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September 7, 2007

Ms. Darlene Standley, Chief
Utilities Division
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243-0505

filed electronically in docket office on 09-07-07

Re: Petition of Cartwright Creek, LLC to amend its existing Certificate of Convenience & Necessity to provide service to the Stillwater Development in Williamson County, Docket 07-00180

Dear Ms. Standley:

Attached please find Cartwright Creek's response to the August 24, 2007 TRA request for additional information on the above-referenced petition.

Please contact me if you have any questions.

Sincerely,

Bruce Meyer
Vice President, Operations
Cartwright Creek, LLC

cc: William H. Novak

1. Please state the telephone number, fax number, mailing and physical address of Cartwright Creek, LLC.

Response:

Cartwright Creek LLC
2033 Richard Jones Road
Nashville, TN 37215

Telephone: 615-383-9070
Fax: 615-383-1522

2. Please provide a statement that Cartwright Creek, LLC agrees to comply with all Tennessee Regulatory Authority policies, rules and regulations.

Response:

Cartwright Creek, LLC agrees to comply with all rules and regulations of the Tennessee Regulatory Authority.

3. Please provide an estimated timeframe for construction of the system including estimated date construction will begin and the date it is estimated to end.

Response:

Williamson County, TDEC, and TRA review and approval will continue through 2007 and be completed in early 2007. The scheduled construction start is February 2007 with completion of the wastewater treatment system in four to six months, depending upon weather.

4. Provide a copy of the plans and specs as provided to the Tennessee Department of Environment and Conservation ("TDEC").

Response:

Attached Exhibit A includes the Design Development Report (DDR), which was prepared for Williamson County and also submitted to TDEC for review.

ATWELL-HICKS
DEVELOPMENT CONSULTANTS

Design Development Report (DDR)

for the

Stillwater Resource Conservation Development
Williamson County, Tennessee

Prepared for

Mr. Michael Matteson
Williamson County Department of Planning and Zoning
1320 West Main Street – Suite 400
Franklin, Tennessee 37064

Atwell-Hicks Project No. 06001081.82

May 21, 2007

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1.0 INTRODUCTION

Atwell-Hicks, LLC (Atwell) was retained by Eagle Ridge Investments, LLC to prepare a Design Development Report (DDR) for the proposed Stillwater planned resource conservation development project located in Williamson County, Tennessee. The Stillwater project will consist of 495 residential home sites integrated within an 18-hole championship golf course and natural feature environment. The project will be provided municipal water service from the Milcrofton Utility District with the water storage and delivery reservoir located at the eastern portion of the development. Sanitary sewer service for the development will be accomplished through construction of an on-site wastewater treatment facility incorporating the beneficial reuse of reclaimed wastewater for golf course irrigation.

The purpose of the DDR is to define the treatment, storage and final effluent disposal system infrastructure necessary to safely and reliably provide sanitary sewer service to the proposed Stillwater development project. As an integral part of the DDR submittal, a Detailed Soil Investigation Report (DSIR) is provided to demonstrate site suitability for the proposed method of effluent disposal. It is important to stress that the DSIR is crucial to the successful development of a DDR submittal and long term success of any slow rate land application site. In this light, information presented in the DSIR with respect to project location, natural features and so forth may also be referenced in the DDR document.

The privately owned on-site wastewater treatment system will require the issuance of a Certificate of Convenience and Necessity (CCN) through the Tennessee Regulatory Authority (TRA). The CCN demonstrates that this development project is legally provided sewer service through a TRA approved private sanitary sewer service provider in accordance with Tennessee state law. It is anticipated that the CCN for the Stillwater project will be secured by Cartwright Creek, LLC, who currently has the PGA5 service area beginning north of Patton Road.

The DDR is prepared to satisfy the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*, in support of the Preliminary Site Plan submittal for the Stillwater planned resource conservation development project. The technical information presented in the DDR is intended to satisfy both the Williamson County standards and the regulatory requirements administered by the Water Pollution Control Division, Tennessee Department of Environment and Conservation (TDEC). The DDR/DSIR efforts are the first key steps toward receiving TDEC construction plan approval and a state Operating Permit for the system.

1.1 Site Location

The Stillwater development property is located in the southeastern portion of Williamson County, Tennessee, and consists of approximately 743 acres of land. The general project site is located southwest of the intersection of Patton Road and Horton Highway, and extends south of Cox Road to incorporate separate 55 and 110 acre parcels of land intended to support construction and operation of the on-site wastewater treatment and disposal systems.

The site is bordered by scattered residential development, agricultural and vacant land, and the Harpeth River. A site location map depicting the Stillwater development project relative to access roads and surrounding area features is presented as **Figure 1** and provided in **Appendix A**. An aerial photograph with a Stillwater project site plan overlay depicting the proposed facilities, structures, and roads is presented as **Figure 2** and is also provided in **Appendix A**.

1.2 Regional Climate

Atwell reviewed Climatology data for the Williamson County area available on the National Oceanic and Atmospheric Administration (NOAA) data archive. Between the years 1971 and 2000, average monthly temperatures in the vicinity of the site range from 46.5 degrees (F) for January to 89.7 degrees (F) for July, and have an average overall of 69.9 degrees (F).

Between the years 1971 and 2000, average monthly precipitation in the vicinity of the site ranged from between 3.28 inches for August to 5.07 inches for May. An overall yearly average of 48.07 inches is reported. Copies of the NOAA data sheets are provide in **Appendix B** of this report.

1.3 Regional Geology

Atwell reviewed the 7.5-minute College Grove, Tennessee Geologic Map quadrangle of the development project site and surrounding area. The map indicated that near surface bedrock in the vicinity of each disposal area site consists of the Carters Limestone.

The Carters Limestone formation consists of two members in this quadrangle; an upper thin-bedded and a lower thick-bedded member, separated by 6 to 12 inches of bentonite (T-3 bed). The upper member is medium light-gray to brownish-gray and yellowish-brown, very fine-grained to cryptocrystalline, thin-bedded limestone with thin shale partings, which ranges in thickness from 5 to 10 feet. The lower member is medium light-gray to brownish-gray and yellowish-brown, cryptocrystalline to very fine-grained (with some beds ranging up to coarse-grained), medium-to thick-bedded limestone with minor amounts of saccharoidal magnesian limestone as small irregular mottlings, and thin lenses of chert locally. The thickness of the lower member ranges from 40 to 50 feet.

The Carters Limestone crops out principally in the valley of the Harpeth River and its tributaries, and is easily accessible for quarrying. The Carters is an excellent source of limestone for all general-purpose uses, including cement manufacture, aggregate, and agricultural lime, and reserves may be considered unlimited. Bentonite (T-3 bed), green when fresh but weathers to white and yellow sticky clay, 6 to 12 inches thick; occurs between upper and lower members, but rarely seen in natural exposures. (This is the "Pencil Cave" of drillers' terminology in Central Tennessee.) An excerpt of the Geologic map is presented as **Figure 1** of **Appendix C**.

1.4 Site Topography

Atwell reviewed the United States Geological Survey (USGS) 7.5-minute College Grove, Tennessee quadrangle topographic map of the development project site and surrounding area. The topographic map reviewed is dated 1957. The map depicts the subject site as unimproved

land. A rolling to steep relief generally characterizes the development site with surface elevations ranging from 700 to 930 feet above mean sea level.

Surface drainage at the development site occurs from Patton Knob predominantly north toward Nelson Creek and south towards Cox Road and the Harpeth River. The topography of the 110 acre parcel proposed for the on-site wastewater facility and primary drip irrigation site is gently sloping toward the Harpeth River, located at the southern boundary of this parcel. The topography of the 55 acre parcel proposed for the reserve effluent disposal site is also gently sloping toward the Harpeth River, which essentially surrounds the potential land application disposal areas. An excerpt of the USGS topographic map is presented as the **Figure 1** site location map provided in **Appendix A**.

1.5 Site Access

The on-site wastewater treatment facility will be constructed on the 110 acre parcel of land located directly southeast of the Stillwater development project. Access to the treatment and primary disposal site will be provided from Cox Road, along the western portion of the primary disposal area. Access to the reserve disposal site will be provided from Cox Road across the Nashville rail road tracks. A 12 foot wide gravel road will be constructed from Cox Road to the treatment system site allowing all weather vehicle access for facility operations, service, maintenance, and sludge removal.

1.6 Local Water Supply Wells

Atwell reviewed the Tennessee Department of Environment and Conservation records for water wells located within the College Grove area quadrangle. Based on a search of the available TDEC well logs, no wells were identified within the 1,500 foot radius of the on-site wastewater treatment facility as specified by the Williamson County standards. However, there are residences located approximately 700 and 1,100 feet northeast of the treatment site. The nearest house is believed to be served by municipal water supply based on visual observation of a water main installed along Cox Road and the fact that the home adjacent to the southern development entrance is connected to the Nolansville-College Grove system. Atwell will validate that the adjacent homes are connected to municipal water.

Of the available well logs reviewed, one well is located within the 1,500 foot radius of the proposed reserve disposal area. This well is located at 4668 Cox Road and is approximately 1,200 feet northeast of the proposed on-site wastewater treatment facility. According to the drilling log, the well is 160 feet deep and has a static water level of 46 feet below grade. The location of this residential water supply well is identified on **Figure 2** provided in **Appendix A**. A copy of the surrounding area well logs retrieved from the TDEC records is provided in **Appendix D.**

1.7 Centralized Wastewater Treatment and Disposal Evaluation

In accordance with Section 1.9 (3) of the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*, Atwell performed a centralized treatment system evaluation. This section will present the results of this effort.

The Stillwater planned resource conservation development will utilize a 110 acre parcel of land located directly adjacent to the project site to provide sanitary sewer service in accordance with the Williamson County requirements and TDEC regulations. This 110 acre parcel will accommodate the wastewater treatment processes, biosolids management system, an effluent storage basin, the primary drip irrigation disposal network, and other project elements including a facility building and auxiliary disposal pump station. Due to the influence of the 10-year floodplain elevation on the use of the site for land application, a second 55 acre parcel of land will be necessary to provide the reserve area required by Williamson County regulations.

The crucial first step in determining the viability of on-site sewer service is the site suitability evaluation for the disposal of treated effluent. Generally speaking, Williamson County and TDEC both encourage the applicant evaluate the use of slow rate land application prior to entertaining a direct discharge of treated wastewater to an available surface water. For this particular project, the results of the site suitability evaluation are presented in the DSIR document which is provided together with this submittal. The DSIR confirms that the 110 acre land parcel has the desirable site and soil characteristics that will effectively support the long term application of treated effluent utilizing subsurface drip irrigation. Information presented in the DSIR also adequately supports using the 55 acre parcel for a reserve area.

The various requirements established in the Williamson County standards can place significant limitations on the feasibility to serve additional adjacent properties with a centralized system approach. In this particular case, the 300 foot buffer requirement around the treatment and storage components of the system and the significant effluent storage basin volume impact both the ability to allocate more land area for effluent disposal and provide expanded treatment capacity. Of course, this is all recognizing that no credit is given for the fact the entire yearly volume of treated effluent will be effectively and efficiently reused for irrigation of the 18-hole championship golf course associated with the Stillwater project.

While the overall hydraulic capability of the two land application sites is considered greater than the loading rates proposed in the DSIR, the restrictions to the proposed sites imposed by the 10 year and 100 year floodplains and the Williamson County treatment system buffer requirements limit the ability for reasonably expanding the facility footprint and accommodating additional sanitary wastewater flow. Therefore, based on the limited land area available for treatment facility expansion and the design requirements established by the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*, expansion of the Stillwater on-site sewage treatment system to serve adjacent properties does not appear technically or financially feasible. Should the Williamson County Water and Wastewater Authority determine that revisions to the current standards are appropriate, evaluation of this site to serve additional properties may warrant further review.

2.0 DESIGN WASTEWATER CHARACTERISTICS

2.1 Raw Wastewater Quantity

Wastewater from the Stillwater development project will consist primarily of domestic sanitary sewage generated from the proposed 495 residential homes. As part of the golf course development component, the existing Tucker homestead will be converted into a clubhouse and will include a formal dining restaurant and food service. The clubhouse use contributing the combined restaurant and domestic sewage flows is included in the design basis. Based on the predominantly residential character of the Stillwater resource conservation development project, the following influent wastewater flows are assumed in this design:

Design Wastewater Flows	MGD
Average Day – Residential Homes	0.109
Average Day – Clubhouse/Restaurant	0.001
Maximum Day – Residential Homes	0.148
Maximum Day – Clubhouse/Restaurant	0.003
Peak Hour – Treatment Works	0.330

When taking into account the clubhouse and restaurant flow contribution, the average daily flow for design of the treatment works is considered to be 110,000 gallons per day (gpd) and the maximum daily design flow is project to be 151,000 gpd. The total daily flow values presented are based on an average sewage flow of 220 gallons per day per home, and a maximum sewage flow of 300 gallons per day per home. Both of these design flow assumptions are considered to offer a strong degree of conservatism with a watertight collection system and will afford sound process design to achieve consistent treatment and meet the required effluent results.

2.2 Raw Wastewater Characteristics

Based on the residential character of the Stillwater resource conservation development project, the following influent wastewater characteristics are assumed in this design:

Raw Wastewater Characteristics	Concentration (mg/L)	Loading (lbs/day)
Biochemical Oxygen Demand (BOD_5)	300	375
Total Suspended Solids (TSS)	300	375
Total Kjeldahl Nitrogen	50	63
Ammonia Nitrogen (NH_3-N)	40	50
Total Phosphorus (P)	8	10
Sodium	30	38
Chloride	40	50

The NH_3-N, P, TSS and BOD_5 concentrations are believed to offer a reasonable degree of conservatism, with respect to the overall facility design, and are believed to fairly represent the influence of the clubhouse and restaurant contribution to the wastewater pollutant parameters. Due to the dominance of the residential flow component, the target pollutant parameters

presented above are consistent with domestic sanitary sewage. The raw wastewater influent values for sodium absorption ratio, electrical conductivity, and any metals or priority pollutants are considered to be negligible for domestic sanitary sewage.

2.3 Treated Effluent Characteristics

The on-site wastewater system serving the Stillwater development project will incorporate the beneficial reuse of reclaimed wastewater for golf course irrigation. The treatment process design will produce effluent meeting the requirements presented in Section 2.5 of the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*. The following table summarizes the treated effluent characteristics for this facility.

Treated Effluent Characteristics	Concentration (mg/L)	Loading (lbs/day)
Biochemical Oxygen Demand (BOD_5)	<10	<13
Total Suspended Solids (TSS)	<10	<13
Total Inorganic Nitrogen	<10	<13
Ammonia Nitrogen (NH_3-N)	<1	<2
Nitrite Nitrogen	<1	<1
Nitrate Nitrogen	<8	<11
Total Phosphorus (P)	<1	<2
Sodium	50	67
Chloride	70	93
Turbidity	<3 NTU	-
Fecal Coliform Bacteria	<20 colonies/100 mL	-

The treated effluent values for sodium absorption ratio, electrical conductivity, and any metals or priority pollutants are considered to be negligible for domestic sanitary sewage and can be estimated at 10, 2 ds/m, and <10 mg/l, respectively.

3.0 WATER & NITROGEN BALANCES

With respect to water and nitrogen balances, the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*, essentially references Chapter 16 – Slow Rate Land Treatment of the Design Criteria for Sewage Works, as published by the Division of Water Pollution, TDEC. However, since the Stillwater project will incorporate both subsurface drip irrigation and reclaimed wastewater reuse, Sections 2.3, 2.4 and 2.5 of the Williamson County regulations also apply. This section of the DDR will present the information required to satisfy the TDEC and Williamson County requirements.

3.1 Primary/Reserve Disposal Field Hydraulic Loading Rates

The results of a comprehensive site evaluation performed on the 110 acre treatment facility parcel are presented in the DSIR, which is included with this submittal. The information obtained at this site supports the use of a design maximum hydraulic loading rate (or percolation rate) of 0.36 gpd/ft^2 for the primary disposal area. This value is utilized in the spray irrigation

water balance approach that is utilized to evaluate the effluent storage basin volume as outlined in Section 3.4 below. The reserve disposal area identified on the 55 acre land parcel is also considered to comfortably support a minimum design percolation rate of 0.36 gpd/ft^2.

3.2 Nitrogen Balance

As presented in Section 2.3, the wastewater treatment system proposed to serve the Stillwater development is designed to consistently produce a treated effluent containing less than 10 mg/l of total inorganic nitrogen, which is the sum of ammonia, nitrite, and nitrate. Based on this design condition, selection of a cover crop for additional nitrogen uptake from the treated effluent will not be necessary in the facility design. Since the effluent will not have the potential to impair groundwater quality, slow rate land application of treated sanitary effluent will not be limited by Equation 16-5 as presented in Chapter 16 of the TDEC Design Criteria. The design limitation for applying effluent will then simply be the maximum hydraulic loading rate (or percolation rate) as determined by the field investigation activities, including the extra high-intensity soil mapping, summarized in the DSIR.

3.3 Cover Crop Selection & Management Plan

The primary and reserve slow rate application sites for the Stillwater project consist of agricultural farm land that is currently planted with corn or winter wheat. Once the project is approved by Williamson County and TDEC, construction activities will begin on the 110 acre parcel of land. With successful completion of the on-site treatment process, effluent pond, facility building and drip irrigation network, the primary disposal area will be cleared and/or brush hogged and cultivated for planting with a suitable cover crop. Recommended ground covers include the natural grasses lespedeza, broom sedge, and yellow Indian grass. All can grow in a wide range of soils, are not sensitive to pH, have strong root structure and longevity, and are a good deterrent to surface erosion and runoff. The reserve disposal site will retain the current agricultural use and remain protected to preserve the suitable soil characteristics for effluent dispersal.

Since the wastewater treatment process will effectively reduce total nitrogen to less than 10 mg/l, a fairly straightforward land application management scheme will be employed. Without the need to consider crop management for nutrient removal, the drip irrigation fields will simply be routinely mowed and the clippings removed as necessary. Field management will be geared to maintain a healthy cover crop and prevent the potential for surface erosion and runoff. The most important aspect of the management plan will be a routine inspection schedule diligently carried out by the licensed operator of the facility.

3.4 Effluent Storage Basin Volume

For the Stillwater project that incorporates reclaimed wastewater reuse for golf course irrigation as the preferred disposal alternative, and a subsurface drip irrigation field as the redundant system, the requirement to size the effluent storage basin in accordance with the procedure as defined by TDEC in Chapter 16 of the Design Criteria is extremely conservative. However, this

procedure was performed for this site utilizing a net primary drip irrigation field acreage of 9.6 acres and a design maximum hydraulic loading rate of 0.36 gpd/ft^2. The results of this analysis are provided for review in **Appendix E** and indicate a volume of 983,000 ft^3 for the effluent storage basin. This equates to 65 days of storage at the average daily flow and is considered excessive based on the final disposal aspects of the Stillwater project.

Based on the 300 foot buffer and 100 year floodplain restrictions on the 110 acre parcel, the proposed effluent holding basin is designed to accommodate 506,412 ft^3, which equates to just over 34 days of storage at the average daily flow. Since subsurface drip irrigation is not negatively impacted by site and soil conditions that normally affect spray irrigation systems, including the fact that subsurface drip performs reliably in freezing conditions, and the treatment facility will have the ability to deliver effluent to the golf course irrigation system year round, this design proposes to utilize an effluent storage basin volume of 506,412 ft^3. We believe that this volume of effluent storage is considered more than reasonable for the final disposal scenario to be implemented on this project and meshes well with the site and buffer constraints.

3.5 Background Groundwater Quality

There are no wells currently installed at the 55 acre and 110 acre disposal sites. The nearest well with an available log is approximately 1,200 feet from the reserve disposal area and has a static water level of 46 feet below grade. Based on the site conditions and surrounding land use, it is expected the groundwater is not impacted by near surface sources of contamination with values for fecal coliform bacteria at 0/100 ml, nitrate nitrogen less than 0.1 mg/l and total phosphorus less than 0.05 mg/l.

4.0 WASTEWATER TREATMENT FACILITY DESIGN

The Stillwater on-site wastewater system design concept centers around providing a highly efficient and effective treatment process to produce an effluent meeting TDEC and Williamson County reuse standards. The process design will also reduce total nitrogen to less than 10 mg/l thereby eliminating potential groundwater impacts and further restrictions to the land application of treated effluent utilizing drip irrigation.

The treatment system selected is both robust and operator friendly. The facility design will provide process unit redundancy meeting the EPA Class I reliability requirements and a licensed sewage treatment plant operator with over 30 years experience in activated sludge facility management will be retained to oversee the facility by the TRA regulated utility system owner, Cartwright Creek, LLC. This section will present the detailed Design Development for the Stillwater on-site treatment facility.

4.1 Wastewater Treatment System Overview

Wastewater from the Stillwater development project service area will consist primarily of domestic sanitary sewage generated from the 495 residential homes, with the clubhouse use contributing combined restaurant and domestic sewage flows. Wastewater generated by each home will be directed first to an E-One grinder unit and then pumped through a low pressure

force main collection network to the proposed wastewater treatment plant. The E-One grinder units will begin processing the raw wastewater by reducing gross solids particle size as part of the collection system design. Wastewater from the E-One collection system will be directed to a community raw wastewater pump station for delivery to the sewage treatment and disposal facility located at the adjacent 110 acre parcel site southeast of the development project.

The raw influent wastewater from the development pump station will be discharged into an equalization basin system designed to provide a more uniform influent flow and biological loading to the sewage treatment works. An activated sludge biological treatment process consisting of an anaerobic selector tank regime, an anoxic process tank, aeration tank and final clarifier will treat the sewage. The sewage treatment process will be designed and operated to optimize the biological nitrification and denitrification processes and promote effective biological phosphorus uptake and removal. Effluent from the final clarifier units will be disinfected by ultraviolet irradiation and discharged to the effluent management and disposal system. Treated effluent will be directed to either the effluent storage basin, subsurface disposal drip irrigation network, or the auxiliary disposal system pump station. A wastewater treatment system flow schematic is provided as **Figure 3** in **Appendix A** to aid in the review of the information presented herein.

Two parallel treatment trains are proposed for the Stillwater residential development project. Land area is reserved for an additional treatment train and a third final settling clarifier to meet Williamson County "back-up" facility requirements and provide the infrastructure necessary to support potential future service areas within the PGA5 sewer district. The biological treatment system will be designed to consistently produce treated effluent that will meet the requirements for the beneficial reuse of reclaimed wastewater and golf course irrigation as presented in the *Williamson County Regulations for Wastewater Treatment and Land Disposal Systems, November 3, 2004*, requirements.

For residuals management, a volume equal to 45 days storage of conditioned biosolids will be provided by a covered concrete tank system. The biosolids storage tanks will provide adequate aeration and mixing to allow proper conditioning. Biosolids will be managed under the direction of the Stillwater facility certified operator with disposal or to an approved POTW via a TDEC licensed hauler.

The proposed wastewater treatment facility and supporting infrastructure has a life expectancy of greater than 50 years. The cast in place concrete will provide long term structural stability and the process equipment will be selected based on industry proven performance and reliability. A wastewater treatment facility layout depicting the preliminary design for the treatment plant, effluent holding basing, primary disposal field, buffer zones, access road, water courses, and floodplain elevations is provided as **Figures 4 and 5** in **Appendix A** of this report. **Figure 6** of **Appendix A** shows the proposed reserve disposal area on the 55 acre land parcel.

4.2 Flow Equalization

Wastewater generated by the Stillwater development service area will be directed to an equalization basin system. The total basin volume will be approximately 30% of the average

daily design flow. Two equalization basins will be provided, one for each treatment train. Raw sewage submersible mixers will maintain reasonably uniform wastewater characteristics and minimize solids deposition in the equalization basins. A duplex submersible pump system will then direct flow to the biological treatment process at a controlled rate.

Flow Equalization Process	Component Data
Equalization Tank	
Number	2
Dimensions	16'W x 12'L x 16' SWD
Volume per Tank	3,072 ft^3
Submersible Mixers	
Number	2
Capacity	1.5 Hp/1,000 ft^3
Raw Sewage Pumps	
Number	2
Capacity	110 gpm/pump

4.3 Activated Sludge Process Design

An extended aeration activated sludge treatment system will be provided to promote biological nutrient removal (nitrogen and phosphorus) in addition to biological oxygen demand (BOD_5) removal. The treatment facility will revolve around the STM-Aerotor aerobic process and will incorporate anaerobic and anoxic selector tanks to provide denitrification and biological phosphorus uptake. The term "selector" was first used in the wastewater industry to describe the modification of the activated sludge process incorporating small zone(s) at the upstream end of the aeration basin where influent waste and return activated sludge (RAS) are combined prior to entering the main aeration basin.

