>
<td>0</td>
<td>5399.9</td>
<td>49.7</td>
</tr>
<tr>
<td>J-10</td>
<td>5280</td>
<td>1</td>
<td>5399.8</td>
<td>51.9</td>
</tr>
<tr>
<td>J-11</td>
<td>5280</td>
<td>5</td>
<td>5399.8</td>
<td>51.8</td>
</tr>
<tr>
<td>J-12</td>
<td>5280</td>
<td>8</td>
<td>5399.8</td>
<td>51.8</td>
</tr>
<tr>
<td>J-14</td>
<td>5280</td>
<td>0</td>
<td>5399.8</td>
<td>51.8</td>
</tr>
<tr>
<td>J-15</td>
<td>5280</td>
<td>6</td>
<td>5399.7</td>
<td>51.8</td>
</tr>
<tr>
<td>J-16</td>
<td>5280</td>
<td>5</td>
<td>5399.8</td>
<td>51.8</td>
</tr>
<tr>
<td>J-17</td>
<td>5280</td>
<td>0</td>
<td>5399.8</td>
<td>51.8</td>
</tr>
<tr>
<td>J-18</td>
<td>5270</td>
<td>3</td>
<td>5399.8</td>
<td>56.2</td>
</tr>
<tr>
<td>J-19</td>
<td>5270</td>
<td>4</td>
<td>5399.8</td>
<td>56.2</td>
</tr>
</tbody>
</table>

2/11/2009
<table>
<thead>
<tr>
<th>Junction</th>
<th>Elevation (ft)</th>
<th>Demand (gpm)</th>
<th>Hydraulic Grade (ft)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-2</td>
<td>5270</td>
<td>8</td>
<td>5399.6</td>
<td>56.1</td>
</tr>
<tr>
<td>J-3</td>
<td>5270</td>
<td>8</td>
<td>5399.5</td>
<td>56</td>
</tr>
<tr>
<td>J-4</td>
<td>5270</td>
<td>18</td>
<td>5399.4</td>
<td>56</td>
</tr>
<tr>
<td>J-6</td>
<td>5270</td>
<td>8</td>
<td>5399.5</td>
<td>56</td>
</tr>
<tr>
<td>J-7</td>
<td>5270</td>
<td>8</td>
<td>5399.5</td>
<td>56</td>
</tr>
<tr>
<td>J-8</td>
<td>5270</td>
<td>0</td>
<td>5399.5</td>
<td>56</td>
</tr>
<tr>
<td>J-9</td>
<td>5285</td>
<td>0</td>
<td>5399.5</td>
<td>49.5</td>
</tr>
<tr>
<td>J-10</td>
<td>5280</td>
<td>2</td>
<td>5399.5</td>
<td>51.7</td>
</tr>
<tr>
<td>J-11</td>
<td>5280</td>
<td>10</td>
<td>5399.3</td>
<td>51.6</td>
</tr>
<tr>
<td>J-12</td>
<td>5280</td>
<td>16</td>
<td>5399.2</td>
<td>51.6</td>
</tr>
<tr>
<td>J-14</td>
<td>5280</td>
<td>0</td>
<td>5399.1</td>
<td>51.5</td>
</tr>
<tr>
<td>J-15</td>
<td>5280</td>
<td>12</td>
<td>5399.1</td>
<td>51.5</td>
</tr>
<tr>
<td>J-16</td>
<td>5280</td>
<td>10</td>
<td>5399.1</td>
<td>51.5</td>
</tr>
<tr>
<td>J-17</td>
<td>5280</td>
<td>0</td>
<td>5399.1</td>
<td>51.5</td>
</tr>
<tr>
<td>J-18</td>
<td>5270</td>
<td>6</td>
<td>5399.4</td>
<td>56</td>
</tr>
<tr>
<td>J-19</td>
<td>5270</td>
<td>8</td>
<td>5399.4</td>
<td>56</td>
</tr>
</tbody>
</table>
Environmental Assessment for Mile-Hi Water Supply Project

NATRONA COUNTY, WYOMING

JUNE 2009

Prepared by:

609 CONSULTING, LLC
5830 East 2nd Street
Casper, Wyoming 82609
Phone: 307-473-8184
Fax #: 307-265-4672
ENVIRONMENTAL ASSESSMENT

