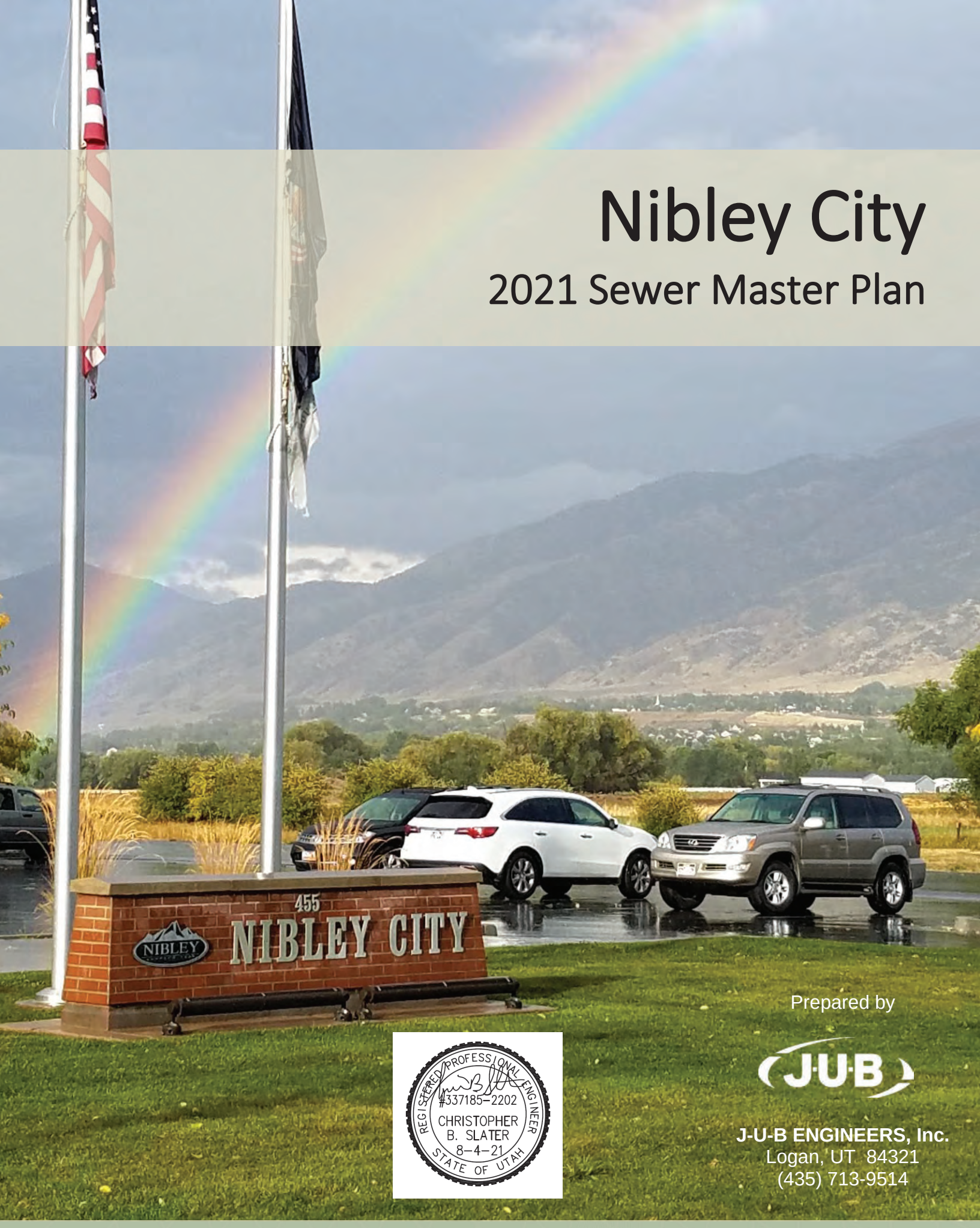
Nibley City

2021 Sewer Master Plan



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EXECUTIVE SUMMARY

The Nibley City sewer collection system was designed in 2002 (SunriseEngineering, 2002) and installed in 2003. In 2014 the City completed a sewer collection system master plan because it had increased its sewer service area and increased building densities above what was originally planned for the system.

The City desired to create a 2021 update for many reasons including:

- The City is growing significantly
- Land-use densities have again increased in many areas of the City
- An update to the sewer collection impact fees is needed

The City has hired J-U-B Engineers Inc. (J-U-B) to complete the 2021 update. The update is based on unit flows that were developed in the 2014 plan and based on the new residential densities that have been approved since 2014. The update process included the following tasks:

- Add new residential and commercial buildings that have been connected to the system since 2014.
- Evaluate the existing system to determine the current capacity status.
- Update future population growth projections.
- Identify any existing system deficiencies.
- Identify Capital Facility Projectes (CFPs) needed prior to 2031 and between 2031 and build-out.
- Update the master planned conceptual sewer trunk line system to serve the undeveloped areas of the City up to the time that the properties within the study area boundary are built out to the planned desities.
- Prepare a collection system Impace Fee Facility Plan (IFFP) to be used for the updated Impact Fee Assessment (IFA).

impact

The following overall conclusions and recommendations are based on the assumptions and results of the plan:

- **Existing Capacity**
  - **Conclusion –** The existing system has no existing deficiencies based on the results of the modeling and the established the Level of Service (LOS) for pipes and lift stations.
  - **Recommendation –** Continue to inspect the system for sources of infiltration and inflow and eliminate those sources.
- **Reserve Capacity for Future Equivalent Residential Units (ERU's)**
  - **Conclusion -** All of the existing collection lines can serve approximately 400 or more additional ERU's. Figure 4 lists the approximate number of additional ERU's that can be added upstream of major trunkline intersections.

- **Recommendations –** Require each new development to submit a report with the projected flows to be added from the development. The City should then run an update to the existing sewer model to verify that there is adequate capacity prior to permitting each new development. Track the number of new ERU's added to the system to know when the capacity of certain pipes is being approached.

- **Future Upgrades to Existing Pipes**
  - **Conclusion -** Some of the existing trunk lines will exceed capacity before Nibley is completely built out (Figure 11).
  - **Recommendation –** Update the master plan and re-evaluate impact fees every 5-7 years to prevent collection system deficiencies.
- **Future Upgrades to Hansen Lift Station**
  - **Conclusions -** The Hansen Lift Station is projected to need a third pump added around year 2030.
    After 2031 and prior to build-out, the Hansen lift station pumps and the forcemain from Hansen Lift Station may need to be upsized.
  - **Recommendation -** Regularly monitor the performance of the station. Add a third pump when both existing pumps are frequently running at the same time. It may also be sensible to keep an additional spare pump for installation in case of a pump failure.
- **Future Sewer Collection South of Existing Developed City Area**
  - **Conclusions** - Most of the undeveloped area south of the current service area and east of 1500 West can be served by gravity to the Hansen Lift Station.
    A deep regional lift station (Southwest Lift Station) placed near the intersection of 3200 South and Highway 89/91 can serve most of the area south of 3200 South and West of 1900 West that cannot be gravity served to the Hansen Lift Station.
    Approximately 633 ERU's can be added to the existing trunk line in 1500 west near 3350 South before some flows will need to be spit from 1500 West through a future trunkline to a future trunkline in 1900 West.
  - **Recommendations** – Construct the new Southwest lift station and incoming and outgoing piping to serve the area west of 1900 West and south of 3200S. Size the downstream pipes for build-out as shown in Figure 9.
    Monitor the number of connections added upstream of 1500 West and 3200 South. Plan to split some of the peak flows at this location off to the west to a new gravity trunkline that is planned for 1900 West. The pipe in 1900 West will convey flows north to Heritage Drive and on to the Hansen Lift Station.
    Plan to remove the Scott Farm Lift Station when new pipes to the west of the lift station are installed.
- **Development Permitting**
  - **Conclusion –** Flows will increase significantly in the collection system over the next 10 years.

- **Recommendations -** Require each new development to submit a report with the projected flows to be added from the development. The City should then run an update to the existing sewer model to verify that there is adequate capacity prior to permitting each new development.

- **Sierra Drive Trunkline**
  - **Conclusion -** The slopes in the 12-inch trunkline that connects to 2600 South near Highway 89 (Sierra Drive trunkline) are not certain because of conflicting elevations provided on the system record drawings and the inability to access the manole. The manhole is currently buried in a farmers field.
  - **Recommendation -** Verify the slopes of the Sierra Drive trunkline between 2600 South and the Peterson Lift Station lateral.

** All of the report figures are found on fold-out pages in Appendix A*

REPORT

1 INTRODUCTION

1.1 BACKGROUND

The Nibley sewer system was constructed in 2003 and collects flows from homes and businesses within the current City limits. It also collects some sewer flow from outside the City from the USU farm. An overview of the collection system is shown in Figure 1: Existing System*. The system collects all of the flows to the Hansen Lift Station and then pumps the flows to a trunk line in the Logan City collection system near 1000 West 600 South. The flows are then delivered to the Logan City Wastewater Treatment Facility. Most of the Nibley system is made up of 8-inch diameter pipe lines with a few larger trunk lines that serve larger service areas. There is a 21-inch sewer line that runs in 2600 South from the east side of the City to the west side of the City. This line was sized during design of the system to include some future flows from Millville City as documented by the Intercity Wastewater Agreement in Appendix B. Multiple agreements are included to document the changes to the agreement between Millville and Nibley since year 2000.

In 2014 Nibley City completed a collection system master plan to evaluate the system capacity and make future projections. Significant growth has occurred in the City since 2014 and this master plan update is needed to verify the capacity of the system to convey the existing flows and the flows that are now projected for the future. Table 1-1 shows the population growth in the City over the last few decades.

Table 1-1: Population Growth

Nibley City Growth (Source: U.S. Census Bureau)		
Year	**Population**	**Average Annual Growth Rate**
90	1,220	
2000	2,083	6%
2010	5,438	10%
2019 Census Estimate	7,135	3%

** All of the report figures are found on fold-out page in Appendix A*

The 2021 population of the City is estimated to be 8,100 based on existing residential units multiplied by 3.8 people per dwelling unit. The 3.8 people per dwelling unit was provided by the City staff for the the 2014 plan and utilized again for this 2021 plan.

A master plan is an essential element in the development of any community experiencing growth. With a master plan, a community has a tool to guide infrastructure improvements. This master plan provides direction to continue providing adequate sewer collection services for the residents of Nibley in the future.

The following factors made it prudent to re-evaluate the capacity of the system to convey the current and projected flows at this point in time:

- Some of the City residential zoning densities have increased since the 2014 master plan. The higher densities allow for potentially larger sewer flows in the system.
- New commercial and industrial water users contribute flows to the collection system.
- An updated IFFP is needed to establish updated impact fees through an IFA for the upcoming years.

The goals of the master plan are to:

- Verify the capacity of the existing system to covey current and updated project flows based on the calibrated flows established in the 2014 plan.
- Prepare an updated capital facilities plan (CFP).
- Update the existing collection system Impact Fee Facility Plan (IFFP) to be used by the City for potential updates to the sewer Impact Fee Assessment (IFA).

The time frames analyzed for this master plan update are listed in Table 1-2.

Table 1-2: Time Frames Analyzed

Time Frames Analyzed	
Title	**Description**
2021	Existing peak flows based on calibrated unit flows established in the 2014 master plan and based on the current homes and businesses in the system service area.
2031	Projected peak 2031 flows based 2014 calibrated unit flows and the addition of future units projected to develop in the next 10 years as estimated by the City planner and growth rate from the Wasatch Front Regional Council (WFRC).
Build-out	Projected peak flows in the planning area with all of the planning area developed to the current planned desities and based on the calibrated 2014 unit flows. Build-out is projected to occur near year 2160 based on the 1% annual growth rate projected by WFRC for after year 2021. If the area were to grow at a 3% per year growth rate after year 2021, the planning area would be built out around year 2075.

This master plan update will allow Nibley City to continue to be prepared for future growth, and plan for required improvements.

1.2 Project Tasks

The following tasks were followed to complete the plan:

- Updated the existing model with new units that have been connected to the system since 2014.
- Evaluated the existing system to determine the current capacity status.
- Updated future growth projections based on data from the Kem C. Gardner Policy Institute.

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- Identified capacity improvements to the existing system for year 2031 and for buildout
- Updated the master planned conceptual sewer trunk line system to serve the undeveloped areas of the City up to the time that the area within the study area boundary is (Figure 1: Existing System*) built-out.
- Identified Capital Facility Projectes (CFPs) needed in the next 10 years and for build-out with associated opinions of probable cost.
- Prepared a collection system IFFP to be used for the updated IFA

A central component of these tasks is the use of computer modeling software to simulate current and future sanitary sewer system capacity. The software and planning parameters (used for this study are discussed in greater detail in the following sections (see Key Assumptions in Section 2).

1.3 Plan Goal

The main goal of the master plan update is to provide a current plan that outlines how Nibley City can budget to meet its future sewer collection needs. Future conditions (development patterns and densities) have been modeled using the planned land use densities from the City's Future Land Use Plan map and based on input from the City Planner. Land uses and other conditions may change and ultimately affect the master plan. The analysis and recommendations contained herein should be updated as necessary. The City should revisit this document prior to engaging in detailed design of any sanitary sewer facilities to verify that the model and conclusions are still valid. The model and plan should be updated and verified with any significant changes to the system.

** All of the report figures are found on fold-out pages in Appendix A*

2 EXISTING SYSTEM EVALUATION

2.1 INTRODUCTION

The evaluation of the existing sewer collection system included updating the mapping of the system, and updating the computer hydraulic model to simulate the actual flow conditions. The hydraulic model was built using InfoSWMM Suite Version 14.7 software created by Innovyze. InfoSWMM is fully integrated into ESRI ArcGIS software which allows for easy assimilation of other City mapping that is contained in GIS shape files. The ArcGIS software used during the model creation was Version 10.6.1. The model allows the system to be evaluated to assess the existing hydraulic conditions of the modeled trunk lines.

The same existing sewer lines that were modeled in the 2014 master plan were modeled for this update. Sanitary sewer lines were selected for modeling based on the amount of area they serve. The lines modeled are considered trunk lines since they carry flows from several contributing lines and have contributing areas that could produce flows that are greater than the capacity of an 8-inch pipe. Minor lines serving smaller areas are mapped, but not modeled since the probability of those lines having sufficient capacity now and in the future is very high. For example, an 8-inch line at minimum grade flowing half full will serve more than 300 residential units. Minor lines that will never serve more than 300 Equivalent Residential Units (ERU's) will always have adequate capacity.

2.2 EXISTING SYSTEM MAPPING

The existing collection system was mapped (Figure 1: Existing System*) based on existing data from the City GIS maps and record drawings.

The following items are included in the mapping:

- Aerial image of the City
- Existing major gravity sewer lines
- Existing pressure sewer lines (force mains)
- Locations of minor sewer lines (not modeled)
- Existing lift stations and associated force mains
- Existing Nibley City limits
- Study area boundary
- Street labels

** All of the report figures are found on fold-out pages in Appendix A*

2.3 MODELING

A computer model of a sewer system is based on assumptions that characterize the area and system components. The model was updated based on many of the same assumptions that were used to develop the original model in 2014.

2.3.1 Existing System Key Modeling Assumptions

The key assumptions used in the Existing System Model are as follows:

- **Weekend Calibration –** The flow data from the 2014 master plan showed that the largest peak flows in the system occurred on the weekends. The flows in this master plan update are representative of weekend flows.

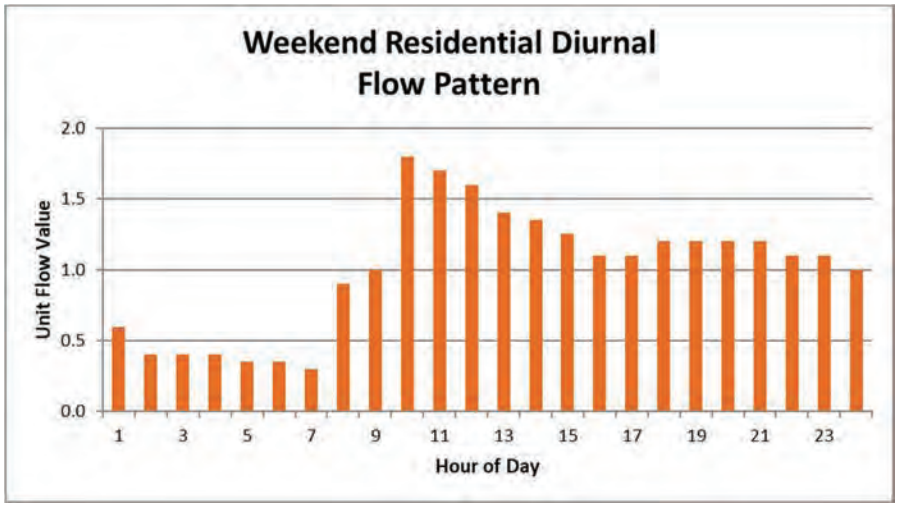
- **Existing Building Units** - Current commercial, industrial, and residential units were counted using current aerial imagery

- **Existing Population (8,100)** - The population used for the existing model is 8,100 based on the number or residential units multiplied by 3.8 people per dwelling unit. The number of people estimated per dwelling unit is the same used in the 2014 master plan.

- **Sanitary flow per ERU (0.36 GPM per ERU) –** The peak flow from Equivalent Residential Unit (ERU) is 0.36 gallons per minute (GPM) based on the calibrated model that was created for the 2014 master plan. Average daily flows are equivalent to 90 gallons per capita per day (GPCD). The 2014 calculations for the flows per ERU are given in Appendix C – ERU Flows.

- **Residential Flow Pattern –** The residenial diurnal flow pattern that was used in the 2014 master plan was used for this master plan. Graph 2-1 below shows the weekend residential diurnal pattern that was used in the model to match the shape of the 2014 metered flows.

Graph 2-1: Residential Diurnal Curve



The diurnal curve allows the modeling software to quantify the flow throughout the day for the various types of land use. The diurnal flow pattern shown in Graph 2-1represents only the sanitary residential flows and does not include Infiltration and Inflow (I&I) flows.