The treatment tanks will be rectangular with circular final settling tanks and will be constructed of reinforced cast in place concrete. Parallel process trains of equal capacity are provided for operational flexibility. The two (2) treatment trains together will effectively process the design daily average and maximum flows of 110,000 gpd and 151,000 gpd, respectively. A single process train will be capable of processing 75% of the design maximum daily flow of 151,000 gpd to meet EPA Class I reliability requirements and duplex process equipment such as pumps and mixers will be included. Servicing of the aeration and mixing equipment, crucial to process control, will not require dewatering of the process tanks.

Anaerobic Selector Process Tanks

The first bio-selector is fed by the combination of influent wastewater and RAS. The fermentation of mixed liquor allows for an anaerobic environment suitable for biological phosphorus release, which is the first step in the luxury uptake process. The use of a selector zone not only facilitates phosphorus removal, but also controls the F/M ratio at an elevated level.

The high F/M encourages the efficient growth of floc forming microorganisms, which leads to a decreased SVI.

This zone must have a dissolved oxygen (DO) level below 0.01 mg/l. Therefore, this zone must have only mixing with no aeration component. During low flow periods at start-up or during the night, this zone would be poisoned if the mixing device added any DO.

Number	2
Dimensions	16'W x 6'L x 16' SWD
Volume per Tank	1,536 ft^3
HRT at Average Day Flow	4.8 hrs
HRT at Max Day Flow	3.4 hrs

Anoxic Process Tanks

Following the first Bio-Selector tank, the anaerobic mixed liquor flows to the anoxic selector tank where it is combined with the recycled nitrate-rich mixed liquor from the STM Aerotor aerobic tank. The oxygen deficient, nitrate-rich environment causes the microorganisms to rely on nitrate as an electron acceptor (de-nitrification process). This process not only removes nitrogen, but it also restores some of the alkalinity lost during nitrification in the aerobic regime.

This anoxic selector zone needs to have a DO level less than 0.5 mg/l to be effective. Therefore, this zone must have only mixing with no aeration component. It will be critical to remove nitrate from the process so that the anaerobic selector works correctly. If nitrate is recycled to the anaerobic selector in the RAS stream, the anaerobic bio-selector volume will be anoxic instead of anaerobic. Nitrate levels above 10 mg/l could prohibit the fermentation stage in the anaerobic bio-selector.

Number	2
Dimensions	16'W x 10'L x 16' SWD
Volume per Tank	2,560 ft^3
HRT at Average Day Flow	8.0 hrs
HRT at Max Day Flow	5.7 hrs

Aeration Process Tanks

As the mixed liquor flows into the STM Aerotor aerobic zone, it combines with the oxygen-rich mixture. The oxidation of BOD_5 and ammonia occurs in these channels. The BOD_5 is digested leaving increased cell mass and respired CO_2. The ammonia is oxidized to nitrate. "Luxury uptake" of phosphorus by microbes occurs as the phosphorus is stored as energy. In addition to the treatment via the suspended growth organisms, the STM Aerotor process also employs the treatment utilizing attached growth organisms. The attached growth organisms allow for additional treatment using less volume. Additionally, the fixed film organisms are higher life forms which include nitrifiers. This increased population of nitrifiers allows for nitrification at lower SRT values.

Number	2
Dimensions	16'W x 22'L x 16' SWD
Volume per Tank	5,632 ft^3
BOD_5 Loading (lb/1,000 ft^3)	35.7
HRT at Average Day Flow	17.6 hrs
HRT at Max Day Flow	12.6 hrs

4.4 Final Settling Tanks

Two (2) center feed, circular concrete final settling tanks will be provided. Each tank will be equipped with a continuous mechanical sludge collector mechanism and the clarifier bottom will be sloped to direct solids to a central return sludge withdrawal point. The clarifier surface will be continuously skimmed concurrent with the bottom sludge collector mechanism operation. A perimeter v-notch overflow weir and baffle system will be provided for clarifier effluent discharge.

Number	2
Dimensions	18' diameter x 12' SWD
SOR (gpd/ft^2) at Average Day Flow	253
SOR (gpd/ft^2) at Max Day Flow	352
Solids Loading (lb/ft^2) at Max Day	23.5
Weir Loading (gpd/ft) at Max Day	2,996

4.5 Return Sludge (RAS)

The return sludge flow rate from each final settling tank will be controlled through a telescopic v-notch weir with discharge to a concrete wet well. Submersible return sludge pumps will direct return sludge flow from the wet well to the anaerobic selector tank influent. A wet well level controlled ball valve will be provided on the pump discharge to reasonably match pump output to the return sludge flow rate. The return sludge flow rate will be adjustable between 40 and 100 percent of the design influent flow. Waste sludge will be directed from the return sludge system to the biosolids holding and management tank system.

Return Sludge Pumps	
Number	2
Capacity	110 gpm

4.6 Disinfection

Disinfection will be accomplished with ultraviolet irradiation. A package unit will be provided with multiple lamp modules in a stainless steel channel. The UV system will utilize a 480-volt, single-phase power supply. Spare lamp module, lamps, sleeves, and ballasts will be provided to enable timely replacement of burned out bulbs or failed ballasts. The UV system will be sized

for the ultimate maximum day flow of 151,000 gpd and located in the wastewater treatment facility service building.

4.7 Biosolids and Residuals Management

Waste sludge will be directed to reinforced concrete sludge storage tanks to provide aerobic digestion and store thickened biological solids for subsequent liquid disposal at an approved POTW receiving station. The storage tank capacity will provide a minimum of 120 days of storage for thickened biosolids estimated at 2.0 percent solids. The storage tank will be equipped with coarse bubble diffusers designed to meet the mixing and aeration requirements of stored biological solids. Biosolids will be managed under the direction of the Stillwater facility certified operator with disposal or to an approved POTW via a TDEC licensed hauler.

Sludge Storage Tanks:

Number:	2 total
Capacity:	40,400 gallons each
Dimensions:	30' L x 15' W x 12' SWD each tank
Aspirating Mixers:	4 (two for each tank) at 5 Hp each

4.8 Standby Power & Facility Alarms

A diesel or natural gas engine generator with automatic transfer switch will be provided with capacity to operate the ultimate total facility electrical loads. An automatic dialer to the facility operator will communicate alarm conditions. Alarms shall include loss of power, loss of signal, raw sewage pump failure, excessive clarifier drive torque, mixer failures, return sludge pump failure, drip irrigation system alarm inputs, and UV module failure. The treatment system alarms, electrical infrastructure, control panels and various process appurtenances will be housed in the facility building located at the wastewater plant site.

4.9 Drip Irrigation Disposal System

While disposal of final effluent will occur on the 18-hole golf course associated with the Stillwater development, a primary land application disposal area is required pursuant to the Williamson County standards. The site specific conditions to support land application of treated effluent are documented in the DSIR document. This section will present an overview of the primary disposal field design.

As presented in Section 3.1 of this DDR, the information obtained at the 110 acre site supports the use of a design maximum hydraulic loading rate of 0.36 gpd/ft^2. The design average daily hydraulic loading rate will be 0.26 gpd/ft^2. Subsurface drip irrigation will be accomplished on 15.3 total acres directly adjacent to and surrounding the treatment and storage facility infrastructure. With detailed design to exclude unsuitable or less desirable mapped soil units, construction of a facility access road, and Williamson County required buffer setbacks, the net yield of land for drip irrigation is expected to be 9.6 acres and will be designed to effectively

disperse the projected daily maximum flow generated by the wastewater treatment system of 151,000 gpd.

The primary irrigation field will be designed to provide 10 zones with a total of 185,000 lineal feet of drip tubing. The ½ inch diameter irrigation tubing will be installed to a depth of 6-inches below the ground surface carefully following the natural ground surface contour. The detailed design process will optimize the layout and the experienced drip irrigation system contractor will install the tubing to follow the site topography. The subsurface irrigation tubing laterals are equipped with drip emitters spaced at 2 foot on center and the tubing laterals will be installed at 2 foot on center spacing to effectively and uniformly disperse the treated effluent into the environment.

The drip irrigation system will include a duplex dosing pump, dose tank and irrigation control system, a disc filter system upstream of the dose pumps, irrigation network access, valves and flushing provisions. The design dose rate will be 117 gpm per zone. With dual zone dosing capability, the maximum dose rate will be 234 gpm. The drip irrigation zones will be forward flushed individually at a rate of 240 gpm. The disc filters will back flush at 70 gpm. It is anticipated that each zone will be dosed once a day following a dosing schedule established by the licensed operator. The particular zones in service, dose time and daily volume are fully adjustable at the system control panel by the facility operator.

4.10 Wastewater Treatment and Disposal System Equipment

Appropriate manufacture product literature and performance information is provided for the wastewater collection, treatment process and drip irrigation system components in **Appendix G**. This information is intended to provide a sound overview of the on-site wastewater treatment system preliminary design. The final selection of the equipment will be fully defined through the detailed facility design phase and provided with the TDEC and Williamson County construction permit submittal package.

5.0 AUXILIARY DISPOSAL SITE

As part of the residential home site development, the Stillwater project is integrated within an 18-hole championship golf course and natural feature environment. While the project will be provided water service from the Milcrofton Utility District, significant emphasis is placed to incorporate the reuse of reclaimed wastewater for golf course irrigation. This concept allows multiple benefits to the environment and the surrounding community, with the most significant being the dramatic reduction in demand for irrigation water from the municipal water supply system. It is our understanding that both TDEC and Williamson County openly support wastewater reuse.

5.1 Auxiliary Disposal System Design

The auxiliary disposal site will consist of 110 total acres of golf course turf, with the effluent disposal zones consisting of the fairways, tees, and greens for each hole of the course. The 18 individual auxiliary site zones will be established with a turf consisting of mixed warm season

Bermudagrass fairways and Bentgrass tees and greens. Treated effluent produced by the on-site wastewater system and meeting reuse standards will be directed to an auxiliary disposal site pump station which will then pump effluent to the large golf course lake feature located adjacent to the clubhouse. Water management for the golf course use will be controlled by a central irrigation system network under the direct supervision of a qualified irrigation specialist.

An Irrigation Water Use report prepared by Golf Engineering Associates, Inc. is provided for review in **Appendix H**. Based on the site specific climate and rainfall data for the location of this project, irrigation design efficiency, and other factors, the total irrigation water required for effective golf course water management over the 110 acres of turf is projected at approximately 63 million gallons per year (mg/yr) and occurring primarily over the months of April through October of each year. The system design will utilize an irrigation rate of approximately 1¼ inches per week and stager controlled for overnight operation. The specific preliminary design elements, including important operation and maintenance considerations, for discharging effluent to the auxiliary disposal site are also presented in the Irrigation Water Use report.

The 63 mg/yr of expected golf course irrigation water, which is considered a *minimum* required value for the course, significantly exceeds the anticipated 40.2 mg/yr of annual average flow contributed by the 495 residential home sites at full occupancy of the Stillwater development. Even at the design annual maximum daily flow from the wastewater treatment plant of 54.8 mg/yr, there will be an irrigation water shortfall. Obviously, this will be more dramatic during the first phases of site development and in this light, every drop of water generated by the wastewater treatment facility will be crucial to offset the need for public water irrigation. It should be noted that a water surplus is expected during the months of November through March. The golf course lake and water feature system will be designed to harness this surplus along with the yearly production from the on-site wastewater treatment plant. The lake system will also be integrated to reasonably capture storm water generated at the Stillwater development.

5.2 Auxiliary Disposal Site Ownership Control & Buffers

The golf course portion of the Stillwater development will be under the ownership and management control of an entity independent from the owner of the on-site wastewater treatment system, Cartwright Creek, LLC. Under this scenario a legal instrument such as a restrictive deed covenant defining the requirements of each party to maintain perpetual continuity of service to accept, discharge and adequately manage the treated effluent generated by the Stillwater wastewater treatment facility will be established in accordance with TDEC and Williamson County requirements. Should the golf course fail to remain in operation as is expected, the perpetual deed will allow the wastewater facility to continue utilization and management of the auxiliary site turf area for effluent disposal.

The auxiliary disposal site will consist of 110 total acres of golf course turf. Each reclaimed wastewater disposal zone will consist of the fairway, tee, and green for each hole of the course. The 18 individual auxiliary site zones will be designed such that a "buffer zone" is provided between the edge of the effluent disposal area turf and adjacent features such as residential homes, surface waters, etc. The design buffer zone will comply with the then current distance as established in the appropriate and applicable Williamson County standards.

6.0 WASTEWATER FACILITY CONSTRUCTION COST ESTIMATE

6.1 Initial Treatment Facility Cost

A detailed cost estimate for construction of the on-site wastewater treatment facility designed to serve the Stillwater project is included for review in **Appendix I**. The cost breakdown includes the E-One low pressure collection system network and a central raw wastewater pump station. The cost summary presented should be considered a reasonable attempt to define the overall sanitary sewer system infrastructure cost at this stage of the Stillwater development project and some degree of adjustment should be expected as the detailed design phase efforts progress.

6.2 Backup Treatment Facility Cost

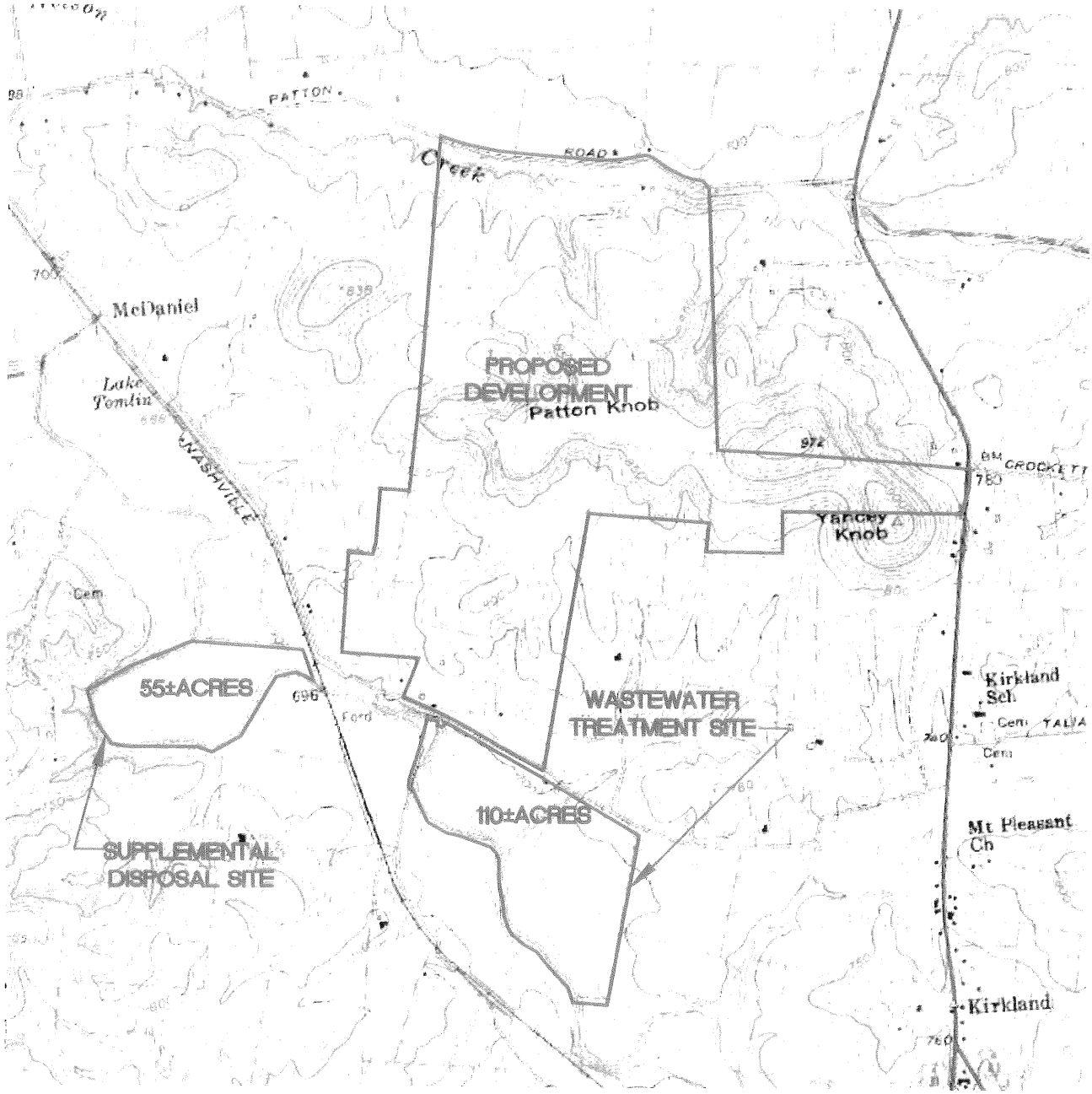
A detailed cost estimate for construction of the "backup" on-site wastewater treatment facility for the Stillwater project is included for review in **Appendix I**. The treatment facility footprint allows a reasonable "backup" facility to be constructed adjacent to the existing system. Since the primary treatment plant incorporates dual process trains constructed of cast in place concrete tanks with the capacity to effectively treat the average daily flow and 75% of the projected maximum daily flow, the replacement system proposed includes the installation of a third process train and a third final settling clarifier.

Of course, this is a rather conservative view of addressing redundancy and/or replacement since a system utilizing cast in place concrete tanks would typically only require the potential equipment replacement costs that will occur over the design life of the system. Examples of equipment replacement include the STM-Aerotor elements, pumps, mixers, meters, etc. The equipment replacement costs can be considered equivalent to the cost breakdown provided for construction of the initial treatment facility. However, allocating space to construct a third backup train can be considered a strong factor of safety in the unlikely event the concrete infrastructure of an entire process train should structurally fail.

As with the primary plant, the cost summary presented should be considered a reasonable attempt to define the overall sanitary sewer system infrastructure cost at this stage of the Stillwater development project and some adjustments should be expected as the detailed design efforts progress.

Appendix A

Figures and Maps



1 .5 0 1
MILES

1 .5 0 KILOMETERS 1 2
METERS

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

REFERENCE

USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
COLLEGE GROVE, TENN. QUADRANGLE
DATED: 1957
SCALE 1:24000

WILLIAMSON COUNTY

FIGURE 1: SITE LOCATION MAP

STILLWATER
WILLIAMSON COUNTY
TENNESSEE

PREPARED FOR:

EAGLE RIDGE INVESTMENTS, L.L.C.

PROJECT: 06001081
DATE: MAY 1, 2007
DRAWN: cjb
CHECKED: jm
CAD FILE: 06001081EV-01

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Appendix E

TDEC Spray Irrigation Effluent Storage Basin Analysis

REQUIRED STORAGE VOLUME CALCULATIONS

Williamson County, Tennessee

May 9, 2007

Design Basis

Design Criteria for Sewage Works
Division of Water Pollution Control
Department of Health and Environment
State of Tennessee

Determination of Maximum Allowable Monthly Hydraulic Wastewater Loading

Note: Due to frozen soils, wastewater can only be applied ten days in January and twenty days in February and December.

Pr = Five-Year Return Monthly Precipitation (provided by State)

= Pr_{avg} + (0.85 x std. dev.)

PET = Potential Evapotranspiration Term (provided by State)

$$= 0.63 \times S \times \frac{50 \times (T - 32)^{A}}{9 \times I}$$

Perculation = 0.36 gpd / sf

$$= \frac{0.4 \ \text{gal}}{(\text{day})(\text{ft}^2)} \times \frac{1 \ \text{day}}{24 \ \text{hr}} \times \frac{1 \ \text{ft}^2}{144 \ \text{in}^2} \times \frac{1 \ \text{ft}^3}{7.48 \ \text{gal}} \times \frac{1728 \ \text{in}^3}{1 \ \text{ft}^3} = \boxed{\mathbf{0.024} \ \frac{\mathbf{in}}{\mathbf{hr}}}$$

Lwh = Monthly Wastewater Application Rates Based on Perculation Rate
= (PET + Perculation) - Pr

Month	PET (in/mon)	Pr (in/mon)	Pr - PET (in/mon)	Perculation (in/mon)	Lwh (in/mon)
January	0.10	7.62	-7.52	5.77	0.00
February	0.27	6.72	-6.45	11.55	5.10
March	0.97	8.85	-7.88	17.90	10.02
April	2.30	6.59	-4.29	17.32	13.03
May	3.59	6.13	-2.54	17.90	15.36
June	4.90	5.52	-0.62	17.32	16.70
July	5.44	6.85	-1.41	17.90	16.49
August	5.00	4.73	0.27	17.32	17.59
September	3.79	5.54	-1.75	17.90	16.15
October	1.98	4.47	-2.49	17.90	15.41
November	0.82	6.11	-5.29	17.32	12.03
December	0.27	7.55	-7.28	11.55	4.27
Totals	29.43	76.68	-47.25	187.68	142.17

Determination of Maximum Allowable Monthly Hydraulic Wastewater Loading
Based on Nitrogen Concentration Comparison Between Infiltration and Nitrogen Loading Rates

Lwn = Monthly Wastewater Application Rates Based on Nitrate Concentration

$$= \frac{Cp \times (Pr - PET) + U \times (4.424)}{(1 - f) \times (Cn) - Cp}$$

Cp = 10 mg / l

Cn = 10 mg / l

f = 25%

U = 200 pounds / acre / year

Lwd = Lesser of Lwn or Lwh

Month	Pr (in/mon)	PET (in/mon)	Uptake, U %	Uptake, U lbs.	Lwn (in/mon)	Lwh (in/mon)	Lwd (in/mon)
January	7.62	0.10	1%	2	0.00	0.00	0.00
February	6.72	0.27	2%	4	0.00	5.10	5.10
March	8.85	0.97	4%	8	0.00	10.02	10.02
April	6.59	2.30	8%	16	0.00	13.03	13.03
May	6.13	3.59	12%	24	0.00	15.36	15.36
June	5.52	4.90	15%	30	0.00	16.70	16.70
July	6.85	5.44	17%	34	0.00	16.49	16.49
August	4.73	5.00	15%	30	0.00	17.59	17.59
September	5.54	3.79	12%	24	0.00	16.15	16.15
October	4.47	1.98	8%	16	0.00	15.41	15.41
November	6.11	0.82	4%	8	0.00	12.03	12.03
December	7.55	0.27	2%	4	0.00	4.27	4.27
Totals	29.43	76.68	100%	200	0.00	142.17	142.17

Estimation of Storage Volume Requirements Using Water Balance Calculations

Qy = 41.98 MG / year

Lwd = 142.17 in / year

C = 36.83

Ap = Preliminary Estimation of Land Required for Application of Wastewater

$$= \frac{(Qy) \times (C)}{Lwd} = 10.9 \text{ acres} \quad \textbf{OR} \quad 0.0 \text{ acres}$$

if the preliminary estimation is larger than the acreage available on-site, manually enter an acreage estimation (the Wp calc will select the lesser of the two acreages). Set to zero to use the estimation equation's acreage.

Wp = Available Monthly Wastewater Available

$$= \frac{(Qm) \times (C)}{Ap}$$

Qm = 3.57 MG / month (Jan, Mar, May, July, Sept, Oct, Dec)

3.45 MG / month (April, June, Aug, Nov)

3.22 MG / month (Feb)

Month	Lwd (in/mon)	Wp (in/mon)	Change (in/mon)	Cummulative Storage (in/mon)
January	0.00	12.07	12.07	16.20
February	5.10	10.91	5.81	22.00
March	10.02	12.07	2.05	24.06
April	13.03	11.69	-1.35	22.71
May	15.36	12.07	-3.29	19.42
June	16.70	11.69	-5.02	14.40
July	16.49	12.07	-4.42	9.99
August	17.59	11.69	-5.91	4.08
September	16.15	12.07	-4.08	0.00
October	15.41	12.07	-3.34	-3.34
November	12.03	11.69	-0.35	-3.69
December	4.27	12.07	7.81	4.12
Totals	142.17	142.17		

Note: Starting the Cummulative Storage in October will result in the maximum storage.

Estimation of Storage Volume Requirements Using Water Balance Calculations *(cont)*

Storage Volume = (Max. Storage) x (Ap)

$$= 24.06 \text{ in} \times 10.88 \text{ acres} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{43560 \text{ ft}^2}{\text{acre}}$$

$$= 950{,}000 \text{ ft}^3$$

Desired Storage Depth = 10 ft

Storage Area = 95,000 ft

Vm = Monthly Losses / Gains in Storage Due to Precipitation

= Pr - Evaporation - Seepage

Note: Yearly Evaporation totals 20-in, and maximum allowable Seepage is 1/4 inch per day.

Qmf = Qm + Vm

Month	Pr (in/mon)	Evap. (in/mon)	Seepage (in/mon)	Vm (in/mon)	Vm (MG)	Qm (MG)	Qmf (MG)
January	7.62	0.07	7.75	-0.20	-0.012	3.5654	3.553
February	6.72	0.18	7.00	-0.46	-0.028	3.22	3.193
March	8.85	0.66	7.75	0.44	0.026	3.57	3.592
April	6.59	1.56	7.50	-2.47	-0.148	3.45	3.302
May	6.13	2.44	7.75	-4.06	-0.243	3.57	3.322
June	5.52	3.33	7.50	-5.31	-0.318	3.45	3.132
July	6.85	3.70	7.75	-4.60	-0.276	3.57	3.290
August	4.73	3.40	7.50	-6.17	-0.370	3.45	3.081
September	5.54	2.58	7.75	-4.79	-0.287	3.57	3.279
October	4.47	1.34	7.75	-4.62	-0.277	3.57	3.289
November	6.11	0.56	7.50	-1.95	-0.117	3.45	3.334
December	7.55	0.18	7.75	-0.38	-0.023	3.57	3.543
Totals	76.68	20.00	91.25	-34.57	-2.071	41.98	39.909

Vt = Yearly Losses / Gains = -2.071 MG

Estimation of Storage Volume Requirements Using Water Balance Calculations *(cont)*

$$Af = \text{Adjusted Field Area} = \frac{(Qy + Vt) \times C}{Lwd} = 10.34 \text{ acres}$$

$$Wf = \frac{(Qmf \times C)}{Af}$$

0.0 acres

Manually entered acreage estimation from above. If zero, the Wf equation will utilize the Af equation's acreage.

Month	Wf (in/mon)	Lwd (in/mon)	Change (in/mon)	Cummulative Storage (in/mon)
January	12.66	0.00	12.66	17.16
February	11.37	5.10	6.27	23.43
March	12.80	10.02	2.77	26.20
April	11.76	13.03	-1.27	24.93
May	11.83	15.36	-3.53	21.41
June	11.16	16.70	-5.55	15.86
July	11.72	16.49	-4.77	11.09
August	10.97	17.59	-6.62	4.47
September	11.68	16.15	-4.47	0.00
October	11.72	15.41	-3.70	-3.70
November	11.88	12.03	-0.16	-3.85
December	12.62	4.27	8.35	4.50
Totals	142.17	142.17		

Note: Starting the Cummulative Storage in October will result in the maximum storage.

Adjusted Storage Volume = (Max. Storage x Af)

$$= 26.20 \text{ in} \times 10.34 \text{ acres} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{43560 \text{ ft}^2}{\text{acre}}$$

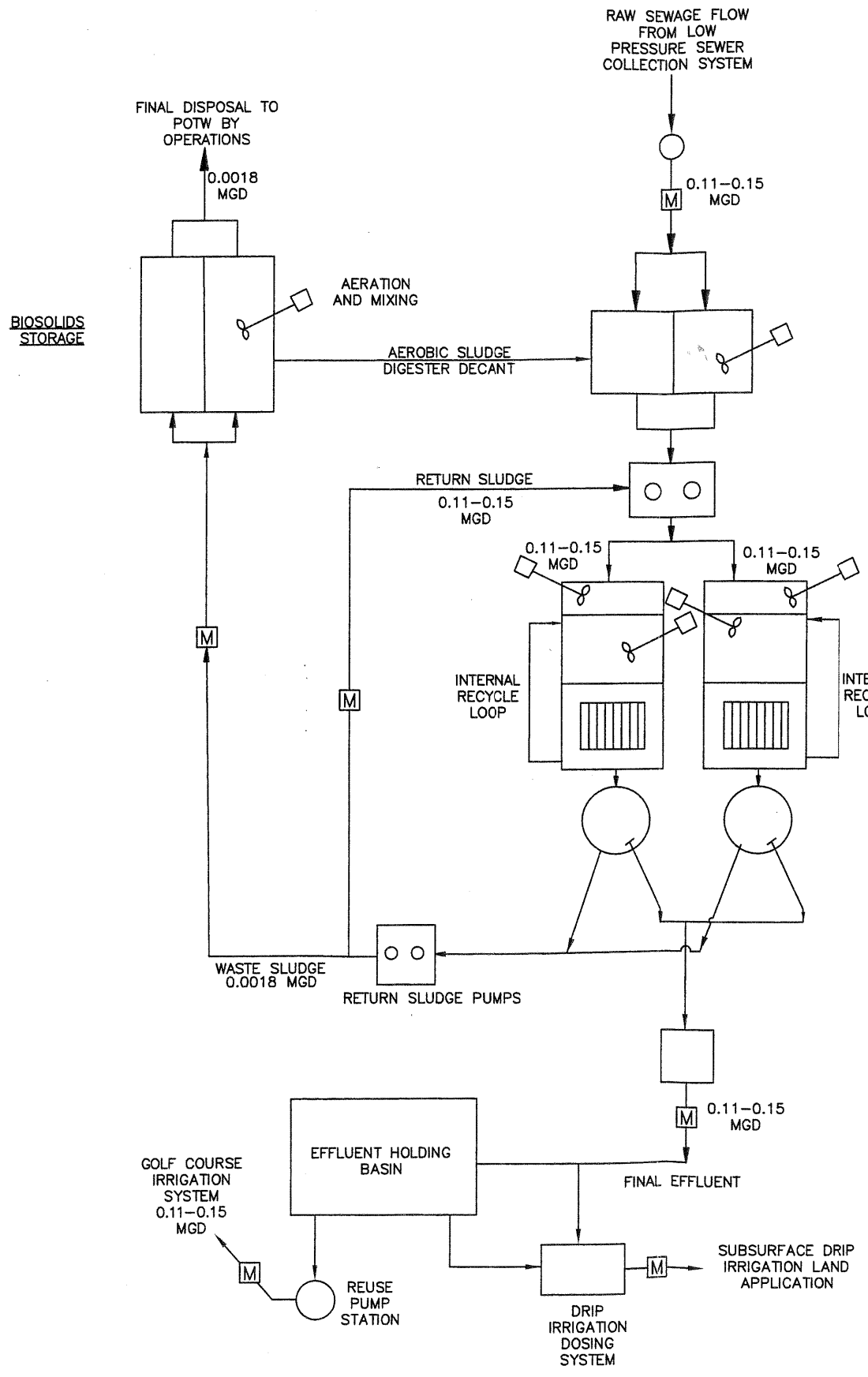
$$= \mathbf{983{,}000 \text{ ft}^3}$$

Original Storage Area = 95,000 ft

Adjusted Storage Depth = 10.3 ft

Appendix F

Wastewater Treatment System Flow Schematic



FINAL COLLECTION SYSTEM LIFT STATION

FLOW EQUALIZATION BASINS

PROCESS INFLUENT PUMPS

ANAEROBIC SELECTOR TANKS

ANOXIC PROCESS TANKS

STM–AEROTOR AERATION PROCESS TANKS

FINAL SETTLING CLARIFIERS

UV DISINFECTION

LEGEND

M FLOW MEASUREMENT

MGD = MILLION GALLONS PER DAY

STILLWATER RESOURCE CONSERVATION DEVELOPMENT
WASTEWATER TREATMENT FACILITY
FLOW SCHEMATIC

PROJECT NO.: 06001801
DATE: 5/21/07
DR: CMR
CAD FILE: 06001081EV–03DDR

FIGURE 3

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Engineering Surveying Planning
Environmental Ecological Water Resources

Appendix G

Wastewater Treatment System Equipment

STM-AEROTOR PROCESS DESIGN

Project Name:	076280	Project Number:	076280
Consulting Engineer:	Atwell-Hicks	Completed By:	RSM
Date:	5/14/2007	Checked By:	

DESIGN PARAMETERS

INFLUENT WASTESTREAM

Q (MGD)	0.1100
BOD (mg/l)	300
TSS (mg/l)	300
TKN (mg/l)	50.0
NO3 (mg/l)	0
TP (mg/l)	8.0
NH3-N (mg/l)	40.0

SITE SPECIFIC INFORMATION

Tmin	12.0
Tmax	25.0
Elevation (ft)	597
Cs temp affect	8.18
Cs temp/elev affect	8.00
Cs mid depth correction	9.82
Alpha	0.75
Beta	0.95
Simultanious nit/denit %	0%

PREDICTED EFFLUENT

		LIMIT
BOD (mg/l)	10	
TSS (mg/l)	10	
NH3 (mg/l)	1.0	
ORG N (mg/l)	1.0	
NO3 (mg/l)	8.0	
TKN (mg/l)	2.0	
TN (mg/l)	10.0	
TP (mg/l)	1.0	

DESIGN INFORMATION

SRT (days)	12.5
MLSS (mg/l)	4000
Yield (lb/lb)	0.65
N ASSIM (%)	5.0
Oxygen coef (lb/lb)	1.10
Residual DO (mg/l)	1.0

PROCESS SUMMARY

Basin Length (ft)	22
Basin Width (ft)	16
Basin Water Depth (ft)	16
Number of Basins	2
STM Wheels per Basin	1
STM Wheel Diameter (m)	4.3
STM Wheel Length (m)	2.5
STM Drive Motor Size, HP	5
Number of Aux Pipes per Wheel	1
FF Surface Area per Wheel (ft^2)	8805
Fixed Film Density (lb SS/1000 ft^3)	3.69

STM-AEROTOR CALCULATIONS

Basin Volume = Length x Width x Depth x Number of Basins

Basin Volume (gal)	81622

HRT = Basin Volume / Flow x 24

HRT (hrs)	18

Food to Mass Ratio = Flow x BODi / (Basin Volume x MLSS)

F/M (lb/lb-day)	0.10

STM-AEROTOR FIXED FILM ANALYSIS

Total System Fixed Film Area = Wheels in System x Area per Wheel

Total Area (ft^2)	17610

BODff = BOD removed by fixed film per day

Logfit From F/M curve x System Area (LB BOD / day)	34
BODff (mg/l)	37

NH3ff = NH3 removed by fixed film per day

Logfit from F/M curve x System Area (LB NH3 / day)	9.8
NH3ff (mg/l)	10.7

STM-AEROTOR PROCESS DESIGN

Fixed Film Mass

LB TSS	65

STM-AEROTOR ACTIVATED SLUDGE ANALYSIS

BOD Removal = BODi - BODff - BODe

LB / Day	232

Sludge Production = BOD removed x Sludge Yield

WAS (LB / Day)	151

N assimilation = 5% x Sludge Production

N assim (mg/l)	8
N assim (lbs/day)	8

Oxidized Ammonia = TKNi - NH3e -NH3ff - Org Ne - N assimilated

NH3 oxid (mg/l)	29
NH3 oxid (lbs/day)	27

Nitrate Generated = Oxidized Ammonia + NH3ff - NO3e

NO3 to be reduced (mg/l)	32
NO3 to be reduced (lbs/day)	29

Simultaneous Nit/Denit (SNdN) = % of Nitrate Removed in Aerobic Tank

NO3 to be reduced (mg/l)	32
NO3 to be reduced (lbs/day)	29

OXYGEN HP REQUIREMENT

Actual Oxygen Requirement (BOD) = BOD removed x Oxygen Coefficient (BOD)

AORc (lbs/day)	255

Actual Oxygen Requirement (NH3) = NH3 oxidized x Oxygen Coefficient (NH3)

AORn (lbs/day)	123

Actual Oxygen Requirement (total) = AORc + AORn (no denit credit)

AOR no denite credit (lbs/day)	378

AOR denitrification credit = NO3 reduced x 2.86 lbs O2

TOTAL AOR DENITE CREDIT (lb/day)	83

Actual Oxygen Requirement (total) = AORc + AORn - AORdenite credit

AOR with denite credit (lbs/day)	294

Standard Oxygen Requirement

SOR no denite credit (lbs/day)	484
SOR with denite credit (lbs/day)	377
TOTAL SOR DENITE CREDIT (lb/day)	108
SOR no denite credit (lbs/hr/wheel)	10
Use Figure 1 to determine wheel speed (rpm)	

STM-AEROTOR PROCESS DESIGN

ANOXIC VOLUME CALCULATION

SDNR = [0.03 x (F/M) + 0.029] x 1.02 ^ (Tmin - 20)
Anoxic Volume = lbs NO3 reduced / (SDNR x MLSS x 8.34)
F/M = (8.34 x Flow x BODin) / (Vax x MLSS x 8.34)
Anoxic Volume = combine and re-write the above equations

$$\frac{SNdN \times 8.34 - 0.2504 \times BODin \times 1.02^{(Tmin-20)} \times Flow}{(0.242 \times MLSS \times 1.02^{(Tmin-20)})}$$

Anoxic Volume (gal)	**26763**
check	26785
F/M	0.308

SDNR = SNdN x Flow / (MLSS x Vol anox)

SDNR (gNO3-N/gTSS/day)	**0.0327**
check	0.0326

ANAEROBIC VOLUME CALCULATION

HRT (min)	**90**

Anaerobic Volume = Flow / 24 hrs / 60 min x HRT

Anaerobic Volume (gal)	**6875**

SYSTEM SUMMARY

	No. Trains	**2**
ANAEROBIC ZONE(S)		
	Volume per Train (gal)	3,438
	No. Anaerobic Zones	1
	Volume per Zone (gal)	3,438
	No. Mixers per zone	1
	Mixer Type	VERTICAL SHAFT
	Mixer HP (nominal)	**0.10**
	Mixer HP (actual)	1
ANOXIC ZONE		
	No. Anoxic Zones	1
	Volume per Zone (gal)	13,381
	No. Mixers per zone	1
	Mixer Type	VERTICAL SHAFT
	Mixer HP (nominal)	**0.4**
	Mixer HP (actual)	1
AEROBIC ZONE		
	No. STM-Aerotor Zones	1
	Volume per Zone (gal)	40,811
	No. Aerotors per zone	2

STM-AEROTOR PROCESS DESIGN

Project Name:	076280	Project Number:	076280
Consulting Engineer:	Atwell-Hicks	Completed By:	RSM
Date:	4/4/2007	Checked By:	

DESIGN PARAMETERS

INFLUENT WASTESTREAM

Q (MGD)	0.1500
BOD (mg/l)	300
TSS (mg/l)	300
TKN (mg/l)	50.0
NO3 (mg/l)	0
TP (mg/l)	8.0
NH3-N (mg/l)	40.0

SITE SPECIFIC INFORMATION

Tmin	12.0
Tmax	25.0
Elevation (ft)	597
Cs temp affect	8.18
Cs temp/elev affect	8.00
Cs mid depth correction	9.82
Alpha	0.75
Beta	0.95
Simultanious nit/denit %	0%

PREDICTED EFFLUENT

		LIMIT
BOD (mg/l)	10	
TSS (mg/l)	10	
NH3 (mg/l)	1.0	
ORG N (mg/l)	1.0	
NO3 (mg/l)	8.0	
TKN (mg/l)	2.0	
TN (mg/l)	10.0	
TP (mg/l)	1.0	

DESIGN INFORMATION

SRT (days)	10.0
MLSS (mg/l)	4000
Yield (lb/lb)	0.70
N ASSIM (%)	5.0
Oxygen coef (lb/lb)	1.10
Residual DO (mg/l)	1.0

PROCESS SUMMARY

Basin Length (ft)	22
Basin Width (ft)	16
Basin Water Depth (ft)	16
Number of Basins	2
STM Wheels per Basin	1
STM Wheel Diameter (m)	4.3
STM Wheel Length (m)	2.5
STM Drive Motor Size, HP	5
Number of Aux Pipes per Wheel	1
FF Surface Area per Wheel (ft^2)	8805
Fixed Film Density (lb SS/1000 ft^3)	3.69

STM-AEROTOR CALCULATIONS

Basin Volume = Length x Width x Depth x Number of Basins

Basin Volume (gal)	81622

HRT = Basin Volume / Flow x 24

HRT (hrs)	13

Food to Mass Ratio = Flow x BODi / (Basin Volume x MLSS)

F/M (lb/lb-day)	0.14

STM-AEROTOR FIXED FILM ANALYSIS

Total System Fixed Film Area = Wheels in System x Area per Wheel

Total Area (ft^2)	17610

BODff = BOD removed by fixed film per day

Logfit From F/M curve x System Area (LB BOD / day)	37
BODff (mg/l)	30

NH3ff = NH3 removed by fixed film per day

Logfit from F/M curve x System Area (LB NH3 / day)	8.4
NH3ff (mg/l)	6.7

STM-AEROTOR PROCESS DESIGN

Fixed Film Mass

LB TSS	65

STM-AEROTOR ACTIVATED SLUDGE ANALYSIS

BOD Removal = BODi - BODff - BODe

LB / Day	326

Sludge Production = BOD removed x Sludge Yield

WAS (LB / Day)	228

N assimilation = 5% x Sludge Production

N assim (mg/l)	9
N assim (lbs/day)	11

Oxidized Ammonia = TKNi - NH3e -NH3ff - Org Ne - N assimilated

NH3 oxid (mg/l)	32
NH3 oxid (lbs/day)	40

Nitrate Generated = Oxidized Ammonia + NH3ff - NO3e

NO3 to be reduced (mg/l)	31
NO3 to be reduced (lbs/day)	39

Simultaneous Nit/Denit (SNdN) = % of Nitrate Removed in Aerobic Tank

NO3 to be reduced (mg/l)	31
NO3 to be reduced (lbs/day)	39

OXYGEN HP REQUIREMENT

Actual Oxygen Requirement (BOD) = BOD removed x Oxygen Coefficient (BOD)

AORc (lbs/day)	358

Actual Oxygen Requirement (NH3) = NH3 oxidized x Oxygen Coefficient (NH3)

AORn (lbs/day)	185

Actual Oxygen Requirement (total) = AORc + AORn (no denit credit)

AOR no denite credit (lbs/day)	544

AOR denitrification credit = NO3 reduced x 2.86 lbs O2

TOTAL AOR DENITE CREDIT (lb/day)	111

Actual Oxygen Requirement (total) = AORc + AORn - AORdenite credit

AOR with denite credit (lbs/day)	433

Standard Oxygen Requirement

SOR no denite credit (lbs/day)	697
SOR with denite credit (lbs/day)	554
TOTAL SOR DENITE CREDIT (lb/day)	143
SOR no denite credit (lbs/hr/wheel)	15
Use Figure 1 to determine wheel speed (rpm)	

STM-AEROTOR PROCESS DESIGN

ANOXIC VOLUME CALCULATION

SDNR = [0.03 x (F/M) + 0.029] x 1.02 ^ (Tmin - 20)
Anoxic Volume = lbs NO3 reduced / (SDNR x MLSS x 8.34)
F/M = (8.34 x Flow x BODin) / (Vax x MLSS x 8.34)
Anoxic Volume = combine and re-write the above equations

$$\frac{SNdN \times 8.34 - 0.2504 \times BODin \times 1.02^{(Tmin-20)} \times Flow}{(0.242 \times MLSS \times 1.02^{(Tmin-20)})}$$

Anoxic Volume (gal)	**35133**
check	35163
F/M	0.320

SDNR = SNdN x Flow / (MLSS x Vol anox)

SDNR (gNO3-N/gTSS/day)	**0.0330**
check	0.0329

ANAEROBIC VOLUME CALCULATION

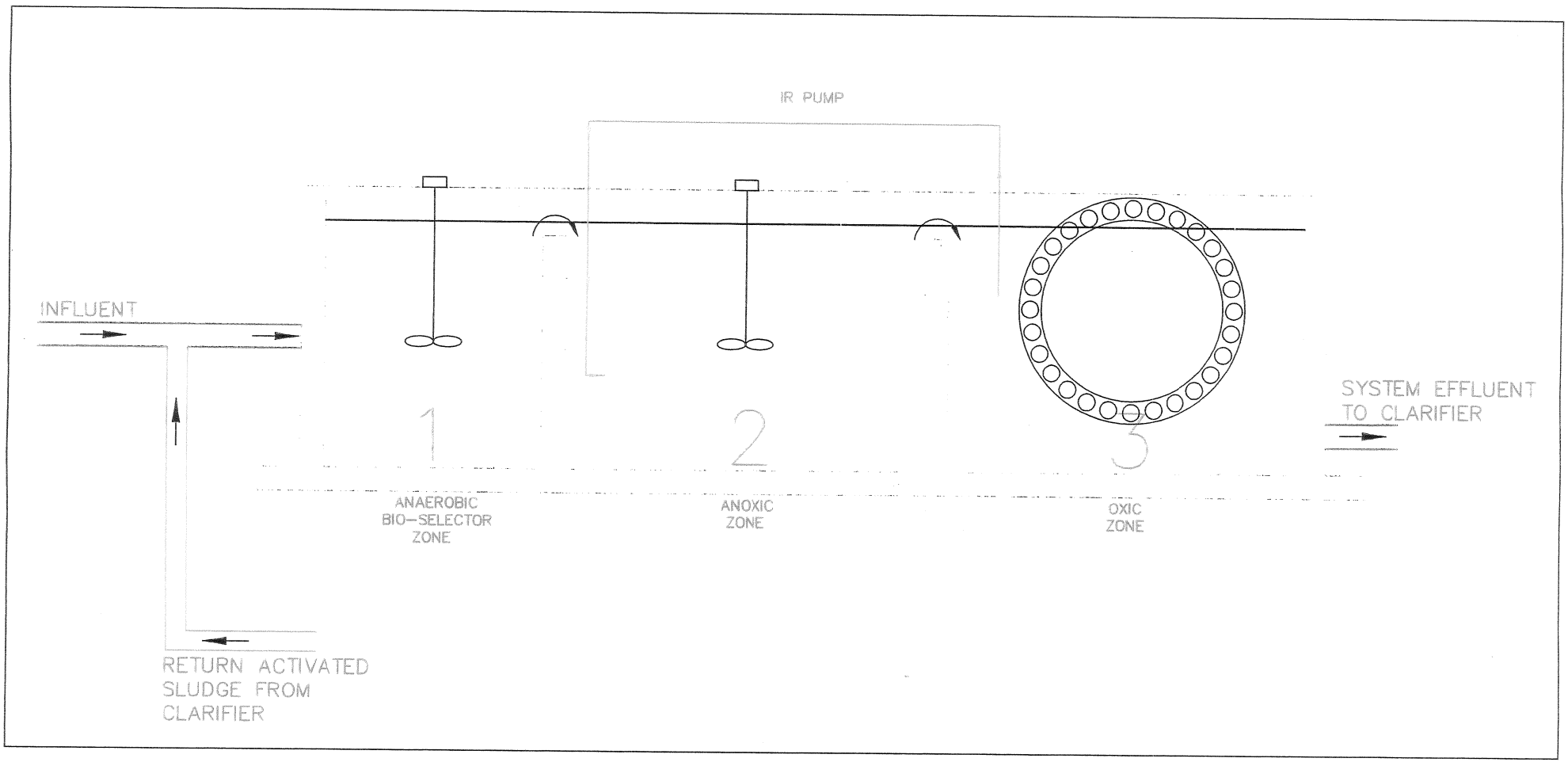
HRT (min)	**90**

Anaerobic Volume = Flow / 24 hrs / 60 min x HRT

Anaerobic Volume (gal)	**9375**

SYSTEM SUMMARY

No. Trains		**2**
ANAEROBIC ZONE(S)		
	Volume per Train (gal)	4,688
	No. Anaerobic Zones	1
	Volume per Zone (gal)	4,688
	No. Mixers per zone	1
	Mixer Type	VERTICAL SHAFT
	Mixer HP (nominal)	**0.14**
	Mixer HP (actual)	1
ANOXIC ZONE		
	No. Anoxic Zones	1
	Volume per Zone (gal)	17,567
	No. Mixers per zone	1
	Mixer Type	VERTICAL SHAFT
	Mixer HP (nominal)	**0.5**
	Mixer HP (actual)	1
AEROBIC ZONE		
	No. STM-Aerotor Zones	1
	Volume per Zone (gal)	40,811
	No. Aerotors per zone	2


IR PUMP
INFLUENT
SYSTEM EFFLUENT
TO CLARIFIER
1
2
3
ANAEROBIC
BIO-SELECTOR
ZONE
ANOXIC
ZONE
OXIC
ZONE
RETURN ACTIVATED
SLUDGE FROM
CLARIFIER

DESIGN PARAMETERS

INFLUENT

$Q := .15MGD$

$BOD_{in} := 300 \frac{mg}{L}$

$TSS_{in} := 300 \frac{mg}{L}$

$TP_{in} := 8 \frac{mg}{L}$

$NH3_{in} := 40 \frac{mg}{L}$

$NO3_{in} := 0 \frac{mg}{L}$

$TKN_{in} := 50 \frac{mg}{L}$

EFFLUENT

$BOD_{out} := 10 \frac{mg}{L}$

$TSS_{out} := 10 \frac{mg}{L}$

$TP_{out} := 1 \frac{mg}{L}$

$NH3_{out} := 1 \frac{mg}{L}$

$NO3_{out} := 8 \frac{mg}{L}$

$OrgN_{out} := TSS_{out} \cdot .05 + .05 \frac{mg}{L}$

$TKN_{out} := OrgN_{out} + NH3_{out}$

$TN_{out} := NO3_{out} + TKN_{out}$

$OrgN_{out} = 0.55 \frac{mg}{L}$

$TKN_{out} = 1.55 \frac{mg}{L}$

$TN_{out} = 9.55 \frac{mg}{L}$

SITE SPECIFIC INFORMATION

Process Summary

BASIN

Length := 22ft

Width := 16ft

Depth := 16ft

Number of Basins Basins := 2

Wheels per Basin Wheels := 1

$Wheel_{diam} := 4.3m$

$Wheel_{len} := 2.5m$

Motor := 5hp

Number of Auxiliary Pipes per wheel

Aux := 1

Fixed Film Surface Area Per Wheel

$FF_{surfacearea} := 8805ft^2$

Fixed Film Density

$$FF_{density} := 3.69 \frac{lb}{1000ft^2}$$

$T_{min} := 12K + 273.15K$

$T_{max} := 25K + 273.15K$

Elevation := 597ft

Design Information

SRT := 10day

$$MLSS := 4000 \frac{mg}{L}$$

Yield := .7

$N_{assim} := 5\%$

$O2_{coef} := 1.10$

$$DO := 1 \frac{mg}{L}$$

Pressure Calculation

Constant lapse rate moist air

$$a_1 := .0065\frac{K}{m}$$

Specific Gas Constant

$$R_1 := 287\frac{J}{kg \cdot K}$$

$$P := 101.3 \cdot kPa \cdot \left(\frac{T_{min} - a_1 \cdot Elevation}{T_{min}} \right)^{\frac{g}{a_1 \cdot R_1}}$$

Reference = Burman et al. (1987)

$P = 99.111\,kPa$

Saturation Vapor Pressure Calculation

$$p_{svp} := .611 \cdot e^{\left[\frac{17.27 \cdot (T_{min} - 273.15K)}{T_{min}} \right] \cdot kPa}$$

Reference = Tetens (1930)

$p_{svp} = 1.264 \times 10^3\,Pa$

$$DO_{sat} := e^{\left[-173.4292 + 249.6339 \cdot \frac{100K}{T_{max}} + 143.3483 \cdot \ln\left(\frac{T_{max}}{100K} \right) - 21.8492 \cdot \left(\frac{T_{max}}{100K} \right) \right] \cdot 1.4276 \cdot \frac{mg}{L}}$$

Reference = Weiss (1970) Deep-Sea Res. 17:721-735

$DO_{sat} = 8.236\frac{mg}{L}$

$$C_{mid} := DO_{sat} \cdot \left(\frac{P - p_{svp} + 1 \cdot \frac{gm}{mL} \cdot \frac{Depth - 1ft}{2} \cdot g}{1atm - p_{svp}} \right)$$

$C_{mid} = 9.899\frac{mg}{L}$

$\alpha := .75$ STM Aerotor is best characterized by coarse bubble diffusion, with typical alpha values of .7 - .8

$\beta := .95$ The STM Aerotor is close to the typical activated sludge system, so the normal beta value of .95 works.

STM Aerotor Calculations

Basin Volume

$$Volume := Length \cdot Width \cdot Depth \cdot Basins$$

$$Volume = 8.426 \times 10^4\ gal$$

$$HRT := \frac{Volume}{Q}$$

$$HRT = 13.482\ hr$$

Food to Mass Ratio

$$FM := \frac{Q \cdot BOD_{in}}{Volume \cdot MLSS}$$

$$FM = 0.134 \frac{lb}{lb \cdot day}$$

STM Aerotor Fixed Film Analysis

Total System Fixed Film Area

$$FF_{tot} := FF_{surfacearea} \cdot Basins \cdot Wheels$$

$$FF_{tot} = 1.761 \times 10^4\ ft^2$$

BOD removed by fixed film per day
This is based on observed data from STM installations

$$BOD_{ff1} := (.418 \cdot \ln(FM \cdot 1 \cdot day - 0.025) + 3.023) \cdot \frac{FF_{tot}}{1000 \cdot ft^2} \cdot \frac{lb}{day}$$

$$BOD_{ff1} = 36.887 \frac{lb}{day}$$

BOD removed by fixed film per day in mg/L

$$BOD_{ff} := \frac{BOD_{ff1}}{Q}$$

$$BOD_{ff} = 29.467 \frac{mg}{L}$$

Ammonia removed by fixed film per day
This is based on observed data

$$NH3_{ff1} := (-0.618 \cdot \ln(FM \cdot 1 \cdot day + 0.159) - 0.276) \cdot \frac{FF_{tot}}{1000 \cdot ft^2} \cdot \frac{lb}{day}$$

$$NH3_{ff1} = 8.517 \frac{lb}{day}$$

Ammonia removed by fixed film per day in mg/L

$$NH3_{ff} := \frac{NH3_{ff1}}{Q}$$

$$NH3_{ff} = 6.804 \frac{mg}{L}$$

Fixed Film Mass

$$FF_{tot} \cdot FF_{density} = 64.981 \text{ lb}$$

STM Aerotor Activated Sludge Analysis

BOD Removal

$$BOD_{removed} := \left(BOD_{in} - BOD_{ff} - BOD_{out}\right) \cdot Q \quad BOD_{removed} = 326.138 \frac{lb}{day}$$

Sludge Production

$$WAS := BOD_{removed} \cdot Yield \quad WAS = 228.297 \frac{lb}{day}$$

Nitrogen Assimilation

$$N_{as} := .05 \cdot WAS \quad N_{as} = 11.415 \frac{lb}{day} \quad N_{as2} := \frac{N_{as}}{Q} \quad N_{as2} = 9.119 \frac{mg}{L}$$

Oxidized Ammonia

$$NH3_{ox2} := TKN_{in} - NH3_{out} - NH3_{ff} - OrgN_{out} - N_{as2} \quad NH3_{ox2} = 32.527 \frac{mg}{L}$$

$$NH3_{ox} := NH3_{ox2} \cdot Q \quad NH3_{ox} = 40.718 \frac{lb}{day}$$

Nitrate Generated

$$NO3_{gen2} := NH3_{ox2} + NH3_{ff} - NO3_{out} \quad NO3_{gen2} = 31.331 \frac{mg}{L}$$

$$NO3_{gen} := NO3_{gen2} \cdot Q \quad NO3_{gen} = 39.221 \frac{lb}{day}$$

Oxygen HP Requirement

Actual Oxygen Requirement for BOD removal

$AOR_c := BOD_{removed} \cdot O2_{coef}$ $\quad AOR_c = 358.752 \frac{lb}{day}$

Actual Oxygen Requirement for NH3 removal
Using 4.6 as the oxygen coefficient for Ammonia reduction

$AOR_n := NH3_{ox} \cdot 4.6$ $\quad AOR_n = 187.303 \frac{lb}{day}$

Actual Oxygen Requirement Total

$AOR := AOR_c + AOR_n$ $\quad AOR = 546.054 \frac{lb}{day}$

Denitrification credit
Using 2.86 lb of Oxygen available per pound of NO3 reduced

$Denite_{cred} := NO3_{gen} \cdot 2.86$ $\quad Denite_{cred} = 112.172 \frac{lb}{day}$

Actual Oxygen Requirement including denite credit

$AOR_{cred} := AOR - Denite_{cred}$ $\quad AOR_{cred} = 433.882 \frac{lb}{day}$

Standard Oxygen Requirement

$$SOR := \frac{AOR}{\alpha} \cdot \left(\frac{9.02 \frac{mg}{L}}{\beta \cdot C_{mid} - DO} \right) \cdot 1.024^{\left(\frac{293.15K - T_{max}}{K} \right)} \qquad SOR = 694.06 \frac{lb}{day}$$

$$SOR_{cred} := \frac{AOR_{cred}}{\alpha} \cdot \left(\frac{9.02 \frac{mg}{L}}{\beta \cdot C_{mid} - DO} \right) \cdot 1.024^{\left(\frac{293.15K - T_{max}}{K} \right)} \qquad SOR_{cred} = 551.484 \frac{lb}{day}$$

Reference : Metcalf & Eddy, Wastewater Engineering third edition page 572

$Credit := SOR - SOR_{cred}$ $\quad Credit = 142.576 \frac{lb}{day}$

Oxygen transferred per wheel

$O2_{wheel} := \frac{SOR}{Basins \cdot Wheels}$ $\quad O2_{wheel} = 14.46 \frac{lb}{hr}$

5. Has Cartwright Creek, LLC submitted its application to TDEC. If not, when will it be submitted?

Response:

The TDEC State Operating Permit Application is scheduled to be submitted in late October 2007.

6. Please provide written documentation for handling after-hour emergencies.

Response:

Emergency notification procedures are presented in Exhibit B.

Exhibit B

Emergency Notification Procedures Stillwater Development

For Homeowners and Commercial Property Occupants:

Each unit will be equipped with a grinder pump located in a buried sump outside of the home. The grinder pump will be equipped with an alarm system that will alert the homeowner or business owner to a pump problem or high level in the sump via an alarm light located in a visible position inside the home. As part of the service agreement with Cartwright Creek, each property owner will be given a laminated instruction card for mounting next to the light, reading"

"Sewage Grinder Pump Alarm Light
In the event that this light is on, immediately call the Wastewater service provider, Cartwright Creek, at the 24-hour number: 615-261-8600
Do not attempt to service the grinder pump yourself."

The Cartwright Creek number is the local operating office. If no one answers at the office, the number will transfer to the Region Manager's Cell Phone or the cell phone of the operating staff person on-call.

The Cartwright Creek staff member will, after phone discussion with the property owner, determine the most efficient response. In a majority of cases, Cartwright Creek will contact one of its contracted local pump service providers, who have 24-hour emergency service capabilities. The service providers will be the following or an equivalent:

John Bouchard & Sons Co.	Southern Sales Co., Inc.	Wascon, Inc.
1024 Harrison Street	2929 Kraft Drive	910 East Main Street
Nashville, TN 37203	Nashville, TN 37204	Livingston, TN 38570
615-256-0112	615-254-0066	931-823-1388

Wastewater Reclamation and Reuse System and Pump Stations

The Wastewater Reclamation and Reuse System building will be equipped with a phone dialer to which the major equipment (blowers, filter, UV light disinfection unit) will be connected. In the event of an equipment failure or power outage, the phone dialer will being to call phone numbers on its programmed call list. The person answering the call will hear which specific alarm has activated and will need to acknowledge by entering the response code. If the phone number is not answered, the dialer will call subsequent numbers on its preprogrammed call list until the alarm is acknowledged. Again, the Cartwright Creek staff member, depending upon the specific alarm, will determine the most efficient response method, which may include contacting one of the service providers above.

Remote pump stations in the collection system will each be equipped with a phone dialers and follow the same call procedures as described above.

7. To assist the Authority in analyzing the financial capability of the Company, please respond to the following:

a. Based on Cartwright Creek's Annual Report filed with the Authority for 2006, the Company is operating at a loss. Please provide sources of funding that will be available going forward to pay for the additional expenses for operating the sewer system in the Stillwater Development.

Response:

The Stillwater project and related wastewater treatment, irrigation, and collection systems that will be turned over to Cartwright Creek, will be designed and constructed at the cost of the Developer (Eagle Ridge Investments, LLC). This is set forth in an agreement between Cartwright Creek and Developer, entitled "Sewer and Wastewater Treatment System Service Agreement", dated August 30, 2007 and attached as Exhibit D. That agreement also acknowledges that during the first years of operation, there will be a shortfall between expenses and operating revenue, which will be made up by the Developer. Once a sufficient number of units are occupied, the monthly billing in accordance with the tariff presented herein, will be sufficient to support operations.

SEWER AND WASTEWATER TREATMENT SYSTEM SERVICE AGREEMENT

This Sewer and Wastewater Treatment System Service Agreement (this "**Agreement**") is made and shall become effective this 30th day of August (*month*) 2007 (the "**Effective Date**"), by and between Cartwright Creek, L.L.C., a Tennessee limited liability company ("Cartwright Creek") and Eagle Ridge Investments, L.L.C, a Tennessee limited liability company ("Owner") (singularly, "**Party**," and collectively, the "**Parties**") pursuant to which Cartwright Creek will provide to Owner the services described herein.

RECITALS

A. **Whereas**, Owner owns a certain property in Williamson County, Tennessee, shown and legally described on Exhibit A herein (the "Property"), on which it plans to build a residential and commercial development and golf course (the "Stillwater Project" or the "Development");

B. **Whereas**, Owner and its consultants are designing and applying to the Tennessee Department of Environment and Conservation ("TDEC") and Williamson County for permit approvals to build and operate a wastewater treatment facility to be designed for Owner by Sheaffer International, L.L.C, as defined in Paragraph 8.b. of this Agreement (the "WWTP"), a sewage collection system as defined in Paragraph 8.a. of this Agreement (the "Collection System"), and a treated wastewater irrigation system as defined by Paragraph 8.c. of this Agreement (the "Irrigation System") on the property and/or on a nearby property (together, the "Project");

C. **Whereas**, Owner has requested Cartwright Creek, as a privately owned, wastewater treatment utility, holding a license from the Tennessee Regulatory Authority ("TRA"), to operate the Project and to own the WWTP, the Collection System, and the primary and secondary irrigation components of the Irrigation System (the golf course auxiliary irrigation will be retained by the Owner);

D. **Whereas**, Cartwright Creek desires to provide the requested services to Owner and also desires to ensure that the Project is designed and constructed in accordance with State and local laws, regulations, and ordinances, and that the project is capable of being operated according to State and Williamson County requirements and in accordance with approvals granted Cartwright Creek by the Tennessee Regulatory Authority ("TRA");

Now therefore, upon the following consideration and mutual promises, the Parties hereby agree as follows:

1. **INCORPORATION OF RECITALS AND EXHIBITS**. The foregoing Recitals and all attached Exhibits are hereby incorporated into this Agreement by reference.

2. **CONDITIONS OF SERVICES**. Cartwright Creek's performance obligations under the Agreement are expressly conditioned on the assumed "Basis for Scope of Services" provided in Exhibit C of this Agreement being followed. Owner agrees not to change the Project such that it becomes inconsistent with the Basis for Scope of Services without the prior written approval of Cartwright Creek and corresponding adjustment in compensation identified in Paragraph 5.a.ii. of this Agreement.

3. **COMMENCEMENT AND PERFORMANCE OF SERVICES.**

   a. General: Cartwright Creek's work and responsibilities under this agreement will be conducted during three phases of the project: Preconstruction; Construction; and Operation. The goal of the work during Preconstruction and Construction Phases is to ensure that the Collection System, WWTP, and Irrigation System are constructed in conformance with approved plans and specifications, tested and certified. The result will be full acceptance by Cartwright Creek, and successful Operation in accordance with its approved State and County permits.

   b. Preconstruction: The Cartwright Creek scope of work for this phase consists of document and drawing review; permit application review and signature, and application to provide service to the Tennessee Regulatory Authority (TRA). The work is described in Exhibit B to this agreement

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c. Construction: The Cartwright Creek scope of work for this phase consists of inspection and acceptance of construction. The work is described in Exhibit B to this agreement.

d. Operation: Upon completion of services defined in above Paragraphs 2.b. and 2.c, and upon receipt of all necessary State and county permit approvals necessary to operate the WWTP, Collection System, and Irrigation System, Owner shall transfer ownership of the Collection System, WWTP, and Irrigation System to Cartwright Creek in fee simple, free and clear of any and all liens and encumbrances.

Cartwright Creek shall not unreasonably withhold acceptance of this transfer and subsequently shall supply the manpower, tools, vehicles, and other resources required to operate and maintain the facility in conformance with requirements indicated in the operating permit approvals required to be obtained from the TDEC, Williamson County, and the TRA.

e. Date of Commencement of Services. The services to be performed by Cartwright Creek under this Agreement shall commence on the Effective Date of this Agreement.

4. RESPONSIBILITIES OF THE PARTIES.

a. Cooperation. Owner and Cartwright Creek agree to provide such information, execute and deliver any documents and to take such other actions as may be reasonably requested by the other Party which are not inconsistent with the provisions of this Agreement and which do not involve the assumptions of obligations other than those provided for in this Agreement, in order to carry out the intent of this Agreement. Each Party agrees to comply with all laws, rules and regulations applicable to the performance of its obligations hereunder. Owner and Cartwright Creek shall provide one another with all accurate and complete information concerning the Project that will assist efforts to assure that the operation and maintenance of the facility will be cost effective and environmentally sound.

b. Rights of Access. Owner warrants that it has, or will use, reasonable efforts to obtain the authority to, and hereby does, grant to Cartwright Creek all rights of access to all facilities to the extent reasonably necessary for Cartwright Creek to perform its duties and obligations required by this Agreement, including maintenance of the Collection System and operational monitoring of the Irrigation System, and emergency repairs, if necessary.

c. Material Changes. Owner shall construct the Project in accordance with the plans and specifications to be approved by TDEC and Williamson County and reviewed and accepted by Cartwright Creek in accordance with Paragraph 2.b. above. Owner shall not make substantial changes in the design, construction, or operation of the Collection System, the WWTP, or the Irrigation System without Cartwright Creek's review and written acceptance.

d. Homeowner Covenants. Owner shall draft homeowners' association covenants and bylaws and provide the documents to Cartwright Creek for review and approval, which shall not be unreasonably withheld. The covenants shall contain requirements for payment of monthly service fees as provided in Paragraph 4.c. of this Agreement, prohibited substances as provided in Paragraph 6. of this Agreement, and provide Cartwright Creek with the right to file a lien against the property of any property owner in the Development for nonpayment of fees.

e. Williamson County Bonding. Williamson County's "Regulations for Wastewater Treatment and Land Disposal Systems, Williamson County, Tennessee, November 3, 2004" (the "Regulations") set forth bonding requirements for wastewater treatment facilities that land apply effluent. Paragraph 1.10 of the Regulations defines two types of bonds that are required for this Project, the "Performance Bond" and the "Back-Up Bond." Owner shall be solely responsible for satisfying Williamson County requirements for the Performance Bond for constructing the Project. Cartwright Creek shall incorporate into its operations fees and the annual cost of the Back-Up Bond. The Owner shall be responsible for providing financial surety, if required, for the Back-Up Bond, consisting of a Letter of Credit or other surety acceptable to Williamson County and the bonding company.

5. COMPENSATION.

a. Preconstruction: The fees for Cartwright Creek work during the preconstruction phase are based upon the estimated hours for Cartwright Creek and/or a subconsultant's staffs. The Owner will reimburse Cartwright Creek for this work, which is budgeted to amount to $36,000. Actual time and materials and reimbursable expenses required for Cartwright

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Creek to complete the work will be billed against this budget. In the event the budget is exceeded, Cartwright Creek shall notify Owner and complete the work on a time and materials billing basis plus expense reimbursement, per the terms of Exhibit E of this Agreement. The $36,000 budget is allocated as follows:

- Engineering Review (Preconstruction Phase Tasks 1 and 2 from Exhibit B) $22,000
- Administrative Work (TRA CCN filing, per Preconstruction Phase Task 3 from Exhibit B)$14,000

i. Payment Schedule. Owner shall pay Cartwright Creek these fees based on Cartwright Creek's monthly invoicing for the work as it is completed. Payment shall be due on a Net 30 days invoicing basis.

ii. Limitation of Scope. The Scope of Work provided by Cartwright Creek is expressly limited to the terms of this Agreement, found in Paragraph 2 and Exhibit B, including the limiting assumptions provided in Exhibit B. Should additional work be necessary or requested by Owner, Cartwright Creek shall perform the work on a time and materials basis at its or its consultants' customary hourly rates, and be compensated for any reimbursable expenses incurred in the course of completing the work, per the rates provided in Exhibit E of this Agreement.

b. Construction: The fees for Cartwright Creek's work during the construction phase are based upon the estimated hours for Cartwright Creek and/or a subconsultant's staffs, assuming a 16-week construction schedule and two construction inspection site visits per week. Based on these assumptions, the Owner shall pay Cartwright Creek $39,000 for this work. Should additional site visits be necessary or should the $39,000 budget be otherwise exceeded, Cartwright Creek will bill Owner on time and materials, including reimbursable expenses, based on its standard billing rates provided in Exhibit E of this Agreement, or the rates of its consultants.

c. Operations:

i. Connection Fees: The Collection System, WWTP, and Irrigation System are being constructed at the sole cost of the Owner. There will be no connection fees due Cartwright Creek for the residential and commercial units within the Stillwater Development, with property described in Exhibit A, up to a maximum of 500 equivalent dwelling units (EDUs).

ii. Monthly service fee: Each property owner in the Stillwater Development shall pay Cartwright Creek a monthly service fee as established in Cartwright Creek's tariff as approved by the TRA (the "Service Fee"), based on a proportionate share of the cost to operate, maintain, and manage the Project, per Paragraph 8.d. of this Agreement. This Service Fee is the responsibility of each property owner (or the property owner's lessee) to pay, not Stillwater Development. The amount of the Service Fee will be established during the Project design, permitting, and application to the TRA for Cartwright Creek to own and operate the Project.

iii. Operating Reserve Fund. During the build-out of the Development, the Parties recognize that there will be a shortfall between the Operations Costs and the revenue provided by the Service Fees paid by homeowners (the "Shortfall"). The Owner shall cover the Shortfall, by funding an Operating Reserve Fund in escrow. Prior to Cartwright Creek taking ownership of the facility and annually thereafter, Owner or any assignee per Paragraph 7.m. of this Agreement shall place an amount in the Operating Reserve Fund equivalent to Cartwright Creek's estimated Shortfall for the coming year. Cartwright Creek shall estimate the Shortfall based on its operating expenses approved by the TRA for the previous year and the projected Service Fees to be paid in the coming year, and invoice Owner for this amount, payable to the Operating Reserve Fund escrow account.

iv. Residential Grinder Pump Service and Replacement. Each homeowner is responsible for repairing and replacing his/her Residential Grinder Pump as necessary to operate the pump in compliance with the design documents approved by Cartwright Creek and the manufacturer's operating manual. Cartwright Creek has the right to access the property to inspect the pump at any time to ensure that the pump is operating as required. If, in Cartwright Creek's sole discretion, the pump needs to be repaired or replaced, the homeowner must repair or replace the pump per Cartwright Creek's requirements. If requested by the homeowner, Cartwright Creek will help the homeowner perform the required work on the pump on a time and materials basis, per the terms provided in Exhibit D of this Agreement.

d. No Withholding of Payments. In the event any dispute arises between Cartwright Creek and Owner with respect to this Agreement, the Parties will promptly undertake to resolve such dispute. The Owner will not withhold or delay scheduled payment any fees due to Cartwright Creek under this Agreement pending resolution of such dispute.

e. Late Charges. Invoices shall be due on a Net 30 days basis. Cartwright Creek may assess interest charges for any past due invoices, at a rate of prime plus 2 percent.

f. Lien Rights and Right to Shut Off Water. In the event that payment of any fees due Cartwright Creek under this Agreement become delinquent by more than six months, Cartwright Creek may file a lien against the property of the Owner or individual property owner (if the past due fee is the monthly service fee) to secure its claim to the past due fees, and/or shut off potable water from the delinquent home until all past due amounts, including any accrued interest charges, are paid in full. Cartwright Creek shall notify the Owner or the individual property owner in writing at least 30 days prior to filing the lien or shutting off the water, that Cartwright Creek intends to file the lien and/or shut off the water unless the past due amount is received by the close of the 30 day notification period.

6. **TERMINATION.**

Termination for Owner's Material Default. Cartwright Creek may terminate this Agreement by written notice to Owner if Owner materially fails to comply with the terms or conditions of this Agreement and, after receiving written notice describing such failure from Cartwright Creek, Owner fails to take corrective actions within 30 days of notification. In the event of Owner's material default, Cartwright Creek will retain title to the Collection System and WRS and shall have no obligation to provide any sewer and wastewater service connections to Owner, its heirs or assigns.

Termination for Failure to Secure State, County, or TRA Approval. Owner may terminate this Agreement by written notice to Cartwright Creek if Cartwright Creek fails to secure the required TRA CCN approval within 365 days of the date of this Agreement. Cartwright Creek may terminate this Agreement if Owner fails to secure the State Operating Permit from TDEC or Williamson County preliminary and final plat approvals within 365 days of the date of this Agreement.

7. **PROHIBITED AND RESTRICTED DISCHARGES.** As provided in Paragraph 3.d. above, the Homeowner Covenants shall restrict potentially harmful substances from being flushed or discharged to the sewer and wastewater system. Owner, Owner's project engineer and Cartwright Creek shall jointly identify such substances and restricted discharges.

8. **OTHER TERMS AND CONDITIONS.**

a. Attorneys' Fees and Court Costs. The Parties in any dispute between the Parties arising from this Agreement shall be responsible for their own attorneys' fees and costs incurred in pursuing or defending such dispute.

b. Notices. Any notice required under this Agreement shall be in writing, personally delivered or sent by certified mail, postage prepaid, to the other Party at the address set forth below or to such other address as any Party may so designate in writing from time to time.

TO: Cartwright Creek, LLC	To: Eagle Ridge Investments, L.L.C.
Attn: Manager	Attn: Manager
800 Roosevelt Rd., Suite B-214	25701 Lakeland Blvd, Suite 101
Glen Ellyn, IL 60137	Euclid, OH 44132

With a copy to the Parties' registered agents, as follows:

Cartwright Creek, LLC	Eagle Ridge Investments, L.L.C.
C/O Bruce Meyer	C/O Charles E. Morton, IV
1551 Thompson's Station Rd West	130 Fourth Avenue South
Thompson's Station, TN 37179	Franklin, TN 37064

c. Force Majeure. In the event either Party's performance of this Agreement is delayed in connection with any circumstance beyond such Party's control including, without limitation, fires, floods, accidents, labor shortages,

failure to secure materials as a result of strikes, riots, and national emergencies, but expressly excluding obligations of payment, then such Party may elect to suspend performance under this Agreement but only to the extent, and only for the period, that its performance is prevented by the event. In the event that any suspension under this paragraph occurs for a period in excess of 45 days, either Party may elect to terminate this Agreement.

d. Entire Agreement. This Agreement has been negotiated and prepared by and for the Parties equally and shall not be construed as having been drafted by one Party. When fully executed, it shall supersede all prior agreements, either oral or in writing. This Agreement shall constitute the entire agreement between the Parties and shall not be modified except through writing and signed by the Parties.

e. Construction of Agreement. In the event that any part of this Agreement shall be declared void or unenforceable by any court having jurisdiction, such imperfection shall not affect the validity or enforceability of the remainder of this Agreement unless the result would be manifestly unconscionable. The clause headings appearing in this Agreement have been inserted for the purpose of convenience and ready reference. They do not purport to, and shall not be construed to, define, limit or extend the scope or intent of this Agreement. The terms, conditions, obligations and definitions contained in this Agreement are intended by the Parties to apply to all attachments attached unless expressly provided otherwise.

f. No Waiver. The failure of a Party to insist upon the strict performance of the terms and conditions hereof shall not constitute a waiver of that Party's right to enforce the same in the event of a continuing or subsequent default on the part of the other Party.

g. Choice of Law; Designation of Jurisdiction for Disputes; Venue. This Agreement is governed by and shall be construed in accordance with laws of the State of Tennessee without giving effect to any choice or conflict of law provision or rule (whether of the State of Tennessee or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of Tennessee. The Parties mutually consent to the jurisdiction of the federal and state courts in Williamson County, Tennessee and agree that any action, suit or proceeding concerning, related to, or arising out of this Agreement and the negotiation of this Agreement will be brought only in a federal or state court in Williamson County, Tennessee and the Parties agree that they will not raise any defense or objection or file any motion based on lack of personal jurisdiction, improper venue, inconvenience of the forum or the like in any case filed in a federal or state court in Williamson County, Tennessee.

h. No Third-Party Rights. Nothing in this Agreement (including any attachments) shall create, or be construed as creating, any express or implied rights in any person or entity other than the Parties except that Cartwright Creek and Burrus Ridge are express third-party beneficiaries of any section that specifically names them.

i. Counterparts. This Agreement may be executed in multiple counterparts including by facsimile transmission, each of which is considered an original and shall be binding upon the Party who executed same, but all of such counterparts shall constitute the same Agreement.

j. Authority. Both Parties hereby warrant that they are fully authorized to enter into this Agreement and to perform each of their respective obligations described.

k. Subcontracting. Notwithstanding anything to the contrary in this Agreement, Cartwright Creek may subcontract any part of its obligations under this Agreement to a related entity, merged corporation without obtaining the prior consent of Owner, provided, that no such subcontracting shall release Cartwright Creek from liability for the performance of its obligations hereunder.

l. Independent Contractor. Owner and Cartwright Creek intend that an independent contractor relationship be created by this Agreement and nothing in this Agreement shall be construed as creating an agency, employer/employee relationship, partnership, joint venture, or other business group relationship except as otherwise expressly provided herein.

m. Assignment and Delegation. Owner shall not assign, transfer, or otherwise dispose of any of its rights, nor delegate its obligations under this Agreement without the prior written consent of Cartwright Creek. If Owner requests such

consent of Cartwright Creek, Cartwright Creek shall not unreasonably withhold its consent. Cartwright Creek may, with Owner's prior written consent, assign, transfer or otherwise dispose of any of its rights or delegate its obligations under this Agreement to (a) any affiliated or subsidiary entity of similar net worth; or (b) any person or entity qualified to perform the Wastewater Treatment and/or Additional Services. This Agreement will inure to the benefit of and be binding upon any successors and permitted assigns or delegates.

n. Change in Permit or Regulatory Requirements. Nothing in this Agreement shall be construed to prohibit Cartwright Creek from requiring an increase in the fees payable to Cartwright Creek under this Agreement in the event of a regulatory or permit change, including a change in the rate structure for Cartwright Creek approved by the TRA.

o. Indemnification. Owner does hereby defend, indemnify and save Cartwright Creek harmless from and against any and all claims, actions, damages, liabilities, expenses and costs of litigation in connection with loss of life, personal injury, and/or damage of property arising from or out of any occurrence in, upon, or at the Property, occasioned wholly or in part by any act or omission by Owner, its agents or invitees upon said Property.

p. Dispute Resolution. Except as provided herein with regard to injunctive or equitable relief, all disputes and controversies between the parties arising out of or in connection with this Agreement, as to the existence, construction, validity, interpretation/meaning, performance, nonperformance, enforcement, operation, breach, continuance, or termination thereof shall be submitted to "Arbitration" as provided in this Agreement.

(i) PRELIMINARY PROCEDURES. If there are preliminary steps or procedures that would have to be followed under state law before a lawsuit could be commenced, those steps or procedures must be followed before the Arbitration can begin. Compliance with these state law provisions and any negotiations or settlement attempts made before the Arbitration do not constitute waiver of the Arbitration.

(ii) ARBITRATION FEES. The parties agree to share equally the cost of filing fees and administrative fees charged in connection with the Arbitration. If one of the parties pays a fee to the arbitrator in the process of requesting or scheduling the Arbitration, the other party will reimburse the paying party for its half of the fee within 30 days of being requested to do so in writing. With regard to any other cost incurred in connection with the Arbitration, each party shall bear their own costs. If a party uses litigation to enforce this Arbitration provision or the Arbitration award, the court will award to the prevailing party its court costs and reasonable attorney's fees.

(iii) ARBITRATION PROCEDURE. Thirty (30) days after the controversy arises and all preliminary steps or procedures have been satisfied, either of the parties may demand Arbitration. The parties shall select a single arbitrator from the current year's list as maintained by the American Arbitration Association for the nearest geographical area / local municipality to the Property in question. If the parties are unable to agree on one arbitrator from said list, then the parties will each choose one arbitrator from the list and those two arbitrators will then choose the single arbitrator who shall decide the case.

(iv) ARBITRATION AWARD AND RULES. The award rendered by the single arbitrator appointed pursuant to this Agreement shall be final and binding on all parties to the proceeding, and judgment on the award may be entered by either party in the highest court, state or federal, having jurisdiction. The appropriate Arbitration Rules and Mediation Procedures of the American Arbitration Association shall govern and control the Arbitration, and discovery in the form of document production and depositions shall be permitted, subject to the restrictions and conditions established by the Arbitrator.

(v) ARBITRATION DEFENSE. The parties agree that the Arbitration provisions of this Agreement shall be a complete defense to any suit, action, or proceeding instituted in any federal, state, or local court or before any administrative tribunal with respect to any controversy or dispute arising during the period of this Agreement, except that nothing herein shall preclude the parties from seeking injunctive or other equitable relief from a court of competent jurisdiction. The Arbitration provisions shall, with respect to the controversy or dispute, survive the termination or expiration of this Agreement and is binding on the parties and their respective successors and assigns. Nothing contained in this Agreement shall be deemed to give the arbitrator(s) any authority, power, or right to alter, change, amend, modify, add to, or subtract from any of the provisions of this Agreement.

9. **DEFINITIONS.**

a. "**Sewage Collection System**," or "**Collection System**," means sewage collection pipe easements granted to Cartwright Creek, which shall run from the property line of each subdivided property in the Development served by the Project to wastewater collection pipelines and to the WWTP, as designed by Owner's civil engineer, as well as the pipe, valves, electrical controls, flow meters, and manholes installed within the easement. The Collection System does NOT include any real property interest in the subdivided, residential lots included in the Project, except that Cartwright Creek shall be granted a right of access to each lot for the purpose of maintaining, repairing, and replacing the individual grinder pumps serving each home, per Paragraph 4.b.iv. of this Agreement, and a right of access to the potable water supply shut-off valve for each home, per Paragraph 4.e. of this Agreement.

b. "**Residential Grinder Pumps**" means the sewage pumps to be provided by E-one which have been specified by Owner's civil engineer for this Project. Each home served by the WWTP will be required to have a grinder pump meeting the design specifications approved by Cartwright Creek to macerate the sewage and pump the wastewater to the WWTP. Each Residential Grinder Pump shall be affixed to its corresponding residential property and owned by the homeowner. Each homeowner shall be responsible for repairs and replacement of his/her Residential Grinder Pump, subject to the conditions provided in Paragraph 4.b.iv. of this Agreement.

c. "**Wastewater Treatment Plant**" or "**WWTP**" means the wastewater treatment system designed by Owner's consulting engineers, including treatment equipment, building, and site.

d. "**Irrigation System**" means the reclaimed wastewater irrigation pumps, pipe, sprinklers, and other appurtenances for irrigating treated wastewater to the primary and secondary irrigation areas.

e. "**Operations Costs**" means the costs to operate and maintain the Collection System, WWTP, and Irrigation System including those items listed in Exhibit D and other reasonable and documented costs.

f. "**Wastewater Treatment and Reuse Facilities**" means the Collection System, Wastewater Treatment Plant, and Irrigation System as defined above.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the date written above.

EAGLE RIDGE INVESTMENTS, L.L.C.

By: _____

Name: D.J. Keehan

Title: Member

CARTWRIGHT CREEK, L.L.C.

By: _____

Name: Robert Cochrane

Title: CFO / Secretary / Thereafter Internationl As Manager

EXHIBIT A

PROPERTY MAP AND LEGAL DESCRIPTION

(to be provided by Owner)

EXHIBIT B

SCOPE OF PRECONSTRUCTION AND CONSTRUCTION PHASE SERVICES

Preconstruction Phase Scope of Services

1. Collection System

- Review collection system plans and specifications prepared by Owner's engineer, provide a list of clarifications/comments, resolve and answer questions with Owner's engineer, and issue a letter of acceptance.
- Review operations and maintenance manual for the collection system prepared by Owner's Engineer.

2. Irrigation System

- Review design plans and specifications prepared by Owner's engineer, provide comments and questions, resolve, issue letter of acceptance.
- Review engineering and permitting documents (DSIR, DDR, Engineering Report, soils information) prepared by Owner's Engineer, provide list of comments and questions, resolve, issue letter of acceptance.
- Review design plans and specifications prepared by Owner's engineer, provide comments and questions, resolve, issue letter of acceptance.

3. Wastewater Treatment System

- No additional work required provided Exhibit C Scope Basis is followed.

4. Regulatory and Administrative

- Review and sign the TDEC State Operating Permit application(s) prepared by Owner's Engineer for the Collection System, WWTP, and Irrigation System.

Construction Phase Scope of Services

1. Collection System

- Construction inspection on a weekly basis or as needed and witness pressure testing of collection lines prior to backfill.
- Review of individual certificates of installation and testing provided by installer.
- Review, comment if required, and issue letter of acceptance of the as-built system drawings
- Prepare final punchlist and after completion of punchlist items, prepare letter of acceptance for the collection system.

2. Wastewater Treatment Plant and Irrigation System

- Inspect the construction on a regular basis to ensure conformance with plans and specifications.
- Prepare final punchlist, and after completion issue certificate of acceptance from Cartwright Creek.
- Review operations and maintenance manual prepared by Owner's Engineer

Exhibit C
Basis for Scope of Services

- Collection System:
  - Will be a low-pressure design and consist of: collection force mains installed in the streets and other common areas (i.e. not on homeowner's properties); and, individual grinder pumps (E-one or equivalent) at every home.
  - Individual grinder pumps will be installed by the homebuilder using a factory-certified installer. Prior to occupancy, each home will provide a certificate of installation and testing from the installer or manufacturer's local representative. The homeowners will be responsible for repair and replacement of the individual grinder pumps.
  - Stillwater's contractor will install and test the collection system in the common areas.
- Wastewater Treatment system:
  - Will be constructed by the Owner on the Burns Property, which is within Cartwright Creek's existing approved service area.
  - Will be a two cell, Sheaffer Wastewater Reclamation and Reuse System designed to treat 330,000 gallons per day of wastewater. There will be additional area set aside for system expansion to serve additional property in the region.
- Irrigation System:
  - Will have area sufficient to serve up to 150,000 gallons/day from the Stillwater development and up to 150,000 gallons/day from future development on the Burns property. Irrigation areas will be on the Stillwater properties south of Cox Road and on the Burns property.
  - Will utilize subsurface drip irrigation and will be sized and designed to comply with Williamson County and TDEC regulations and guidelines, including primary and secondary irrigation areas required by the county.
  - Will have irrigation storage volume meeting County and TDEC requirements will be incorporated within the Wastewater Treatment System and/or constructed on the Stillwater property south of Cox Road.
  - The Stillwater golf course will be utilized as an additional, "auxiliary" irrigation area per Williamson County regulations. The golf course will be owned and managed by the Owner or Owner's assigns. The golf course operators will be responsible for controlling the use of reclaimed water on the golf course and related permit requirements. The use of reclaimed water on the golf course will not require the Collection System, WWTP or Irrigation System to be operated in a manner that incurs Operation Costs over and above the costs for subsurface drip irrigation.
- Owner or Owner's engineer will:
  - Complete the county and TDEC permit documents such as the DDR, DSIR, Engineering Report, and related fieldwork, engineering and testing, stamped by a licensed Tennessee Professional Engineer.
  - Complete the detailed construction plans and specifications, stamped by a licensed Tennessee PE, for the Collection System, Irrigation System, and additional storage requirements south of Cox Road. After construction, the plans and specifications will be updated and reissued as built.
  - Prepare the TDEC State Operating Permit Application forms and required information; pursue approval, lead follow-up meetings with TDEC, respond to TDEC comments, make changes to documents, coordinate the owner's role in public hearings. Cartwright Creek will review and

sign the State Operating Permit application, will attend related meetings with TDEC staff required to obtain the permit, and will attend and testify at public hearings, if required.

- Sheaffer International will complete the detailed engineering, plans, and specifications for the Wastewater Reclamation and Reuse System.
- The Owner will fund and construct all components of the Collection System, Irrigation System, and Wastewater Treatment System.

Any changes from the plans and specifications approved by TDEC for the Wastewater Treatment, Irrigation System, and Collection System will be submitted to Cartwright Creek for review and approval prior to implementing the change.

EXHIBIT D
ITEMS INCLUDED IN CARTWRIGHT CREEK'S OPERATIONS COSTS

- Operating Labor
- Administrative Labor (Management, accounting, legal, engineering)
- Sampling and Testing Costs
- Regular preventative maintenance cost (monthly, annual, or other required frequency)
- Grounds keeping, mowing, cover crop maintenance
- Unscheduled maintenance and troubleshooting
- Replacement equipment allowance for WTTP, Collection, and Irrigation Equipment
- Electric Power
- Other Utility bills (water, telephone, internet)
- Insurance
- Bonding: Surety, Backup or others required by County and/or other agencies
- Sludge handling, transportation, and disposal costs
- Taxes
- Permit and other fees required by regulatory agencies
- Customer billing costs (preparation, mailing, collection)
- Materials and supplies (chemicals, consumables)
- Interest expense

EXHIBIT E
Schedule of Standard Hourly Rates and Reimbursable Expenses

Standard Hourly Rates

Standard Hourly Rates are subject to annual review and adjustment. Hourly rates for services in effect on the date of the Agreement are:

Design Review Engineering	$125 / hour*
Construction Inspection	$100 / hour*
Pre-Operations Consulting	$125 / hour*

*Travel time required for site visits, meetings, etc. in order to complete work under these categories is billable at the rate indicated for the appropriate category of work to be completed.

Reimbursable Expenses

Reimbursable Expenses are subject to annual review and adjustment. Reimbursable expense rates in effect on the date of the Agreement are:

Mileage (auto)	IRS Standard Mileage Rate
Long Distance Phone Calls	cost + 10%
Meals and Lodging	cost + 10%
Air Travel, Airport Parking	cost + 10%
Public Transportation, Tolls	cost + 10%
Car / 4WD Truck Rental	cost + 10%
Consultant Charges	See Note*

*Consultants' charges shall be subject to an administrative factor of 10%, and Owner shall be responsible for payment of the total (110% of consultant charges) to Cartwright Creek.

b. Provide the total estimated amount of contributed capital to Cartwright Creek, LLC from Eagle Investments, LLC (owner of the property), Stillwater Development and the Burns Family (developers of the system). What is the estimated amount of contributed capital from each of the parties? For all contributed capital, please itemize all amounts, e.q. land, pumps, pipe, buildings…that make up the contributed capital amount.

Response:

The estimated costs of the various system components are"

Wastewater Treatment System:

• Treatment Cells, earthwork, liner; fencing; survey	$532,000
• Underground piping, manholes, valves	$150,000
• Process equipment, piping	$790,000
• Electrical and Building, Misc.	$230,000
• Contingency	$340,400
• Contractor Mark-Up	$408,480
	$2,450,880

Irrigation System: $330,000

Collection System:

- Low pressure force main: $900,000
- Sewage Pump Station: $50,000
- Grinder pumps: Included with each unit construction by homebuilder

Land:

- Treatment Site: 20 acres,
- Irrigation Site:30 acres

The Stillwater Developer, Eagle Ridge Investments, LLC will fund construction of the wastewater treatment system, irrigation system, and collection system.

The irrigation site land will be contributed by Eagle Ridge Investments. The treatment system site will be contributed by the owners of the Burns property.

c. The Petition filed on September 22, 2004, Docket No. 04-00307 (Petition For Approval To Transfer Cartwright Creek Utility Company, Inc.'s Authority To Provide Wastewater Utility Services To Cartwright Creek, LLC) stated that the buyer intended to inject significant capital to renovate current facilities, improve the quality and efficiency of services offered to customers, and with the appropriate approval extend the updated facilities and improved services to additional customers. Please provide dates and dollar amounts of funds that have been made available to Cartwright Creek by Shaeffer since it purchased 90% of Cartwright Creek in 2004.

Response:

The Company objects to the form of the question in that it calls for information that is not contained within the subject of this docket. However, without removing its objection, the Company states the following.

Sheaffer has injected significant capital to the existing 30+ year old treatment system as described in subsequent parts of this response letter. Since it purchased Cartwright Creek on January 1, 2005, Sheaffer International LLC has provided total direct capital contributions in the form of cash advances or payment of operating, permitting, or engineering costs in excess of $572,575.91. Those costs are presented in Exhibit E.

The TRA's question in item 7.c cited statements made in our Petition filed on September 22, 2004, Docket No. 04-00307 (Petition For Approval To Transfer Cartwright Creek Utility Company, Inc.'s Authority To Provide Wastewater Utility Services To Cartwright Creek, LLC). The plan at that time, as Sheaffer International was in the process of acquiring a majority ownership of Cartwright Creek, was to use new capital to complete key projects that would allow it to meet the goals cited. The most significant project was replacement of the exisitng Cartwright Creek wastewater treatment system with a Sheaffer Wastewater Reclamation and Reuse System. The other project, smaller in size, but important to develop a cost effective operating structure, was the Waterbridge project in PGA 5. For reasons not within Sheaffer's and Cartwright Creek's control, neither of these projects were completed. Therefore the new capital has been required largely to maintain and replace equipment in the aging existing Cartwright Creek facilities. We have also invested engineering hours to investigate the condition of and options to rebuild in-place the exisiting system and related issues with the pending more stringent discharge permit requirements.

The transfer of authority from Cartwright Creek Utility Company to Cartwright Creek, LLC was made on January 1, 2005, which was within 30-days of the final approval of the transaction by the TRA. At the original time of application for transfer, Sheaffer International, LLC had an agreement with the pending purchaser of a nearby golf course, Old Natchez County Club, to locate a Sheaffer System on the golf course that would ultimately serve 1,000 new customers (See attached agreement with Executive Golf). Sheaffer engaged the services of Tim Nugent, a principal at the firm Nugent Golf, a Vernon Hills, Illinois based golf course architectural firm, to develop a plan for improvements to the existing course, incorporating the proposed Sheaffer

facility. (See copy of attached letter from Tim Nugent). In addition to replacing the aging existing Cartwright Creek treatment plant with improved technology, this project would have potentially eliminated Cartwright Creek's wastewater discharges into the Harpeth River as well as been able to serve additional customers.

Unfortunately, in early 2005, the contract purchaser of the facility, Executive Golf Partners, was unable to complete the transaction with the existing owner of Old Natchez Country Club, and as a result, Sheaffer International LLC had to cancel its plans to replace the existing facility

Since replacement by a Sheaffer System was no longer an option, Sheaffer looked at options to improve the existing facility. The Sheaffer engineering staff began physical and operational review of the existing treatment system to determine repair and/or replacement concepts.

The engineers also studied the collection system, including extensive review of videos taken in 2003, to begin to identify and develop a plan to eliminate the high volumes of fresh water entering the collection system through infiltration and inflow (I&I). They subsequently reviewed and selected a method to begin fixing the I&I problem. In the fall of 2006, we obtained bids and retained Insituform to line 1000 feet of pipe and manholes identified as the worst section of pipe and to televise other key sections that were omitted from the 2003 work.

Our staff's time to engineer, investigate, and manage the above work has been significant, in excess of $20,000, although none has been charged to Cartwright Creek.

Exhibit E - Contributed Capital by Sheaffer International

Date	Amount
01/02/05	1,000.00
06/06/05	15,000.00
08/01/05	3,278.00
08/24/05	16,562.13
10/12/05	11,000.00
12/05/05	25,000.00
12/31/05	125,000.00
05/05/06	1,119.21
07/07/06	240,000.00
07/18/06	15,000.00
08/01/06	6,177.00
09/28/06	60,000.00
09/28/06	993.00
04/15/07	709.00
06/25/07	421.92
06/30/07	900.00
06/30/07	12,272.19
06/30/07	13,258.71
06/30/07	20,868.75
08/01/07	6,341.00
Total	**$574,900.91**

d. What is the status of the Shaeffer Sludge Elimination System that it agreed to fund in Docket No. 04-00358 and to complete by December 2006 in Docket No. 06-00005?

Response:

Sheaffer completed site investigations, prepared engineering design drawings, and obtained contractor bids during 2006. Due to the items described in our responses to item 7.c. and 7.e, we have placed the Sludge Elimination System on hold until the long-term plan for Cartwright Creek is finalized. We have reallocated the funds to serve as the required collateral for Pinnacle Bank to issue earlier this year a standby letter in accordance with established regulations.

e. What is the status of the Cartwright Creek Grassland facility being expanded?

Response:

As described in the response to 7.c. we have been evaluating options for the improvements and expansion. However, we cannot fully complete the evaluation until our discharge permit is renewed by TDEC. The new permit is expected to significantly reduce the amount of nutrients allowable in Cartwright Creek's discharge to the Harpeth River. Depending upon the final limits, additional treatment processes may be required. Although it was scheduled for renewal in November 2006, issuance is delayed for an undetermined period because TDEC is evaluating our limits in conjunction with the entire watershed. Cartwright Creek's existing operating permit remains in effect until the new permit is issued.

We believe there are three general options available for Cartwright Creek to improve and expand wastewater service for the long term. One is replacement of the existing system with a completely new system utilizing state of the art technology. The second option is refurbishing and possibly adding new treatment steps (to meet tougher discharge standards) on the existing system. The third is shutting down the existing wastewater treatment system and pumping the untreated wastewater to a treatment system with available capacity, such as Harpeth Valley Utility. At this point in time, we believe that replacement of the treatment system will be the only practical option. Once TDEC issues the discharge permit we will be able to confirm this.

Regardless of the option selected, major repairs will also be required to eliminate I&I in the 10,000 feet of collection piping and manholes.

Funding of any long-term solution is also a concern that we have discussed with TRA. Replacement of the existing wastewater treatment system with technology capable of meeting the potential discharge standards as well as repair of the existing collection system is estimated to be between $2.5 million and $3 million. As the TRA is aware, the historical tariff of Cartwright Creek did not provide for a maintenance reserve or replacement reserve that would be applied to the rebuilding costs. Therefore, the project would need to be paid for by increases in the monthly user and tap fees.

The Grasslands area is currently limited in growth by the road infrastructure and availability of large parcels. We expect this will limit new taps in the near term to approximately 25 per year. Therefore, a majority of the Cartwright Creek improvements would need to come from increased user fees.

Cartwright Creek representatives have discussed the above scenario with TRA staff in regular quarterly meetings in hopes of developing an acceptable approach.

f. What is the current status of the Waterbridge development approved in Docket No. 04-00358?

Response:

The owner/developer's project management company (Land Management Group, Inc., Brentwood, TN) recently informed us that initial earthwork would soon begin for the residential development infrastructure. They also indicated that the wastewater system construction will begin soon and be completed in approximately six months. They have not provided a schedule or additional information. We have prepared and provided Cartwright Creek service contracts to the project management company for the owner's review and signature.

g. Developers were identified in Docket No. 04-00358 that had an interest in entering into a contract for additional taps. How many taps have been sold to these developers?

Response:

Due to the inability to upgrade and expand the treatment system as explained in the responses to questions 7.a and 7.c Cartwright Creek has not sold any additional taps since Sheaffer acquired majority ownership.

In addition, the existing Cartwright Creek wastewater treatment system is hydraulically overloaded due to the I&I problems and has no capacity for additional taps. We receive frequent requests to provide new service from landowners in the Grasslands area. We continue to deny these requests.

h. Please provide a statement detailing any and all improvements to facilities (by system) made by Cartwright Creek, LLC since December 2004.

Response:

1. Lining of 1000 feet of leaking sewer pipe and 5 manholes by Insituform Technologies.
2. Replacement of two (of three total) main treatment process air blowers
3. Rebuilding of both main pump station pumps
4. Replacement of two main building security doors.
5. Addition of an emergency phone dialer at main pump station.
6. Updating boundary survey and topographic survey of Cartwright Creek site.

i. **Based on the 2006 Annual Report filed in April 2007, $174,663 was expensed to Contractual Services. Please provide a detailed listing of each contractual service provided and how much Cartwright Creek paid for each service provided. Also, provide a copy of each contract.**

Response:

Vendor	Service	Amount
Haury & Smith	Bookkeeping Services	$30,000.00
Bobby Winfrey	Plant Operator Services	32,450.00
John Bouchard Company	System Maintenance.	38,035.65
Instituform Technologies	System Maintenance	66,923.10
Technical Services, Inc.	System Maintenance, Calibration	6024.45
Bobby Winfrey	Lawn Maintenance	1,230.00
Total		**$174,663.20**

No written contracts exist for these services with the exception of Insituform, which is attached as Exhibit ___.

Insituform Technologies, Inc.

Worldwide Pipeline Rehabilitation

1410 Gould Blvd.
LaVergne, Tennessee 37086

Tel: (615) 742-9778
Fax: (615) 742-8024
www.insituform.com

September 16, 2005

Bruce Meyer
Tennessee Region Manager
Cartwright Creek
1565 Thompson's Station Road West
Thompson's Station, TN 37179

Re: **Cartwright Creek Utility Sewer Repair**
Thompson's Station, TN
Proposals Due: September 30 2005

Dear: Mr. Meyer

In response to your request we hereby submit budgetary pricing for the above referenced project as follows:

BID PROPOSAL FORM -

Item #	Description	Quantity	Measure	Units Price	Unit Cost
1	15" Cured-in-Place Pipe Lining with final post inspection	1000.0	LF	$ 55.00	$55,000
2	Manhole locate and expose	3.0	EA	$ 600.00	$1,800
3	Internal Service Re-Instatement (does not include service replacement)	1.0	EA	$ 300.00	$300
4	Additional TV Inspection	2100.0	LF	$ 2.00	$4,200
5	Manhole rehabilitation utilizing Strongseal MS2A	110.0	VF	$ 95.00	$10,450
6	Bypass pumping 8"-15" diameter sewer	2.0	EA	$ 1,100.00	$2,200
Total					$73,950.00

This proposal is predicated on all work being identified and issued in one work order.

Any additional work orders will carry a mobilization fee of 3000.00 each.

Proposal Inclusions:

- Certificate of Insurance with standard coverage
- Pre-installation video inspection
- Standard TV & Cleaning of the existing pipe prior to installation
- 15" CIPP Liner @ 9mm including all labors and material.
- Post-installation video inspection recorded on VHS tape
- Bypass Pumping for mainline CIPP installation
- One year warranty
- Reinstatement of service connections by internal remote cutting device, on a per each basis
- Actual field measurements will determine final invoice quantities

Proposal Exclusions:

- Premiums for special insurance coverage requirements
- Point repairs of any collapsed sections of the existing pipe line
- Permits
- Service verification
- Disposal site for debris removed during cleaning
- Please note that if any hazardous or toxic materials are encountered during the project, the Owner will be responsible for the removal and disposal of the materials
- Construction access easements.
- Segmental Air -Testing or Vacuum Testing
- Removal of top cone for liner installation
- Service-line replacement or rehabilitation
- Protruding Tap removal

Proposal Terms:

- Payment due within 30 days of completion of the project
- Partial monthly payments may be requested
- Proposal valid for 45 days

Special Conditions:

- Owner to provide vehicular access to all easement manholes.
- Manhole repair utilizing QSR cementitious patch will be charged on a per manhole basis for $400.00 each
- Prices for additional CIPP pipe is based upon length, location and scope.

LIMITED WARRANTY

IN LIEU OF ALL OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, CONTRACTOR AGREES TO CORRECT ANY DEFECT IN THE MATERIALS OR SERVICES PROVIDED BY CONTRACTOR WHICH ARE BROUGHT TO THE ATTENTION OF CONTRACTOR WITHIN ONE YEAR FOLLOWING COMPLETION OF CONTRACTOR'S WORK, PROVIDED OWNER AFFORDS CONTRACTOR SUITABLE ACCESS AND WORKING CONDITIONS TO ACCOMPLISH SUCH CORRECTION.

Mutual Release of Consequential Damages:

Neither party shall be liable to the other for consequential damages relating to or arising out of the Contract.

We appreciate the opportunity of submitting this proposal. If you have any questions please do not hesitate to call me.

Sincerely,

INSITUFORM TECHNOLOGIES, INC.

Hugh Cornell
Business Development Manager

cc: F. Fleshman, J.Trapani
Bid File

Owner Acceptance: _____ Date: _____

Please sign and return one copy of this proposal for our files or if you prefer a Purchase Order or Subcontract for our execution.

Sheaffer INTERNATIONAL, L.L.C.

800 Roosevelt Road
Building B, Suite 200
Glen Ellyn, IL 60137

Phone: (630) 446-4080
Fax: (630) 446-4085
www.sheafferinternational.com

September 16, 2005

Cartwright Creek Utility Sewer Repair Bidders

Subject: Request for Proposals

This summer your company has been reviewing videos and drawings for the sanitary sewer collection system for our Cartwright Creek Utility system in the Grasslands Area near Nashville, TN. We had originally asked your firms to review the videos and to recommend repairs and budgetary pricing.

While the responses have taken longer than we had hoped, they have helped us reach the point of requesting bids for the repair of the sewer section with the highest number of major leaks and investigation of two areas that were not televised.

Therefore, we are requesting you provide a bid for the following work:

1. Lining/repair of VCP sewer from manhole 46A to manhole 001.
2. Lining and/or joint repair in manholes 46A, 46, 43, 42, and 001.
3. Televise section of VCP line from manhole 3B to manhole 3A and manhole 3A to manhole 34.
4. Televise section of main VCP line from manhole 3A to manhole 001.
5. Televise section of VCP from manhole 001 to the main pump station.

Your proposals should include:

1. All labor and materials
2. Individual prices for, at minimum, each of the above items.
3. Bypasses, if required, including pumps, hoses, labor, materials and the labor to coordinate this work with local homeowners and businesses.
4. A description of the repair methods to be used on sewer, manholes, and service connections.
5. Unit prices to be utilized in the event that additional leaks are found during items 4 and 5 above.
6. Required permits, approvals, if required, and a bullet type schedule for completion.
7. A list of items (personnel, materials) expected from Cartwright Creek Utility.
8. Estimated reduction of the volume of infiltration once the leaks are repaired.

Proposals are due by 5 p.m., Friday September 30, 2005 to the following parties.

Bruce Meyer
Tennessee Region Manager
Sheaffer International
1565 Thompson's Station Road West
Thompson's Station, TN 37179

Office 615-261-8600
Fax: 615-261-8613
Mobile: 615-714-7868
bmeyer@sheafferinternational.com

Jim Gaspar
Engineering Manager
Sheaffer International
800 Roosevelt Road, Suite 214B
Glen Ellyn, IL 60137

Office: 630-446-4080
Fax: 630-446-4085
jgaspar@sheafferinternational.com

Please contact me if you have any questions during the bidding process.

Thank you,

Bruce Meyer
Sheaffer International, L.L.C.

Attachment 1
To Contract Between Cartwright Creek and Insituform Technologies
9-18006

Scope Clarifications

1. The Request for Bid dated September 16, 2005 (attached) is hereby incorporated into this Contract.

2. Insituform's work includes sealing entire manholes with Strongseal MS2A.

3. Insituform's field supervisors have inspected the work area to ensure that the manholes are accessible and that there are no surprises due to accessibility.

4. To provide water, Cartwright Creek will have the Franklin Water Department install a meter and connection point on an agreed upon fire hydrant. Cartwright Creek will pay for the water. It will be Insituform's responsibility to connect to the hydrant, including fittings and hoses, and convey the water to the point needed.

5. Cartwright Creek has only a part time wastewater operator. Any labor, tools, equipment, coordination for the project will be the responsibility of Insituform.

6. There are no additional maps of the exact repair locations other than the drawing and video given to Insituform during the bidding.

7. It will be Insituform's responsibility to locate and uncover manhole 46A and to repave the road, at an additional cost of __$600.00_____. Included in this cost is bonding requirements from Williamson County's road department.

8. Insituform will provide written notices to local homeowners at an agreed upon time before the work begins.

9. Unit prices in original proposal, dated 9/30/05, will apply (provided pipe and manhole sizes are equivalent) in the event more leaks are found during the television portion of the work.

10. CARTWRIGHT CREEK WILL PROVIDE DUMPSTER, INSITUFORM WILL BE RESPONSIBLE FOR PLACING ALL CONSTRUCTION DEBRIS, PAVEMENT, WASTE MATERIALS IN THE DUMPSTER.

BEM 9/26/06

CONTRACT

This contract made this _____ day of _____, between Insituform Technologies, Inc., hereinafter called the Contractor and Cartwright Creek., hereinafter called the Owner.

Scope of Work. The Contractor shall perform everything required to be performed and shall provide and furnish all of the labor, materials, necessary tools, and equipment required to perform and complete all of the work required for the Rehabilitation Of Approximately 1000 Linear Feet of 15-Inch Diameter Sewer, per our September 30, 2005 proposal (copy attached).

Contract Price. The Owner shall pay the Contractor for the performance of the contract, subject to any additions or deductions provided herein, in current funds, the contract price per attached unit prices in bid proposal dated September 30, 2005.

Component Parts of This Contract. This contract consists of the following component parts, all of which are fully a part of this contract as if herein set out verbatim or, if not attached, as if hereto attached.

1) Contractor's Proposal of September 30, 2005 (two pages)
2) Certificate of Insurance
3) This Instrument
4. Attachment A, Dated 9/18/06

Insurance. The Contractor shall procure, and maintain during the life of this contract worker's compensation insurance, comprehensive general liability insurance and comprehensive automobile liability insurance with limits and follows:

	Limit
Worker's Compensation	$ 1,000,000
Comprehensive General Liability	$ 2,000,000 CSL
Comprehensive Automobile Liability	$ 1,000,000 CSL

Final Payment. The Owner agrees to make final payment to Contractor for the work performed under this contract within 30 days from the completion of Project.

This contract is intended to conform in all respects to applicable statutes of the State in which the work is to be constructed, and if any part of provisions of the contract conflicts therewith, the said statue shall govern.

It is further agreed that the Contractor will make proper payment of all claims for labor and materials furnished, used, or consumed for this contract.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

Insituform Technologies, Inc.
Contractor

By: Douglas H. Thomas, Vice President-

(CORPORATE SEAL)

Attest:

Joann Smith, Contracting & Attesting Officer

TENNESSEE CONTRACTOR'S LICENSE NO.XXXXXXXXX

Cartwright Creek LLC
Owner
By: Bruce Meyer Tennessee Region Manager

Attest:

Robert L. Cochran CFO
By:
Shearer International LLC
Manager

j. How many customers does Cartwright Creek, LLC serve today? How many customers did Cartwright Creek serve at December 31, 2004?

Response:

Cartwright Creek currently has approximately 495 residential customers and 35 non-residential customers. On December 31, 2004, Cartwright Creek served approximately 492 residential and 31 non-residential customers.

k. Please discuss how the expenses identified on Stillwater's Pro-Forma Income Statement (Exhibit 5) were calculated including all underlying rationale and assumptions.

Response:

The explanation for the fully built out costs are provide below. The basis is a fully built out home development at Stillwater of 500 homes.

The costs for the first years of operation, as the homes are being built, are our estimates of the percentage of fully built out costs that will be incurred during that year. Some of the costs will be at 100% of fully built out, such as taxes and county bounding. Others, such as manpower and electricity are engineering estimates of the annual requirements at a given flow rate.

Cartwright Creek Stillwater Contract
Calculation of Operations Costs and Billing
5-Sep-07

Operating Labor										
	Licensed Operator	4	hours/week	$30	/hour		$120	/week	$6,240	
	Helper	4	hours/day	$20	/hour	5 days/week	$400	/week	$20,800	
	Subtotal									$27,040 /year
Administrative Labor (Management, accounting, legal, engineering)										
	Engineer	4	hours/mo	$150	/hour		$600	/month	$7,200	
	COO/CFO	1	hours/mo	$200	/hour		$200	/month	$2,400	
	Subtotal									$9,600 /year
Sampling and Testing Costs										
	Outside Lab Sampling and Analyses (Wastewater)			$500	each	1 /month	$500	/month	$6,000	
	Report and filing	2	hours/mo	$150	/hour		$300	/month	$3,600	
	Subtotal									$9,600 /year
Regular preventative maintenance cost (monthly, annual, or other required frequency)										
	Blowers oil change; pumps lube (done by Sheaffer Operator)									
	Labor	0	hours/mo	$30	/hour		$0	/month		
	Parts/Oil						$150	/month		
							$150	/month		$1,800 /year
Grounds keeping, mowing, cover crop maintenance										
	Mowing	30	acres	$30	/acre	1 /month	$900	/month		
	Replanting allowance						$100	/month		
							$1,000	/month		$12,000 /year
Unscheduled maintenance and troubleshooting										
	Included below									
Maintenance Reserve										
	Collection Piping									
	Estimate 25% replaced/repaired over 25 years									
	A-H cost for installation appears high, use $15 /ft for 46,000 ft									
				$690,000	original cost		$575	/month		
	Remainder of System	Use percentage of facility cost not including concrete and excavation								
		3.5%	of	#######			$2,942	/month		
	Subtotal						$3,517		$	42,200
Electric Power										
		75	Horsepower							
		56.25	KW	$0.08	/kw hr		$ 3,285	/month	$	39,420 /year
Other Utility bills (water, telephone, internet)										
	Water						$50	/month		
	Telephone or High Speed Internet (for alarms)						$50	/month		
							$100	/month		$1,200 /year
Insurance										
	Bob Cochrane obtaining quote									
	Factor up Grasslands for this estimate									
		$1,000	annually	$450,000	book value Gras	$3,500,000	book value collection + treatment			$7,778 /year
County Back-Up Bond		2%	annually of	$2,500,000						$50,000 /year
Sludge handling, transportation, and disposal costs										
	Per DDR	0	gal/day	$0.27	/gal		$0	/month		$0 /year
Taxes										
	Assume equivalent to Grasslands									$15,000 /year
Permit and other fees required by regulatory agencies										
	Assume Equivalent to Grasslands									$1,000 /year
Customer billing and accounting costs (preparation, mailing, collection), annual taxes, state forms										
	Existing CCUD	$3	/mo./customer			500 customers	$1,250			$15,000 /year
Misc. supplies, paper, consumables										
	Allowance						$100	/month		$1,200 /year
Bank Charges										
	Assume equivalent to Grasslands									$2,000 /year
									$	234,838 /year

8. Provide the most current interim financial statements for Cartwright Creek, LLC including Balance Sheet, Income Statement and Statement of Cash Flows.

Response:

This information is provided in Exhibit F.

Exhibit F - Cartwright Creek Financial Information

Cartwright Creek, LLC

Balance Sheet

	6/30/2007	6/30/2006	Inc/<Dec>	%
ASSETS				
Current Assets:				
Fifth Third Bank - MMA	$0.00	$879.00	-$879.00	-100.00%
Pinnacle - Deposit Acct (MMA)	2,338.49	0	2,338.49	100.00%
Pinnacle - Operating	2,874.10	437.6	2,436.50	556.80%
Customer accounts receivable	2,835.26	-1,479.63	4,314.89	291.60%
TOTAL Current Assets	8,047.85	-163.03	8,210.88	5036.40%
Fixed Assets:				
Utility plant in service	463,474.36	463,474.36	0.00	0.00%
A/D & amort of utility plant	-209,715.62	-96,210.62	-113,505.00	-118.00%
Utility Plant in Service				
Structures & improvements	12,474.96	12,474.96	0.00	0.00%
Collection sewers - gravity	106,539.61	106,539.61	0.00	0.00%
Flow measuring devices	2,622.10	2,622.10	0.00	0.00%
Flow measuring installations	3,467.77	3,467.77	0.00	0.00%
Receiving wells	46,448.46	46,448.46	0.00	0.00%
Pumping equipment	61,618.28	61,618.28	0.00	0.00%
Treatment & disposal equipment	198,130.55	198,130.55	0.00	0.00%
Plant sewers	5,403.97	5,403.97	0.00	0.00%
Outfall sewer lines	10,537.73	10,537.73	0.00	0.00%
Other plant & misc equipment	15,161.05	15,161.05	0.00	0.00%
Other tangible plant	1,069.88	1,069.88	0.00	0.00%
Utility plant in service offse	-463,474.36	-463,474.36	0.00	0.00%
TOTAL Fixed Assets	253,758.74	367,263.74	-113,505.00	-30.90%
Other Assets:				
Special deposits	240,000.00	522.74	239,477.26	4581190.00%
Misc current & accrued assets	916.67	825.00	91.67	11.10%
Note Receivable - M.R.S. LLC	100.00	100.00	0.00	0.00%
Permits - Waterbridge	125,000.00	125,000.00	0.00	0.00%
TOTAL Other Assets	366,016.67	126,447.74	239,568.93	189.50%
TOTAL ASSETS	**$627,823.26**	**$493,548.45**	**$134,274.81**	**27.20%**

Cartwright Creek, LLC

Balance Sheet

	6/30/2007	6/30/2006	Inc/<Dec>	%
LIABILITIES				
Current Liabilities:				
Accounts payable	$46,750.65	$36,755.15	$9,995.50	27.20%
Accrued Franchise Tax	354	693	-339	-48.90%
Accrued Ad Valorem Tax	1,890.00	1,998.00	-108	-5.40%
Accrued Gross Receipts tax	9,336.00	9,921.00	-585	-5.90%
Loan from Shareholders - Sheaffer	47,299.65	0	47,299.65	100.00%
TOTAL Current Liabilities	105,630.30	49,367.15	56,263.15	114.00%
Long-Term Liabilities:				
Long Term debt - Reese/Steve Smith	409,572.23	409,572.23	0	0.00%
TOTAL Long-Term Liabilities	409,572.23	409,572.23	0	0.00%
Other Liabilities:				
Pending tap - Madison Land Co.	12,250.00	12,250.00	0	0.00%
TOTAL Other Liabilities	12,250.00	12,250.00	0	0.00%
TOTAL LIABILITIES	**527,452.53**	**471,189.38**	**56,263.15**	**11.90%**
CAPITAL				
Partners Capital - Sheaffer	516,260.26	192,959.34	323,300.92	167.50%
Partners Capital - M.R.S. LLC	100	100	0	0.00%
Retained earnings (deficit)	-312,596.66	-126,559.48	-186,037.18	-147.00%
Year-to-Date Earnings	-103,392.87	-44,140.79	-59,252.08	-134.20%
TOTAL CAPITAL	**100,370.73**	**22,359.07**	**78,011.66**	**348.90%**
TOTAL LIABILITIES & CAPITAL	**$627,823.26**	**$493,548.45**	**$134,274.81**	**27.20%**

Cartwright Creek, LLC

Income Statement

	6 Months Ended 06/07	6 Months Ended 06/06	Variance Fav/<Unf>	% Var
Income				
Residential revenues	$92,960.19	$92,906.55	$53.64	0.06%
Commercial revenues	26,606.34	26,612.34	-6.00	-0.02%
Other sewer revenues	490.77	338.86	151.91	44.83%
TOTAL Income	**120,057.30**	**119,857.75**	**199.55**	**0.17%**
Expenses				
Sludge removal expense	26,875.00	23,620.00	-3,255.00	-13.78%
Purchased power	8,950.00	13,567.00	4,617.00	34.03%
Chemicals	7,892.70	7,888.07	-4.63	-0.06%
Materials & supplies	9,325.35	11,223.69	1,898.34	16.91%
Engineering	2,527.50	0.00	-2,527.50	
Plant Management	33,018.75	15,900.00	-17,118.75	-107.67%
Accounting	15,420.00	15,000.00	-420.00	-2.80%
Repairs & Maint to plant	50,581.48	26,978.79	-23,602.69	-87.49%
Consulting fees	13,637.74	0.00	-13,637.74	
Insurance expenses	458.33	372.35	-85.98	-23.09%
Postage	736.84	1,071.25	334.41	31.22%
Regulatory commission expense	705.00	708.05	3.05	0.43%
Bad debt expense	0.00	168.19	168.19	100.00%
Interest Exp - Smith Note	12,022.47	7,107.41	-4,915.06	-69.15%
Bank charges	3,333.11	802.69	-2,530.42	-315.24%
Miscellaneous expense	2,845.62	448.03	-2,397.59	-535.14%
TOTAL Expenses	**188,329.89**	**124,855.52**	**-63,474.37**	**-50.84%**
OPERATING PROFIT (LOSS)	**-68,272.59**	**-4,997.77**	**-63,274.82**	**1266.06%**
Other Income & Expenses				
Depreciation	-30,000.00	-30,000.00	0	0.00%
Permits & Taxes other than income	-8,289.00	-9,665.76	1,376.76	-14.24%
Interest & dividend income	3,168.72	522.74	2,645.98	506.18%
TOTAL Other Income & Expenses	**-35,120.28**	**-39,143.02**	**4,022.74**	**-10.28%**
PROFIT(LOSS) BEFORE TAXES	**-103,392.87**	**-44,140.79**	**-59,252.08**	**134.23%**
NET PROFIT (LOSS)	**-103,392.87**	**-44,140.79**	**-59,252.08**	**134.23%**

Cartwright Creek, LLC

Statement of Cash Flows

	6/30/2007	6/30/2006	Inc/<Dec>
CASH FLOWS, OPERATIONS:			
Period Earnings:			-103,392.87
Adjustments to Year-to-Date Earnings:			
Customer accounts receivable	-2,835.26	-2,803.97	-31.29
Accounts payable	46,750.65	20,070.48	26,680.17
Accrued Franchise Tax	354.00	828.00	-474.00
Accrued Ad Valorem Tax	1,890.00	3,779.00	-1,889.00
Accrued Gross Receipts tax	9,336.00	6,222.00	3,114.00
Loan from Shareholders - Sheaf	47,299.65	0.00	47,299.65
NET CASH FLOWS, OPERATIONS			**-28,693.34**
CASH FLOWS, FINANCING and INVESTING:			
A/D & amort of utility plant	209,715.62	179,715.62	30,000.00
Special deposits	-240,000.00	-244,576.67	4,576.67
Misc current & accrued assets	-916.67	-375.00	-541.67
Partners Capital - Sheaffer	516,260.26	515,129.34	1,130.92
Advances for construction	0.00	6,424.40	-6,424.40
NET CASH FLOWS, FINANCING and INVESTING			**28,741.52**
Net Increase (Decrease) in CASH and CASH EQUIVALENTS			**48.18**

9. Also, provide the most recent fiscal year end financial statements for Shaeffer International, LLC including Balance Sheet, Income Statement and Statement of Cash Flows.

Response:

This information is provided in Exhibit G.

Exhibit G – Sheaffer Financial Information

Sheaffer International, LLC
Balance Sheet

	Dec 31, 06	Dec 31, 05	$ Change	% Change
ASSETS				
Current Assets				
Checking/Savings				
Cash- Community Bank Checking	217,759.51	68,758.46	149,001.05	216.7%
Cash - Community Bank – MMA	253,730.44	0.00	253,730.44	100.0%
Farmers & Merchant Checking	218.07	937.18	-719.11	-76.73%
Total Checking/Savings	471,708.02	69,695.64	402,012.38	576.81%
Accounts Receivable				
Accounts Receivable	513,174.61	1,126,191.99	-613,017.38	-54.43%
Total Accounts Receivable	513,174.61	1,126,191.99	-613,017.38	-54.43%
Other Current Assets				
Contractual Deposit	10,000.00	0.00	10,000.00	100.0%
Employee Advances	0.00	2,500.83	-2,500.83	-100.0%
Patents	54,376.61	57,893.33	-3,516.72	-6.07%
Petty Cash	51.78	51.78	0.00	0.0%
Work in Process	0.00	477,729.34	-477,729.34	-100.0%
Total Other Current Assets	64,428.39	538,175.28	-473,746.89	-88.03%
Total Current Assets	1,049,311.02	1,734,062.91	-684,751.89	-39.49%
Fixed Assets				
Accumulated Depreciation	-58,287.86	-45,011.52	-13,276.34	29.5%
Computer Equipment & Software	53,731.10	43,606.13	10,124.97	23.22%
Computer Software	6,639.50	6,639.50	0.00	0.0%
Furniture & Equipment	35,544.33	35,544.33	0.00	0.0%
Total Fixed Assets	37,627.07	40,778.44	-3,151.37	-7.73%
Other Assets				
Due from Ltd.	3,764.00	3,764.00	0.00	0.0%
Front Range Toll Road Note Rec	4,000.00	4,000.00	0.00	0.0%
Investment in Cartwright Creek	399,113.13	77,936.13	321,177.00	412.1%
Investment in SIL. Clean Water	2,620,525.34	2,932,392.84	-311,867.50	-10.64%
Investments-Sheaffer LTD	7,500.00	7,500.00	0.00	0.0%
Lot Fees Receivable	652,128.23	652,128.23	0.00	0.0%
Note Receivable - S.I. Ltd.	50,000.00	50,000.00	0.00	0.0%
Total Other Assets	3,737,030.70	3,727,721.20	9,309.50	0.25%
TOTAL ASSETS	**4,823,968.79**	**5,502,562.55**	**-678,593.76**	**-12.33%**

Sheaffer International, LLC
Balance Sheet (cont)

	Dec 31, 06	Dec 31, 05	$ Change	% Change
LIABILITIES & EQUITY				
Liabilities				
Current Liabilities				
Accounts Payable				
Accounts Payable	208,740.85	478,634.25	-269,893.40	-56.39%
Total Accounts Payable	208,740.85	478,634.25	-269,893.40	-56.39%
Other Current Liabilities				
Accrued interest	133.86	133.86	0.00	0.0%
Accrued Salaries/Fringes	38,003.90	38,003.90	0.00	0.0%
Line of Credit	0.00	50,000.00	-50,000.00	-100.0%
Payroll Liabilities				
Federal Unemployment	211.57	944.44	-732.87	-77.6%
Federal Withholding	2,846.00	-2,808.68	5,654.68	-201.33%
IL Unemployment	1,554.25	1,298.62	255.63	19.69%
IL Withholding	11,507.11	5,118.41	6,388.70	124.82%
Soc.Sec./Medicare	2,295.00	-1,772.69	4,067.69	-229.46%
VA Unemployment	36.74	0.00	36.74	100.0%
VA Withholding	2,306.94	1,918.94	388.00	20.22%
Total Payroll Liabilities	20,757.61	4,699.04	16,058.57	341.74%
Total Other Current Liabilities	58,895.37	92,836.80	-33,941.43	-36.56%
Total Current Liabilities	267,636.22	571,471.05	-303,834.83	-53.17%
Long Term Liabilities				
Member Interest SIL Clean Water	13,102.26	14,661.96	-1,559.70	-10.64%
Note payable - Jupiter	36,970.30	36,970.30	0.00	0.0%
Note payable - Stahelin	88,565.41	21,065.41	67,500.00	320.43%
Total Long Term Liabilities	138,637.97	72,697.67	65,940.30	90.71%
Total Liabilities	406,274.19	644,168.72	-237,894.53	-36.93%
Equity				
Class A - Preferred Unitholders	1,562,500.00	1,675,000.00	-112,500.00	-6.72%
Retained Earnings	-3,416,768.96	-3,561,775.86	145,006.90	-4.07%
Unitholder's Equity	6,600,162.79	6,600,162.79	0.00	0.0%
Net Income	-328,199.23	145,006.90	-473,206.13	-326.33%
Total Equity	4,417,694.60	4,858,393.83	-440,699.23	-9.07%
TOTAL LIABILITIES & EQUITY	**4,823,968.79**	**5,502,562.55**	**-678,593.76**	**-12.33%**

Sheaffer International, LLC
Income Statement

	Jan - Dec 06	Jan - Dec 05	$ Change	% Change
Ordinary Income/Expense				
Income				
BOOM Projects Revenue				
Boom Managment Fee	48.00	24,000.00	-23,952.00	-99.8%
Total BOOM Projects Revenue	48.00	24,000.00	-23,952.00	-99.8%
Construction Mgmt Services	296,438.95	89,190.00	207,248.95	232.37%
Design Fees - BOOM Project	0.00	946,881.00	-946,881.00	-100.0%
Development Fees - GC &S	1,624,400.83	0.00	1,624,400.83	100.0%
Professional Fees				
Professional Fees - Lot Fees	0.00	439,402.85	-439,402.85	-100.0%
Professional Fees - Other	524,553.96	723,349.07	-198,795.11	-27.48%
Total Professional Fees	524,553.96	1,162,751.92	-638,197.96	-54.89%
SIRS Sales	0.00	0.00	0.00	0.0%
System Management Fees	8,000.00	0.00	8,000.00	100.0%
Uncategorized Income	0.00	0.00	0.00	0.0%
Total Income	2,453,441.74	2,222,822.92	230,618.82	10.38%
Gross Profit	2,453,441.74	2,222,822.92	230,618.82	10.38%
Expense				
Advertising	3,041.83	0.00	3,041.83	100.0%
Audio Visual Package	0.00	248.22	-248.22	-100.0%
Automobile Expense	36,376.69	4,615.46	31,761.23	688.15%
Bad Debt Expense	0.00	13,154.82	-13,154.82	-100.0%
Bank Service Charges	103.69	481.21	-377.52	-78.45%
Contributions	3,630.00	1,815.00	1,815.00	100.0%
Dues and Subscriptions	1,752.90	0.00	1,752.90	100.0%
Easement	800.00	0.00	800.00	100.0%
Equipment	0.00	106.74	-106.74	-100.0%
Equipment Rental	13,079.93	10,966.51	2,113.42	19.27%
Insurance				
Auto Insurance	2,904.48	3,717.00	-812.52	-21.86%
Fee	1,247.59	0.00	1,247.59	100.0%
General Business	64,864.59	42,491.88	22,372.71	52.65%
Health Insurance	88,341.42	106,571.15	-18,229.73	-17.11%
Life/ADD	6,813.80	5,067.06	1,746.74	34.47%
Professional Liability	32,098.64	18,689.53	13,409.11	71.75%
Workers Comp	6,964.12	4,265.00	2,699.12	63.29%
Total Insurance	203,234.64	180,801.62	22,433.02	12.41%

Sheaffer International, LLC
Income Statement (cont.)

	Jan - Dec 06	Jan - Dec 05	$ Change	% Change
Interest Expense				
Finance Charge	5,902.98	173.87	5,729.11	3,295.05%
Loan Interest	4,231.06	4,671.18	-440.12	-9.42%
Other	31,557.62	0.00	31,557.62	100.0%
Interest Expense - Other	58.56	0.00	58.56	100.0%
Total Interest Expense	41,750.22	4,845.05	36,905.17	761.71%
Late fee	298.21	226.66	71.55	31.57%
Legal & Accounting				
Accounting	34,962.17	16,243.00	18,719.17	115.25%
Legal Fees	26,544.38	108,945.21	-82,400.83	-75.64%
Total Legal & Accounting	61,506.55	125,188.21	-63,681.66	-50.87%
Licenses and Permits	13,977.12	8,962.00	5,015.12	55.96%
Marketing Material	2,154.00	3.95	2,150.05	54,431.65%
Meetings	1,280.00	0.00	1,280.00	100.0%
Miscellaneous	3,741.94	7,041.81	-3,299.87	-46.86%
Office Supplies	12,724.23	10,650.72	2,073.51	19.47%
Operating Supplies	63.80	0.00	63.80	100.0%
Outside Consultants				
Computer Consultation	7,593.90	12,924.99	-5,331.09	-41.25%
Contractors	3,584.82	0.00	3,584.82	100.0%
Engineering Consultation	50,543.37	124,911.81	-74,368.44	-59.54%
Financial	18,862.93	3,100.00	15,762.93	508.48%
Laboratory Testing	14,958.32	60,367.00	-45,408.68	-75.22%
Marketing	176,327.50	66,572.50	109,755.00	164.87%
Outside Consultants - Other	600.00	16,000.00	-15,400.00	-96.25%
Total Outside Consultants	272,470.84	283,876.30	-11,405.46	-4.02%
Payroll Expenses	934,518.11	907,978.99	26,539.12	2.92%
Payroll taxes	82,034.49	86,681.35	-4,646.86	-5.36%
Postage and Delivery	10,313.77	4,265.61	6,048.16	141.79%
Printing and Reproduction	5,423.07	86.34	5,336.73	6,181.06%
Professional Development	15,971.74	38,222.79	-22,251.05	-58.21%
Recruiting	1,650.00	1,154.68	495.32	42.9%
Rent	93,245.02	59,242.38	34,002.64	57.4%
Repairs				
Computer Repairs	3,295.00	2,317.00	978.00	42.21%
Equipment Repairs	988.21	180.53	807.68	447.39%
Repairs - Other	114.93	0.00	114.93	100.0%
Total Repairs	4,398.14	2,497.53	1,900.61	76.1%

Sheaffer International, LLC
Income Statement (cont.)

	Jan - Dec 06	Jan - Dec 05	$ Change	% Change
Service Charge	2.00	0.00	2.00	100.0%
Software Licensing Fees	10,369.87	0.00	10,369.87	100.0%
Supplies	48,401.03	17,729.30	30,671.73	173.0%
Taxes				
State	2,202.35	0.00	2,202.35	100.0%
Taxes - Other	0.00	20.62	-20.62	-100.0%
Total Taxes	2,202.35	20.62	2,181.73	10,580.65%
Telephone	16,063.38	17,390.85	-1,327.47	-7.63%
Travel & Ent				
Entertainment	2,239.17	1,041.78	1,197.39	114.94%
Meals	5,837.81	1,565.87	4,271.94	272.82%
Travel	37,425.43	87,436.40	-50,010.97	-57.2%
Travel & Ent - Other	13,439.43	20,211.50	-6,772.07	-33.51%
Total Travel & Ent	58,941.84	110,255.55	-51,313.71	-46.54%
Amoritization of Work in Process	477,869.21	0.00	477,869.21	100.0%
Utilities				
Gas and Electric	3,585.72	3,631.32	-45.60	-1.26%
Water	288.58	0.00	288.58	100.0%
Utilities - Other	1,049.36	1,540.59	-491.23	-31.89%
Total Utilities	4,923.66	5,171.91	-248.25	-4.8%
Total Expense	2,438,314.27	1,903,682.18	534,632.09	28.08%
Net Ordinary Income	15,127.47	319,140.74	-304,013.27	-95.26%
Other Income/Expense				
Other Income				
Change in Clean Water Invstmnt	-310,307.80	-105,372.24	-204,935.56	194.49%
Interest Income	3,730.44	0.00	3,730.44	100.0%
Other Income	0.00	0.00	0.00	0.0%
Total Other Income	-306,577.36	-105,372.24	-201,205.12	190.95%
Other Expense				
Depreciation Expense	13,276.34	14,227.23	-950.89	-6.68%
Other Expenses	18,956.28	54,534.37	-35,578.09	-65.24%
Patent Amortization	3,516.72	0.00	3,516.72	100.0%
Total Other Expense	35,749.34	68,761.60	-33,012.26	-48.01%
Net Other Income	-342,326.70	-174,133.84	-168,192.86	96.59%
Net Income	**-327,199.23**	**145,006.90**	**-472,206.13**	**-325.64%**

Sheaffer International, LLC
Statement of Cash Flows

	Jan - Dec 06
OPERATING ACTIVITIES	
Net Income	328,199.23
Adjustments to reconcile Net Income to net cash provided by operations:	
Decrease in Accounts Receivable	613,017.38
Increase in conhtractual Deposits	-10,000.00
Depreciation Expense	13,276.34
Decrease in Employee Advances	2,500.83
Amortization of Patents	3,516.72
Decrease in Work in Process	477,729.34
Decrease in Accounts Payable	269,893.40
Decrease in Line of Credit	-50,000.00
Increae in Payroll Liabilities	16,058.57
Net cash provided by Operating Activities	468,006.55
INVESTING ACTIVITIES	
Purchase of Equipment	-10,124.97
Increase in Investment in Cartwright Creek	321,177.00
Decrease in Investment in SIL. Clean Water	311,867.50
Net cash provided by Investing Activities	-19,434.47
FINANCING ACTIVITIES	
Decr. in Minority Interest in SIL Clean Water	-1,559.70
Proceeds of Note payable - Stahelin	67,500.00
Retirement of Preferred Unitholders Interest	112,500.00
Net cash provided by Financing Activities	-46,559.70
Net cash increase for period	402,012.38
Cash at beginning of period	69,695.64
Cash at end of period	**471,708.02**

10. Identify all permit violations issued by any state agency such as TDEC and federal regulatory agencies involving your company or affiliated entities since January 1, 2005. Identify the nature of the permit violation, which governmental agency or office issued the permit violation and how the permit violation was resolved.

Response:

Cartwright Creek Grasslands Wastewater Treatment Facility

The Cartwright Creek Grasslands facility has a discharge permit issued and monitored by TDEC. Cartwright Creek self-reports effluent analyses in a monthly report submitted to TDEC in accordance with the facility's NPDES permit. A summary of the months in which one ore more of the monitored parameters exceeded the effluent limits since January 2005 is presented in Exhibit H.

SIL Cleanwater, L.L.C.

The North Fork Sheaffer Modular Reclamation and Reuse System (the "North Fork System"), is located in Timberville, Virginia and is owned by SIL Cleanwater, L.L.C, an Illinois limited liability company ("SIL Cleanwater"). Sheaffer International, L.L.C. is the managing member of SIL Cleanwater. SIL Cleanwater holds National Pollutant Discharge Elimination System ("NPDES") permit number VA0090263 for the North Fork System. The facility is designed to treat 1.923 million gallons per day ("MGD") of wastewater from the towns of Broadway and Timberville, Virginia, and from two poultry processing plants owned and operated by Pilgrim's Pride Corporation and Cargill Foods. Approximately 81% of the current plant influent flow is poultry processing wastewater, which contains higher concentrations and mass quantities of pollutants such as Biological Oxygen Demand ("BOD"), Total Suspended Solids ("TSS"), Total Nitrogen, and Total Phosphorus. In addition, the poultry processing companies use chemicals at their plant that can be harmful to the wastewater treatment process, and from time to time cause upset events.

SIL Cleanwater's permit was renewed in 2004. The renewed permit included annual mass loading limitations at effluent discharge for Total Nitrogen and Total Phosphorus. In addition to the treatment facility, SIL Cleanwater operates and maintains three influent pump stations. One of the pump stations overflows during heavy rain events, due to infiltration and inflow ("I&I"). Another of the pump stations has overflowed twice since December 2004, due to malfunction of a flow control device.

The permit violations issued by the Virginia Department of Environmental Quality (the "VDEQ") at the North Fork System since January 1, 2005 are summarized in Exhibit I.

Exhibit H – Cartwright Creek Wastewater Treatment System
Monthly Discharge Summary from January 2005 to July 2007

Year/Month	Permit Limits Exceeded	Other Items
2005		
January	CBOD: daily maximum concentration exceeded once day; monthly average amount exceeded once. Suspended solids: daily maximum concentration exceeded one day.	None
February	CBOD: Daily maximum concentration exceeded one day; monthly average daily amount exceeded once Suspended solids: daily maximum concentration limit exceeded two days; monthly average concentration and amount exceeded once.	None
March	CBOD: Daily maximum concentration exceeded one day; monthly average concentration and amount exceeded once. Suspended solids: daily maximum concentration exceeded twice; monthly average amount exceeded once.	None
April	4-30 – Heavy rains caused settleable solids limits to be exceeded one day.	None
May	None	None
June	7-13 Heavy rains caused CBOD limits and suspended solids limits to be exceeded once.	None
July	None	None
August	Exceeded one weekly and one monthly average lbs of ammonia due to blower panel problem; repaired panel.	None
September	None	9-16 – Lightning caused failure of pump station electrical panel, shutting down pumps for 12 hours. Repaired panel damage.
October	None	None
November	None	None
December	None	None
2006		
January	None	None
February	None	None
March	None	None
April	None	None
May	None	None
June	None	None
July	None	None
August	None	None
September	None	None
October	None	None
November	None	None

December	None	None
2007		
January	None	Manhole overflowed upstream in collection system due to plugging of the sewer with grease from golf course. Line cleaned by water jetting
February	None	None
March	None	3/17 – Pump station down 19 hours due to pump clogging with debris. Pumps cleared of debris and restarted.
April	4-16 - Fecal coliform and eColi limits exceeded due to malfunction in chlorine disinfection. Repaired and put back into service.	None
May	None	None
June	None	None
July	None	7/23 - Pump station down 17 hours due to plugging of level control system bubbler. Repaired.

Exhibit I – SIL Cleanwater Summary

Month	Parameter	Conc./ Loading	Required Limit	Reported	Resolution
Jan 2005	NH3	Conc. Avg.	5.5 mg/L	5.9 mg/L	Resolved via routine operations
2005 (Annual limit)	Total Phos	Quantity Max	3,200 kg/yr	29,091 kg/yr	Permittee currently installing Phos. Treatment
2005 (Annual limit)	Total Nitrogen	Quantity Max	17,000 kg/yr	24,781 kg/yr	Proposed expansion of irrigation to reduce discharge
Mar 2006	Ammonia	Conc. Avg.	5.5 mg/L	6.8 mg/L	Resolved via routine operations
Apr 2006	Ammonia	Conc. Avg.	5.5 mg/L	7.1 mg/L	Resolved via routine operations
2006 (Annual limit)	Total Phos.	Quantity Max	3,200 kg/yr	18,353 kg/yr	Permittee currently installing Phos. Treatment
May 2006	Oil & Grease	Loading Max	120 kg/day	530 kg/day	Resolved via routine operations
May 2006	Oil & Grease	Loading Avg.	67 kg/day	76 kg/day	Resolved via routine operations
2006 (Annual limit)	Total Nitrogen	Quantity Max	17,000 kg/yr	26,018 kg/yr	Proposed expansion of irrigation to reduce discharge
Feb 2007	Ammonia	Conc. Avg.	5.5 mg/L	7.2 mg/L	Resolved via routine operations
Feb 2007	CBOD	Conc. Avg.	22 mg/L	32.7 mg/L	Resolved via routine operations
Feb 2007	CBOD.	Loading Avg.	160 kg/day	201.9 kg/day	Resolved via routine operations
Mar 2007	Ammonia	Conc. Avg.	5.5 mg/L	11.8 mg/L	Resolved via routine operations
Mar 2007	Ammonia	Conc. Max.	8.2 mg/L	18.9 mg/L	Resolved via routine operations
Mar 2007	Chronic Toxicity	Conc. Max.	2.2 TU-C	3.4 TU-C	Two subsequent tests met limits.
Apr 2007	Total Res. Chlorine	Min. Conc.	0.6 mg/L	0.1 mg/L	Resolved via routine operations
2007 (Annual limit)	Phosphorus Loading	Quantity Max	3,200 kg/year	6,910 kg through 06/07	Permittee currently installing Phos. Treatment

Influent Pump Station Overflow Violations:

- June 2005 - Overflow of approximately 7,800 gallons at the Cargill Pump Station, due to malfunction of a flow control flotation device. This issue was resolved by replacing the floats and taking measures to prevent future malfunction.
- August 2005 - Overflow of approximately 50,000 gallons at Cargill Pump Station, due to malfunction of a flow control flotation device. This issue was resolved by replacing the floats and taking measures to prevent future malfunction.

- August 2005 - Overflow of unknown amount at Timberville Pump Station, due to precipitation and infiltration and inflow ("I&I"). This issue was resolved by increasing the capacity of the pump station in July 2007.
- June 2006 – Overflow of approximately 50,000 gallons at Cargill Pump Station, due to malfunction of a flow control flotation device. This issue was resolved by replacing the floats and taking measures to prevent future malfunction.
- June 2006 – Overflow of an unknown amount at Timberville Pump Station, due to precipitation and I&I. This issue was resolved by increasing the capacity of the pump station in July 2007.
- July 2006 – Overflow of approximately 3,000 gallons at Timberville Pump Station, due to precipitation and I&I. This issue was resolved by increasing the capacity of the pump station in July 2007.
- August 2006 – Overflow of approximately 15,000 gallons at Broadway Pump Station, due to accumulation of material clogging the pumps. This issue was resolved by removing the clogging material.
- September 2006 – Overflows at Timberville Pump Station of approximately 25,000 gallons and 20,000 gallons respectively, both due to precipitation and I&I
- October 2006 – Overflow at Timberville Pump Station of approximately 3,000 gallons due to precipitation and I&I. This issue was resolved by increasing the capacity of the pump station in July 2007.
- November 2006 – Overflow of approximately 25,000 gallons at the Cargill Pump Station due to …
- March 2007 – Overflow of an unknown amount at Timberville Pump Station, due to precipitation and I&I. This issue was resolved by increasing the capacity of the pump station in July 2007.

Other Violations alleged by the VDEQ since January 1, 2005

- September 2006 – unauthorized, slightly turbid discharge from formerly used and permitted outfall that had been replaced. This issue was resolved by permanently plugging the old outfall.
- August 2006 – facility did not discharge effluent on certain days of the month when it was required to do so, due to low flow conditions in the North Fork Shenandoah River. The effluent discharged was stopped on these days due to a mechanical problem with the facility's dechlorination pumps. The pumps were replaced, resolving the situation.
- September 2006 – facility TRC at discharge was measured at 1.12 mg/L, exceeding maximum limit of 0.015, and indicating a dechlorination problem. This measurement coincided with the effluent discharge shutdown described above, and was resolved by replacing the chemical dosing pumps.
- May 2005 - SIL Cleanwater received a notice of violation in May 2005 for exceedance of Plant Available Nitrogen ("PAN") applied to one of the irrigation fields, due to excessive fertilizer of the private individual farming the field.
- July 2005 - SIL Cleanwater received a notice of violation for missing the deadline for submitting the required Discharge Monitoring Report ("DMR").

- April 2007 - SIL Cleanwater received notices of violation in April 2007 for exceeding irrigation / fertilization limits for PAN and phosphorus as P_2O_5 for some irrigation fields in 2006.

SIL Cleanwater also received an "Order for Compliance from the United States Environmental Protection Agency ("USEPA") in December 2005 and is currently implementing a corrective action plan to address these violations with USEPA.

11. Please submit a proposed tariff, including the residential and commercial tap fees and monthly rates that Cartwright Creek proposes for the Stillwater Development. What rate does Cartwright Creek propose to charge the golf course and clubhouse facility in the Stillwater Development? Please explain the rationale supporting these rates. Include in your answer an explanation of why Cartwright Creek is proposing a rate that results in a loss for the first three (3) years.

Response:

The proposed tariff, including residential and commercial tap fees is presented in Exhibit J. The monthly service rates for the golf course and clubhouse would be the commercial rate established in the tariff.

During the first years of operation, the residential community will be under construction. Build-out is expected to take approximately 6 years. While many operating costs will be reduced due to the smaller number of homes, there will be operating expenses that will be incurred in full regardless of the number of homes (such as bonding costs, taxes, insurance, maintenance reserve). Therefore, there will be a shortfall between expenses and user revenue for the first years. This shortfall will be made up by the project developer, Eagle Ridge Investments.

Cartwright Creek, LLC

Wastewater Service Tariff

TRA #1, Section #1
Residential & Commercial Rates

Cartwright Creek, LLC
Grassland Area

Flat Monthly Sewer Service Billing	Monthly Amount
Residential, Condominium, House or Apartment:	
1 – Bedroom	$20.35
2 – Bedroom	$25.71
3 – Bedroom	$29.99
4 – Bedroom	$34.82
5 – Bedroom	$39.10
Non-Residential:	
Charge per 1,000 gallons per month (actual or assumed flow)	$3.31
Minimum monthly charge	$6.00

Tap Fees	Amount
Residential:	$2,750.00
Non-Residential:	
Charge per gallon per day	$7.86
(Computed by multiplying the peak monthly usage during the first year	
By 12 divided by 365 days.)	

In addition to the rates described above, the following Miscellaneous Fees shall also be in effect:

Late Payment – 5.00%
Disconnection – $10.00
Reconnection – $15.00

Cartwright Creek, LLC
Waterbridge Development

Flat Monthly Sewer Service Billing	Monthly Amount
Residential, Condominium, House or Apartment:	
1 – Bedroom *	$20.35
2 – Bedroom *	$25.71
3 – Bedroom *	$29.99
4 – Bedroom *	$34.82
5 – Bedroom *	$39.10
Non-Residential:	
Charge per 1,000 gallons per month (actual or assumed flow)	$3.31
Minimum monthly charge	$6.00

* - Of this rate, $7.03 will be placed into an escrow account for non-routine maintenance.

In addition to the rates described above, the following Miscellaneous Fees shall also be in effect:

Late Payment – 5.00%
Disconnection – $10.00
Reconnection – $15.00
Bonding - $8.33 **

**** Bonding Cost incurred is passed through to the customer with no markup by the Company.**

Total Bonding Cost:

Amount of Bond	**$2,500,000**
Interest Rate	**2%**
Number of Lots	**500**
Months per Year	**12**
Total	**$8.33**

Cartwright Creek, LLC
Stillwater Development

Flat Monthly Sewer Service Billing	Monthly Amount
Residential, Condominium, House or Apartment:	
1 – Bedroom *	$20.35
2 – Bedroom *	$25.71
3 – Bedroom *	$29.99
4 – Bedroom *	$34.82
5 – Bedroom *	$39.10
Non-Residential:	
Charge per 1,000 gallons per month (actual or assumed flow)	$3.31
Minimum monthly charge	$6.00

* - Of this rate, $7.03 will be placed into an escrow account for non-routine maintenance.

In addition to the rates described above, the following Miscellaneous Fees shall also be in effect:

Late Payment – 5.00%
Disconnection – $10.00
Reconnection – $15.00
Bonding - $8.33 **

**** Bonding Cost incurred is passed through to the customer with no markup by the Company.**

Total Bonding Cost:

Amount of Bond	**$2,500,000**
Interest Rate	**2%**
Number of Lots	**500**
Months per Year	**12**
Total	**$8.33**

Cartwright Creek, LLC

Wastewater Service Tariff

TRA #1, Section #2
Rules and Regulations

RULES AND REGULATIONS

Governing the wastewater collection and treatment systems of Cartwright Creek, LLC

Statement of Purpose

The general purposes of these rules and regulations are:

1. To establish procedures for furnishing sewerage and sewage treatment services on a uniform basis to customers within the service area boundary of the Cartwright Creek, LLC.

2. To provide standards and procedures for:

   a. Acceptable sewage characteristics

   b. Excessive sewage volume

   c. Engineering design standards

   d. Construction and inspection requirements

   e. Quality of materials.

Definition of Terms

1. Company - The word Company shall mean the Cartwright Creek, LLC.

2. Engineer - The word Engineer shall mean the consulting engineer of the Cartwright Creek, LLC.

3. Customer - The word Customer shall mean any person, firm, corporation, association or government unit furnished sewerage services by the Company.

4. Property - The word Property shall mean all facilities owned and operated by the company.

5. Commission - The word Commission shall mean the Tennessee Regulatory Authority.

6. Trunk Sewer - The words Trunk Sewer shall mean a sewer that runs parallel to a natural drainage channel and receives sewage from many tributary branches and terminates at the sewage treatment plant.

7. Collector Sewer - The words collector Sewer shall mean those sewers running within the development and conveying the sewage to the trunk sewer.

8. Lateral Sewer - The words Lateral Sewer shall mean those sewers extending from the Collector Sewer to the property line of the Customer.

9. Building Sewer - The words Building Sewer shall mean that sewer extending from the Customer's property line to his place of business or residence.

10. Residential Service – The words Residential Service shall mean the provision of wastewater service to a customer whose primary use is for the customer's personal dwelling.

11. Commercial Service – The words Commercial Service shall mean the provision of wastewater service to a customer whose primary use is for other than the customer's personal dwelling.

Authorization of Rules and Regulations

The Cartwright Creek, LLC, a limited liability company, organized and engaged in business as a public utility in the State of Tennessee under a Certificate of Convenience and Necessity issued by the Tennessee Regulatory Authority on December 10, 2005 under Docket 04-00307 submits the following statement of its rules and regulations in compliance with Rule 602.2.

Effect of Rules and Regulations

All provisions of these rules and regulations shall be incorporated in each contract with each sewerage Customer of the Cartwright Creek, LLC.

Utility Items on Private Property

The Company shall not furnish on or maintain any items or appurtenances for sewer service on the customer's premises without Execution of an agreement for an easement or encroachment. No property of the Company shall be located on the premises of customers except the sewer shut-off valve, and the Company shall be responsible for the shut-off valve. The Building Sewer shall be maintained by the Customer.

Discontinuance of Service

Service under any application may be discontinued for the following reasons:

1. Non-payment of bill as hereinafter set forth.
2. For misrepresentation in the application.
3. For adding to the Property or fixtures without notice to the Company.
4. For failure to protect the connections, service lines, or fixtures in good order.
5. For molesting any service pipes or any property of the Company in any way whatsoever.
6. Vacancy of premises.
7. For violation of any rules of the Company.
8. For disconnecting or re-connecting service by any party other than a duly authorized agent of the Company without the consent of the Company.

Non-payment Penalties

A penalty of five (5%) percent of the monthly charge will be due after the 15th day of each month for which a bill has been rendered. After twenty (20) days non-payment after the first day of the month in which the bill is payable, the Company may shut-off the customer's service; provided, however, the Company will give the customer an additional fifteen (15) days' notice before discontinuation. A fee of Ten and No/100 ($10.00) Dollars will be charged for disconnection and a Fifteen and No/100 ($15.00) Dollars fee will be charged for reconnection of service, plus the actual cost of remedying any damage to the shut-off valve or other facilities. No service shall be turned on again if discontinued for non-payment (or any other valid reason) until all charges have been paid, including disconnection and reconnection fees.

Change in Ownership, Tenancy of Service

A new application and agreement must be made and approved by the Company on any change in ownership of property, or in tenancy, or in the service as described in the application. In the event of failure of a new owner or tenant to make such application, the Company shall have the right to discontinue service until such new application is made and approved.

Security Deposits

Each new Customer, before connection or reconnection, of the service may be required to make a refundable deposit to secure payment of sewerage bills in an amount double the monthly bill for that particular type of customer. Interest of six (6%) percent will be paid on any such refundable deposit.

Engineering, Materials and Construction Standards

1. General - This specification covers the type of sewer pipe required for various design conditions of sewers constructed by developers. The requirements called for are minimum in all cases. Bedding conditions and class of pipe are the responsibility of the design engineer in cases of unusual or excessive trence loads. Design and construction of sewer lines shall meet the requirements of the State of Tennessee Department of Public Health in addition to this specification. Where conflicts exist, this specification shall govern.

2. Velocity Conditions - For velocities greater than fifteen (15) feet per second, pipe shall be case iron with mechanical joints and concrete anchors. For velocities equal to or less than 2.5 feet per second and pipe sizes from six (6) inches to fifteen (15) inches nominal inside diameter, pipe shall be vitrified clay. For velocities greater than 2.5 feet per second and up to fifteen (15) feet per second, pipe may be either concrete or vitrified clay.

Velocities shall be calculated from Kutter's Formula for an "n" value of 0.013 for circular pipes flowing full.

3. Concrete Pipe - All concrete pipe and fittings twelve (12) inches in diameter and

larger shall be reinforced concrete culvert, storm drain and sewer pipe conforming to the latest requirements of ASTM Standard Specification, Serial Designation C-76. The class of pipe shall be as shown on the plans or specified.

All concrete pipe and fittings less than twelve (12) inches in diameter shall be extra strength nonreinforced concrete sewer pipe conforming to the latest ASTM Standard Specifications for Concrete Sewer Pipe, Serial Designation C-14 extra strength.

All concrete pipe and fittings twelve (12) inches in diameter and larger shall have the spigot groove type joint with 0-ring rubber gasket conforming to the applicable provisions of ASTM Designation C-443, latest revisions.

All concrete pipe and fittings less than twelve (12) inches in diameter shall have the opposing shoulder type joint with 0-ring rubber gasket conforming to the applicable provisions of ASTM Designation C-443, latest revisions.

4. Vitrified Clay Pipe - Vitrified clay pipe and fittings shall be bell and spigot conforming to the latest requirements of ASTM Standard Specification, Serial Designation C-200 for extra strength clay pipe.

Vitrified clay pipe shall have compression type positive friction joints in accordance with the latest requirements of ASTM Specification C-425. The joint material shall be bonded to the pipe at the factory.

5. Infiltration - All pipe shall be tested and inspected for infiltration. Infiltration shall not exceed three (300) hundred gallons per twenty-four (24) hours per inch of pipe diameter per mile of sewer with a maximum allowable of nine thousand (9,000) gallons per twenty-four (24) hours per mile.

The contractor or developer shall furnish all supplies, materials, labor, services, etc. needed to make infiltration or exfiltration tests, including water. No separate payment shall be made for infiltration or exfiltration testing.

Any leakage shall at the direction of the engineer be corrected by removal and replacement of pipe or joint where such leakage exists, until pipelines meet the requirements of the allowable leakage specifications.

Special Pretreatment Sewage Requirements

For all sewerage connections, in addition to the customary tap fees, the Company reserves the right to require any non-residential user to provide special treatment for any high strength effluent before discharge into its sewerage system. The Company may, upon the basis of recognized engineering standards and treatment costs, increase the tap fees or flat rate charges to cover the cost of treatment of high strength effluent or industrial waste, and may impose recognized engineering standards as to the maximum size of solids and constituents in such waste discharged into its sewerage system.

Additionally, if excessive volumes of sewage are received, the Company may require the Customer to monitor flow volume in order to adjust the flat monthly sewer service rate.

Damages

The Company shall in no event be responsible for maintaining any service line owned by the Customer, nor for damages created by sewage escaping therefrom, nor for defects in lines, or fixtures, on the property of the Customer. The Customer shall at all times comply with all regulations of the Tennessee Regulatory Authority, and of the Company, relating to the service lines and shall make all changes in his line required on account of grade or otherwise.

All leaks in any pipe or fixture on the premises of the Customer shall be immediately repaired. On failure to repair any such leak, the service may be discontinued until repairs are made.

Inspection

All pipes, valves and fixtures shall at all reasonable hours, be subject to inspection by the Company or its duly authorized agent.

In Event of Emergency

The Company shall not be liable to the Customer for interruption in service, or for damages or inconvenience as a result of any interruption, stoppage, etc., which was beyond the reasonable control of the Company.

Extension Plan

The Company will furnish sewer services to all property owners whose lands abut the trunk sewer. The sewer service charges and tap fees included in the Company's tariff do not include costs for constructing collector and lateral sewers. Any collector and/or lateral sewers required to service such abutting properties shall be constructed at the cost of those parties desiring same, and these sewers shall become the property of the Company, to be credited to the account for contributions in aid of construction.

If the said desiring party does not wish to construct his own collector and lateral sewers, the Company may construct them and charge the developer the total project costs for same.

The plans for extension of sewer service shall be phased according to the engineering report attached and made a part of these Rules and Regulations.

Contracts for Service

Each customer before installation of service shall be required to execute on the appropriate forms furnished by the Company:

1. A sewer service contract (Attachment No. 1).

2. The application and contract for sewer tap services (Attachment No. 2).

Customer Billing Forms

All customer billings shall be on a standard form whether residential, commercial or industrial. A copy of the form is attached hereto (Attachment No. 3).

Public Contract

Bruce Meyer
2033 Richard Jones Rd.
Nashville, Tennessee 37215

Bonding Cost

The Company is currently required to post a bond to assure continued operation of the wastewater system. The cost of such bond, which is subject to change, is passed along to the customer, without markup by the Company, as a separate line item on each customer's monthly bill and is titled "Bonding Charge." The monthly charge for bonding cost is calculated as follows:

$$MBC = \frac{UBC_{N-1} + \left(B_N \times I_N \div M\right)}{L}$$

Where

MBC	=	the monthly bonding charge;
UBC	=	the unrecovered bond cost from the previous period;
N	=	the current period;
B	=	the amount of bond required;
I	=	the interest rate assessed to purchase the bond;
M	=	months per year or 12; and
L	=	number of lots in the subdivision.

Tennessee Regulatory Authority Regulations

The utility in its operation shall conform with all the applicable rules and regulations promulgated from time to time by the Tennessee Regulatory Authority.

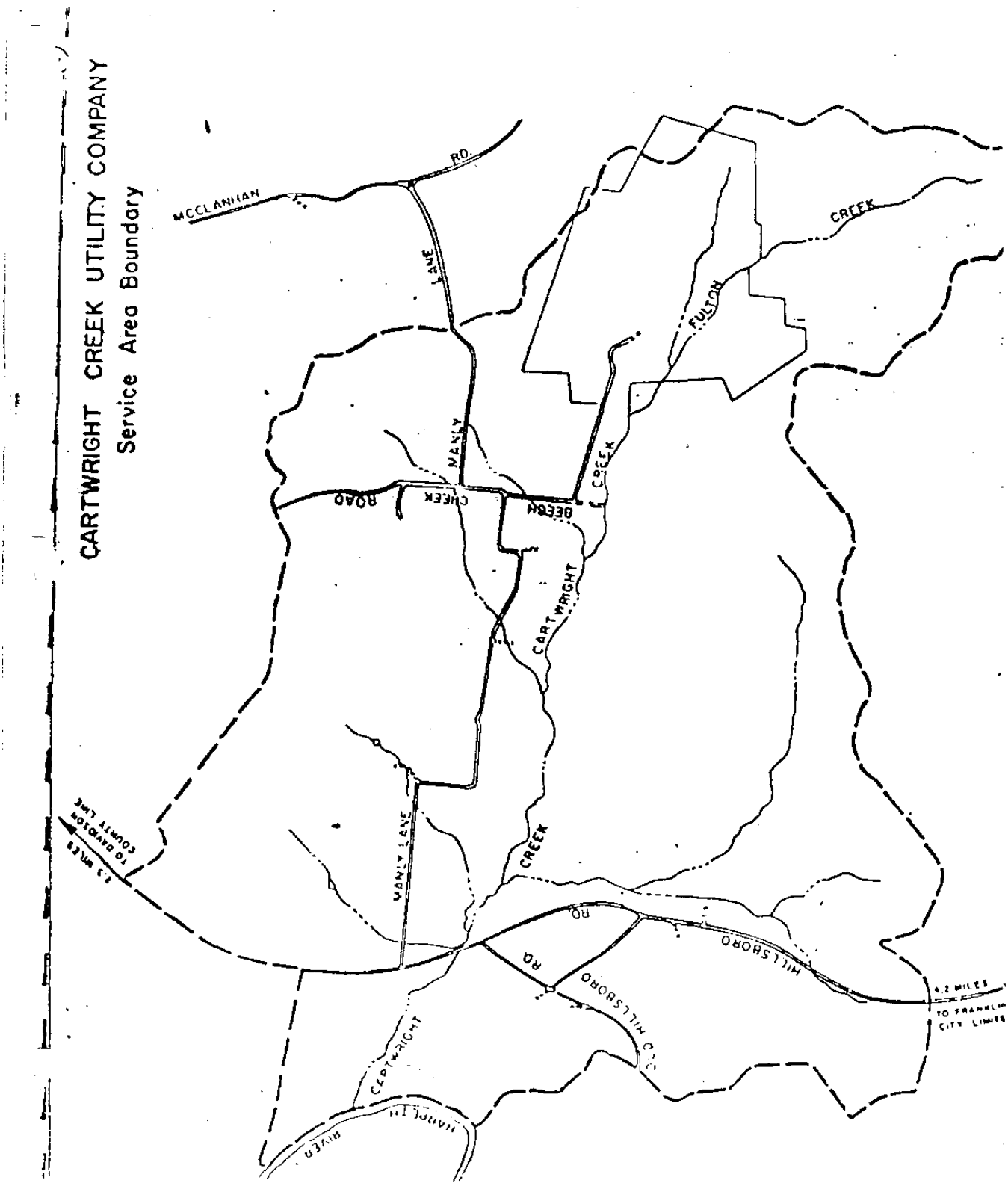
CARTWRIGHT CREEK UTILITY COMPANY
Service Area Boundary
MCCLANAHAN RD.
MANLY LANE
FULTON
CREEK
MANLY
CREEK
ROAD
CREEK
BEECH
CART WRIGHT
MANLY LANE
CREEK
RD.
HILLSBORO
RD.
HILLSBORO
CART WRIGHT
MANLY LN.
RIVER
TO FRANKLIN CITY LIMITS

EXHIBIT A

ON SITE SEWER CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, _____,by and between Cartwright Creek, LLC hereinafter referred to as the Company and _____ hereinafter referred to as the Customer.

WITNESSETH

For and in consideration of the sum or sums of money hereinafter mentioned, the mutual promises of the parties herein contained, and other good and valuable considerations set forth herein, the parties hereto have entered into the following agreement:

The Company hereby agrees to, and will permit the Customer to connect on to the Company's sewer system, at Williamson County, Tennessee, at the location described on the attached plans, subject to the construction of, and the Company's acceptance in writing of, the proposed sewer facilities to which connection is to be made at said location; and to permit the Customer to install the collector system and/or trunk line for service for Customer's development. Customer is to install said sewers, etc., as shown on the plan which is attached hereto as Exhibit A, and the plans and specifications as approved by the Company and the Company engineers, which said plans and specifications are attached hereto as Exhibit B, and made a part of this contract.

The Customer is to perform all of the necessary work for the installation of said collector system and completely install the same at no cost whatsoever to the Company, all in accordance with the plans and specifications hereinabove referred to, and for that purpose has entered into a Contract attached hereto as Exhibit C for the construction of said sewer system.

All construction begun, continued and completed hereunder shall be subject to the inspection and approval of the Company, its engineers and representatives who shall have a continuous right of inspection throughout the progress of the work. No pipe, fittings, or connection shall be covered until inspected and approved for backfill by the Company.

It is specifically understood and agreed that all installation costs, for said installation, shall be paid for by the Customer. In addition to said installation costs, Customer agrees to and will pay to Company upon the execution of the Contract ten percent (10%) of the cost of said

construction which is to cover the Company's inspection, overhead, administrative, legal and other service costs.

In the event of change in the drawings or plan of the development by written agreement of the parties, prior to the actual installation of the facilities provided for in the plans and specifications, then such change shall be deemed incorporated in this Contract, as though set out verbatim herein, and a copy of said changed plans shall be attached to this Contract and made a part hereof. It is further understood that such changed plans, if any, may be looked to for a total description of the properties conveyed to the Company by the Customer.

The Customer further agrees:

(1) That the Customer will immediately repair at its own cost and expense all breaks, leaks or defects of any type whatsoever arising from any cause whatsoever occurring within one (I) year from the date said lines, pump station, mains, valves, fittings, etc. are accepted in writing by the Company;

(2) That upon failure of the Customer to take immediate steps to make such repairs, the Company is hereby authorized by the customer to make such repairs at the cost and expense of the Customer, or to have such repairs made at the cost and expense of the Customer;

(3) That the obligations of the Customer hereunder are in addition to and not in lieu of the obligations of the Customer to pay all Rates, Charges, and Fees and satisfy all obligations set forth in the Company's Schedule of Rates, Charges, and Fees, as approved by the Tennessee Regulatory Authority, which is in effect at the dates such obligations arise.

Tees for all service sewers to the property line of each lot in said development shall be installed by the Developer as a part of the construction contract.

The Company retains exclusive right to extend the collector system at any time it sees fit.

Upon the completion of the facilities provided for herein, the Customer hereby represents and warrants that same shall be paid for in full and that no liens or encumbrances shall remain in regard to said facilities or the installation thereof.

By the execution of this Agreement, the Customer hereby represents and warrants that said sewer system will be installed in accordance with the foregoing provisions and the plans and specifications above mentioned, and that any necessary written easement agreements, approved in writing as to form and content by the Company, shall be provided to the Company, including

provision for at least ten feet (10') in width on each side of the center line of all sewers installed hereunder other than sewers in the public right-of-way.

It is agreed that the Company shall have exclusive title and ownership of all of said sewers in the development and the Customer hereby conveys to the Company, free and clear of all encumbrances, all of said equipment and installations dealt with herein without the necessity of any further contract or deed. The Customer shall, upon request of the Company, execute and deliver a Deed of Conveyance of all of said property, suitable acknowledged for registration.

Construction will be completed within ninety (90) calendar days after construction of these facilities is begun, and for each day in excess thereof Customer will pay the Company the sum of TWO HUNDRED DOLLARS ($200.00) as liquidated damages.

This contract is contingent on payment by Customer of the required tap fees as set forth below at the time of the execution hereof.

In witness whereof, the parties hereto have entered into this Agreement asof the day and date above written.

Company:
Cartwright Creek, LLC

By:_____

Customer:

_____

_____

SEWER SERVICE CONTRACT

TO CARTWRIGHT CREEK, LLC

The undersigned, being the owner/owner's agent of the property located at _____ does hereby request a permit to connect a residence to the sewer at said location.

_____ Square feet _____ Bedrooms

In consideration of granting of this permit, the undersigned agrees:

1. To accept and abide by all rules and regulations of Cartwright Creek, LLC, and of all other pertinent county and state regulations.

2. The applicant understands that he will receive a monthly bill from the Company for sewerage services furnished. A penalty provision of five (5%) percent of the monthly charge applies on all bills after the 15th day of each month for which a bill has been rendered and will give the Company the right to collect such penalty. The failure to pay said bill the 20th day of the month following said bill will give the Company the immediate right to discontinue the furnishing of service, or to enforce a lien against the applicant's property, provided, however, applicant shall first be given an additional 15 days' notice. Applicant understands and acknowledges that failure to pay the monthly service or other charges when due may result in a lien against his property. Applicant understands that the acceptance of this application by the Company is conditioned upon execution of the document creating a lien against applicants' property for non-payment. It is further agreed and understood that discontinuance of service by the Company shall be terminated only in WRITTEN NOTICE to the Company and that this contract shall be in effect at all times pending such notice.

3. No roof drains or other storm water will be connected to or allowed to flow into the sewerage system.

Date_____ Signed _____

_____
(Address of Applicant)

Contract approved and issure:

Date_____ By___ _____
Cartwright Creek, LLC

Issued by Bruce Meyer, Vice President
September 11, 2007

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FAY MI MONTH'Nil | IPAY10/ NO | ACCOUN1 NUMBER | "ON TIME" PAYMENT -DUE ON OR BEFORE

-LATE" PATIN ENT =1:0KT ON OR AFTER

B*1 WORE PAYMENT

CARTWRIGHT CREEK, LLC
2033 RICHARD JONES ROAD
NASHVILLE, TN 37215

12. Please provide definitions within the tariff for commercial and residential customers.

Response:

See Company response to Item 11. The tariff presented contains definitions for commercial and residential customers.

13. If an escrow amount is contained in the tariff rates, please provide the amount and justification for the amount.

Response:

See Company response to Item 11. The escrow amount is contained in the tariff rates and is shown in the tariff pages.

14. Will Williamson County require Cartwright Creek to obtain a bond for the Stillwater Development? If so, provide an estimate of the bond cost and how much Stillwater Residents will be assessed monthly to recover these costs. Also, please identify how the charge will appear on the customer bill. If no bond is required, please explain and include any documentation from Williamson County stating that a bond will not be required.

Response:

Williamson County will require both a construction performance bond and a backup bond. The performance bond will be paid by the developer. The cost of the backup bond will be the responsibility of the Cartwright Creek and be passed through to customers as described in the new tariff presented herein.

15. Explain the rationale for using the existing four-bedroom rate for Cartwright Creek in forecasting revenues (Exhibit 5).

Response:

The developer of Stillwater, Eagle Ridge Investments, has told us that the homes constructed at Stillwater will be four bedroom homes.

16. The Pro-Forma Income Statement provided in Company Exhibit 5 does not appear to include tap fee or monthly revenue from the commercial customer (golf course and clubhouse) nor any tap fee revenue from the residential customers. Please provide a revised pro-forma, which includes these revenues.

Company Response:

There will be no tap fees assessed to residential property owners in Stillwater or the golf course clubhouse since the wastewater facility is being paid for by the developer and contributed to the Company.