SUMMARY

PROJECT IDENTIFICATION

Applicant: Mile-Hi Improvement and Service District
Address: PO Box 1717, Mills, WY 82644
Project: Mile-Hi Water Supply Project

CONTACT PERSON

Larry Bolton
PO Box 1717
Mills, WY 82644
Ph: 307-473-1753

ABSTRACT

The Mile-Hi Improvement and Service District is located approximately 1-1/2 miles west of the Town of Mills, and 6 miles west of the City of Casper. The current water supply for the District residents is generally provided by shallow wells. Due to the recent and ongoing drought, and changes in irrigation practices, water levels in the domestic wells in the area have fallen, and the sulfate/nitrate levels are increasing beyond acceptable levels. Therefore, plans are being made to obtain a municipal water supply from the nearby Central Wyoming Regional Water System, and to construct a water distribution system to serve the residents of the District. All the water lines would be constructed within existing county road rights-of-ways to the extent possible.

The proposed water supply project should not have any adverse impacts on the planning area with proposed mitigation measures. Several issues were raised during the planning stages, including: (1) erosion control and re-vegetation of areas disturbed during construction; (2) impacts on wildlife; (3) impacts on wetlands; (4) impacts on archeological or historic sites; and (5) impacts on threatened or endangered species.

COMMENT PERIOD

In conformance with the requirements of the National Environmental Policy Act and Wyoming Environmental Review Process, this Finding of No Significant Impact (FONSI) will be subject to a 30-day public review period. The FONSI will be distributed to interested persons and agencies for their review. The FONSI will be available for public review at the Wyoming Department of Environmental Quality/Water Quality
Division, 122 West 25th Street, Herschler Building, Cheyenne, Wyoming. All comments received will be given due consideration. Comments should be directed to:

Brian Mark, SRF Program Principal
Water Quality Division
122 West 25th Street
Herschler Building, 4W
Cheyenne, WY 82002
Tel: 307-777-5973; Fax: 307-777-5973
E-mail: bmark@wyo.gov
SECTION 1 – PURPOSE AND NEED FOR ACTION

This section of the Environmental Assessment Report (Report) identifies the purpose and the need for the water supply project.

PROJECT PURPOSE AND NEED
The Mile-Hi Improvement and Service District (District) was formed in 2008 for the primary purpose of pursuing a water supply system. The District boundary was presented previously in Figure 1-2. The current water supply for the District residents is generally provided by shallow wells which are experiencing decreased capacity and increasingly poorer water quality. The purpose of the project is to obtain a municipal water supply and to provide reliable potable water to all residents in the District.

DECISIONS TO BE MADE/SPECIAL APPROPRIATION GRANT
The decision to be made is to select an alternative in this document for developing a water supply for the District, including the “No Action” alternative, where no water supply would be provided. The decision will take into consideration the analysis of environmental effects. The decision will also take into consideration comments, suggestions, and recommendations brought forward during the public and agency scoping process, as well as any requirements by other federal agencies that have jurisdiction over the project. The project will require a NPDES permit for ground disturbance activities and a Section 404 permit for wetland/waters of the U.S.

SECTION 2 – ALTERNATIVES

This section of the Report defines the alternatives and further describes the preferred alternative.

ALTERNATIVE 1 – NO ACTION ALTERNATIVE
The “No Alternative” is not acceptable because the residents of the Mile-Hi District will be faced with an inadequate water supply, and the shallow groundwater supplies will be further stressed or depleted.
There are three different municipal-type water supply systems in proximity of the District. The Town of Mills water system is located to the east of the District. The Central Wyoming Regional Water system (CWRWS) is located to the west, the north and the south of the District. The Lakeview Improvement and Service District is located adjacent to the District to the west, and is currently served by the CWRWS. The Vista West water system is supplied by the City of Casper, and is located directly north of the District, along the north side of Zero Road. Therefore, the District is surrounded by public water systems, the nearest of which are the CWRWS and Vista West water systems.

