



August 15, 2012

State of Utah
Department of Commerce
Division of Public Utilities
160 East 300 South
Salt Lake City, UT 84114

Re: Mountain Sewer Corporation – Study and Report

To whom it may concern:

Elkridge Engineering recently inspected the existing infrastructure of Mountain Sewer, reviewed the customer complaints, and studied the work that has been completed and that that has been proposed. It is my opinion as a professional engineer that the company has been frugal in completing this work to date and is reasonable in their proposal for any additional work that is required to address existing needs. I feel that no work has been performed or proposed that was not necessary to maintain the system and to bring it to an acceptable working level.

The 25 year old sewer system as it now exists is adequate but is in need of repairs and maintenance as it nears the limit of its typical life expectancy. Replacement components and improvements of the system are included within this document in the section entitled 'Proposed Work Remaining'. These are necessary and should be completed in the near future.

Future changes to the system involving the third pond, which is currently not being used and is in disrepair, the winter storage pond, which is in need of further improvements, and the tree farm are not required at this time. They are based on anticipated growth of future developments and added parcels not yet approved within the service area of Mountain Sewer as approved by Weber County. Such improvements are not the responsibility of existing customers and would need to be sustained by future connections. Recommended modifications to the sewer system based on growth are described in Exhibit 1 – a report by Great Basin Engineering Inc dated August 2, 2012 and addressed to the Celtic Bank.

Sincerely,

A handwritten signature in black ink that reads 'James E Ormsbee'.

James E Ormsbee, P.E.
President

Mountain Sewer Corporation – System Study and Report

James E Ormsbee, P.E.
Elkridge Engineering, LLC
August 15, 2012

Description:

The Mountain Sewer System was established in 1983 by Mountain Sewer Corporation owned originally by Dr. Ronald J. Catanzaro. Dr. Catanzaro created the company to service a 250 acre development located south of Pineview Reservoir in Weber County, Utah along Utah State Road 39 and Old Snow Basin Road. The development is found in Sections 13, 23, and 24 of Township 6 North, Range 1 East, Salt Lake Base and Meridian.

The sewer system is now owned by Ray Bowden and the development is under the ownership of several individuals and entities. The Mountain Sewer System, which has be upgraded a number of times throughout its 29 year history, consists of the following:

- Three aerated sewage lagoons with transfer structures including a blower and pumping building built in 1983 – (Lagoon #3 is in disrepair and cannot be used without a considerable amount of maintenance)
- A 19.9 acre-foot winter storage pond (not currently in use, earthwork and piping are installed)
- A 1.0 acre tree farm – (test area for land application)
- A Sewage Lift Station with automated control system and alarms
- Collection system with pipes and manholes

The Mountain Sewer System is currently comprised of 186 connections in the following developments:

- Lakeside Village – 85 condominiums
- Edgewater Beach Resort – 4 condominiums
- Ski-Lake Estates – 21 lots
- Summit at Ski Lake – 43 lots
- Chalets at Ski Lake – 32 lots
- Catholic Church – 1 connection

Several existing parcels, proposed developments, and other developable parcels lie within the boundary of the sewer district. These parcels which consist of 120 known connections are:

- Edgewater Beach Resort – 62 units
- Summit at Ski Lake – 11 lots
- Chalets at Ski Lake – 44 lots
- Samural Property – 2 connections
- Langeland Property – 1 connection

- Sundance Commercial property – 3.22 acre parcel
- Snow Basin Commercial property – 1.77 acre parcel

Customer Complaints:

