

**IN THE COUNTY LEGISLATURE OF JACKSON COUNTY, MISSOURI**

**AN ORDINANCE** granting a conditional use permit (CUP) in District A (Agricultural) for a period of twenty-five years for an ash holding basin, subject to specified conditions, as to a 6.51 ± acre tract.

**ORDINANCE #4360**, October 3, 2011

BE IT ORDAINED by the County Legislature of Jackson County, Missouri as follows:

Section 1. A conditional use permit is hereby granted for a period of twenty-five years for an ash holding basin, which is part of the Phase 2 improvement to the Little Blue Valley Sewer District Wastewater Treatment Plant in Atherton, as to an approximate 6.51 ± acre tract of land generally located three-fourths of a mile west of Atherton Road and specifically described as follows:

**Description:** The west 13 acres of the northwest quarter of the southwest quarter of Section 10, Township 50, Range 31 in Jackson County, Missouri, except part in roads and except the south 660 feet.

Section 2. The conditional use permit granted by this Ordinance is subject to the following condition:

1. The ash holding basin shall comply with all applicable federal and state regulations and copies of all federal and state permits issued to Little Blue Valley Sewer District shall be submitted to the Planning and Development Division.


Section 3. The Legislature, pursuant to the application of Little Blue Valley Sewer District (CU-2011-209), requesting approval embodied in this Ordinance and with notice that the Jackson County Plan Commission voted 9 to 0 to recommend APPROVAL of

this application in a public hearing on September 15, 2011, does adopt this Ordinance pursuant to the Jackson County Charter authorizing the Legislature to exercise legislative power pertaining to planning and zoning.

Effective Date: This Ordinance shall be effective immediately upon its signature by the County Executive.

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Chief Deputy County Counselor

  
\_\_\_\_\_  
County Counselor

I hereby certify that the attached Ordinance, Ordinance #4360 introduced on October 3, 2011, was duly passed on October 31, 2011 by the Jackson County Legislature. The votes thereon were as follows:

Yeas 8

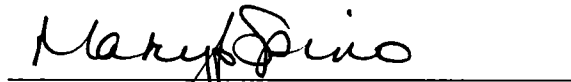
Nays 0

Abstaining 0

Absent 1

This Ordinance is hereby transmitted to the County Executive for his signature.

11-1-11  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Mary Jo Spino, Clerk of Legislature

I hereby approve the attached Ordinance #4360.

11/01/2011  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Michael D. Sanders, County Executive

# REQUEST FOR LEGISLATIVE ACTION

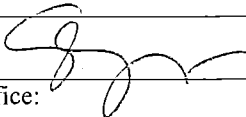
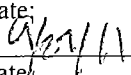
Completed by County Counselor's Office:

~~Res~~/Ord No.: 4360

Sponsor(s): None

Date: October 3, 2011

<p>SUBJECT</p>	<p>Action Requested  <input type="checkbox"/> Resolution  <input checked="" type="checkbox"/> Ordinance</p> <p>Project/Title: <u>Conditional Use Permit (Little Blue Valley Sewer District)</u>  <u>Case No. CU-2011-209</u></p>										
<p>BUDGET INFORMATION  <i>To be completed                  By Requesting                  Department and                  Finance</i></p>	<table border="1"> <tr> <td>Amount authorized by this legislation this fiscal year:</td> <td>\$</td> </tr> <tr> <td>Amount previously authorized this fiscal year:</td> <td>\$</td> </tr> <tr> <td>Total amount authorized after this legislative action:</td> <td>\$</td> </tr> <tr> <td>Amount budgeted for this item * (including transfers):</td> <td>\$</td> </tr> <tr> <td>Source of funding (name of fund) and account code number; FROM / TO</td> <td>FROM ACCT  TO ACCT</td> </tr> </table> <p>* If account includes additional funds for other expenses, total budgeted in the account is: \$</p> <p>OTHER FINANCIAL INFORMATION:</p> <p><input checked="" type="checkbox"/> No budget impact (no fiscal note required)  <input type="checkbox"/> Term and Supply Contract (funds approved in the annual budget); estimated value and use of contract:                  Department: _____ Estimated Use: \$ _____                  Prior Year Budget (if applicable): _____                  Prior Year Actual Amount Spent (if applicable): _____</p>	Amount authorized by this legislation this fiscal year:	\$	Amount previously authorized this fiscal year:	\$	Total amount authorized after this legislative action:	\$	Amount budgeted for this item * (including transfers):	\$	Source of funding (name of fund) and account code number; FROM / TO	FROM ACCT  TO ACCT
Amount authorized by this legislation this fiscal year:	\$										
Amount previously authorized this fiscal year:	\$										
Total amount authorized after this legislative action:	\$										
Amount budgeted for this item * (including transfers):	\$										
Source of funding (name of fund) and account code number; FROM / TO	FROM ACCT  TO ACCT										
<p>PRIOR LEGISLATION</p>	<p>Prior ordinances and (date): _____</p> <p>Prior resolutions and (date): _____</p>										
<p>CONTACT INFORMATION</p>	<p>RLA drafted by Randy Diehl, Planning and Zoning Coordinator, 881-4577</p>										
<p>REQUEST SUMMARY</p>	<p>Requesting Conditional Use Permit (CUP) in District A (Agricultural) for a period of 25 years for an ash holding basin, subject to conditions on a 6.5 acre tract.</p> <p>Description: The 6.5 acre tract is ¾ of a mile west of Atherton Road and specifically described on Attachment to RLA-1. This is part of the Phase 2 improvements to the Little Blue Valley Sewer District Wastewater Treatment Plant in Atherton.</p> <p>The Jackson County Plan Commission on September 15, 2011 held a public hearing and accepted testimony pertaining to the Conditional Use Permit. There was no one present in opposition to the request for the Conditional Use Permit. This request conforms to the general intent and purpose of the Unified Development Code.</p> <p>Therefore, the Plan Commission voted 9 to 0 to recommend <u>APPROVAL</u> for a twenty five period provided the following conditions are met (see attachment RLA-2)</p>										
<p>CLEARANCE</p>	<p><input type="checkbox"/> Tax Clearance Completed (Purchasing &amp; Department)  <input type="checkbox"/> Business License Verified (Purchasing &amp; Department)  <input type="checkbox"/> Chapter 6 Compliance - Affirmative Action/Prevailing Wage (County Auditor's Office)</p>										
<p>ATTACHMENTS</p>	<p>See Attachment to RLA-3</p>										
<p>REVIEW</p>	<p>Department Director:                   Jerry A. Page, P.E.</p> <p>Date: <u>9/22/11</u></p>										

Finance (Budget Approval): <i>If applicable</i>	Date:
Division Manager: 	Date: 
County Counselor's Office:	Date:

Fiscal Information (to be verified by Budget Office in Finance Department)

- This expenditure was included in the annual budget.
- Funds for this were encumbered from the \_\_\_\_\_ Fund in \_\_\_\_\_.
- There is a balance otherwise unencumbered to the credit of the appropriation to which the expenditure is chargeable and there is a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be made each sufficient to provide for the obligation herein authorized.
- Funds sufficient for this expenditure will be/were appropriated by Ordinance # \_\_\_\_\_
- Funds sufficient for this appropriation are available from the source indicated below.

Account Number:	Account Title:	Amount Not to Exceed:

- This award is made on a need basis and does not obligate Jackson County to pay any specific amount. The availability of funds for specific purchases will, of necessity, be determined as each using agency places its order.
- This legislative action does not impact the County financially and does not require Finance/Budget approval.

**ATTACHMENT TO RLA 1:**

**Description:** The west 13 acres of the northwest quarter of the southwest quarter of Section 10, Township 50, Range 31 in Jackson County, Missouri, except part in roads and except the south 660 feet.

## **ATTACHMENT TO RLA-2**

Condition:

- 1) The ash holding basin shall comply with all applicable federal and state regulations and copies of all federal and state permits issued to Little Blue Valley Sewer District shall be submitted to the Planning and Development Division.

**ATTACHMENT TO RLA-3:**

**Attachments**

Plan Commission Public Hearing Summary from September 15, 2011

Staff report

Names/Addresses of Surrounding Property Owners

Map showing current zoning districts in area

Application

Property site plan

Holding basin site plan

Design memorandum for ash holding basin

MDNR environmental assessment

MDNR construction permit



## **2. CU-2011-209 – Little Blue Valley Sewer District**

Requesting a conditional use permit for a period of 25 years in District A (Agricultural) to construct an ash holding basin on 6.51 ± acres. The 6.51 ± acres are ¾ of a mile west of Atherton Road, lying in Section 10, Township 50, Range 31 in the 3300 block of Old Atherton Road.

Mr. Diehl introduced CU-2011-209 and entered 14 exhibits into the record. Mr. Diehl gave the staff report with comments and recommendation as follows: the property is located at the southeast corner of Old Atherton and Courtney Atherton Roads and is 5.5 ± acres in size. The request is for a conditional use permit for a period of 25 years to construct an ash holding basin and the property is zoned District A (Agricultural). All adjacent property is zoned District A (Agricultural). To the west and east land use is predominantly agricultural uses. To the south is an electrical sub-station owned by Kansas City Power and Light. To the north across the Old Atherton Road is the Little Blue Valley Sewer District's Atherton Wastewater Treatment Plant.

The Little Blue Valley Sewer District (LBVSD) serves a 278 square mile area located on the eastern side of the Kansas City Metropolitan area. It serves three major watersheds; the Little Blue, Mill Creek and Middle Big Creek. The watersheds are located in eastern Jackson County and Northern Cass County, and include the communities of Belton, Blue Springs, Grandview, Greenwood, Independence, Kansas City, Lake Tapawingo, Lake Winnebago, Lee's Summit, Raymore, Raytown, Sugar Creek and Unity Village. The District's 2010 population is 363,559. The District's 2030 population is projected to be 413,837.

All wastewater collection facilities are owned by the individual communities. The District provides the wastewater conveyance system of 38 miles of interceptor sewers, collections lines, and 37 meter structures to the District owned wastewater treatment facility. The treatment facility is an activated sludge plant designed to treat an average flow of 52 million gallons per day (mgd), capable of providing secondary treatment for flows to 150 mgd and peak flow treatment for flows up to 400 mgd. The design population equivalent for the facility is 520,000.

LBVSD is proposing Phase 2 of improvements to the Atherton Plant. These improvements are to address wet weather capacity issues in the wastewater conveyance system, replace aging bio-solids processing equipment, and add processes and equipment needed to meet new and/or future regulatory requirements. These regulatory requirements include effluent, ammonia/nutrients removal, and air emissions controls.

Part of the proposed construction improvements includes an ash holding/dewatering basin. The basin will be used to store and dewater ash remaining from the sewer sludge incinerator. The holding basin will be a two-cell earthen basin. Annually, one cell will be dewatered and the ash removed by a contract hauler. Water from the basin will be returned to the LBVSD Wastewater Treatment Plant by a gravity line.

The WWTP improvement project including the ash holding basin was developed through a series of stakeholder workshops held in 2009-2010 which included representatives of the District's customers, Missouri Department of Natural Resources (MDNR) and the Environmental Protection Agency (EPA). A Facility Plan including the ash holding basin was approved by MDNR in July 2010, and the governing boards of the District's customers approved the recommendations of the Facility Plan in the summer of 2010 (the Jackson County Legislature

heard the presentation on 7/26/2010). Public Hearings related to the Facility Plan were held in April 2011. At that time, the plan was to include the ash holding basin on the existing plant site. However, the District would like to locate the ash holding basins on their property to the south of the WWTP site to reduce the overall project cost and maintain space on the WWTP site for additional facilities that may be required in the future.