In terms of alternative water supply systems, there are really only two systems available to the District; The Town of Mills and CWRWS. The Vista West water system is not considered as a feasible alternative water supply because it is a privately owned system, and is not adequately sized to serve the long term needs of the District. The nearest Mills water supply line is located approximately 1-1/2 miles east of the eastern periphery of the District. Conversations were initiated between the District and the Town of Mills, and there was not a great deal of interest in Mills providing water service to the District because of the distance of the District from the town’s limits. In addition, conversations with the town’s planning consultant indicated that if the District wanted to become a Mills water customer, the District would be required to annex to the Town of Mills. Annexation would mean that the District would be required to install a municipal type water system with fire protection capabilities, construct a sewer system, pave its roadways, and perhaps install sidewalks and street lighting. The town would own and operate the District’s water system and other infrastructure facilities. In return, Mills would provide police and fire protection, trash collection and other municipal services for the District. The annexation requirements would create a financial burden on the properties in the District and would make a municipal water supply system economically not feasible.

The other alternative water supply for the District is the CWRWS. The nearest CWRWS pipeline is a 16-inch diameter transmission line aligned along the south side of Zero Road, adjacent to the District’s northern boundary (see Figure 3-1 in the Level II Study also). The
CWRWS has agreed to serve the District, a letter of approval is attached as Appendix B to the Level II Study. The primary advantages of the District becoming a customer of the CWRWS are that the system has adequate capacity to serve the District needs, and there are no annexation requirements. The District will be able to purchase water at a metered connection to the CWRWS transmission line, and sell water to its customers. The District will be required to operate and maintain the water distribution system within the District, and to maintain a water rate structure and budget that supports the water system operation. The District will also be required to pay the CWRWS System Investment Charge (SIC) for every tap that is installed in the District’s water system. The CWRWS SIC costs are discussed in Section 4 of the Level II Study.

Based upon the requirements of both the water system alternatives described above, the preferred water system alternative is for the District to become a wholesale customer of the CWRWS and to construct a water distribution system to serve the residents of the District.

**DETAILED DESCRIPTION OF PREFERRED ALTERNATIVE**

The conceptual design of the proposed water supply system for the Mile-Hi system is given in Figure 3-1 of the Level II Report, and attached to this Report. The goal of the conceptual design is to locate and align the water mains so that every property in the District has access to a water main. Some of the significant design elements and features of the conceptual design are highlighted below:

- An 8-inch tap will be made to the CWRWS at the intersection of 6 Mile Road and Zero Road.
- Very near the CWRWS tap location, a master meter vault will be constructed to measure all the flows going to the District, and for subsequent billing purposes. The meter vault will be designed and constructed to meet CWRWS standards, and electrical service will be required for the meter operation.
- The water main to be aligned along 6 Mile Road will be located along the eastern side of 6 Mile Road. There is an active irrigation ditch along the western side of the roadway that will not allow ample space for a water line. It is expected that the asphalted roadway will
be disturbed by construction, and will need to be resurfaced following installation of the water line.

- The 8-inch water main serving the District will extend from the 6 Mile Road alignment westward across private properties to serve the Mile Hi Drive area.

- The water main for the Mile Hi Drive residents will be located along the roadway, off the traveled road surface, and preferably along the borrow ditch to avoid as much disturbance of the roadway as possible.

- An 8-inch water main from Mile Hi Drive will be extended westward to serve the residents on Horseshoe Road. An easement will be needed to construct the water main through private property.

- The water main serving the residents along Horseshoe Road will be aligned along the roadway, off the traveled road surface, and preferably along the borrow ditch to avoid as much disturbance of the roadway as possible.

- An un-metered emergency connection will be provided by providing another connection to the CWRWS transmission line along Zero Road. No master meter vault will be required, but the valve on the connection will be required to be kept closed unless needed. The connection will be made via hot-tapping, and the connection will only be used during an emergency.

- Flushing hydrants will be located at the ends of dead-end mains, and at locations that are favorable for flushing the water lines for maintenance.

- Isolation valves are located to minimize service disruptions during maintenance.

- All areas along 6 Mile Road will be re-paved and restored to pre-existing condition.

- All areas along both Mile Hi Drive and Horseshoe Road will be re-graveled and restored to pre-existing condition.

- All areas within the easements for water lines across private property will be seeded and returned to pre-existing condition to satisfy the property owner.

- Water meters will be located in buried “meter pits”, and will be located in public rights-of-way or easements dedicated to the District, and as close to the property lines as possible. A radio read meter system will be provided to allow efficient meter reading for the District operator.