- **Non-Residential Flow Pattern (800 Gallons Per Acre per Day (GPAD)) –** The peak flows in Nibley occur on the weekend based on past flow metering. For the non-residential water users that operate on the weekends, 800 GPAD was used. Churches were found to be equivalent to approximately 1 ERU when using a residential pattern and were treated as such. Schools had no active flow in the model due to the calibration of weekend flows. Graph 2-2 below shows the weekend non-residential diurnal pattern that was used in the model to match the shape of the 2014 metered flows.

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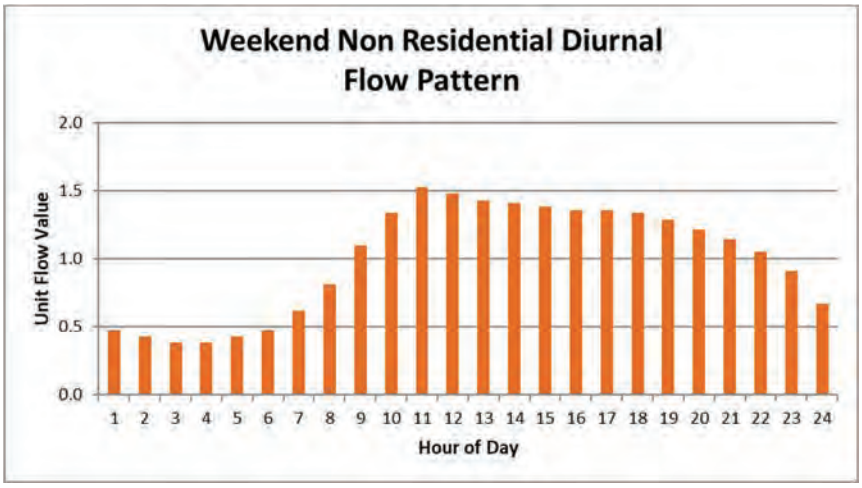
Graph 2-2: Non-Residential Diural Curve



- **Significant Weekend Water User (3,333 Average GPD) –** Winter water meter data was evaluated for significant water users that may use water on the weekends and is included in the model. The only significant water user that may operate during the weekend is the Maverick Car Wash with average flows of 3,333 gallons per day (GPD).

Lift Stations – Lift stations were modeled with the same parameters that were used in the 2014 master plan. The 2014 model calibration process included adding the pump parameters from the four existing lift stations (Figure 1: Existing System*) to simulate the pumped flows within the system. The flows from the lift stations were calculated based on data collected by the City public works staff. The staff went to each lift station and recorded the dimensions of the lift station wet wells, the time that the pumps ran, and the amount of drawdown in the wet well over a period of time. Table 2-1 summarizes the flow data for each lift station.

** All of the report figures are found on fold-out pages in Appendix A*

Avg Pump Run Time

Table 2-1: Existing Lift Station Data

EXISTING LIFT STATION DATA							
Existing Lift Station Name	**Approximate Location**	***Wet Well Diameter (in)**	**Draw Down Depth (ft)**	****Time (min)**	**Wet Well Area (ft^3)**	**Usable Wet Well Volume (gallons)**	**Pump Flow Rate (GPM)**
Scott Farm	3480 S. 780 W.	72	1	3.7	28.3	211	57
Caine Dairy	3600 S. HWY 89	90	1	2.8	44.2	330	118
Peterson	2690 S. HWY 89	96	1	1.9	50.3	376	194
Hansen	Heritage Drive just east of HWY 89	19'-8" X 13' Rectangle	3	4.4	767.1	5738	1314

*Dimensions taken from system record drawings.
**Times provided by Nibley City Staff. Equal to the time between the start and end of a pump cycle.

2.3.2 Model Development

The model input consists of three drawing layers; the system layer, the service area layer, and the parcel data layer. These three layers were created using ESRI ArcGIS 10.6.1 software and then were imported into the InfoSWMM software.

- **System -** The existing system layer contains a geometric map of the sewer system and a database that holds information about the sewer system, such as pipe length, pipe diameter, manhole rim elevation, and pipe invert (flow line) elevations. The system layer was built using survey data and other GIS data (pipe sizes etc.) provided by the City for the 2014 model. (Figure 1: Existing System*).

  During development of the model it was discovered that a pipe segment in the Drive trunkline just south of 2600 South was much flatter than the other pipe segments. There is a discrepenacy in the invert elevations listed for this trunkline in the record drawing plan sheets. The lid of themanhole with the elevation discrepancy is buried in a agricultural field. The slopes of the trunkline were adjusted by interpolating elevations between the 2600 South manhole and the manhole that the Peterson Lift Station lateral connects to. The resulting slope of the interpolated pipes is 0.22% which meets the City slope standards.

- **Service Areas -** The existing service area layer is the same as the 2014 model service area layer that was created to split the City into smaller sewer drainage basins to determine where sewer flows are collected by the existing sewer system and where areas to develop in the future will be collected. This layer identifies where flows are added into the modeled collection system. The service areas were determined based on the current layout of the sewer system and area topography. Figure 2: Service Areas* shows the existing and future service areas used for the models and indicates which manholes receive the flows from each of the service areas.

- **Parcel Data -** The parcel data layer generates the sewer flows in the model. It contains the flow generating information such as population, contribution per capita, and land use. Each of the developed parcels was assigned to one of the following land use types and associated daily use pattern (diurnal curves):

    - Agriculture Preservation
    - Commercial
    - Industrial
    - Institutional and Public Lands
    - Neighborhood Center –Mixed Use
    - Neighborhood Commercial
    - Park and Open Space
    - Residential
        - Medium Density
        - Low Density
        - Rural

    The existing flows are generated per parcel from existing residential and non residential units established from aerial imagery and from coordinatation with the City. The modeling software intersects the service area layer and parcel data to determine how much flow is generated within each service area and then allocates the flow to the corresponding manhole. Appendix D includes a table listing each service area and its corresponding total measured area, receiving manhole, average flow, and planned ERU's.

** All of the report figures are found on fold-out pages in Appendix A*

2.3.3 Level of service (LOS)

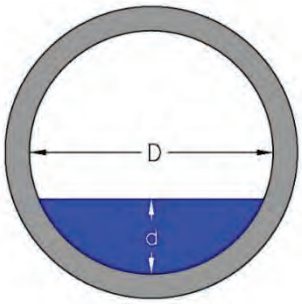
The City has selected the following criteria for the collection system level of service. It is determined based on the perecnt full as compared to the full pipe capacity. The percent of full capacity must be less than 75% for pipes eight inches to 15 inches in diameter and 85% for pipes larger than 18 inches during the peak instantaneous flow.

The LOS for sewer lift stations in the collection system is determined based on the peak flow that enters each station. The peak flow entering a lift station must be less than 85% of the pumping capacity of the lift station pumps assuming that one pump in the pump station is not running.

2.3.4 Existing Depth of Flow over Diameter of Pipe (d/D)

A quick way to display how well a collection system accommodates flows is by looking at the depth of flow in a pipe as a ratio of the pipe's inside diameter. The illustrated pipe shown in diagram 2-1 below represents a pipe flowing less than half full.

Figure 2-1: Depth of Flow (d) to Pipe Diameter (D) or d/D



A pipe that is full would have a d/D value of 1.0. While a pipe flowing half full would have a d/D value of 0.5. Larger pipes are able to handle more flows than are smaller pipes, at equivalent d/D values. Larger pipes have more reserve capacity per increment of d/D value.

The InfoSWMM modeling software reports d/D values based on the hydraulic grade line throughout the collection system. If there is a downstream choke point in the collection system that causes the water to back up and raise the hydraulic grade line to levels above the top of a pipe, InfoSWMM reports a d/D value of 1.0. The d/D values typically vary along the length of pipe segments. Some pipe segments have flows that transition between full or partially full.

** All of the report figures are found on fold-out pages in Appendix A*

The d/D values recorded in this report are at the upstream end of each pipe segment in the model.

The existing depth of flow over diameter of pipe (d/D) for each pipe in the existing collection system is shown in Figure 3: Existing Depth over Diameter. These are the d/D values for each pipe segment with existing flow conditions during the peak flow time of the day.

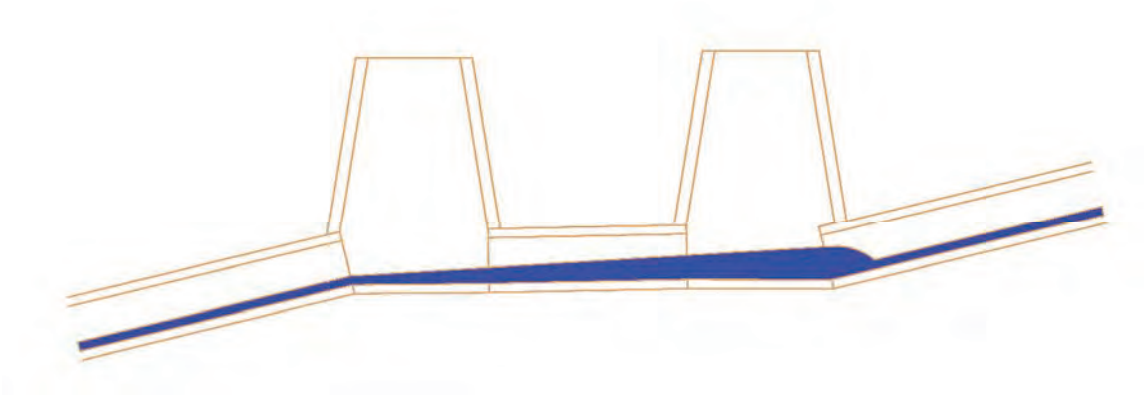
2.3.5 Existing Reserve Capacity

An equally important measure of system capacity is reported in the InfoSWMM output as reserve capacity. Reserve capacity is a measure of how much additional flow can be added to any given pipe segment based strictly on the Manning's open channel flow equation. The reserve capacity is calculated for each pipe segment individually without taking into account any backwater that may be present from a downstream choke point. Reserve capacity can be reported in various units. For this master plan the reserve capacity is reported in units of gallons per minute (GPM).

The reserve capacity (in terms of additional ERU's that can be added) in each of the existing pipes under 2021 flow conditions during the peak flow time of day is shown in Figure 4: Existing Reserve Capacity*. The pipes in the figure are color coded based on ranges of excess capacity. Figure 4 also includes lables that identify the estimated additional number of ERU's that can be added upstream of major pipe junctions in the system based on limiting pipe segment (pipe with least reserve capacity) downstream.

All of the pipses in the collection system have reserve capacity under 2021 flow conditions. It is possible in the future as more flows are added to the system that short pipe segments can be identified by the model as having negative capacity even though the flows never fill the pipe to the top. This happens if there are short flat segments of pipe in the system that do not have enough slope to convey the flows based on the Manning's equation. However, because the pipe segments are short and the downstream pipe segments are steeper, the hydraulic grade line never reaches the top of the pipe. This flow condition is illustrated in Diagram 3-2 below.

Figure 2-2: Negative Reserve Capacity Illustration



The pipe segment between the two manholes is so flat that the water is beginning to back up. This is because the capacity of the pipe, based on the Manning's equation, is less than the peak flow. If the flat pipe segment were much longer, the hydraulic grade line would rise above the top of the pipe. In InfoSWMM, the middle pipe segment gets reported as a pipe with negative reserve capacity even though the water surface never reaches the top of the pipe.

2.3.6 Hydraulic Grade Line Profile Evaluation

Areas that were highlighted in the model as having high d/D values and low reserve capacities were evaluated further by viewing system profiles in the modeling software. The profiles show the peak hydraulic grade line through the pipe segments. By evaluating the model profiles, the pipe segments that are actually causing surcharging (hydraulic grade lines above the tops of pipes) can be identified.

2.3.7 Existing Model Conclusions

The results of the existing 2021 collection system evaluation offer some conclusions:

1. All of the existing collection lines have reserve capacity to serve approximately 400 or more additional ERU's based on the stated assumptions.
2. All of the existing collection lines have enough capacity to serve for the next 10 years including the planned flows from Millville City, which may or may not come into the Nibley system in the future.

3 MASTER PLAN & RELIEF ALTERNATIVES

3.1 INTRODUCTION

The master planning portion of the study involves applying future growth projections in the model to identify the future collection system improvements needed as the City grows. This master plan specifically considers the scenarios listed in Table 3.1.

Table 3-1: Future Time Frames Analyzed

Future Time Frames Analyzed	
Title	**Description**
2031	Projected 2031 peak flows based on the projected growth. The areas that are expected to be developed by 2031 are shown in Figure 5 Projected Growth*
Build-out	Projected peak flows assuming the areas within the study area boundary are developed to the densities indicated in Figure 6 Land Use*. Based on the projected WFRC growth of 4.6% per year until year 2031 and 1% until build-out, build-out will occur around year 2161. If growth after year 2031 is 3.0% per year until build-out, build-out will occur around year 2075. The areas that are expected to be developed between 2031 and build-out are are shown in Figure 5.

The master plan study area covers the area within the current City limits and includes some future annexation areas to the north and to the south of the current City limits outside of the City boundaries. The study area does not include any area west of Highway 89/91 except for areas that are currently within the City limits (Figure 1: Existing System*).

The master plan models were utilized as tools for sizing future relief lines (lines that will be constructed to replace or supplement existing lines to relieve choke points) and future trunk lines (lines that will be extended to undeveloped areas of the City). The results of the master plan model identify conceptual alignments and required line sizes to accommodate future conditions within the study boundary.

3.2 KEY ASSUMPTIONS FOR MASTER PLAN MODELS

The assumptions that are listed in Section 2.3.1 for the development of the existing model were used for the future models. The following is a list of additional key assumptions used for future projections:

** All of the report figures are found on fold-out pages in Appendix A*

- **Future Growth Rates** - The estimated future annual population growth rate is 4.6 for years 2021 through 2031 and 1% thereafter based on WFRC Projections. The WFRC projections are based upon County-wide projections of the Kem C Gardner Institute distributed in various areas of the County utilizing the Travel Demand Model. This model, developed by WFRC, is also used by Cache Metropolitan Planning Organization (CMPO). The population projection data can be viewed through the WFRC website here:
  https://data.wfrc.org/datasets/wfrc::population-projections-city-area/explore?location=41.670049%2C-111.812989%2C12.31
  Click on the Nibley City area of the map to view the projected population values.
- **Sizing of Improvements** - All of the recommended improvements in the master plan are sized to convey the projected build-out flows for the study area.
- **Study Area** - The master plan study area is 9.1 square miles.
- **Millville Flows** - It is assumed in the master plan models that the peak flow of 950 GPM projected to come from Millville into the 2600 South trunkline, will not come into the Nibley collection system. At the time this report was prepared Millville City had decided to route the Millville flows through a new collection system that would convey the Millville flows to the Hyrum City wastewater treatment facility. If the Millville plan changes and they decide to route flows through the 2600 South trunkline, Nibley City and Millville city should re-evaluate the capacity in the Nibley collection system.
- **Future Land use** - The land uses in the model are based on the planned future land uses that are shown in Figure 6.
- **Build-out Population** - The estimated Build-out population served by the collection system, is 35,600 based on the planned densities given in the future land use map. It is estimated that the Build-out population will be reached in year 2161 based on the assumed growth rates.
- **Future Pipe Upgrades** - Existing pipes that do not have enough capacity for future flows will be replaced. Future relief lines could also be new lines that run parallel to the existing lines to add capacity where needed. If parallel lines are installed and the existing lines are kept in service, the proposed new lines could be smaller.
- **Ground Elevations** - Ground elevations for future service areas were taken from a Light Detection and Ranging (LIDAR) survey of the entire City that was completed by Aero-Gaphics Inc. in the fall of 2013.

- **Future Growth Areas** - The City staff provided direction for areas where growth is projected to occur between now and 2031 (the next 10 years). These areas are indicated in Figure 5 along with the areas that have been assumed to develop by build-out.
- **Logan Flows** – Logan City has 25% of the pipe capacity in the 2200 South sewer line. This equates to a flow rate of 108 gpm at 80% full pipe. No flow enters the system as this time.

3.3 2031 Evaluation

A model scenario was created to evaluate the capacity of the existing sewer system at year 2031. Future growth was added to the existing model in areas inside the current City boundary that were identified by City staff members as areas that may develop in the next ten years (Figure 5

Figure 7: 2031 d/D* provides an overview of the d/D values in the existing system with the projected 2031 flows. Figure 8 Reserve Capacity* shows the reserve capacity in the 2031 model scenario. None of the existing pipes are backing up and no pipe capacity improvements are needed between now and 2031 based on the assumptions used to build the model. Another pump will need to be added to the Hansen Lift Station as flows approach the projected 2031 peak flows.

3.4 Build-out

A model scenario was created to identify conceptual upgrades to the existing system and future trunk lines and lift stations needed for year Build-out. Estimating the size of pipes that will be needed at Build-out is important because it provides a pipe size guide to follow as new pipes are installed or existing pipes are replaced. This guide helps prevent a situation where the City might upsize a pipe only to find out shortly thereafter that an even larger pipe is needed to accommodate future growth.

An existing ground surface layer was created in the model using the LIDAR survey data to master plan the areas that are currently undeveloped. The master planned pipe system was laid out to take advantage of the natural slope of the land and low-lying areas. The final decision on sewer service to these areas will be determined by Nibley City policy and land development activity.

The routes of the master plan lines may be slightly altered without affecting service depths or reducing pipe capacities. A detailed land survey will be required during design of the future pipes to ensure that they can connect to the existing collection system. Detailed land survey data will also be needed to determine if there ae some isolated areas in the south part of the City can be served without adding additional small lift stations.

** All of the report figures are found on fold-out pages in Appendix A*

The future service areas were delineated based on natural and land use boundaries. The future service areas divide the undeveloped areas into parcels that drain naturally to the trunk lines.

Figure 9: Existing and Proposed Diameters* shows the recommended collection system with the existing pipe sizes and the sizes of any proposed lines needed to serve the area within the study area boundary when it is built out to the planned densities. This system routes most of the undeveloped area located south of the City to the west to 1500 West Street and then north through the south trunk line. The south trunk line on 1500 West can handle maximum flows of 250 gpm or approximately 700 ERU's. before some flows will need to be split to the west through the future Southwest Lift Station.

The proposed future trunk line upgrades (Figure 9: Existing and Proposed Diameters) are based on the assumption that undersized trunk lines will be replaced with larger trunk lines. During design of the new improvements the City may choose to add parallel lines to supplement the capacity of the existing trunk lines as needed.

Figure 10: Build-out d/D* shows the d/D values in the Build-out system with all of the needed improvements made to the collection system. Figure 11: Build-out Reserve Capacity* shows the build-out reserve capacity.

The future improvements needed are outlined in Section 4. Large deviations from the master plan may affect line capacity and serviceability of some areas. The effects of changing the master plan should be thoroughly studied before allowing significant deviations.

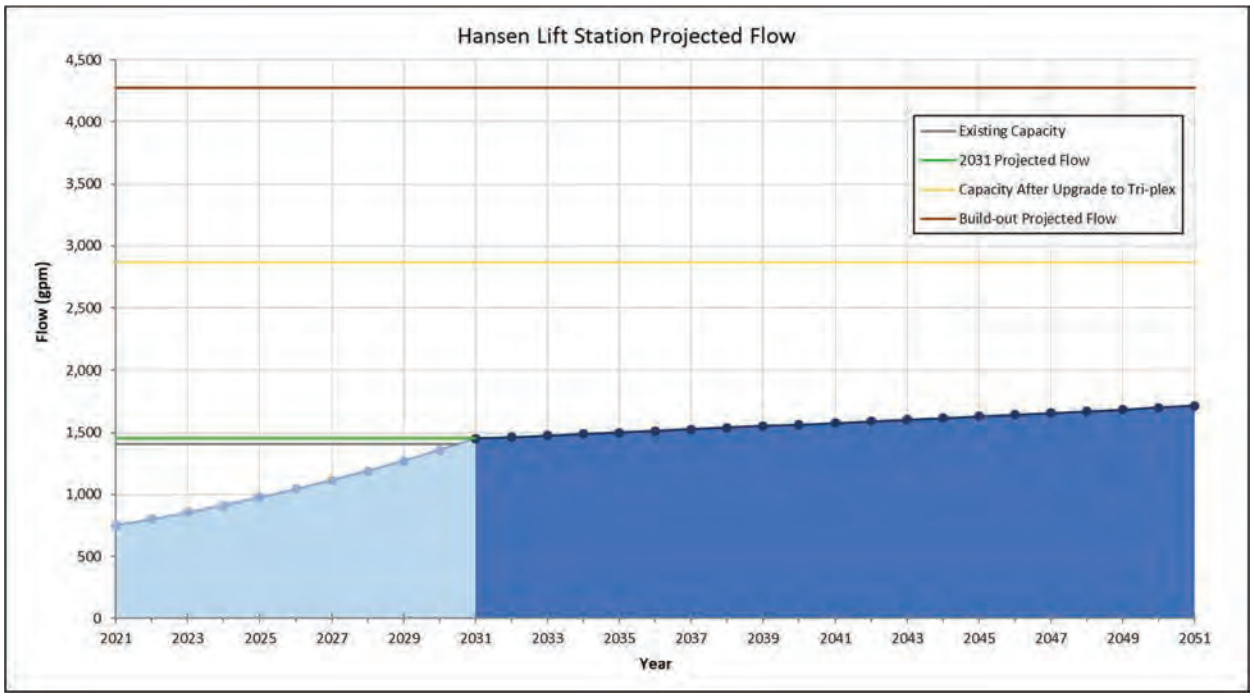
3.5 Lift Station Evaluation

All of the existing lift stations are projected to have adequate capacity through build-out with the exception of the Hansen Lift Station, located along Heritage Drive just east of HWY 89 (Figure 1: Existing System*). This lift station receives all of the sewer flows from the City. It will continue to receive increased flows as the City grows and will eventually need to be upgraded. It currently has two pumps that pump at 1,688 GPM each and has a vacant space allotted for a future third pump. Two pumps at a minimum are always required in lift stations to provide redundancy in case of a pump failure. When the peak flows in the system start to exceed the capacity of one pump (1,688 GPM) a third pump should be added to maintain redundancy. Based on the model projections it is estimated that the third pump will need to be added around year 2030. The total peak flow at build-out is estimated to be 4,300 gpm, significantly exceeding the current capacity of the lift station and will need to be upgraded to meet the

** All of the report figures are found on fold-out pages in Appendix A*

build-out demands. A graph of the projected flows and the capacity of the Hansen Lift Station can be seen in Graph 3-1. The existing capacity is shown as 1,435 GPM which is 85% of the total capacity. This allows the City the ability to plan for improvements before the lift station is completely out of capacity.

Graph 3-1: Hansen Lift Station Projected Flow



There is only one 14-inch force main pipe that currently runs from the Hansen Lift Station to the Logan collection system. One force main is adequate to convey the flows and meets the standard of service through the ten year scenario. However, the projected force main velocity at year 2031 is 7.4 feet per second and is at the upper velocity threshold.

All of the pump stations will need to be maintained to continue to function properly. The City should continue to do regular maintenance on these lift stations and will eventually need to replace pumps and other equipment as the system ages. A list of lift station improvements can be found in Table 3-2.

With a new southwest lift station and the planned future pipes, the Caine Dairy lift station and the Scott Farm lift station can be abandoned as development occurs. To the south of the Caine Dairy there are some hard to serve areas that may make keeping the Caine Dairy lift station logical. A map of the existing and projected lift stations is given in Figure 9: Existing and Proposed Diameters*.

Table 3-2: Lift Station Summary

LIFT STATION IMPROVEMENTS		
Lift Station Name	**Approximate Location**	**Projected Upgrades***
Existing - Scott Farm	3480 S. 780 W.	No upgrades currently projected. This is based on the assumption that the undeveloped areas to the south will be served by future trunk lines going to the west. Plan to discontinue use of this lift station in the future and route flows west through future gravity lines.
Existing - Caine Dairy	3600 S. HWY 89	No upgrades currently projected. May abandon in the future if all of the southwest area can be served by the planned soutwest lift station.
Existing - Peterson	2690 S. HWY 89	No upgrades currently projected.
Existing - Hansen	Heritage Drive just east of HWY 89	An additional pump will need to be added to the available slot in the lift station around year 2030. Additional upgrades will be needed prior to build-out.
Future - Northeast Regional	2200 S. Union Pacifice Rail Road	This new lift station will be needed to serve new development in the area between 2200 and 2500 South and Union Pacific Rail Road and Black Smith Fork River.
Future - Southwest Regional	3200 S HWY 89/91	This new lift station will be needed to serve new development in the area south and west of the current City limits.

*Upgrades based on model assumptions. Nibley City should regularly monitor the performance of each of the lift stations to identify capacity improvement needs before capacities are exceeded.

4 CAPITAL FACILITIES PLAN (CFP)

4.1 INTRODUCTION

There are no existing collection system capacity deficinecies. However some projects are needed in the next 10 years and others will be needed to serve the City under build-out conditions.

4.2 PRIORITIZED COLLECTION SYSTEM CFP PROJECTS

The CFP projects that have been identified to address the future capacity needs are shown in Figure 9: Existing and Proposed Diameter* for each evaluated time frame. Each of the pipe upgrade projects shown is based on the assumption that the existing pipe would be replaced by a new larger pipe. The City may decide to install smaller new pipes parallel to the existing pipes as long as the two pipes combined provide the same capacity as the shown proposed pipe. This is less feasible in roadways that already have many existing utilities buried under ground.

The recommended CFP projects are prioritized and assigned a letter based on the prioritization. The City may choose to do the projects in a different order as unforeseen circumstances arise that affect when a project should be completed.

Table 4-1 below lists the needed projects identified within the existing collection system in order of priority. The needed projects should be completed in the order they are listed, unless some future event dictates that another prioritization be followed, and as funding becomes available. The exact time frame for the construction of these projects is not known and will be driven by development, but they will need to be completed prior to the recommended time frame if development occurs as assumed in this plan. The exact sizes for the pumps and force mains for the lift stations will be determined during design of the lift stations.

Table 4-1 also includes opinions of probable cost for improvements to the existing system. It does not include the opinions of probable cost for the conceptual future collection system pipes to serve the areas projected to grow after 2031, but they are given in Section 4.4.

Table 4-1: Prioritized CFP Projects

CAPITAL FACILITIES PLAN PROJECTS				
PRIORITY*	**PROJECT DESCRIPTION**	**PROJECT TYPE**	**RECOMMENDED TIMEFRAME**	**PROJECT COST**
A	Build new 24" trunkline from 2600 S upstream to 2960 S	Key Infrastructure	Prior to 2031	$961,000
B	Build new South West Regional LS and force main along with a 10" gravity sewer line from the new LS to 3400 S	Key Infrastructure	Prior to 2031	$1,941,000
C	Add a third pump to Hansen lift station	Capacity	Prior to 2031	$151,000
			2031 Timeframe Subtotal	**$3,053,000**
D	Upsize the existing 12" trunkline to 24" from 2600 S upstream to 2960 S	Capacity	Prior to Build-out	$1,138,000
E	Upgrade the pumps and forcemain at the Hansen LS	Capacity	Prior to Build-out	$3,983,000
F	Install a diversion and 8" pipe to send peak flows across HWY 165	Capacity	Prior to Build-out	$755,000
G	Build new North East Regional LS and force main with a railroad crossing on 2200 S. with a 8" gravity sewer line from the new LS to 800 W.	Key Infrastructure	Prior to Build-out	$977,000
			Build-out Timeframe Subtotal	**$6,853,000**
			Total	**$9,906,000**

*The priority letters listed in this table correspond with the letters for the CFP projects listed in Figure 9.

4.3 Collection System Opinions of Probable Cost Assumptions

The opinions of probable cost for the projects in this plan are based on J-U-B bid tabulation records for sewer collection and lift station projects and pipe material costs provided by pipe suppliers. For piping projects, it is assumed that the improvements will be made utilizing conventional open-cut construction in City roadways with manholes will be placed every 400 feet. The project costs include an additional 25% contingency factor to account for utility conflicts and other items that will be discovered during the design process and the estimated costs for engineering services. A detailed breakdown of each of the collection system project costs is provided in **Appendix E**.

4.4 Concept Plan for Future Growth Areas

A concept plan has been prepared to help the City know how future areas to develop may be served by sewer. **Figure 9 – Existing and Proposed Diameters** is a map that shows a conceptual collection plan to serve the areas that are projected to develop by 2161. The map shows all of the improvements that need to be made to the existing collection system and future pipes and lift stations that will help serve the areas to develop by 2021 and by 2031.

All new sewer system improvements within the City need to be constructed to meet current Nibley City and State design requirements. This is true for public systems as well as sewer systems that are constructed as private utilities including collection piping and lift stations. The City standards for design and construction shall be used in conjunction with Utah Administrative Code R317-3. Where a conflict exists between these two standards, the Administrative Code shall prevail.

4.4.1 Concept Plan Pipe Assumptions

The future trunk lines included in the CFP as shown in Figure 9 are sized to meet the same level of service as the existing pipes. **Table 4-2** lists the assumed slopes for the future trunk lines by pipe size. The conceptual plans in this master plan are based on rough elevation data. All future pipes and lift stations will need to be designed based on topographic survey data and other more detailed data prior to construction. The opinions of probable cost for the trunk lines shown in the conceptual collection plan for areas to develop in the future are given in Section 5.2.

Table 4-2: Future Pipe Design Parameters

Future Pipe Design Parameters					
D Diameter (inches)	Design % Capacity	Qmax Peak Flow (GPM)	Q Flow at Capacity (GPM)	s Minimum Pipe Slope[1]	ERU's at Capacity
8	0.75	373	280	0.40%	776
10	0.75	565	424	0.28%	1178
12	0.75	815	611	0.22%	1698
15	0.75	1220	915	0.15%	2542
18	0.85	1774	1508	0.12%	4189
21	0.85	2443	2077	0.10%	5769
24	0.85	3488	2965	0.10%	8236
27	0.85	4776	4059	0.10%	11276
30	0.85	6325	5376	0.10%	14933

[1]10 State Standards minimum slope for 8" - 21" Pipe, 0.1% for constructability for pipes larger than 18." Flatter pipe slopes are allowed during design per State of Utah standards. These slopes have been used during concept planning to allow for standard drops to be added for manholes that may be added in addition to the manholes that have been used in this master plan.

4.4.2 Future Lift Stations

There are a few options available to communities to consider and investigate for wastewater collection and conveyance to a treatment facility. The options must consider the effects of topography, depth to ground water, where growth is expected to occur, as well as Utah State regulations governing collection systems (UAC R317-3). Some of the options include:

- Conventional gravity lines with lift stations
- Vacuum sewer systems
- Individual ejector pumps at sewer services.

The master planned system shown in Figure 9 is based on the use of conventional gravity lines and lift stations. Future Pump Stations to Serve Future Service Areas.

New lift stations will be required to serve the undeveloped areas that are outside of the current collection system service area. By following this master plan the City can have regional lift stations and limit the number of future lift stations needed. One regional lift station will be

needed to serve the northeast corner of study area and another will be needed to serve the southwest corner (Figure 9: Existing and Proposed Diameters*).

The Northeast Regional Lift Station will need to include a pipe under the railroad tracks. The Southwest Regional Lift Station will need to have a force main to carry the flows to the Hansen Lift Station. Table 4-3 gives the estimated costs to construct the lift stations.

Table 4-3: Costs for Lift Stations to Serve Future Service Areas

FUTURE PUMP STATIONS TO SERVE FUTURE DEVELOPMENTS	
DESCRIPTION	**COST**
Construct New South West Regional Lift Station with Force Main	$ 922,000
Construct New North East Regional Lift Station With Force Main Under Rail Road Tracks	$ 468,000
ENGINEERING & CONSTRUCTION CONTINGENCY (40%)	$ 556,000
TOTAL FOR FUTURE LIFT STATIONS	**$ 1,946,000**

4.5 Conclusions and Recommendations

The following conclusions and recommendations are based on the assumptions and results of the modeling and CFP:

- **Existing Capacity**
  - **Conclusion –** The existing system has no existing deficiencies based on the results of the modeling and the established the Level of Service (LOS) for pipes and lift stations.
  - **Recommendation –** Continue to inspect the system for sources of infiltration and inflow and eliminate those sources.
- **Reserve Capacity for Future Equivalent Residential Units (ERU's)**
  - **Conclusion -** All of the existing collection lines can serve approximately 400 or more additional ERU's. Figure 4 lists the approximate number of additional ERU's that can be added upstream of major trunkline intersections.
  - **Recommendations –** Require each new development to submit a report with the projected flows to be added from the development. The City should then run an update to the existing sewer model to verify that there is adequate capacity prior to permitting each new development. Track the number of new ERU's added to the system to know when the capacity of certain pipes is being approached.

- **Future Upgrades to Existing Pipes**
  - **Conclusion -** Some of the existing trunk lines will exceed capacity before Nibley is completely built out (Figure 11).
  - **Recommendation –** Update the master plan and re-evaluate impact fees every 5-7 years to prevent collection system deficiencies.
- **Future Upgrades to Hansen Lift Station**
  - **Conclusions -** The Hansen Lift Station is projected to need a third pump added around year 2030.
    After 2031 and prior to build-out, the Hansen lift station pumps and the forcemain from Hansen Lift Station may need to be upsized.
  - **Recommendation -** Regularly monitor the performance of the station. Add a third pump when both existing pumps are frequently running at the same time. It may also be sensible to keep an additional spare pump for installation in case of a pump failure.
- **Future Sewer Collection South of Existing Developed City Area**
  - **Conclusions** - Most of the undeveloped area south of the current service area and east of 1500 West can be served by gravity to the Hansen Lift Station.
    A deep regional lift station (Southwest Lift Station) placed near the intersection of 3200 South and Highway 89/91 can serve most of the area south of 3200 South and West of 1900 West that cannot be gravity served to the Hansen Lift Station.
    Approximately 633 ERU's can be added to the existing trunk line in 1500 west near 3350 South before some flows will need to be spit from 1500 West through a future trunkline to a future trunkline in 1900 West.
  - **Recommendations** – Construct the new Southwest lift station and incoming and outgoing piping to serve the area west of 1900 West and south of 3200S. Size the downstream pipes for build-out as shown in Figure 9.
    Monitor the number of connections added upstream of 1500 West and 3200 South. Plan to split some of the peak flows at this location off to the west to a new gravity trunkline that is planned for 1900 West. The pipe in 1900 West will convey flows north to Heritage Drive and on to the Hansen Lift Station.
    Plan to remove the Scott Farm Lift Station when new pipes to the west of the lift station are installed.
- **Development Permitting**
  - **Conclusion –** Flows will increase significantly in the collection system over the next 10 years.
  - **Recommendations -** Require each new development to submit a report with the projected flows to be added from the development. The City should then run an update to the existing sewer model to verify that there is adequate capacity prior to permitting each new development.

- **Sierra Drive Trunkline**
    - **Conclusion -** The slopes in the 12-inch trunkline that connects to 2600 South near Highway 89 (Sierra Drive trunkline) are not certain because of conflicting elevations provided on the system record drawings and the inability to access the manole. The manhole is currently buried in a farmers field.
    - **Recommendation -** Verify the slopes of the Sierra Drive trunkline between 2600 South and the Peterson Lift Station lateral.

** All of the report figures are found on fold-out pages in Appendix A*

5 IMPACT FEE FACILITIES PLAN (IFFP)

5.1 INTRODUCTION

The purpose of the Sanitary Sewer Impact Fee Facilities Plan (IFFP) is to determine the impacts placed on the sewer system from future development as outlined in Utah Administrative Code (UAC) Title 11 Chapter 36a-301 and 36a-302. The IFFP outlines which improvements in the CFP can be funded through impact fees. **Appendix F** contains the detailed requirements for the IFFP from as listed in UAC. This IFFP utilizes information from the collection system model and CFP to provide the information that becomes the foundation for the Impact Fee Analysis (IFA). The IFA will be prepared by a financial consultant.

Table 5-1 lists the flow values per ERU that were determined during the flow metering and modeling process and are used for the collection related aspects of this IFFP.

Table 5-1: Sewer Collection Peak Flows per ERU

Sewer Collection Peak Flow Values Per ERU	
Existing ERU's	
Description	**Value**
People per ERU	3.8
[1]Average Flow per Person (GPD)	90
Peak Flow per ERU (GPM)	0.36 GPM

[1]Based on sewer flow meter data collected in 2013.

5.2 REQUIRED IFFP ELEMENTS

The following general tasks and elements are required as part of the IFFP:

- Identify the existing Level of Service (LOS)
- Establish a proposed LOS.
- Identify any excess capacity to accommodate future growth at the proposed LOS
- Identify demands placed upon existing system by new development activity at the proposed LOS and the means by which the City will meet those growth demands.
- Consider potential revenue sources to finance the impacts on system improvements

5.3 EXISTING LOS

The following sections provide performance standards, or the LOS required for collection pipes and lift stations. Also provided is a description of how the existing systems meet the LOS.

5.3.1 Collection Pipes

The LOS for the collection pipes is determined based on the perecnt full as compared to the full pipe capacity. The percent of full capacity must be less than 75% for pipes 8-in to 15-in and 85% for pipes larger than 18-in during the peak flow in the collection system pipes.

5.3.2 Lift Stations

The LOS for sewer lift stations in the collection system is determined based on the peak flow that enters each station. The peak flow entering a lift station must be less than 85% of the pumping capacity of the lift station pumps assuming that one pump in the pump station is not running.

Currently, Hansen Lift Station is operating under capacity. An additional pump will be needed prior to 2031 to maintain the LOS and to serve future growth.

5.4 PROPOSED LOS

The proposed LOS values for collection pipes and lift stations are the same as the existing LOS values provided in section 5.3.

5.5 EXCESS CAPACITY

5.5.1 Collection System Pipes

The flows from future development will be met through a combination of available excess capacity in the existing collection system pipes and improvements to the existing system that will add capacity.

The excess capacity available in the existing collection system pipes was evaluated based on the total ERU values for the modeled pipe segments in the system.

In year 2000 the system was designed for a peak flow of 2,045 GPM. This is equivalent to 5,680 collection system ERU's (see record drawings 3 of 140). The existing ERU's are equivalent to 2,129 and the projected ERU's for the year 2031 are 3,328. Therefore, there will be an additional 1,199 ERU's during the next 10 years.

Table 5-2 lists the percent utilization for the current and future collection system.

Table 5-2: Collection System Pipe Utilization

Collection System Pipe Excess Capacity		
	ERU	**Percent Utilization**
2021	2,129	37.5%
2031	3,328	58.6%
Design	5,680	100%

The amount of the available capacity in the existing collection system that will be utilized by the 10-year growth is 21.1%.

5.5.2 Lift Stations

The excess capacity available in the existing Hansen lift station was evaluated based on the total ERU values.

The Hansen Lift Station has a current capacity of 1,688 GPM (with the existing two pumps). The Level of Service is 85% of the design capacity which is equivalent to 1,435 GPM. The existing peak flow at the Hansen lift station is equivalent to 750 GPM during wet weather and the projected peak flow for the year 2031 is 1,450 GPM, therefore there will be an additional 1,035 GPM during the next 10 years. A third pump will need to be added within the next 10 years.

Table 5-3 lists the percent utilization for the Hansen lift station.

Table 5-3: Hansen Lift Station Utilization

Hansen Lift Station Utilization		
	GPM	**Percent Utilization**
2021	750	52.3%
2031	1450	101.0%
Design	1435	100%

The amount of the available capacity in the Hansen lift station that will be utilized by the 10-year growth is 47.7%.

5.6 Improvements to meet Future Growth Demands

The previous sections of this master plan outline the assumptions and methods used to quantify the existing flows in the system and the flows projected for the future. There were no existing deficiencies as identified through the computer modeling that is explained in Section 2 of this report. Future deficiencies were identified by creating future model scenarios as identified in Section 3 of this report. The existing and future deficiencies are based on the established LOS criteria.

5.7 2031 Improvement Plan

Only the projects that need to be constructed in the next 10 years (prior to 2031) will be included in the calculation of the sewer impact fee. The projects are planned to serve development that will occur after 2031 so the entire cost of those projects is not eligible for reimbursement through current impact fees. The costs for each of the collection projects have been split into the following three categories:

1. The portion of the project that current City residents should pay. (Cost to Existing)
2. The portion of the project that can be paid for through new development impacts projected for the next 10 years. (Cost to 10-Year Growth)
3. The portion of the project that is needed to serve the growth that is anticipated for years 2031 to build-out. (Cost to Growth After 2031)

5.7.1 Collection Project Plan

Table 5-4 lists the collection projects needed between now and 2031 along with the opinion of prob d that existing users will pay for th ntage of the pipe capacity that pay for the remainder of the costs rs.

I would like to talk about the idea that impact fees are collected to pay debt of past constructed infrastructure. We should be collecting them to pay for the infrastructure needed for development. For example, Hansen LS is paid off and no more IFs are being collected for it but it will serve up to BO.

Table 5-3: 10-Year Collection Project Cost Allocation

10-YEAR COLLECTION PROJECT COST ALLOCATIONS					
PRIORITY	PROJECT DESCRIPTION	TOTAL PROJECT COST	COST TO EXISTING	COST TO 10-YEAR GROWTH	COST TO GROWTH AFTER 2031
A	Build new 24" trunkline from 2600 S upstream to 2960 S	$ 961,000	$ -	$ 73,104	$ 887,896
B	Build new South West Regional LS and force main along with a 10" gravity sewer line from the new LS to 3400 S	$ 1,941,000	$ -	$ 147,654	$ 1,793,346
C	Add a third pump to Hansen lift station	$ 151,000	$ -	$ 1,510	$ 149,490
D	Upsize the existing 12" trunkline to 24" from 2600 S upstream to 2960 S	$ 1,138,000	$ -	$ -	$ 1,138,000
E	Upgrade the pumps and forcemain at the Hansen LS	$ 3,983,000	$ -	$ -	$ 3,983,000
F	Install a diversion and 8" pipe to send peak flows across HWY 165	$ 755,000	$ -	$ -	$ 755,000
G	Build new North East Regional LS and force main with a railroad crossing on 2200 S. with a 8" gravity sewer line from the new LS to 800 W.	$ 977,000	$ -	$ -	$ 977,000
		$ 9,906,000	**$ -**	**$ 222,268**	**$ 9,683,732**

A more detailed table of the 10-Year projects that provides the cost split percentages for materials and for construction for each time frame by project is provided in **Appendix E.**

5.8 Consideration of Revenue Sources to Finance Improvements

Section 302 (2) of the Impact Fee Act requires the City to "generally consider all revenue sources, including impact fees and anticipated dedication of system improvements, to finance the impacts on system improvements." By doing so, the City ensures fair and equitable treatment among users and concludes whether impact fees are the most appropriate method to fund the growth.

There are a number of potential revenue sources to consider including:

- Grants
- Bonds
- Impact Fees
- Anticipated or Accepted Dedications of System Improvements

5.8.1 Grants

Impact fees may not reimburse projects funded through grants. No grants have been included in the project costs. If grants are received, costs will be adjusted accordingly.

5.8.2 Bonds

The City could issue bonds in the future in order to fund their sewer system. No bonds are planned and therefore no costs associated with bond issuance have been included in the calculation of impact fees.

5.8.3 Impact Fees

Because of the growth anticipated to occur in the City, impact fees are a viable means of allowing new development to pay for the impacts that it places on the existing system. This IFFP is developed in accordance with legal guidelines so that an Impact Fee Analysis for the sewer system may be prepared and the City may charge impact fees. This will prevent existing users from subsidizing new growth.

5.8.4 Anticipated or Accepted Dedications of System Improvements

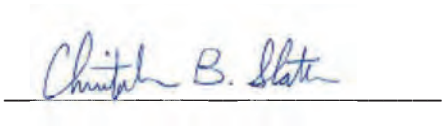
Developers in Nibley have not historically dedicated system improvmeents without requesting a credit for the work. Any item that a developer funds, must be included in the IFFP if a credit against impact fees is to be issued, and must be agreed upon with the City before construction of the improvements.

5.9 IFFP CERTIFICATION

This IFFP has been prepared in accordance with Utah Code Title 11 Chapter 36a, Impact Fee Act. In accordance with Utah Code Title 11-36a-306(1), J-U-B Engineers, Inc. makes the following certification.

"I certify that the attached impact fee facilities plan:

1. includes only the costs of public facilities that are:
   a. allowed under the Impact Fees Act; and
   b. actually incurred; or
   c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
   a. costs of operation and maintenance of public facilities;
   b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
   c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. complies in each and every relevant respect with the Impact Fees Act."



Dated: 8/4/21

J-U-B ENGINEERS, INC.

6 BIBLIOGRAPHY

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APPENDIX A

REPORT FIGURES

Existing System

N

0 1250 2500 5000 Feet

Hansen
Peterson
Caine Dairy
Scott Farm

2200 S
2400 S
2470 S
2500 S
2550 S
2600 S
2680 S
2740 S
2730 S
2770 S
2840 S
2880 S
2930 S
2960 S
2980 S
3045 S
3200 S
3300 S
3390 S
3400 S
3480 S
3500 S
3575 S
3600 S
3650 S
3700 S
3800
3850 S
4000 S
4200 S
4300 S
4400 S
2965 S

1200 W
1500 W
1070 W
830 W
860 W
800 W
660 W
1000 W
600 W
450 W
1600 W
1565 W
1400 W
900 W
640 W
500 W
250 W
1900 W
2400 W
700 W
280 W
100 W
400 W
260 W

STATE HIGHWAY 165
250 E
800 E

Sewer Lines (Modeled)
- 8 Inch
- 10 Inch
- 12 Inch
- 18 Inch
- 21 Inch

Force Mains (Modeled)
- 4 Inch
- 12 Inch
- 14 Inch

- Lift Stations
- 8" Main Lines (Not Modeled)
- Nibley City Limits

NIBLEY
JUB
THE LANGDON GROUP
GATEWAY MAPPING INC.
OTHER J-U-B COMPANIES

Service Areas

N

0 1250 2500 5000 Feet

Nibley City Limits
Nibley Parcels
Sewer Lines (Modeled)
8" Sewer Lines (Not Modeled)
Manhole
Manhole Recieving Flow

SANITARY SEWER MASTER PLAN

Figure 2

Existing d / D

0 1250 2500 5000 Feet

Hansen
Peterson
Caine Dairy
Scott Farm
STATE HIGHWAY 165

Sewer Lines (Modeled)

Existing d/D

- Less than 0.50
- 0.50 - 0.65
- 0.65 - 0.85
- 0.85 - 0.93
- Greater than 0.93

Force Mains (Modeled)

- 4 Inch
- 12 Inch
- 14 Inch

- Lift Stations
- 8" Main Lines (Not Modeled)
- Nibley Municipal Boundaries

Note: d/D represents the depth of flow divided by the diameter of the pipe.

Existing Reserve Capacity

N

0 1250 2500 5000 Feet

Hansen
Peterson
Caine Dairy
Scott Farm

STATE HIGHWAY 165

Sewer Lines (Modeled) Force Mains (Modeled)

Reserve Capacity

- Over Capacity
- 1 - 300
- 301 - 600
- 601 - 1000
- 1001 - 3000
- Greater Than 3000

- 4 Inch
- 12 Inch
- 14 Inch

- Lift Stations
- 8" Main Lines (Not Modeled)
- Nibley Municipal Boundaries

Note: Reserve capacity is measuresd in number of equivalent residential connections.

Projected Growth

N

0 1250 2500 5000

Feet

Existing

10-Year

BuildOut

Nibley Municipal Boundaries

SANITARY SEWER MASTER PLAN

Figure 5

Land Use

0 1250 2500 5000 Feet

Future Land Use	Density
Parks, Open Space, and Trails	
Agriculture	
Open Space, Agriculture, and Low Density Residential	1 DU/ac
Low Density Residential	1 DU/ac
Medium Density Residential	3 DU/ac
High Density Residential	20 DU/ac
Commercial and Medium to High Density Residential	8 DU/ac
Commercial	
Industrial	
Municipal, Schools, and Churches	
Town Center	7 DU/ac
Nibley Municipal Boundaries	

2031 d/D

0 1250 2500 5000 Feet

Hansen
Peterson
Caine Dairy
Scott Farm
STATE HIGHWAY 165

Sewer Lines (Modeled)
2031 d/D
- Less than 0.50
- 0.50 - 0.65
- 0.65 - 0.85
- 0.85 - 0.93
- Greater than 0.93

Force Mains (Modeled)
- 4 Inch
- 12 Inch
- 14 Inch

- Lift Stations
- 8" Main Lines (Not Modeled)
- Nibley Municipal Boundaries

Note: d/D represents the depth of flow divided by the diameter of the pipe.

2031 Reserve Capacity

0 1250 2500 5000 Feet

Hansen
Peterson
Caine Dairy
Scott Farm
STATE HIGHWAY 165

Sewer Lines (Modeled)

Reserve Capacity
- Over Capacity
- 1 - 300
- 301 - 600
- 601 - 1000
- 1001 - 3000
- Greater Than 3000

Force Mains (Modeled)
- 4 Inch
- 12 Inch
- 14 Inch

- Lift Stations
- 8" Main Lines (Not Modeled)
- Nibley Municipal Boundaries

Note: Reserve capacity is measured in number of equivalent residential connections.

Existing and Proposed Diameters

E - Upgrade the pumps and forcemain at the Hansen LS.

C - Add a third pump to Hansen lift station.

G - Build new North East Regional LS and forcemain with a railroad crossing on 2200 S. with a 8" gravity sewer line from the new LS to 800 W.

Watch trunkline for capacity issues from the existing Hansen LS upstream to 2600 S as flows increase to buildout flows.

D - Upsize the existing 12" trunkline to 24" from 2600 S upstream to 2960 S.

A - Build new 24" trunkline from 2960 S to 3400 S.

B - Build new South West Regional LS and forcemain along with a 10" gravity sewer line from the new LS to 3400 S.

F - Install a diversion and 8" pipe to send peak flows across HWY 165.

0 1250 2500 5000 Feet

N

North East
Hansen
Peterson
South West Regional
Caine Dairy
Scott Farm

2200 S
2400 S
2470 S
2500 S
2550 S
2600 S
2680 S
2740 S
2730 S
2770 S
2840 S
2880 S
2930 S
2980 S
2960 S
3045 S
3200 S
3390 S
3480 S
3500 S
3600 S
3650 S
3300 S
3400 S
3575 S
3700 S
3800
4000 S
4200 S
4300 S
4400 S

1200 W
2400 W
1500 W
1600 W
1565 W
1400 W
1900 W
1000 W
800 W
900 W
660 W
600 W
500 W
450 W
640 W
250 W
400 W
280 W
700 W
250 E
800 E

STATE HIGHWAY 165

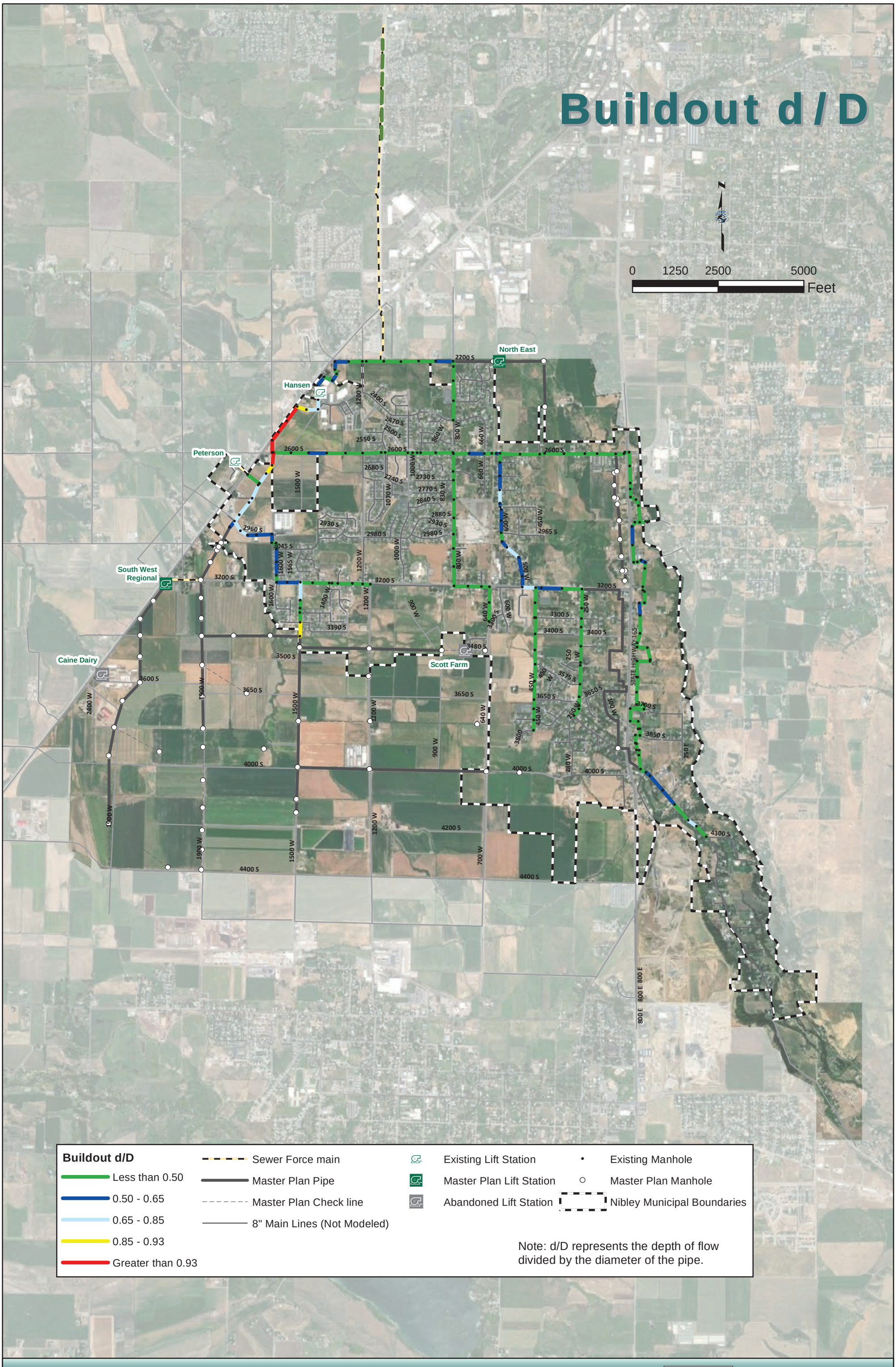
*Red Hatched areas are considered hard to serve and need extra consideration or a small lift station in order to serve.

Master Plan Pipes
Diameter
- 8 inch
- 10 inch
- 12 inch
- 15 inch
- 18 inch
- 21 inch
- 24 inch

Existing/Upsized Pipes
Diameter
- 8 inch
- 10 inch
- 12 inch
- 18 inch
- 21 inch
- 24 inch (Upsized Pipe)

Capital Improvement Timing
- Prior to 2031
- Prior to buildout
- Sewer Force main
- Existing Manhole
- Master Plan Manhole
- Existing Lift Station
- Master Plan Lift Station
- Abandoned Lift Station
- Nibley Municipal Boundaries

Buildout d/D



Buildout d/D

- Less than 0.50
- 0.50 - 0.65
- 0.65 - 0.85
- 0.85 - 0.93
- Greater than 0.93

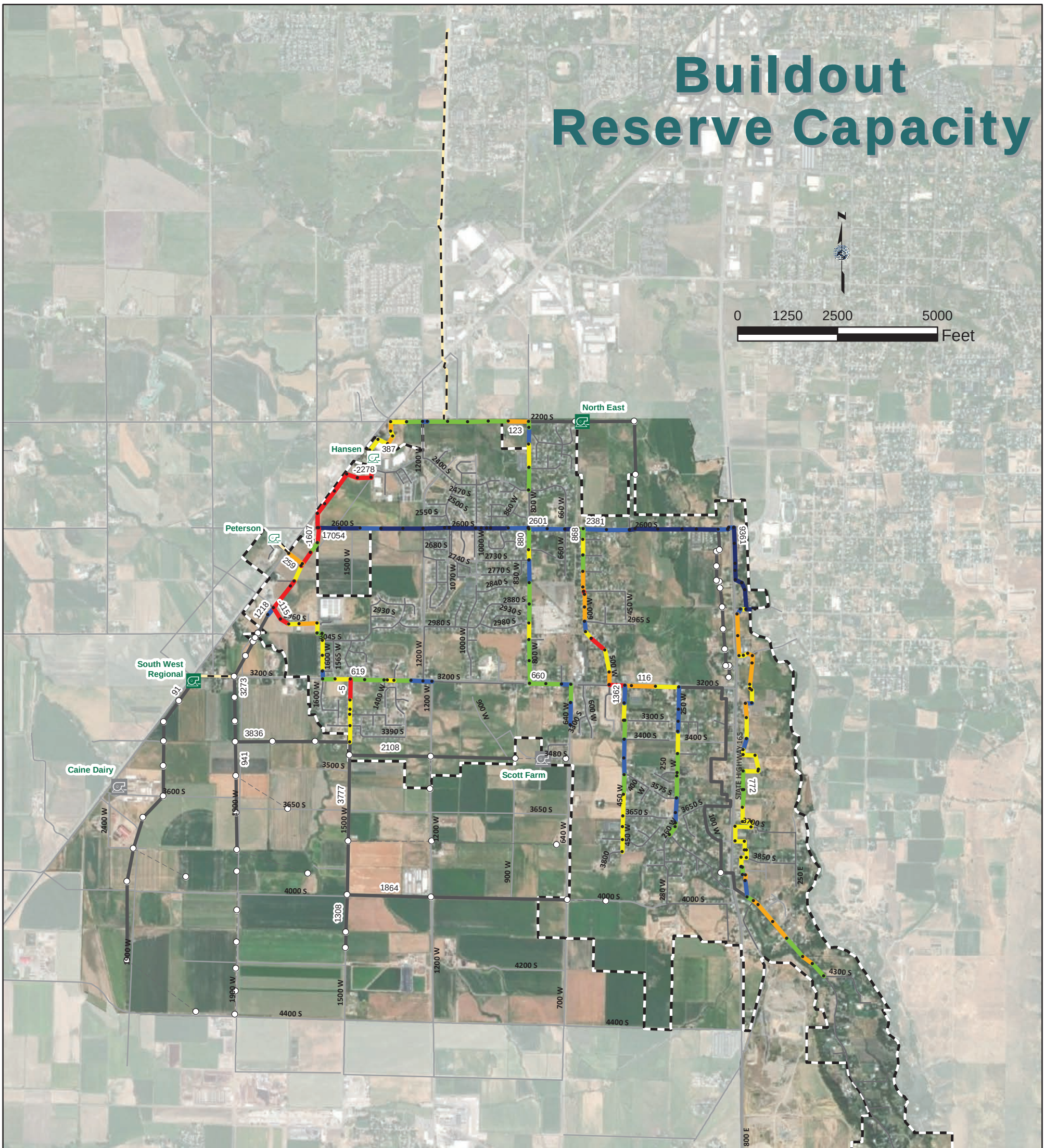
- Sewer Force main
- Master Plan Pipe
- Master Plan Check line
- 8" Main Lines (Not Modeled)

- Existing Lift Station
- Master Plan Lift Station
- Abandoned Lift Station

- Existing Manhole
- Master Plan Manhole
- Nibley Municipal Boundaries

Note: d/D represents the depth of flow divided by the diameter of the pipe.

Buildout Reserve Capacity



APPENDIX B

MILLVILLE 2600 SOUTH CAPACITY AGREEMENT

INTERCITY WASTEWATER AGREEMENT

THIS AGREEMENT, made and entered into this 8 day of December, 2016, by and between the CITY OF NIBLEY, hereinafter "NIBLEY", and the CITY OF MILLVILLE, hereinafter "MILLVILLE":

WITNESSETH:

WHEREAS, NIBLEY operates and maintains a citywide municipal wastewater collection system; and

WHEREAS, MILLVILLE does not currently have a citywide municipal wastewater collection system; and

WHEREAS, NIBLEY's wastewater transmission system is located between MILLVILLE and Logan City, which has a wastewater treatment facility, presently capable of handling and treating the wastewater generated by NIBLEY and MILLVILLE; and

WHEREAS, infrastructure and legal agreements are in place to accept and transport wastewater for treatment; and

WHEREAS, Logan City has expressed its desire to have MILLVILLE operate under NIBLEY's treatment agreement with Logan City; and

WHEREAS, MILLVILLE CITY has determined it would be more cost-efficient and advisable for MILLVILLE to transport wastewater collected by its own wastewater collection system through a portion of NIBLEY's wastewater collection system for delivery to a treatment facility; and

WHEREAS, NIBLEY and MILLVILLE agreed in an INTER-CITY SEWAGE SYSTEM COST REIMBURSEMENT AGREEMENT, originally dated August 3, 2000, and amended December 2, 2004, to cooperate in the costs of constructing and maintaining certain components of NIBLEY's wastewater collection system, which were constructed with an excess capacity in order to be utilized by MILLVILLE at some future date to transport wastewater from MILLVILLE for treatment; and

WHEREAS, the components of NIBLEY's wastewater system shared with MILLVILLE include an interceptor or trunk line through NIBLEY, built from 2900 South Street, west of the Blacksmith Fork River, to and along 2600 South Street and leading to and including a lift station, and an enlarged force main pipeline which connects from the referenced pump station to the connection with treatment systems. All of said components were constructed and installed as part of the Nibley Wastewater Project, begun in the year 2000, hereinafter sometimes referred to as the "COMMON SEWER SYSTEM IMPROVEMENTS".

WHEREAS, MILLVILLE has paid NIBLEY its share of the cost, according to the 2004 agreement, to construct said COMMON SEWER SYSTEM IMPROVEMENTS and is entitled to use the excess capacity therein once wastewater collection facilities are constructed in MILLVILLE; and

WHEREAS, although MILLVILLE has not yet implemented a citywide wastewater system, construction is underway to install wastewater collection infrastructure on the western extreme of MILLVILLE, intended to serve the newly constructed Ridgeline High School and a small number of structures in MILLVILLE, which are expected to begin collecting wastewater in 2016.

NOW, THEREFORE, in consideration of the mutual covenants and undertakings hereinafter stated to which each party hereby binds and commits itself, it is agreed as follows:

1. Modification, Maintenance, Capital Improvements, and Repair of COMMON SEWER SYSTEM IMPROVEMENTS. Any modification to the referenced, COMMON SEWER SYSTEM IMPROVEMENTS, and all maintenance, replacement, capital improvements to and repair costs for the referenced COMMON SEWER SYSTEM IMPROVEMENTS shall be shared and paid for by each party according to each city's prorated share of the cost for the original construction of the COMMON SEWER SYSTEM IMPROVEMENTS. Operational expenses shall be shared and paid by each party as stated in paragraph 5.A., below.

2. Utilization by Millville of the COMMON SEWER SYSTEM IMPROVEMENTS. MILLVILLE anticipates that, in the future, it will, upon obtaining necessary approvals and financing, design, construct, and install a citywide wastewater collection system within its corporate limits, at its sole cost and expense, including the necessary trunk line or lines extending from the collection system to a point agreed upon by both parties where a measuring device or devices will be installed and connection will be made to the common sewer interceptor or trunk line along 2600 South Street in NIBLEY. MILLVILLE shall be obligated to install at its own expense such gravity wastewater lines, pump stations, pressure wastewater lines, and all other related appurtenances as are determined necessary and appropriate in order to construct and install its own wastewater collection system within its corporate limits.

3. Wastewater Meters. Wastewater Meters or other measuring devices installed at the connection points for MILLVILLE's wastewater collection system on the enlarged wastewater interceptor line, shall be purchased, installed and paid for by MILLVILLE. However, they shall be turned over to and owned and maintained by NIBLEY, after acceptance of them by NIBLEY, with MILLVILLE agreeing to pay or reimburse NIBLEY for all reasonable costs to operate, maintain, repair, and/or replace said devices. MILLVILLE shall have the right to verify the costs of maintenance and repair as well as verify the meter readings and the working order of the devices at any time. At such time that NIBLEY begins using said meters to measure wastewater flow from MILLVILLE, NIBLEY shall contract with an independent, third-party to verify the accuracy of said meters at least annually, with MILLVILLE agreeing to pay or reimburse NIBLEY for the costs of such testing. Said meters must be installed by MILLVILLE so as to be compatible with NIBLEY's telemetry system. The power supply for this meter will be

used by both NIBLEY and MILLVILLE. NIBLEY shall pay the initial costs to install electrical power to the site, which is estimated to be approximately $10,000. At such time that NIBLEY begins using the wastewater meter to measure wastewater flow from MILLVILLE, MILLVILLE shall pay NIBLEY for half of the cost to install the electrical power service.

4. Ownership/Maintenance/Connections - Millville's Wastewater System. It is agreed that all lines and other wastewater-related appurtenances upstream from metering device(s) referenced in the last paragraph, which are not a part of the NIBLEY wastewater system, nor that used in common by NIBLEY and MILLVILLE shall be solely owned and maintained by MILLVILLE. However, until such time that MILLVILLE hires the necessary licensed staff to perform such maintenance, MILLVILLE desires to contract with NIBLEY to have NIBLEY's licensed wastewater technicians perform such maintenance. The cost for such maintenance shall be billed at actual cost to MILLVILLE. Notwithstanding any maintenance of MILLVILLE's wastewater system that may be provided by NIBLEY staff, MILLVILLE shall remain responsible for regulatory compliance of MILLVILLE's Wastewater System, including maintaining necessary permitting or approvals for operation of MILLVILLE's system from any and all regulatory agencies. MILLVILLE shall notify NIBLEY of all connections to the system.

5. Payments to Nibley. MILLVILLE shall pay to NIBLEY for the perpetual right to access and use the referenced COMMON SEWER SYSTEM IMPROVEMENTS and related appurtenances the following sums:

A. Pro-rata Share of Expenses. The referenced COMMON SEWER SYSTEM improvements were installed so as to create excess capacity, which MILLVILLE shall be entitled to access and use once it constructs and installs a wastewater collection system within its corporate limits. Because the common sewer system improvements have been enlarged for this purpose, MILLVILLE agrees to pay a proportional share of capital improvement, modification, repair, replacement, and maintenance expenses incurred in connection with said improvements, based upon the percentages stated in paragraph 1, above, notwithstanding the fact that MILLVILLE is not actually fully utilizing the referenced improvements, currently, and that it will only be collecting wastewater from a small portion of its city initially. Because said improvements have been designed and were constructed and installed with excess capacity for MILLVILLE, MILLVILLE understands and agrees that it shall be required to pay its proportional share of the expenses as contemplated in paragraph 1, above, in order that MILLVILLE pays for the additional expenses associated with the creation and maintenance of such excess capacity. At the present time, the primary operational expense that is expected to be incurred will be for electricity to run the pump station, and NIBLEY agrees to pay all of the expenses incurred for electricity until such time that MILLVILLE connects to the common sewer system improvements and begins utilizing the same. At that time, payment for the electricity used by the pump station shall be prorated and paid by each party based on the actual proportional usage made by each party of said pump station.

In order to serve the new Ridgeline High School, MILLVILLE has installed a limited system to convey wastewater across the 2600 South bridge to a newly-installed wastewater metering station at SR165 and 2600 South, which connects to the 2600 South trunk line. Because the initial wastewater flow amounts are expected to be limited, due to only a small

portion of MILLVILLE being initially sewered, flow rates from MILLVILLE shall be calculated based upon culinary water meter readings from each of the buildings connected to the wastewater collection system. In the case that any of these buildings might use culinary water for outside irrigation, wintertime culinary water meter readings may be used to calculate the year-round wastewater flow rate. At such time that wastewater flow reaches a minimum flow that can be accurately measured by MILLVILLE's wastewater metering station, as determined by NIBLEY's Public Works Director, the meter shall be brought into service and this agreement shall be revisited and revised as necessary.

B. Capital Improvements-Upgrading. Capital improvement costs for repair, replacement, or maintenance of the referenced, COMMON SEWER SYSTEM IMPROVEMENTS shall also be shared on the basis of the percentages contemplated in paragraph 1, above.

6. Millville's Continuing Obligation. It is understood and agreed that in the event Millville determines not to or is unwilling to construct and install a wastewater collection system within its corporate limits and therefore does not utilize the referenced, COMMON SEWER SYSTEM IMPROVEMENTS, MILLVILLE shall remain obligated for and liable to pay all amounts required by this Agreement, whether for initial construction and installation or subsequent maintenance, replacement, and repair.

7. System Responsibility. Each party shall be responsible for their own collection system and trunk lines, and each agrees to indemnify and hold the other harmless for loss, damage, or claims of any kind arising from their own acts or neglect; and, each shall hold the other harmless from any debt or other payment obligation, treatment or collection problems, concerns, or liabilities, it being the express intention of the parties that each shall be responsible for their own wastewater collection systems and all claims and liabilities for which each is responsible whether under the terms of this Agreement or otherwise resulting from their own acts or neglect.

8. Agreement with Logan for Treatment Services. MILLVILLE shall be fully responsible for negotiating a Wastewater Treatment Service Agreement with Logan City so as to enable MILLVILLE to utilize the referenced, COMMON SEWER SYSTEM IMPROVEMENTS. Any inability or failure of MILLVILLE to so negotiate such a treatment services agreement shall not affect MILLVILLE's responsibilities for initial and on-going payments as required hereunder. However, with approval from Logan City, MILLVILLE may pay NIBLEY for MILLVILLE's pro-rata share of the costs from Logan City to treat wastewater transported through NIBLEY, with such costs being calculated as contemplated in paragraph 5.A. above. In the event that NIBLEY elects to change treatment providers or operate its own treatment facility, MILLVILLE may elect to either construct its own infrastructure at MILLVILLE's cost to continue to deliver wastewater to Logan, or MILLVILLE may continue to share NIBLEY's collection infrastructure and shall enter in an agreement with the new treatment facility for treatment of MILLVILLE's wastewater. Any costs related to MILLVILLE's decision to pursue either of these options shall be paid by MILLVILLE. In the event that MILLVILLE elects to treat its wastewater at a different location than NIBLEY, NIBLEY may purchase the

capacity in the COMMON SEWER SYSTEM IMPROVEMENTS reserved for MILLVILLE. The cost will be based upon the original amount paid by MILLVILLE to construct the COMMON SEWER SYSTEM IMPROVEMENTS.

9. Effective Period. This Agreement shall remain in effect until otherwise terminated by mutual agreement of the parties.

10. Payment Due Date. All amounts due to NIBLEY from MILLVILLE shall be billed on an annual basis to MILLVILLE by NIBLEY; and MILLVILLE shall pay all amounts due within thirty (30) days of the billing statement date. Any amounts not paid within said thirty (30) day period shall bear interest at the rate of one percent (1%) per month from the thirty-first (31st) day after said billing statement date until paid.

11. Damages and Expenses. All costs, damages and expenses (including but not limited to attorney's fees and the reasonable value of equipment and employee time) incurred by a non-breaching party in enforcing the terms and provisions of this Agreement, whether by filing suit or otherwise, because of a default or a breach by the breaching party to this Agreement or its residents' failure to abide by this Agreement or failure to comply with applicable rules and ordinances regulating discharge of materials into the sewage collection system, shall be born and paid by the breaching party.

NIBLEY CITY CORPORATE SEAL CACHE COUNTY, UT

CITY OF NIBLEY

By _____
Its Mayor

ATTEST:

_____
City Recorder

CITY OF MILLVILLE

By _____
Its Mayor

ATTEST:

_____
City Recorder

Approved by Millville City Council as attached with documents.
12-5-16

APPROVED AS TO FORM:

Nibley City Attorney

Millville City Attorney

EXHIBIT A

INTER-CITY SEWAGE SYSTEM IMPROVEMENTS COST SHARING AGREEMENT

THIS AGREEMENT, made and entered into this 3 day of August, 2000, by and between the CITY OF NIBLEY, hereinafter "NIBLEY", and the CITY OF MILLVILLE, hereinafter "MILLVILLE":

WITNESSETH:

WHEREAS, neither NIBLEY nor MILLVILLE currently has a municipal sewage collection system, but the governing bodies for both Cities desire to install a collection system for sewage in each City; and

WHEREAS, NIBLEY is located geographically closer to Logan City which has a sewage lagoon treatment facility, presently upgraded and capable of handling and treating the sewage of NIBLEY and potentially, also MILLVILLE; and

WHEREAS, NIBLEY has, or in the near future will, enter into an Inter-City Sewage Treatment Service Agreement whereby and whereunder Logan will accept and treat sewage from NIBLEY; and

WHEREAS, NIBLEY is in the process of obtaining funding, feasibility studies and construction plans for a municipal sewage collection system whereby NIBLEY can provide municipal sewage collection services for the majority of its residents; and

WHEREAS, in the event that MILLVILLE CITY should determine in the future to construct its own municipal sewage collection system, it would be more cost-efficient and advisable for MILLVILLE to be entitled and able to transport the sewage collected by its own sewage collection system through a portion of NIBLEY's sewage collection system for delivery to and treatment by Logan City; and

WHEREAS, in anticipation of the construction of a municipal sewage collection system by MILLVILLE, MILLVILLE has negotiated with NIBLEY and reached an agreement whereby, NIBLEY is willing to cooperate and provide for the construction of excess capacity in certain components of NIBLEY's municipal sewage collection system to be utilized by MILLVILLE in conveying its municipal sewage to Logan's sewage lagoon treatment facility at such time as a municipal sewage collection system is constructed by MILLVILLE; and

WHEREAS, the parties to this Agreement desire to enter into an agreement in writing, whereby both parties agree to participate in the costs of construction and maintenance of certain components of

NIBLEY's sewer collection system, to create an excess capacity which may be utilized by MILLVILLE, and which Agreement provides for MILLVILLE's entitlement to utilize the referenced components as a part of NIBLEY's municipal sewage collection system;

NOW, THEREFORE, in consideration of the mutual covenants and undertakings hereinafter stated to which each party hereby binds and commits itself, it is agreed as follows:

1. Enhanced Sewer System Improvements for Common Use. NIBLEY agrees to participate with MILLVILLE and MILLVILLE agrees to participate with NIBLEY in the construction of an enlarged sewer interceptor or trunk line through NIBLEY, currently contemplated to be built along 2600 South Street to a pump or lift station; an enlarged pump or lift station as required to lift wastewater to a force main pipeline; and an enlarged force main pipeline which will run from the referenced pump station to its connection with Logan City's wastewater collection system, all of said components to be constructed and installed as part of the proposed Nibley Wastewater Project for the year 2000, hereinafter sometimes referred to as the "common sewer system improvements".

2. Cost Division for Shared Improvements. The referenced enlarged sewer interceptor or trunk line, pump station, and force main pipeline, together with all related appurtenances, shall be constructed and installed as part of the proposed Nibley Wastewater Project for the year 2000, but shall be jointly financed and paid for by NIBLEY and MILLVILLE based upon the estimated costs and percentage of participation as proposed by Sunrise Engineering, Inc. per its January 10, 2000, letter to Larry Anhder of Nibley City, a copy of which is attached to this Agreement as Exhibit "A". In the event that Logan City should participate in a portion of the cost of any of said components, an appropriate adjustment shall be made to the figures in Exhibit "A". The cost figures contained in Exhibit "A" are estimates only, and the actual cost for the construction and installation of said common sewer system improvements and related appurtenances shall be the final figure used for proration, division, and financing by the respective parties to this Agreement. The referenced Exhibit "A" has been reviewed by both parties, and it is hereby accepted as binding on each party, subject to the terms of this Agreement.

3. Modification, Maintenance, Capital Improvements, and Repair of Common Sewer System Improvements. Any modification to the referenced, common sewer system improvements, and all major maintenance, replacement, capital improvements to and repair

costs for the referenced, common sewer system improvements shall be shared and paid for by each party based on the same percentage prorations as stated in Exhibit "A", until new or different percentage prorations are determined by both parties to be appropriate, which new or different percentage prorations shall be reduced to writing and attached to this Agreement as an addendum, which shall be signed by representatives of both parties. Operation expenses shall be shared and paid by each party as stated in paragraph 7.A., below.

4. Utilization by Millville of the Common Sewer System Improvements. MILLVILLE anticipates that in the future, it will, upon obtaining necessary approvals and financing, design, construct, and install a sewage collection system within its corporate limits at its sole cost and expense, including the necessary trunk line or lines extending from the collection system to a point agreed upon by both parties where a measuring device or devices will be installed and connection will be made to the common sewer interceptor or trunk line along 2600 South Street in NIBLEY. MILLVILLE shall be obligated to install at its own expense such gravity sewer lines, pump stations, pressure sewer lines, and all other related appurtenances as are determined necessary and appropriate in order to construct and install its own sewage collection system within its corporate limits.

5. Meters. Meters or other measuring devices installed at the connection point for MILLVILLE's sewer collection system on the enlarged sewer interceptor line along 2600 South Street shall be purchased, installed and paid for by MILLVILLE. However, they shall be turned over to and owned and maintained by NIBLEY, after acceptance of them by NIBLEY, with MILLVILLE agreeing to pay or reimburse NIBLEY for all reasonable costs to operate, maintain, repair, and/or replace said devices. MILLVILLE shall have the right to verify the costs of maintenance and repair as well as verify the meter readings and the working order of the devices at any time.

6. Ownership/Maintenance/Connections - Millville's Sewer System. It is agreed that all lines and other sewer-related appurtenances above the metering device(s) referenced in the last paragraph, which are not a part of the NIBLEY sewage system nor that used in common by NIBLEY and MILLVILLE shall be solely owned and maintained by MILLVILLE.

7. Payments to Nibley. MILLVILLE shall pay to NIBLEY for the perpetual right to access and use the referenced common sewer

system improvements and related appurtenances the following sums:

A. Pro-rata Share of Routine Maintenance and Operational Expenses. The referenced common sewer system improvements are being installed so as to create excess capacity which MILLVILLE shall be entitled to access and use once it constructs and installs a sewage collection system within its corporate limits. Because the common sewer system improvements have been enlarged for this purpose, MILLVILLE agrees to pay a proportional share of capital improvement, modification, repair, replacement, and maintenance expenses incurred in connection with said improvements, based upon the percentages stated in Exhibit "A" and as contemplated in paragraph 3, above, notwithstanding the fact that MILLVILLE is not actually utilizing the referenced improvements, currently. Because said improvements have been designed and will be constructed and installed with excess capacity for MILLVILLE, MILLVILLE understands and agrees that it shall be required to pay its proportional share of the expenses as contemplated in paragraph 3, above, in order that MILLVILLE pays for the additional expenses associated with the creation of such excess capacity. At the present time, the primary operational expense that is expected to be incurred will be for electricity to run the pump station, and NIBLEY agrees to pay all of the expenses incurred for electricity until such time that MILLVILLE connects to the common sewer system improvements and begins utilizing the same. At that time, payment for the electricity used by the pump station shall be prorated and paid by each party based on the actual proportional usage made by each party of said pump station. It is agreed that any other operational expenses that are incurred, once the referenced common sewer system improvements have been installed and are being utilized, will be reviewed by the parties; and, either NIBLEY will pay the same until MILLVILLE connects to the system and begins paying its proportionate share, or where appropriate, before MILLVILLE makes connection and uses said improvements, a proration and division of said expenses shall be made, with each party to pay its proportional share.

B. Capital Improvements-Upgrading. Capital improvement costs for repair, replacement, or maintenance (other than routine maintenance) of the referenced, common sewer system improvements shall also be shared on the basis of the percentages contained in Exhibit "A", as contemplated in paragraph 3, above.

8. Millville's Continuing Obligation. It is understood and agreed that in the event Millville determines not to or is unwilling to construct and install a sewage collection system within its corporate limits and therefore does not utilize the referenced, common sewer system improvements, MILLVILLE shall

remain obligated for and liable to pay all amounts required by this Agreement, whether for initial construction and installation or subsequent maintenance, replacement, and repair.

9. System Responsibility. Each party shall be responsible for their own collection system and trunk lines, and each agrees to indemnify and hold the other harmless for loss, damage, or claims of any kind arising from their own acts or neglect; and, each shall hold the other harmless from any debt or other payment obligation, treatment or collection problems, concerns, or liabilities, it being the express intention of the parties that each shall be responsible for their own sewage collection systems and all claims and liabilities for which each is responsible whether under the terms of this Agreement or otherwise resulting from their own acts or neglect.

10. Agreement with Logan for Treatment Services. MILLVILLE shall be fully responsible for negotiating a Sewer Treatment Service Agreement with Logan City so as to enable MILLVILLE to utilize the referenced, common sewer system improvements and any inability or failure of MILLVILLE to so negotiate such a treatment services agreement shall not effect MILLVILLE's responsibilities for initial and on-going payments as required hereunder.

11. Effective Period. This Agreement shall remain in effect until otherwise terminated by mutual agreement of the parties.

12. Payment Due Date. All amounts due to NIBLEY from MILLVILLE shall be billed on a monthly basis to MILLVILLE by NIBLEY; and MILLVILLE shall pay all amounts due within thirty (30) days of the billing statement date. Any amounts not paid within said thirty (30) day period shall bear interest at the rate of one percent (1%) per month from the thirty-first (31st) day after said billing statement date until paid.

13. Damages and Expenses. All costs, damages and expenses (including but not limited to attorney's fees and the reasonable value of equipment and employee time) incurred by a non-breaching party in enforcing the terms and provisions of this Agreement, whether by filing suit or otherwise, because of a default or a breach by the breaching party to this Agreement or its residents' failure to abide by this Agreement or failure to comply with applicable rules and ordinances regulating discharge of materials into the sewage collection system, shall be born and paid by the breaching party.

CITY OF NIBLEY

ATTEST:

By _____
Its Mayor

_____
City Recorder

CITY OF MILLVILLE

ATTEST:

By _____
Its Mayor

_____
City Recorder

APPROVED AS TO FORM:

Nibley City Attorney

Millville City Attorney

blj\nibley\sewage cost sharing agrd
N-6512.69

EXHIBIT "A"

SUNRISE ENGINEERING INC.
12227 South Business Park Drive • Suite 220
Draper, Utah 84020
TEL (801) 523-0100 • FAX (801) 523-0990

FILLMORE, UT
MESA, AZ
AFTON, WY
SALT LAKE CITY, UT
PRESCOTT VALLEY, AZ
WASHINGTON, UT
BULLHEAD CITY, AZ

January 10, 2000

Larry Anhder
Nibley City
625 West 3200 South
Nibley, UT 84321

Re: Millville Interlocal Agreement

Dear Larry,

This letter summarizes the sources of information and the assumptions made in order to create a fair and equitable division of the costs between Nibley and Millville for the construction of the proposed sewer improvements. These improvements include a jointly owned sewer interceptor and a lift station and a force main pipeline that will convey the wastewater from this interceptor to Logan City's waste water collection infrastructure and ultimately to the Logan's lagoon treatment facilities. The interceptor and lift station with force main are to be installed as part of the proposed Nibley Wastewater Project for the year 2000.

The cost will be borne by each municipality proportionally to the approximate contributing population of each entity to individual sections of the proposed interceptor and to the lift station and force main. Both municipalities anticipate funding their portion of the proposed project with funding packages from the Utah State Department of Environmental Quality (UDEQ). Funding for both municipalities was approved by the Utah State Water Quality Board on November 19, 1999. The approval is contingent on several conditions, one of which is an executed interlocal agreement between Nibley and Millville. This letter establishes the basis of cost division for this agreement.

Population figures for the two (2) municipalities were taken from the Bear River Association of Governments (BRAG) population and growth estimates. These estimates are as follows:

Year	*Nibley*	*Millville*
2000	2,097	1,799
2020	4,651	3,211

The projected populations for the year 2020 were employed to divide costs on the lift station and force main pipeline.

In order to account for commercial use in Millville and Nibley, a multiplier was applied to each population figure to account for commercial growth. Nibley used a multiplier of 1.10 and Millville was multiplied by 1.05. These multipliers for commercial use yielded 20 year equivalent populations of 5,116 for Nibley and 3,372 for Millville. Sizing of the proposed improvements was based on the equivalent populations.

These estimates yield a cost break down of 60% for Nibley and 40% for Millville for the pump station and force main. Logan City will also pay a portion of the lift station in proportion to the projected population from Logan that will contribute to the lift station and force main line.

The cost participation of the interceptor line varies along its length as additional flow from Nibley's population is added to the pipeline. Over the length of the interceptor, these estimates provide an approximately equal breakdown of costs between the two cities. For the cost of the interceptor line, the division between the two cities shall be considered to be a 50%-50% split as shown in the proposed UDEQ funding package for the project.

The exact cost division per section of the proposed interceptor line is as follows:

Section	*Nibley*	*Millville*
5850 ft 18" PVC pipe	35%	65%
9470 ft 21" PVC pipe	55%	45%

The final cost division for the two municipalities for this project is as appears in the UDEQ funding package. This breakdown is shown below:

Description	*Nibley*	*Millville*	*Total*
Interceptor	$413,683	$413,683	$827,366
Pump Station and Force Main	$360,915	$237,617	$598,532
Construction Contingency	*	$40,700	*
Engineering Design	*	$25,000	*
Construction Management	*	$32,000	*

*Note -- Engineering and Contingency cost for Nibley have not been separated from the overall project funding but are proportionally equal to those of Millville with relation to improvements costs.

If you have any questions, please feel free to contact our office at (801) 523-0100.

Sincerely,
SUNRISE ENGINEERING, INC.

Brian G. Davis
Project Engineer

cc: File

INTER-CITY SEWAGE SYSTEM COST REIMBURSEMENT AGREEMENT

THIS AGREEMENT, is made and entered into this 2 day of December, 2004, by and between the CITY OF NIBLEY, hereinafter "Nibley", and the CITY OF MILLVILLE, hereinafter "Millville":

WITNESSETH:

WHEREAS, Nibley and Millville entered into an Inter-City Sewage System Improvements Cost Sharing Agreement on the 3rd day of August, 2000, wherein Millville and Nibley agreed to jointly participate in the construction and financing of an enlarged sewer interceptor or trunk line through Nibley, to be constructed along 2600 South Street to a pump or lift station, with an enlarged pump or lift station as required to lift waste water to a force main pipeline; and an enlarged force main pipeline which will run from the referenced pump station to its connection with Logan City's waste water collection system; and

WHEREAS, all of said components were to be constructed and installed as part of the then-proposed Nibley Wastewater Project beginning in the year 2000, which said components would make it possible for Millville to use said "common sewer system improvements" at such time as Millville may, in the future, determine to finance, design, construct and install a sewage collection system within Millville's corporate limits and utilize the common sewer system improvements for transporting the sewage collected by Millville through Nibley to the Logan City Sewer Treatment Plant; and

WHEREAS, Millville arranged for its own financing in order that Millville would be able to pay for the increased capacity of the common sewer system improvements, which increased capacity was designed and constructed specifically for the purpose of giving Millville the option to utilize the common sewer system improvements once Millville had constructed and installed its own sewer collection system; and

WHEREAS, said Inter-City Sewage System Improvements Cost Sharing Agreement provides for, among other things, the pro-rata sharing of certain costs incurred for the construction, routine maintenance and operational expenses related to the common sewer system improvements; and

WHEREAS, at the time the construction of the Nibley sewer collection system was being completed, Nibley was advised that the construction company had incurred extra expenses as a result of, among other things, the need to pump an unexpectedly greater amount of water from the trenches dug for the construction and installation of the sewer system improvements; and

WHEREAS, Nibley and the contractor were able to reach an agreement as to the extra amount of compensation to be paid to the contractor, with a portion of said extra compensation being related to the construction of the common sewer system improvements, thereby necessitating an additional pro-rata payment by Millville to pay its share of the extra compensation paid to the sewer system contractor, which amount has been determined and agreed to by Nibley and Millville; and

WHEREAS, in order to make the extra payment required and agreed to be paid to the contractor, it was necessary to borrow additional funds which Nibley arranged for and completed; and

WHEREAS, rather than have Millville arrange for and obtain funding for the additional amount owed by Millville under said circumstances, it was determined that it would be less expensive and more efficient if Nibley were to borrow all of the funds determined necessary in order to complete payments required to the sewer system contractor, rather than having Millville arrange for and issue its own bond for the amount Millville owed, in a separate proceeding from that required of Nibley; and

WHEREAS, Nibley did obtain the required funds for both Nibley and Millville, and it is now agreed by both Nibley and Millville that the extra amount owed by Millville as its share of the increased costs is to be paid directly to Nibley, which funds will be used by Nibley to retire the additional loan that Nibley obtained; and

WHEREAS, both Nibley and Millville desire to have Nibley's reimbursement obligation formally reduced to writing and properly executed by both parties and their attorneys, whereby the amount owed and the other details relating to the reimbursement to Nibley are clearly set forth for present and future reference; and

WHEREAS, this Agreement is the written document contemplated by the parties;

NOW, THEREFORE, in consideration of the mutual covenants and undertakings hereinafter stated, to which each party hereby binds and commits itself, it is agreed as follows:

1. Additional Funds Obtained by Nibley on Behalf of Both Parties to this Agreement. It is understood and agreed that in order to minimize the costs incurred and other extra work that is associated with issuing bonds to borrow money by a municipality, Nibley made arrangements to borrow the extra funds necessary to pay all final costs and expenses incurred in the construction of the Nibley sewer system, including the common sewer system improvements and the extra compensation due to the sewer system contractor by both Nibley and Millville, the circumstances of which are more particularly described above in the Recitals for this Agreement.

2. Amount Owed by Millville. It is agreed between the parties that Millville's pro-rata share of the extra compensation to the contractor because of unforeseen circumstances, as described above, is in the amount of $76,865.00. It is also agreed between the parties that Millville's pro-rata share of the bond issuance costs related to the new bond issued by Nibley in order to cover the extra costs referred to herein, is in the amount of $2,551.00. Therefore, the total, pro-rata amount due from Millville to Nibley is $79,416.00.

3. Reimbursement Terms.

A. It is agreed that Millville shall pay to Nibley the total amount of $79,416.00 in ten (10) equal, annual payments or installments of $7,941.60. Inasmuch as Nibley was able to obtain the loan, of which this amount due from Millville to Nibley is a part, on a "no interest" basis, no interest will be charged by Nibley to Millville except as provided below.

B. Millville hereby promises to pay to Nibley at the Nibley City Office, at 625 West 3200 South, Nibley, Utah 84321, the total sum of $79,416.00 as follows:

> $7,914.60 on the first day of October, 2005, and $7,914.60 on the first day of October of each year thereafter until the first day of October, 2014, on which date the unpaid balance of this Note, together with accrued interest thereon, if any, are due and payable and shall be paid in full. Each payment made shall be applied first to late fees, if any, second to interest accrued to the date of payment, if any, and the balance to reduction of principal, and all or any part of this amount due may be prepaid at any time without penalty.

C. If any installment of principal is not paid within fifteen (15) days after its due date, Millville agrees to pay a late charge of three percent (3%) of the amount unpaid after such fifteen (15) days. Said late charge shall be made with, at the time of, in addition to, and as a condition to Nibley accepting the payment of a delinquent amount. If any payment is not paid on or before the due date or within the said fifteen (15) day grace period, then said unpaid installment shall also bear interest at the rate of twelve percent (12%) per annum from the sixteenth day of October in any given year that an installment payment is delinquent, until said installment is paid in full and the default cured.

D. If default occurs in the payment of any installment, including principal and late fee and interest, if any, or any part thereof, then Nibley, at its option and upon giving Millville a fifteen (15) day written notice of default, which notice remains uncomplied with at the end of the fifteen (15) day period stated, may declare the entire principal balance and accrued interest, if any, due and payable.

4. A. Appropriations. During the term of this Agreement, Millville agrees to include in its annual budget, the amount necessary to pay the principal installment, plus any late fee and accrued interest, if any, which shall be due on October 1, of the fiscal year for which the budget is adopted, beginning on October 1, 2005. Millville further agrees to take such action as may be necessary or desirable to assure the availability of funds appropriated to make such payment for each fiscal year during the term of this Agreement.

B. Non-appropriation. If Millville fails to specifically appropriate sufficient funds to make the payment due in any fiscal year during the term of this Agreement, and no appropriation is legally made within two (2) weeks after the date of written demand by Nibley, an Event of Non-

appropriation shall have occurred, and Nibley may pursue the remedies stated below or otherwise provided for in this Agreement, in the above-referenced Inter-City Sewage System Improvements Cost Sharing Agreement, or by Utah law.

C. Default. If Millville fails to make any payment due hereunder, a default shall have occurred, as provided herein. If Millville fails to make any such payment, or if an Event of Non-appropriation occurs, Nibley may utilize any or all of the remedies provided for in this paragraph, in this Agreement, by Utah law and/or in the above-referenced Inter-City Sewage System Improvements Cost Sharing Agreement.

D. Remedies. Whenever a Default and/or an Event of Non-appropriation shall have occurred, Nibley may exercise the following remedies, and may exercise any and/or all of them in any order determined best by Nibley and the remedies are to be cumulative and not exclusive as to any one that might be exercised:

(i) As provided above, by written notice to Millville, Nibley may declare all amounts coming due during the current fiscal year and/or during all remaining fiscal years to be immediately due and payable; and Nibley may take any action at law or in equity necessary or desirable to enforce its rights to receive any installment that is delinquent, together with any late fees and interest that may apply, together with any other amounts, whether of principal, late fees and/or interest by reason of having declared all amounts due and payable, then remaining owing to Nibley under the terms of this Agreement.

(ii) Until all amounts due and payable under the terms of this Agreement have been paid current through the fiscal year during which any default has occurred and/or as a result of Nibley having declared all amounts due and payable by reason of Millville's default, Millville shall have no right to connect to and/or utilize the common sewer system improvements, it being expressly agreed that Millville's right to so utilize said common sewer system improvements being expressly conditioned upon remaining current and fulfilling its obligations in full, under the terms and provisions of this Agreement.

(iii) Nibley may also proceed under any provision of this Agreement, the above-referenced Inter-City Sewage System Improvements Cost Sharing Agreement or as provided by the laws of the State of Utah in order to enforce its rights hereunder.

5. Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties, their permitted successors and assigns.

6. Assignment of Either Party's Interest. This Agreement cannot be assigned, transferred or sold, nor can the amount due and owing be assigned, transferred, sold or assumed, in any manner, without the prior written consent of both parties hereto.

7. Attorneys' Fees on Default. Should either party default in any of the covenants or agreements contained in this Agreement, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee, which may arise or accrue from enforcing this Agreement or in pursuing any remedy provided for by the laws of the State of Utah, whether such remedy is pursued by filing a suit or otherwise.

IN WITNESS WHEREOF, the parties have hereunto set their hands on the day and year first above written.

ATTEST:

City Recorder

NIBLEY CITY CORPORATE SEAL CACHE COUNTY, UT

NIBLEY CITY, a Utah municipal corporation

By _____
Its Mayor

ATTEST:

City Recorder

MILLVILLE CITY, a Utah municipal corporation

By _____
Its Mayor

APPROVED AS TO FORM:

Nibley City Attorney

APPROVED AS TO FORM:

Millville City Attorney

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N-6512 08

APPENDIX C

ERU FLOW CALCULATIONS

NIBLEY FLOWS PER ERU
Based on 2014 data collection
(See 2014 Nibley City sewer master plan report for more details)

The flows are based on the assumptions used to calibrate the 2014 model to match the 2014 flow data that was collected at various locations throughout the collection system.

Peak Flow per Equivalent Residential Unit (ERU)

The peak flow per ERU was estimated to provide a tool that can be used to approximate how many more ERU's can be added upstream of a given pipe in the system. The actual peak flows vary throughout the system based on flow routing, so one peaking factor is not consistent throughout the collection system. The model should be maintained and updated as new development is proposed to verify that the system has adequate capacity.

In order to estimate the peak flow per ERU, an average residential lot size had to be assumed because the I&I is added to the model on a per acre basis. The assumed lot size used was two homes per gross acre. A residential area with one-third acre lots typically equates to an overall gross density of approximately two homes per acre because of the space the roadways occupy.

The following formula was used to determine the peak flow per average ERU.

Formula for Peak Flow Per ERU

$$\left(\frac{60\ Gal}{(Pers * Day)} * \frac{1\ Day}{24\ Hour} * \frac{1\ Hour}{60\ Min} * \frac{3.8\ Pers}{ERU} * 1.8\ PF\right) + \left(\frac{0.068\ Gal}{Min * Ac} + \frac{0.04\ Gal}{Min * Ac} + \frac{0.038\ Gal}{Min * Ac}\right) * \frac{1\ Ac}{2\ ERU} = \mathbf{0.36}\ \frac{\boldsymbol{Gal}}{\boldsymbol{Min * ERU}}$$

UNIT ABBREVIATIONS

Gal = Gallons of flow
Pers = Person
Min = Minutes
ERU = Equivalent Residential Unit
PF = Peaking factor (Unitless)
Ac= Acres of contributing area

COLOR KEY

- Sanitary Flows
- Winter infiltration based on winter flow meter data
- Additional infiltration in the summer based on Hansen Lift Station summer flow data
- Inflow from 2-year 3-hour storm event based on flow spikes recorded at Hansen Lift Station meter in August 2014

Estimated Daily Contribution Per Capita

The contribution per capita in Nibley has been estimated based on the results of the calibrated 2014 model and the assumed density of two homes per acre. This was done to provide a comparison of the calibrated flows per capita as compared with assumed flows used for the design of the collection system. The approximate contribution per capita is 90 gallons per day. This number is calculated by adding the peak I&I assumed to come from one-half acre of developed land, to the estimated sanitary flow per home and dividing by the number of people per home. As shown in the formula below.

Formula for Flow Contrition per Capita

$$\left(\left(\frac{\mathbf{60\ Gal}}{\mathbf{Pers * Day}} * \frac{\mathbf{3.8\ Pers}}{\mathbf{ERU}}\right) + \left(\frac{217\ Gal}{(Ac * Day)} * \frac{1\ Ac}{2\ ERU}\right)\right) * \frac{\mathbf{1\ ERU}}{\mathbf{3.8\ Pers}} = \frac{\mathbf{90\ Gal}}{\mathbf{Pers * day}}$$

UNIT ABBREVIATIONS

Gal = Gallons of flow
Pers = Person
Min = Minutes
ERU = Equivalent Residential Unit
PF = Peaking factor (Unitless)
Ac= Acres of contributing area

COLOR KEY

Sanitary Flows per ERU
People per ERU
Summer Infiltration and Inflow (217 GPAD)

APPENDIX D

SERVICE AREA TABLE

Service Area ID	Area (ac)	Receiving Manhole	Average Day Flow (gpm)	Approximate Planned ERU's
1	26.864787	E5	10.821	34
2	40.978505	B12	5.918	19
3	178.603904	A93	57.228	180
4	64.691388	A35	57.888	182
5	47.310297	A18A	25.352	80
6	91.836686	E16	24.347	76
7	95.605718	E26	30.788	97
8	25.01662	X21	8.398	26
9	46.261335	A9	37.443	117
10	21.762441	C17	8.392	26
11	14.04403	B7	4.262	13
12	15.120773	A25	4.997	16
13	14.217676	A45	2.652	8
14	86.615332	C23	34.567	108
15	39.454671	D4	3.311	10
16	43.24129	C11	4.985	16
17	73.942903	A90	20.585	65
18	9.06594	A83	3.541	11
19	22.12025	A87	5.078	16
20	18.92596	A73	5.316	17
21	7.406666	A75	1.449	5
22	40.547027	A70	5.42	17
23	44.416953	A64	10.461	33
24	45.74552	A60	7.087	22
25	25.870534	A54	6.74	21
26	18.156503	A49	5.544	17
27	11.943312	A40	2.848	9
28	15.460212	P6	1.967	6
29	65.12604	C1	86.7	272
30	21.816886	C5	3.174	10
31	16.893754	D12E	4.788	15
32	13.809489	D11	4.444	14
33	5.669719	D9	1.779	6
34	25.340783	D7	6.917	22
35	21.551659	D5	6.281	20
36	18.729384	D1	4.724	15
37	20.581883	D1A	10.047	32
38	5.865498	A29	3.354	11
39	6.445292	A24	2.412	8
40	60.535225	A16	15.781	50
41	17.342964	A20	8.332	26
42	19.933923	A20A	10.324	32
43	7.240375	B3	2.449	8
44	59.848079	C23	20.422	64
45	23.160464	C21A	10.242	32
46	20.219573	C20	1.34	4
47	26.060997	C19D	12.244	38

Service Area ID	Area (ac)	Receiving Manhole	Average Day Flow (gpm)	Approximate Planned ERU's
48	31.636669	A4	22.71	71
49	29.790169	X1	12.371	39
50	26.574082	X2	14.242	45
51	23.233289	X4	10.847	34
52	23.871719	X6	5.292	17
53	10.968459	X22	4.578	14
54	24.525178	E19A	10.099	32
55	14.872647	E19	4.54	14
56	12.99289	E17A	3.792	12
57	10.861698	E17	4.151	13
58	50.416725	A32	8.108	25
59	57.857749	A31	74.508	234
60	31.729314	E13	10.725	34
61	22.131878	E15	5.026	16
62	33.129646	E11	22.25	70
63	8.745789	E3	3.374	11
64	8.225325	E2	3.558	11
65	7.598735	E1	3.336	10
66	78.93936	B8A	39.474	124
67	32.522108	B14A	12.046	38
68	33.84365	B10	15.676	49
69	43.724189	B17	12.34	39
70	76.510171	C14	30.633	96
71	5.305214	E21	1.942	6
72	37.979341	A79	10.172	32
73	19.393675	B16	5.606	18
74	25.204614	C3	6.362	20
75	115.05372	JCT-26	27.738	87
76	27.562989	JCT-26	6.069	19
77	126.733365	JCT-18	82.703	259
78	103.682043	JCT-42	43.975	138
79	58.03411	JCT-66	25.208	79
80	102.770026	JCT-12	86.942	273
81	85.791984	JCT-16	119.073	374
82	47.195327	C24	36.547	115
83	58.327266	JCT-192	24.031	75
84	100.190966	JCT-190	109.281	343
85	61.839906	JCT-188	87.526	275
86	77.282218	JCT-24	46.065	145
87	22.014537	C22	5.278	17
88	49.323128	JCT-174	32.657	102
89	30.193239	JCT-180	3.903	12
90	90.900196	JCT-170	41.722	131
91	48.356779	JCT-168	30.226	95
92	64.116619	JCT-52	122.65	385
93	25.293617	JCT-186	3.349	11
94	32.153201	JCT-58	0	0

Service Area ID	Area (ac)	Receiving Manhole	Average Day Flow (gpm)	Approximate Planned ERU's
95	44.016662	JCT-56	25.641	80
96	46.288863	JCT-58	14.171	44
97	55.891928	JCT-54	12.935	41
98	36.208428	JCT-54	21.71	68
99	15.821087	C7	5.226	16
100	162.251476	JCT-184	4.491	14
101	59.31143	JCT-66	31.319	98
102	29.632416	JCT-14	18.602	58
103	16.934834	D12E	9.817	31
104	12.347821	D12E	2.315	7
105	55.022851	JCT-64	37.795	119
106	22.483092	E8	7.883	25
107	23.10071	A35	23.738	74
108	8.419301	E16	17.258	54
109	14.865975	E15	25.088	79
110	28.905487	E8	12.769	40
111	67.136842	JCT-164	0	0
112	189.929645	A93	78.982	248
113	308.415657	JCT-26	131.797	413
114	216.199056	JCT-26	106.236	333
115	98.607611	JCT-94	140.185	440
116	206.657529	JCT-94	137.24	431
118	134.792066	JCT-152	92.531	290
119	211.873734	JCT-114	120.504	378

APPENDIX E

COST ESTIMATES

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

A *South West Gravity Trunk Upsize*

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 961,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 32,670	$ 32,670
2.0	**Construction Traffic Control**	5	DAYS	$ 1,093	$ 5,465
3.0	**Gravity Sewer Pipe**				
3.1	24" PVC Gravity Sewer Pipe and Bedding	1750	LF	$ 94	$ 164,500
3.2	21" PVC Gravity Sewer Pipe and Bedding	1650	LF	$ 21	$ 34,650
3.3	Dewatering - Minor (< 15 ft)	3400	LF	$ 10	$ 34,000
3.4	Connect to Existing	1	EA	$ 6,010	$ 6,010
4.0	**Single Pipe Trench Excav./Backfill**				
4.1	0-10 ft. (Large Trunk)	400	LF	$ 66	$ 26,400
4.2	10-15 ft. (Large Trunk)	3000	LF	$ 99	$ 297,000
4.3	15-20 ft. (Large Trunk)	0	LF	$ 132	$ -
5.0	**Surface Repair**				
5.1	Natural Ground	3250	LF	$ 8	$ 26,000
5.2	10-20' Depth (Asphalt - ½ Street)	150	LF	$ 71	$ 10,650
6.0	**Manholes**				
6.1	48" Manholes, 10-20 ft.	8	EA	$ 5,464	$ 43,712
6.2	Abandon Existing Manhole	0	EA	$ 1,639	$ -
7.0	**Miscellaneous Other**				
7.1	Bypass Pumping	0	DAYS	$ 1,639	$ -
7.2	Stormwater Management	1	LS	$ 5,000	$ 5,000
	ESTIMATED CONSTRUCTION COST[1]				**$ 686,000**
	Project Soft Costs [2]	15%			**$ 103,000**
	Contingency	25%			**$ 172,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 961,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes. Costs for this project do not include labor or materials associated with building up the new roadway across the slough or the actual roadway costs.

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

B	*South West Regional Gravity Sewer and Lift Station*	Revision Date:	Jul-2021
		ESTIMATED IMPROVEMENT COST:	**$ 1,941,000**

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 65,980	$ 65,980
2.0	**Construction Traffic Control**	20	DAYS	$ 1,093	$ 21,860
3.0	**Gravity Sewer Pipe**				
3.1	10" PVC Gravity Sewer Pipe and Bedding	1750	LF	$ 30	$ 52,500
3.2	Dewatering - Minor (< 15 ft)	0	LF	$ 10	$ -
3.3	Dewatering - Major (> 15 ft)	1750	LF	$ 28	$ 49,000
4.0	**Single Line Pressure Sewer Pipe**				
4.1	8" PVC Pressure Sewer Pipe and Bedding	1100	LF	$ 33	$ 36,300
5.0	**Single Pipe Trench Excav./Backfill**				
5.1	0-8 ft. Pressure	1100	LF	$ 28	$ 30,800
5.2	0-10 ft. (Large Trunk)	0	LF	$ 66	$ -
5.3	10-15 ft. (Large Trunk)	0	LF	$ 99	$ -
5.4	15-20 ft. (Large Trunk)	850	LF	$ 132	$ 112,200
5.5	20-25 ft. (Large Trunk)	900	LF	$ 165	$ 148,500
6.0	**Pressure Fittings and Appurtenances**				
6.1	8" Bend	3	EA	$ 1,913	$ 5,739
6.2	Isolation Valves, 6" to 12"	1	EA	$ 3,278	$ 3,278
6.3	Install Thrust Block	2	EA	$ 3,278	$ 6,556
6.4	Air-Vac Valves, Single	1	EA	$ 10,600	$ 10,600
6.5	Discharge Structure	1	EA	$ 5,464	$ 5,464
7.0	**Surface Repair**				
7.1	Natural Ground	1750	LF	$ 8	$ 14,000
7.2	0-10' Depth (Asphalt - ¼ Street)	1100	LF	$ 43	$ 47,300
7.3	10-20' Depth (Asphalt - ½ Street)	0	LF	$ 71	$ -
7.4	20-30' Depth (Asphalt - Full Street)	0	LF	$ 142	$ -
8.0	**Manholes**				
8.1	48" Manholes, 10-20 ft.	2	EA	$ 5,464	$ 10,928
8.2	48" Manholes, 20-30 ft.	2	EA	$ 13,113	$ 26,226
8.3	Abandon Existing Manhole	0	EA	$ 1,639	$ -
9.0	**Lift Stations**				
9.1	South West Regional LS - *(400 GPM, submersible, duplex)*	1	LS	$ 700,000	$ 700,000
10.0	**Miscellaneous Other**				
10.1	Bypass Pumping	2	DAYS	$ 1,639	$ 3,278
10.2	Dewatering	1	LS	$ 30,000	$ 30,000
10.3	Stormwater Management	1	LS	$ 5,000	$ 5,000
	ESTIMATED CONSTRUCTION COST[1]				**$ 1,386,000**
	Project Soft Costs [2]	15%			**$ 208,000**
	Contingency	25%			**$ 347,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 1,941,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

C ***Hansen Lift Station Upgrade Phase 1***

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 151,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 5,000	$ 5,000
2.0	**Lift Stations**				
2.1	Lift Station Upgrades (1,450 gpm, tri-plex)	1	LS	$ 100,000	$ 100,000
3.0	**Miscellaneous Other**				
3.1	Bypass Pumping	2	DAYS	$ 1,639	$ 3,278
	ESTIMATED CONSTRUCTION COST[1]				**$ 108,000**
	Project Soft Costs [2]	15%			**$ 16,000**
	Contingency	25%			**$ 27,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 151,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

D *Sierra Drive Road Upsize*

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 1,138,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 38,740	$ 38,740
2.0	**Construction Traffic Control**	10	DAYS	$ 1,093	$ 10,930
3.0	**Gravity Sewer Pipe**				
3.1	24" PVC Gravity Sewer Pipe and Bedding	2600	LF	$ 94	$ 244,400
3.2	Remove and Dispose of 12" Sewer Pipe	2600	LF	$ 25	$ 65,000
3.3	Dewatering - Minor (< 15 ft)	2600	LF	$ 10	$ 26,000
3.4	Connect to Existing	3	EA	$ 6,010	$ 18,030
4.0	**Single Pipe Trench Excav./Backfill**				
4.1	0-10 ft. (Large Trunk)	0	LF	$ 66	$ -
4.2	10-15 ft. (Large Trunk)	2600	LF	$ 99	$ 257,400
4.3	15-20 ft. (Large Trunk)	0	LF	$ 132	$ -
5.0	**Surface Repair**				
5.1	Natural Ground	2100	LF	$ 8	$ 16,800
5.2	10-20' Depth (Asphalt - ½ Street)	500	LF	$ 71	$ 35,500
6.0	**Manholes**				
6.1	48" Manholes, 10-20 ft.	10	EA	$ 5,464	$ 54,640
6.2	Abandon Existing Manhole	10	EA	$ 1,639	$ 16,390
7.0	**Miscellaneous Other**				
7.1	Bypass Pumping	15	DAYS	$ 1,639	$ 24,585
7.2	Stormwater Management	1	LS	$ 5,000	$ 5,000
	ESTIMATED CONSTRUCTION COST[1]				**$ 813,000**
	Project Soft Costs [2]	15%			**$ 122,000**
	Contingency	25%			**$ 203,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 1,138,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

E ***Hansen Lift Station Upgrade Phase 2***

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 3,983,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 10,000	$ 10,000
2.0	**Lift Stations**				
2.1	Lift Station Upgrades (4,275 gpm, tri-plex)	2	LS	$ 100,000	$ 200,000
3.0	**Single Line Pressure Sewer Pipe**				
3.1	18" PVC Pressure Sewer Pipe and Bedding	12800	LF	$ 99	$ 1,267,200
4.0	**Single Pipe Trench Excav./Backfill**				
4.1	0-8 ft. Pressure	12800	LF	$ 28	$ 358,400
5.0	**Pressure Fittings and Appurtenances**				
5.1	18" Bend	12	EA	$ 4,371	$ 52,452
5.2	Isolation Valves, 14" to 24"	4	EA	$ 8,196	$ 32,784
5.3	Install Thrust Block	12	EA	$ 3,278	$ 39,336
5.4	Air-Vac Valves, Single	4	EA	$ 10,600	$ 42,400
6.0	**Surface Repair**				
6.1	0-10' Depth (Asphalt - ¼ Street)	12800	LF	$ 43	$ 550,400
7.0	**Miscellaneous Other**				
7.1	Bypass Pumping	45	DAYS	$ 1,639	$ 73,755
7.2	Major Arterial Crossing (Gravity Boring)	1	EA	$ 163,909	$ 163,909
7.3	Irrigation Canal/Drain Crossing (Open Trench)	1	EA	$ 54,636	$ 54,636
	ESTIMATED CONSTRUCTION COST[1]				**$ 2,845,000**
	Project Soft Costs [2]	15%			**$ 427,000**
	Contingency	25%			**$ 711,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 3,983,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

J-U-B ENGINEERS, INC.

Opinion of Probable Project Cost

F ***Hollow Road Diversion and Gravity Sewer***

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 755,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 25,690	$ 25,690
2.0	**Construction Traffic Control**	20	DAYS	$ 1,093	$ 21,860
3.0	**Gravity Sewer Pipe**				
3.1	8" PVC Gravity Sewer Pipe and Bedding	1100	LF	$ 27	$ 29,700
3.2	Dewatering - Minor (< 15 ft)	1100	LF	$ 10	$ 11,000
3.3	Dewatering - Major (> 15 ft)	0	LF	$ 28	$ -
3.4	Connect to Existing	2	EA	$ 6,010	$ 12,020
4.0	**Single Pipe Trench Excav./Backfill**				
4.1	0-10 ft. (Large Trunk)	0	LF	$ 66	$ -
4.2	10-15 ft. (Large Trunk)	1100	LF	$ 99	$ 108,900
4.3	15-20 ft. (Large Trunk)	0	LF	$ 132	$ -
4.4	20-25 ft. (Large Trunk)	0	LF	$ 165	$ -
5.0	**Surface Repair**				
5.1	10-20' Depth (Asphalt - ½ Street)	1100	LF	$ 71	$ 78,100
5.2	20-30' Depth (Asphalt - Full Street)	0	LF	$ 142	$ -
6.0	**Manholes**				
6.1	48" Manholes, 10-20 ft.	3	EA	$ 5,464	$ 16,392
6.2	48" Manholes, 20-30 ft.	0	EA	$ 13,113	$ -
6.3	Abandon Existing Manhole	0	EA	$ 1,639	$ -
6.4	Diversion Structure	1	EA	$ 20,000	$ 20,000
7.0	**Miscellaneous Other**				
7.1	Major Arterial Crossing (Gravity Boring)	1	DAYS	$ 200,000	$ 200,000
7.2	Bypass Pumping	5	DAYS	$ 1,639	$ 8,195
7.3	Stormwater Management	1	LS	$ 7,500	$ 7,500
	ESTIMATED CONSTRUCTION COST[1]				**$ 539,000**
	Project Soft Costs [2]	15%			**$ 81,000**
	Contingency	25%			**$ 135,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 755,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

1 - Construction cost includes mobilization and costs related to construction. No engineering costs have been added. Costs associated with special funding requirements such as Davis-Bacon prevailing wages and American Iron and Steel (AIS) are not included. Additional costs associated with rock trenching are not included.

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

J-U-B ENGINEERS, INC.
400 Memorial Dr. Idaho Falls, ID 83402 208.932.4486

Opinion of Probable Project Cost

G — ***North East Regional Gravity Sewer and Lift Station***

Revision Date: Jul-2021

ESTIMATED IMPROVEMENT COST: $ 977,000

ITEM No.	Description	Est. Quant.	Unit	Unit Price	Total Price
1.0	**Mobilization** (5%)	1	LS	$ 31,030	$ 31,030
2.0	**Construction Traffic Control**	10	DAYS	$ 1,093	$ 10,930
3.0	**Gravity Sewer Pipe**				
3.1	8" PVC Gravity Sewer Pipe and Bedding	1150	LF	$ 27	$ 31,050
3.2	Dewatering - Minor (< 15 ft)	1150	LF	$ 10	$ 11,500
3.3	Dewatering - Major (> 15 ft)	0	LF	$ 28	$ -
4.0	**Single Line Pressure Sewer Pipe**				
4.1	4" PVC Pressure Sewer Pipe and Bedding	200	LF	$ 23	$ 4,600
5.0	**Single Pipe Trench Excav./Backfill**				
5.1	0-8 ft. Pressure	200	LF	$ 28	$ 5,600
5.2	0-10 ft. (Large Trunk)	1150	LF	$ 66	$ 75,900
5.3	10-15 ft. (Large Trunk)	0	LF	$ 99	$ -
5.4	15-20 ft. (Large Trunk)	0	LF	$ 132	$ -
5.5	20-25 ft. (Large Trunk)	0	LF	$ 165	$ -
6.0	**Pressure Fittings and Appurtenances**				
6.1	4" Bend	2	EA	$ 1,000	$ 2,000
6.2	Isolation Valves, < 6"	1	EA	$ 1,000	$ 1,000
6.3	Install Thrust Block	2	EA	$ 1,500	$ 3,000
6.4	Air-Vac Valves, Single	1	EA	$ 5,000	$ 5,000
6.5	Discharge Structure	1	EA	$ 5,464	$ 5,464
7.0	**Surface Repair**				
7.1	Natural Ground	850	LF	$ 8	$ 6,800
7.2	0-10' Depth (Asphalt - ¼ Street)	500	LF	$ 43	$ 21,500
7.3	10-20' Depth (Asphalt - ½ Street)	0	LF	$ 71	$ -
7.4	20-30' Depth (Asphalt - Full Street)	0	LF	$ 142	$ -
8.0	**Manholes**				
8.1	48" Manholes, 10-20 ft.	3	EA	$ 5,464	$ 16,392
8.2	48" Manholes, 20-30 ft.	0	EA	$ 13,113	$ -
8.3	Abandon Existing Manhole	0	EA	$ 1,639	$ -
9.0	**Lift Stations**				
9.1	North East Regional LS - *(115 GPM, submersible, duplex)*	1	LS	$ 250,000	$ 250,000
10.0	**Miscellaneous Other**				
10.1	Bypass Pumping	2	DAYS	$ 1,639	$ 3,278
10.2	Railroad Crossing (Gravity Boring)	1	EA	$ 163,909	$ 163,909
10.3	Stormwater Management	1	LS	$ 2,500	$ 2,500
	ESTIMATED CONSTRUCTION COST[1]				**$ 651,000**
	Project Soft Costs [2]	15%			**$ 98,000**
	Contingency	35%			**$ 228,000**
	TOTAL PROBABLE COST IN 2021 Dollars [3]				**$ 977,000**

CLIENT PROJECT NO.: J-U-B PROJECT NO.: 57-21-014

2 - Soft costs include: engineering, design, construction assistance, survey, geotechnical subconsultant and record drawings. No easement acquistion or legal costs are included.

3 - Costs are in 2021 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes.

APPENDIX F

UAC IMPACT FEE ACT

Part 3
Establishing an Impact Fee

11-36a-301 Impact fee facilities plan.

(1) Before imposing an impact fee, each local political subdivision or private entity shall, except as provided in Subsection (3), prepare an impact fee facilities plan to determine the public facilities required to serve development resulting from new development activity.

(2) A municipality or county need not prepare a separate impact fee facilities plan if the general plan required by Section 10-9a-401 or 17-27a-401, respectively, contains the elements required by Section 11-36a-302.

(3) A local political subdivision or a private entity with a population, or serving a population, of less than 5,000 as of the last federal census that charges impact fees of less than $250,000 annually need not comply with the impact fee facilities plan requirements of this part, but shall ensure that:

(a) the impact fees that the local political subdivision or private entity imposes are based upon a reasonable plan that otherwise complies with the common law and this chapter; and

(b) each applicable notice required by this chapter is given.

Amended by Chapter 200, 2013 General Session

11-36a-302 Impact fee facilities plan requirements -- Limitations -- School district or charter school.

(1)

(a) An impact fee facilities plan shall:

(i) identify the existing level of service;

(ii) subject to Subsection (1)(c), establish a proposed level of service;

(iii) identify any excess capacity to accommodate future growth at the proposed level of service;

(iv) identify demands placed upon existing public facilities by new development activity at the proposed level of service; and

(v) identify the means by which the political subdivision or private entity will meet those growth demands.

(b) A proposed level of service may diminish or equal the existing level of service.

(c) A proposed level of service may:

(i) exceed the existing level of service if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service; or

(ii) establish a new public facility if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

(2) In preparing an impact fee facilities plan, each local political subdivision shall generally consider all revenue sources to finance the impacts on system improvements, including:

(a) grants;

(b) bonds;

(c) interfund loans;

(d) impact fees; and

(e) anticipated or accepted dedications of system improvements.

(3) A local political subdivision or private entity may only impose impact fees on development activities when the local political subdivision's or private entity's plan for financing system improvements establishes that impact fees are necessary to maintain a proposed level of service that complies with Subsection (1)(b) or (c).

(4)

(a) Subject to Subsection (4)(c), the impact fee facilities plan shall include a public facility for which an impact fee may be charged or required for a school district or charter school if the local political subdivision is aware of the planned location of the school district facility or charter school:

(i) through the planning process; or

(ii) after receiving a written request from a school district or charter school that the public facility be included in the impact fee facilities plan.

(b) If necessary, a local political subdivision or private entity shall amend the impact fee facilities plan to reflect a public facility described in Subsection (4)(a).

(c)

(i) In accordance with Subsections 10-9a-305(3) and 17-27a-305(3), a local political subdivision may not require a school district or charter school to participate in the cost of any roadway or sidewalk.

(ii) Notwithstanding Subsection (4)(c)(i), if a school district or charter school agrees to build a roadway or sidewalk, the roadway or sidewalk shall be included in the impact fee facilities plan if the local jurisdiction has an impact fee facilities plan for roads and sidewalks.

Amended by Chapter 200, 2013 General Session

11-36a-303 Impact fee analysis.

(1) Subject to the notice requirements of Section 11-36a-504, each local political subdivision or private entity intending to impose an impact fee shall prepare a written analysis of each impact fee.

(2) Each local political subdivision or private entity that prepares an impact fee analysis under Subsection (1) shall also prepare a summary of the impact fee analysis designed to be understood by a lay person.

Enacted by Chapter 47, 2011 General Session

11-36a-304 Impact fee analysis requirements.

(1) An impact fee analysis shall:

(a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;

(b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;

(c) subject to Subsection (2), demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;

(d) estimate the proportionate share of:

(i) the costs for existing capacity that will be recouped; and

(ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and

(e) based on the requirements of this chapter, identify how the impact fee was calculated.

(2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:
(a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;
(b) the cost of system improvements for each public facility;
(c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;
(d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;
(e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;
(f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;
(g) extraordinary costs, if any, in servicing the newly developed properties; and
(h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Enacted by Chapter 47, 2011 General Session

11-36a-305 Calculating impact fees.
(1) In calculating an impact fee, a local political subdivision or private entity may include:
(a) the construction contract price;
(b) the cost of acquiring land, improvements, materials, and fixtures;
(c) the cost for planning, surveying, and engineering fees for services provided for and directly related to the construction of the system improvements; and
(d) for a political subdivision, debt service charges, if the political subdivision might use impact fees as a revenue stream to pay the principal and interest on bonds, notes, or other obligations issued to finance the costs of the system improvements.
(2) In calculating an impact fee, each local political subdivision or private entity shall base amounts calculated under Subsection (1) on realistic estimates, and the assumptions underlying those estimates shall be disclosed in the impact fee analysis.

Enacted by Chapter 47, 2011 General Session

11-36a-306 Certification of impact fee analysis.
(1) An impact fee facilities plan shall include a written certification from the person or entity that prepares the impact fee facilities plan that states the following:"I certify that the attached impact fee facilities plan:
1. includes only the costs of public facilities that are:
a. allowed under the Impact Fees Act; and
b. actually incurred; or
c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
a. costs of operation and maintenance of public facilities;

b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or

c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and

3. complies in each and every relevant respect with the Impact Fees Act."

(2) An impact fee analysis shall include a written certification from the person or entity that prepares the impact fee analysis which states as follows:"I certify that the attached impact fee analysis:

1. includes only the costs of public facilities that are:

a. allowed under the Impact Fees Act; and

b. actually incurred; or

c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;

2. does not include:

a. costs of operation and maintenance of public facilities;

b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or

c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;

3. offsets costs with grants or other alternate sources of payment; and

4. complies in each and every relevant respect with the Impact Fees Act."

Amended by Chapter 278, 2013 General Session

RESOLUTION 21-21

A RESOLUTION ADOPTING 2021 SEWER MASTER PLAN UPDATE

WHEREAS, Utah law allows municipalities to create and plan for local infrastructure and utility needs; and

WHEREAS, Nibley City has established a Sewer collection system for its residents; and

WHEREAS, large areas of land around Nibley City are unincorporated and will likely develop in the future; and

WHEREAS, Nibley City anticipates population growth and greater demand placed on Nibley City's sewer system; and

WHEREAS, Nibley City wishes to update the Sewer Master Plan to plan for future growth within Nibley City.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF NIBLEY CITY, STATE OF UTAH, AS FOLLOWS:

1. That the attached 2021 Sewer Master Plan is adopted by the Nibley City Council.

Dated this 12 day of August, 2021

Shaun Dustin, Mayor

NIBLEY CITY CORPORATE SEAL CACHE COUNTY, UT

ATTEST

Cheryl Bodily, City Recorder