As stated, the holding basins will be constructed as two cells and each cell will have sufficient volume to hold one year of the projected ash. These cells are approximately 180 feet wide 200 feet long and 10 feet deep, including two feet of free board. Each cell will be constructed with an impermeable barrier to protect local groundwater. Current designs call for a flexible membrane liner or compacted clay barrier designed to meet the permeability limits as established in Title 10 Code of State Regulations (CSR) Division 20 Chapter 8. The barrier will be topped with an 18-30 inch soil or gravel layer. The ash will be pumped from the incinerator building in a 4 inch pipe. There will be a total of four utilities which will cross Old Atherton Road – two ash slurry lines, a plant non-potable water line, and a decant line returning to the plant. Exhibit 11 is a Design Memorandum for the Ash Holding Basin which goes has more specific criteria on the design and operation of the basin. Exhibit 12 is a letter from the Water Protection Program, MDNR regarding the Findings of No Significant Agencies/Environmental Assessment of LBVSD Phase 2 Improvements. A construction permit for the project, including the ash holding basin, has been issued August 9, 2011 by MDNR.

The applicant is requesting approval of the CUP for a period of 25 years. Staff recommends approval of CU-2011-209 for a period of twenty-five (25) years subject to the following condition:

- 1) The ash holding basin shall comply with all applicable federal and state regulations and copies of all federal and state permits issued to Little Blue Valley Sewer District shall be submitted to the Planning and Development Division.

Mr. Pointer asked how close the nearest houses were.

Mr. Diehl said that there were three houses in the immediate area with the nearest being 1000 ± feet from the facility.

Mr. Tarpley asked if sludge were burned 24 hours per day.

Mr. Diehl deferred the question to the applicant.

Mr. Pointer asked if there had been any complaints regarding odor.

Mr. Diehl said staff had never received any complaints.

Mr. Crawford asked if there were an existing incinerator.

Mr. Diehl said that there was and pointed to the location of incinerator on the map.

There were no further questions for staff.

LBVSD executive director Gregg Boettcher and assistant director Jeff Shook appeared to give testimony. Mr. Boettcher said that LBVSD was a semi-public entity serving over 360,000 people and was created in 1968 to provide wastewater collection and treatment in the Little Blue River watershed. He said that since 2009 they had been looking at three problem areas: (1) replacement of the existing 23-year old incinerator; (2) disinfection of wastewater before it enters the Missouri River; and (3) wet weather flows. A capital improvement plan totaling \$138 million has been developed which includes: (1) a new incineration unit that will use natural gas rather than coal; (2) ultra-violet disinfection of the wastewater; and (3) development of a wet weather excess flow holding basin at I-470 and Raytown Road. The ultra-violet disinfection should be online by December, 2013 and the incinerator and holding basin in 2014.

Mr. Boettcher said use of natural gas in the incineration process will reduce air emissions. The incineration process pulls odor out of the sludge processing and burns it; water spray catches the ash creating a slurry that is run through a press to squeeze out the water and the ash is collected in roll off containers once or twice a day. The proposed change will have the slurry directed to earthen basins across the road on property owned by the district; the ash will accumulate in the basins and the water will be returned to the plant for treatment. The basins will be cleaned once per year. Basins in Cincinnati, OH were visited and used as a model. Samples of the slurry mixture and ash residue were shown. Mr. Boettcher stressed that they were not building a wastewater basin but an ash basin and the ash would later be taken to a landfill. The ash basin would have liner to protect ground water. The basins would be settling pond for ash with a tree barrier around the outside perimeter and a fence around the basins. The plans are for the basins to be cleaned once per year which would reduce daily truck traffic to one day per year. A neighborhood meeting had been held the previous evening at the treatment to answer questions.

Mr. Pointer asked if there was a use for the ash other than putting it into a landfill.

Mr. Boettcher said they would like to find a use for the ash so the tipping fee charged by the landfill could be avoided. He said they had such a small volume of ash and the annual cleaning would increase the amount available. The ash is a granular, porous, inert material that they hoped someone would take.

Mr. Haley asked for more information regarding the liners of the basins.

Mr. Boettcher said there would be a two foot cover over the liners as well as a rock ballast.

Mrs. Mershon asked where the ash was currently kept.

Mr. Boettcher said the ash slurry goes through a filter press where the water is pressed out and the ash is put into roll off dumpsters that are taken to the landfill on a daily basis. He said the equipment is problematic, roll offs are costly and it's better to use mother nature to do the settling.

Mrs. Mershon wanted to know the significance of the date 2040.

Mr. Boettcher said the incinerator was designed to meet their needs through 2040.

Mr. Tarpley asked if there were air scrubbers on the current incinerator.

Mr. Boettcher answered that there was a water quench spray. He said the new incinerator would have the capability of adding additional scrubbing if stricter emission controls came into effect.

Mr. Tarpley stated that truck traffic would decrease tremendously when the new system was in place.

Mr. Boettcher said roll off traffic would decrease and larger trucks would be used to take the ash to the landfill. Currently the incinerator runs 24 hours a day, 5 days a week.

Chairman Antey stated that odor was on the front end of the process and these plans were on the back end.

Mr. Boettcher said there were 2 main areas of odor production – wastewater entering the plant could have an odor and sludge processing was a big odor generator. Downtime for the incinerator means odor not being controlled.

Chairman Antey asked if weather related flows were caused by combination sewers.

Mr. Boettcher said there were no combined sewers in the system. He said charges for increase in flow were paid by customers and flows may be reduced or controlled by customers to keep charges low.

Mr. Tarpley wanted to know how water would be discharged at the holding basin at I-470 and Raytown Road.

Mr. Boettcher said there would be a control system in place and the water would drain by gravity.

Mr. Tarpley asked if this basin would need to be cleaned.

Mr. Boettcher said that water cannons would be built in to clean the basin following use.

Mr. Crawford asked if the basin would have an odor.

Mr. Boettcher said there would be no odor as the basin would be drained quickly.

Mr. Tarpley said the water would mostly be rainwater.

Mr. Pointer asked if roofs could be built over ponds to contain odor.

Mr. Boettcher said the best odor control is not letting odor occur.

Mrs. Mershon wanted to know if the ash holding basins could flood.

Mr. Boettcher said there was no risk for flooding. He said everything was designed for flood zone; there was a levee and a pump station.

Mr. Pointer wanted to know how deep the water needed to be for the levee to fail.

Mr. Shook said the levee was good for water approximately 45 feet deep.

Chairman Antey asked if the holding system could fail during a heavy rain.

Mr. Shook said the system would minimize flow.

Chairman Antey said the commission had previously approved much larger ash basins that cleaned ash the same way.

Mrs. Mershon asked how long LBVSD had owned the land where the basins would be located.

Mr. Shook said the land had been purchased about a year ago.

Mr. Boettcher said there would be 2 square ponds in the ground with a gravel drive, fencing around the ponds and a tree line. He said there would be no equipment on the site.

Mr. Aikens said the downtime of the incinerator would contribute to the odor problem. He asked about the frequency of downtime.

Mr. Shook said the incinerator was down about 20% of the time and at times could take a month to repair.

Mr. Haley wanted to know if the new incinerator would be an addition or a replacement.

Mr. Boettcher said it would be a replacement with modern technology, higher efficiency and would be more reliable.

Mr. Crawford wanted to know the cubic yard capacity of the ponds.

Mr. Boettcher said they would each be 9200 cubic yards.

Chairman Antey stated again that these basins were small compared to previously approved basins.

Mr. Crawford asked if there would be a week's disruption due to cleaning.

Mr. Boettcher said 1 – 2 weeks.

Mrs. Mershon asked if changes would be requested in the conditional use permit prior to its expiration.

Mr. Boettcher answered no because the incinerator and ponds were sized for 2040 needs. He said the current incinerator produced 30 dry tons/day and the new one would produce 60. He

said the goal was to spend no money on the incinerator for 20 years which includes ash handling. There would be waste treatment growth inside the plant.

There were no further questions for the applicant and no one else to appear in favor of the application.

Freddye Smith, 21024 Blue Mills, appeared to comment on the proposed plan. Ms. Smith said she wasn't a customer of LBVSD but had been impacted by the plant since its inception. She said there was open basin odor and they had previously been to Jefferson City regarding the odor problem. She said she been concerned about blowing ash but now understood that would not happen. Ms. Smith said outdoor activities were often ruined because of the odor in the air. She said improvement was necessary; she didn't want insects or odor as a result of the new basins.

Mr. Pointer asked Ms. Smith where she lived and she pointed to her property on the map.

There was no one else to speak in favor of or in opposition to the application.

Mr. Pointer moved to take CU-2011-209 under advisement. Mr. Crawford seconded the motion.

Chairman Antey said all treatment plants will have odor. He said odors were kept under control by using the incinerator to destroy them.

Mr. Tarpley said this plan used more efficient equipment, natural gas, gravity drainage and all at a lower cost.

Mr. Pointer said a treatment plant in Topeka used a perfume to cover odors.

Chairman Antey said the goal was to burn off odor before it escaped.

Mr. Pointer said the plant was already there and the plan is an improvement.

Mr. Aikins said the days the system was down were the days outdoor activities were disrupted.

Mr. Crawford said he had thought odor was caused by using the incinerator and had now learned that odor was caused by malfunction of the incinerator.

Chairman Antey said sludge processing smells and the goal was to burn off fumes before they left the building.

Mr. Aikins said an incinerator takes odor out of the air.

Mr. Crawford said to be a good neighbor, the incinerator should be used over the weekend to keep air clean for outdoor activities.

Chairman Antey said the incinerator is used when sludge is being processed.

Mr. Pointer said the plan is a definite improvement over current conditions.

Chairman Antey said use of the ash pond is the only thing under consideration today.

Mr. Crawford said odor had nothing to do with what was under consideration.

Chairman Antey said this was a very efficient way of handling ash.

There was no further discussion.

Mr. Crawford moved to approve CU-2011-209 with the condition recommended by staff. Mr. Tarpley seconded the motion.

**VOTE:**

Mr. Aikins	Approve
Mr. Crawford	Approve
Mr. Gibler	Approve
Mr. Haley	Approve
Mrs. Mershon	Approve
Mr. Pointer	Approve
Mrs. Querry	Approve
Mr. Tarpley	Approve
Chairman Antey	Approve

**CU-2011-209 APPROVED (9 – 0)**

**STAFF REPORT**

**PLAN COMMISSION**  
**September 15, 2011**

**RE: CU-2011-209**

**Applicant / Property Owner: Little Blue Valley Sewer District**

**Location:** Southeast corner of Old Atherton Road and Courtney Atherton Road.

**Area:** 5.5 ± acres

**Request:** A conditional use permit for a period of 25 years to construct an ash holding basin.

**Zoning Classification:** District A (Agricultural)

**Land Use and Zoning in Area:**

All adjacent property is zoned District A (Agricultural). To the west and east land use is predominantly agricultural uses. To the south is an electrical sub-station owned by Kansas City Power and Light. To the north across the Old Atherton Road is the Little Blue Valley Sewer District's Atherton Wastewater Treatment Plant.

**Comments:**

The Little Blue Valley Sewer District (LBVSD) serves a 278 square mile area located on the eastern side of the Kansas City Metropolitan area. It serves three major watersheds; the Little Blue, Mill Creek and Middle Big Creek. The watersheds are located in eastern Jackson County and Northern Cass County, and include the communities of Belton, Blue Springs, Grandview, Greenwood, Independence, Kansas City, Lake Tapawingo, Lake Winnebago, Lee's Summit, Raymore, Raytown, Sugar Creek and Unity Village.

The District's 2010 population is 363,559. The District's 2030 population is projected to be 413,837.

All wastewater collection facilities are owned by the individual communities. The District provides the wastewater conveyance system of 38 miles of interceptor sewers, collections lines, and 37 meter structures to the District owned wastewater treatment facility. The treatment facility is an activated sludge plant designed to treat an average flow of 52 million gallons per day (mgd), capable of providing secondary treatment for flows to 150 mgd and peak flow treatment for flows up to 400 mgd. The design population equivalent for the facility is 520,000.



LBVSD is proposing Phase 2 of improvements to the Atherton Plant. These improvements are to address wet weather capacity issues in the wastewater conveyance system, replace aging biosolids processing equipment, and add processes and equipment needed to meet new and/or future regulatory requirements. These regulatory requirements include effluent, ammonio/nutrients removal, and air emissions controls.