- Equipment in ill repair
 - The sewer system equipment is currently functioning adequately. However, the motors for the pumps and the blowers are nearing their typical life expectancy, and will need to be rebuilt or replaced in the near future. This is addressed in the following sections. Good maintenance of the equipment is imperative and appears to be sufficient at this time.
- System designed improperly
 - The original design of the system was only sufficient for a limited number of connections and for a limited period of time. However, in a number of points it was somewhat lacking based on current connections and conditions. Two such problems were the design of the lift station and the lack of cleanouts. It is not reasonable to design a lift station without proper screening and the collection network without a sufficient number of cleanouts. I feel confident that these inadequacies have either been rectified or have been addressed in the proposed work to be done.
- System maintained improperly
 - In general, I feel that the maintenance was in most cases done properly. Some of it though should have been scheduled more frequently. In particular, inspections of the sewer lines by camera should be performed regularly. Also the third lagoon has been allowed to fall into disrepair to a point where much of it needs to be rebuilt. The system should be inspected and the operational and maintenance procedures should be reviewed as required by state code by an individual certified to do so on a regular basis.
- System constructed improperly
 - Some of the problems with the system were introduced in the construction and installation. The compaction of the backfill of the trenches and manholes appears to have been performed insufficiently for example. Other problems were introduced when changes to the system such as adding the winter storage pond were made. The rerouting of the line from the lift station was totally unacceptable. This line has subsequently been rerouted and is working well.
- Customers feel that the sewer lines should be inspected with camera once a year.
 - Camera inspection of all sewer lines on an annual basis is seldom required except possibly in suspect areas such as under roads of high traffic volume and those indicated as needing more frequent inspection based on previous inspections or observed flow restrictions. I feel that Mountain Sewer is adequately addressing this need.
- Access road to sewer ponds is impassable.
 - This access road has been improved, and further improvement is indicated in the proposed work remaining section. Continued maintenance of the road is required.
- Pumping raw sewage from lift station into pump trucks and transporting it over local streets and dumping it into manholes in street since the access road to the sewer ponds are not maintained and impassable in winter and spring.
 - The lift station is operating adequately at this time, the access road is being improved and maintained, and a manhole has been added for dumping if required in the future.

- Blockage of county-owned storm drains caused water to build up and enter sewer system and overwhelm the lift station.
 - This problem has been addressed by both the county and Mountain Sewer. The known leaking manhole was repaired and rerouting of the storm water drainage manhole is included in the proposed work remaining section below. Proper maintenance and inspection of the system is required to assure that such leakage is minimized in the future.
- Possible raw sewage contaminating Pineview Reservoir
 - This is an issue of concern recognized by all parties. At this time no such contamination has been observed, and it is imperative that this not occur. Proper maintenance of the system is required to assure that this does not happen.
- There is an intrusion of water, other than sewage, into the sewer system. How much should the sewer system be able to handle?
 - Other than the problem with storm water intrusion mentioned above, no significant leakage into the system has been observed. Some intrusion of water into the system is normal but should be minimal. A sewer system is always designed with some intrusion occurring. However, if any significant amount is observed it should be corrected. Proper maintenance, regular recording of pond levels, and other such records should be observed to assure that this problem is kept to a minimum.
- Rags, clothes and other trash put into sewer system by customers causing blockage in pipes, pumps and grinders.
 - Proper screening as proposed by Mountain Sewer at the lift station should help this problem considerably, but continuing education of customers would also be helpful. I would recommend the use of occasional mailers and inserts with bills, which are available through universities and government agencies.

Work Performed

S&S Excavating	Install cleanouts/repair sewer lines	\$21,876.67
ConRock	Material & equipment-billed turn-around	\$10,945.51
S&S Excavating	2 manhole installations	\$16,723.62
Great Basin Engineering	Grading & site improvements	\$1,115.25

All of the work above was necessary to address customer complaints, and it has been determined that the prices were reasonable. It appears that every effort was made by Mountain Sewer to keep these costs to a minimum.

Proposed Work Remaining

Stainless steel screen	\$14,500.00
Replace discharge flanges in sump	\$13,000.00
Upgrade alarm system	\$6,400.00
Rebuild blowers	\$4,500.00
Rebuild damage blower control panel	\$1,156.00
Replace or repair airline valves	\$1,200.00
Drain upper pond, repair blowers	\$4,500.00
Refurbish old fly gate pumps	\$790.00

Reroute storm water drainage manhole	\$1,000.00
Complete dump station using Roto-Mill materials	\$4,103.08

The above work all is necessary to maintain the system and continue to address customer complaints. The prices all appear to be reasonable. Again, every effort appears to have been made by Mountain Sewer to keep costs to a minimum.

