

South Cache Valley Regionalization Study

October 2014



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SECTION 1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Aqua Engineering was contracted to evaluate the possibility of forming a district that includes Providence, Nibley, and Hyrum. Currently, Providence and Nibley are connected to the Logan City water treatment facility. Hyrum has its own wastewater treatment facility. The district would purchase Hyrum’s existing wastewater treatment facility and upgrade the facility to treat the waste for the three Cities.

Additional collection system infrastructure would be required for Providence and Nibley to connect to the existing Hyrum facility. The new collection system would include additional gravity lines and several pump stations and pressure outfall lines that would sent the wastewater to the Hyrum treatment facility.

The primary purpose of this study is to evaluate the cost to upgrade the treatment system at Hyrum and install a new collection system to determine if it is a better alternative than staying with Logan City. The capital costs for upgrading and purchasing the Hyrum facility along with the new collection system are evaluated. The Operation and Maintenance costs are included in this evaluation.

1.2 DEMOGRAPHICS

The population growth was based on the growth estimates from the Governor’s Office of Planning and Budget. The budgeting for this project at the treatment facility is divided into two phases. The first phase would include construction at the treatment facility to meet a design year of 2024 and the second phase would take things out to 2035. Millville is currently on septic systems but it is assumed that some of their future homes will be connected to the sewer. The population shown for Millville is only for the anticipated connections in the future. Table 1-1 below is a summary of the populations for the design year.

Table 1-1 Design Population

| Year | Population | | | | |
|------|------------|-----------|--------|------------|-------|
| | Hyrum | Millville | Nibley | Providence | Total |
| 2014 | 7897 | 37 | 6240 | 7166 | 21340 |
| 2024 | 9346 | 454 | 8802 | 8650 | 27252 |
| 2035 | 11251 | 1020 | 12850 | 10640 | 35761 |

Sewer billings are done on a connection basis. The population was converted to Equivalent Residential Users (ERU) to determine the approximate number connections that will be used for billing. Table 1-2 is a summary of the ERU’s for the critical design years.

Table 1-2 Design Equivalent Residential Connections

| Year | Equivalent Residential Connections (ERU) | | | | |
|------|--|-----------|--------|------------|-------|
| | Hyrum | Millville | Nibley | Providence | Total |
| 2014 | 2256 | 10 | 1920 | 1991 | 6177 |
| 2024 | 2670 | 126 | 2708 | 2403 | 7907 |
| 2035 | 3215 | 283 | 3954 | 2956 | 10407 |

1.3 FACILITY GOVERNANCE

One of the primary purposes of this report is to recommend a way in which each of the different Cities can participate with the management of the wastewater treatment facility. The recommended method is to acquire the Hyrum Treatment facility and form a district through an Inter Local Agreement. There are a couple of different ways to create a district but using the Inter Local Agreement will allow the Cities to make the agreement between themselves and remove the County from discussions. This agreement will need to be worked out between each of the entities. Typically there is a board formed that is represented by people from each of the different entities. The board will oversee the management of the district. The annual budget will be taken back to the individual City councils and funded from each City. Typically the division would be based on the split in population.

1.4 HYRUM CITY EXISTING FACILITY

Hyrum City has an existing treatment facility with a discharge permit that can be transferred to the newly formed district. The plant has several key unit processes that can be modified which will allow expansion for the districts. The following items are the key items that are a part of the existing facility.

- MBR Treatment Facility
- Land with water shares
- Equipment
- Drying Beds
- Irrigation system
- Reclaim Pump Station

Hyrum's City Council would like to receive \$12,442,500 for the existing system. With the additional connections additional upgrades will be required to meet the higher flow from the combined communities.

1.5 DISCHARGE REQUIREMENTS

It is assumed that the existing point of discharge can be used for the upgraded facility. The existing permit limits were assumed to be valid for the new facility. However, it is anticipated that a Level II antidegradation review will be required to increase the discharge flow above the current design flow of 2 MGD. It is also anticipated that the Spring Creek Total Maximum Daily Load (TMDL) study will be redone in the next few years. The reevaluation of the TMDL could change the permit limits along with other water quality standard changes in the future.

The Spring Creek TMDL limited the phosphorus discharge for the Hyrum Facility several years ago. However, the Department of Water Quality (DWQ) is currently working on new rules that will restrict the nitrate limits that will be allowed in a discharge permit. As part of the upgrade it was anticipated that the limits would be lowered.

1.6 HYRUM PLANT EXPANSION

The Hyrum plant will need a substantial upgrade to meet the 3 MGD design flow. The upgrade will include the following items.

- Headworks
- New Anaerobic Basins
- New Anoxic Basins
- New Aerobic Basins
- New Membranes in the Existing Building
- New Blowers
- Updated UV Disinfection
- Updated Crane System
- Expanded Reuse Pump Station
- Updated Reuse Piping
- Additional Drying Beds

The estimated cost to update the Treatment facility to treat 3 MGD of flow is about \$11.3 Million. This upgrade should support the population to about 2024. An additional project will be needed to get the plant capacity to 4 MGD. The 4 MGD design flow will allow the plan to function until about 2035. The additional cost to expand the plant to 4 MGD is about \$2.9 Million.

1.7 COLLECTION SYSTEM EXPANSION

The sewage from Nibley and Providence will need to be sent to the location of the existing Hyrum City treatment facility. There were four different routing alternatives evaluated to direct the sewage to the treatment facility. The different alternatives range in cost between \$5.6 Million to 7.1 Million.

It was assumed that the costs for the collection system would be split up between Providence and Nibley based on the benefit for each City. Providence will be paying a larger portion because they are farther away from Hyrum.

Option 3 runs a gravity line down 4000 South which will be beneficial to future growth in the area. This is also the most expensive alternative at \$7.1 Million but it is the preferred alternative because of the area that it could support. However, one of the less expensive alternatives could be used if saving money became more important than the future growth area.

1.8 OPERATION AND MAINTENANCE COSTS

The operation and maintenance costs were estimated based on the existing Hyrum treatment plant budget. Currently Hyrum City has three operators at the facility. It is assumed that the expansion will require four operators. The rest of the costs to operate the facility are assumed to be linear with the increased size of the facility. The current operational cost for Hyrum is about

\$29 per connection. With the additional connections the estimated cost will be about \$21 at 3 MGD and \$20 at 4 MGD for each connection.

1.9 FINANCIAL IMPACT

The project will consist of upgrading the Hyrum Treatment facility to 3 MGD and new collection system piping and pump stations to deliver wastewater from Providence and Nibley. Assuming option 3 for the collection system the overall project cost is shown in Table 1-3.

Table 1-3 Total Project Cost

| District Total Costs | |
|-----------------------------------|----------------------|
| Treatment Facility Upgrade | \$ 11,290,474 |
| Hyrum Treatment Facility Purchase | \$ 12,500,000 |
| Option 3 Collection System | \$ 7,136,679 |
| Total Project Cost | \$ 30,927,153 |

The costs for the collection system would be divided between Providence and Nibley. Providence has the longest distance to get their wastewater flow to the treatment facility. The cost was divided 50% to 50% where the lines are shared. However Providence was assumed to cover the complete cost of the collection to the point the lines combined with Nibley. Table 1-4 below is a summary of the collection system cost.

Table 1-4 Total Collection System Cost

| Option 3 Pipeline Cost | |
|-------------------------------|---------------------|
| Providence | \$ 5,055,497 |
| Nibley | \$ 2,081,183 |
| Total | \$ 7,136,679 |

It was assumed that a reserve fund would be used to generate enough money to replace the membranes in 10 years. The cost was assumed to be \$3 Million for the replacement fund. This would require a minimum of \$3.50 a month per ERU to fund this account. It would be best to include additional funding for other equipment but this is a start. If the reserve fund is not created, additional debt will be required to pay for the membranes. In order to keep costs down in the early years, it may be preferable for the cities to not charge the \$3.50 per month fee initially, and bond for the \$3 million amount later – potentially at the same time as the expansion of the plant from 3MGD to 4MGD.

The annual cost per ERU was developed using the total costs from the estimated project costs, the reserve fund, and the O&M costs. A 4% interest rate with a 20-year term was assumed for the monthly cost evaluation as this rate is achievable in the private markets. However, based on conversations with the Department of Water Quality (DWQ), this project would likely be eligible for grant funding as well as low-interest loans. Logan City just received a similar amount of funding at 0.75 percent for 20 years, which helps to greatly reduce costs. Therefore, while the table below show costs at a four percent interest rate, later tables show a sensitivity analysis that brings down costs considerably with lower interest rates. The connections were based on the loan payback starting in 2016 where the total connections would be 6489.

Table 1-5 Total Cost per ERU – Option 3

| COST PER ERU | | | | | | |
|----------------------------|------------------------------|-------------------------------------|---------|------------------|------------|---------------|
| Option 3 3MGD Design | Treatment Debt Service | Pipeline Debt Service 2016 | O&M | Reserve Funds | Total 2016 | Total 2035 |
| Hyrum | \$22.71 | \$0.00 | \$20.80 | \$3.50 | \$47.01 | \$38.46 |
| Providence | \$22.71 | \$15.15 | \$20.80 | \$3.50 | \$62.15 | \$49.05 |
| Nibley | \$22.71 | \$6.27 | \$20.80 | \$3.50 | \$53.27 | \$41.72 |

SECTION 2 DEMOGRAPHIC AND WASTEWATER CHARACTERISTICS

2.1 BACKGROUND

This chapter gives an overview of demographic and wastewater flow characteristics of the areas that are included in this study. The areas included in this study are; Hyrum, Nibley, Providence, and City of Millville, with an assumption that the Nibley's wastewater stream will need to connect to central sewage collection in the future with new development of the city along with the expected population growth. Currently, City of Hyrum has its own water reclamation facility. Nibley and Providence are connected to a central sewer collection system that is connected to Logan's wastewater treatment plant. All of the residential housings in Millville have on-site systems, not connected to the central wastewater collection system.

2.2 POPULATION

The 2013 population estimates from 2010 Census Bureau, and Average Annual Rate of Change from Governor's Office of Planning and Budget for each community are shown in Table 2-1 below.

Table 2-1 Population and Population Projection

| | Hyrum | Millville | Nibley | Providence |
|-----------------|--------------|------------------|---------------|-------------------|
| 2013 Estimated* | 7,745 | 1,869 | 6029** | 7,033 |
| AARC | 1.7% | 2.0% | 3.5% | 1.9% |

*United States Census Bureau 2010

**Nibley City City-planner estimate

Based on the estimated 2013 population and AARC, population for each community was projected to the year of 2040 and plotted as shown in Figure 2-1. Additionally, total numbers of the population that would be connected to the sewer system was also projected using each community's projected population, as shown in Figure 2-2. The total number of the population that would be connected to the sewer system is the existing population of Millville subtracted from total number of the projected population. This is due to the septic systems installed on all of the existing housing in the City of Millville, however, it was assumed that the new development within the city will have to connect to the central sewer collection system, as it was mentioned earlier. The projected total number of connection to the Regional Facility is 35,761 in the year of 2035.

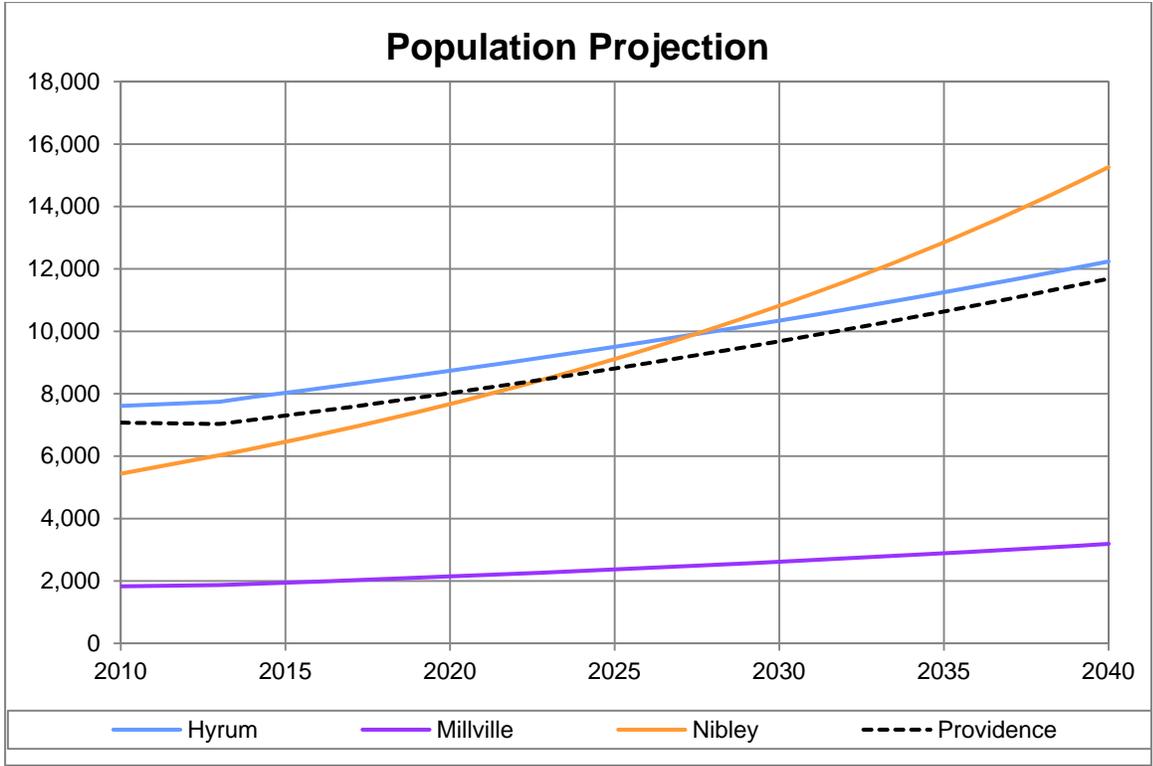


Figure 2-1 Population Projection for Each Community

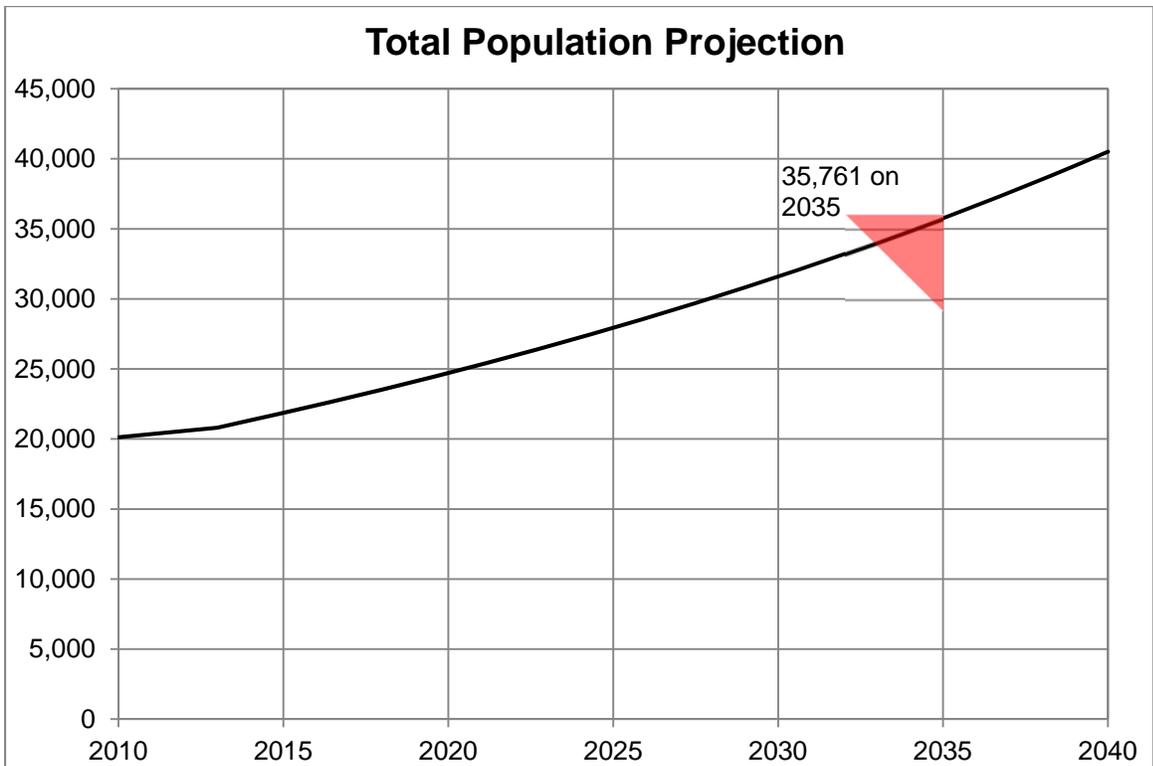


Figure 2-2 Total Population Projection

2.3 EQUIVALENT RESIDENTIAL CONNECTIONS (ERU)

The population estimates were converted to Equivalent Residential Units (ERUs). One ERU is equivalent to water usage by one single family residence. To establish a monthly user rates, the ERU values are commonly used instead of population. The values of ERUs vary from community to community and are supported by measured data. The ERU values for the communities that are included in this study are; Hyrum 3.5 people/ERU, Millville 3.6 people /ERU, Nibley 3.25 people/ERU, and Providence 3.6 people/ERU. Figure 2-3 shows the ERU's for each of the different communities in this study.

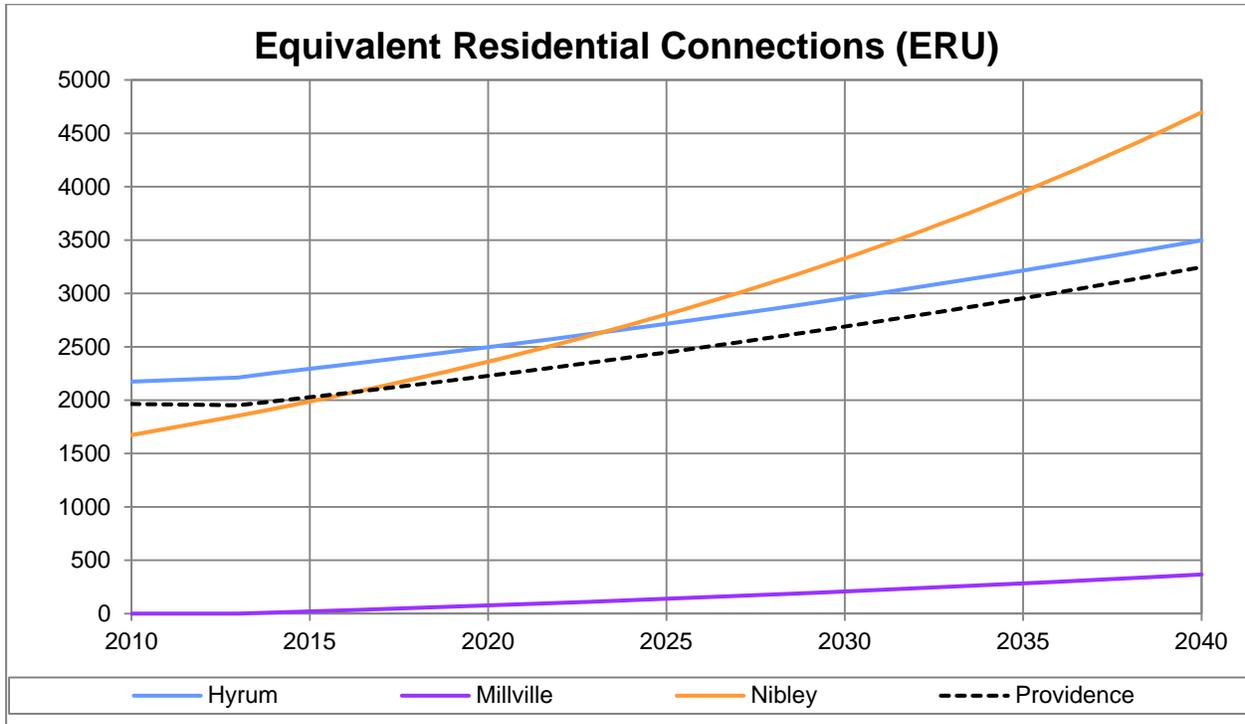


Figure 2-3 ERU for Each Community

The total ERUs are projected in Figure 2-4. It is anticipated that the total ERUs for the water reclamation facility reaches 10,407 in 2035.