Part of the proposed construction improvements includes an ash holding/dewatering basin. The basin will be used to store and dewater ash remaining from the sewer sludge incinerator. The holding basin will be a two-cell earthen basin. Annually, one cell will be dewatered and the ash removed by a contract hauler. Water from the basin will be returned to the LBVSD Wastewater Treatment Plant by a gravity line.

The WWTP improvement project including the ash holding basin was developed through a series of stakeholder workshops held in 2009-2010 which included representatives of the District's customers, Missouri Department of Natural Resources (MDNR) and the Environmental Protection Agency (EPA). A Facility Plan including the ash holding basin was approved by MDNR in July 2010, and the governing boards of the District's customers approved the recommendations of the Facility Plan in the summer of 2010 (the Jackson County Legislature heard the presentation on 7/26/2010). Public Hearings related to the Facility Plan were held in April 2011. At that time, the plan was to include the ash holding basin on the existing plant site. However, the District would like to locate the ash holding basins on their property to the south of the WWTP site to reduce the overall project cost and maintain space on the WWTP site for additional facilities that may be required in the future. (**Exhibit 9 and Exhibit 10**).

As stated the holding basins will be constructed as two cells and each cell will have sufficient volume to hold one year of the projected ash. These cells are approximately 180 feet wide 200 feet long and 10 feet deep, including two feet of free board. Each cell will be constructed with an impermeable barrier to protect local groundwater. Current designs call for a flexible membrane liner or compacted clay barrier designed to meet the permeability limits as established in Title 10 Code of State Regulations (CSR) Division 20 Chapter 8. The barrier will be topped with an 18-30 inch soil or gravel layer. The ash will be pumped from the incinerator building in a 4 inch pipe. There will be a total of four utilities which will cross Old Atherton Road – two ash slurry lines, a plant non-potable water line, and a decant line returning to the plant. **Exhibit 11** is a Design Memorandum for the Ash Holding Basin which goes has more specific criteria on the design and operation of the basin.

**Exhibit 12** is a letter from the Water Protection Program, MDNR regarding the Findings of No Significant Agencies/Environmental Assessment of LBVSD Phase 2 Improvements.

A construction permit for the project, including the ash holding basin, has been issued August 9, 2011 by MDNR. (**Exhibit 13**)

**CUP Length of Time:**

The applicant is requesting approval of the CUP for a period of 25 years.

**Recommendation:**

Staff recommends APPROVAL of CU-2011-209 for a period of twenty-five (25) years subject to the following conditions:

- 1) The coal ash holding basin shall comply with all applicable federal and state regulations and copies of all federal and state permits issued to Little Blue Valley Sewer District shall be submitted to the Planning and Development Division.

Respectfully submitted,

Planning and Development Division

Randy Diehl  
Interim Administrator

**Plan Commission  
September 15, 2011  
CU-2011-209**

**Applicant / Property Owner:** **Little Blue Valley Sewer District  
21101 E. 78 Hwy  
Independence, MO 64057**

**Parcel No: 09-400-03-13**

**Certified Mail – Return Receipt  
Property Owners within 1000 feet**

09-400-02-01  
Merle Shafer  
21704 E. Old Atherton Rd.  
Independence, MO 64058

09-400-02-02.01  
Little Blue Valley Sewer District

09-400-02-02.02  
Little Blue Valley Sewer Dist.

09-400-03-04  
Little Blue Valley Sewer Dist.

09-400-03-05  
Little Blue Valley Sewer Dist.

09-400-03-07  
Doris Fulghum – Trustee  
2424 N. Old Atherton Rd.  
Independence, MO 64058

09-400-03-12  
Atherton Farms LLC  
1001 W. Walnut  
Independence, MO 64050

09-400-03-15  
Kansas City Power & Light  
1201 Walnut  
Kansas City, MO 64106

10-600-01-04  
Little Blue Valley Sewer Dist.

10-600-01-05.03  
Otis Largent  
20801 Courtney Atherton Rd.  
Independence, MO 64058

10-600-01-09  
Little Blue Valley Sewer Dist.

10-600-04-01  
Fred Stewart – Trustee  
2517 N. Old Atherton Rd.  
Independence, MO 64058

10-600-04-03  
Jones Cemetery  
Courtney Atherton Rd.  
Independence, MO 64050

10-600-04-07.01  
Stanley Wright  
20908 E. Union School Rd.  
Independence, MO 64058



**Jackson County  
Zoning Map**

**Legend**

- 1000' Notification Ring
- Condition\_Use-Pending**
- <all other values>

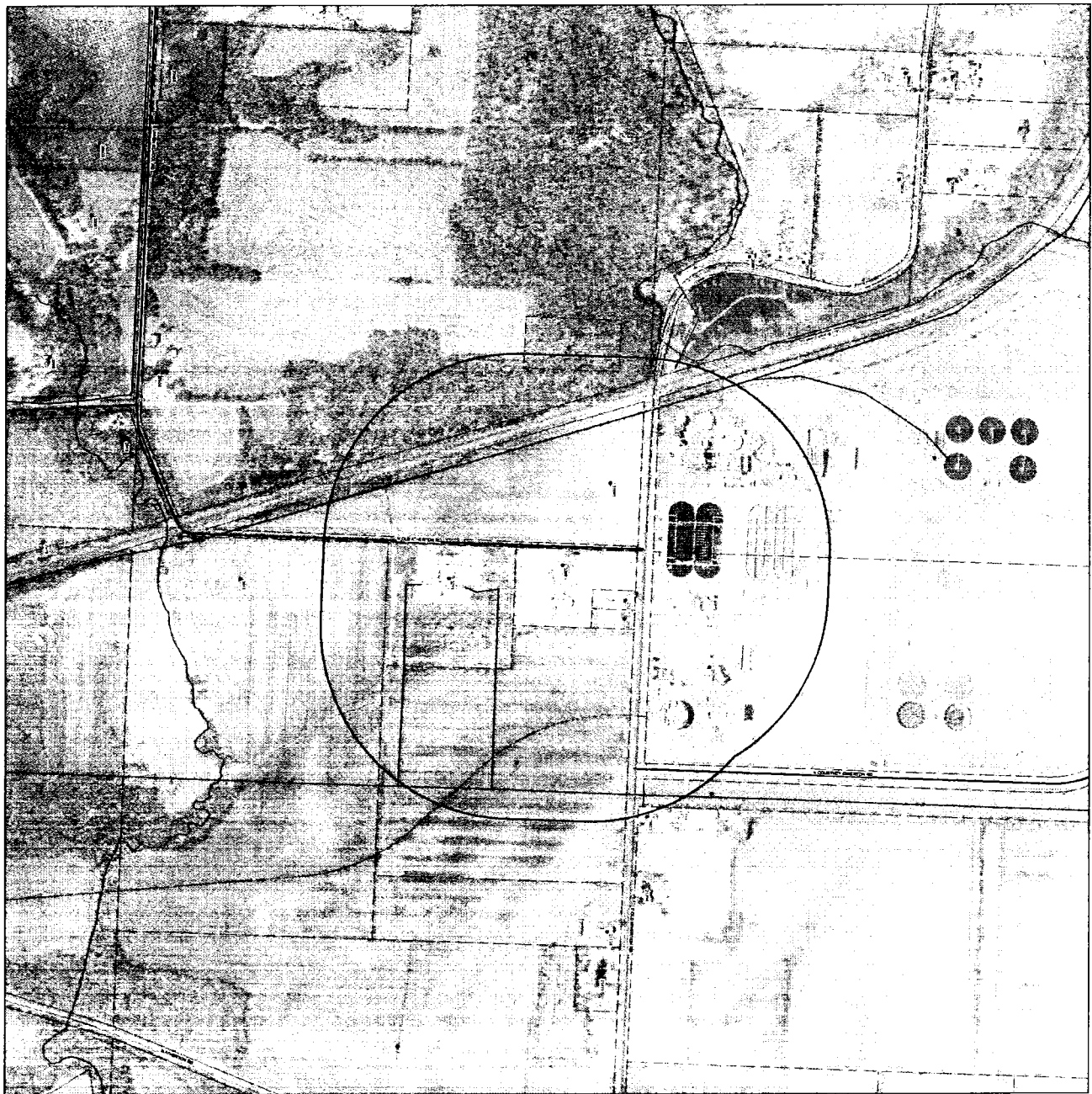
**Condition\_UseId**

- <Null>
- parcels
- <all other values>
- Plats

**Rezoning**

- RR-Residential Ranchette
- Residential Ranchette-Planned
- RE-Residential Estates
- RS-Residential Suburban
- RU-Residential Urban
- A(U)-Single-Family
- B(U)-Two-Family
- C(U)-Multi-Family
- A1-Mobile Homes District

- ROP-Residential Office-Planned
- LB-Local Business
- LBP-Local Business-Planned
- GB-General Business
- GBP-General Business-Planned
- LI-Light Industrial
- LIP-Light Industrial-Planned
- HI-Heavy Industrial
- Inundation Area
- City\_Boundary selection



CU-2011-209

1 inch equals 200 feet

**JACKSON COUNTY, MISSOURI  
CONDITIONAL USE PERMIT APPLICATION**

**APPLICANT INFORMATION:**

1. Application must be filed with the Jackson County Planning and Development Division, 303 West Walnut, Independence, Missouri 64050 by the deadline on the Plan Commission Calendar.
2. Application must be typed or printed in a legible manner.
3. A scaled map of the property, correlating with the legal description, and clearly showing the property's location must accompany application. Refer to Section 24003.22, pertaining to Site Plan Review within the Unified Development Code.
4. All applicable sections must be completed. If you need more space to provide information, please use separate 8 1/2"x11" paper, reference the application number and attach it to the application. Incomplete applications will not be accepted and will be returned to the applicant.
5. The filing fee \$350.00 (non-refundable) must accompany application.  
(Check payable to: Manager of Finance)

**TO BE COMPLETED BY OFFICE PERSONNEL ONLY:**

Conditional Use Permit Number CU-2011- 209

Date filed 8-16-11 Date of hearing 9-15-11

Date advertised \_\_\_\_\_ Date property owners notified \_\_\_\_\_

Date signs posted \_\_\_\_\_

Hearings: Heard by \_\_\_\_\_ Date \_\_\_\_\_ Decision \_\_\_\_\_

Heard by \_\_\_\_\_ Date \_\_\_\_\_ Decision \_\_\_\_\_

Heard by \_\_\_\_\_ Date \_\_\_\_\_ Decision \_\_\_\_\_

**BEGIN APPLICATION HERE:**

**1. Data on Applicant(s) and Owner(s):**

- a. Applicant(s) Name: Little Blue Valley Sewer District  
 Address: 21101 E. 78 HWY  
Independence, MO 64057  
 Phone: (816) 836-5280
- b. Owner(s) Name: Little Blue Valley Sewer District  
 Address: 21101 E. 78 HWY, Independence MO 64057  
 Phone: (816) 836-5280

c. Agent(s) Name: NA  
 Address: \_\_\_\_\_  
 Phone: \_\_\_\_\_

d. Applicant's interest in Property: Construct an Ash Holding Basin

2. A **CONDITIONAL USE PERMIT IS HEREBY REQUESTED** for the following described use: Construct an Ash Holding Basin for a period of 25 + years; property described as follows: a tract of land +/-5 square feet/acres in size located at Old Atherton Road. Present Zoning District Agriculture

3. Legal Description of Property: (Write Below or Attached 9 )  
Plat Survey with Legal Description is attached.

4. Present Use of Property: Vacant land

5. Proposed Use of Property: Ash Holding Basin

6. Estimated Time Schedule for Development: Start Construction in 2012 and finish in 2013

7. What effect will your proposed development have on the surrounding properties?  
The Ash Holding Basin will not have any effect on surrounding properties.
8. Is any portion of the property within the established flood plain as shown on the FEMA Flood Boundary Map? No  
If so, will any improvements be made to the property which will increase or decrease the elevation? \_\_\_\_\_
9. Describe the source/method which provides the following services, and what effect the development will have on same:
- a. Water Potable Water is not required for this project
  - b. Sewage disposal is not required for this project
  - c. Electricity is required and will be installed
  - d. Heating is not required for this project
  - e. Fire and Police protection is not required for this project
10. Describe existing road width and condition: Asphalt road is in good condition and width about twenty four (24) feet wide
11. What effect will proposed development have on existing road and traffic conditions? none
12. Are any state, federal, or other public agencies approvals or permits required for the proposed development? none  
If so, describe giving dates of application and status (include permit numbers and copies of same, if issued): \_\_\_\_\_

Verification: I (We) hereby certify that all of the foregoing statements contained in any papers and/or plans submitted herewith are true to the best of my (our) knowledge and belief.