- The water line alignments should avoid the need for any disturbance of wetlands.
SECTION 3 - IMPACTS AND MITIGATION

This section of the Report identifies the impacts, the environmental issues, and permits associated with construction of the water supply system for the District.

ISSUE SUMMARY
The proposed water supply project should not have any significant adverse impacts on the planning area with proposed mitigation measures. Several issues were raised during the planning stages. These issues included: (1) erosion control and re-vegetation of areas disturbed during construction; (2) impacts on wildlife; (3) impacts on wetlands; (4) impacts on archeological or historic sites; and (5) impacts on threatened or endangered species.

POPULATION, LAND USE AND GROWTH
The current population estimate for the District area was made using house counts. Recent Natrona County census data indicate the average household in the county has 3.2 people. The District currently has about 35 property owners, which equates to a population of approximately 112. The District is bounded on the north by the Vista West subdivisions and on the west by the Lakeview Improvement and Service District. Any growth to the east and south will be limited because of existing developments. Rather than attempting to project a 50-year population for the District, this Report assumes the future population of the District will be limited to the number of platted lots in the District area. The total number of platted lots is approximately 57 at complete in fill. The equivalent population of 57 properties is approximately 182. Therefore, for this Report, the 50-year design population is estimated to be 182.

ENVIRONMENTAL ISSUES
The following section summarizes the responses received from the state and federal agencies regarding the proposed project.

The U.S. Department of Agriculture, Natural Resources Conservation Service, responded that “Based on the information provided, we believe your project will not adversely impact important agricultural lands, since there will be no apparent conversion of lands from agricultural use to
non-agricultural use. However, we would recommend prompt re-vegetation of the disturbed areas to minimize soil erosion and weed control”, (see response at end of this report).

The U.S. Army Corps of Engineers determined that some water lines may cross wetlands created by the seasonal irrigation practices. They requested that an on-site wetland delineation be conducted to determine if there are wetlands in the project area subject to regulation and to establish exact locations and boundaries of wetlands and other waters of the U.S. The Corps stated that if the impacts created by the planned activities do not exceed the criteria listed under the nationwide permit, the project would qualify for authorization under the Nationwide Permit 12, which authorizes “Utility Line Activities”.

The Wyoming State Historic and Preservation Office (SHPO) stated that they have reviewed the project and find the documentation meets the Secretary of the Interiors’ Standards for Archaeology and Historic Preservation. They concurred that no historic properties will be affected by the project, as planned, as only previously disturbed lands will be impacted (see response at the end of the report).

The U.S. Fish and Wildlife Service (FWS) stated that “Based on the information provided in your letter, it is unlikely that the proposed work will adversely affect any threatened or endangered species or migratory birds. You may consider this project as proposed, to be in compliance with the Endangered Species Act of 1973, as amended (Act), 16 U.S.C. 1531 et seq. and the Migratory Bird Treaty Act, 16 U.S.C. 703” (see response at the end of the report).

The Wyoming Department of Environmental Quality, Air Quality Division states that they do not anticipate adverse air quality impacts with the possible exception of dust problems during site preparation. Environmental planning for the construction phase should include effective dust control procedures that will ensure compliance with the Wyoming Air Quality Standards and Regulations. Dust control measures may include frequent watering and/or chemical stabilization, (see response at the end of the report).
The Wyoming State Engineers Office reported that they have no problems with the project, (see response at the end of the report).

The State Office of Homeland Security stated that if the proposed project is to be located in a Special Flood Hazard Area, then the project will need to conform to the Flood Damage Prevention Ordinance adopted by the county. The project will need to be coordinated and permitted (if needed) with the county planner, Blair Leist.

### PERMITS
The project will require a National Pollution Discharge Elimination System (NPDES) permit prior to any ground disturbance activities and a Section 404 permit from the Army Corps of Engineers prior to any impacts to wetlands or other waters of the U.S.

### UNAVOIDABLE ADVERSE IMPACTS
Unavoidable adverse impacts will include minor, short term increases in noise and ambient air particulate levels and increased traffic in the immediate vicinity of the construction activities. These impacts will be minor and short term in nature, and mitigated to the extent possible by including proper construction practices in the project specifications.

Construction of the project will result in the commitment of resources including capital, manpower and materials.

### SECTION 4 – MITIGATION SUMMARY
After an evaluation of anticipated impacts of construction and operation of the proposed facilities, the following mitigation alternatives and recommendations were selected to minimize or eliminate these impacts.