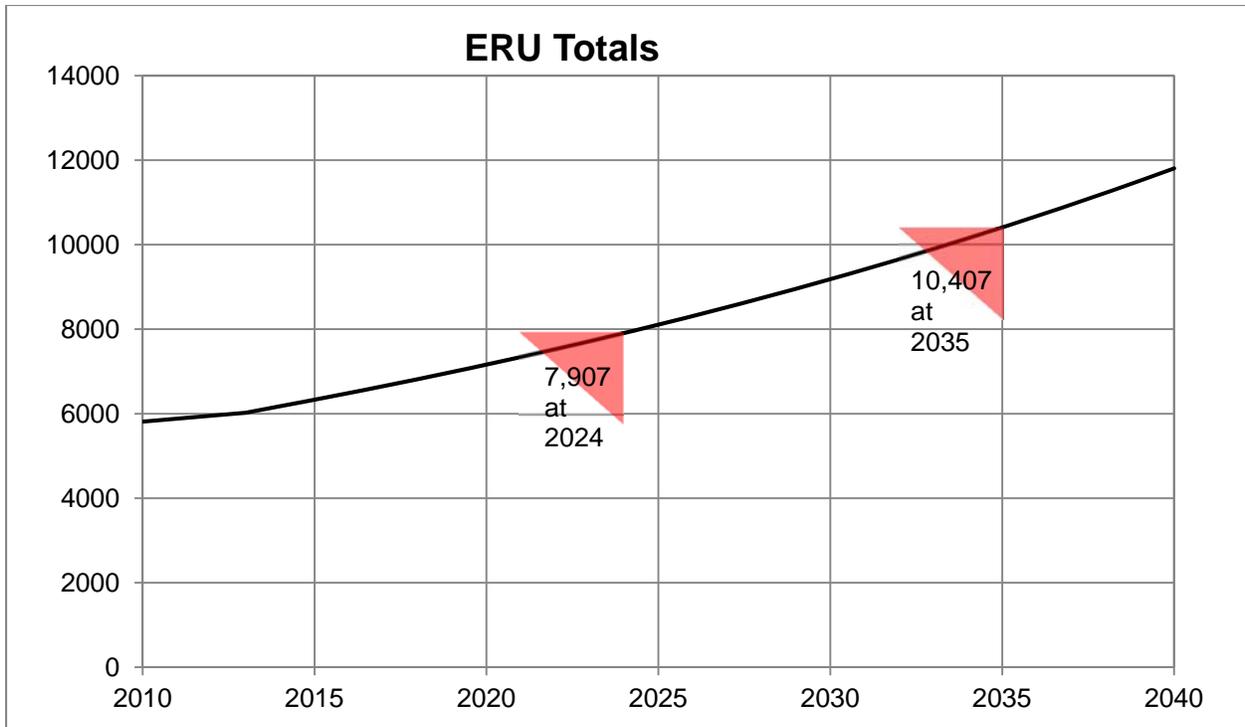


Figure 2-4 Total ERU's

2.4 INFLUENT DESIGN PARAMETERS

2.4.1 Flow

Monthly flow measurements from 2010 and 2013 for Nibley and Providence were provided and analyzed for each community for each year, ranges of the average flow rate in gallon per day per capita are shown in Table 2-2.

Table 2-2 Flow Rate

| AnnualAverage 2010 - 2013 | FlowRate (GPD per capita) | |
|------------------------------|---------------------------|-------------|
| | Nibley | Providence |
| | 48.7 - 105.4 | 74.5 - 98.6 |

The City of Nibley has an average monthly flow between 48.7 and 105.4 gallons per day per capita for last four years and the City of Providence has an average of 74.5 and 98.6 gallons per day per capita for last four years. The design flow used for Hyrum wastewater treatment plant was 125 gallons per day per person when Hyrum City water reclamation facility was designed. Based on the flows from the three communities, 110 gallons per day per capita is recommended for use in establishing design flow rates for the treatment plant. Applying this flow per capita equates to a 2024 design flow rate of about 3 MGD, and 2035 design flow of almost 4 MGD, overall flowrate projection to 2040 is shown in Figure 2-5.

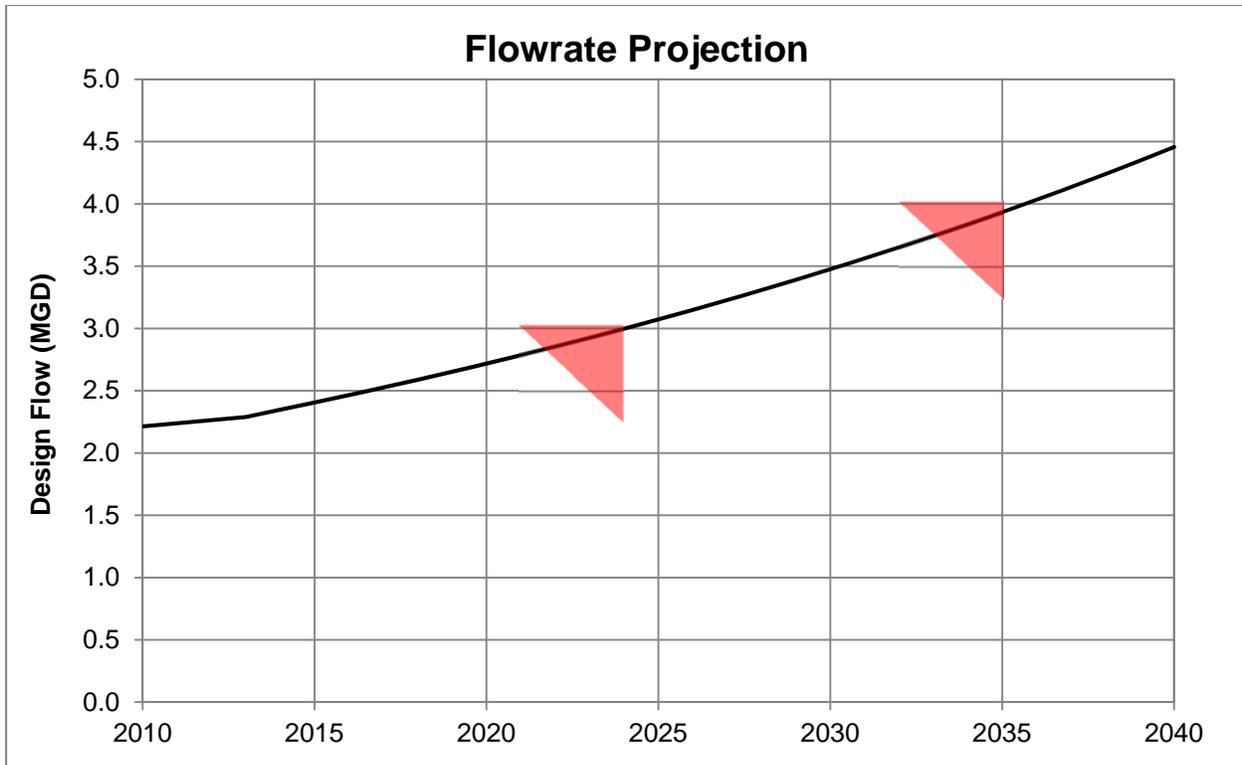


Figure 2-5 Flowrate Projection

For design purposes the facility will be phased so the first design flow will be 3 MGD and the second will be 4 MGD.

2.4.2 Biological Oxygen Demand (BOD)

The influent BOD is assumed to be 300 mg/l. The following are the design loadings:

- 2024 – 3 MGD – 7,560 pounds per day
- 2035 – 4 MGD – 10,006 pounds per day

2.4.3 Total Suspended Solids (TSS)

The influent TSS is assumed to be 300 mg/l. The following are the design loadings:

- 2024 – 3 MGD – 7,560 pounds per day
- 2035 – 4 MGD – 10,006 pounds per day

2.4.4 Total Kjeldahl Nitrogen (TKN)

The influent TKN is assumed to be 40 mg/l. The following are the design loadings:

- 2024 – 3 MGD – 1,000 pounds per day
- 2035 – 4 MGD – 1,334 pounds per day

2.4.5 Phosphorus

The influent Phosphorus is assumed to be 8 mg/l. The following are the design loadings:

- 2024 – 3 MGD – 200 pounds per day
- 2035 – 4 MGD – 266 pounds per day

2.5 INDUSTRIAL USERS

Currently Hyrum water reclamation facility predominantly treats wastewater from residential and agricultural users. There are two main industrial users in the area including Westpoint Dairy and JBS. JBS operates its own treatment facility, where the dairy discharge directly to the water reclamation facility. It is anticipated that majority of the wastewater stream from Nibley, Millville, and Providence will be residential with a few commercial, but not a major industrial waste stream. When there is a major industrial user need to connect to this facility, the quality of wastewater stream needs to be determined before connecting to the central sewer system.

SECTION 3 FACILITY GOVERNANCE

3.1 BODY POLITIC

All wastewater facilities that have over a single connection must be governed by a body politic. This gives the entity the ability to tax if the revenues do not meet the expenditures through fees. Cities are body politics so they meet this requirement. This facility could be set up using several different models for the body politic

3.1.1 Hyrum City

Hyrum City could operate as the body politic. If this happened then the other cities that connected to the system would need to have an agreement with Hyrum City. This is the way the current agreements are set up with Logan City. Currently, this is one of the main reasons this study is being evaluated is because of the lack of say from other communities to the decisions of Logan City. Because of these issues this model is not going to be acceptable for this application.

3.1.2 Special Service District

A special service district is typically formed by the County government. They establish service boundaries and appoint a governing board. The governing board can be appointed or elected for future members. The district has the ability to tax throughout its boundary. The district boundary can overlap different cities boundaries. They have the ability to collect fees from different body politics or individuals. This form of district is often the best if the district is going to maintain the collection systems of each of the cities. They can then be responsible for their own billing. Because the cities do not want to involve the County in the process and each of the cities are going to maintain their own collection system this model is not the best option. South Davis and Central Davis Sewer Districts are examples of Special Service Districts.

3.1.3 Inter Local Agreement

Each of the different cities enter into an agreement with each other. This agreement can allow for an oversight committee or board to govern the sewer district. Often the management of the sewer district works through a budget and the different entities just pay their share of the budget for the year. This is the best option for this group because it eliminates the County from being involved. An example of this type of entity is Central Valley Sewer District.

SECTION 4 EXISTING FACILITY

4.1 EXISTING CONVEYANCE

The Hyrum Water Reclamation Facility currently receives its flow from Hyrum City only. Moreover, Nibley and Providence are both connected to the Logan City Water Reclamation Facility. Additional infrastructure will be required for Nibley and Providence to be sewerred to the Hyrum facility.

4.2 HYRUM WASTEWATER TREATMENT FACILITY

Currently Hyrum water reclamation facility treats approximately 1 Million Gallons per Day (MGD). The original design was for 2 MGD but additional membranes are required to meet the 2 MGD design flow. Figure 4-1 is an overall aerial view of the treatment facility.



Figure 4-1 Overall Site Plan

4.2.1 Headworks

The collection system delivers the flow to a coarse screen system. This screen was part of the original plant and now functions to remove larger items prior to entering the fine screens in the Membrane Bio-Reactor (MBR) facility. The fine screens are 2mm screens with a peak design capacity of 4 MGD. The screened water then passes through a vortex grit chamber which

removes the grit from the system. In a MBR facility screening and grit removal protects the mechanical equipment which includes the membranes. Typical membrane warranties have stringent screening requirements. The headworks will need to be replaced to meet the needs of a regional facility.

4.2.2 Membrane Bio-Reactor

The MBR facility contains anoxic basins, aeration basins, and membrane basins with the required equipment. The membranes are hydraulically limited to 1 MGD and they are reaching their 10 year design life. Several of the plates are wearing out and have been replaced or are being replaced. In addition there is a membrane basin that is currently empty. For the plant to reach the 2 MGD design capacity that basin would need to be fully equipped. To meet the flow demands for a regional facility it was assumed that the anoxic basins and the aerobic basins would be moved outside. The building shell and the basins would be used but most of the mechanical equipment and membranes will need to be replaced.

4.2.3 Reuse Pump Station

In the summer when the phosphorus limit is at the lowest the City currently pumps the reclaimed wastewater to their pressure irrigation system. The regional system will continue to use the pump station to dispose of the wastewater in the summer when possible.

4.2.4 Digesters

The existing digesters are primarily used for equalization prior to dewatering. It is assumed that there may be a little maintenance done on the tanks to reduce the leaks for the regional facility. However, the volume of the tanks will be adequate for the needs of the regional facility.

4.2.5 Dewatering Facility

The City uses a 2 meter belt press to dewater the biosolids generated at the treatment facility. Currently the belt press is operated for about four hours a week. The dewatering facility will need to operate longer during the week but has capacity for the regional facility.

4.2.6 Drying Beds

Once the biosolids are dewatered to about 18% solids they are air dried to about 90% before they are land applied. It is assumed that the drying beds will need to be doubled in size to meet the requirements for the regional facility.

4.2.7 Land Application Site

The City currently owns about 146.28 acres of land that is used for agricultural purposes. The biosolids are applied to the land for fertilizer. Owning the land for biosolids application guarantees a location for solids disposal. It is anticipated that the 170 acres is large enough for the regional facility.

4.2.8 Office / Lab

The City has a small building that has several offices and laboratory space for the treatment facility. It is assumed that this space will work with a regional facility. Often regional facilities have a meeting room that is used for public meetings. However, for this facility we will assume those meetings could be held at one of the member city's offices.

4.3 HYRUM WASTEWATER TREATMENT FACILITY BUYOUT

Hyrum City has determined the cost to purchase their water reclamation facility. The total cost of the facility buyout is \$12,442,500. The cost includes following items in Table 4-1 below: The total cost for purchasing the Hyrum facility is included in the plant expansion cost analysis, Table 6-1.

Table 4-1 Cost for Purchasing the Plant

| | |
|---|-------------|
| Sewer Plant | \$7,600,000 |
| Land | \$2,000,000 |
| Water Shares associated with the Land | \$412,500 |
| Equipment | \$750,000 |
| New Drying Bed | \$240,000 |
| Irrigation Pivot | \$40,000 |
| Reclaim Pumping Station | \$900,000 |
| Other Existing Facility (Office/Lab, Fence, etc...) | \$500,000 |

SECTION 5 DISCHARGE REQUIREMENTS

5.1 DISCHARGE PERMIT

Hyrum City currently has a discharge permit (UT0023205) which allows the wastewater treatment plant to discharge to Spring Creek. The current permit is located in Appendix A. The permit has limits on several contaminants which are all concentration based. However, the permit also has a flow limit of 2 MGD. Once the treatment facility reaches the design capacity of 2 MGD a Level II antidegradation review will need to be completed on Spring Creek.

The purpose of an antidegradation review is to look at the assimilative capacity of the receiving water. A Level I antidegradation review will be completed by DWQ which will look at the receiving water and make sure the pollutants from the wastewater facility will not increase any contaminant above the water quality standards. The Level II antidegradation review is intended to discourage increasing any contaminant above the current background level. When the flow is increased the background levels of several contaminants will most likely increase the levels in the receiving water. The benefits of discharging pollution need to be justified from an environmental standpoint along with social economic benefits. The general idea is to balance the increased pollution load with possible downstream users.

One of the primary drivers that determine the limits in the discharge permit are based on Total Maximum Daily Loads (TMDL). As water ways are determined to be impaired a TMDL study is completed on the impaired water body. The TMDL establishes an allowable load of a waste which can be added to the water body. This loading is intended to bring the contaminants down to the water quality standard.

5.2 TOTAL MAXIMUM DAILY LOADS

There are two TMDL studies that have been completed that determine the discharge allocation from Hyrum's treatment UPDES permit.

5.2.1 Spring Creek TMDL

Spring Creek was listed for phosphorus and a TMDL was completed in 2002 to improve the water quality (Cirrus, 2002). One of the pollutants that was studied was phosphorus. The TMDL determined that a significant reduction in phosphorus load would be required to meet the water quality indicator. The original TMDL established a limit of phosphorus for the Hyrum facility at 0.1 mg/l. Currently the permit allows a discharge of 1 mg/l in the winter and the lower limit is required during the summer. In the next four to five years it is anticipated that the TMDL will be reopened to re-evaluate the changes in Spring Creek (Allread, 2014). Depending on how the lowered phosphorus load has effected Spring Creek the allowed loading could be increased or decreased.

5.2.2 Middle Bear River and Cutler Reservoir

The TMDL completed on Cutler Reservoir (SWCA Environmental Consultants, 2010) also evaluated phosphorus. Phosphorus was one of the contaminants that was evaluated as part of the TMDL on Cutler Reservoir. The TMDL limited phosphorus from the Logan City wastewater treatment facility. In addition the allowed phosphorus load from Spring Creek was included as

part of the TMDL. Discussing the potential connection to Hyrum with the DWQ staff (Allread, 2014) they felt the loading could be easily assigned from the Logan discharge to Hyrum in Cutler Reservoir.

5.3 SUMMARY

The discharge requirements are assumed that they will ultimately match what is in the existing permit. The discharge requirements are shown below in Table 5-1 below.

Table 5-1 Effluent Limits

| Parameter | Effluent Limitations | | | | | |
|--|----------------------|--------------------|-----------|-----------|------------|-----------------|
| | Max Monthly Average | Max Weekly Average | Daily Min | Daily Max | Annual Max | Max 90-day Mean |
| Flow, MGD | 4.0 | | | | | |
| BOD, mg/L | 25 | 35 | | | | |
| BOD Min. % Removal | 85 | NA | | | | |
| TSS, mg.L | 25 | 35 | | | | |
| TSS Min. % Removal | 85 | NA | | | | |
| Ammonia, mg/L | | | | | | |
| Summer (July through Sept.) | 5.0 | | | 10.9 | | |
| Fall (Oct. through Dec.) | 4.9 | | | 9.8 | | |
| Winter (Jan. through March) | 4.1 | | | 9.4 | | |
| Spring (April through June) | 4.3 | | | 9.8 | | |
| Total Phosphorus, mg/L Fall Winter and Spring | 1 | | | | | |
| Total Phosphorus, mg/L Summer | | | | | | 0.1 |
| E coli, No./100 mL | 126 | 158 | | | | |
| Oil & Grease, mg/L | | | | 10 | | |
| pH, Standard Units | | | 6.5 | 9.0 | | |

SECTION 6 PLANT EXPANSION

The existing facility is designed as a 2MGD treatment plant. There are processes that will need to be upgraded to meet the new design flow. Figure 6-1 shows the general site layout with the additions required for the 3 MGD expansion and the 4 MGD expansion. The estimated cost for the plant expansion is shown in Table 6-1 **Error! Reference source not found.** below. A description of the different treatment processes are shown below:

Table 6-1 Treatment Facility Expansion Cost Estimate

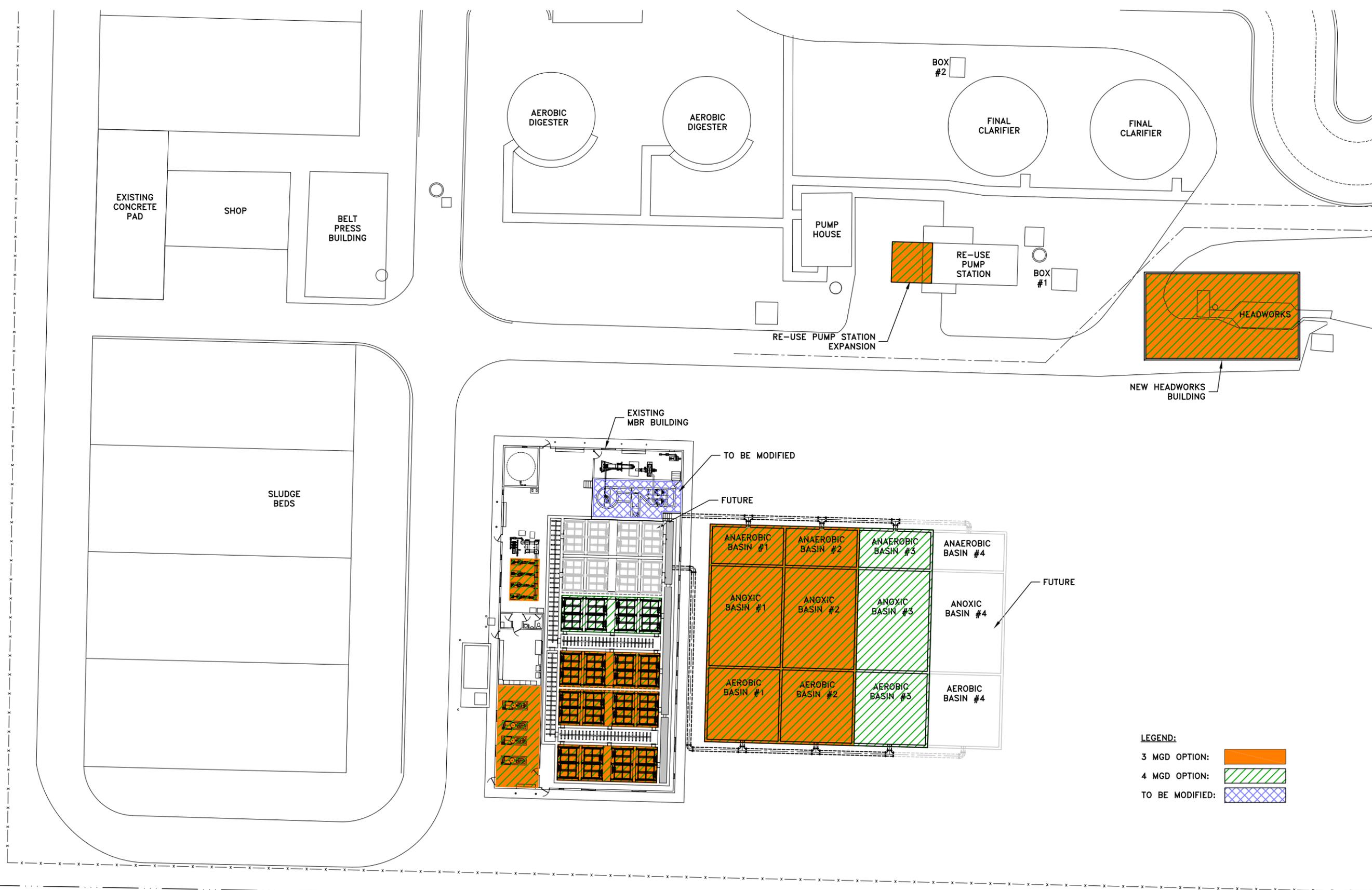


Engineer's Opinion of Probable Cost

Project: Cache Valley Study

Date: 10/16/2014

| 3 MGD UPGRADE | | | | | |
|--|------------------------------|----------|------|-------------|---------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST |
| 1 | Mobilization | 1 | lump | \$150,000 | \$150,000 |
| 2 | Demolition | 1 | lump | \$50,000 | \$50,000 |
| 3 | Headworks Upgrade | 1 | lump | \$650,000 | \$650,000 |
| 4 | Anerobic Basin | 2 | ea | \$40,000 | \$80,000 |
| 5 | Anoxic Basin | 2 | ea | \$110,000 | \$220,000 |
| 6 | Aerobic Basin | 2 | ea | \$80,000 | \$160,000 |
| 7 | Excavation / Dewatering | 1 | lump | \$120,000 | \$120,000 |
| 8 | Membranes | 1 | lump | \$2,850,000 | \$2,850,000 |
| 9 | Blowers | 3 | ea | \$217,000 | \$651,000 |
| 10 | Equipment Installation | 1 | lump | \$500,000 | \$500,000 |
| 11 | UV Disinfection | 1 | lump | \$300,000 | \$300,000 |
| 12 | New Crain | 1 | lump | \$175,000 | \$175,000 |
| 13 | Reuse Lift Station Expansion | 1 | lump | \$500,000 | \$500,000 |
| 14 | Reuse Pipe Line Expansion | 1 | lump | \$400,000 | \$400,000 |
| 15 | Yard Piping | 1 | lump | \$125,000 | \$125,000 |
| 16 | Drying Bed Expansion | 1 | lump | \$400,000 | \$400,000 |
| 17 | Electrical/ Instrumentation | 1 | lump | \$1,069,650 | \$1,069,650 |
| Subtotal | | | | | \$8,400,650 |
| Contingency 20% | | | | | \$1,680,130 |
| Construction Cost Subtotal | | | | | \$10,080,780 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$1,209,694 |
| Total Probable Construction Cost | | | | | \$11,290,474 |
| Hyrum Existing Plant Purchase | | | | | \$12,500,000 |
| Total Probable Cost | | | | | \$23,790,474 |



LEGEND:
 3 MGD OPTION: [Orange box]
 4 MGD OPTION: [Green box]
 TO BE MODIFIED: [Blue checkered box]

| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----|------------|--------|-------|---------|
| 0 | 00/00/0000 | DMH | CAL | BMR |

CACHE VALLEY STUDY
 FUTURE FLOW OPTIONS
 3 AND 4 MGD



FIGURE
 6-1

6.1 HEADWORKS

The screens and the grit removal system are undersized for the design capacity needed for a regional facility. The new headworks will require screens to protect the membranes. The typical opening size for MBR facilities is about 2 mm. With the new screens new washpactors will be required to remove the organic material from the screenings. A new grit system will need to be installed which will include a grit trap and a grit classifier. The screenings and grit will be combined into a dumpster to be hauled to the landfill. It is anticipated that this new equipment will be housed in a new building.