Signature \_\_\_\_\_ Date 8-15-2011  
Property Owner(s) Kay Boettcher

EXECUTIVE DIRECTOR  
LITTLE BLUE VALLEY SEWER DISTRICT

Applicant(s): Kay Boettcher 8-15-2011

EXECUTIVE DIRECTOR  
LITTLE BLUE VALLEY SEWER DISTRICT

Contract Purchaser(s): \_\_\_\_\_  
\_\_\_\_\_

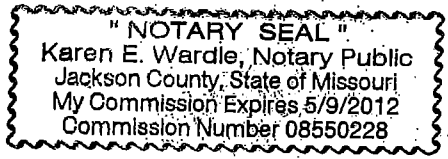
STATE OF Missouri  
COUNTY OF Jackson

On this 15<sup>th</sup> day of August, in the year of 2011, before me the undersigned notary public, personally appeared Gregory Boettcher, EXECUTIVE DIRECTOR, LITTLE BLUE VALLEY SEWER DISTRICT

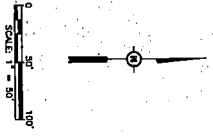
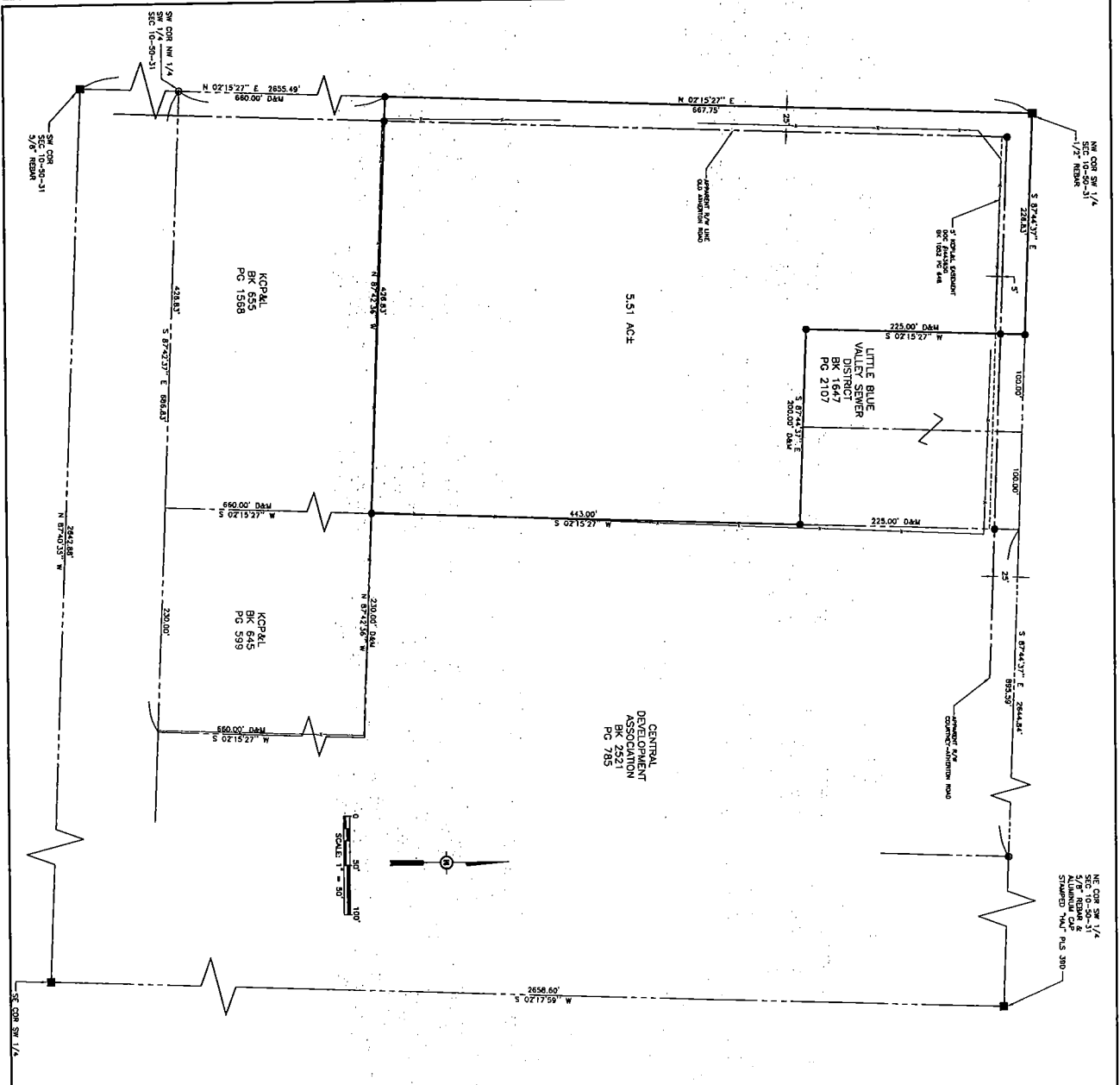
known to me to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged that he/she/they executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Notary Public Karen E. Wardle Commission Expires May 9, 2012







**SURVEYOR'S CERTIFICATION:**  
 THE SURVEY SHOWN HEREON WAS MADE BY ME OR UNDER MY DIRECT SUPERVISION, THIS AND DATE OF SURVEY, 2010. THAT THE RESULTS HEREON AND SAID SURVEY MEET THE REQUIREMENTS OF THE MISSOURI SURVEYING STATUTES AND THE RULES OF THE BOARD OF SURVEYING AND MAPPING FOR THE STATE OF MISSOURI.

**BARTLETT & WEST, INC.**  
 MISSOURI LICENSE NO. 2020011237  
 2644  
 THIS SURVEY WAS MADE ON MARCH 2010

- SYMBOL LEGEND:**
- - Original boundary as shown
  - - Station A/BY, ELEVATION & COR. DISTANCE
  - - Station A/BY, ELEVATION & COR. DISTANCE
  - - Calculated corner
  - - Proposed boundary line
  - - Right-of-way line
  - - Easement line
  - (-)- - Unlocated easement
  - (-)- - Flat boundary
  - (-)- - Road

**SURVEY NOTES:**

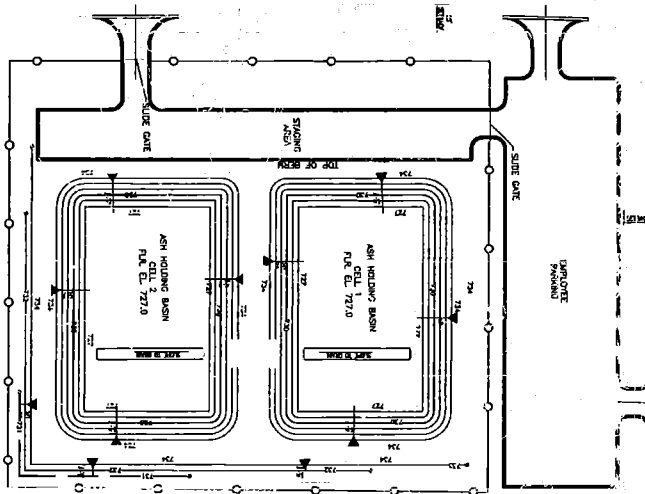
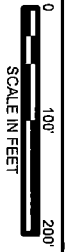
1. PLAT HEREIN AND BOUNDRIES SHOWN ON THIS DRAWING ARE BASED ON LAND IN MISSOURI, WEST ZONE, STATE PLANE COORDINATE SYSTEM.
2. RECORD DEED OF OWNERSHIP FOR THIS TRACT IS RECORDED IN DOCUMENT #20080023350, JACKSON COUNTY, MISSOURI.

RECORD OF SEWER TITLE GUARANTEE COMPANY WITH AN EFFECTIVE DATE OF JANUARY 25, 2010 AT 8:00 AM, DESCRIBED AS FOLLOWS:  
 THE WEST 13 ACRES OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 50, RANGE 31, IN JACKSON COUNTY, MISSOURI, EXCEPT THAT PART IN RANGES AND EXCEPT THE FOLLOWING DESCRIBED TRACTS:  
 BROWNIST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 50, RANGE 31; THENCE WEST 200 FEET; THENCE SOUTH 225 FEET; THENCE EAST 200 FEET TO THE EAST LINE OF SAID 13 ACRES; THENCE NORTH ALONG BEARING LINE AND EXCEPT THE SOUTH 13 ACRES, THENCE SOUTH ALONG BEARING LINE AND EXCEPT THE SOUTH 660 FEET OF THE WEST 13 ACRES OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 50, RANGE 31, IN JACKSON COUNTY, MISSOURI.

<p>DATE: 187872010                  SCALE: 1" = 20'                  SHEET NO: 1                  TOTAL SHEETS: 1</p>	<p><b>PLAT OF SURVEY</b>                  PART OF SW 1/4 SEC 10, T 50 N, R 31 W                  JACKSON COUNTY, MISSOURI</p> <p>PREPARED FOR:                  LITTLE BLUE VALLEY SEWER DISTRICT                  C/O JEFF SHOOK, PE, ASSISTANT DIRECTOR</p>	<p><b>BARTLETT &amp; WEST</b></p> <p>5840 HEYBURN ROAD - LEAN SURVEYING AND MAPPING                  P.O. BOX 1000                  JACKSON, MISSOURI 64501                  MISSOURI LICENSE NO. 2020011237</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION												
NO.	DATE	DESCRIPTION																

EX. 9

# ASH HOLDING BASIN LOCATION



Consistent Alliance

**HDR**  
 HEAD & RIVERSIDE, INC.



Little Blue Valley Sewer District  
 Phase 2 WWTP Improvements

DATE	08/03/11
FIGURE	C101

## 10.0 WWTP – Ash Holding Basin

### 10.1 Purpose

The WWTF will be adding a new incinerator that will increase the sludge cake disposal capacity from 27 dtpd to approximately 72dtpd. This increase in dry tonnage yielded will equate to approximately 9,200 cubic yards (cy) of saturated ash per year requiring disposal. A new ash holding basin with two cells designed for one year of ash holding capacity each will be constructed in an open area north of the existing Aeration Basins. See Figure 10-1 for a general layout of the holding basins. Table 10-1 provides the basic design parameters for the Holding basins.

<b>Table 10-1 Ash Holding Basin Design Parameters</b>	
<b>Ash Slurry Piping</b>	
Design flow, gpm	200
Pipe diameter, inches	4
Materials of construction	Glass lined ductile iron
<b>Ash Holding Basin</b>	
Designation	
Number of units	2
Storage Volume (each), cubic yards	9,200
Approximate Cell Dimensions (each)	
Estimated Length, ft	200
Estimated Width, ft	180
Depth (range), ft	0 – 10 (includes 2 ft freeboard)
Materials of Construction	Earthen basin with HDPE flexible membrane or compacted clay liner
Decant Structure	Precast concrete structure
Decant Equipment	Stop logs

### 10.2 Cell Design Criteria

The Holding basins will be constructed as two cells encompassing an area estimated to be three hundred feet by two hundred feet (360' x 200') plus embankment. These cells will have sufficient volume to hold one year of the projected ash production and will be approximately 180 feet wide x 200 feet long x 10 feet deep at their deepest point, including two feet of free board. The cells will be divided by an earthen berm wide enough to accommodate a vehicle and will have minimum side slopes of three to one (3:1) for maintenance purposes. Each cell will be designed with a flat area at the entrance of each Holding Basin to assist in the removal of the ash and a sloping bottom so the ash can accumulate and stay moist until it is removed and disposed.