Capacity

The capacity of the sewer system is fully addressed in Exhibit 1 by Great Basin Engineering Inc. In summary, the current system is at less than 22% of the overall storage capacity of the aerated lagoons treatment system. Without repairing and adding the third lagoon or the winter storage pond to system, it should handle the current 186 connections, the proposed 120 connections, and the 100 connections allocated to the county. Further growth within the sewer district boundaries currently pending approval and several other developable parcels will require modification of the system based on trigger points defined in Exhibit 1.

General Over-all Health of the Sewer System

At this time the system is functioning satisfactorily. Nevertheless, the additional items listed in the Proposed Work Remaining section above need to be made to insure that it remains in good working order and that it can sustain the currently approved additions and any emergencies or unforeseen events. In addition it is essential that the system be maintained and inspected on a regularly scheduled basis to assure that it remains in compliance according to Utah Administrative Code R317-10 and other state codes.

Needed Additions and Changes to Sewer System

Additions and changes to the sewer system that need to be made to ensure and promote the safe, healthy, economic, efficient, and reliable operation and to maintain adequate levels of service include those identified above in the 'Proposed Work Remaining' section. Recommended modifications to the sewer system based on growth are described in the report by Great Basin Engineering Inc identified as Exhibit 1.

Exhibit 1



August 2, 2012

Celtic Bank
268 South State Street, Suite 300
Salt Lake City, Utah 84111

RE: MOUNTAIN SEWER CORPORATION - SYSTEM REPORT

The Mountain Sewer System is located just South of Pineview Reservoir along State Road 39 and Snow Basin Road in the Huntsville Area. This water system can also be described as being located in Sections 13, 23 and 24 of Township 6 North, Range 1 East, Salt Lake Base and Meridian.

The sewer system was established in the 1983 to the proposed development of approximately 250 acres of property that Dr. Ronald J. Catanzaro was developing. Dr Catanzaro is no longer involved with the project and several individuals and entities now own the undeveloped areas. The Mountain Sewer Corporation System has been upgraded several times and now consists of the following:

- 3 aerated sewage Lagoons with transfer structures, Blower / pumping building built in 1983.
- A 19.9 acre-foot winter storage pond – (earthwork / piping installed)
- A 1.0 acre tree farm – (test area for land application)
- A Sewage Lift Station with automated control system and alarms
- Collection piping, with Manholes.

The sewer treatment facility is situated on 10.81 acres in the name of Mountain Sewer Corporation, with an additional 22.85 acres of potential expansion area in the name of Valley Enterprise Investment Co. LLC.

The initial approval of the 3 aerated sewage lagoons allowed for treatment and discharge through seepage and evaporation of 6800 gallons per day (gpd) The Utah State Department of Environmental Quality, Division of Water Quality (DWQ) allow 1 standard residential connection per 400 gpd or 17 connections. In February of 2000, DWQ approved phase 1 of the master sewer system design, which included the 19.9 acre-foot winter storage pond, a 7.35 acre tree farm with an initial 1.0 acre test area, pump, disinfection and filtration system, which would give the sewage treatment system a capacity of 49,600 gpd or 124 total connections. Due to low flow rates from the existing developments, not all of these improvements were completed. The earthwork portion of the winter storage pond and the piping through the pond walls (dikes) were complete in the summer of 2002. The installation of the rip-rap on the side slopes of the pond, the disinfection system, the pumps and filtration system were not constructed because of the low flow rates. The one acre test area for land application was constructed but could only be evaluated by using culinary water, because of the low levels of sewage effluent in the aerated ponds. In 2002, DWQ re-evaluated the required flow rates based on water and sewer usage studies, and reduced the required flow rate per connection from 400 gpd to 300 gpd. This would allow the approved phase 1 design to serve 165 connections.