6.2 ANAEROBIC BASINS

New concrete basins will be installed which will have about a 1 hour hydraulic retention time. These basins are mixed but have no aeration. The purpose of the basins is to create an environment that will generate volatile fatty acids. These are then used later processes to remove phosphorus from the wastewater. This basins will reduce the amount of chemicals that need to be used to reduce the phosphorus for a discharge permit. The process will typically remove phosphorus to below 1 mg/L. There will be recycle pumps that will return a portion of the flow from the anaerobic basins back to this basin.

6.3 ANOXIC BASINS

The next unit process is the anoxic basins. These basins serve two primary purposes at this facility. The first purpose is to help with membrane cleaning. They typical recycle rate is about 4 times the plant flow. This movement of the water from the membrane tanks back to the anoxic basin helps keep the membranes clean. In addition this process converts nitrate to nitrogen gas. This process is commonly called denitrification. Currently the permit only has an ammonia limit. However, the State is currently working on rules that will limit the total nitrogen discharged to the waters of the state. This basin will be useful in meeting the future requirements in addition to cleaning the membranes. There will be mixing required in this basin.

6.4 AEROBIC BASINS

The aerobic basins are used to reduce the BOD and convert ammonia to nitrate. These basins will contain fine bubble diffusers which are used to add oxygen to the wastewater stream. Bacteria in the basin use the oxygen and the “food” BOD to grow. The bacteria are separated from the water and wasted to the solids handling side of the plant. These basins will then feed the membrane basins.

6.5 MEMBRANE BASINS

The membrane basins will house the membranes. The membranes are filters that separate the solids in the water from the treated water. The membranes will have pumps connected to them which draw the clean water out of the system. These pumps are referred to as permeate pumps. The clean water is sent from the permeate pumps to the UV disinfection system and then discharged from the treatment system.

6.6 BIOSOLIDS HANDLING

The biosolids handling include everything from wasting Waste Activated Sludge (WAS) from the treatment process to the final disposal. Most of the biosolids disposal processes from the existing system will continue to meet the needs of the regional facility. The primary addition would be additional drying beds. Figure 6-2 shows the site plan with the additional drying beds

6.6.1 Sludge Beds

The biosolids need to be dried beyond what the belt press is capable of prior to land application. Once the biosolids are dried they can be stored through the winter and applied on the adjoining fields for disposal.

6.6.2 Composting

Composting is used to treat the biosolids to a quality that can be given to the residents of a community. This disposal method is more expensive than a controlled land application or landfilling. However, it is a good way to share a great product with the community. Facilities that compost typically do not have any problem giving the material away and it is beneficial to growing plants. However, the market is not strong enough to cover the cost of producing the compost. Another benefit is part of the compost process is gathering green waste to mix with the biosolids. The green waste is removed from the landfill so there are other benefits which are difficult to add a cost with. However, this may be something that could be done in the future.

6.7 4 MGD EXPANSION

For the overall growth in the next 20 years the facility will need to treat 4 MGD of flow. The 4 MGD expansion will add additional basins, and membranes as shown in Figure 6-1. The additional cost is shown Table 6-2.

The total estimated cost for the existing Hyrum Plant to be expanded to 4 MGD is \$26,698,487. This will give the plant capacity until a design year of 2035 based on the population projections.

Table 6-2 4 MGD expansion Cost

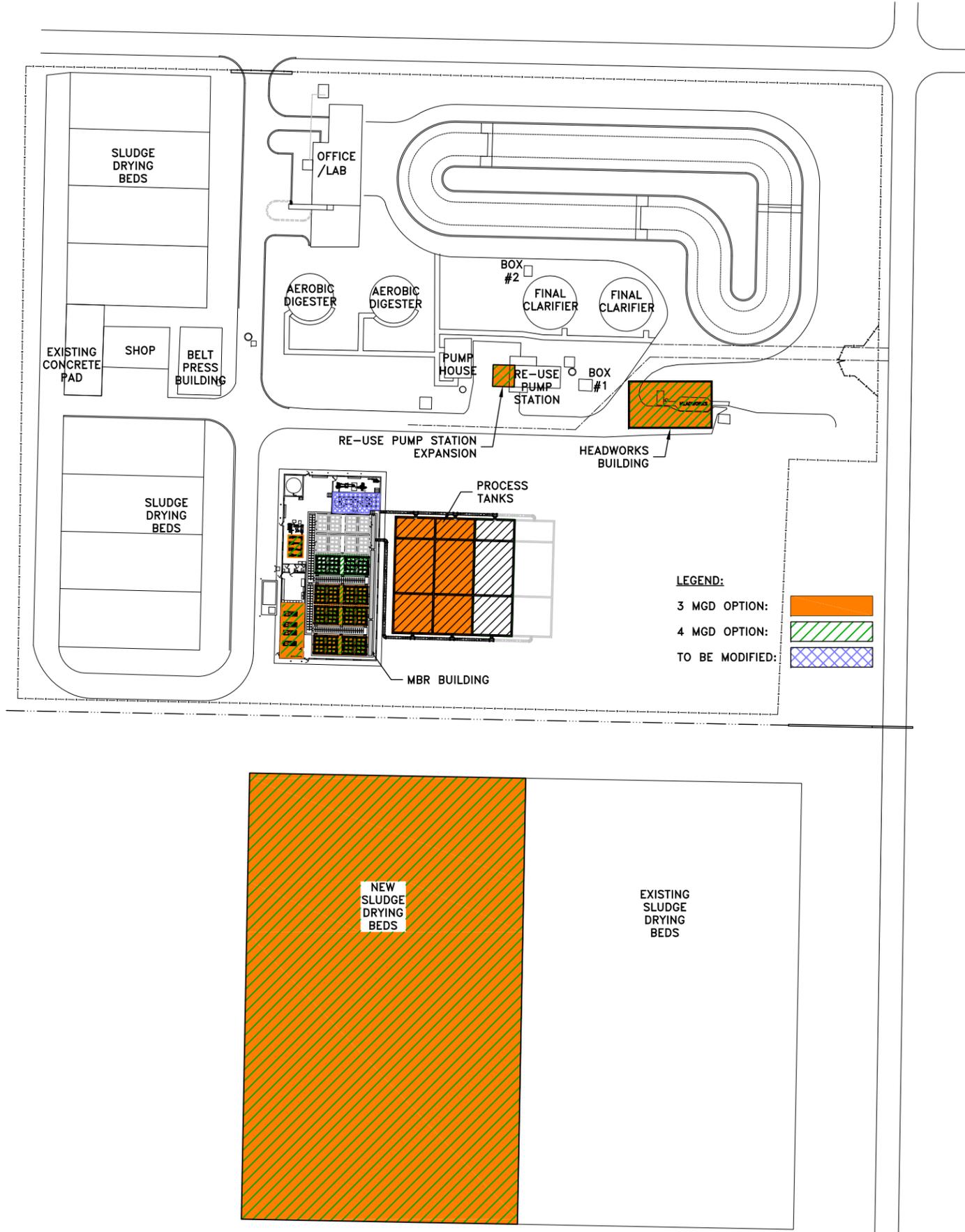


Engineer's Opinion of Probable Cost

Project: Cache Valley Study

Date: 10/3/2014

| 4 MGD EXPANSION | | | | | |
|--|-----------------------------|----------|------|-----------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST |
| 1 | Mobilization | 1 | lump | \$50,000 | \$50,000 |
| 2 | Anerobic Basin | 1 | ea | \$39,000 | \$39,000 |
| 3 | Anoxic Basin | 1 | ea | \$105,000 | \$105,000 |
| 4 | Aerobic Basin | 1 | ea | \$77,000 | \$77,000 |
| 5 | Excavation / Dewatering | 1 | lump | \$80,000 | \$80,000 |
| 6 | Membranes | 1 | lump | \$950,000 | \$950,000 |
| 7 | Blowers | 1 | ea | \$217,000 | \$217,000 |
| 8 | Mechanical Installation | 1 | lump | \$120,000 | \$120,000 |
| 9 | UV Disinfection | 1 | lump | \$175,000 | \$175,000 |
| 10 | Yard Piping | 1 | lump | \$75,000 | \$75,000 |
| 11 | Electrical/ Instrumentation | 1 | lump | \$275,700 | \$275,700 |
| Subtotal | | | | | \$2,163,700 |
| Contingency 25% | | | | | \$432,740 |
| Construction Cost Subtotal | | | | | \$2,596,440 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$311,573 |
| Total Probable Cost | | | | | \$2,908,013 |



CACHE VALLEY STUDY
 FUTURE FLOW OPTIONS
 3 AND 4 MGD

| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----------|------------|--------|-------|---------|
| 0 | 00/00/0000 | DMH | CAL | BMR |
| REVISIONS | | | | |
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| | | | | |
| | | | | |
| | | | | |



FIGURE
 6-2

SECTION 7 COLLECTION SYSTEM

Four different routing options were considered for connection between Providence and Hyrum water reclamation facility through Nibley. Detailed information on each option is provided in this chapter.

All of the options have exact same layout in Providence between the proposed lift station located on the intersection of US 165 and Golf Course Road and another lift station located on 1700 South and approximately 600 West. The lift station located on Golf Course Rd is connected to existing collection system from the City of Providence and pumped eastbound to 1200 South/100 north through Gateway Drive using a 10-inch HDPE DR11 pipe. The 10-inch pipe will be enlarged to a 15-inch PVC SDR 35 as it turns into gravity flow line heading east bound on 1200 South/100 South. The 15-inch line is going to turn south approximately at 100 West on 1200 South, run across east side of the BlackHawk condominium community, go across Little Ballard Creek and turn westbound on 1700 South. The second lift station will be located by 1700 South, right before the bridge to go across Black Smith Fork. Total length of the pipe is approximately 9,200 ft and the 15-inch gravity line is expected to have 0.5 % slope. Maximum flowrate anticipated in this pipe is 1.2 MGD (833 gallons per minute).

Additionally, the 16-inch pressurized HDPE DR11 piping between existing Nibley lift station located right off of Highway 98/89 and heritage Drive and the Hyrum Water Reclamation Facility is going to be exact same path for all of the option. Existing lift station will be connected to the 16-inch pipeline and directed to south to approximately 2900 South. Then the pressured line will turn West to 1600 West and go across 3200 South street and head East. The pressured line will follow 1500 West until 4400 South street and turn West to get to the Hyrum Water Reclamation Facility. Total length of the 16-inch pressured line is approximately 19,650 ft and anticipated maximum flowrate through this pipe is 2.7 MGD (1900 gallons per minute).

Each lift station requires a small building where a wastewater screen, trash container for the screen, and generator are protected from weather and public access.

7.1 OPTION 1 – US 165 to 3200 South

In this Option, a 12-inch HDPE DR11 will be connected to the lift station on 1700 South and headed east to turn South on Main Street/US 165. The pressurized pipe goes across Black Smith Fork while following the main street. The 12-inch pipe will be enlarged to 15-inch PVC SDR35 as the flow turns into gravity flow at 3200 South/US 1178 and head West, crossing railroad located on 640 West. At 1500 West, the gravity line will connect to Nibley's existing gravity sewer line that is connected to the lift station. Total length of the pipe between the lift station on 1700 south and the one in Nibley is approximately 21,900 ft, among that 12,300 ft is pressurized and 9,600 ft is gravity flow with approximately 0.5% slope. See Figure 7-1 for the routing map. Probable cost for this option can be found in Table 7-1. The probable cost for this option was analyzed based on assumptions as follows;

- Providence will be financially responsible for the 10-inch pipe, 12-inch pipe, two lift stations and buildings in Providence, and 15-inch gravity line up to the connection point with the existing pipe in Nibley.

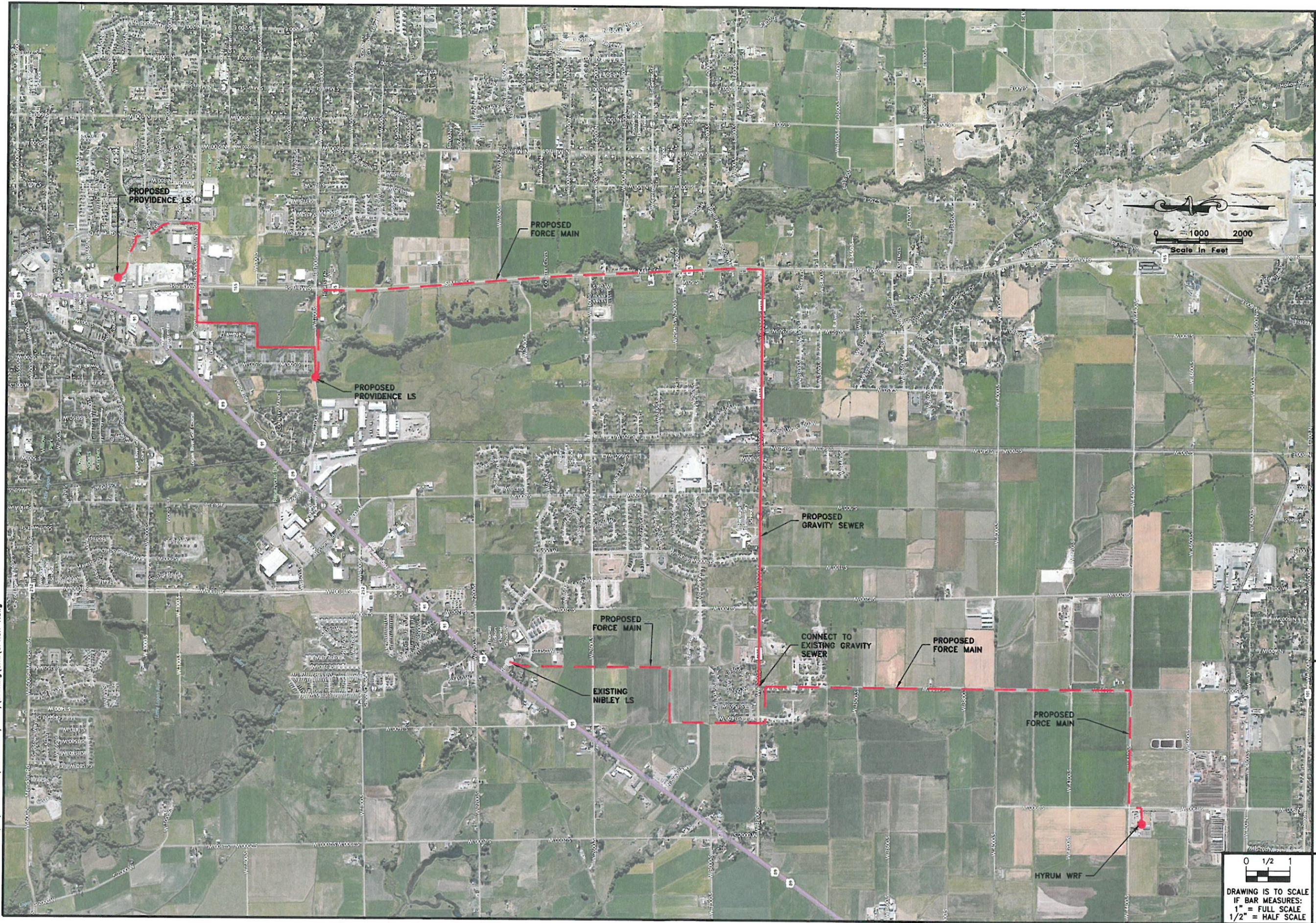
- The pumps in Nibley lift station and the 16-inch pipe connecting existing lift station in Nibley and Hyrum Water Reclamation Facility will be financed by both Providence and Nibley at 50 % total cost based on the expected flow ratio of 2024 for two cities.

Table 7-1 Option 1 Cost Estimate



Engineer's Opinion of Probable Cost
 Project: Cache Valley Study
 Date: 10/3/2014

| Option 1 - US 165 to 3200 South | | | | | | Providence | Nibley | |
|---------------------------------|--|----------|---------|-----------|--|--------------------|--------------------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST | | | |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 | |
| 2 | Saw Cut and Remove Asphalt | 50550 | ft | \$5 | \$252,750 | \$202,750 | \$50,000 | |
| 3 | Traffic Control | 1 | lump | \$20,000 | \$20,000 | \$15,000 | \$5,000 | |
| 4 | Pavement Patch | 126375 | sq. ft. | \$7 | \$884,625 | \$859,625 | \$25,000 | |
| 5 | Furnished and Install 10" DR11 HDPE | 2600 | ft | \$25 | \$65,000 | \$65,000 | \$0 | |
| 6 | Furnished and Install 12" DR11 HDPE | 12300 | ft | \$30 | \$369,000 | \$369,000 | \$0 | |
| 7 | Furnished and Install 15" SDR35 PVC | 15650 | ft | \$40 | \$626,000 | \$626,000 | \$0 | |
| 8 | Furnished and Install 16" DR11 HDPE | 20000 | ft | \$60 | \$1,200,000 | \$600,000 | \$600,000 | |
| 8 | Import Backfill | 126375 | cu. ft. | \$5 | \$631,875 | \$506,875 | \$125,000 | |
| 9 | Flowable Fill | 29700 | cu. ft. | \$3 | \$89,100 | \$89,100 | \$0 | |
| 10 | Connections to Existing System | 1 | lump | \$12,000 | \$12,000 | \$8,000 | \$4,000 | |
| 11 | Bore and jack 16" Casing | 3 | ea | \$80,000 | \$240,000 | \$240,000 | \$0 | |
| 12 | Valve (check, plug) | 12 | ea | \$3,500 | \$42,000 | \$31,500 | \$10,500 | |
| 13 | Pump (Golf Course Rd) Furnished Install | 3 | ea | \$14,000 | \$42,000 | \$42,000 | \$0 | |
| 14 | Pump (1700 South) Furnished Install | 3 | ea | \$20,000 | \$60,000 | \$60,000 | \$0 | |
| 15 | Pump (1200 South, Nibley) Furnished Install | 3 | ea | \$23,000 | \$69,000 | \$34,500 | \$34,500 | |
| 16 | Lift Stations | 105 | cu. yd | \$1,000 | \$105,000 | \$87,500 | \$17,500 | |
| 17 | Lift Station Building (2 BLDG 20x16x10) | 640 | sq. ft. | \$150 | \$96,000 | \$96,000 | \$0 | |
| 18 | Lift Station Generator (20 kW) Furnished and Install | 1 | lump | \$36,000 | \$36,000 | \$36,000 | \$0 | |
| 19 | Lift Station Generator (60 kW) Furnished and Install | 1 | lump | \$42,000 | \$42,000 | \$42,000 | \$0 | |
| 20 | Lift Station Generator (80 kW) Furnished and Install | 1 | lump | \$45,000 | \$45,000 | \$22,500 | \$22,500 | |
| 21 | Electrical | 1 | lump | \$200,000 | \$200,000 | \$150,000 | \$50,000 | |
| 22 | Permitting | 1 | lump | \$25,000 | \$25,000 | \$12,500 | \$12,500 | |
| 23 | Easement Procurement | 1 | lump | \$250,000 | \$250,000 | \$187,500 | \$62,500 | |
| | | | | | Subtotal | \$5,427,350 | \$4,402,100 | \$1,025,250 |
| | | | | | Contingency 15% | \$814,103 | \$660,315 | \$153,788 |
| | | | | | Construction Cost Subtotal | \$6,241,453 | \$5,062,415 | \$1,179,038 |
| | | | | | Engineering, Construction Observation, Admin. 12% | \$748,974 | \$607,490 | \$141,485 |
| | | | | | Total Probable Cost | \$6,990,427 | \$5,669,905 | \$1,320,523 |



| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----------|------------|--------|-------|---------|
| 7-1 | 00/00/0000 | DMH | MWC | BMR |
| REVISIONS | | | | |
| | | | | |
| | | | | |
| | | | | |

OPTION 1



0 1/2 1
DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

FIGURE
7-1

7.2 OPTION 2 – Highway 91/89

In Option 2, the 12-inch HDPE DR11 will be connected to the lift station on 1700 South and head West on 1700 South crossing Black Smith Fork canal. The pipe will turn at approximately 400 West and route around the warehouse through a field to get to 640 West. The pressured line then will go across railroad and turn West on 2200 South. Once the pipe reaches Highway 89/91, it follows the highway for about 500 ft to get to the existing Nibley lift station. Total length of the pipe between the lift station on 1700 south and the one in Nibley is 10,800 ft. See Figure 7-2 for the routing map. Probable cost for this option can be found in Table 7-1 below.