Each cell will be constructed with an impermeable barrier to protect the local groundwater. Current designs call for a flexible membrane liner or a compacted clay barrier designed to meet the permeability limits as established in 10 CSR 20-8. The barrier will be topped with a 18-30 inch soil or gravel layer that can be easily repaired during cell cleanout activities. If a compacted soil liner is used, the minimum soil seal thickness will be calculated based on anticipated head of the holding basin and the properties of the available materials. Per State of Missouri regulations, the design will be based on the following:

$$\text{Thickness of soil seal} = \frac{\text{Head of water in the basin} \times \text{Permeability coefficient of the soil}}{5.4 \times 10^{-7} \text{ cm/sec}}$$

Percolation losses must be considered during the design of the Holding Basin. Any losses in excess of one-sixteenth inch per day are considered excessive per 10 CSR 20-8 and measures must be taken to reduce the percolation.

Each cell will have a ramp to provide vehicular access to the interior of the Holding Basin. These ramps will be capable of handling the necessary equipment to remove the ash from the Holding Basin.

The holding basin will likely be largely constructed above grade to allow decanted water to flow by gravity to existing plant sewers. The soil conditions in the area may necessitate the use of pre-consolidation techniques prior to construction to reduce the impacts of consolidation on the earthen structure due to poor soils.

Normal construction methods can be utilized in constructing the Holding Basin such as over excavation, scarification and compaction of base materials to 95 percent standard proctor density and moisture content between two and four percent above optimum.

### **10.3 Cell Filling and Dewatering Facilities**

Each cell will be filled via a manifold line with multiple discharge points. Each point will include a shutoff valve and a splash pad to mitigate erosion in the Holding Basin during fill-up.

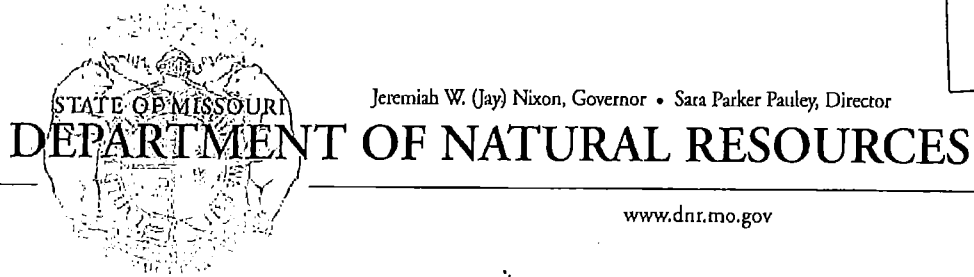
Each cell will be allowed to fill with the ash slurry over the course of approximately one year. The decant water remaining after the ash settles will be removed by a stop log structure dedicated to each cell. The stop log frame will be attached to each dedicated precast structure, with a DIP drain line conveying the decant water to a nearby plant sewer line.

### **10.4 Ash Slurry Piping**

The ash will be pumped as a dilute slurry from the Incinerator Building in a 4-inch diameter glass-lined ductile iron pipe. Where possible, the pipe will be routed inside the existing Process Building to facilitate cleanout, repair and replacement of the pipe. Where necessary, the pipe will be buried 3-4 feet below grade for easy removal, and will include multiple cleanout point and will avoid the use of 90-degree bends. A secondary pipe will be run in parallel to provide service if the primary pipe becomes plugged or damaged. The piping will have two spurs one for each Holding Basin. Exposed pipe will be wrapped in insulation to protect from freezing conditions when the slurry pumps are not operating. Due to the expected temperature of the ash slurry, insulation should be adequate to protect the pipe, except for extended downtimes. A drain will be located at a low point before the pipe extends above grade. The drain will be operated by a manual valve and will

discharge to the plant sewer system. A flushing system using non-potable water will be incorporated into the slurry piping. System operators should be sure to flush the line entirely prior to shutting down the pipeline. A drain connecting to the nearest plant sewer will be provided with a manual valve to allow drainage of the pipeline during planned extended off-line periods in freezing conditions.

RECEIVED  
AUG 17 2011  
HDR



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

www.dnr.mo.gov

AUG 15 2011

**WATER PROTECTION PROGRAM  
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10CSR20-4.050, a review has been performed on the proposed action below:

Project Identification: Little Blue Valley Sewer District (LBVSD) Phase 2 Atherton Wastewater Treatment Plant (WWTP) and Conveyance Improvements

Applicant: Little Blue Valley Sewer District

Project No.: C295439-03

City: Independence

County: Jackson

State: Missouri

Total Project Amount: \$101,687,000

Potential Loan: \$101,687,000

Total Eligible: \$101,687,000

**COMMUNITY DESCRIPTION:**

Location: The Little Blue Valley Sewer District serves a 278-square mile area located on the eastern side of the Kansas City Metropolitan area. It serves three major watersheds: the Little Blue River, the Mill Creek and the Middle Big Creek. The watersheds are located in eastern Jackson County and northern Cass County and include the communities of Belton, Blue Springs, Grandview, Greenwood, Independence, Kansas City, Lake Tapawingo, Lake Winnebago, Lee's Summit, Raymore, Raytown, Sugar Creek, and Unity Village.

Population, Present and Projected, and Design Year: The District's 2010 population is 363,559. The District's 2030 population is projected to be 413,837. The wastewater flows are derived from residential, commercial and industrial sources.

Current Methods of Waste Treatment: All wastewater collection facilities are owned by the individual communities. The District provides the wastewater conveyance system of 38 miles of interceptor sewers, collection lines, and 37 meter structures to the District owned wastewater treatment facility. The treatment facility is an activated sludge plant designed to treat an average flow of 52 million gallons per day (mgd), capable of providing secondary treatment for flows up



EX. 12

to 150 mgd and peak flow treatment for flows up to 400 mgd. The design population equivalent for the facility is 520,000.

#### PROJECT DESCRIPTION:

Purpose and Need: The purpose of the Phase 2 improvements are to address wet weather capacity issues in the wastewater conveyance system, replace aging biosolids processing equipment, and add processes and equipment needed to meet new and/or future regulatory requirements. These regulatory requirements include effluent disinfection, ammonia/nutrient removal, and air emissions controls.

Description of Project: Phase 2A (2011-2013) of these improvements includes adding ultraviolet (UV) disinfection to the wastewater treatment train; upgrading the biosolids treatment train with a new incinerator, new belt filter press and new ash lagoons; and construction of an excess flow holding basin at 103<sup>rd</sup> Street in Kansas City, MO. This phase of the project will also include decommissioning the existing Low Pressure Oxidation conditioning system, existing incinerator, and existing ash belt press.

Phase 2B (estimated 2015-2020) will include possible advanced emission controls for the new incinerator, and Phase 2C (estimated 2018-2020) will include ammonia/nutrient removal improvements.

Design Factors: The UV disinfection system will be designed to treat an average flow of 52 MGD and a peak flow of 150 mgd. The *E. coli* permit limits after disinfection will be a weekly average of 630 colonies/100 ml and the monthly average of 126 colonies/100 ml. The biosolids treatment train upgrade design will be based on the projected 2030 maximum month quantity of 66,600 pounds of solids per day. The construction of the 103<sup>rd</sup> Street excess flow holding basin will reduce peak hourly flow at the plant by approximately 80 mgd and will reduce peak daily average flow by approximately 40 mgd.

Receiving Stream: The receiving stream for the Little Blue Valley Atherton Wastewater Treatment Facility is the Missouri River. The beneficial uses are: irrigation, livestock and wildlife watering, protection of warm water aquatic life and human health-fish consumption, whole body contact recreation B, secondary contact recreation, drinking water supply, and industrial. The permit limits were derived to protect the beneficial uses of the river.

#### ALTERNATIVES CONSIDERED:

LBVSD incorporated a Triple Bottom Line (TBL) evaluation to evaluate alternatives. This process looks at environmental aspects, social merits, and the life-cycle economics for each of the alternatives evaluated. It assigns a weighted score to each. The criteria used to determine the scores include 25% environmental criteria, 25% social criteria, and 50% economic criteria. The TBL score ranges from 1 to 5, with 1 being the least favorable, and 5 being the most favorable.

Wet Weather Conveyance:

**Not Selected** – Alternative No. 1 – Conversion of LBVSD’s interceptor to a force main by the addition of peak flow pump stations along the interceptor. The estimated capital cost is \$100,000,000 with a TBL score of 1.67.

**Selected** – Alternative No. 2 – Construction of a single excess flow holding basin at 103rd Street in Kansas City. The estimated capital cost is \$12,800,000 with a TBL score of 3.73.

**Not Selected** – Alternative No. 3 – Construction of three excess flow holding basins located at meter structure sites along the interceptor. The estimated capital cost is \$27,500,000 with a TBL score of 3.23.

**Not Selected** – Alternative No. 4 – Removal of inflow and infiltration by member communities. The estimated capital cost is \$80,000,000 with a TBL score of 3.03.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE: Alternative 2 had the highest TBL score,

Disinfection:

**Selected** – Alternative No. 1 – UV disinfection facility assuming an effluent UV Transmittance of 65%. The estimated capital cost is \$19,000,000 with a total project present worth cost of \$30,200,000 and a TBL score of 3.60.

**Not Selected** – Alternative No. 2 – UV disinfection facility assuming an effluent UV Transmittance of 55%. The capital cost is estimated to be \$24,600,000 with a total project present worth cost of \$38,500,000 and a TBL score of 3.35.

**Not Selected** – Alternative No. 3 – Bulk purchased hypochlorite disinfection. The capital cost of Alternative No. 3 is estimated to be \$16,400,000 with a total project present worth of \$49,100,000 and a TBL score of 3.01.

**Not Selected** – Alternative No. 4 – On-site generation hypochlorite disinfection. The capital cost of Alternative No. 4 is estimated to be \$22,900,000 with a total project present worth of \$43,000,000 and a TBL score of 2.87.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE: Alternative 1 had the highest TBL score.

Biosolids:

**Not Selected** – Alternative No. 1 – Land application of Class B anaerobic digested product. The estimated capital cost is \$41,310,000 with a total project present worth cost of \$88,280,000 and a TBL score of 3.29.



**Not Selected** – Alternative No. 2 – Land application of Class B alkaline stabilized product. The capital cost is estimated to be \$11,200,000 with a total project present worth cost of \$59,660,000 and a TBL score of 3.17.

**Not Selected** – Alternative No. 3 – Land Application of high quality heat dried product. The capital cost of Alternative No. 3 is estimated to be \$91,020,000 with a total project present worth of \$136,510,000 and a TBL score of 3.13.

**Not Selected** – Alternative No. 4 – Composting of digested biosolids. The capital cost of Alternative No. 4 is estimated to be \$102,150,000 with a total project present worth of \$134,330,000 and a TBL score of 2.85.

**Not Selected** – Alternative No. 5 – Landfill disposal of raw cake. The estimated capital cost is \$7,220,000 with a total project present worth cost of \$62,260,000 and a TBL score of 3.14.

**Not Selected** – Alternative No. 6 – Landfill disposal of digested cake. The capital cost is estimated to be \$43,710,000 with a total project present worth cost of \$102,460,000 and a TBL score of 2.84.

**Not Selected** – Alternative No. 7 – Rehabilitation or replacement of existing fluid bed incinerator. The capital cost of Alternative No. 7 is estimated to be \$49,790,000 with a total project present worth of \$91,930,000 and a TBL score of 3.16.

**Selected** – Alternative No. 8 – New fluid bed incinerator. The capital cost of Alternative No. 8 is estimated to be \$45,680,000 with a total project present worth of \$72,230,000 and a TBL score of 3.75.

**Not Selected** – Alternative No. 9 – Heat drying to generate a fuel product. The capital cost is estimated to be \$43,820,000 with a total project present worth cost of \$83,200,000 and a TBL score of 3.01.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE: Alternative 8 had the highest TBL score.