On November 25, 2004, DWQ re-evaluated the Ski Lake Corporation (Mountain Sewer Corporation) and categorized it as a "Rated Capacity of Treatment Facility", meaning the system should be based on a percentage of capacity of the final storage pond. This means that "the rated

Mountain Sewer Corporation

capacity of the treatment system was amended to allow additional connections to the sewer system until the final storage pond are 75 percent full, allowing for the required 3-foot freeboard. Specifically, 75 percent of the 19.9 acre-foot storage in pond No. 1 is 14.9 acre-feet, which equates to a water surface depth of 14 feet." When the capacity in the pond reaches that level, no more connections will be allowed until additional treatment and disposal capacity is reached. Long term sequences of additional expansions have also been submitted to the State Division of Water Quality as part of the approval process.

The Mountain Sewer Corporation currently serves the following developments:

- 85 condominiums (Lakeside Village)
- 4 condominiums (Edgewater Beach Resort),
- 21 lots in Ski-Lake Estates,
- 43 lots in the Summit at Ski Lake,
- 32 lots in the Chalets at Ski Lake,
- 1 Catholic Church connection.

Currently there are 186 approved connections on the sewer system.

The number of connections allowed into the system is not exactly determinable. Connections to the system will be allowed until the 19.9 acre storage pond reaches 75% of its capacity.

With the completion of the storage pond and the 7.35 acre tree farm, the water budget which includes the sewage effluent inflow, precipitation on the open ponds, evaporation, seepage and water uptake from the tree farm, the overall system is anticipated to treat up to 49,600 gallons per day. The water and sewer flow monitoring over the past 10 years have ranged from 50 gpd to 180 gpd per connection.

The current level of effluent in the south lagoon (Cell #1) is approximately 3 feet of the total design capacity depth of 14 feet (approx. 15% capacity). There is a current depth of approximately 10 feet in the middle aerated lagoon pond of a maximum depth of 14-feet (Approx. 55% capacity) and there is no effluent in the North Lagoon. The current system is at less than 22% of the overall storage capacity of the aerated lagoons treatment system. The earthwork and piping for winter storage pond was completed several years ago, but the rip-rap, pump system and disinfection system have not been installed, because they would still be sitting dormant and subject to continual maintenance. These improvements can be installed in a 45 to 60 day period, possibly quicker, depending on the amount of equipment and workers available. Currently there are 186 approved connections on the system, and 129 condos and homes constructed.

We have anticipated, based on the history of the overall development, that the projects will most likely be constructed at a relatively steady growth rate over a 2 to 5 year period, so the sewage flows could be monitored and make the appropriate upgrades or expansions to the sewer treatment system, as the projects develop.

The Mountain Sewer Corporation entered into an agreement with Weber County to provide the county with 100 sewer connections to the system in 20 connections per year increments over a five year period that started in January of 2011. These connections could be used at the counties discretion. Connections fees and usage fees will still be collected when these connections are used.

Mountain Sewer Corporation

Proposed Developments

There are several proposed developments within the sewer district boundaries currently pending approval and several other developable parcels. These parcels are:

Edgewater Beach Resort	-- 62 units
The Summit at Ski Lake	-- 11 lots
The Chalets at Ski Lake	-- 44 lots
Samural Property	-- 2 connections
<u>Langeland property</u>	<u>-- 1 connection</u>
Sub-total	120 connections

Sundance Commercial property - 3.22 acre parcel
 Snow Basin Commercial property - 1.77 acre parcel

Based on the "Rated Capacity of Treatment Facility", and the construction history of individual single family homes and condominiums, we anticipate a slow relatively steady growth rate within the Mountain Sewer Company Service Area. This will allow adequate time to complete the necessary construction stages of the winter storage pond, chlorination and filtration facilities and the land application system (tree farm). Construction funds will need to be set aside to allow for the completion of the Winter Storage Pond, the Chlorination System, Pumps, Filtration System, Additional Pumps and Land Application System, so they can be installed as trigger points (effluent levels) are reached in the lagoons and winter storage pond. The anticipated trigger points are as follows:

- When cells 1 and 2 of the sewer lagoons are at 100% capacity and effluent in cell 3 of the sewer lagoon system is at 80% -- completion of the Winter Storage Pond, Pumps and Chlorination system will need to begin construction and be completed within 45 to 60 days .
- When the Winter Storage Pond reaches 50 % capacity, construction of the filtration system, pumps, disinfection system and land application system will need to be constructed within 90 to 120 days.
- When the Winter Storage Pond reaches 75% capacity, no new connections will be allowed until additional treatment and disposal capacity is reached.