The probable cost for this option was analyzed based on assumptions as follows;

- Providence will be financially responsible for the 10-inch pipe, 12-inch pipe and two lift stations and buildings in Providence.
- The pumps in Nibley lift station and the 16-inch pipe connecting existing lift station in Nibley and Hyrum Water Reclamation Facility will be financed by both Providence and Nibley at 50 % total cost based on the expected flow ratio of 2024 for two cities.

Table 7-2Option 2 Cost Estimate

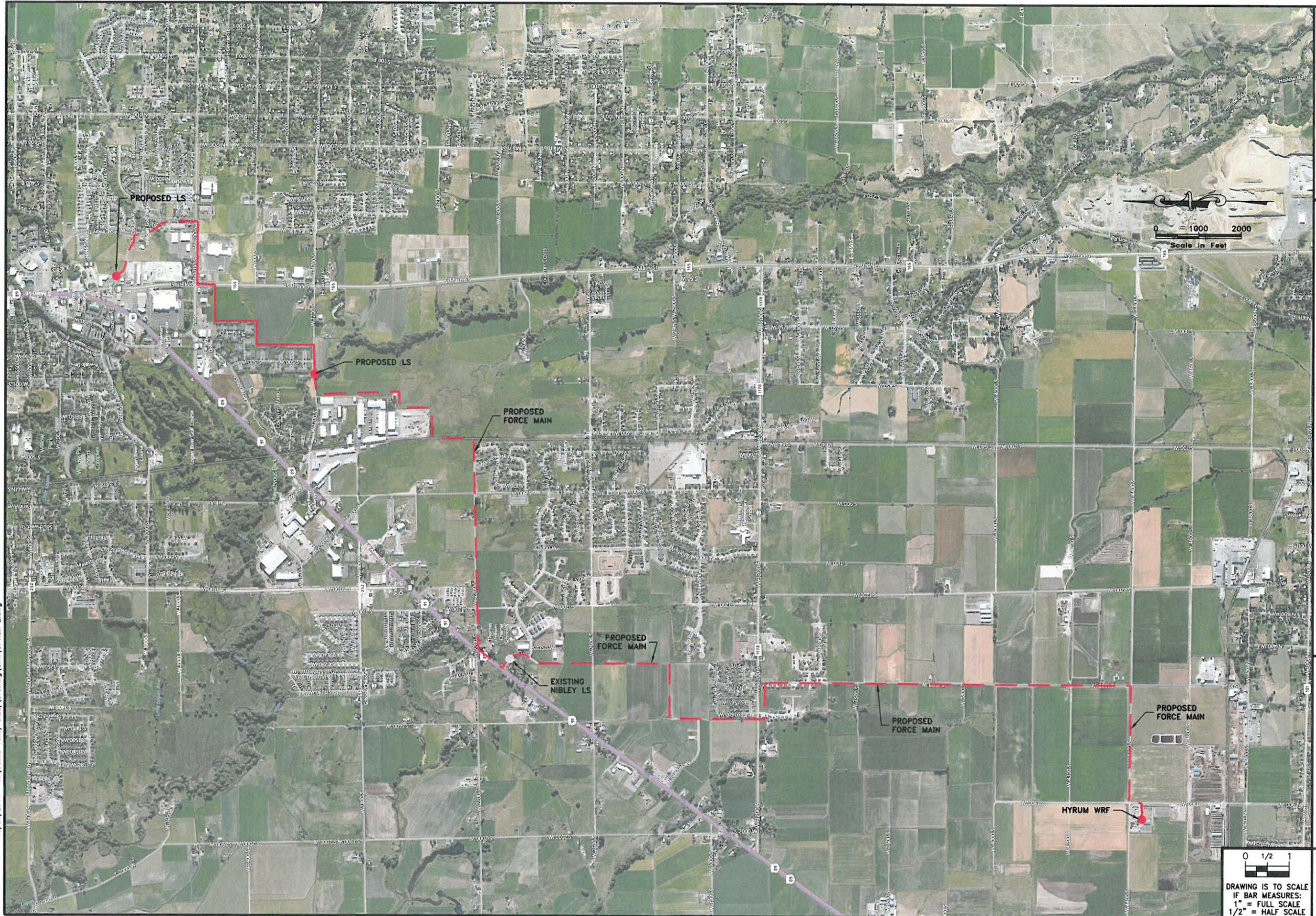


533 W 2600 S Suite 275 Bountiful, UT 84010
 Phone (801) 299-1327 Fax (801) 299-0153

Engineer's Opinion of Probable Cost

Project: Cache Valley Study
 Date: 10/3/2014

| Option 2 - Highway 91/89 | | | | | | Providence | Nibley |
|--|--|----------|--------|-----------|--------------------|--------------------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST | | |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 |
| 2 | Saw Cut and Remove Asphalt | 39650 | ft | \$5 | \$198,250 | \$148,250 | \$50,000 |
| 3 | Traffic Control | 1 | lump | \$20,000 | \$20,000 | \$15,000 | \$5,000 |
| 4 | Pavement Patch | 99125 | sq.ft. | \$7 | \$693,875 | \$668,875 | \$25,000 |
| 5 | Furnished and Install 10" DR11 HDPE | 2600 | ft | \$25 | \$65,000 | \$65,000 | \$0 |
| 6 | Furnished and Install 12" DR11 HDPE | 10900 | ft | \$30 | \$327,000 | \$327,000 | \$0 |
| 7 | Furnished and Install 15" SDR35 PVC | 6150 | ft | \$40 | \$246,000 | \$246,000 | \$0 |
| 8 | Furnished and Install 16" DR11 HDPE | 20000 | ft | \$60 | \$1,200,000 | \$600,000 | \$600,000 |
| 9 | Import Backfill | 99125 | cu.ft | \$5 | \$495,625 | \$370,625 | \$125,000 |
| 10 | Connections to Existing System | 1 | lump | \$12,000 | \$12,000 | \$8,000 | \$4,000 |
| 11 | Bore and jack 16" Casing | 3 | ea | \$80,000 | \$240,000 | \$240,000 | \$0 |
| 12 | Valve (check, plug) | 12 | ea | \$3,500 | \$42,000 | \$31,500 | \$10,500 |
| 13 | Pump (Golf Course Rd) | 3 | ea | \$14,000 | \$42,000 | \$42,000 | \$0 |
| 14 | Pump (1700 South) Furnished Install | 3 | ea | \$14,000 | \$42,000 | \$42,000 | \$0 |
| 15 | Pump (1200 South, Nibley) Furnished Install | 3 | ea | \$23,000 | \$69,000 | \$34,500 | \$34,500 |
| 15 | Lift Stations | 105 | cu.yd | \$1,000 | \$105,000 | \$70,000 | \$35,000 |
| 17 | Lift Station Building (2 BLDG 20x16x10) | 640 | sq.ft. | \$150 | \$96,000 | \$96,000 | \$0 |
| 18 | Lift Station Generator (20 kW) Furnished and Install | 1 | lump | \$36,000 | \$36,000 | \$36,000 | \$0 |
| 19 | Lift Station Generator (20 kW) Furnished and Install | 1 | lump | \$36,000 | \$36,000 | \$36,000 | \$0 |
| 20 | Lift Station Generator (80 kW) Furnished and Install | 1 | lump | \$45,000 | \$45,000 | \$22,500 | \$22,500 |
| 16 | Electrical | 1 | lump | \$200,000 | \$200,000 | \$150,000 | \$50,000 |
| 17 | Permitting | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 |
| 18 | Easement Procurement | 1 | lump | \$350,000 | \$350,000 | \$262,500 | \$87,500 |
| Subtotal | | | | | \$4,610,750 | \$3,549,250 | \$1,061,500 |
| Contingency 15% | | | | | \$691,613 | \$532,388 | \$159,225 |
| Construction Cost Subtotal | | | | | \$5,302,363 | \$4,081,638 | \$1,220,725 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$636,284 | \$489,797 | \$146,487 |
| Total Probable Cost | | | | | \$5,938,646 | \$4,571,434 | \$1,367,212 |



| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----------|------------|--------|-------|---------|
| 7-1 | 00/00/0000 | DMH | MWC | BMR |
| REVISIONS | | | | |
| | | | | |
| | | | | |
| | | | | |

OPTION 2

AQUA
ENGINEERING

593 W. 2600 S. SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 289-1327, FAX (801) 289-0153

FIGURE
7-2

0 1/2 1
DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

7.3 OPTION 3 – US 165 to 4000 South

This option is similar to the Option 1, except that the pressure pipeline goes further south to 4000 South and it will connect to a fifteen inch gravity line to a lift station located at an intersection of 4000 South and 1500 West, combining the flow with the city of Nibley and head to the Hyrum Water Reclamation Facility. Total length of the pipe between the lift station on 1700 south and the one at 4000 South and 1500 West, Nibley, is 27,400 ft, among that 17,600 ft is pressurized and 9,800 ft is gravity flow with an expected slope of 1%. Additionally, the pressurized pipe that will connect to the Nibley's existing lift station will be 12-inch and 13,300 ft to connect to the lift station. See Figure 7-3 for the routing map. Probable cost for this option can be found in Table 7-3 below. The probable cost for this option was analyzed based on assumptions as follows;

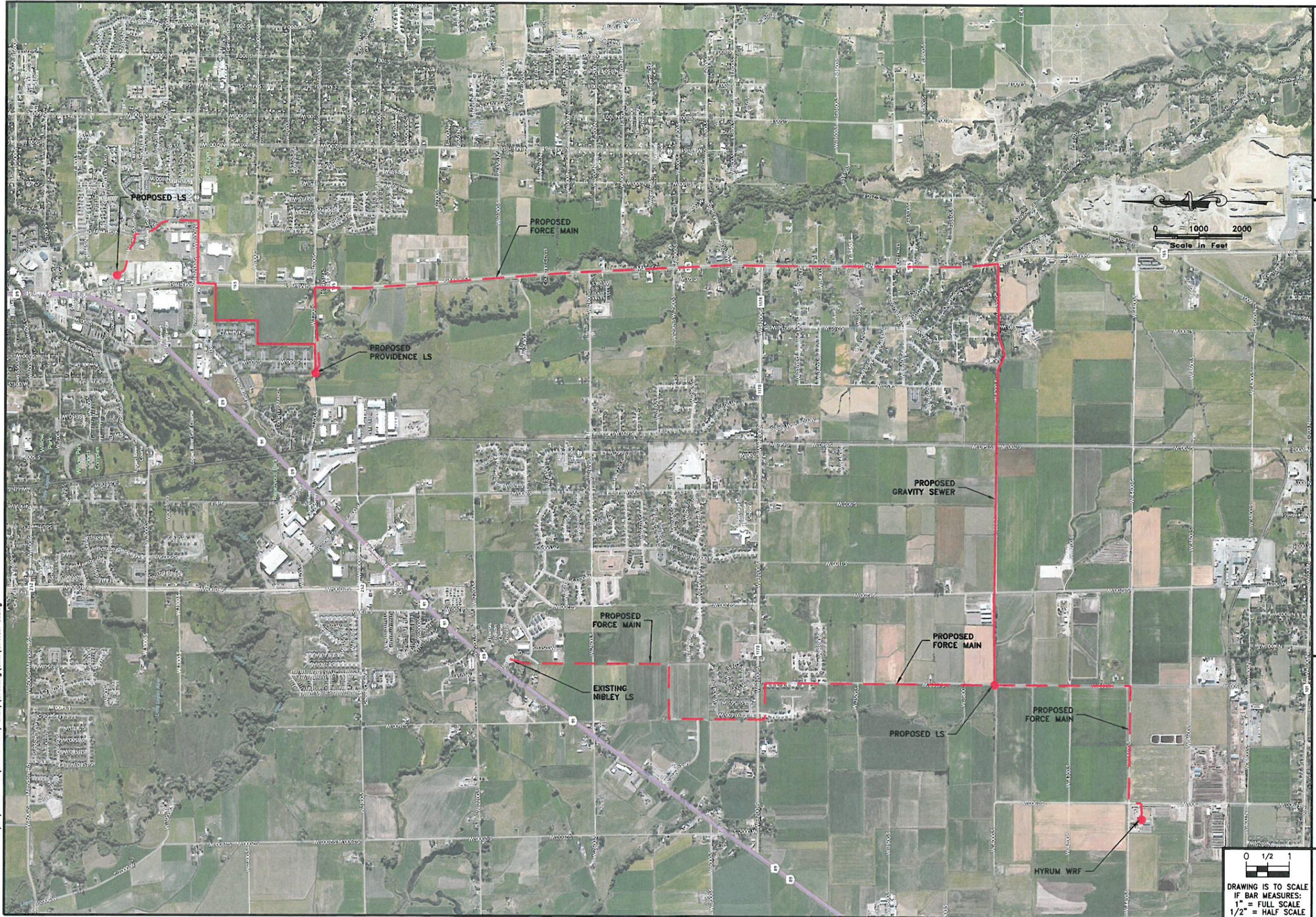
- Providence will be financially responsible for the 10-inch pipe, two lift stations and buildings in Providence, and 12-inch pressurized line to 4000 South
- The pumps in Nibley lift station, the 12-inch pressurized pipe connecting the lift station on 4000 South in Nibley will be financed by City of Nibley
- The lift station located on 4000 South in Nibley and the 16- inch pipeline between the lift station and Hyrum Water Reclamation Facility are going to be financed by both Providence and Nibley at 50 % total cost based on the expected flow ratio of 2024 for two cities

Table 7-3 Option 3 Cost Estimate



Engineer's Opinion of Probable Cost
 Project: Cache Valley Study
 Date: 10/3/2014

| Option 3 - US 165 to 4000 South | | | | | | Providence | Nibley | |
|---------------------------------|---|----------|--------|-----------|--|--------------------|--------------------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST | | | |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 | |
| 2 | Saw Cut and Remove Asphalt | 56150 | ft | \$5 | \$280,750 | \$197,000 | \$83,750 | |
| 3 | Traffic Control | 1 | lump | \$20,000 | \$20,000 | \$11,500 | \$8,500 | |
| 4 | Pavement Patch | 140375 | sq.ft. | \$7 | \$982,625 | \$724,675 | \$257,950 | |
| 5 | Furnished and Install 10" DR11 HDPE | 2600 | ft | \$25 | \$65,000 | \$65,000 | \$0 | |
| 6 | Furnished and Install 12" DR11 HDPE | 31000 | ft | \$30 | \$930,000 | \$528,000 | \$402,000 | |
| 7 | Furnished and Install 15" SDR35 PVC | 15850 | ft | \$40 | \$634,000 | \$441,000 | \$193,000 | |
| 8 | Furnished and Install 16" DR11 HDPE | 6700 | ft | \$60 | \$402,000 | \$201,000 | \$201,000 | |
| 9 | Import Backfill | 140375 | ft | \$5 | \$701,875 | \$493,750 | \$208,125 | |
| 10 | Flowable Fill | 23550 | cu.ft. | \$3 | \$70,650 | \$70,650 | \$0 | |
| 11 | Connections to Existing System | 1 | lump | \$12,000 | \$12,000 | \$8,000 | \$4,000 | |
| 12 | Bore and jack 16" Casing | 3 | ea | \$80,000 | \$240,000 | \$240,000 | \$0 | |
| 13 | Valve (check, plug) | 18 | ea | \$3,500 | \$63,000 | \$42,000 | \$21,000 | |
| 14 | Pump (Golf Course Rd) | 3 | ea | \$14,000 | \$42,000 | \$42,000 | \$0 | |
| 15 | Pump (1700 South) Furnished Install | 3 | ea | \$35,000 | \$105,000 | \$105,000 | \$0 | |
| 16 | Pump (1200 South, Nibley) Furnished Install | 3 | ea | \$23,000 | \$69,000 | \$34,500 | \$34,500 | |
| 17 | Pump (4000 South) | 3 | ea | \$16,000 | \$48,000 | \$24,000 | \$24,000 | |
| 18 | Lift Station | 105 | cu.yd | \$1,000 | \$105,000 | \$86,625 | \$18,375 | |
| 19 | Lift Station Building (2 BLDG 20x16x10) | 640 | sq.ft. | \$150 | \$96,000 | \$96,000 | \$0 | |
| 20 | Lift Station Generator (20 kW) Furnished and Install | 1 | lump | \$36,000 | \$36,000 | \$36,000 | \$0 | |
| 21 | Lift Station Generator (100 kW) Furnished and Install | 1 | lump | \$55,000 | \$55,000 | \$55,000 | \$0 | |
| 22 | Lift Station Generator (40 kW) Furnished and Install | 1 | lump | \$38,000 | \$38,000 | \$19,000 | \$19,000 | |
| 23 | Lift Station Generator (80 kW) Furnished and Install | 1 | lump | \$45,000 | \$45,000 | \$22,500 | \$22,500 | |
| 24 | Electrical | 1 | lump | \$200,000 | \$200,000 | \$165,000 | \$35,000 | |
| 25 | Permitting | 1 | lump | \$25,000 | \$25,000 | \$20,625 | \$4,375 | |
| 26 | Easement Procurement | 1 | lump | \$250,000 | \$250,000 | \$177,500 | \$72,500 | |
| | | | | | Subtotal | \$5,540,900 | \$3,925,075 | \$1,615,825 |
| | | | | | Contingency 15% | \$831,135 | \$588,761 | \$242,374 |
| | | | | | Construction Cost Subtotal | \$6,372,035 | \$4,513,836 | \$1,858,199 |
| | | | | | Engineering, Construction Observation, Admin. 12% | \$764,644 | \$541,660 | \$222,984 |
| | | | | | Total Probable Cost | \$7,136,679 | \$5,055,497 | \$2,081,183 |



0 1/2 1
 DRAWING IS TO SCALE
 IF BAR MEASURES:
 1" = FULL SCALE
 1/2" = HALF SCALE

| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----------|------------|--------|-------|---------|
| 7-1 | 00/00/0000 | DMH | MWC | BMR |
| REVISIONS | | | | |
| | | | | |
| | | | | |
| | | | | |

OPTION 3



FIGURE
7-3

7.4 OPTION 4 – US 165 to 2600 South

This option is also similar to the Option 1, except that the pressure pipeline goes to 2600 South and it will connect to the existing 18 inch and 21 inch line which is connected to the existing Nibley lift station. Total length of the pipe between the lift station on 1700 south and the one in Nibley is approximately 8900 ft. See Figure 7-4 for the routing map. Probable cost for this option can be found in Table 7-4. The probable cost for this option was analyzed based on assumptions as follows;

- Providence will be financially responsible for the 10-inch and 12-inch pressurized pipe, two lift stations in Providence, and Millville excess capacity buy-out.
- The pumps in Nibley lift station and the 16-inch pipe connecting existing lift station in Nibley and Hyrum Water Reclamation Facility will be financed by both Providence and Nibley at 50 % total cost based on the expected flow ratio of 2024 for two cities.

Table 7-4 Option 4 Cost Estimate



Engineer's Opinion of Probable Cost

Project: Cache Valley Study
Date: 10/3/2014

| Option 4 - Routing Thru Providence | | | | | | Providence | Nibley |
|--|--|----------|--------|-----------|--------------------|--------------------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST | | |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 |
| 2 | Saw Cut and Remove Asphalt | 37050 | ft | \$5 | \$185,250 | \$135,250 | \$50,000 |
| 3 | Traffic Control | 1 | lump | \$20,000 | \$20,000 | \$15,000 | \$5,000 |
| 4 | Pavement Patch | 92625 | sq.ft. | \$5 | \$463,125 | \$438,125 | \$25,000 |
| 5 | Furnished and Install 10" DR11 HDPE | 2600 | ft | \$25 | \$65,000 | \$65,000 | \$0 |
| 6 | Furnished and Install 12" DR11 HDPE | 8300 | ft | \$30 | \$249,000 | \$249,000 | \$0 |
| 7 | Furnished and Install 15" SDR35 PVC | 6150 | ft | \$40 | \$246,000 | \$246,000 | \$0 |
| 8 | Furnished and Install 16" DR11 HDPE | 20000 | ft | \$60 | \$1,200,000 | \$600,000 | \$600,000 |
| 9 | Import Backfill | 92625 | ft | \$5 | \$463,125 | \$438,125 | \$25,000 |
| 10 | Flowable Fill | 2133 | cu.ft. | \$3 | \$6,399 | \$6,399 | \$0 |
| 11 | Connections to Existing System | 1 | lump | \$16,000 | \$16,000 | \$12,000 | \$4,000 |
| 12 | Bore and jack 16" Casing | 2 | ea | \$80,000 | \$160,000 | \$160,000 | \$0 |
| 13 | Valve (check, plug) | 12 | ea | \$3,500 | \$42,000 | \$31,500 | \$10,500 |
| 14 | Pump (Golf Course Rd) | 3 | ea | \$14,000 | \$42,000 | \$42,000 | \$0 |
| 15 | Pump (1700 South) Furnished Install | 3 | ea | \$17,000 | \$51,000 | \$51,000 | \$0 |
| 16 | Pump (1200 South, Nibley) Furnished Install | 3 | ea | \$23,000 | \$69,000 | \$34,500 | \$34,500 |
| 17 | Lift Station | 105 | cu.yd | \$1,000 | \$105,000 | \$70,000 | \$35,000 |
| 18 | Lift Station Building (2 BLDG 20x16x10) | 640 | sq.ft. | \$150 | \$96,000 | \$96,000 | \$0 |
| 19 | Lift Station Generator (20 kW) Furnished and Install | 1 | lump | \$36,000 | \$36,000 | \$36,000 | \$0 |
| 20 | Lift Station Generator (40 kW) Furnished and Install | 1 | lump | \$38,000 | \$38,000 | \$38,000 | \$0 |
| 21 | Lift Station Generator (80 kW) Furnished and Install | 1 | lump | \$45,000 | \$45,000 | \$22,500 | \$22,500 |
| 22 | Electrical | 1 | lump | \$100,000 | \$100,000 | \$75,000 | \$25,000 |
| 23 | Permitting | 1 | lump | \$25,000 | \$25,000 | \$18,750 | \$6,250 |
| 24 | Millville Excess Capacity Buy-out | 1 | lump | \$380,000 | \$380,000 | \$380,000 | \$0 |
| 25 | Easement Procurement | 1 | lump | \$250,000 | \$250,000 | \$183,750 | \$66,250 |
| Subtotal | | | | | \$4,352,899 | \$3,462,649 | \$915,250 |
| Contingency 15% | | | | | \$652,935 | \$519,397 | \$137,288 |
| Construction Cost Subtotal | | | | | \$5,005,834 | \$3,982,046 | \$1,052,538 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$600,700 | \$477,846 | \$126,305 |
| Total Probable Cost | | | | | \$5,606,534 | \$4,459,892 | \$1,178,842 |

7.5 TREATED WATER REUSE TO PROVIDENCE AND NIBLEY

The current design uses the treated effluent from the Hyrum treatment facility as reuse during the summer. There is an interest from Providence and Nibley to use their water for irrigation within their City limits. Currently neither City has a pressure irrigation system for this water to be delivered through. Therefore, it was assumed that this line would get to a main street where it could connect to a future system.

The lines are sized at 10-inches which would allow a peak flow of 2 MGD. Because the irrigation reservoir is not established the pump station pumps could not be accurately sized. Therefore, a cost was assigned to install a new pump station at the treatment facility to pump the water up but it is a rough estimate because of the lack of information available.

7.5.1 Providence Reuse Line

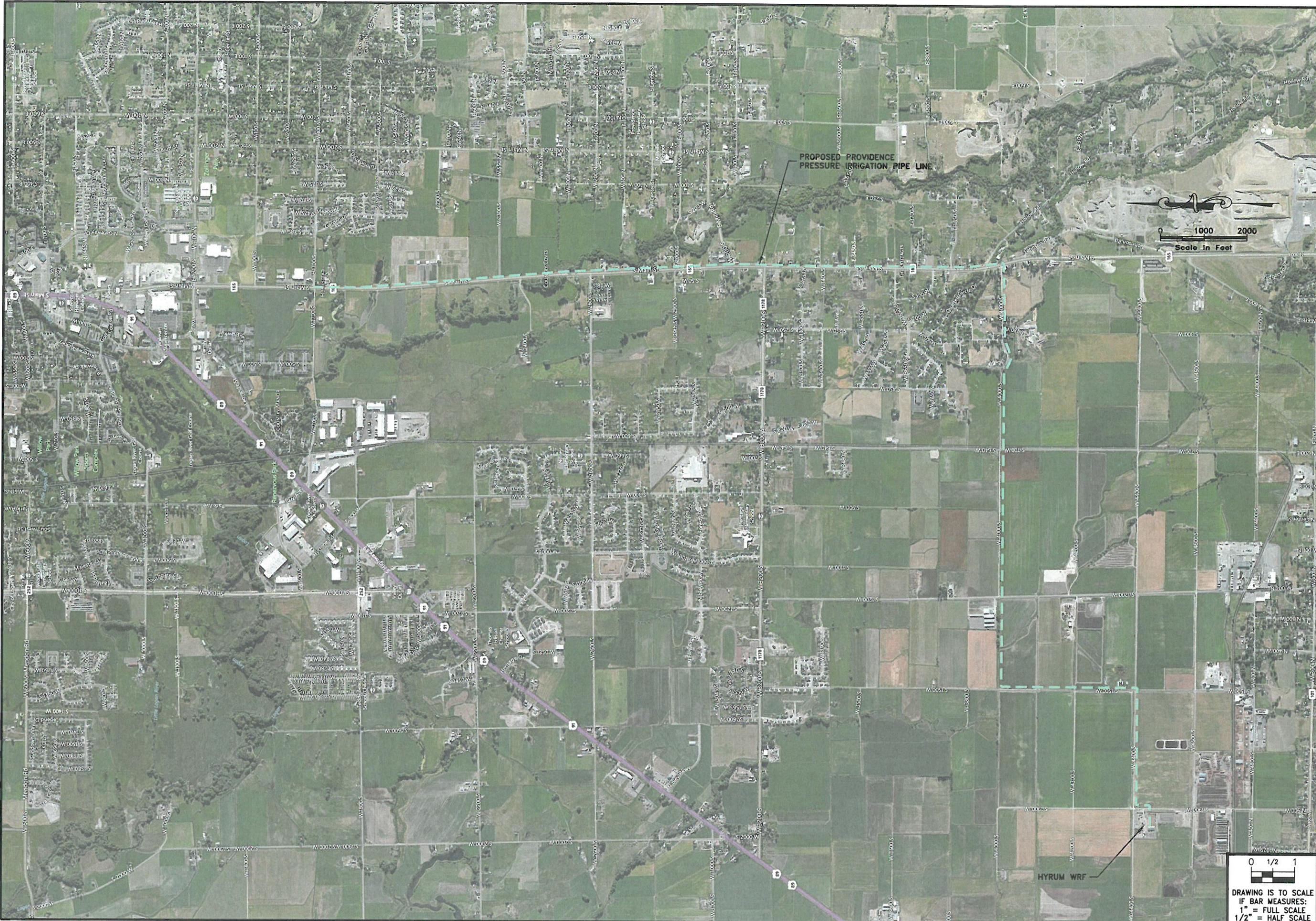
The cost estimate for Providence is shown Table 7-5. Figure 7-5 shows the general alignment for the reuse line.

Table 7-5 Providence Reuse Line Cost Estimate



Engineer's Opinion of Probable Cost
Project: Cache Valley Study
Date: 10/30/2014

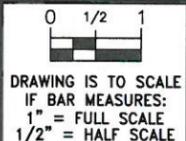
| Reuse Line For Providence | | | | | |
|--|-------------------------------------|----------|------|-----------|--------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 |
| 2 | Furnished and Install 10" DR11 HDPE | 31909 | ft | \$25 | \$797,725 |
| 3 | Lift Station | 1 | lump | \$425,000 | \$425,000 |
| Subtotal | | | | | \$1,247,725 |
| Contingency 25% | | | | | \$311,931 |
| Construction Cost Subtotal | | | | | \$1,559,656 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$187,159 |
| Total Probable Cost | | | | | \$1,746,815 |



PROPOSED PROVIDENCE PRESSURE IRRIGATION PIPE LINE



HYRUM WRF



| NO. | DATE | DESIGN | DRAWN | CHECKED |
|-----------|------------|--------|-------|---------|
| 7-1 | 00/00/0000 | DMH | MWC | BMR |
| REVISIONS | | | | |
| | | | | |
| | | | | |

PROVIDENCE PRESSURE IRRIGATION PIPE LINE

AQUA
ENGINEERING
533 W. 2600 S. SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

7.5.1 Nibley Reuse Line

The cost estimate for Nibley is shown in Table 7-6 and a layout of the system is shown in Figure 7-6. This line would be collocated with the collection system lines that are being installed. As with Providence there is no existing pressure irrigation system so this line would be stubbed and used in the future.

Table 7-6 Nibley Reuse Line Cost Estimate



Engineer's Opinion of Probable Cost
Project: Cache Valley Study
Date: 10/30/2014

| Reuse Line For Nibley | | | | | |
|--|-------------------------------------|----------|------|-----------|------------------|
| ITEM | DESCRIPTION | Quantity | Unit | Each | COST |
| 1 | Mobilization | 1 | lump | \$25,000 | \$25,000 |
| 2 | Furnished and Install 10" DR11 HDPE | 11914 | ft | \$25 | \$297,850 |
| 3 | Lift Station | 1 | lump | \$300,000 | \$300,000 |
| Subtotal | | | | | \$622,850 |
| Contingency 25% | | | | | \$155,713 |
| Construction Cost Subtotal | | | | | \$778,563 |
| Engineering, Construction Observation, Admin. 12% | | | | | \$93,428 |
| Total Probable Cost | | | | | \$871,990 |

7.5.2 Reuse Summary

Although it would be less expensive to install the reuse lines along with the sewer outfall lines at this time there is no system to use the water in place at this time. The cost to install new pressure irrigation systems for each of the cities would be very expensive. It is recommended to install those lines as part of a pressure irrigation system. It would cost more to install them at the time the irrigation system was installed. However, the savings at this time is not worth the risk of never installing the rest of the system.

7.6 SUMMARY

Tables 7-7 and 7-8 illustrate the summary of the four alternatives that were discussed in this chapter. Option 4 seems to be the apparent lowest cost alternative. However, using the gravity line on 2600 South is not the most applicable option because the existing gravity pipe was originally installed for the future growth of Millville. Based on the design route, Option 3 is the most practical option. The gravity pipe line running along with 4000 South makes this section available for Nibley's future connection to the central system. Although the probable cost seems to be higher than other options, Option 3 will minimize the future construction cost associated with Nibley's connection from future development.

Table 7-7 Summary Cost 3 MGD - 2016

| | TOTAL COST PER ERU PER MONTH (3 MGD) - 2016 | | | |
|------------|--|-----------------|-----------------|-----------------|
| | Option 1 | Option 2 | Option 3 | Option 4 |
| Hyrum | \$47.01 | \$47.01 | \$47.01 | \$47.01 |
| Providence | \$64.00 | \$60.70 | \$62.15 | \$60.37 |
| Nibley | \$50.98 | \$51.12 | \$53.27 | \$50.56 |

Table 7-8 Summary Cost 3 MGD - 2035

| | TOTAL COST PER ERU PER MONTH (3 MGD) - 2035 | | | |
|------------|--|-----------------|-----------------|-----------------|
| | Option 1 | Option 2 | Option 3 | Option 4 |
| Hyrum | \$38.46 | \$38.46 | \$38.46 | \$38.46 |
| Providence | \$50.34 | \$48.04 | \$49.05 | \$47.80 |
| Nibley | \$40.53 | \$40.60 | \$41.72 | \$40.30 |

SECTION 8 OPERATIONS AND MAINTENANCE

8.1 O&M COSTS

The cost to operate the treatment facility was analyzed based on the 2014 budget for operating the Hyrum treatment facility. Currently there are three operators needed at the facility. It is assumed that the expanded facility will require four operators. The budget included debt service costs that were removed to evaluate the actual operations of the facility. The additional costs were increased to reflect the cost to treat the additional flow. In addition the cost of operating the lift stations was included in the O&M Costs. Table 8-1 outlines the estimated costs for O&M. Monthly cost per ERU was calculated based on the expected ERU values for 2024, 7907 ERUs for 3 MGD option and for 2035, 10407 ERUs.

Table 8-1 O&M Costs



Engineer's O&M Cost Estimate

Project: Cache Valley Study

Date: 10/10/2014

| O&M COST | | | | |
|----------------------------|---------------------------|------------------|--------------------|--------------------|
| ITEM | DESCRIPTION | 2014 BUDGET | 3MGD BUDGET | 4MGD BUDGET |
| 1 | Employee Related Expenses | \$257,400 | \$343,200 | \$343,200 |
| 2 | Utilities | \$240,000 | \$720,000 | \$960,000 |
| 3 | Facility Maintenance | \$5,000 | \$8,000 | \$8,000 |
| 5 | Equipment Maintenance | \$160,000 | \$480,000 | \$640,000 |
| 6 | MBR Cleaning | \$9,000 | \$13,500 | \$18,000 |
| 7 | Alum | \$50,000 | \$150,000 | \$200,000 |
| 8 | Professional Services | \$45,000 | \$135,000 | \$180,000 |
| 9 | Insurance | \$12,000 | \$36,000 | \$48,000 |
| 10 | Lift Stations | \$0 | \$81,600 | \$108,000 |
| 11 | Miscellaneous | \$2,000 | \$6,000 | \$8,000 |
| Total Cost Estimate | | \$780,400 | \$1,973,300 | \$2,513,200 |
| Cost Per ERU/ Month | | \$28.83 | \$20.80 | \$20.12 |

The operating cost per ERU is shown in Table 8-1. As the facility increases in size there is some economy of scale. However, most of the scale savings is related to personnel.

8.2 RESERVE FUNDS

MBR facilities have a large amount of mechanical equipment including the membranes. This equipment will wear out and a reserve fund should be created to save up the required funds to replace this equipment as it wears out. Just to replace the membranes in ten years will require about 3 Million dollars. Therefore, at least \$3.50 should be collected each month to provide funds for membrane replacements.

SECTION 9 FINANCIAL IMPACT

This chapter provides detailed cost analysis for both plant expansion and collection systems. Financial responsibility of each collection system for Hyrum, Providence, and Nibley are summarized in this chapter.

9.1 PLANT EXPANSION – 3 MGD

Probable costs for the expansion of Hyrum water reclamation facility was analyzed for 3 MGD options. The anticipated treatment cost for the 2035 population estimate is \$23,790,474. The estimated ERU's at that time will be 7,907. The anticipated O&M cost is \$20.80 per ERU per month. Assuming that there will be 4 % annual interest and 20 years term, the treatment debt service payment on 2016, with expected ERUs of 6489, will be \$22.71 per ERU. The monthly pipeline debt service payment per ERU was calculated with the same assumption of 4% annual interest and 20 years term and are summarized in the following tables. The cost of debt services for both treatment and collection will decrease over the years as a result of population growth in the communities. Detailed cost analysis can be found in Appendix B.

Two tables below are shown for each collection option. The first table shows projected monthly rates in 2016 while the second table shows projected monthly rates in 2035. This assumes level debt service. However, once options are more carefully refined, the consultants will create a MUNEX debt service schedule which has the ability to smooth the debt over time, thereby making rates lower than those shown in 2016 below and higher than those shown in 2035.

Table 9-1 Cost Per ERU Option 1 x 3 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|------------------------|-----------------------|---------|---------------|-------------------|
| Option 1 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$22.71 | \$0.00 | \$20.80 | \$3.50 | \$47.01 |
| Providence | \$22.71 | \$16.99 | \$20.80 | \$3.50 | \$64.00 |
| Nibley | \$22.71 | \$3.98 | \$20.80 | \$3.50 | \$50.98 |

Table 9-2 Cost Per ERU Option 1 x 3 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|------------------------|-----------------------|---------|---------------|-------------------|
| Option 1 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$14.16 | \$0.00 | \$20.80 | \$3.50 | \$38.46 |
| Providence | \$14.16 | \$11.88 | \$20.80 | \$3.50 | \$50.34 |
| Nibley | \$14.16 | \$2.07 | \$20.80 | \$3.50 | \$40.53 |

Table 9-3 Cost Per ERU Option 2 x 3 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|------------------------|-----------------------|---------|---------------|-------------------|
| Option 2 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$22.71 | \$0.00 | \$20.80 | \$3.50 | \$47.01 |
| Providence | \$22.71 | \$13.70 | \$20.80 | \$3.50 | \$60.70 |
| Nibley | \$22.71 | \$4.12 | \$20.80 | \$3.50 | \$51.12 |

Table 9-4 Cost Per ERU Option 2 x 3 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 2 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$14.16 | \$0.00 | \$20.80 | \$3.50 | \$38.46 |
| Providence | \$14.16 | \$9.58 | \$20.80 | \$3.50 | \$48.04 |
| Nibley | \$14.16 | \$2.14 | \$20.80 | \$3.50 | \$40.60 |

Table 9-5 Cost Per ERU Option 3 x 3 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 3 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$22.71 | \$0.00 | \$20.80 | \$3.50 | \$47.01 |
| Providence | \$22.71 | \$15.15 | \$20.80 | \$3.50 | \$62.15 |
| Nibley | \$22.71 | \$6.27 | \$20.80 | \$3.50 | \$53.27 |

Table 9-6 Cost Per ERU Option 3 x 3 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 3 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$14.16 | \$0.00 | \$20.80 | \$3.50 | \$38.46 |
| Providence | \$14.16 | \$10.59 | \$20.80 | \$3.50 | \$49.05 |
| Nibley | \$14.16 | \$3.26 | \$20.80 | \$3.50 | \$41.72 |

Table 9-7 Cost Per ERU Option 4 x 3 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|----------------|
| Option 4 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total |
| Hyrum | \$22.71 | \$0.00 | \$20.80 | \$3.50 | \$47.01 |
| Providence | \$22.71 | \$13.36 | \$20.80 | \$3.50 | \$60.37 |
| Nibley | \$22.71 | \$3.55 | \$20.80 | \$3.50 | \$50.56 |

Table 9-8 Cost Per ERU Option 4 x 3 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|----------------|
| Option 4 x 3MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total |
| Hyrum | \$14.16 | \$0.00 | \$20.80 | \$3.50 | \$38.46 |
| Providence | \$14.16 | \$9.35 | \$20.80 | \$3.50 | \$47.80 |
| Nibley | \$14.16 | \$1.85 | \$20.80 | \$3.50 | \$40.30 |

9.2 PLANT EXPANSION – 4 MGD

Probable costs for the expansion of Hyrum water reclamation facility was analyzed for 4 MGD options. The anticipated treatment cost for the 2035 population estimate is \$26,698,487. The estimated ERU's at that time will be 10,407. The anticipated O&M cost is \$20.10 per ERU per month. The following tables show anticipated rates, assuming a four percent interest rate and a term of 20 years. However, interest rates are likely to be much lower than those shown in the tables below – which reflect private markets. It is likely that grants and low-interest loans can be obtained from the Department of Water Quality. Detailed cost analysis which shows a variety of interest rates can be found in Appendix B.

Table 9-9 Cost Per ERU Option 1 x 4 MGD – 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 1 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$25.48 | \$0.00 | \$20.10 | \$3.50 | \$49.08 |
| Providence | \$25.48 | \$16.82 | \$20.10 | \$3.50 | \$65.90 |
| Nibley | \$25.48 | \$3.94 | \$20.10 | \$3.50 | \$53.02 |

Table 9-10 Cost Per ERU Option 1 x 4 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 1 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$15.89 | \$0.00 | \$20.10 | \$3.50 | \$39.49 |
| Providence | \$15.89 | \$11.76 | \$20.10 | \$3.50 | \$51.25 |
| Nibley | \$15.89 | \$2.05 | \$20.10 | \$3.50 | \$41.54 |

Table 9-11 Cost Per ERU Option 2 x 4 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 2 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$25.48 | \$0.00 | \$20.10 | \$3.50 | \$49.08 |
| Providence | \$25.48 | \$13.56 | \$20.10 | \$3.50 | \$62.64 |
| Nibley | \$25.48 | \$4.08 | \$20.10 | \$3.50 | \$53.16 |

Table 9-12 Cost Per ERU Option 2 x 4 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 2 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$15.89 | \$0.00 | \$20.10 | \$3.50 | \$39.49 |
| Providence | \$15.89 | \$9.48 | \$20.10 | \$3.50 | \$48.97 |
| Nibley | \$15.89 | \$2.12 | \$20.10 | \$3.50 | \$41.61 |

Table 9-13 Cost Per ERU Option 3 x 4 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 3 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2016 |
| Hyrum | \$25.48 | \$0.00 | \$20.10 | \$3.50 | \$49.08 |
| Providence | \$25.48 | \$15.00 | \$20.10 | \$3.50 | \$64.08 |
| Nibley | \$25.48 | \$6.21 | \$20.10 | \$3.50 | \$55.29 |

Table 9-14 Cost Per ERU Option 3 x 4 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|-------------------|
| Option 3 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total 2035 |
| Hyrum | \$15.89 | \$0.00 | \$20.10 | \$3.50 | \$39.49 |
| Providence | \$15.89 | \$10.49 | \$20.10 | \$3.50 | \$49.98 |
| Nibley | \$15.89 | \$3.23 | \$20.10 | \$3.50 | \$42.72 |

Table 9-15 Cost Per ERU Option 4 x 4 MGD - 2016

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|----------------|
| Option 4 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total |
| Hyrum | \$25.48 | \$0.00 | \$20.10 | \$3.50 | \$49.08 |
| Providence | \$25.48 | \$13.23 | \$20.10 | \$3.50 | \$62.31 |
| Nibley | \$25.48 | \$3.51 | \$20.10 | \$3.50 | \$52.60 |

Table 9-16 Cost Per ERU Option 4 x 4 MGD - 2035

| COST PER ERU PER MONTH | | | | | |
|-------------------------------|---------------------------|--------------------------|---------|------------------|----------------|
| Option 4 x 4MGD | Treatment Debt Service | Pipeline Debt Service | O&M | Reserve Funds | Total |
| Hyrum | \$15.89 | \$0.00 | \$20.10 | \$3.50 | \$39.49 |
| Providence | \$15.89 | \$9.25 | \$20.10 | \$3.50 | \$48.74 |
| Nibley | \$15.89 | \$1.83 | \$20.10 | \$3.50 | \$41.32 |

9.3 RELATIONSHIP BETWEEN INTEREST RATE AND MONTHLY COST

As mentioned earlier, 4% annual interest was assumed and applied to both the 3MGD and 4MGD scenarios.. The annual interest rate is one of the most important factors calculating the monthly cost per ERU. The tables below demonstrate the impact of the interest rate on the sewer rate per month per ERU. Lower interest rates significantly decrease the debt service payments which result in lower monthly cost for central sewage services. Only 2016 cost comparisons have been made in the tables below for Option 3 for the 3MGD alternative.

Table 9-17 Cost Per ERU Option 3 x 3 MGD - 2016

| COST PER ERU PER MONTH - 2016 | | | | | |
|--------------------------------------|--------------|-----------|-----------|-----------|-----------|
| Interest Rate | 0.75% | 1% | 2% | 3% | 4% |
| Hyrum | \$40.97 | \$41.40 | \$43.17 | \$45.04 | \$47.01 |
| Providence | \$52.10 | \$52.81 | \$55.76 | \$58.88 | \$62.15 |
| Nibley | \$45.58 | \$46.12 | \$48.38 | \$50.77 | \$53.27 |

Table 9-17 Cost Per ERU Option 3 x 3 MGD - 2035

| COST PER ERU PER MONTH - 2035 | | | | | |
|--------------------------------------|--------------|-----------|-----------|-----------|-----------|
| Interest Rate | 0.75% | 1% | 2% | 3% | 4% |
| Hyrum | \$34.70 | \$34.96 | \$36.07 | \$37.23 | \$38.46 |
| Providence | \$42.47 | \$42.94 | \$44.87 | \$46.91 | \$49.05 |
| Nibley | \$37.09 | \$37.42 | \$38.78 | \$40.21 | \$41.72 |

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Cirrus. (2002). *Spring Creek TMDL*. Salt Lake City: Quality, Division of Water.

SWCA Environmental Consultants. (2010). *Middle Bear River and Cutler Reservoir TMDL*. Salt Lake City: Department of Water Quality.

Appendix A Hyrum City UPDES Permit

**FACT SHEET/STATEMENT OF BASIS
HYRUM WASTEWATER TREATMENT PLANT
PERMIT RENEWAL
UPDES PERMIT NUMBER: UT0023205
UPDES BIOSOLIDS PERMIT NUMBER: UTL-023205
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL**

FACILITY CONTACTS

| | |
|-------------------|---------------------------------------|
| Person Name: | Kevin Maughan |
| Position: | Plant Superintendent |
| Person Name: | Jeff Jorgensen |
| Position: | Plant Operator |
| Person Name: | Tom Broadbent |
| Position: | Plant Operator |
| Facility Name: | Hyrum City Wastewater Treatment Plant |
| Facility Address: | 1900 West 4400 South |
| Mailing Address: | 83 West Main Hyrum, Utah 84319 |
| Telephone: | 435-245-3123 |
| Facsimile: | 435-245-4758 |

DESCRIPTION OF FACILITY

The Hyrum City Wastewater Treatment Plant (HWTP) serves the City of Hyrum with a population of approximately 7,200 and is located in Cache County.

The HWTP utilizes a membrane bioreactor treatment (MBR) process and consists of screening, two parallel anoxic basins, an aerated channel, three aeration basins and membrane filtration followed by ultraviolet disinfection.

During the non-irrigation season, the final effluent is discharged to an unnamed ditch which flows to Spring Creek and then to the Little Bear River. During the irrigation season, effluent from the HWTP is reused in the City's irrigation system.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

In an effort to improve the water quality of Spring Creek during the critical summer months and to reduce the chemical costs associated with meeting a stringent phosphorus effluent limit, Hyrum City now utilizes all of the effluent flow from the HWTP during the irrigation season in the City's irrigation system or the irrigation storage reservoir located on the east bench of Hyrum City, depending upon demand. The plant produces Type I quality effluent for irrigation of public landscapes, landscapes at individual homes and agricultural lands.

The HWTP permit was modified in 2011 to include Type I effluent limits and reuse provisions as per *UAC R317-3-11*.

In addition, Hyrum City has requested that the renewal permit no longer contain pretreatment provisions. Hyrum City was originally required to develop and implement an approved pretreatment program as part of a settlement agreement resulting from an upset at the HWTP due to an industrial user. Hyrum City met all of the terms of the settlement agreement and has successfully administered the pretreatment program for over 10 years.

Hyrum City will continue to administer its existing pretreatment program and have requested that they do so without DWQ oversight. Because the HWTP does not meet the requirements for a pretreatment program as per *UAC R317-8.8*, the renewal permit will not contain the requirement for Hyrum City to maintain its pretreatment program.

DISCHARGE

DESCRIPTION OF DISCHARGE

The HWTP has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is attached.

| <u>Outfall Number</u> | <u>Location of Discharge Outfall</u> |
|-----------------------|---|
| 001 | The Hyrum Wastewater Treatment Plant (HWTP) discharges directly into an unnamed irrigation ditch from a 24-inch concrete pipe immediately north of the facility at latitude 41°39'06" and longitude 111°52'50". |
| 001R | The reuse pump station located at the HWTP. |

RECEIVING WATERS AND STREAM CLASSIFICATION

The receiving water is an unnamed irrigation ditch, which flows approximately three miles to Spring Creek, and from there to the Little Bear River.

The irrigation ditch is classified as Class 4. The Little Bear River and its tributaries from Cutler Reservoir to its headwaters are classified as 2B, 3A, 3D, and 4 according to Utah Administrative Code R317-2-12.7

- Class 2B -Protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3A -Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

- Class 3D -Protected for waterfowl, shore birds and other water oriented wildlife not included in Class 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 -Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD₅), E. Coli, pH and percent removal for BOD₅ and TSS are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*. The total ammonia limits are based upon the Wasteload Analysis. The oil and grease limitation is based on best professional judgment (BPJ). The phosphorus effluent limits are consistent with the Spring Creek TMDL and protective of Spring Creek during the critical months of the year. The Wasteload Analysis indicates that these limits will be protective of water quality standards. The permit limitations are:

| Parameter | Outfall 001: Effluent Limitations | | | | | |
|---|-----------------------------------|--------------------|-----------|------------------------------------|------------|-----------------|
| | Max Monthly Average | Max Weekly Average | Daily Min | Daily Max | Annual Max | Max 90-day Mean |
| Flow, MGD | 2.0 | | | | | |
| BOD ₅ , mg/L | 25 | 35 | | | | |
| BOD ₅ Min. % Removal | 85 | NA | | | | |
| TSS, mg/L | 25 | 35 | | | | |
| TSS Min. % Removal | 85 | NA | | | | |
| Ammonia, mg/L | | | | | | |
| Summer (July through Sept.) | 5.0 | | | 10.9 | | |
| Fall (Oct. through Dec.) | 4.9 | | | 9.8 | | |
| Winter (Jan. through March) | 4.1 | | | 9.4 | | |
| Spring (April through June) | 4.3 | | | 9.8 | | |
| Total Phosphorus, mg/L Fall, Winter and Spring | 1.0 | | | | | |
| Total Phosphorus, mg/L Summer | | | | | | 0.1 |
| Total Phosphorus, kg/yr | | | | | 563 | |
| E coli, No./100mL | 126 | 158 | | | | |
| Oil & Grease, mg/L | | | | 10 | | |
| pH, Standard Units | | | 6.5 | 9.0 | | |
| WET, Acute Biomonitoring | | | | LC50 > EOP | | |
| WET, Chronic Biomonitoring | | | | IC25 > 87.5 % Effluent | | |

NA – Not Applicable.

| Parameter | Outfall 001R: Type I Reuse Limitations | | | | |
|-------------------------|--|-------------------|-----------|-----------|-----------|
| | Maximum Monthly Avg | Max Weekly median | Daily Min | Daily Avg | Daily Max |
| Turbidity, NTU | NA | NA | NA | 2 | 5 |
| BOD ₅ , mg/L | 10 | NA | NA | NA | NA |
| E-Coli, No./100mL | NA | ND | NA | NA | 9 |
| pH, Standard Units | NA | NA | 6 | NA | 9 |

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit. The permit will require reports to be submitted monthly and quarterly, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

| Outfall 001: Self-Monitoring and Reporting Requirements | | | |
|---|------------------------------|------------------------|-----------------------|
| Parameter | Frequency | Sample Type | Units |
| Total Flow | Continuous | Recorder | MGD |
| BOD ₅ , Influent ^{2,4} | 2 x Weekly | Composite | mg/L |
| Effluent | 2 x Weekly | Composite | mg/L |
| TSS, Influent ^{2,4} | 2 x Weekly | Composite | mg/L |
| Effluent | 2 x Weekly | Composite | mg/L |
| Ammonia | 2 x Weekly | Grab | mg/L |
| Phosphorus ³ | Monthly | Grab | mg/L |
| E-Coli | 2 x Weekly | Grab | No./100mL |
| Oil & Grease | Monthly if sheen is observed | Grab | mg/L |
| pH | Weekly | Grab | SU |
| WET, Acute (alternating specie) | 2 x Year | Composite | LC50 > EOP Effluent |
| WET, Chronic (alternating specie) | 2 x Year | Composite | IC25 > 87.5% Effluent |
| Metals, Influent | 2 x Year | Composite ⁶ | mg/L |
| Effluent | 2 x Year | Composite ⁶ | mg/L |
| Organic Toxics Influent | Every other year | Grab | mg/L |
| Effluent | Every other year | Grab | mg/L |

| Outfall 001R: Self-Monitoring and Reporting Requirements for Type I Reuse | | | |
|---|------------------|---------------|-----------|
| Parameter | Frequency | Sample Type | Units |
| Total Flow | Continuous | Recorder | MGD |
| BOD ₅ | Once per week | Composite | mg/L |
| Turbidity | Continuous | Recorder | NTU |
| E-Coli. | Daily | Grab | No./100mL |
| TRC | Continuous | Recorder | mg/L |
| pH | Daily/Continuous | Grab/Recorder | SU |

BIOSOLIDS

DESCRIPTION OF BIOSOLIDS TREATMENT

After the influent is screened the solids are stabilized by the activated sludge process with a mean cell residence time of approximately 45 days. The biosolids are then de-watered with a belt press, and dried in concrete drying beds until the biosolids have met a process to significantly reduce pathogens, and have met a method of vector attraction reduction.

DESCRIPTION OF BIOSOLIDS DISPOSAL METHOD

Even though the biosolids produced by HWTP meet exceptional quality standards for heavy metals through testing, and the biosolids have met a process to **significantly** reduce pathogens, the biosolids **have not** met a process to **further** reduce pathogens. Therefore, the biosolids do not meet the pathogen reduction requirements for the biosolids to be considered Class A for sale or giveaway to the general public for home lawn and garden use.

However, since the biosolids have met a method of a “process to significantly reduce pathogens”, and a method of vector attraction reduction, the biosolids **do** meet the requirements for Class B pathogen reduction standards and may be used for agriculture or land reclamation purposes.

In 2012 the Hyrum Wastewater Treatment Plant (HWTP) land applied 274 dry metric tons of Class B biosolids to city owned property for agriculture production. At this time the HWTP intends to dispose of their biosolids in this manner for the life of this permit.

SELF-MONITORING DATA

Heavy Metals Monitoring

The HWTP was required to sample once for heavy metals in 2007. The table below shows the HWTP was in compliance and met the exceptional quality standards for heavy metals. However, the limited monitoring data of the past shows the arsenic levels in the biosolids have been rising. If the arsenic levels exceed table 3 below, the biosolids will not qualify as exceptional quality, and further record keeping and land application requirements may change.

METALS MONITORING DATA, 2007

| Parameter | Table 1 Limitations, mg/Kg | HWTP, Average mg/Kg (2007) | HWTP, Maximum, mg/Kg (2007) |
|------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Arsenic | 41.0 | 36.7 | 36.7 |
| Cadmium | 39.0 | <1.0 | <1.0 |
| Copper | 1,500.0 | 190 | 190 |
| Lead | 300.0 | 9.95 | 9.95 |
| Mercury | 17.0 | 0.78 | 0.78 |
| Molybdenum | 75.0 | 4.0 | 4.0 |
| Nickel | 420.0 | 9.52 | 9.52 |
| Selenium | 36.0 | <1.0 | <1.0 |
| Zinc | 2,800.0 | 551 | 551 |

Vector Attraction Reduction Monitoring

The total solids content must be at least 75%. The HWTP's monitoring data show's the total solids content was 89.0%

Pathogen Reduction Monitoring

Because the HWTP used a process to significantly reduce pathogens, sampling for pathogens was not required, therefore there is no data.

LIMITATIONS AND SELF-MONITORING REQUIREMENTS

Under *40 CFR 503.16(a)(1)*, the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

| Minimum Frequency of Monitoring | |
|---|-----------------------------|
| Dry Metric Tons of Biosolids Disposed Per Year | Monitoring Frequency |
| > 0 to < 290 | Once Per Year |
| > 290 to < 1,500 | Four Times Per Year |
| > 1,500 to < 15,000 | Six Times Per Year |

Accordingly, the HWTP needs to monitor at least once per year.

CLASS B REQUIREMENTS (Heavy Metals)

The intent of the heavy metals regulations of Tables 1, 2 and 3, of *40 CFR 503.13* is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see *Part III.D.11.* of the

permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites. If the biosolids are land applied and meet the heavy metals limitations under *40 CFR 503.13*, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment due to heavy metals.

If the biosolids are to be land applied to agricultural land, forest land, a low public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in Table 1 and the heavy metals loading rates in Table 2; or

The maximum heavy metals in Table 1 and the monthly heavy metals concentrations in Table 3.

If the biosolids do not meet these requirements they cannot be land applied.

Tables 1, 2, and 3 of Heavy Metal Limitations

| Heavy Metals | Table 1 | Table 2 | Table 3 |
|--|---------------------------------|-------------------------------------|---|
| All heavy metals concentrations shall be measured and reported | Daily Maximum mg/Kg a/b/c/d/ | Cumulative Loading Rate Kg/Ha a/ | Monthly Average Concentration mg/Kg a/b/c/d/ |
| Total Arsenic | 75 | 41 | 41 |
| Total Cadmium | 85 | 39 | 39 |
| Total Copper | 4300 | 1500 | 1500 |
| Total Lead | 840 | 300 | 300 |
| Total Mercury | 57 | 17 | 17 |
| Total Molybdenum | 75 | N/A | N/A |
| Total Nickel | 420 | 420 | 420 |
| Total Selenium | 100 | 100 | 100 |
| Total Zinc | 7500 | 2800 | 2800 |

- a/ See Part VIII. of the permit for definition of terms.
- b/ The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.
- c/ Any violation of these limitations shall be reported in accordance with the requirements of *Part III.G.1.* of the permit.
- d/ These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

CLASS B REQUIREMENTS (Pathogens)

Hyrum intends to achieve Class B biosolids in one of three different ways with regards to pathogens:

1. Under *40 CFR 503.32 (b)(2)* Hyrum may test the biosolids and it must meet a microbiological limit of less than 2,000,000 MPN of fecal coliform per gram for the biosolids to be considered Class B biosolids with respect to pathogens. Or,
2. Under *40 CFR 503.32 (b)(3), Appendix B.2*. Hyrum must meet one of the processes to significantly reduce pathogens. Hyrum intends to meet a process to significantly reduce pathogens by using the air drying method of pathogen reduction. The biosolids are applied to an impervious surface and dried at a depth of no more than 9 inches (23 cm) deep. The biosolids are allowed to dry for a minimum of 3 months. During 2 of the 3 months, the ambient average daily temperature is above 32° F (0° C). Or,
3. Under *40 CFR 503.32 (b)(3), Appendix B.4*. Hyrum must meet one of the processes to significantly reduce pathogens. Hyrum intends to meet a process to significantly reduce pathogens by using the windrow method of composting. To achieve this, the temperature must be above 40° C (104° F) or higher, and remain at 40° C or higher for a minimum of five days. For four hours, during the five days, the temperature needs to exceed 55° C (131° F).

Vector Attraction Reduction

If the biosolids are land applied Hyrum will be required to meet a method of vector attraction reduction under *40 CFR 503.33*. Hyrum intends to meet one of the vector attraction reduction requirements below.

1. Aerobic treatment of the biosolids for at least 14 days at over 40° C (104° F) with an average temperature of at least 45° C (113° F) *503.33(b)(5)*.
2. Solids are equal to or greater than 75% total solids when primary solids are **not** present prior to land application *503.33(b)(7)*.
3. Solids are equal to or greater than 90% total solids when primary solids are present prior to land application *503.33(b)(8)*.
4. All Class B biosolids land applied shall be incorporated into the soil within 6 hours after land application *503.33(b)(10)*.

Landfill Monitoring

Under *40 CFR 258*, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill.

REPORTING AND RECORD KEEPING REQUIREMENTS

Record keeping

The record keeping requirements from *40 CFR 503.17* are included under *Part III.F.* of the permit. The amount of time the records need to be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of *Table 3 of 40 CFR 503.13*, and are sold or given away, the records need to be retained for a minimum of five years. If the biosolids are disposed in a landfill the records need to be retained for a minimum of five years.

Reporting

The HWTP needs to report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part III.C.* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

STORM WATER

Storm water provisions are included in this permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000 (MSGP). All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include: (1) the development of a pollution prevention team, (2) development of drainage maps and materials stockpiles, (3) an inventory of exposed materials, (4) spill reporting and response procedures, (5) a preventative maintenance program, (6) employee training, (7) certification that storm water discharges are not mixed with non-storm water discharges, (8) compliance site evaluations and potential pollutant source identification, and, (9) visual examinations of storm water discharges.

Hyrum City WWTP is currently covered under the UPDES Multi Sector General Permit for Industrial Activities.

PRETREATMENT REQUIREMENTS

Although the permittee had a developed State-approved pretreatment program it is no longer designated for a pretreatment program because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility by an industrial user. If any of these conditions change the permit could be modified to

include the requirement of a pretreatment program.

Although the permittee no longer has a State-approved pretreatment program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR 403 and the State Pretreatment Requirements found in UAC R317-8-8.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

It is recommended that the permittee perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions 40 CFR, Part 403.5(a) and Part 403.5(b). This evaluation may indicate that present local limits are sufficiently protective, need to be revised or should be developed. It is required that the permittee submit for review any local limits that are developed to the Division of Water Quality. If local limits are developed they must be public noticed.

All metals testing must use a low enough MDL to insure that the metals are not above the allowable levels determined by the WLA for this permittee. If a test is not available then the lowest test available must be used.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring)*. Authority to require effluent biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317 -2-7.2.*

Since the permittee is a major municipal discharger, the renewal permit will require whole effluent toxicity (WET) testing. A review of the past five years of WET data indicates no toxicity has been reported. Therefore, the permittee will continue their quarterly WET testing procedures, including alternating acute and chronic testing, with alternating species as well, and no WET limit requirements. However, the permit will contain a toxicity limitation re-opener provision. This provision allows for modification of the permit to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

The permit will contain the standard requirements for accelerated testing upon failure of an acute WET test and a PTI (Preliminary Toxicity Investigation) and TRE (Toxicity Reduction Evaluation) as necessary.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by:
Kim Shelley, Discharge and Reuse
Dan Griffin, Biosolids
Mike Herkimer, WET
Mike George, Storm Water
Jennifer Robinson, Pretreatment
Utah Division of Water Quality

PUBLIC NOTICE

Began: October 18, 2013
Ended: November 18, 2013
Public Noticed in The Logan Herald Journal

No comments were received during the public comment period. Therefore, the permit and FSSOB are the same as the draft documents that were public noticed.

November 20, 2013

FILE COPY

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Major Municipal Permit No. **UT0023205**
Biosolids Permit No. **UTL-023205**
Storm Water Permit No. **UTR000000**

In compliance with provisions of the *Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated ("UCA") 1953, as amended (the "Act")*,

HYRUM CITY WASTEWATER TREATMENT PLANT

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **AN UNNAMED IRRIGATION DITCH TO SPRING CREEK, THEN TO THE LITTLE BEAR RIVER,**

to dispose of biosolids,

and to discharge storm water,

and to distribute effluent for reuse,

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This permit shall become effective December 1, 2013.

This permit expires at midnight on November 30, 2018.

Signed this 25 day of November, 2013.



Walter L. Baker, P.E.
Director

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

A. Description of Discharge Point. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

| <u>Outfall Number</u> | <u>Location of Discharge Outfall</u> |
|-----------------------|---|
| 001 | The Hyrum Wastewater Treatment Plant (HWTP) discharges directly into an unnamed irrigation ditch from a 24-inch concrete pipe immediately north of the facility at latitude 41°39'06" and longitude 111°52'50". |
| 001R | The reuse pump station located at the HWTP. |

B. Narrative Standard. It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.

C. Specific Limitations and Self-Monitoring Requirements for Surface Water Discharge at Outfall 001.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VIII*, and determined by test procedures described in *Part I. C.3.a & b* of this permit.
2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

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UPDES PERMIT NO. UT0023205
WASTEWATER

| Parameter | Effluent Limitations a/ | | | | | |
|---------------------------------|-------------------------|--------------------|-----------|-----------------------|------------|-----------------|
| | Max Monthly Average | Max Weekly Average | Daily Min | Daily Max | Annual Max | Max 90-day Mean |
| Flow, mgd | 2.0 | | | | | |
| BOD ₅ , mg/L | 25 | 35 | | | | |
| BOD ₅ Min. % Removal | 85 | NA | | | | |
| TSS, mg/L | 25 | 35 | | | | |
| TSS Min. % Removal | 85 | NA | | | | |
| Ammonia, mg/L | | | | | | |
| Summer (July through Sept.) | 5.0 | | | 10.9 | | |
| Fall (Oct. through Dec.) | 4.9 | | | 9.8 | | |
| Winter (Jan. through March) | 4.1 | | | 9.4 | | |
| Spring (April through June) | 4.3 | | | 9.8 | | |
| Total Phosphorus, mg/L | | | | | | |
| Fall, Winter and Spring | 1.0 | | | | | |
| Total Phosphorus, mg/L | | | | | | 0.1 |
| Summer | | | | | | |
| Total Phosphorus, kg/yr | | | | | 563 | |
| E coli, No./100mL | 126 | 158 | | | | |
| Oil & Grease, mg/L | | | | 10 | | |
| pH, Standard Units | | | 6.5 | 9.0 | | |
| WET, Acute Biomonitoring | | | | LC50 > EOP | | |
| WET, Chronic Biomonitoring | | | | IC25 > 87.5% Effluent | | |

NA – Not Applicable

| Self-Monitoring and Reporting Requirements <i>a/</i> | | | |
|--|------------------------------|---------------------|-----------------------|
| Parameter | Frequency | Sample Type | Units |
| Total Flow | Continuous | Recorder | MGD |
| BOD ₅ , Influent <i>b/ d/</i> Effluent | 2 x Weekly | Composite | mg/L |
| | 2 x Weekly | Composite | mg/L |
| TSS, Influent <i>b/ d/</i> Effluent | 2 x Weekly | Composite | mg/L |
| | 2 x Weekly | Composite | mg/L |
| Ammonia | 2 x Weekly | Grab | mg/L |
| Phosphorus <i>c/</i> | Monthly | Grab | mg/L |
| E-Coli | 2 x Weekly | Grab | No./100mL |
| Oil & Grease | Monthly if sheen is observed | Grab | mg/L |
| pH | Weekly | Grab | SU |
| WET, Acute (alternating specie) | 2 x Year | Composite | LC50 > EOP Effluent |
| WET, Chronic (alternating specie) | 2 x Year | Composite | IC25 > 87.5% Effluent |
| Metals <i>e/</i> , Influent Effluent | 2 x Year | Composite <i>f/</i> | mg/L |
| | 2 x Year | Composite <i>f/</i> | mg/L |
| Organic Toxics, Influent Effluent | Every other year | Grab | mg/L |
| | Every other year | Grab | mg/L |

- a/* See Definitions, *Part VIII*, for definition of terms.
- b/* Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- c/* The permittee shall report concentration but shall also calculate and report loading in accumulated kilograms.
- d/* In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
- e/* The permittee must take samples and procure the approved EPA laboratory testing method to obtain the required minimum detection limit (see permit *Part II.H.1.*) for the following metals: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, and zinc. Although cyanide is not a metal it must be included in afore mentioned sampling and testing along with the previously listed metals.
- f/* In the case of cyanide, sampling must be done as a grab.

3. Biomonitoring - Acute/Chronic Whole Effluent Toxicity (WET) Testing.

- a. *Whole Effluent Testing – Acute Toxicity.* Beginning the effective date of this permit, the permittee shall conduct semi-annual, acute static replacement toxicity tests on a composite sample of the final effluent. The sample shall be collected at Outfall 001.

The monitoring frequency for acute tests shall be semi-annual (alternating as indicated in the next paragraph) unless a sample is found to be acutely toxic during a routine test. If that occurs, the monitoring frequency shall become weekly (See *Part I.C.3.c., Accelerated Testing*). Samples shall be collected on a two day progression; i.e., if the first sample is on a Monday, during the next sampling period, the sampling shall begin on a Wednesday, etc.

The replacement static acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, (EPA 821/R/02/012), October 2002*, as per *40 CFR 136.3(a) TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*. The permittee shall conduct Acute *Whole Effluent Toxicity Tests* twice a year alternating quarterly between Chronic *Whole Effluent Toxicity Tests* (see *Part IC.3.b*) and Acute *Whole Effluent Toxicity Tests*. The permittee shall conduct Acute *Whole Effluent Toxicity Tests*, the 48-hour static replacement toxicity test using *Ceriodaphnia dubia* and the acute 96-hour static replacement toxicity test using *Pimephales promelas* (fathead minnow). The two times a year that the permittee will do Acute *Whole Effluent Toxicity Tests*, the permittee will alternate between the test method using *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow).

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the results to be considered valid. If more than 10 percent control mortality occurs, the test shall be repeated until satisfactory control mortality is achieved.

If the permit contains a total residual chlorine limitation greater than 0.20 mg/L, the permittee may request from the Director approval to de-chlorinate the sample, or collect the sample prior to chlorination.

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the reporting calendar quarter e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). All test results shall be reported along with the DMR submitted for that reporting period. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Acute Whole Effluent Reporting* and shall include all chemical and physical data as specified.

If the results for a minimum of ten consecutive tests indicate no acute toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species. The Director may approve, partially approve, or deny the request based on

results and other available information. If approval is given, the modification will take place without a public notice.

- b. *Whole Effluent Testing – Chronic Toxicity.* Beginning the effective date of this permit, the permittee shall semi-annually, conduct chronic short-term toxicity tests on a composite sample of the final effluent. The sample shall be collected at Outfall 001.

The monitoring frequency shall be semi-annually (alternating as indicated in the next paragraph). Samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, sampling shall be on a Wednesday. If chronic toxicity is detected, the test shall be repeated in less than four weeks from the date the initial sample was taken. The need for any additional samples, and/or a Toxicity Reduction Evaluation (TRE), see *Part I.C.4.c*, shall be determined by the Director. If the second test shows no chronic toxicity, routine monitoring shall be resumed.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, 4th Edition, (EPA 821/R-02-13), October 2002* as per 40 CFR 136.3(a) *TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*. The permittee shall conduct Chronic *Whole Effluent Toxicity Tests* twice a year alternating quarterly between Chronic *Whole Effluent Toxicity Tests* and Acute *Whole Effluent Toxicity Tests* (see *Part IC.3.a*). Chronic *Whole Effluent Toxicity Tests* species shall consist of Ceriodaphnia dubia and Pimephales promelas (fathead minnow). For Chronic *Whole Effluent Toxicity Testing* the permittee shall alternate quarterly between Ceriodaphnia dubia and Pimephales promelas (fathead minnow).

Chronic toxicity occurs when the survival, growth, or reproduction for either test species, when exposed to a dilution of 87.5 percent effluent or lower, is significantly less (at 95% confidence level) than that of the control specimens. Dilutions of 87.5 percent only will be required, plus the control. If any of the acceptable control performance criteria are not met, the test shall be considered invalid.

Quarterly test results (acute and chronic) shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the reporting calendar quarter (e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). All test results shall be reported along with the DMR submitted for that reporting period. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Chronic Whole Effluent Reporting* and shall include all the physical testing as specified.

If the results for a minimum of ten consecutive tests indicate no chronic toxicity, the permittee may request a reduction in testing frequency and/or reduction to one

species. The Director may approve, partially approve, or deny the request based on results and other available information. If approval is given, the modification will take place without a public notice.

The current Utah whole effluent toxicity (WET) policy is in the process of being updated and revised to assure its consistency with the Environmental Protection Agency's national and regional WET policy. When said revised WET policy has been finalized and officially adopted, this permit will be reopened and modified to incorporate satisfactory follow-up chronic toxicity language (chronic pattern of toxicity, PTI and/or TIE/TRE, etc.) without a public notice, as warranted and appropriate.

- c. *Accelerated Testing.* When acute toxicity is indicated during routine biomonitoring as specified in this permit, the permittee shall notify the Director in writing within five (5) days after becoming aware of the test result. The permittee shall perform an accelerated schedule of biomonitoring to establish whether a pattern of toxicity exists. Accelerated testing will begin within seven (7) days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under *Part I.C.3.d, Pattern of Toxicity*. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.
- d. *Pattern of Toxicity.* A pattern of toxicity is defined by the results of a series of up to five (5) biomonitoring tests pursuant to the accelerated testing requirements using 100 percent effluent on the single species found to be more sensitive, once every week for up to five (5) consecutive weeks.

If two (2) consecutive tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity) do not result in acute toxicity, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Director within five (5) days, and resume routine monitoring.

A pattern of toxicity is established if one of the following occurs:

- (1) If two (2) consecutive test results (not including the scheduled quarterly or monthly test, which triggered the search for a pattern of toxicity) indicate acute toxicity, this constitutes an established pattern of toxicity.
 - (2) If consecutive tests continue to yield differing results each time, the permittee will be required to conduct up to a maximum of five (5) acute tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity). If three out of five test results indicate acute toxicity, this will constitute an established pattern of toxicity.
- e. *Preliminary Toxicity Investigation.*

- (1) When a pattern of toxicity is detected the permittee will notify the Director in writing within five (5) days and begin an evaluation of the possible causes of the toxicity. The permittee will have fifteen (15) working days from demonstration of the pattern to complete a Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Director. The PTI may include, but is not limited to, additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if a spill may have occurred, and similar procedures.
 - (2) If the PTI identifies a probable toxicant and/or a probable source of toxicity the permittee shall submit, as part of its final results written notification of that effect to the Director. Within thirty (30) days of completing the PTI the permittee shall submit for approval a control program to control effluent toxicity and shall proceed to implement such a plan within seven (7) days following approval. The control program, as submitted to or revised by the Director, may be incorporated into the permit.
 - (3) If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Director as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (See *Part I.C.3.f. Toxicity Reduction Evaluation*).
 - (4) If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Director as part of the reporting requirements of paragraph a of this section.
- f. *Toxicity Reduction Evaluation (TRE)*. If toxicity is detected during the life of this permit and it is determined by the Director that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

- (1) Phase I – Toxicity Characterization
- (2) Phase II – Toxicity Identification Procedures
- (3) Phase III – Toxicity Control Procedures
- (4) Any other appropriate procedures for toxicity source elimination and control.

If the TRE establishes that the toxicity cannot be immediately eliminated, the permittee shall submit a proposed compliance plan to the Director. The plan shall include the proposed approach to control toxicity and a proposed compliance

schedule for achieving control. If the approach and schedule are acceptable to the Director, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee may:

- (a) Submit an alternative control program for compliance with the numerical requirements.
- (b) If necessary, provide a modified biomonitoring protocol, which compensates for the pollutant(s) being controlled numerically.

If acceptable to the Director, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Director, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the Director, shall be considered a violation of this permit.

D. Specific Limitations and Self-Monitoring Requirements for Reuse at Outfall 001R

Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge effluent for reuse from the Reuse Pump station. Such discharges shall be limited and monitored by the permittee as specified below:

| Parameter | Type I Reuse Limitations <u>a/ b/ c/d/</u> | | | | |
|-------------------------|--|-------------------|-----------|-----------|-------------|
| | Maximum Monthly Avg | Max Weekly median | Daily Min | Daily Avg | Daily Max |
| Turbidity, NTU | NA | NA | NA | 2 | 5 <u>f/</u> |
| BOD ₅ , mg/L | 10 | NA | NA | NA | NA |
| E-Coli, No./100mL | NA | ND <u>e/</u> | NA | NA | 9 |
| pH, Standard Units | NA | NA | 6 | NA | 9 |

NA – Not Applicable

ND – Non Detect

| Self-Monitoring and Reporting Requirements for Type I Reuse | | | |
|---|------------------|---------------|-----------|
| Parameter | Frequency | Sample Type | Units |
| Total Flow c/ | Continuous | Recorder | MGD |
| BOD ₅ | Once per week | Composite | mg/L |
| Turbidity | Continuous | Recorder | NTU |
| E-Coli. | Daily | Grab | No./100mL |
| TRC g/ | Continuous | Recorder | mg/L |
| pH | Daily/Continuous | Grab/Recorder | SU |

- a/ See Definitions, *Part VIII*, for definition of terms.
- b/ An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.
- c/ The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes.
- d/ An alternative disposal option or diversion to storage must be available in case quality requirements are not met.
- e/ The weekly median E. coli concentration shall be non-detect.
- f/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- g/ A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.

E. Management Practices for Land Application of Treated Effluent

1. The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
2. No person shall apply treated effluent where the slope of the site exceeds 6 percent.
3. The use should not result in a surface water runoff.
4. The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
5. Any irrigation with treated effluent must be at least 300 feet away from a potable well.
6. For Type I reuse, any irrigation must be at least 50 feet away from any potable water well.
7. Impoundments of treated effluent, if not sealed, must be at least 500 feet away from any potable well.
8. Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public.

- F. Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on December 28, 2013. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, Utah 84114-4870

- G. Monthly Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Monthly Operating Report, post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on January 28, 2014. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, Utah 84114-4870

- H. Annual Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous year shall be summarized and included in the Municipal Wastewater Planning Program (MWPP) submitted annually. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, Utah 84114-4870

II. INDUSTRIAL PRETREATMENT PROGRAM

A. Self-Monitoring and Reporting Requirements.

1. Because the design capacity of this municipal wastewater treatment facility is less than 5 MGD, the permittee will not be required to develop a State-approved industrial pretreatment program at this time. However, in order to determine if development of an industrial pretreatment program is warranted, the permittee shall conduct an **industrial waste survey**, as described in *Part II.B.1*, and submit it to the Division of Water Quality within **sixty (60) calendar days** of the effective date of this permit and shall sample and analyze both the influent and effluent twice a year, for the following parameters.

| Metals Monitoring for Pretreatment Program | | | | |
|--|----------------|-----------|-------------------------|-------|
| Parameter | Sample Type | Frequency | Test Limit ^a | Units |
| Total Arsenic | Composite | 2 x Year | 164 | ug/L |
| Total Cadmium | | | 0.9 | |
| Total Chromium | | | 346 | |
| Total Copper | | | 38 | |
| Total Lead | | | 20.6 | |
| Total Mercury | Composite/Grab | | 0.02 | |
| Total Molybdenum | Composite | | NA | |
| Total Nickel | | | 216 | |
| Total Selenium | | | 6.5 | |
| Total Silver | | | 33 | |
| Total Zinc | | 400 | | |
| Total Cyanide | Grab | 8.5 | | |

^a The MDL of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

B. Industrial Wastes.

1. The "Industrial Waste Survey" as required by *Part II.A.1*. consists of; identifying each significant industrial user (SIU), determination of the qualitative and quantitative characteristics of each discharge, and appropriate production data. A (SIU) is defined as an industrial user discharging to a publicly-owned treatment works (POTW) that satisfies any of the following: (1) has a process wastewater flow of 25,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) is subject to Categorical Pretreatment Standards, or (4) has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.
2. The permittee must notify the Executive Secretary of any new introductions by new or existing SIUs or any substantial change in pollutants from any major industrial source.

Such notice must contain the information described in 1. above and be forwarded no later than sixty (60) days following the introduction or change.

3. Pretreatment Standards (*40 CFR 403.5*) developed pursuant to *Section 307 of The Water Quality Act of 1987* require that under no circumstances shall the permittee allow introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:
 - a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140°F (60°C);
 - b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
 - c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
 - d. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at such volume or strength as to cause interference in the POTW;
 - e. Heat in amounts, which will inhibit biological activity in the POTW, resulting in interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C);
 - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - g. Pollutants which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems; or,
 - h. Any trucked or hauled pollutants, except at discharge points designated by the POTW.
 - i. Any pollutant that causes pass through or interference at the POTW.
4. In addition to the general and specific limitations expressed above, more specific pretreatment limitations have been and will be promulgated for specific industrial categories under *Section 307 of the Water Quality Act of 1987 as amended (WQA)*. (See *40 CFR, Subchapter N, Parts 400 through 500*, for specific information).

C. Notification of Industrial Users

1. The permittee shall provide adequate notice to the Executive Secretary and the Division of Water Quality Industrial Pretreatment Coordinator of;

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- a. Any new introduction of pollutants into the treatment works from an indirect discharger (i.e., industrial user) which would be subject to *Sections 301 or 306* of the *WQA* if it were directly discharging those pollutants;
 - b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit; and
 - c. For the purposes of this section, adequate notice shall include information on:
 - (1) The quality and quantity of effluent to be introduced into such treatment works; and,
 - (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.
2. At such time as a specific pretreatment limitation becomes applicable to an industrial user of the permittee, the Executive Secretary may, as appropriate, do the following:
- a. Amend the permittee's UPDES discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national pretreatment limitation;
 - b. Require the permittee to specify, by ordinance, contract, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's facility for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the *General Pretreatment Regulations at 40 CFR 403*; and/or,
 - c. Require the permittee to monitor its discharge for any pollutant, which may likely be discharged from the permittee's facility, should the industrial user fail to properly pretreat its waste.
3. The Executive Secretary retains, at all times, the right to take legal action against the industrial user and/or the treatment works, in those cases where a permit violation has occurred because of the failure of an industrial user to discharge at an acceptable level. If the permittee has failed to properly delineate maximum acceptable industrial contributor levels, the Executive Secretary will look primarily to the permittee as the responsible party.

D. Local Limits

If local limits are developed per R317-8-8.5(4)(b) to protect the POTW from passthrough or interference, then the POTW must submit limits to DWQ for review and public notice R317-8-8.5(4)(c).

III. BIOSOLIDS REQUIREMENTS

- A. Description of Biosolids Treatment and Disposal. The authorization to dispose of biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the Hyrum Wastewater Treatment Plant (HWTP). The method and sites for disposal are specifically designated below.
1. Treatment. Biosolids produced at the HWTP are stabilized in a membrane bioreactor plant and de-watered with a belt filter press. The biosolids are air-dried and mechanically turned as needed, for a minimum of 3 months. During 2 of those 3 months the average daily temperature is above 0° C (32° F).
 2. Disposal Method.
 - a. The Class B biosolids are land applied for agriculture production.
 - b. Biosolids not meeting Class B standards are landfilled
 3. Changes in Treatment Systems and Disposal Practices. Should the HWTP change their disposal methods or the biosolids generation and handling processes of the plant, the HWTP must notify the Director at least 180 days in advance. This includes, but is not limited to, the addition or removal of any biosolids treatment units (e.g., digesters, drying beds, etc.) and/or any other change that would require a major modification of the permit.

For any biosolids that are landfilled, the requirements of *Utah Administrative Code R315-301-5* and *Section 2.12* of the latest version of the *EPA Region VIII Biosolids Management Handbook* must be followed.

- B. Specific Limitations and Self-Monitoring Requirements. All biosolids generated by this facility that are composted and sold or given away to the public shall meet the requirements of *Part III.B.1, 2, 3, and 4* listed below.

1. Metals Limitations:

Class A Requirements:

If the biosolids are to be applied to a lawn or home garden, the biosolids shall meet the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3.

If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for application to a lawn or home garden.

Class B Requirements:

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in Table 1 and the heavy metals loading rates in Table 2; or

The maximum heavy metals in Table 1 and the monthly heavy metals concentrations in Table 3.

If the biosolids do not meet these requirements they cannot be land applied.

NOTE: If the biosolids exceed Table 3 values for any parameter that are land applied to a site, that site thereafter is subject to the heavy metals loading rates in Table 2. Records for those sites are to be retained in perpetuity.