1. The applicant agrees to perform: a) routine mitigation techniques for limiting direct runoff from disturbed areas and dewatering devices, including berms, sediment traps, silt fences, water checks, etc. which will be effective in limiting possible erosion and sediment discharge; b)
implement dust control measures at the access roads and construction sites; c) re-establish vegetation which was disturbed in accordance with local land use type.

(2) The applicant will demonstrate to the satisfaction of the Administrator that it has, or will have a fee simple or such other estate or interest in the site of the project, including necessary easements and rights-of-way, as the Administrator finds sufficient to assure undisturbed use and possession for the purpose of construction and operation for the estimated life of the project. This demonstration must be completed satisfactorily prior to the start of any construction.

SECTION 5 – COMMENTS AND COORDINATION
This section of the Report addresses final comments and coordination efforts.

PREPARERS OF THE ENVIRONMENTAL ASSESSMENT
This Environmental Assessment was prepared by Barry Venn, PE, 609 Consulting, LLC. 5830 E. 2nd Street, Casper, WY 82609.

PUBLIC PARTICIPATION
Public participation activities included newsletters and public meetings. The primary function of the newsletters were to notify the property owners of the status of the study, present important issues facing property owners and provide scheduling of public meetings.

Two public meetings were held during the course of the study. The meetings were well attended with an average attendance of over 50 percent of the residents at each meeting. At each meeting, representatives of the WWDC and the consultant made presentations and answered questions. The purpose of the meetings was to allow the public the opportunity to hear about the study, and to provide input about issues, interests, and the direction the study should take.
AGENCY COORDINATION AND CONSULTATION

The following agencies were contacted/consulted in the development of the Environmental Assessment:

- U.S. Army Corps of Engineers
- U.S Department of Agriculture, NRCS
- U.S. Department of the Interior, Fish and Wildlife Service
- Wyoming Department of Environmental Quality, Air Quality Division
- Wyoming Game and Fish Department
- Wyoming Office of Homeland Security
- Wyoming State Historic Preservation Office

Responses from each of the agencies are included at the end of this report.
September 25, 2008

Mr. Barry Venn
Consulting, LLC
5820 East 2nd Street
Casper, WY 82609


Dear Mr. Venn,

Thank you for your recent letter requesting comment on the referenced project. Natrona County participates in the National Flood Insurance Program (NFIP) and the Federal Emergency Management Agency has published Flood Insurance Rate Maps, which delineate the Special Flood Hazard Areas (SFHAs) for selected areas of the county.

Should the proposed project be located in a SFHA, then the project will need to conform to the Flood Damage Prevention Ordinance adopted by the county. Please be advised that implementation of the NFIP construction requirements reside with local government through enforcement of the local Flood Damage Prevention Ordinance. The proposed project will need to be coordinated and permitted (if needed) with the county and not by our office. Your point of contact is:

Mr. Blair Leist
County Development Director
Natrona County
120 West 1st St, Suite 200
Casper, Wyoming 82601
307-235-9435

Sincerely,

Kim Johnson
Wyoming State Coordinator
National Flood Insurance Program

Larry Majerus
Deputy Director
Angela VanHouten
Bioterrorism Program Manager
Kelly Ruiz
Public Information Officer
Sep 15, 2008

Barry Venn
609 Consulting, LLC
5830 East 2nd Street
Casper, WY 82609

Re: Mile - Hi Water Supply Project (SHPO File # 0908JRD012)

Dear Mr. Venn:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We have reviewed the project report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that no historic properties, as defined in 36 CFR § 800.16(l)(1), will be affected by the project as planned as only previously disturbed land will be impacted.

We recommend the EPA allow the project to proceed in accordance with state and federal laws subject to the following stipulation:

If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency must be contacted, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior’s Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence on your finding of no historic properties affected. Please refer to SHPO project #0908JRD012 on any future correspondence regarding this project. If you have any questions, please contact Joseph Daniele, Archaeologist/Review and Federal Consultation at 307-777-8793.

Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office
In Reply Refer To:
ES-61411/WY.22/WY08TA0343

Mr. Barry Venn
609 Consulting, LLC
5830 East Second Street
Casper, Wyoming 82609

Dear Mr. Venn:

Thank you for your letter of September 5, 2008, received in our office on September 11, 2008, regarding the Level II Feasibility Study for the Mile-Hi Water Supply Project. This project is located in Section 4 of Township 33N., Range 80W., in Natrona County, Wyoming.