We anticipate that based on current flow rates from the existing "Ski Lake Properties" and with the completion of the winter storage pond, pumps, disinfection system, filtration and land application system that the overall treatment system will handle the current 186 connections, the proposed 120 connections and the 100 connections allocated to the county.

Repairs and Maintenance

Several of the major components of the Sanitary Sewer System serving the Ski Lake Development were installed over 25 years ago. The Sewer Lift Station and force main line was installed in 1982, while the Aerated Sewer Lagoons and Blower building were finished in 1984. These facilities are currently functioning adequately, however the motors for the pumps and the blowers are nearing their typical life expectancy, and will need to be rebuilt or replaced in the near future. The sidewalls of the Lagoons will require some maintenance to remove weeds, due low storage volumes. This weed removal may create the need to repair significant portions of the clay liners.

Mountain Sewer Corporation

Winter Storage Pond

To complete the 19.9 Acre-foot winter storage pond will require weed removal within in the pond area, installing a clay liner to seal the pond and rip-rap to minimize erosion due to wave action, installing pumps in the existing blower building and installing a chlorine disinfection system. Completion of the winter storage facility will costs about \$350,000.

The next phase of expansion is the installation of a filtration station for drip irrigation system used to water a tree farm that harvests mature trees. Initially, a 1-acre tree farm using a drip irrigation system was tested using culinary water; because not enough sewage was being generate to keep the trees alive. The following phase would be to expand the tree farm to approximately 7.35 acres. The estimated cost for the filtration system and tree farm is approximately \$325,000.

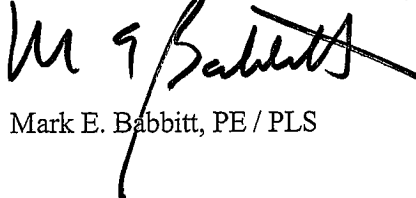
The overall master plan for the sewer treatment system includes the construction of another 19.5 acre-foot winter storage pond and a 7.5 acre tree farm on the 16.50 acres adjacent to the existing facility. (Note – 6.35 acres is needed to finish tree farm for Phase No. 1 which needs to come out of the 22.85 acres that is in the name of Valley Enterprise Investment Co. LLC.) We are not anticipating the need for this expansion based on the flow rates from the existing development, for the current service area. If the service area is increased, then the need for this expansion may arise.

If the addition winter storage pond is needed to accommodate future developments, the pond will cost approximately \$500,000 to complete. The additional 7.5 acre tree farm is anticipated to cost approximately \$175,000 (additional filtration system is not anticipated).

Reserve funds should be set aside to accommodate scheduled maintenance and unforeseen repairs to the overall Sewer System.

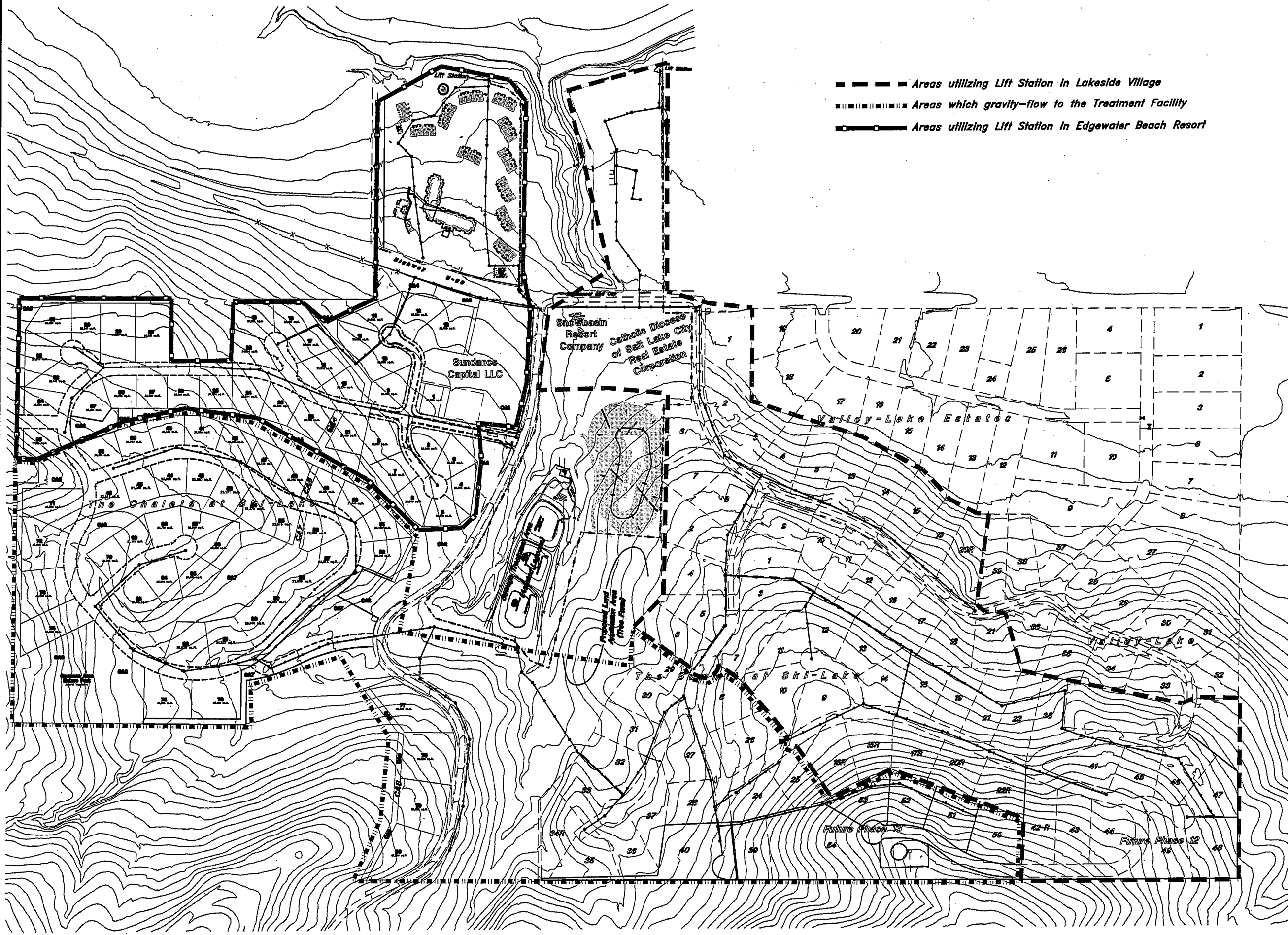
Please contact me if you have any questions or need further information.

Sincerely,
GREAT BASIN ENGINEERING, INC.



Mark E. Babbitt, PE / PLS

Cc: Mountain Sewer Corporation
Attention: Ray Bowden, Pres.



- - - - - Areas utilizing Lift Station In Lakeside Village
 Areas which gravity-flow to the Treatment Facility
 —○—○—○— Areas utilizing Lift Station In Edgewater Beach Resort

GREAT BASIN ENGINEERING

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 MAIN 801-338-5151, FAX 801-338-1022
 WWW.GREATBASINENGINEERING.COM

Proposed / Future Conditions Sewer Master Plan
Mountain Sewer Corporation
 A part of the Southwest 1/4 of Section 13, a part of the Northeast 1/4 of Section 23, and a part of the Northwest 1/4 of Section 24, 18th, R.E., SL&M, U.S. Survey

Jan, 2012
 SHEET NO.
Future
98N120 Waterline

NO.	DATE	DESCRIPTION