Tables 1, 2, and 3 of Heavy Metal Limitations

| Heavy Metals | Table 1 | Table 2 | Table 3 |
|--|--------------------------------------|--|---|
| All heavy metals concentrations shall be measured and reported | Daily Maximum mg/Kg <u>a/b/c/</u> | Cumulative Loading Rate Kg/Ha <u>a/</u> | Monthly Average Concentration mg/Kg <u>a/c/ d/</u> |
| Total Arsenic | 75 | 41 | 41 |
| Total Cadmium | 85 | 39 | 39 |
| Total Copper | 4300 | 1500 | 1500 |
| Total Lead | 840 | 300 | 300 |
| Total Mercury | 57 | 17 | 17 |
| Total Molybdenum | 75 | N/A | N/A |
| Total Nickel | 420 | 420 | 420 |
| Total Selenium | 100 | 100 | 100 |
| Total Zinc | 7500 | 2800 | 2800 |

- a/ See *Part VIII.* for definition of terms.
- b/ The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.
- c/ Any violation of these limitations shall be reported in accordance with the requirements of *Part III.G.* of this permit.
- d/ These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

2. Pathogen Limitations.

If the biosolids are to be land applied to agricultural land, the biosolids shall meet **one** of the Class B requirements (including the site restrictions) as described below. If the biosolids do not meet Class B requirements, the biosolids cannot be land applied.

| | | | | |
|--|----|---|----|--|
| Class B through testing <u>a/c/</u> | Or | Class B through a process to significantly reduce pathogens <u>a/c/</u> | Or | Class B through a process to significantly reduce pathogens <u>a/c/</u> |
| Fecal Coliform shall be less than 2,000,000 most probable number (MPN) per gram of total solids. <u>b/</u> | | Solids are dried on beds for a minimum of 3 months. During 2 of those 3 months the average daily temperature is above 0° C (32° F). | | Using the windrow method of composting, the temperature must be above 40° C (104° F) or higher, and remain at 40° C or higher for a minimum of five days. For four hours, during the five days, the temperature needs to exceed 55° C (131° F) |

3. Vector Attraction Reduction Requirements:

If the biosolids are to be land applied, the biosolids shall meet one of the vector attraction reduction requirements as below. If the biosolids do not meet at least one these requirements, the biosolids cannot be land applied.

| | | | |
|--|---|--|--|
| Aerobic treatment of the biosolids for at least 14 days at over 40°C (104°F) with an average temperature of at least 45°C (113°F). <u>c/</u> | All Class B biosolids land applied shall be incorporated into the soil within 6 hours after land application. <u>c/</u> | Solids are equal to or greater than 90% total solids when primary solids are present prior to land application. <u>c/</u> | Solids are equal to or greater than 75% total solids when primary solids are not present prior to land application. <u>c/</u> |
| OR | OR | OR | |

a/ See *Part VIII.B.* for definition of terms.

b/ There are additional pathogen reduction and vector attraction reduction alternatives available in *40 CFR 503.32* and *40 CFR 503.33*. If the permittee intends to use one of these alternatives the Director and the EPA must be informed at least 30 days prior to its use. This change may be made without additional public notice.

c/ Based on a geometric mean of a minimum of seven (7) samples of biosolids collected over a two-week period (or as approved by the Director in your sampling and analysis plan).

4. Self-Monitoring Requirements

- a. At a minimum, upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored according to *40 CFR 503.16*.

| Minimum Frequency of Monitoring (Dry Metric Tons (DMT)) | |
|---|----------------------|
| Amount of Biosolids Disposed Per Year | Monitoring Frequency |
| > 0 to < 290 DMT | Once per year |
| > 290 to < 1,500 DMT | Four times per year |
| > 1,500 to < 15,000 DMT | Six times per year |

- b. Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5 foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2 foot, 3 foot, 4 foot and 5 foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5 foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites.
- c. Soil monitoring for phosphorus (reported as P) is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). Six samples of one foot depth each are to be collected for each 320 acre area and composited. Samples are required to be taken once every five years for non-irrigated sites or annually for irrigated sites.
- d. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CFR Part 503* and/or other criteria specified in this permit. Metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to one gram dry weight shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*. Monitoring for soil nitrate and phosphorus is to be performed using the methods in *Methods of Soil Analysis, Part 2. Chemical and Microbiological Properties*. Page, A. L., Ed., American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
- e. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.

- f. After two years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the chemical pollutants in *Part III.B.1*. The frequency cannot be reduced to less than once per year for land applied biosolids for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

If pollutant concentrations in the biosolids no longer meet the limitations in Table 3, the limitations in Table 2 and/or Table 4 must be used. The permittee shall determine cumulative pollutant loadings and/or annual pollutant loadings for each land application site.

- C. Site Restrictions. If the biosolids are Class B with respect to pathogens, the HWTP shall comply with all applicable site restrictions listed below:

1. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
2. Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remains on the land surface for four months or more prior to incorporation into the soil.
3. Other food crops and feed crops shall not be harvested from the land for 30 days after application.
4. Animals shall not be allowed to graze on the land for 30 days after application.
5. Turf grown on land where biosolids is applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
 - a. Public access to land with a high potential for public exposure shall be restricted for one year after application.
 - b. Public access to land with a low potential for public exposure shall be restricted for 30 days after application.

- D. Management Practices for Application of Biosolids to Land. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:

1. The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
2. Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.

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3. Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in *40 CFR 122.2*).
4. Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applicator of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
5. Application of biosolids is prohibited to frozen, ice-covered, or snow covered sites where the slope of the site exceeds six percent.
6. No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - a. there is 80 percent vegetative ground cover; or,
 - b. approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
7. Biosolids shall not be applied to sites where the available phosphorous content of the soil exceeds the following:
 - a. 100 ppm as determined by the sodium bicarbonate extraction method
 - b. 50 ppm as determined by the AB-DPTA extraction method
 - c. 170 ppm by the Bray P1 extraction method

The permittee may request these limits be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.
8. Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-nitrogen as described in Part I.4.c. is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.

9. The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
10. When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.
11. For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - a. The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - b. A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - c. Sewage sludge subject to the cumulative pollutant loading rates in Table 2 (Part III.B.1) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
12. Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
13. If the treatment plant applies the biosolids, it shall provide the owner or lease holder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.
14. For biosolids or material derived from biosolids that are stored in piles for one year or longer, measures shall be taken to ensure that erosion (whether by wind or water) does not occur. However, best management practices should also be used for piles used for biosolids treatment. If a treatment pile is considered to have caused a problem, best management practices could be added as a requirement in the next permit renewal.
15. The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.

- E. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.
- F. Representative Sampling. Biosolids samples used to measure compliance with *Part III.B.* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.
- G. Reporting of Monitoring Results. The permittee shall provide the results of all monitoring performed in accordance with *Part III.B.* and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the *Signatory Requirements (see Part VII.G)*, and submitted to the Utah Division of Water Quality and the EPA at the following addresses:

Original to: Biosolids Coordinator
Utah Division of Water Quality
P. O. Box 144870
Salt Lake City Utah, 84114-4870

Copy to: Biosolids Coordinator, 8P-W-P
U. S. Environmental Protection Agency
Region VIII
999 18th Street, Suite 500
Denver, Colorado 80202-2466

- H. Additional Record Keeping Requirements Specific to Biosolids.
1. If so notified by the Director the permittee may be required to add additional record keeping if information provided indicates that this is necessary to protect public health and the environment.
 2. The permittee is required to keep the following information for at least 5 years:
 - a. Concentration of each heavy metal in Table 3 (*Part III.B.1.*).
 - b. A description of how the pathogen reduction requirements in *Part III.B.2.* were met.
 - c. A description of how the vector attraction reduction requirements in *Part III.B.3.* were met.

- d. A description of how the management practices in *Part III.C.* were met (if necessary).
- e. The following certification statement:

"I certify under the penalty of law, that the heavy metals requirements, the pathogen requirements, and the vector attraction requirements in *Part III.B.*, the site restrictions the management practices in *Part III.C* have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements and the management practices have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

- 3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this UPDES biosolids-only permit must be maintained on site during the duration of activity at the permitted location.

IV. STORM WATER REQUIREMENTS.

- A. Coverage of This Section. The requirements listed under this section shall apply to storm water discharges. Storm water discharges from the following portions of the facility may be eligible for coverage under this permit: biosolids drying beds, haul or access roads on which transportation of biosolids may occur, grit screen cleaning areas, chemical loading, unloading and storage areas, salt or sand storage areas, vehicle or equipment storage and maintenance areas, or any other wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility that may have a reasonable expectation to contribute to pollutants in a storm water discharge.
- B. Prohibition of Non-Storm Water Discharges. Except for discharges identified in *Part I.*, and discharges described below in this paragraph, non-storm water discharges are prohibited. The following non-storm water discharges may be authorized under this permit provided the non-storm water component of the discharge is in compliance with this section; discharges from fire fighting activities; fire hydrant flushing; potable water sources including waterline flushing; drinking fountain water; irrigation drainage and lawn watering; routine external building wash down water where detergents or other compounds have not been used in the process; pavement wash waters where spills or leaks of toxic or hazardous materials (including oils and fuels) have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
- C. Storm Water Pollution Prevention Plan Requirements. The permittee must have (on site) or develop and implement a storm water pollution prevention plan as a condition of this permit.
1. Contents of the Plan. The plan shall include, at a minimum, the following items:
 - a. *Pollution Prevention Team.* Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
 - b. *Description of Potential Pollutant Sources.* Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials, which may be reasonably expected to have the potential as a significant pollutant source. Each plan shall include, at a minimum:

- (1) *Drainage.* A site map indicating drainage areas and storm water outfalls. For each area of the facility that generates storm water discharges associated with the waste water treatment related activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an identification of the types of pollutants that are likely to be present in storm water discharges associated with the activity. Factors to consider include the toxicity of the pollutant; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified. The site map shall include but not be limited to:
- (a) Drainage direction and discharge points from all wastewater associated activities including but not limited to grit screen cleaning, bio-solids drying beds and transport, chemical/material loading, unloading and storage areas, vehicle maintenance areas, salt or sand storage areas.
 - (b) Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
 - (c) Location of bio-solids drying beds where exposed to precipitation or where the transportation of bio-solids may be spilled onto internal roadways or tracked off site.
 - (d) Location where grit screen cleaning or other routinely performed industrial activities are located and are exposed to precipitation.
 - (e) Location of any handling, loading, unloading or storage of chemicals or potential pollutants such as caustics, hydraulic fluids, lubricants, solvents or other petroleum products, or hazardous wastes and where these may be exposed to precipitation.
 - (f) Locations where any major spills or leaks of toxic or hazardous materials have occurred.
 - (g) Location of any sand or salt piles.
 - (h) Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.
 - (i) Location of receiving streams or other surface water bodies.
 - (j) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.

- (2) *Inventory of Exposed Materials.* An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the effective date of this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the effective date of this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.
- (3) *Spills and Leaks.* A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
- (4) *Sampling Data.* A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
- (5) *Summary of Potential Pollutant Sources and Risk Assessment.* A narrative description of the potential pollutant sources from the following activities associated with treatment works: access roads/rail lines; loading and unloading operations; outdoor storage activities; material handling sites; outdoor vehicle storage or maintenance sites; significant dust or particulate generating processes; and onsite waste disposal practices. Specific potential pollutants shall be identified where known.
- (6) *Measures and Controls.* The permittee shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:
 - (7) *Good Housekeeping.* All areas that may contribute pollutants to storm waters discharges shall be maintained in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Where applicable, such measures or other equivalent measures would include the following: sweepers and covered storage to minimize dust generation and storm runoff; conservation of vegetation where possible to minimize erosion;

sweeping of haul roads, bio-solids access points, and exits to reduce or eliminate off site tracking; sweeping of sand or salt storage areas to minimize entrainment in storm water runoff; collection, removal, and proper disposal of waste oils and other fluids resulting from vehicle and equipment maintenance; other equivalent measures to address identified potential sources of pollution.

- (8) *Preventive Maintenance.* A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
- (9) *Spill Prevention and Response Procedures.* Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures and equipment for cleaning up spills shall be identified in the plan and made available to the appropriate personnel.
- (10) *Inspections.* In addition to the comprehensive site evaluation required under paragraph (*Part IV.C.1.b.(16)*) of this section, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility on a periodic basis. The following areas shall be included in all inspections: access roads/rail lines, equipment storage and maintenance areas (both indoor and outdoor areas); fueling; material handling areas, residual treatment, storage, and disposal areas; and wastewater treatment areas. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.
- (11) *Employee Training.* Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify how often training will take place, but training should be held at least annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and control; fueling procedures; general good housekeeping

practices; proper procedures for using fertilizers, herbicides and pesticides.

- (12) *Record keeping and Internal Reporting Procedures.* A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- (13) *Non-storm Water Discharges.*
- (a) *Certification.* The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with *Part VII.G* of this permit.
 - (b) *Exceptions.* Except for flows from fire fighting activities, sources of non-storm water listed in *Part IV.B. (Prohibition of Non-storm Water Discharges)* of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.
 - (c) *Failure to Certify.* Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the *Director* within 180 days after the effective date of this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of the State, which are not, authorized by a *UPDES* permit are unlawful, and must be terminated.
- (14) *Sediment and Erosion Control.* The plan shall identify areas, which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

- (15) *Management of Runoff.* The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this permit] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices and discharging storm water through the waste water facility for treatment.
- (16) *Comprehensive Site Compliance Evaluation.* Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall provide:
- (a) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
 - (b) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this section and pollution prevention measures and controls identified in the plan in accordance with *Part IV.C.1.b.(6)* (Measures and Controls) of this section shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.
 - (c) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution

prevention plan, and actions taken in accordance with paragraph *i.* (above) shall be made and retained as part of the storm water pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part VII.G* (Signatory Requirements) of this permit.

- (17) *Deadlines for Plan Preparation and Compliance.* The permittee shall prepare and implement a plan in compliance with the provisions of this section within 270 days of the effective date of this permit. If the permittee already has a plan, it shall be revised according to *Part IV.C.1.b.(16)*, Comprehensive Site Evaluation.
- (18) *Keeping Plans Current.* The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified by the plan, or in otherwise achieving the general objective of controlling pollutants in storm water discharges associated with the activities at the facility.

D. Monitoring and Reporting Requirements.

1. Quarterly Visual Examination of Storm Water Quality. Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each of the following designated periods during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event: January through March; April through June; July through September; and October through December.
 - a. *Sample and Data Collection.* Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well-lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.

- b. *Visual Storm Water Discharge Examination Reports.* Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
- c. *Representative Discharge.* When the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.
- d. *Adverse Conditions.* When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the results of the visual examination. Adverse weather conditions, which may prohibit the collection of samples, include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).
- e. *Inactive and Unstaffed Site.* When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10 and 40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the

Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 538-6146, or 24-hour answering service (801) 536-4123.
2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

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4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 538-6146.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,

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5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the Act is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash

shall not directly enter either the final effluent or waters of the state by any other direct route.

G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.

2. Prohibition of Bypass.

a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;

(2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and

(3) The permittee submitted notices as required under *section VI.G.3.*

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections VI.G.2.a (1), (2) and (3).*

3. Notice.

a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:

(1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages:

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- (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
- b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section VI.G.3.a.(1) through (6)* to the extent practicable.
- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H, Twenty Four Hour Reporting*. The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

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- a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate*.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

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1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than

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\$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.

- I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
 - 1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 - 2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 - 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

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- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 area wide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;
1. Toxicity is detected, as per *Part I.C.4.a* and *b* of this permit, during the duration of this permit.
 2. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the Director agrees that numerical controls are the most appropriate course of action.

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3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicant that are controlled numerically.
 4. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.
- R. Storm Water-Reopener Provision. At any time during the duration of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "Waters of the State".

VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for e-coli bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for e-coli bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for e-coli bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for e-coli bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration.
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the survival, growth, or reproduction for either test species exposed to a dilution of 87.5 percent effluent (or lower) is significantly less (at the 95 percent confidence level) than the survival, growth, or reproduction of the control specimens.
7. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female or a 25% reduction in overall growth for the test population.

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8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
9. "CWA," means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
10. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
11. "EPA," means the United States Environmental Protection Agency.
12. "Director," means Director of the Utah Water Quality Board.
13. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
14. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
15. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

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16. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

B. Biosolids.

1. "Biosolids," means any material or material derived from sewage solids that have been biologically treated.
2. "Dry Weight-Basis," means 100 percent solids (i.e. zero percent moisture).
3. "Land Application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the biosolids).
4. "Pathogen," means an organism that is capable of producing an infection or disease in a susceptible host.
5. "Pollutant" for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.
6. "Runoff" is rainwater, leachate, or other liquid that drains over any part of a land surface and runs off the land surface.
7. "Similar Container" is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.
8. "Total Solids" are the materials in the biosolids that remain as a residue if the biosolids are dried at 103° or 105° Celsius.

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9. "Treatment Works" are either Federally owned, publicly owned, or privately owned devices or systems used to treat (including recycling and reclamation) either domestic sewage or a combination of domestic sewage and industrial waste or liquid manure.
10. "Vector Attraction" is the characteristic of biosolids that attracts rodents, flies mosquitos or other organisms capable of transporting infectious agents.
11. "Animals" for the purpose of this permit are domestic livestock.
12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
13. "Agronomic Rate is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.
16. "Cumulative Pollutant Loading Rate" is the maximum amount of an inorganic pollutant (dry-weight basis) that can be applied to a unit area of land.
17. "Grit and Screenings" are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
18. "High Potential for Public Contact Site" is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
19. "Low Potential for Public Contact Site" is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other lands which are private lands, restricted

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public lands, or lands which are not generally accessible to or used by the public.

20. "Monthly Average" is the arithmetic mean of all measurements taken during the month.
21. "Volatile Solids" is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

C. Storm Water.

1. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. "Coal pile runoff" means the rainfall runoff from or through any coal storage pile.
3. "Co-located industrial activity" means when a facility has industrial activities being conducted onsite that are described under more than one of the coverage sections of *Appendix II* in the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity. Facilities with co-located industrial activities shall comply with all applicable monitoring and pollution prevention plan requirements of each section in which a co-located industrial activity is described.
4. "Commercial Treatment and Disposal Facilities" means facilities that receive, on a commercial basis, any produced hazardous waste (not their own) and treat or dispose of those wastes as a service to the generators. Such facilities treating and/or disposing exclusively residential hazardous wastes are not included in this definition.
5. "Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.
6. "Land application unit" means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

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7. “Municipal separate storm sewer system” (large and/or medium) means all municipal separate storm sewers that are either:
 - a. Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (at the issuance date of this permit, Salt Lake City is the only city in Utah that falls in this category); or
 - b. Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (at the issuance date of this permit Salt Lake County is the only county that falls in this category); or
 - c. Owned or operated by a municipality other than those described in paragraph *a.* or *b.* (above) and that are designated by the *Director* as part of the large or medium municipal separate storm sewer system.
8. “NOI” means ”notice of intent”, it is an application form that is used to obtain coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
9. “NOT” means “notice of termination”, it is a form used to terminate coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
10. “Point source” means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
11. “Section 313 water priority chemical” means a chemical or chemical categories that:
 - a. Are listed at *40 CFR 372.65* pursuant to *Section 313* of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
 - b. Are present at or above threshold levels at a facility subject to *EPCRA Section 313* reporting requirements; and

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c. Meet at least one of the following criteria:

- (1) Are listed in *Appendix D* of *40 CFR Part 122* on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances);
 - (2) Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
 - (3) Are pollutants for which EPA has published acute or chronic water quality criteria. See *Appendix III* of this permit. This appendix was revised based on final rulemaking EPA published in the *Federal Register* November 30, 1994.
12. “Significant materials” includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14)* of *CERCLA*; any chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
13. “Significant spills” includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311 of the Clean Water Act* (see *40 CFR 110.10* and *CFR 117.21*) or *Section 102 of CERCLA* (see *40 CFR 302.4*).
14. “Storm water” means storm water runoff, snowmelt runoff, and surface runoff and drainage.
15. “SWDMR” means “storm water discharge monitoring report”, a report of the results of storm water monitoring required by the permit. The Division of Water Quality provides the storm water discharge monitoring report form.
16. “Storm water associated with industrial activity” (*UAC R317-8-3.8(6)(c) & (d)*) means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the *UPDES* program. For the categories of industries identified in paragraphs *(a)* through *(j)* of this definition, the term includes, but is not limited to, storm water discharges from industrial plant

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yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined in *40 CFR Part 401*); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph (k) of this definition, the term includes only storm water discharges from all areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (a) to (k) of this definition) include those facilities designated under *UAC R317-8-3.8(1)(a)5*. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

- a. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under *40 CFR Subchapter N* (except facilities with toxic pollutant effluent standards that are exempted under category (k) of this definition);
- b. Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;
- c. Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under *40 CFR 434.11(l)* because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining

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operations that have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but that have an identifiable owner/operator;

- d. Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- e. Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under *Subtitle D* of RCRA;
- f. Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
- g. Steam electric power generating facilities, including coal handling sites;
- h. Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 that have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified under paragraphs (a) to (g) or (I) to (k) of this subsection are associated with industrial activity;
- i. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under *40 CFR Part 403*. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is

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beneficially reused and that are not physically located in the confines of the facility, or areas that are in compliance with *40 CFR Part 503*;

- j. Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than 5 acres of total land area that are not part of a larger common plan of development or sale;
- k. Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and that are not otherwise included within categories (a) to (j))

17. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

D. Reuse.

- 1. "Type I reuse" means the use of treated domestic wastewater effluent where human exposure is likely.

Appendix B Detailed Cost Analysis

| | | | | | | |
|---|---------------------------|----------------|----------------|----------------|--------------|--|
| ERU Basis | | | | | | |
| | 26,000,000 | \$1,913,125.51 | | | | |
| | | \$241.95 | | | | |
| | | \$20.16 | | | | |
| Taxable Value Basis | | | | | | |
| Community | Taxable Value 2013 | | | | | |
| Millville | \$0 | | | | | |
| Nibley | \$212,689,831 | | | | | |
| Providence | \$369,941,838 | | | | | |
| Hyrum | \$245,971,832 | | | | | |
| TOTAL | \$828,603,501 | | | | | |
| Annual payments | \$1,913,126 | | | | | |
| Mill levy | 0.00230886 | | | | | |
| Average payment: | Yearly | Monthly | O&M | Reserve | TOTAL | |
| \$200,000 primary residential | \$254 | \$21.16 | \$20.12 | \$3.50 | \$44.78 | |
| \$300,000 primary residential | \$381 | \$31.75 | \$20.12 | \$3.50 | \$55.37 | |
| For every \$100,000 of commercial value | \$231 | \$19.24 | \$20.12 | \$3.50 | \$42.86 | |