#### ENVIRONMENTAL IMPACT SUMMARY:

1. Primary:
  - a. Construction: Blowing dust, temporary surface disruption, and noise from construction equipment will occur during construction; but, these impacts are expected to be minor and temporary in nature.
  - b. Environmental: This project will provide increased wet weather capacity, decreasing the number of potential sanitary sewer overflow and bypasses. It will

also provide for disinfection of the treated effluent and increase biosolids handling capacity.

- c. Financial: Funding the Phase 2 improvements with a 20 year State Revolving Fund (SRF) loan will increase total district costs by approximately 5.66% per year for the first 13 years of the loan.

2. Secondary:

- a. Population Impacts: No significant change in population trends is expected to result in this project. No significant relocation of people or structures shall result from this project. This project will not serve any new areas.
- b. Land use and Trends: No significant change in land use trends is expected to result from this project. No development of sensitive areas is anticipated.
- c. Environmental: Secondary environmental impacts caused by this project are not expected to be significant.

3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Noise, blowing dust, and erosion normally associated with construction should be minimized by good engineering practices. Restoration of disturbed areas will be promptly accomplished. Any debris such as trees or brush will be disposed of properly.

4. Irreversible and Irrecoverable Commitment of Resources: Fuel and construction materials will be irretrievably committed to this project. Future funds will be committed to the operation and maintenance of the system.

PUBLIC PARTICIPATION:

1. Public Involvement: A public hearing was held on April 5, 2011 at the LSVSD Administrative Building, in the City of Independence, MO.
2. Public Opposition or Opinions: No adverse opinions to the project were expressed.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

1. Little Blue Valley Sewer District Facility Plan Phase 2 WWTP and Conveyance System Improvements Dated: April 2010

Prepared By: HDR Archer Engineers, Black & Veatch, Geosyntec, and Taliaferro & Browne, Inc.

2. Federal:  USFWS  Corps of Engineers

3. State:

- a. Missouri DNR – Office of Historic Preservation
- b. Missouri DNR – Division of Geology and Land Survey
- c. Missouri DNR – Division of State Parks
- d. Missouri Department of Conservation
- e. Missouri Office of Administration – Federal Assistance Clearinghouse

4. Lead Consulting Engineer: HDR|Archer Engineers  
3731 NE Troon Drive  
Lee's Summit, MO 64064


Positive Environmental Effects to be Realized from the Proposed Project: This project will provide increased wet weather capacity, thereby decreasing the number of potential sanitary sewer overflows, and bypasses. It will also provide for disinfection of the treated effluent and increase biosolids handling capacity.

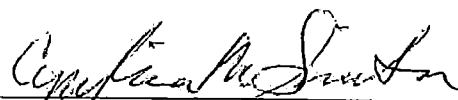
Reasons for Concluding There Will Be No Significant Impacts: The proposed project will have a positive impact on water quality and will not result in any significant adverse impacts on rare or endangered species, flood plains, wetlands, recreational areas, cultural/archaeological sites, or air quality. Population densities and land use trends will not be significantly affected. Where minor impacts will occur, appropriate mitigation measures are planned.

This action is taken on the basis of a careful review of the facility plan on file in the office of the Missouri Department of Natural Resources' Water Protection Program at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public scrutiny upon request Monday-Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to Ms. Cynthia M. Smith, of the Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176, during this period. Thank you.

Sincerely,

WATER PROTECTION PROGRAM

  
\_\_\_\_\_  
Joe Boland, Director  
Financial Assistance Center

  
\_\_\_\_\_  
Cynthia M. Smith  
Project Review Engineer

JB:csk

8-12-11  
Date

Attachments

## DISTRIBUTION

Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65102

Conservation Federation of Missouri  
728 West Main Street  
Jefferson City, MO 65101

Environmental Protection Agency  
c/o **Ms. Tanya Nix – WWPD/SRFB**  
901 North Fifth Street  
Kansas City, KS 66101

Division of Geology and Land Survey  
Environmental Geology Section  
P.O. Box 250  
Rolla, MO 65402-0250

Missouri Department of Natural Resources  
Division of State Parks  
Historic Preservation  
P.O. Box 176  
Jefferson City, MO 65102

Environmental Protection Agency  
c/o **Mr. Joe Cothorn – ENSU/NEPA**  
901 North Fifth Street  
Kansas City, KS 66101

U.S. Fish and Wildlife Service  
Ecological Services  
101 Park DeVillie Drive, Suite A  
Columbia, MO 65203-0057

Midwest Regional Office  
c/o **Mr. Ernie Quintana**  
National Park Service  
601 Riverfront Drive  
Omaha, NE 68102-4226

USDA Rural Development  
601 Business Loop 70 West  
235 Parkade Center  
Columbia, MO 65203

Gilmore and Bell, P.C.  
c/o **Mr. Christopher D. Ahrens**  
2405 Grant Blvd., Suite 1100  
Kansas City, MO 64108-2521

Lewis, Rice and Fingersh  
c/o **Ms. Beverly Marcin**  
500 North Broadway, Suite 2000  
St. Louis, MO 63102

Thompson Coburn LLP  
c/o **Ms. Deborah K. Rush**  
One U.S. Bank Plaza, Suite 2600  
St. Louis, MO 63101

**SRF File C295439-03**

Little Blue Valley Sewer District  
c/o **Mr. Greg Boettcher, Executive Director**  
21101 East 78 Highway  
Independence, MO 64057

HDR|Archer Engineers  
c/o **Mr. Stan Christopher, P.E.**  
3741 NE Troon Drive  
Lee's Summit, MO 64063

Black & Veatch  
c/o **Mr. John A. Keller, P.E.**  
8400 Ward Parkway  
Kansas City, MO 64114

Geosyntec  
c/o **Mr. Trent Stober, P.E.**  
1123 Wilkes Blvd., Suite 400  
Columbia, MO 65201

Taliaferro & Browne, Inc  
c/o **Mr. Leonard Graham, P.E.**  
1020 East 8<sup>th</sup> Street  
Kansas City, MO 64106-1640

Missouri Department of Natural Resources  
**Kansas City Regional Office**  
500 NE Colbern Road  
Lee's Summit, MO 64086-4710

The Examiner  
410 South Liberty, P.O. Box 459  
Independence, MO 64050

Environmental Protection Agency  
Office of Federal Activities  
Ariel Rios (2252A)  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20004

Council of Environmental Quality  
722 Jackson Place, N.W.  
Washington, DC 20503

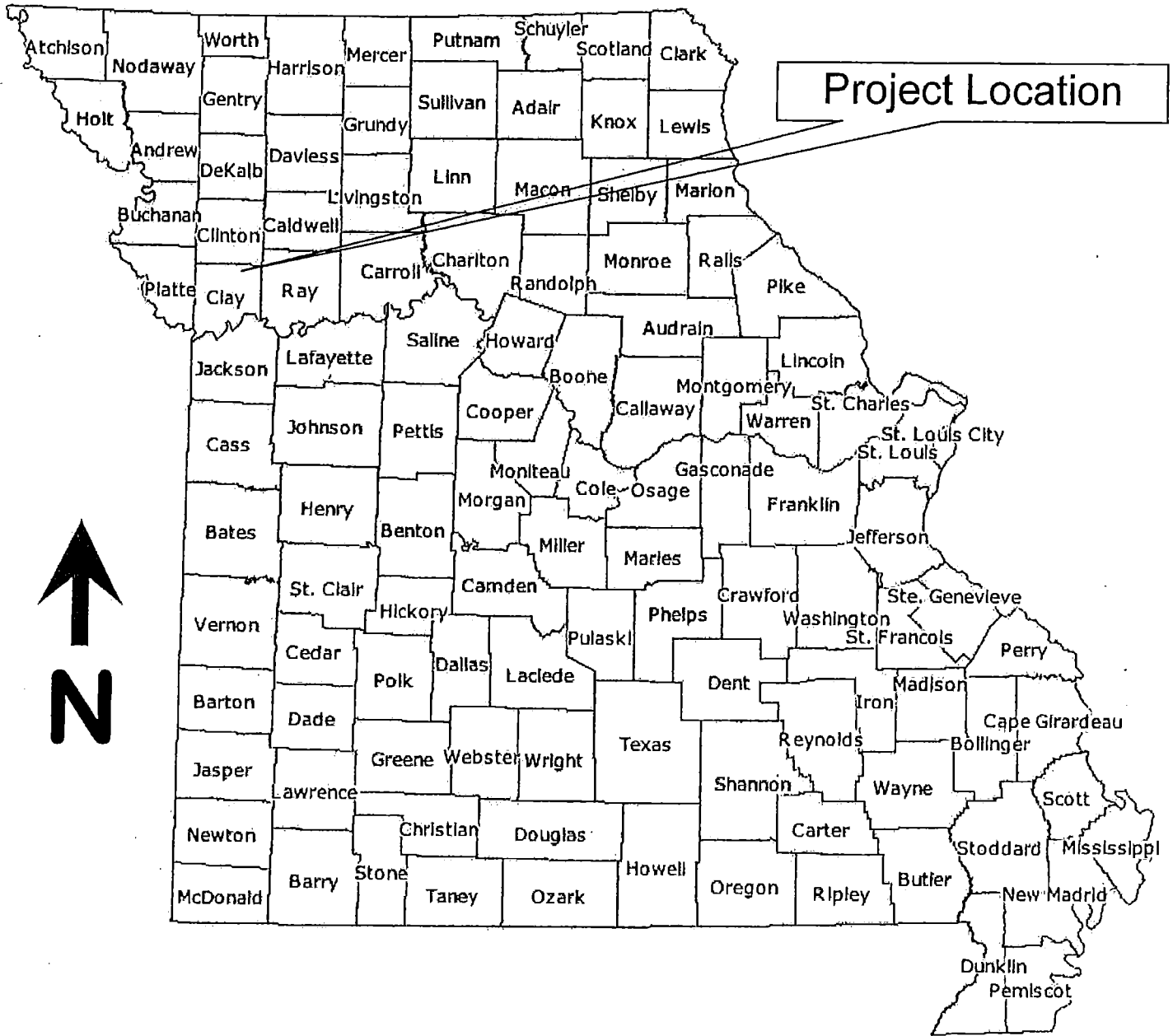
U.S. Army Corps of Engineers  
Kansas City District  
700 Federal Building  
601 E. 12<sup>th</sup> Street  
Kansas City, MO 64106-2896