The U.S. Fish and Wildlife Service (Service) believes that your letter provided sufficient information to determine the effects of this project to federally listed species. Based on the information provided in your letter, it is unlikely that the proposed work will adversely affect any threatened or endangered species or migratory birds. You may consider this project, as proposed, to be in compliance with the Endangered Species Act of 1973, as amended (Act), 16 U.S.C. 1531 et seq. and the Migratory Bird Treaty Act, 16 U.S.C. 703.

This project should be re-analyzed if new information reveals effects of the action that may affect listed species or designated or proposed critical habitat (1) in a manner or to an extent not considered in this letter, (2) if the action is subsequently modified in a manner that causes an effect to a listed species or designated or proposed critical habitat that was not considered in this letter, and/or (3) if a new species is listed or critical habitat is designated that may be affected by this project.

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If you have further questions regarding this letter or your responsibilities under the Act, please contact our office at the letterhead address or phone (307) 772-2374.

Sincerely,

Brian T. Kelly
Field Supervisor
Wyoming Field Office
Dear Sir:

The Natural Resources Conservation Service (NRCS) has reviewed the project proposal for the Mile-Hi Water Supply Project information dated September 5, 2008.

The Agriculture and Food Act of 1981, (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549, is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

Based on the information provided, we believe your project will not adversely impact important agricultural lands, since there will be no apparent conversion of lands from agricultural use to non-agricultural use. However, we recommend prompt re-vegetation of the disturbed areas to minimize soil erosion and weed encroachment. If you need assistance developing a seeding plan or would like a review of an existing seeding plan to ensure suitability for the soil types impacted, feel free to contact your local NRCS office in Casper. A good point of contact would be Mary Schrader, the District Conservationist, at (307)261-5436 x 113.

If you have any questions, or need to discuss this comment, please contact Casey Sheley at (307)233-6770.

Sincerely,

J. XAVIER MONTOYA
State Conservationist

Cc: Mary Schrader, District Conservationist, Casper Field Office
   Tom Watson, Area Conservationist, Douglas Area Office
October 7, 2008

Mr. Barry Venn, PE
609 Consulting, LLC
5830 East 2nd Street
Casper, WY 82609

Re: Environmental Review Request for Mile-Hi Water Supply Project
Natrona County

Dear Mr. Venn:

In a September 5, 2008 letter, 609 Consulting, LLC requested an environmental review for the above referenced project as it relates to Wyoming Air Quality Standards and Regulations (WAQSR.) As presented to the Division of Air Quality (Division), this project involves water pipeline and services installation primarily in the NE¼ of Section 4, T33N, R80W, Natrona County, west of Casper south of Zero Road and east of 7 Mile Road.

For pipeline construction activities, the Air Quality Division (Division) does not anticipate any adverse air quality impacts with the possible exception of dust problems during site preparation and drilling. Fugitive emissions requirements can be found in Chapter 3 § 2 (f). Environmental planning for these phases should include effective dust control procedures that will ensure compliance with WAQSR. Dust control measures may include frequent watering and/or chemical stabilization.

For questions regarding the contents of this correspondence, please contact the Division's Casper Field Office at (307) 473-3470 or 3455.

Sincerely,

Chris Hanify
Air Quality District Engineer

cc: file
Dave Finley, Air Quality Administrator, Cheyenne
Air Quality - Cheyenne
Mr. Barry Venn  
609 Consulting, LLC  
5830 East 2nd Street  
Casper, WY 82609

Re: Mile-Hi Water Supply Project

Dear Mr. Venn,

I have reviewed your September 5, 2008 submittal to this office regarding the referenced project. The review indicated that the project area is within the service area for the Central Wyoming Regional Water System.

The Surface Water Division has no problems with the project.

It should be noted that this office is still awaiting an updated service area map for the Central Wyoming Regional Water System. This map is a requirement prior to the Ground Water Division adjudicating the wells for the Regional System.

If you have any questions regarding this information, please feel free to contact me at 307-777-6168 or by email at jbarne@seo.wyo.gov.

With best regards,

John R. Barnes  
Administrator, Surface Water and Engineering Division