Mid-America Regional Council  
600 Broadway, Suite 300  
Kansas City, MO 64105

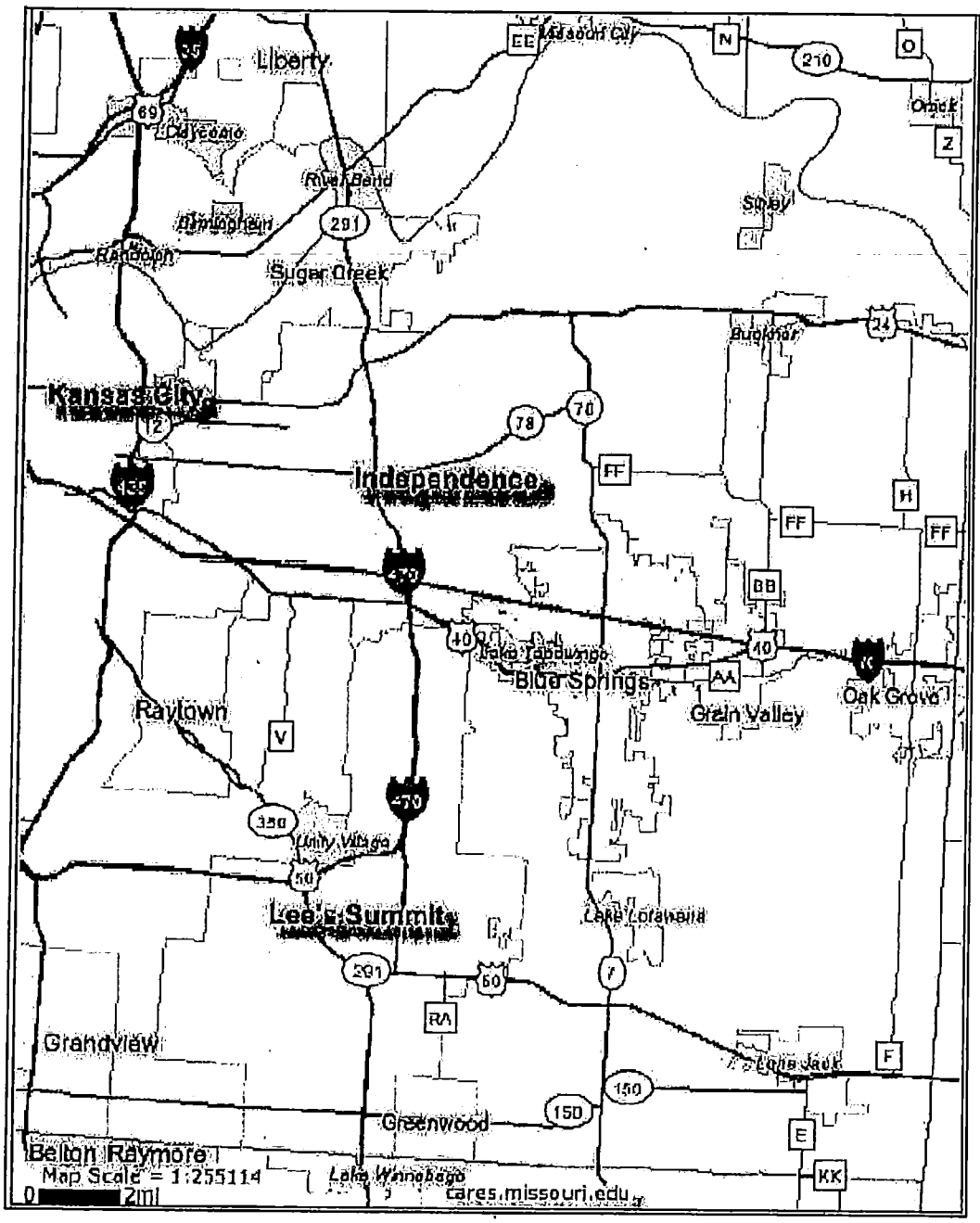
# **Attached Maps**

1. State Map
2. Sewer District Map
3. Project Location Map

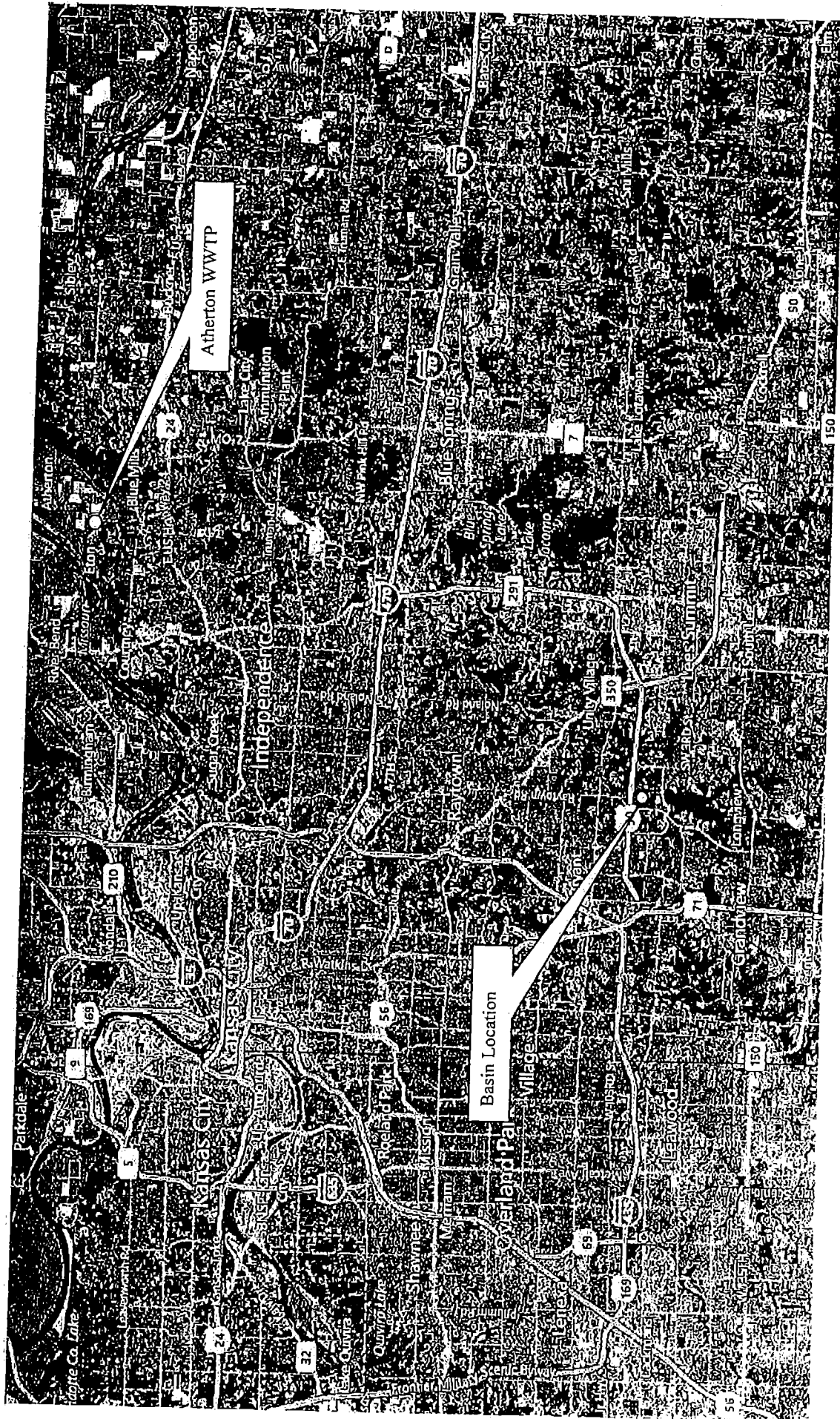
**State of Missouri**  
**Little Blue Valley Sewer District**  
**Jackson County, MO**



# LBVSD Service Area



Project Location Map





# PERMIT BOOK

STATE OF MISSOURI



## DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

### PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **082011-003** Project Number: 2011-03-053  
Installation Number: 095-0186

Parent Company: Little Blue Valley Sewer District

Parent Company Address: 21101 East 78 Highway, Independence, MO 64057

Installation Name: Little Blue Valley Sewer District  
Atherton Wastewater Treatment Plant

Installation Address: 21208 East Old Atherton Road, Independence, MO 64058

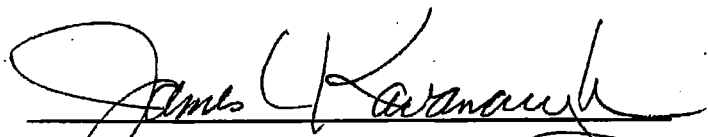
Location Information: Jackson County, S9, T50N, R31W

Application for Authority to Construct was made for:  
Installation of a three ton per hour fluidized bed sewage sludge incinerator. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

- 
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

AUG - 9 2011

EFFECTIVE DATE

  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

Ex. 13

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Departments' Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2011-03-053

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

**Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant  
Jackson County, S9, T50N, R31W**

1. Performance Testing – Fluidized Bed Incinerator (EU16)
  - A. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall perform a compliance test on the incinerator as required by 40 CFR 60 Subpart O, 40 CFR 60 Subpart LLLL, 40 CFR 61 Subpart C, and 40 CFR 61 Subpart E.
  - B. The performance test shall also be used to verify the emission factors used to calculate the potential emissions of the compounds listed in Table 1 below. The stack test results shall be used to determine a controlled emission factor in units of pounds pollutant per ton dry sewage sludge burned.

**Table 1: Emission Factor Verification**

<b>Pollutant</b>	<b>Emission Factor (lb Pollutant/dry ton)</b>
1,4 dichlorobenzene (CAS 106-46-7)	0.227
Cadmium (all compounds)	7.20E-6
Chromium (all compounds)	9.08E-5
Lead (all compounds)	1.02E-4

CAS=Chemical Abstracts Service registry number

- C. A completed Proposed Test Plan (form enclosed) must be submitted to the Air Pollution Control Program at least 30 days prior to the proposed test date of any such performance tests so that a pretest meeting may be arranged, if necessary, and to assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must include specification of test methods to be used and be approved by the director prior to conducting the required emissions testing.

Page No.	4
Permit No.	
Project No.	2011-03-053

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- D. The stack testing shall be performed within sixty (60) days after achieving the maximum production rate of the incinerator (EU16) but not later than 180 days after the initial start of operation.
  - E. Two copies of a written report of the performance test results must be submitted to the director within 90 days of completion of the performance testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required Environmental Protection Agency (EPA) Method for at least one sample run for each air pollutant tested.
  - F. No later than 30 days after the performance test results are submitted, Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall provide the director with a report that establishes the potential emissions of each air pollutant tested in Special Condition 1.B. The results shall report the emission rates in pounds per hour and pounds per dry ton sewage sludge in order that the Air Pollution Control Program may verify the potential emissions from this project.
  - G. If the results of the performance testing shows that any of the emission factors are greater than those indicated in Table 1, then Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall submit an amendment to this permit with an evaluation of what effects the higher emission rates would have had on the permit review for this project. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall submit the results of any such evaluation within 30 days of submitting the Performance Test Results report required in Special Condition 1.F. of this permit.
2. Control Device Requirement – Wet Scrubber (WS01)
- A. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall control emissions from the Fluidized Bed Incinerator (EU16) with a combination impingement and venturi wet scrubber with sodium hydroxide injection as specified in the permit application.
  - B. The following operating limits for the scrubber shall be established during the initial compliance testing.
    - 1) Minimum pressure drop across the scrubber
    - 2) Minimum liquid flowrate at the inlet to the scrubber
    - 3) Minimum scrubber liquid pH

Page No.	5
Permit No.	
Project No.	2011-03-053

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- C. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain the scrubber within the operating limits specified in Special Condition 2.B whenever sewage sludge is being incinerated.
  - D. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall continuously monitor and record the operating parameters specified in Special Condition 2.B. as required by 40 CFR 60 Subpart LLLL.
  - E. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain an operating and maintenance log for the scrubber which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
3. Minimum Temperature Requirement – Fluidized Bed Incinerator (EU16)
- A. The minimum operating temperature of the combustion chamber shall be established during the initial compliance testing.
  - B. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain the combustion chamber above the minimum operating temperature specified in Special Condition 3.A whenever sewage sludge is being incinerated.
  - C. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall continuously monitor and record the combustion chamber temperature to demonstrate compliance with Special Condition 3.B. as required by 40 CFR 60 Subpart LLLL.
  - D. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain an operating and maintenance log for the incinerator which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

Page No.	6
Permit No.	
Project No.	2011-03-053

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

4. **Continuous Emission Monitoring System (CEMS) Requirement**  
Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall monitor emissions of carbon monoxide (CO) from the incinerator exhaust stack (EP16) using a CEMS as required by 40 CFR 60 Subpart LLLL.
5. **Control Device Requirement – Sand Bin Dust Collector (Baghouse)**
  - A. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall control emissions from the sand storage bin (EU17) using a baghouse at all times the sand storage bin is in operation.
  - B. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications.
  - C. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - D. Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain an operating and maintenance log for the baghouse which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
6. **Record Keeping Requirements**  
Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2011-03-053  
Installation ID Number: 095-0186  
Permit Number:

Little Blue Valley Sewer District  
Atherton Wastewater Treatment Plant  
21208 East Old Atherton Road  
Independence, MO 64058

Complete: March 18, 2011

Parent Company:  
Little Blue Valley Sewer District  
21101 East 78 Highway  
Independence, MO 64057

Jackson County, S9, T50N, R31W

REVIEW SUMMARY

- Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant has applied for the authority to install a fluidized bed sewage sludge incinerator.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are hydrogen chloride (HCl), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD and PCDF respectively), and compounds containing arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), and nickel (Ni).
- 40 CFR 60 Subpart O, "Standards of Performance for Sewage Treatment Plants" establishes emission limits for particulate matter (PM) from sewage sludge incinerators.
- 40 CFR 60 Subpart LLLL, "Standards of Performance for New Sewage Sludge Incineration Units" establishes emission limits for Cd, carbon monoxide (CO), HCl, Hg, nitrogen oxides (NO<sub>x</sub>), Pb, PCDD/PCDF, PM, and sulfur dioxide (SO<sub>2</sub>) from sewage sludge incinerators.
- 40 CFR Part 61, Subpart C, "National Emission Standard for Beryllium" establishes emission limits for Be from sewage sludge incinerators.
- 40 CFR Part 61, Subpart E, "National Emission Standard for Mercury" establishes emission limits for Hg from sewage sludge incinerators.
- 40 CFR Part 503, Subpart E, under authority of Section 405 of the Clean Water Act, establishes emission limits for As, Be, Cd, Cr, Hg, Ni, Pb, and total hydrocarbons from sewage sludge incinerators.

- 40 CFR 60 Subpart Kb, "Standards of Performance for Volatile Organic Liquid Storage Vessels" does not apply to the 10,000 gallon (37.8 cubic meters) diesel fuel storage tank because the capacity is less than 75 cubic meters.
- None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- A combination venturi and impingement tray wet scrubber is being used to control the PM emissions. Sodium hydroxide (NaOH) injection in the wet scrubber will be used to control SO<sub>2</sub>, sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), and HCl emissions.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Jackson County, a maintenance area for ozone and an attainment area for all other criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 27. Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act, because 40 CFR 60 Subpart O, "Standards of Performance for Sewage Treatment Plants" applies to the equipment. The installation's major source level is 250 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels and screening model action levels (SMALs).
- Emissions testing is required to verify the potential emissions of the application and to demonstrate initial compliance with the NSPS standards, and the NESHAP standards. Testing may also be required for compliance with the Clean Water Act requirements found in 40 CFR Part 503, Subpart E.
- As required by 40 CFR 60, Subpart LLLL, a Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION DESCRIPTION

Little Blue Valley Sewer District (LBVSD) – Atherton Wastewater Treatment Plant (AWWTP) treats wastewater generated from portions of Jackson County and Cass County. The plant is designed for an average dry weather flow of 52 million gallons per day (MGD). The AWWTP is an existing minor source and holds a basic state operating permit.



Wastewater is treated in a primary and secondary treatment process. Degritted solids are recovered from the primary clarifiers through gravitational settling. Secondary waste solids are recovered through the use of coagulating chemicals. Treated water is discharged to the Missouri River.

Currently, the primary and secondary solids are combined and treated with a Zimpro low pressure oxidation (LPO) system and a belt filter press to facilitate de-watering. The heat treated sludge is transferred to a coal-fired fluidized bed incinerator (E06), and the resultant ash is trucked to a nearby landfill for disposal. Odors from the treatment, storage, and handling of sludge are vented to the sewage sludge incinerator (E06) or a thermal oxidizer (E15) for destruction. The following permits have been issued to the AWWTP from the Air Pollution Control Program.

**Table 2: Permit History**

Permit Number	Description
0986-002, 0986-003	Installation of a sewage sludge/coal incinerator and associated coal storage and handling system.
0390-002	Modification of conditions based on stack test results
0998-033	Construction of two (2) duel fuel fired boiler
0998-033A	Correction to Permit No. 0998-033
022003-008	Various modifications to increase average daily capacity from 43 MGD to 52 MGD

## PROJECT DESCRIPTION

The existing coal-fired sewage sludge incinerator has a capacity of 36 dry tons per day (dtpd) and was designed for a 40 MGD wastewater treatment facility. In 2003, the AWWTP received a construction permit to increase the capacity of the wastewater treatment process from 40 MGD to 52 MGD. The AWWTP has forecasted that the facility will reach 52 MGD by 2020. In order to meet this demand, the AWWTP has proposed to replace its 36 dtpd incinerator with a 72 dtpd fluidized bed incinerator (EU16) that utilizes natural gas and diesel as supplementary fuels. The maximum hourly design rate of the incinerator will be 3.0 dry tons sewage sludge per hour. As a result of this project, the existing Zimpro LPO system and the sewage sludge incinerator (E06) that uses coal as a supplemental fuel will be removed from operation.

The incinerator (EU16) will be heated to its minimum operating temperature of 1500°F by a combination of natural gas and diesel fuel. Natural gas will also be used as needed during normal incinerator operation to maintain the temperature in the combustion chamber. Diesel fuel and natural gas usage depends on the number of start-ups and the Btu content of the sludge. Based on the manufacturer's specifications, the applicant assumed a worst case fuel usage of 72 million cubic feet of natural gas and 46,200 gallons of diesel fuel per year. Once the incinerator reaches its minimum operating temperature, dewatered sludge will be pumped from a collection bin to four injection ports in the bottom of the incinerator. Sand is used as a fluidizing medium and over fire air will be introduced from the ambient air to maintain an optimal combustion temperature.

Exhaust from the incinerator (EU16) will include combustion products, evaporated water, and sand. The temperature and flowrate will be between 1500°F to 1650°F and around 86,000 actual cubic feet per minute (acfm) respectively. Exhaust gases first pass through a primary heat exchanger which preheats the fluidizing air, and cools the exhaust gas to around 1100°F. The cooled exhaust gas is vented to a wet scrubber which includes a quench section, impingement trays, and a venturi section to remove PM. The venturi water will be a caustic (NaOH) solution which also removes SO<sub>2</sub> and acid gases (H<sub>2</sub>SO<sub>4</sub> and HCl). Exhaust from the scrubber will be vented to the existing incinerator stack which is 85 feet tall, 2.3 feet in diameter, and is equipped with a CEMS that measures oxygen and CO. The final exhaust temperature will be 110°F, and the flowrate will be 20,000 acfm.

The AWWTP will utilize the existing sand storage bin (EU17), but will be installing some new material handling equipment and adding a baghouse dust collector to the storage bin. The sand loss due to exhaust entrainment is expected to be less than 100 pounds (lbs) of sand per day, or 0.002 tons sand per hour.

Odors from the treatment, storage, and handling of sludge will be vented to the new incinerator, and the thermal oxidizer (E15) will continue to be used for odor control when the incinerator (EU16) is not in operation. However, the ash will no longer be trucked to a landfill for disposal, but rather collected in the bottom sump of the wet scrubber and pumped to an on-site ash lagoon being constructed for this project. The project also includes the installation of a new 10,000 gallon horizontal above ground storage tank (EU18) for the diesel fuel. The following table contains a summary of the emission units considered for this review.

**Table 3: Emission Unit Summary**

ID	Emission Unit Description	SCC	MHDR	MHDR Units
EU16	Fluidized Bed Sewage Sludge Incinerator	5-01-005-16	3	dry tons sludge per hour
EU17	Sand storage silo and associated material handling equipment	3-05-020-06	0.002	tons sand per hour
EU18	Diesel Fuel Above Ground Storage Tank	3-90-900-04	10,000	gallons

### EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in the analysis of the fluid bed incinerator and the venturi/impingement scrubber were provided by the applicant and were based on the following: manufacturer's specifications, a metal content sludge analysis, and an estimate of the maximum annual fuel usage. Most of the proposed emission factors are comparable to those published in the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 2.2 "Sewage Sludge Incineration" (January 1995). However, the emission factors for the HAP compounds listed in Table 1 are less than the AP-42 emission factors, and in order to avoid HAP modeling for these compounds, the

applicant proposed emission factors that result in potential emissions less than the SMALs. Therefore, a special condition of this permit is to verify the emission factors for these HAP compounds.

The pollutants of concern from the incinerator are PM less than ten microns (PM<sub>10</sub>), PM less than 2.5 microns (PM<sub>2.5</sub>), CO, NO<sub>x</sub>, SO<sub>2</sub>, and HAPs (including acid gases, metals, and toxic organic compounds). The use of the Fluidized Bed Combustion technology and over fire air results in lower emissions of NO<sub>x</sub> and CO because these practices result in significantly less airflow and supplemental fuel usage than alternative technologies. Emissions of PM and PMHAPs will be controlled with the combination venturi/impingement wet scrubber. The control efficiency for PM<sub>2.5</sub> is expected to be 99.9%. The control efficiency for SO<sub>2</sub> and acid gases is expected to be 80% due to the use of a caustic (NaOH) solution in the venturi scrubber water.

Potential emissions of PM<sub>10</sub> and PM<sub>2.5</sub> from sand handling and storage (EU17) were estimated using the emission factors and control efficiencies found in AP-42, Section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing" (August 2004). Potential emissions of volatile organic compounds (VOCs) due to the working and breathing losses from the diesel storage tank (EU18) were estimated using the TANKS software according to AP-42, Section 7.1 "Organic Liquid Storage Tanks" (November 2006). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year), and a worst case estimate of the natural gas and diesel fuel usage. The following table provides an emissions summary for this project.

**Table 4: Emissions Summary (tons per year)**

Pollutant	Regulatory <i>De Minimis</i> Levels/SMAL <sup>[1]</sup>	Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>2.5</sub>	10.0	N/D	0.09	4.61	N/A
PM <sub>10</sub>	15.0	N/D	0.09	5.58	N/A
SO <sub>x</sub>	40.0	N/D	2.01	35.66	N/A
NO <sub>x</sub>	40.0	N/D	1.90	36.91	N/A
VOC	40.0	N/D	52.98	12.04	N/A
CO	100.0	N/D	2.60	35.73	N/A
H <sub>2</sub> SO <sub>4</sub>	7.0	N/D	N/D	1.58	N/A
Pb/Pb Compounds	0.6/0.01	N/D	N/D	0.0013	N/A
As Compounds	0.005	N/D	N/D	6.04E-5	N/A
Be Compounds	0.008	N/D	N/D	5.26E-6	N/A
Cd Compounds	0.01	N/D	N/D	9.46E-05	N/A
Cr Compounds	0.002	N/D	N/D	0.0012	N/A
Hg Compounds	0.01	N/D	N/D	0.00079	N/A
1,4 dichlorobenzene	3	N/D	N/D	2.98	N/A
Combined HAPs	25.0	N/D	0.00	8.05	N/A

N/A = Not Applicable; N/D = Not Determined

<sup>1</sup>For individual HAPs, value represents the SMAL.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

## APPLICABLE REQUIREMENTS

Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of a hardcopy EIQ is required by April 1 for the previous year's emissions. Otherwise, submission of an electronic EIQ via MOEIS is required by May 1.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

### SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Sewage Treatment Plants*, 40 CFR Part 60, Subpart O
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for New Sewage Sludge Incineration Units*, 40 CFR Part 60, Subpart LLLL

- *Emission Standards for Hazardous Air Pollutants, 10 CSR 10-6.080 – National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Beryllium, 40 CFR Part 61, Subpart C*
- *Emission Standards for Hazardous Air Pollutants, 10 CSR 10-6.080 – National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Mercury, 40 CFR Part 61, Subpart E*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260 does not apply to the fluidized bed incinerator (EU16) because it is subject to an applicable emission limit under 10 CSR 10-6.070.*
- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400, does not apply to the fluidized bed incinerator (EU16) because the wet scrubber is expected to achieve greater than 90% control efficiency.*

#### STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

---

Kathi Jantz  
Environmental Engineer

---

Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 14, 2011, received March 18, 2011, designating Little Blue Valley Sewer District as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated April 11, 2011.
- Sludge Analysis Report by Hazen Research, Inc, dated July 14, 2010.

Mr. Kelly Buchman  
Environmental Manager  
Little Blue Valley Sewer District - Atherton Wastewater Treatment Plant  
21208 East Old Atherton Road  
Independence, MO 64058

RE: New Source Review Permit - Project Number: 2011-03-053

Dear Mr. Buchman:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Kathi Jantz, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH:kjk

Enclosures

c: Kansas City Regional Office  
PAMS File: 2011-03-053

Permit Number: