COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INVESTIGATION OF EXISTING AND FUTURE SERVICE OF BULLITT UTILITIES, INC.	))	CASE NO. 2014-00163

NOTICE OF FILING

Notice is given to all parties that the following materials have been filed into the record of this proceeding:

- The digital video recording of the evidentiary hearing conducted on March 31, 2015 in this proceeding;

- Certification of the accuracy and correctness of the digital video recording;

- All exhibits introduced at the evidentiary hearing conducted on March 31, 2015 in this proceeding;

- A written log listing, *inter alia*, the date and time of where each witness' testimony begins and ends on the digital video recording of the evidentiary hearing conducted on March 31, 2015.

A copy of this Notice, the certification of the digital video record, hearing log, and exhibits have been electronically served upon all persons listed at the end of this Notice. Parties desiring an electronic copy of the digital video recording of the hearing in Windows Media format may download a copy at: http://psc.ky.gov/av_broadcast/2014-00163/2014-00163_31Mar15_Inter.asx. Parties wishing an annotated digital video recording may submit a written request by electronic mail to pscfilings@ky.gov. A minimal fee will be assessed for a copy of this recording.

Done at Frankfort, Kentucky, this 10th day of April 2015.

Linda Faulkner

Linda Faulkner
Director, Filings Division
Public Service Commission of Kentucky

Bullitt Utilities, Inc.
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Louisville, KY 40205

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COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INVESTIGATION OF EXISTING AND FUTURE SERVICE OF BULLITT UTILITIES, INC.	)	CASE NO. 2014-00163

CERTIFICATE

I, Sonya Harward, hereby certify that:

1. The attached DVD contains a digital recording of the Hearing conducted in the above-styled proceeding on March 31, 2015. Hearing Log, Exhibits, Exhibit List, and Witness List are included with the recording on March 31, 2015.

2. I am responsible for the preparation of the digital recording.

3. The digital recording accurately and correctly depicts the Hearing of March 31, 2015.

4. The "Exhibit List" attached to this Certificate correctly lists all exhibits introduced at the Hearing of March 31, 2015.

5. The "Hearing Log" attached to this Certificate accurately and correctly states the events that occurred at the Hearing of March 31, 2015 and the time at which each occurred.

Given this 8th day of April, 2015.

Sonya Harward (Boyd), Notary Public
State at Large
My commission expires: August 27, 2017

Date:	Type:	Location:	Department:
3/31/2015	Other	Public Service Commission	Hearing Room 1 (HR 1)

Judge: David Armstrong; Jim Gardner; Dan Logsdon
Witness: Christopher Cogan - Bullitt Utilities; Chris Crumpton - for Bullitt Utilities; Jerry Kennedy - for PSC Staff; Linda Parker - for Intervenor, Hunters Holllow; Jerry Smither - for Bullitt Utilities
Clerk: Sonya Harward

Event Time	Log Event	
9:46:07 AM	Session Started	
9:46:13 AM	Session Paused	
10:04:40 AM	Session Resumed	
10:05:08 AM	Chairman David Armstrong - Introductions and Preliminary Remarks	
	Note: Harward, Sonya	Introduces Vice Chairman Jim Gardner and Commissioner Dan Logsdon, and announces the case being heard.
10:05:15 AM	Camera Lock Deactivated	
10:06:41 AM	Atty. Rob Moore for Bullitt Utilities	
	Note: Harward, Sonya	Introduction
10:06:50 AM	Atty. Mark Edison for cities of Hunters Hollow and Hillview	
	Note: Harward, Sonya	Introductions
10:06:58 AM	Attys. Greg Dutton and Jennifer Hans for the AG	
	Note: Harward, Sonya	Introductions
10:07:08 AM	Atty. Scott Stutler for Bullitt County Sanitation District	
	Note: Harward, Sonya	Introduction (with Jerry Kennedy)
10:07:19 AM	Attys. Ann Ramser and David Spenard for the PSC	
	Note: Harward, Sonya	Introductions. And PSC Staff George Wakim also in attendance.
10:07:36 AM	Floor Opened for Public Comments	
10:08:32 AM	Jim Eadens - Public Comment	
	Note: Harward, Sonya	Mayor for the city of Hillview. Speaks about the back flow problem and complaints.
10:10:15 AM	No Outstanding Motions	
10:10:33 AM	Witness Chris Crumpton (for Bullitt Utilities) takes the stand and is sworn in.	
	Note: Harward, Sonya	Civil Engineer with BlueStone Engineers
10:11:59 AM	Atty. Moore Direct Exam of Witness Crumpton	
	Note: Harward, Sonya	Asked Witness to describe how he became familiar with the Hunters Hollow site.
10:13:39 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking about Witness working with Bullitt Utilities at the temporary treatment facility.
10:14:51 AM	Bullitt Utilities - Exhibit 1	
	Note: Harward, Sonya	This Exhibit contains four documents: (1) Section 10, Standard Specifications, Duplex Sewage Pump Station, Hunters Hollow; (2) Hunters Hollow Pump Station, Contract Documents & Construction Specifications; (3) Hunters Hollow Pump Station and Force Main Design Calculations; and (4) Construction Plans for Hunters Hollow Pump Station.
10:16:05 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to discuss what Bullitt Utilities - Exhibit 1 to this Hearing contains and asks him to describe the pump station.

10:20:57 AM	Bullitt Utilities - Exhibit 2	
	Note: Harward, Sonya	Two letters from Keith Liipe, DXP Enterprises, Inc., to Chris Crumpton, BlueStone Engineers, dated Feb. 6, 2015 and Feb. 4, 2015; and a letter from Keith Liipe, DXP Enterprises, Inc., to Larry Smither, Camden Environmental, and Chris Crumpton, BlueStone Engineers, dated Feb. 4, 2015.
10:22:02 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about Bullitt Utilties - Exhibit 2 to this Hearing, concerning control panels.
10:23:34 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking about the two quotes for the control panels.
10:27:16 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness why more than one pump is needed.
10:28:48 AM	Bullitt Utilities - Exhibit 3	
	Note: Harward, Sonya	Email from Dave Derrick to Chris Crumpton, Jerry Kennedy, Chuckc1@windstream.net, and Lynn Spencer, dated Mar. 7, 2015, and an attachment titled Bullitt County Sanitation District, Hunters Hollow Pump Station, Plans and Specifications Review Comments.
10:29:54 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Witness describing Bullitt Utilities - Exhibit 3 to this Hearing.
10:30:47 AM	Bullitt Utilities - Exhibit 4	
	Note: Harward, Sonya	Email from Larry Smither to Chris Cogan and Chris Crumpton (and an unknown person that is redacted), dated Mar. 10, 2015, with a copy of the revised quote from Larry Clark Construction attached (in the form of an email dated Mar. 4, 2015).
10:31:23 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to confirm that Bullitt Utilities - Exhibit 4 to this Hearing is a current copy of the quote for construction of the pump station.
10:34:20 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness when construction could be completed if started in the next few weeks.
10:35:59 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness questions about connection between the Hunters Hollow facility and Bullitt County Sanitation System.
10:40:30 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about inflow and infiltration (referred to as "I & I").
10:42:22 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about illegal connections being part of I & I.
10:43:53 AM	Bullitt Utilities - Exhibit 5	
	Note: Harward, Sonya	Hunters Hollow Sanitary Sewer Evaluation Study, dated Jan. 19, 2015.
10:44:17 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to discuss Bullitt Utilities - Exhibit 5 to this Hearing.
10:45:26 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking if Witness has recieved any comments from DOW about the Evaluation Study (Bullitt Utilities - Exhibit 5 to this Hearing).
10:47:26 AM	Bullitt Utilities - Exhibit 6	
	Note: Harward, Sonya	Document to Larry Clark, Larry Clark Construction; Dwane Robinson, Dirt Design Construction; Tim Dues, E-Z Construction; and Larry Smither, from Chris Crumpton, PE, Subject: Hunters Hollow Pump Station, Addenum No. 1.

10:49:19 AM	Bullitt Utilities - Exhibit 7	
	Note: Harward, Sonya	Email from Chris Crumpton to Robert Moore and Larry Smither, dated Feb. 7, 2015, Subject: Update for Hunters Hollow Pump Station (no attachments included).
10:50:10 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness for the total cost of the construction for the pump station and wet well, including the control panel and electrical components.
10:51:51 AM	Atty. Edison Cross Exam of Witness Crumpton	
	Note: Harward, Sonya	Asking Witness if there was a possiblity of replacing the plant instead of a temporary wet well.
10:53:00 AM	Atty. Edison to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness if he was provided any history when doing the I & I.
10:54:59 AM	Atty. Edison to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness if the installation will be a permanent solution to the probelm.
10:56:34 AM	Atty. Edison to Witness Crumpton	
	Note: Harward, Sonya	Continues to ask Witness about the agreement between Bullitt Utilities and Bullitt Co. Sanitation District.
10:57:49 AM	Atty. Dutton Cross Exam of Witness Crumpton	
	Note: Harward, Sonya	Asking Witness some follow up questions for clarification, beginning with length of time the pump can operate.
10:59:51 AM	Atty. Dutton to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness if this pump station will address the Public Comment concerning the back up and over flow problems.
11:00:41 AM	Atty. Spenard Cross Exam to Witness Crumpton	
	Note: Harward, Sonya	Describes PSC - Exhibit 1 to this Hearing that is being passed out.
11:01:09 AM	PSC - Exhibit 1	
	Note: Harward, Sonya	Enlarged copies of the Construction Plans for Hunters Hollow Pump Station, Hillview, Kentucky (Bullitt County), Sheet No. C1 (12-18-14); Sheet No. C2 (12-22-14); Sheet No. 3 (12-28-14); Sheet No. C4 (12-18-14); Sheet No. C5 (12-28-14); Sheet No. C6 (12-28-14); and Sheet No. C7 (12-28-14).
11:02:34 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking if there is another version of the plans shown in PSC - Exhibit 1 to this Hearing.
11:02:48 AM	POST HEARING DATA REQUEST per Spenard	
	Note: Harward, Sonya	Provide the Final Construction Plans for Hunters Hollow Pump Station with PE stamp.
11:03:50 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Referencing the 2nd page of PSC - Exhibit 1 to this Hearing, Sheet No. C2.
11:08:16 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking for the purpose of the valve vault.
11:09:45 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Witness references PSC - Exhibit 1 to this Hearing, Sheet No. C.
11:13:43 AM	Vice Chairman Gardner interjects a question for clarification.	
	Note: Harward, Sonya	Asking for location on the map for the lines that show the force mains being discussed.
11:15:52 AM	POST HEARING DATA REQUEST per Spenard	
	Note: Harward, Sonya	Provide a larger map with more detail of the vacinity map showing the force mains (PSC - Exhibit 1 to this Hearing, Sheet No. C1).

11:16:36 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about the 4-inch force main and the 6-inch force main on the vacinity map, PSC - Exhibit 1 to this Hearing, Sheet Nos. C1 and C2.
11:20:19 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness how many feet of line from valve vault on C2 to point at Union Tool where it changes systems.
11:22:42 AM	PSC - Exhibit 2	
	Note: Harward, Sonya	Letter from Jefftrey A. Cummins, Director, Dept. for Environmental Protection, Division of Enforcement, to Bullitt Utilities Inc., Chris Cogan, Re: Case No. DOW 140088, DOW-34022, dated Mar. 20, 2015.
11:24:28 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness what else needs to be done beginning at the valve vault for the flow to begin.
11:27:43 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness how long the temporary connection can run.
11:29:35 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to describe a 'bypass' in very general terms.
11:30:59 AM	Atty. Spenard to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to point out the location of the infrastructure for the bypass meter and discharge on Sheet No. C2 of PSC - Exhibit 1 to this Hearing.
11:32:03 AM	Atty. Moore Re-Direct Exam of Witness Crumpton	
	Note: Harward, Sonya	Passes out Bullitt Utilities - Exhibit 8 to this Hearing.
11:32:21 AM	Bullitt Utilities - Exhibit 8	
	Note: Harward, Sonya	Email from Chris Crumpton to Larry Smither (and a redacted name), Subject: Revised Quote for the Control Panel/Package & Pumps, dated Mar. 18, 2015, with two letters attached to the email that are dated Mar. 13, 2015 and Mar. 9, 2015.
11:34:06 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness to discuss the final costs set forth in Bullitt Utilities - Exhibit 8 to this Hearing.
11:37:59 AM	Atty. Moore to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about requesting copies of maps prior to the failure of the system.
11:38:29 AM	Vice Chairman Gardner Cross Exam of Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about consulting with MSD.
11:42:03 AM	Vice Chairman Gardner to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness for the estimate of the I & I costs, and Witness referenced Bullitt Utilties - Exhibit 5 to this Hearing.
11:45:14 AM	Vice Chairman Gardner to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about the Veola Plant being temporary and expenses still occuring for the Pecco Plant.
11:46:07 AM	Commissioner Logsdon Cross Exam of Witness Crumpton	
	Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 5 to this Hearing, p. 1-1, asking about total size of the footprint being 35,188 linear feet, and p. 1-2, regarding HH3 and amended report that is forthcoming.
11:48:06 AM	Commissioner Logsdon to Witness Crumpton	
	Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 5 to this Hearing, p. 3-5, asking for description of a chimney seal.
11:51:17 AM	Commissioner Logsdon to Witness Crumpton	
	Note: Harward, Sonya	Asking if all of the companies have a remediation budget which they do every year.

11:52:14 AM	POST HEARING DATA REQUEST by Commissioner Logsdon	
	Note: Harward, Sonya	Requests the amended report mentioned in Bullitt Utilities - Exhibit 5 to this Hearing, p. 1-2. Atty. Moore will file this report when it is completed,or he will file notice that it will not be completed.
11:53:12 AM	Commissioner Logsdon to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about which temporary pump is currently on site.
11:53:39 AM	Vice Chairman Gardner to Witness Crumpton	
	Note: Harward, Sonya	Asking Witness about a "permanent" solution.
11:55:40 AM	Atty. Moore Re-Direct Exam of Witness Crumpton	
	Note: Harward, Sonya	Asking Witness follow-up questions about making a preliminary connection.
11:57:56 AM	Witness Crumpton dismissed from the stand.	
11:58:41 AM	Break for Lunch	
11:58:46 AM	Session Paused	
1:14:08 PM	Session Resumed	
1:14:19 PM	Witness Larry Smither (for Bullitt Utilities) takes the stand and is sworn in.	
	Note: Harward, Sonya	Contract Operator of Sewage Treatment Plants, Owner of Covered Bridge Utilities, Inc.
1:16:22 PM	Atty. Moore Direct Exam of Witness Smither	
	Note: Harward, Sonya	Asking about his qualifications as a wastewater treatment plant operator.
1:17:09 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness how long he has operated Hunters Hollow WTP.
1:18:26 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking about DOW and PSC inspections at Hunters Hollow WTP.
1:20:37 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking if Witness was present when connection between Hunters Hollow and Bullitt Co. Sanitation District was discussed with Jerry Kennedy.
1:22:41 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness if he worked on the connecting line.
1:24:33 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness if the connection between Hunters Hollow and Bullitt Co. Sanitation District was disconnected before the Pecco Plant came on site.
1:25:15 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about familiarity of Pecco Plant at Hunters Hollow site.
1:26:38 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness if Pecco Plant has been completely replaced.
1:28:32 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about operation of Veola Plant at Hunters Hollow site.
1:30:18 PM	Bullitt Utilities - Exhibit 9	
	Note: Harward, Sonya	Letter from Christopher Crumpton, P.E., BlueStone Engineers, PLLC, to Lawrence Smither, Bullitt Utilities, Inc., dated Feb. 25, 2015, Subject: Hunters Hollow Pump Station Bids, Bullitt County, Kentucky, with 3 pages of attached bids.
1:31:01 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness to discuss Bullitt Utilties - Exhibit 9 to this Hearing.
1:32:17 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness when the new pump station could be online.
1:32:50 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the I &I system at Hunters Hollow.

1:34:19 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about alternatives that were reviewed by Bullitt Utilities right after the Hunters Hollow WTP failed.
1:37:10 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness for quotes he received for new pump stations.
1:40:12 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness if he has had to address any issues concerning backups since the failure of the plant.
1:42:58 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about assistance from Bullitt Utilities with concerns to backups.
1:45:46 PM	Atty. Edison Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness if there has been a regular schedule for maintainance for the collection system in the 20 years he has operated it.
1:47:14 PM	Atty. Edison to Witness Smither	
	Note: Harward, Sonya	Asking Witness for amount spent on repairs and what type of repairs have been made.
1:49:04 PM	Atty. Edison to Witness Smither	
	Note: Harward, Sonya	Asking Witness if the number of backups have increased over the years.
1:50:06 PM	Atty. Dutton Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness if he has a financial interest in Bullitt Utilities, and if he has testified before the PSC before (he has in a Coolbrook Utilties case).
1:51:00 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness how he is informed of backups.
1:52:30 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness if there have been multiple calls from a single resident.
1:53:15 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness about when work was done by Murphy Excavating.
1:54:26 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the difference in the process and plans to get a new plant versus a refurbished plant.
1:57:54 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness about having seen a failure like this before.
1:58:28 PM	Atty. Spenard Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness about Pecco being contacted after the plant's failure, and then his contact with Veolia.
2:01:28 PM	Atty. Spenard to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the use of the Pecco Plant and diversion to Bullitt Co. Sanitation District having eliminated the need for securing the Veola system.
2:02:26 PM	Atty. Spenard to Witness Smither	
	Note: Harward, Sonya	Asking Witness if failed station has been removed, and if anything is left that has value.
2:05:18 PM	Atty. Spenard to Witness Smither	
	Note: Harward, Sonya	Asking if there was something that could be done to eliminate the I & I flow problem today, would that eliminate the need for the Veola Plant.
2:06:34 PM	Vice Chairman Gardner Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness how long it took the Pecco Plant to be up and running.

2:07:11 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the nature of the PSC inspections that are done at the Plant by PSC Staff.
2:08:06 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness about having to file a report if there is a backup in someone's home, and if he is required to keep records of reports of backups.
2:09:39 PM	POST HEARING DATA REQUEST by Vice Chairman Gardner	
	Note: Harward, Sonya	Provide copies of records of the by-pass reports and reports of backups in homes for the last year.
2:10:30 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness about an Agreed Order between Bullitt Utilities and the Energy and Environment Cabinet.
2:12:13 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness if there were any citations of the same kind from the Cabinet in the year prior to the failure.
2:12:57 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness about monthly operating fee and provisions for extra operating hours. Also asking who his contact is at Bullitt Utilities, and his relationship with the Cogans.
2:14:25 PM	Vice Chairman Gardner to Witness Smither	
	Note: Harward, Sonya	Asking Witness if he had advised Chris Cogan about needing more resources and the need to increase rates to provide more resources to fix the issues.
2:15:38 PM	Commissioner Logsdon Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness about accepting payments and connections for sewage service.
2:17:28 PM	Commissioner Logsdon to Witness Smither	
	Note: Harward, Sonya	Asking Witness to describe what a "receiving stream" is.
2:18:35 PM	Commissioner Logsdon to Witness Smither	
	Note: Harward, Sonya	Asking Witness about what happened immediately following the failure.
2:20:28 PM	Atty. Moore Re-Direct Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness about the main job of Covered Bridge Utilities.
2:22:57 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the use of the term "active flow plant."
2:23:45 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about backups in homes, and those being due to residents connecting sump pumps and downspouts to the system.
2:24:58 PM	Atty. Moore to Witness Smither	
	Note: Harward, Sonya	Asking Witness about the risk of purchasing a new plant before getting DOW approval, and a previously bought plant that had to be scraped due to not receiving approval.
2:26:27 PM	Atty. Edison Re-Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness if the temporary plants on site now have any type of approval.
2:28:08 PM	Atty. Edison to Witness Smither	
	Note: Harward, Sonya	Asking Witness if he has done any smoke tests on the system.
2:28:43 PM	Atty. Dutton Re-Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness about action that was required by the EEC after the violations were issued.
2:30:22 PM	Atty. Dutton to Witness Smither	
	Note: Harward, Sonya	Asking Witness if they were required to clean up the receiving stream.

2:31:36 PM	Atty. Spenard Re-Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness about the need for new facility that was purchased years ago (and later turned down for approval).
2:33:10 PM	Vice Chairman Gardner Re-Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness if he had any participation in discussions between Bullitt Utilities and Bullitt Co. Sanitation District.
2:33:39 PM	Commissioner Logsdon Re-Cross Exam of Witness Smither	
	Note: Harward, Sonya	Asking Witness to describe a "smoke test."
2:34:44 PM	Witness Smither dismissed from the stand.	
2:34:53 PM	Witness Chris Cogan (Bullitt Utilities) takes the stand and is sworn in.	
	Note: Harward, Sonya	Profession is in Private Equity and Adventure Capitol Investing. Also is power of attorney for his father, Carroll Cogan, owner of Bullitt Utilities,
2:36:33 PM	Atty. Moore Direct Exam of Witness Cogan	
	Note: Harward, Sonya	Asking Witness about his father's condition and inability to run Bullitt Utilities.
2:37:29 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness to describe his experience in working with wastewater treatment plants.
2:38:33 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about the length of time the Veola Plant will be used at the Hunters Hollow site.
2:40:50 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about the agreement between Bullitt Utilities and Bullitt Co. Sanitation District.
2:42:02 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness if there any meetings that discussed the failure of the Hunters Hollow WTP.
2:45:30 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness if DOW approved the temporary installation of the Veola Plant.
2:45:59 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about Agreed Order with EEC.
2:46:53 PM	Bullitt Utilities - Exhibit 10	
	Note: Harward, Sonya	Copies of the Agreed Order between EEC and Bullitt Utilities, dated Nov. 24, 2014, and the Amended Agreen Order, dated Mar. 26, 2015.
2:49:15 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, the Agreed Order, paragraph 27.
2:50:43 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness why Bullitt Utilities entered into the Amended Agreed Order, presented here as part of Bullitt Utilities - Exhibit 10 to this Hearing.
2:51:50 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Referencing paragraph 16 of the Agreed Order, Bullitt Utilities - Exhibit 10 to this Hearing.
2:53:31 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about Bullitt Utilities' Agreement with Bullitt Co. Sanitation District.
2:53:52 PM	Bullitt Utilities - Exhibit 11	
	Note: Harward, Sonya	Agreement Between Bullitt County Sanitation District and Bullitt Utilities, Inc., dated 10/1/14.

2:55:48 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness to discuss the Agreement, Bullitt Utilities - Exhibit 11 to this Hearing.
2:56:40 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness if Bullitt Utilities had to pay Bullitt Co. Sanitation District for construction work to connect the systems.
2:57:44 PM	Bullitt Utilities - Exhibit 12 Note: Harward, Sonya	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Scott Stutler, Assistant County Attorney, Re: Agreement between Bullitt Utilties, Inc. and Bullitt County Sanitation District, dated Nov. 7, 2014.
2:59:16 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness if the wet well and pump station will be used when the Agreement takes effect.
3:04:14 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness if there has been a final solution on the failure of the Hunters Hollow system.
3:04:55 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, p. 4, paragraphs 13-15.
3:08:38 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, Penalties and Cost Recovery section.
3:10:54 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Continuing to discuss the payments required in the Agreed Order, now at paragraph 20.
3:11:40 PM	Bullitt Utilities - Exhibit 13 Note: Harward, Sonya	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Jeff Cummins, Director, Dept. of Environmental Protection, Div. of Enforcement, Re: Bullitt Utilties, Inc, Hunters Hollow Wastewater Treatment and Collection System, dated Jan. 21, 2015, and the copy of a $13,606.15 check.
3:12:24 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness if Bullitt Utilties is in compliance with the Agreed Order as amended.
3:13:37 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking Witness about "smoke tests."
3:15:48 PM	Atty. Moore to Witness Cogan Note: Harward, Sonya	Asking if Bullitt Utilities will be able to complete the report marked as Bullitt Utilities - Exhibit 5 to this Hearing.
3:19:56 PM	Atty. Edison Cross Exam of Witness Cogan Note: Harward, Sonya	Referencing PSC - Exhibit 2 to this Hearing, regarding meeting the 15 days to submit an I & I report.
3:21:40 PM	Atty. Edison to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 16.a. and 16.b., regarding compliance with paragraph 16.b.
3:23:20 PM	Atty. Edison to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 11 to this Hearing, Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, regarding it being a temporary agreement.
3:24:37 PM	Atty. Edison to Witness Cogan Note: Harward, Sonya	Asking Witness what Bullitt Utilities plans to do if not purchased by Bullitt Co. Sanitation District at the end of the Agreement.

3:24:58 PM	Atty. Edison to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 11 to this Hearing, Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, p. 2, regarding any plans to develop long-term solutions to this problem.
3:26:30 PM	Atty. Edison to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 11 to this Hearing, Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, paragraph 7, regarding plans to maintain collection systems.
3:28:07 PM	Atty. Dutton Cross Exam of Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, p. 7, paragraph 23, regarding Hearing being requested.
3:30:04 PM	Atty. Dutton to Witness Cogan Note: Harward, Sonya	Asking Witness to discuss, per the Agreement, what the responsibilities of Bullitt Utilities will be up until Dec. 13, 2016.
3:31:28 PM	Atty. Ramser Cross Exam of Witness Cogan Note: Harward, Sonya	Asking Witness about the temporary pump and pipes being in place.
3:32:31 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness how much the temporary pump will cost versus continuing to run the temporary plant.
3:34:19 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about temporary pumps being more expensive than when the wet well and lift station are in place.
3:36:33 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness at what point does the control of the wastewater transfer from Bullitt Utilities to Bullitt Co. Sanitation District.
3:38:23 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness who is paying for the design and construction of the meters.
3:40:18 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about the Agreed Order, regarding it being a result of the plant failure.
3:41:03 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, p. 2, paragraphs 6.a. and 6.c.
3:41:57 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about the disconnection between Bulllitt Utilities and Bullitt Co. Sanitation District and if any flow moved between Bulllitt Utilities and Bullitt Co. Sanitation District before the disconnection.
3:44:13 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about agreements with Bullitt Co. Sanitation District soon after the failure, and if he has any written agreements.
3:45:07 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about discharge being checked to comply regulations, and whether the testing results were in compliance at the Pecco Plant.
3:45:51 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 14.
3:47:45 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 11 to this Hearing, Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, paragraph 8, regarding Louisville Water Company.

3:49:00 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about the purpose of the $125,000 in paragraph 10 of the Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, Bullitt Utilities - Exhibit 11 to this Order.
3:50:25 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness if there are other possibilities for long-term solutions with other entities.
3:51:34 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about being discouraged to buy a new plant.
3:53:54 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 1 to this Hearing, regarding reason for Bullitt Co. Sanitation District not signing off on the agreement.
3:55:35 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness about his knowledge of the Amended Application being filed in Case No. 2014-00255, and if, on Dec. 8, he believed that the connection would be completed within 60 days of Nov. 10, 2014.
3:56:59 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 3, regarding status of permit approval.
3:58:32 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness how there can be a bypass when they have a 3-million gallon tank.
3:59:43 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 16, regarding the I & I issues and the $30,000 to be spent yearly, and how much they spent in 2014 and 2015.
4:00:55 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 16.a., regarding timely filing with EEC.
4:01:35 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 10 to this Hearing, Agreed Order, paragraph 20, regarding check that was required, and if it was timely paid.
4:02:34 PM	PSC - Exhibit 3 Note: Harward, Sonya	Letter from Jeffrey Cummins, Director, Division of Enforcement, to Chris Cogan, Bullitt Utilities, Inc., Demand for Remedial Measure and Cost Recovery, dated Jan. 7, 2015.
4:03:21 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness to describe PSC - Exhibit 3 to this Hearing.
4:04:42 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing PSC - Exhibit 2 to this Hearing, regarding responding to this letter.
4:06:37 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness to describe the action plan being address due to the letter, presented here at PSC - Exhibit 3.
4:07:05 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 5 to this Hearing.
4:08:44 PM	Break	
4:09:21 PM	Session Paused	
4:21:13 PM	Session Resumed	
4:22:00 PM	Atty. Ramser to Witness Cogan Note: Harward, Sonya	Asking Witness if Bullitt Utilities is attempting to collect costs inccurred due to the Agreed Order through the surcharge.

4:22:22 PM	Atty. Ramser to Witness Cogan	
	Note: Harward, Sonya	Witness finished responding to question asked right before the break concerning money spent on I & I.
4:24:14 PM	Atty. Ramser to Witness Cogan	
	Note: Harward, Sonya	Asking Witness how much Bullitt Utilities owes Veola, how much has been paid to Veola, and when last payment was made.
4:26:07 PM	Vice Chairman Gardner Cross Exam of Witness Cogan	
	Note: Harward, Sonya	Asking Witness about the steps in the process, and asking what is needed so that the flow can go to Bullitt Co. Sanitation District.
4:28:31 PM	Vice Chairman Gardner to Witness Cogan	
	Note: Harward, Sonya	Asking Witness for the conditions for Bullitt Co. Sanitation District to accept the flow.
4:29:12 PM	Atty. Moore Re-Direct Exam of Witness Cogan	
	Note: Harward, Sonya	Asking Witness about accepting a bond to insure the treatment plant.
4:30:33 PM	Bullitt Utilities - Exhibit 14	
	Note: Harward, Sonya	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Jerry Kennedy, Bullitt County Sanitation District, Re: Bullitt Utilties, Inc, dated Feb. 20, 2015.
4:31:05 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about offering to make a $50,000 payment in escrow as a deposit.
4:31:32 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about the $125,000 paid to Bullitt Co. Sanitation District being included in the Application for surcharge.
4:34:13 PM	Atty. Moore to Witness Cogan	
	Note: Harward, Sonya	Asking Witness about a payment made to Veola, and it being a small amount, not hundreds of thousands of dollars.
4:34:49 PM	Atty. Ramser Re-Cross Exam Witness Cogan	
	Note: Harward, Sonya	Asking Witness about lines that were laid and what facitily they were going to.
4:35:55 PM	POST HEARING DATA REQUEST by Atty. Ramser	
	Note: Harward, Sonya	Advise where the 60,000 feet of line was going to be split.
4:36:10 PM	Witness Cogan dismissed from the stand.	
4:37:25 PM	Witness Linda Parker (for Intervenor) takes the stand and is sworn in.	
	Note: Harward, Sonya	Mayor of Hunters Hollow
4:38:35 PM	Atty. Edison Direct Exam of Witness Parker	
	Note: Harward, Sonya	Asking Witness about moving to Hunters Hollow and the development of the area.
4:39:13 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness about dealing with Bullitt Utiilties and their services.
4:40:29 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness when the difficulties started, with more backups occuring.
4:41:05 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness how many backups she's been contacted about over the years.
4:42:14 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness about her personal experience with backup problems.
4:44:07 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness about contacting Bullitt Utilities so that the streets can be paved.

4:45:30 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness about problem with a cracked manhole in her backyard and the smell that prevented her from being in her backyard.
4:47:31 PM	Atty. Edison to Witness Parker	
	Note: Harward, Sonya	Asking Witness about other problems with Bullitt Utilities.
4:48:22 PM	Witness Parker dismissed from the stand.	
4:48:46 PM	Witness Jerry Kennedy (for the PSC) takes the stand and is sworn in.	
	Note: Harward, Sonya	General Manager for Bullitt County Sanitation District
4:50:04 PM	Atty. Ramser Direct Exam of Witness Kennedy	
	Note: Harward, Sonya	Passes out PSC - Exhibit 4 to this Hearing.
4:50:10 PM	PSC - Exhibit 4	
	Note: Harward, Sonya	Agreed Order between EEC and Bullitt County Sanitation District, Case No. DOW 140177A, Re: BCSD Hillview Sewer Plant 3, Pioneer Village Sewer Plant 1, Willabrooke Sanitation Inc., filed Feb. 13, 2015, recieved Feb. 23, 2015.
4:51:07 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about PSC - Exhibit 4 to this Hearing.
4:51:32 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Referencing PSC - Exhibit 4 to this Hearing, paragraph 14, regarding SEP.
4:52:29 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about connection actually occuring on or before April 13.
4:53:21 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if any funds remain from the $125,000 paid by Bullitt Utilities.
4:55:03 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness what permits were needed for this project.
4:56:22 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness where the wastewater transfers from Bullitt Utilities to Bullitt Co. Sanitation District.
4:57:57 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if he has seen and approved the designs and specs for the construction that Bullitt Utilties is responsible for.
5:00:08 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Referencing Bullitt Utilties - Exhibit 3 to this Hearing.
5:01:58 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 14 to this Hearing.
5:02:57 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness how much he would expect Bullitt Utilities to put in escrow.
5:06:09 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Referencing PSC - Exhibit 4 to this Hearing.
5:07:25 PM	Atty. Stutler to Witness Kennedy	
	Note: Harward, Sonya	Atty. Stutler is Mr. Kennedy's attorney and he approaches the Witness to discuss question being asked.
5:08:45 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about construction of force mains being constructed.
5:09:34 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about connection between Bullitt Utilities and Bullitt Co. Sanitation District being made and Bullitt Co. Sanitation District refusing to accept the flow.

5:11:31 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness for clarity concerning there being a way for wastewater to flow without any additional work at this time.
5:12:00 PM	Vice Chairman Gardner Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about how much flow can be handled by the current connection.
5:13:28 PM	Vice Chairman Gardner to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness what will be required to allow the flow, either $300,000+, a bond, etc.
5:14:21 PM	Vice Chairman Gardner to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness where the conditions are listed (that were just discussed concerning the requirement for a bond or money in escrow, etc) in the Agreed Order signed between the EEC and Bullitt Co. Sanitation District.
5:16:43 PM	Atty. Moore Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about not receiving the final plans from Mr. Crumpton.
5:18:30 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Referencing Bullitt Utilities - Exhibit 3 to this Hearing, regarding responses that were provided to Dave Derek.
5:20:10 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness questions regarding a connection being required within 60 days.
5:20:56 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness for the names of the three force mains.
5:23:15 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Referencing Agreement between Bullitt Utilities and Bullitt Co. Sanitation District, paragraph 4, regarding amount of flow that will be accepted. (Bullitt Utilities - Exhibit 11 to this Hearing)
5:23:54 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness to point out where in the Agreement between Bullitt County Sanitation District and Bullitt Utilities the condition concerning $300,000+ being placed in escrow or a bond be provided before flow will be accepted is located. (Bullitt Utilities - Exhibit 11 to this Hearing)
5:26:19 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness to list what needs to be done before the temporary flow can be accepted.
5:28:43 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if Bullitt Co. Sanitation District would be willing to allow flow temporarily with the use of valving.
5:29:01 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness what, besides the variable speed pump, will be required in order to connect the systems in the next few days.
5:31:13 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness what else, other than the flow meter and variable speed pump drive, is needed.
5:31:58 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if Bullitt Co. Sanitation District would allow the connection to be made at this time if Bullitt Utilities can rent a variable speed pump.
5:33:16 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if he has had any discussions with DOW about requiring a $350,000 bond before being allowed to make the temporary connection.

5:34:37 PM	Atty. Dutton Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness questions about meter locations between the Bullitt Utilities collection system and the Bullitt Co. Sanitation District treatment system.
5:35:30 PM	Atty. Dutton to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness who will be responsible for the piping from the meter to the sanitation system.
5:36:17 PM	Atty. Dutton to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if there has been any discussion about long-term plans.
5:38:17 PM	Atty. Dutton to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness how the flow from Bullitt Utilities impacts Bullitt Co. Sanitation District's plan to deal with its current capacity problems.
5:41:01 PM	Atty. Dutton to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if he's ever seen a system fail like this and if he has a theory of what happened.
5:41:32 PM	Atty Moore - Objection	
	Note: Harward, Sonya	Objects to this line of questioning because it is not identified as a topic in the Order, and the Witness has probably not studied the site and is not qualified to addressed the issue.
5:42:22 PM	Atty. Ramser Re-Direct Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking what the difference is between having a variable frequency drive installed and a valve inactuator control the pump flow.
5:43:11 PM	Atty. Ramser to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness who is responsible for making the decision to accept the connection, and what his response would be if he is asked for his opinion by those that make the decision.
5:44:54 PM	Vice Chairman Gardner Re-Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if variable speed pump drive and flow meter are necessary for the inital 60,000 gallons of flow.
5:45:41 PM	Vice Chairman Gardner to Witness Kennedy	
	Note: Harward, Sonya	Asking when Bullitt Co. Sanitiation District's Board put the additional conditions on the Bullitt Utilities, regarding the money or bond that would be needed.
5:47:58 PM	Commissioner Logsdon Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about advice he received from Counsel regarding not accepting flow.
5:49:13 PM	Atty. Moore Re-Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness about controlling flow with the use of valving.
5:50:56 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness if he is aware of any legal action regarding Bullitt Utilities providing money or bond before the flow is accepted.
5:51:21 PM	Atty. Moore to Witness Kennedy	
	Note: Harward, Sonya	Asking Witness to show him where in Exhibit 11 to this Hearing it states that there must be a new pump station and wet well.
5:52:45 PM	Atty. Dutton Re-Cross Exam of Witness Kennedy	
	Note: Harward, Sonya	Asking Witness who will be charging the rate when Bullitt Co. Sanitation District takes over the system.
5:53:32 PM	POST HEARING DATA REQUESTS due April 30, 2015	
5:55:05 PM	Hearing Adjourned	
5:55:09 PM	Session Paused	

JAVS Exhibit List Report

2014-00163_31Mar2015

Bullitt Utilities, Inc.

Judge: David Armstrong; Jim Gardner; Dan Logsdon

Witness: Christopher Cogan - Bullitt Utilities; Chris Crumpton - for Bullitt Utilities; Jerry Kennedy - for PSC Staff; Linda Parker - for Intervenor, Hunters Holllow; Jerry Smither - for Bullitt Utilities

Clerk: Sonya Harward

Name:	Description:
Bullitt Utilities - Exhibit 1	(1) Section 10, Standard Spec., Duplex Sewage Pump Station, Hunters Hollow; (2) Hunters Hollow Pump Station, Contract Doc. & Construction Spec.; (3) Hunters Hollow Pump Station and Force Main Design Calculations; and (4) Construction Plans for HH PS.
Bullitt Utilities - Exhibit 10	Copies of the Agreed Order between EEC and Bullitt Utilities, dated Nov. 24, 2014, and the Amended Agreen Order, dated Mar. 26, 2015.
Bullitt Utilities - Exhibit 11	Agreement Between Bullitt County Sanitation District and Bullitt Utilities, Inc., dated 10/1/14.
Bullitt Utilities - Exhibit 12	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Scott Stutler, Assistant County Attorney, Re: Agreement between Bullitt Utilties, Inc. and Bullitt County Sanitation District, dated Nov. 7, 2014.
Bullitt Utilities - Exhibit 13	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Jeff Cummins, Director, Dept. of Environmental Protection, Div. of Enforcement, Re: Bullitt Utilties, Inc, Hunters Hollow Wastewater Treatment and Collection System, 1/21/15, and copy of check.
Bullitt Utilities - Exhibit 14	Letter from Robert Moore, Hazelrigg & Cox, LLP, to Jerry Kennedy, Bullitt County Sanitation District, Re: Bullitt Utilties, Inc, dated Feb. 20, 2015.
Bullitt Utilities - Exhibit 2	Letters from Keith Liipe, DXP Enterprises, to Chris Crumpton, BlueStone Engineers, dated 2/6/15 and 2/4/15; letter from Keith Liipe, DXP Enterprises, Inc., to Larry Smither, Camden Environmental, and Chris Crumpton, BlueStone Enging. dated 2/4/15.
Bullitt Utilities - Exhibit 3	Email from Dave Derrick to Chris Crumpton, Jerry Kennedy, Chuckc1@windstream.net, and Lynn Spencer, dated Mar. 7, 2015, and an attachment titled Bullitt County Sanitation District, Hunters Hollow Pump Station, Plans and Specifications Review Comments
Bullitt Utilities - Exhibit 4	Email from Larry Smither to Chris Cogan and Chris Crumpton (and an unknown person that is redacted), dated Mar. 10, 2015, with a copy of the revised quote from Larry Clark Construction attached (in the form of an email dated Mar. 4, 2015).
Bullitt Utilities - Exhibit 5	Hunters Hollow Sanitary Sewer Evaluation Study, dated Jan. 19, 2015.
Bullitt Utilities - Exhibit 6	Document to Larry Clark, Larry Clark Construction; Dwane Robinson, Dirt Design Construction; Tim Dues, E-Z Construction; and Larry Smither, from Chris Crumpton, PE, Subject: Hunters Hollow Pump Station, Addenum No. 1.
Bullitt Utilities - Exhibit 7	Email from Chris Crumpton to Robert Moore and Larry Smither, dated Feb. 7, 2015, Subject: Update for Hunters Hollow Pump Station (no attachments included).
Bullitt Utilities - Exhibit 8	Email from Chris Crumpton to Larry Smither (and a redacted name), Subject: Revised Quote for the Control Panel/Package & Pumps, dated Mar. 18, 2015, with two letters attached to the email that are dated Mar. 13, 2015 and Mar. 9, 2015.
Bullitt Utilities - Exhibit 9	Letter from Christopher Crumpton, P.E., BlueStone Engineers, PLLC, to Lawrence Smither, Bullitt Utilities, Inc., dated Feb. 25, 2015, Subject: Hunters Hollow Pump Station Bids, Bullitt County, Kentucky, with 3 pages of attached bids.
PSC - Exhibit 1	Enlarged copies of the Construction Plans for Hunters Hollow Pump Station, Hillview, Kentucky (Bullitt County), Sheet Nos. (dated): C1 (12-18-14); C2 (12-22-14); C3 (12-28-14); C4 (12-18-14); C5 (12-28-14); C6 (12-28-14); C7 (12-28-14).
PSC - Exhibit 2	Letter from Jefftrey A. Cummins, Director, Dept. for Environmental Protection, Division of Enforcement, to Bullitt Utilities Inc., Chris Cogan, Re: Case No. DOW 140088, DOW-34022, dated Mar. 20, 2015.

PSC - Exhibit 3	Letter from Jeffrey Cummins, Director, Division of Enforcement, to Chris Cogan, Bullitt Utilities, Inc., Demand for Remedial Measure and Cost Recovery, dated Jan. 7, 2015.
PSC - Exhibit 4	Agreed Order between EEC and Bullitt County Sanitation District, Case No. DOW 140177A, Re: BCSD Hillview Sewer Plant 3, Pioneer Village Sewer Plant 1, Willabrooke Sanitation Inc., filed Feb. 13, 2015, recieved Feb. 23, 2015.

SECTION 10
STANDARD SPECIFICATIONS
DUPLEX SEWAGE PUMP STATION
HUNTERS HOLLOW

10.1 GENERAL

10.1.1. WORK INCLUDED

A. These specifications cover the work necessary to furnish, install, and complete a duplex submersible non-clog or grinder pump station to the Bullitt County Sanitation District (BCSD) Standards. These specifications additionally utilize standard specifications as set forth by the largest regional service provider Louisville Metropolitan Sewer District (MSD) of which BCSD's Standard Specifications reference in most cases.

B. The Work to be accomplished under this Section of the Specifications consists of furnishing all labor, materials, equipment, and services necessary for the construction of a duplex pump station and valve vault as shown on the Contract Drawings. The facility components shall include, but not necessarily be limited to, two (2) submersible raw sewage pumps; pump discharge connections; guide rails; bottom, intermediate, and upper guide rail supports; lifting cables; discharge piping, valves, and supports; aluminum access hatches; vents; liquid level sensors; electrical service and controls; flow meters; data quality telephone service; telemetry signals pre-wired in the control panel for future connection by BCSD; and any other items required to make the installation function per its design intent. All components shall be installed in, on, or near a precast concrete wet well basin and valve vault. The structures and dimensions shall be as shown on the Contract Drawings.

C. The following major Work items are included in the Contract:

1. Site work.
2. Construction of new pump station, valve vault, and appurtenances.
3. Installation of new electrical service and pump control system, including pre-wired telemetry signals.
4. Installation of new data quality telephone service.
5. Installation of Flow Meters

10.1.2. DEFINITION OF ENGINEER

A. For the purposes of reviewing submittals and interpreting BCSD's standard drawings, specifications, policies, and procedures, the term "Engineer" shall mean the person holding the position of Director of the Engineering Division of BCSD or any person whom BCSD may designate to act in place of said Director.

B. For matters concerning design, cost, and general professional judgment, the term "Engineer" or "Design Engineer" shall mean the Kentucky Registered Professional Engineer hired by the developer or client to design and supervise the project.

10.1.3. CONTRACTOR REQUIREMENTS

A. The Contractor shall become familiar with all details of the Work, shall verify all dimensions in the field, and shall advise the Engineer of any discrepancies before initiating the Work.

B. The Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

C. The Contractor shall use equipment adequate in size, capacity, and numbers to accomplish the Work of this Section in a timely manner.

D. The Contractor shall comply with the permit and code provisions contained in these specifications.

E. The Contractor shall submit complete shop drawing packages and operation and maintenance manuals in accordance with Section 1.07 of these specifications.

F. The Contractor shall be responsible for the factory and field tests required by Sections 3.03, 3.04, and 3.05 of these specifications and shall submit copies of the test reports to document the results.

10.1.4. PERMITS AND APPROVALS

A. The Owner/Engineer shall obtain any permits and inspections related to or required by the Work in this Contract, including a Kentucky Division of Water Construction Permit.

B. The Contractor shall furnish electrical inspection by an agency licensed or otherwise qualified to perform electrical inspections in the Commonwealth of Kentucky.

1. All costs incidental to the electrical inspection shall be borne by the Contractor.

2. The Contractor shall provide a Certificate of Compliance with NEC after final approval by the electrical inspector. Final acceptance will be withheld until he has presented the Engineer with the aforementioned Certificate of Compliance.

10.1.5. CODES AND STANDARDS

A. The Contractor shall comply with applicable codes and regulations of authorities having jurisdiction.

B. The Contractor shall submit copies of inspection reports, notices, citations, and similar communications to BCSD.

C. All electrical equipment and details of installations shall comply with the requirements of the latest editions of the National Electrical Code (NFPA-70), the National Electrical Safety Code (ANSI C2), OSHA, KYOSHA, and all applicable codes.

10.1.6. SYSTEM CHARACTERISTICS

A. Duplex Station.

B. Submersible Non-clog or Grinder Pump (and must be variable speed compatible)

C. Pump Motor Rating:

1. 15.0 HP.
2. 460 volts.
3. Three-phase.
4. 22.0 full load amps.

D. Electrical Service Rating:

1. 480 volts.
2. Three-phase.
3. 100 amps.
4. 3 wire.

E. Pump Efficiency Ratings:

⇨ Pump efficiencies will be reduced for this operation

F. Design Operating Point(s):

1. 111 gpm to 208 gpm standard for each pump (up to 320 gpm peak flow)
2. between 18 to 32 TDH (feet) standard (up to 49 peak TDH (feet) at 320 gpm).
3. hydraulic efficiency will be reduced based on operating points.
4. 15 required HP (cannot exceed 90% of motor HP rating).

G. Shutoff head: 64' TDH (feet)

H. Third operating point: refer to Supplier Chart

I. Manufactured by Essco Pumps (or equal)

J. Model: ESSCO #493, or approved equal.

K. Maximum operating speed: 1,750 RPM.

L. Casing size: Maximum Impeller 9-inches C (Vortex 8 Vane Curve Shroud)

M. Impeller diameter: 9 inches.

N. Discharge diameter: 4- inches.

O. Solids passing size: 3-inches.

P. Cycle time: 15 minutes; Running time: (15.7 minutes to variable)

Q. Force main pressure rating: 125 psi.

R. Critical elevation: 503.19 (1' below the existing wetwell and manhole)

S. Critical Elevation Location: The pump station and sanitary sewer system shall be designed so that under a complete system failure, sanitary flows will discharge as close to the pump station as possible, avoiding discharge into a private residence. This "Critical Elevation" currently occurs at the existing pump station wet well and near-by manhole. This location and elevation shall also be included on the sanitary drawings as well as the O&M Manual

THIS SHALL ONLY OCCUR DURING A COMPLETE SYSTEM FAILURE AND EMERGENCY

10.1.7. SUBMITTALS

A. Shop Drawing Submittals

1. Prior to submitting the manuals described below, the Contractor shall submit seven (7) complete sets of shop drawings to BCSD for review and approval. The shop drawings shall be tailored to the specific project details and shall include, but not necessarily be limited to, the following information:

   a. Pump manufacturer's literature indicating model numbers, pump and motor characteristics and performance, equipment dimensions, accessory items, hardware, and published pump performance curves showing that the units meet the specified requirements for head, capacity, efficiency, and horsepower for the various conditions specified.
   b. Installation details for the pump bases, double guide rail assemblies, accessories, and hardware.
   c. Electrical schematics; electrical components; cut sheets; feeder, branch, and control conductors; disconnect switches; fuses, circuit breakers, and overloads; raceways and fittings; enclosure component layout; and complete motor nameplate data.
   d. Wet well base, barrel, and top.
   e. Vent piping.
   f. Access hatches (wet well and valve vault).
   g. Piping (force main and pump station), piping supports, watertight through-wall pipe connections, couplings, fittings, and scaled fabrication drawings.
   h. Valve vault top, base, and barrel.
   i. Swing check valves, gate valves, ball valve at gauge connection, PVC check valve on drain line between valve vault and wet well, and air release valve.
   j. Air release and cleanout vaults (top, bottom, base, frame, lid, and watertight through-wall pipe connections).
   k. Concrete and grout mix designs and mix design support history.
   l. Flow meters (one for each force main outlet)

2. Additional information may be requested by BCSD at any time for clarification.

B. Operation and Maintenance Manual

1. The operation and maintenance manual (O&M Manual) shall be a thorough and useful reference source for training, educating, and assisting BCSD personnel in the operation and maintenance of the pump station facility. The information contained in the manual shall specifically address the equipment supplied and shall contain no superfluous material. Both the draft and final versions of the O&M Manual shall be bound in suitably labeled, hard cover, 3-ring binders furnished with indexes and tabbed dividers between subject matter.
2. Four (4) copies of the draft version of the O&M Manual shall be delivered to BCSD for review and comments as soon as possible after approval of the shop drawings. The draft manual shall include, but not necessarily be limited to, the following information:

    a. Approved shop drawings with pump performance curves.
    b. Complete operating instructions including start-up, shutdown, and emergency procedures.
    c. Complete parts list (including catalog numbers), parts catalogs, assembly drawings, and pricing information.
    d. Recommended spare parts list including parts numbers, suppliers, availability, and costs.
    e. Preventive maintenance schedules.
    f. Corrective maintenance and alignment instructions.
    g. Troubleshooting guides.
    h. A list of complete nameplate data for each piece of equipment supplied.
    i. The necessary figures, tables, and wording to supplement the material listed above.
    j. Complete listing of manufacturers' and local suppliers' names; addresses; telephone numbers; fax numbers; and web site addresses for pumps, valves, alternating relays, motor starters, and where applicable, generator and transfer switch.
    k. Workshop (rebuild) manual.
    l. Copy of warranty.

    Two (2) copies of the marked up draft O&M Manual will be returned to the Contractor so that any corrections, additions, or deletions can be incorporated into the final version.

3. Four (4) copies of the final O&M Manual must be delivered to and approved by BCSD prior to scheduling acceptance testing of the pump station. The final version of the document shall have been revised to satisfactorily address the draft review comments and to incorporate the certified factory pump test reports, pre-commissioning test reports, and final record drawings (as builts) of the control panel, pump station, valve vault, and appurtenances.

10.1.8. APPROVAL AND MARKING OF EQUIPMENT

Electrical devices and materials shall be listed and/or labeled by the Underwriters' Laboratories, Inc (UL).

10.1.9. PROTECTION OF ELECTRICAL EQUIPMENT

Electrical equipment shall be protected from the weather, especially from water dripping or splashing upon it, at all times during shipment, storage, and construction. Equipment shall not be stored outdoors even if its enclosure is rated as weatherproof, watertight, etc. Where equipment is installed or stored in moist areas, such as unheated buildings, etc., it shall be provided with an acceptable means of preventing moisture damage such as a uniformly distributed source of heat to prevent condensation.

10.1.10. DEFECTIVE OR DAMAGED EQUIPMENT

A. Should it be determined by the Contractor, BCSD, or Engineer that any equipment or material has been subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test as directed by the manufacturer and at the expense of the Contractor, or it shall be replaced by the Contractor without change in contract price. Any equipment that fails to meet manufacturer's standards shall be replaced at no additional charge to the Owner.

B. Any equipment damaged during shipment, while stored, or during construction shall be replaced at the Contractor's expense. Minor scratches on equipment cabinets, etc. may be repaired on site. Any current carrying parts, switch blades, operators, coils, contacts, etc., which are damaged, shall be replaced at no cost to the Owner.

10.1.11. ELECTRICAL SERVICE

A. The Contractor shall obtain and install a complete electrical service with new service equipment. The new equipment connections and conduit shall be sized for the application, and the service shall meet the requirements of the National Electrical Code (NEC), latest edition, and Louisville Gas and Electric.

B. The Contractor shall make all necessary arrangements for transfer of power by Louisville Gas and Electric.

10.2. PRODUCTS

10.2.1. GENERAL

A. Since each pump station has its own set of characteristics based on the pump model selected in the design and since it is prohibitive to prepare design specifications and drawings for each pump model approved by BCSD, these Specifications and Standard Drawings have been prepared based on the constraints given for a particular pump model. This is not intended to prevent the use of other pump models or equipment approved by BCSD but is intended to establish the standard of quality and general configuration of the equipment desired.

B. Should the Contractor propose to supply a different pump model or type of equipment which has previously been approved by BCSD, the Contractor shall revise the pump

station Drawing(s) and Specification(s) by red lining the revisions to detail them to meet the characteristics of the proposed pump system for BCSD's review and approval. Any changes shall first be approved by the Engineer prior to submittal to BCSD for review.

C. If approved by BCSD, all revisions shall be shown on the final record drawings and be included in the O&M Manual, which must be furnished prior to final acceptance of the pump station.

10.2.2. STANDARD PRODUCTS

Material and equipment shall be new, shall be the standard products of a manufacturer regularly engaged in the manufacture of the products, and shall essentially duplicate items that have been in satisfactory use at least three (3) years prior to the bid opening.

10.2.3. NAMEPLATES

Two stainless steel nameplates shall be supplied for each pump and motor. These nameplates shall have the manufacturer's name, address, type or style, model or serial number, catalog number, impeller diameter, design flow in gpm, total dynamic head in feet, power in horsepower, voltage, phase, rotational speed in rpm, full load current in amperes, and safety factor stamped on them. One nameplate shall be secured to the item of equipment, and the other shall be mechanically fastened to the inner door of the control panel.

10.2.4. EQUIPMENT GUARDS

Belts, pulleys, chains, gears, projecting set screws, keys, and other rotating parts, so located that any person may come in close proximity thereto, shall be enclosed or guarded per OSHA standards.

10.2.5. PADLOCKS

Upon acceptance of the pump station by BCSD, the Owner will provide and install padlocks to secure the facility.

10.2.6. PIPING

A. The pipe inside the pump station wet well and valve vault shall be either stainless steel or ductile iron as indicated on the Contract Drawings.

1. Stainless steel pipe and fittings shall conform to ASTM A167, Type 304L.

   a. Pipe shall be Schedule 40, and fittings shall be Schedule 80.
   b. Joints for piping 2 inches in diameter and smaller shall be threaded. All other joints shall be flanged.

2. Ductile iron pipe and fittings shall be Class 53 conforming to Section 4.2.2.2. of the BCSD Standard Specifications.

a. Joints shall be flanged.
b. Pipe and fittings shall be polyurethane lined.
c. Pipe and fittings shall be shop primed and receive two (2) finish coats in the field. The paint system shall be polyamide epoxy based.

3. Flanges shall be Class 125; flange bolts shall be stainless steel ASTM A193, Grade B-8, Type 304L; and flange gaskets shall be 1/8-inch ring gaskets.

B. A detailed and scaled shop drawing of the piping, fittings, valves, etc. shall be submitted for approval.

C. The installed discharge piping, valve system, and force main shall meet the testing requirements described in Louisville MSD's Standard Specification Section 4.3.5.4. Hydrostatic Tests for Force Mains. The Contractor will be required to perform both pressure and leakage tests to ensure conformance to the testing requirements of the preceding paragraph if the pressure test fails.

10.2.7. VENT PIPE

A. The vent pipe shall be butt weld Schedule 40 stainless steel pipe and fittings conforming to ASTM A167, Type 304L. A stainless steel insect/bird screen shall be provided on the vent.

B. The vent pipe shall not be painted.

10.2.8. SEWAGE PUMP GENERAL DESIGN

A. Non-clog pumps shall be submersible, centrifugal type designed to pump raw, unscreened sewage containing solids and stringy materials.

B. Grinder pumps shall be submersible, centrifugal type designed to macerate and pump raw, unscreened sewage containing solids and stringy materials.

1. The grinder assembly shall consist of a grinder impeller and a shredding ring and shall be mounted directly below the volute passage. The grinder impeller shall be threaded onto the stainless steel shaft and shall be locked with a screw and washer. The shredding ring shall be pressed onto an iron holding flange for easy removal. The flange shall be provided with tapped backoff holes so that screws can be used to push the shredding ring from the housing. All grinding of solids shall be from the action of the impeller against the shredding ring.
2. Both the grinder impeller and the shredding ring shall be of #440 stainless steel hardened to 58-60 Rockwell C, unless otherwise approved.
3. The grinder unit shall be capable of macerating all materials found in normal domestic and commercial sewage, including reasonable amounts of foreign objects such as wood, plastic, glass, rubber, sanitary napkins, disposable diapers, panty hose, and the like, to a fine slurry that will pass freely through the pump and the discharge piping.

C. The raw sewage pumps shall be capable of continuous operation under submerged or dry motor conditions without adverse effects due to heat generation. In addition,

the pumps shall be capable of adequate cooling when they are left running with the liquid level lowered to the pump suction inlet to help clean the wet well. Pumping units which require a connection to an external cooling water source to dissipate the heat generated under the conditions specified above will not be acceptable.

D. Each pump shall be supplied with a mating discharge stand which shall be permanently installed in the wet well along with the discharge piping. There shall be no need for personnel to enter the wet well. The pumps shall be automatically connected to their discharge stands when lowered into place and shall be easily removed for inspection and service. No portion of the pump shall bear directly on the floor of the wet well.

E. Connection of the pump to its discharge stand shall be accomplished by a simple linear downward motion of the pump along a rail mounted installation system as specified under Section 2.16 herein.

F. The pumps shall be certified explosion proof for installation in Class 1, Division 1, Group D environments by Factory Mutual, UL, CSA, or other appropriate governing authorities having jurisdiction.

10.2.9. PUMP CASING

A. Pump casing shall be constructed of cast iron, ASTM A48, Class 30. The casing shall be of uniform quality and free from blow holes, porosity, hard spots, shrinkage cracks, and other injurious defects. The casing shall be capable of withstanding an operating pressure 50 percent greater than the maximum calculated operating pressure. The volute shall have smooth passages which provide unobstructed flow through the pump.

B. Watertight mating surfaces shall be machined and fitted with nitrile rubber O-rings such that sealing is accomplished by metal-to-metal contact between the mating surfaces, resulting in proper compression of the O-rings without the requirement of specific torque limits.

C. Exterior surfaces of the casing in contact with sewage shall be protected by a sewage resistant coating. All exposed nuts and bolts shall be AISI stainless steel, Type 304.

10.2.10. IMPELLER

A. The pump impellers shall be dynamically balanced.

B. Grinder pumps shall have recessed impellers designed to handle ground slurry without clogging or binding.

1. Impellers shall be of 85-5-5-5 bronze, or otherwise approved.
2. Impellers shall be threaded onto the pump shafts.

C. Non-clog pumps shall have channel type impellers designed to handle solids, fibrous materials, sludge, and other items normally found in raw wastewater. Recessed vortex type impellers may be acceptable when specific circumstances warrant;

however, their use in typical installations should be avoided due to the reduced hydraulic efficiency of the equipment.

1. Impellers shall be of Grade 60-45-15 ductile iron, ASTM A395.
2. Impellers shall be slip fit and keyed to the pump shafts whereby they cannot be loosened by torque from either the forward or reverse direction.
3. The pumps shall be capable of passing a minimum 3-inch diameter solid sphere.

10.2.11. PUMP SHAFT

The pump shafts shall be stainless steel of the AISI type recommended by the pump manufacturer. The shafts shall be of adequate size and strength to transmit the full driver horsepower.

10.2.12. SEALS

A. A tandem mechanical shaft seal system running in an oil bath shall be provided. Upper seals shall be carbon/ceramic with the lower seals being tungsten carbide/tungsten carbide. Each seal interface shall be held in contact by its own spring system. Conventional mechanical seals which require a constant pressure differential to effect sealing will not be allowed.

B. A sensor shall be provided to detect water leakage into the motor housing. The sensor shall provide a discrete signal for shutting off the pump and activating an alarm pilot light on the control panel.

10.2.13. BEARINGS

Pump bearings shall be ball or roller type designed to handle all thrust loads in either direction. Pumps depending only on hydraulic balance end thrust will not be acceptable. Bearings shall have a minimum B-10 life of 50,000 hours.

10.2.14. MOTOR

A. The watertight pump motors shall be designed for continuous duty, shall be capable of sustaining a minimum of ten (10) starts per hour, and shall be rated for Class 1, Division 1, Group D service. *Additionally, for the Hunters Hollow Pump Station, pumps and motors must be supplied that provide for variable speed operation and allow for programming of control systems for different pumping conditions for each pump.*

B. The motors may be either air filled or oil filled, shall have Class F insulation, and shall be NEMA B design in accordance with NEMA MG-1. Temperature sensors shall be embedded in the windings to provide a discrete signal for shutting off the pump and activating an alarm pilot light on the control panel when the winding temperature exceeds the threshold established by the motor manufacturer. The motor shall restart automatically after cooling.

C. Based on the pump manufacturer's standard design, especially for pump models with larger horsepower drives, water or oil jackets encircling the stator housings may be

utilized for motor cooling purposes. The configuration provided must be a closed loop system in which connections to external coolant sources are not required. Cooling systems circulating wastewater through stator housing jackets are not acceptable.

D. Motor ratings shall be as shown in Section 1.06 "System Characteristics" of these specifications.

E. The Contractor shall verify that the existing electrical service is compatible with the specified equipment before ordering the equipment.

10.2.15. POWER CABLE AND CABLE ENTRY

A. The pump power cable shall comply with NFPA No. 70, Type SO, and shall be of standard construction for submersible pump applications. The cable length shall be such that no splices will be required between the pump and the control panel while providing a two (2) foot vertical sag in the cable between the control panel and cable holder.

B. The cable entry water seal design shall insure a watertight and submersible seal.

10.2.16. INSTALLATION SYSTEM

A. The pumps shall be easily lowered into place and removed for inspection and service without the need for personnel to enter the wet well. Connection of the pump to its discharge stand shall be accomplished by a simple linear downward motion of the pump along a rail mounted installation system.

1. For grinder applications, the pump/check valve assembly shall be hydraulically sealed to its discharge case with dual O-rings. A brace, easily removable from the top of the wet well, shall be provided to lock the parts together and to prevent line surges from breaking the seal and allowing leakage.
2. For non-clog applications, sealing shall be accomplished by the weight of the pump pressing tightly against its discharge connection elbow with a machined metal-to-metal contact. Sealing of the discharge interface by means of a diaphragm, O-ring, or other devices will not be acceptable.

B. A rail mounted installation system incorporating two (2) guide rails; bottom, intermediate, and upper guide rail supports; sliding pump bracket; and lifting cable shall be furnished for each pump.

1. The guide rails shall be non-sparking and of the size standard with the pump manufacturer.
2. The guide rails shall be Schedule 40, Type 304L stainless steel pipe, ASTM A167.
3. All supports and fasteners shall be stainless steel and of a design standard with the pump manufacturer.
4. Intermediate guide rail supports, if required, shall be spaced evenly between the discharge stand and upper guide rail support in order to minimize deflection of the rails. Maximum spacing for the intermediate supports shall be 10 feet.
5. The guide rails shall not support any portion of the weight of the pump.

6. The sliding pump bracket, designed to be non-binding and to ride on the guide rails, shall be an integral part of the pumping unit.

C. A lifting cable shall be provided to raise and lower the pump through the limits indicated on the Contract Drawings. The aircraft grade cable and all associated hardware shall be stainless steel and shall be capable of supporting the pump with a Safety Factor of two (2).

D. The Contractor is to demonstrate, in the presence of BCSD's inspector prior to or during the start-up procedure, that pumps have proper hatch clearance, guide rail positioning, and seating. The pumps are to be raised and lowered twice to ensure proper operation. Any necessary alterations or adjustments are to be made by the Contractor, to BCSD's satisfaction, at no additional cost to BCSD.

10.2.17. WET WELL

A. The wet well shall be constructed of precast reinforced concrete as specified hereinafter and shall be sized as indicated on the Contract Drawings.

B. Precast Reinforced Concrete

The precast reinforced concrete wet well and top slab shall conform to "Specifications for Reinforced Concrete Manhole Sections," ASTM C478, latest revision. The wet well sections shall contain one or two lines of circular steel reinforcement as required by the ASTM standards. All sewer pipe connections to the precast wet well shall be made with a positive seal gasketing system conforming to ASTM C923 and Louisville MSD's Standard Drawing No. GM-01-01. All wet well joints shall be watertight as described in Louisville MSD's Standard Specification Section 5.2.7., Joint Sealants. The horizontal joints shall be made with a three-way sealing system consisting of a rubber O-ring or single offset rubber gasket, butyl mastic joint sealant, and a 6-inch wide strip of polyolefin covered with butyl mastic around the exterior. To facilitate maintenance, the wet well shall have no more than one through-wall connection for influent sewage. All sewers draining to the wet well shall converge in a single manhole adjacent to the wet well. A single pipe shall connect this manhole and the wet well. The invert of the influent line shall enter the wet well at a higher elevation than the high wet well alarm level.

C. Access Door

1. The access door(s) to the wet well shall be 1/4-inch (minimum thickness) aluminum (6061-T6 Alloy, ASTM B-221) diamond pattern plate, designed to withstand a live load of 300 pounds per square foot. The frame shall be constructed of 1/4-inch thick, one piece extruded aluminum with a continuous 1-inch (minimum) anchor flange around the perimeter. The access door(s), which shall have a 30"x 30" minimum clear opening, shall be adequately sized to allow removal of the pump(s). The actual clear opening of the frame shall allow a minimum of 3-1/2 inches clearance between the pump(s) casing(s) opposite the discharge side of the pump(s) and the inside of the frame, and a minimum of 2-1/2 inches clearance between the sides of the pump(s) casing(s) and the inside of the frame. Factory finish shall be mill finish aluminum. Installation shall be performed in accordance with the manufacturer's instructions. All

aluminum surfaces in contact with concrete shall be coated with a bituminous paint material.

2. The manufacturer shall mark each door leaf, in two locations with a steel stamp using 3/8-inch lettering, with the words "Property of Bullitt Utilities, Inc." When the door(s) are in the open position, one mark shall be located approximately 3 to 4 inches from the edge on the top right corner of the underside of the door(s). The second mark shall be located approximately 3 to 4 inches from the side and above the hinge on the bottom left corner of the underside of the door(s).
3. The door(s) shall be equipped with stainless steel hinges, stainless steel pins, and recessed lift handle flush mounted and not protruding above the cover. Each door leaf, with a maximum of 15 lbs. of manual assistance, shall open to 90 degrees and automatically lock in that position with a stainless steel hold-open arm. The arm shall have a conveniently positioned release handle with a vinyl grip for easy and controlled closing. Door(s) shall be equipped with stainless steel spring operators designed to provide easy operation in opening and to act as a check in retarding downward motion of the door during closing. For safety purposes, should the locking mechanism fail or unauthorized entry occur, the spring operator shall be designed such that the door(s) shall remain in a fully closed position by its own weight. No item may protrude above the access cover except the heads of the carriage bolts and padlock assembly cover.
4. To minimize tampering and improve security, the hinges shall be bolted to the door(s) with stainless steel carriage bolts and nuts. The nuts shall be welded to the bolts on both the door(s) and frame. Door(s) shall be equipped with a recessed padlock and staple assembly which is designed to restrict bolt cutters from severing the padlock. The recess area shall be provided with weepholes to ensure drainage and shall be of adequate size to enclose a standard BCSD padlock which will be furnished and installed by the Owner upon completion of the project. Verification of this requirement shall be noted on the hatch shop drawings. All stainless steel hardware shall be type 304 (minimum) stainless steel. The manufacturer shall guarantee all components of the access doors against defects in material and workmanship for a period of five years.
5. When installing wet wells six feet in diameter and larger, a double leaf access door hatch shall be installed and sized to meet the ultimate pump size access demand and actual clearance as specified between the pump(s) casing(s) and inside of the frame. A large single door shall not be acceptable. The minimum leaf size shall be 30 inches by 30 inches. The maximum leaf size shall be such that the sum of the length and width of the leaf is less than or equal to 84 inches.

10.2.18. VALVE VAULT

A. The valve vault shall be constructed of precast or cast-in-place reinforced concrete as specified hereinafter and shall be sized as indicated on the Contract Drawings.

B. Cast-in-Place Concrete

All cast-in-place concrete work shall conform Louisville MSD's Standard Specification Section 5, Structures. Class AA concrete shall be used throughout the structure. All pipe connections to the vault shall be made with a positive seal gasketing system conforming to ASTM C923 and Louisville MSD's Standard Drawing No. GM-01-01.

C. Precast Reinforced Concrete

A precast reinforced concrete valve vault and top slab shall conform to "Precast Concrete Water and Wastewater Structures," ASTM C913, latest revision. All pipe connections to the precast valve vault shall be made with a positive seal gasketing system conforming to ASTM C923 and Louisville MSD's Standard Drawing No. GM-01-01. All valve vault joints shall be watertight as described in Louisville MSD's Standard Specification Section 5.2.7., Joint Sealants.

D. Confined Space Equipment

The valve vault shall be equipped with an aluminum ladder as shown on the Contract Drawings. The ladder shall comply with OSHA requirements. A minimum clear space of 30 inches by 30 inches shall be provided as a landing area at the bottom of the ladder. The ladder shall have retractable side rails or a retractable extension, such as a Bilco Ladder-Up or equal, to facilitate ingress and egress.

E. Access Door

1. The access door(s) to the valve vault shall be 1/4-inch (minimum thickness) aluminum (6061-T6 Alloy, ASTM B-221) diamond pattern plate, designed to withstand a live load of 300 pounds per square foot. The frame shall be constructed of 1/4-inch thick, one piece extruded aluminum with a continuous 1-inch (minimum) anchor flange around the perimeter. The access door(s), which shall have a 30"x 30" minimum clear opening, shall be adequately sized to allow removal of the valves and fittings. Factory finish shall be mill finish aluminum. Installation shall be performed in accordance with the manufacturer's instructions. All aluminum surfaces in contact with concrete shall be coated with a bituminous paint material.
2. The manufacturer shall mark each door leaf, in two locations with a steel stamp using 3/8-inch lettering, with the words "Property of Bullitt Utilities, Inc." When the door(s) are in the open position, one mark shall be located approximately 3 to 4 inches from the edge on the top right corner of the underside of the door(s). The second mark shall be located approximately 3 to 4 inches from the side and above the hinge on the bottom left corner of the underside of the door(s).
3. The door(s) shall be equipped with stainless steel hinges, stainless steel pins, and recessed lift handle flush mounted and not protruding above the cover. Each door leaf, with a maximum of 15 lbs. of manual assistance, shall open to 90 degrees and automatically lock in that position with a stainless steel hold-open arm. The arm shall have a conveniently positioned release handle with a vinyl grip for easy and controlled closing. Door(s) shall be equipped with stainless steel spring operators designed to provide easy operation in opening and to act as a check in retarding downward motion of the door during closing. For safety purposes, should the locking mechanism fail or unauthorized entry occur, the spring operator shall be designed such that the door(s) shall remain in a fully closed position by its own weight. No item may protrude above the access cover except the heads of the carriage bolts and padlock assembly cover.
4. To minimize tampering and improve security, the hinges shall be bolted to the door(s) with stainless steel carriage bolts and nuts. The nuts shall be welded to

the bolts on both the door(s) and frame. Door(s) shall be equipped with a recessed padlock and staple assembly which is designed to restrict bolt cutters from severing the padlock. The recess area shall be provided with weepholes to ensure drainage and shall be of adequate size to enclose a standard BCSD padlock which will be furnished and installed by the Owner, upon completion of the project. Verification of this requirement shall be noted on the hatch shop drawings. All stainless steel hardware shall be type 304 (minimum) stainless steel. The manufacturer shall guarantee all components of the access doors against defects in material and workmanship for a period of five years.

5. When installing valve vaults six feet in diameter and larger, a double leaf access door hatch shall be installed and sized to facilitate access to valves and fittings. A large single door shall not be acceptable. The minimum leaf size shall be 30 inches by 30 inches. The maximum leaf size shall be such that the sum of the length and width of the leaf is less than or equal to 84 inches.

10.2.19. CHECK VALVES

Check valves shall be lever and weight swing type with bronze-to-bronze seating. The valve design shall allow for operation when negative heads are encountered. The valves shall be designed to operate at all pressures in the sewer system. A check valve shall be installed in the discharge line of each pump as shown on the Contract Drawings. Check valves shall be installed such that the lever arm may be totally dissembled, including the removal of hinge pins, without removing the valve from the line.

10.2.20. GATE VALVES

Gate valves shall be AWWA C509, resilient wedge, rising stem suitable for use in sewage applications. Each valve shall be provided with a handwheel opening counterclockwise. The valves shall have flanged ends with 125 lb. drilling. A gate valve shall be installed in the discharge line of each pump and in the emergency pump connection line as shown on the Contract Drawings.

10.2.21. EMERGENCY PUMP CONNECTION

As shown on the Contract Drawings, a 4-inch line shall be installed in the valve vault to enable a portable pump to be connected to the force main. The end of the pipe shall protrude through the top slab of the valve vault and shall be equipped with a 4-inch stainless steel adapter designed to accommodate a positive cam-locking coupler for quick, secure connection of the portable pump discharge hose. The adapter, McMaster-Carr Part No. 53015K58 or approved equal, shall be threaded onto the pipe and shall be protected with a stainless steel locking dust cap, McMaster-Carr Part No. 53015K125 or approved equal. BCSD will provide the required padlock.

10.2.22. BALL VALVES/GAUGE TAPS

Ball valves shall be threaded and have a stainless steel body, stainless steel ball and stem, teflon seats and seals, and a regular port. The gauge tap assemblies shall be stainless steel and installed as shown on the Contract Drawings.

10.2.23. SEWAGE COMBINATION AIR VALVE

A. The sewage combination air valve (SCAV), when required, shall be specifically designed for use in sewage applications. Its design shall prevent contact between the sewage and the sealing mechanism and shall ensure drip tight sealing. A spring-loaded joint between the sealing mechanism and the float/rod assembly shall perform without jamming under vibrations related to the surges from pump starts and stops.

B. The SCAV shall automatically release air and gas from a filling system, shall admit air into an emptying system, and shall continuously release accumulated air and gas in a pressurized flowing system.

C. The SCAV shall be an A.R.I. Model D-020 with attachments as manufactured by A.R.I. Flow Control Accessories, Inc. (Phone: 310-286-2220, Fax: 310-286-2221). Specific size requirements shall be determined by the Engineer.

1. The carbon steel valve body shall be conical in shape and shall have a factory applied, fusion bonded epoxy coating (4 mils DFT) for hydrogen sulfide/sulfuric acid resistance.
2. All springs, washers, stems, and floats shall be constructed of 303 stainless steel.
3. All O-rings and seals shall be made of Buna with pressure ratings equivalent to the overall working pressure required for the SCAV.
4. The air release mechanism and seal shall be constructed of polypropylene (formed for the seal).

D. The SCAV shall be fitted with an inlet stainless steel ball valve to isolate it from the force main for maintenance or replacement.

10.2.24. MECHANICAL COUPLINGS

Mechanical couplings shall be installed as shown on the Contract Drawings. Mechanical couplings shall be epoxy coated ductile iron with stainless steel nuts and bolts. Couplings shall be Dresser Style 38 or 138, Ford Style FC1 or FC2, or approved equal.

10.2.25. ELECTRICAL

A. General

1. All materials and equipment installed shall be new and unused and shall be of the latest design of manufacturers regularly engaged in the manufacture of such products that conform with the requirements of the Contract Drawings and Specifications.
2. These Specifications, the associated Drawings, and other Contract Documents have been prepared with the intention of their yielding, through construction, electrical installations that are fully operable, safe, complete, and in full

compliance with the latest editions of the National Electrical Code, local codes and ordinances, and any other authority having jurisdiction over the Work.

B. Conduit

1. All exposed conduit shall be rigid aluminum. All couplings, bushings, and connectors shall be of the same materials and intended for use in a rigid aluminum conduit system. Threads, whether manufactured or made on the job site, shall meet the provisions of the NEC.
2. Below-grade plastic conduit shall be Schedule 40 PVC or Schedule 80 PVC, rated for use with 90-degree celsius conductors and for use in direct sunlight, with chemical weld joints. This Contractor shall provide all fittings, adapters, etc. required for a complete installation as required by the Drawings. Reference Section 3.07.B.

C. Wire and Cable

1. All conductors shall be of stranded softdrawn copper construction with thermoplastic type THHN/THWN 600 V insulation. Conductors shall be sized as shown on the Drawings. Power and lighting conductor sizes smaller than No. 12 AWG shall not be permitted.
2. Control Conductors: Conductors utilized within enclosures utilized for motor control, alarm, and signaling circuitry shall be type MTW, size #14 AWG stranded copper. Control conductors external to enclosures (not including pump and float cables) shall be type THHN/THWN, size #14 AWG stranded copper. Conductors within enclosures shall be neatly routed utilizing plastic Panduit-type wireway. Conductors shall be identified with slide-on plastic sleeves as manufactured by Grafoplast. Conductor identification numbers shall indicate the terminal number on which the conductor shall terminate.

D. Control Panel Enclosures

1. Main Control Panel

a. The control system, as listed, shall be housed in a single stainless steel or aluminum, NEMA 3R enclosure suitable for outdoor installations with a stainless steel, three-point vault door closing handle and drip shield. It shall be manufactured from 14 gauge, Type 304 stainless steel. All hardware, including the hinges, latches, and provisions for a 5/8-inch diameter hasp opening for a padlock, shall be stainless steel. BCSD will provide the padlock upon completion of the project.
b. The enclosure shall have a 12 gauge steel, formed, removable subpanel. The panel shall be degreased, cleaned, and treated with a phosphatizing process, then primed and painted with white industrial-grade baking enamel.
c. The enclosure shall have a hinged inner door (dead front) fabricated from 5052-H32, 0.080-inch thick (minimum) marine alloy aluminum. The inner door shall be hinged on one side and held closed by two (2) hand operated, 1/4-turn fasteners or thumb screw fasteners on the other side. Operator devices are to be mounted on, or protrude through, the inner door. The hinge and inner door assembly shall be of sufficient strength to

prevent sagging, buckling or warping of the inner door after inner door devices are installed. A mechanical catch shall be provided that will hold the door open while working inside the panel. Duplicate nameplates for the motor and pump shall be mechanically fastened to the inner door.

d. Double stainless steel (ASTM A167, Type 304) control panel pedestals, one for pump cables and one for intrinsically safe circuits, shall be furnished, each provided with a screened, louvered vent. The pedestal shall be sized for the application (venting, wiring, and support) and anchored to the top slab with a minimum of four (4) half-inch (1/2") stainless steel anchors (AISI Type 316). Electrical cables shall be sealed with aluminum cord grips, Remke Industries type RSR or equal sized for the application, which provide a gastight seal between the pedestal and the panel. A 1/2-inch (minimum) aluminum mounting plate between the pedestal and the control panel may be required depending on the size and structural rigidity of the panel.

e. Boxes used for mounting equipment or devices outside the control cabinet shall be stainless steel or aluminum, NEMA 4X construction.

2. Other Enclosures

Other enclosures shall be stainless steel or aluminum, NEMA 4X with provisions for pad locking. Enclosures larger than 12"x12" shall have a hinged door.

E. Control Panel Components

1. Phase Monitor

a. Loss of voltage on any phase, undervoltage, and loss of rotational sequence shall be detected by a phase monitor suitable for the electrical service provided. The monitor shall reset automatically when measured parameters return to the normal range of operation. The phase monitor shall include a means for adjusting drop out voltage, an LED indicating normal conditions, and shall plug into an 8-pin tubular base.

b. The phase monitor shall be Diversified Electronic Type SUA or SLA or equal.

2. Motor Controller, Overload, and Short Circuit Protection

a. Motor starters shall be 600VAC, full voltage, NEMA rated, non-reversing, horsepower rated starters with solid state overload relays.

b. Contactor shall meet the following requirements:

i. Silver alloy power contacts, silver auxiliary contacts.

ii. Saddle type, pressure type or wire clamp power terminations rated at 75 degrees Celsius.

iii. Operating temperature range of –13 to +131 degrees Fahrenheit.

iv. Corrosion resistant treatment on all metal parts.

v. Coil voltage operating range of 85%-110% of nominal.

vi. DPDT auxiliary contacts rated NEMA A600 with 7200VA make/720VA break/10 amp continuous rating.

Provide Allen-Bradley Bulletin 509 or equal.

c. Overload relay shall meet the following requirements:
   i. Phase loss protection
   ii. Selectable class 10, 20, 30 time current trip characteristics.
   iii. Directly mountable on contactor.
   iv. 120VAC remote reset solenoid.
   v. Isolated normally open and normally closed fine silver, 360VA rated contacts.

   Provide Allen Bradley Bulletin 592 SMP-1 solid state overload relay with model number 193-ER1D remote reset solenoid or equal.

d. Short circuit protection shall be a molded case circuit breaker meeting the following requirements:
   i. 125 amp frame size
   ii. Fixed magnetic, adjustable thermal trip settings
   iii. 600VAC, 6 amp SPDT auxiliary contacts to indicate breaker position.
   iv. 600VAC, 6 amp SPDT alarm contacts to indicate breaker trip.
   v. AIC rating of 25,000A minimum @480VAC.

   Provide Cutler Hammer E125 frame molded case circuit breaker with catalog no. AUXALRMEPK auxiliary/alarm contact kit or equal.

3. Indicator Lights

   a. Indicator lights shall be watertight/oiltight, NEMA 4/13, "push-to-test", full voltage type, with lens color and legend plate as indicated on the drawings.

   b. The indicator lights shall be Allen-Bradley Bulletin 800T or equal.

4. Push Buttons

   a. Push buttons shall be watertight/oiltight NEMA 4/13, black, flush-mounted, full voltage with legend plate as indicated on the drawings.
   b. The push buttons shall be Allen-Bradley Bulleting 800T, type QT10 or equal.

5. Alternator

   a. Alternator shall alternate the lead pump on successive pumping cycles and provide for energization of the lag pump. Four (4) normally-open float switches (high level alarm, lead, lag, and off) shall be wired directly to intrinsically-safe inputs contained within the alternator. The alternator shall contain logic for the detection of malfunctioning float switches and shall adjust the mode of operation so that both pumps may continue to be duplexed. Operation of the duplexor shall revert to normal operation automatically upon detection of proper float switch function. A built-in time delay shall prevent the simultaneous energization of both pumps. An alarm contact shall close in the event of high wet well level is detected only. Contacts shall be SPDT rated 10 A resistive, 345 VA inductive at 120 VAC.
   b. Hand-Off-Auto switches (one for each pump) and a lead selector switch for control of the pump sequence shall be included on the alternator. A

Test/Clear momentary pushbutton shall be provided that energizes the lead pump while the pushbutton is actuated. Release of this pushbutton shall de-energize the load and simultaneously alternate to the other load for testing. During fault conditions, this pushbutton shall reset the fault detection algorithm. LEDs shall indicate the status of the float switch inputs, load outputs and high wet well level/faulty alarm. The alternating relay shall be mounted within the control panel such that these operator interface devices are accessible with the inner door closed while precluding contact with the wiring terminals. The cutout in the inner door shall be framed around the accessible portion of the alternator so that sharp edges are not accessible.

c. The alternator shall be Diversified Electronics model no. ARM-120-AFE or equal.

6. Heaters

   a. The enclosure shall have a combination of three (3) brass sheath, screw-base-type spaceheaters of 100 watts each. The screw bases shall be porcelain. An electric heat thermostat for controlling the spaceheaters shall be installed behind the inner door. The thermostat is not required to be accessible through the inner door.
   b. The heaters shall be Chromalox Type SCB or equal.
   c. The thermostat shall be Dayton Model No. 2E173B or equal.

7. Legend Plates

   All equipment, disconnect switches, circuit breakers, motor starters, pushbutton stations, relays, and similar devices shall be clearly labeled or function otherwise identified. Identification labels shall be engraved lamacoid plates having black background with white letters. Attach each plate with aluminum or stainless steel screws.

8. Rotary Instrument Switches

   a. Instrument switches shall be multi-pole rotary switch with Cam-operated contacts. Ammeter switch operation shall ensure that current transformer current paths are maintained regardless of switch position. The switch contacts shall operated by rotation of the shaft. The switch rating shall be 600 volts, 210 (minimum) amperes continuous. The contacts shall be marked for identification following a standard system. The switch design shall be panel mounted with a molded cover. The escutcheon shall be appropriate for the type of electrical service supplied. The switch handle shall be knurled. The cam and contacts shall be silver with double break design.
   b. The voltmeter and ammeter switches shall be Klockner Moeller Type TO or equal.

9. Voltmeter and Ammeters

   a. Voltmeters and ammeters shall be analog, flush-mounted, switchboard type instruments with rectangular palters. The meter nameplates shall

indicate voltage or current rating, frequency rating, full scale value and the value of any internal or external compensating resistor required.

b. The voltmeter shall be complete with cam switch for selecting phase-to-phase voltage.
c. A current transformer shall be provided for each phase. The current transformers shall be Instrument Transformers Model 2 or equal.
d. The meters shall be General Electric Type AB or equal.

10. Control Power Transformer

a. Where utility-supplied, 120VAC electrical service is not available, 120VAC control voltage shall be supplied from the incoming power via a single phase 240 x 480 V primary transformer sized to provide a minimum of 3KVA, 120VAC, 60HZ power. The transformer shall be mounted outside the Main Control Panel Enclosure. The transformer shall be of a type listed for outdoor use and housed in a stainless steel enclosure.
b. The transformer shall be Square D Class 7400 or equal.

11. Circuit Breakers

a. Circuit breakers for supplying ancillary systems shall be operable from front of the control panel. The breakers shall be black, rated for the fault current available and shall have the number of poles as indicated on the drawings.
b. Circuit breakers shall be General Electric Q Line type or equal.

12. Elapsed Time Meter

a. Elapsed time meter shall utilize 120VAC, 60 Hz, permanent magnet motor that is accurate within plus or minus 50 milli-seconds per start or stop and operate at 100 percent when running at normal frequency. The counter wheels shall be gear and pinion type, 1-inch in diameter and have easy-to-read numbers. The elapsed time meter shall be non-resettable, capable of registering elapsed time up to 99,999.9 hours.
b. Meter to be Cramer Model 635K or equal.

13. Control Relays

a. Control relays shall be NEMA 300, plug-in type, with blade-type terminations, a temperature operating range of -30 degrees C to 55 degrees C, integral, mechanical on/off indicator, 10A contacts and voltage rating as required.
b. Control relays shall be Allen Bradley Bulletin 700, Type HB or equal.

14. Duplex Receptacle

a. The receptacle shall be 125 volt, 20 amp NEMA 5-20R GFI receptacle with "Test" and "Reset" buttons.
b. Provide metal cover plate.
c. The receptacle shall be Leviton 6899-I or equal.

15. Power Distribution Blocks

    a. Power distribution blocks shall be aluminum, tin plated and must be compatible with copper conductors. Each block shall be sized appropriately for the size and number of wires being terminated and shall be based on NEC ampacity tables using 75^0 Celsius wire.
    b. Blocks to be as manufactured by Marathon or equal.

16. Fuse Holders

    a. Fuse holders shall be 600V, 30 amp high impact thermoplastic with copper alloy, tin plated clips.
    b. Holders to be as manufactured by Marathon or equal.

F. Grounding

1. The resistance value of the main grounding conductor measured between the main disconnect and a good earth ground shall not exceed five (5) ohms.
2. Ground Rods: Ground Rods shall be the copper clad steel type and shall be a minimum of 10 feet in length, 3/4-inch in diameter. Ground rods shall be equal to those as manufactured by Copperweld Steel Company.
3. Grounding electrode conductors shall be bare copper. Equipment grounding conductor shall be copper, THHN/THWN insulated, green (or green with yellow tracer) in color, and rated at 600 volts.

G. Float Switches

1. Liquid level detention shall be by sealed, mercury float switches mounted in unbreakable steel shells and encased in solid polyurethane. The float switches shall be weighted, suspended by cables which shall contain the wiring for the switches and shall be covered with a material which is highly resistant to sewage components. Floats requiring fasteners to maintain their depth in the wet well are unacceptable. The tilt bulb hanger and hardware shall be stainless steel (ASTM A167, Type 304).
2. The float cables shall be supplied of sufficient length to be installed without splicing.
3. Floats to be Consolidated Electric Bulletin B100, Model LS or equal.
4. Mounting Bracket to be Ohio Electric Control Model 100-6 or equal.

H. Fuses

1. Unless otherwise noted, the fuses shall be dual-element, current-limiting, type RK5 rated for 200,000 amps, voltage as required by drawings. Mini fuses are not acceptable.
2. The fuses shall be manufactured by Bussman, Littelfuse or approved equal.

I. Disconnect Switches

1. Disconnect switches shall be general duty, NEMA 4X, stainless steel, fusible, front operated, with provisions for padlocking in open or closed position; voltage; ampere rating and number of poles as noted on the drawings, fused unless noted, and rated for use as service entrance equipment. The disconnect shall utilize a quick-make, quick-break mechanism. A class R fuse kit and, where applicable, grounding kits shall be provided.
2. The disconnect switch shall be General Electric, Square D, Westinghouse or equal.

J. Service Pole

For overhead service, the Contractor shall provide a 25-foot long, Class 4, wood pole for up to 200 amp service or as required by LG&E. This wood pole shall be installed as a part of the Overhead Service Switch Rack detailed on the Drawings. For services over 200 amp, Contractor shall contact LG&E at 627-3265 for pole classification and requirements. Underground service shall utilize the same switch rack detail as overhead service except that a 12-foot aluminum I-beam shall be substituted for the wood pole.

K. Cord Grips

1. Provide standard duty, single eye, single weave, stainless steel support grips of sufficient strength for both power and control cords.
2. Cord grips shall be as manufactured by Hubbell or equal.

L. Auxiliary Alarm System

1. General

The station shall be provided with an auxiliary alarm system housed in a NEMA 4X, aluminum or stainless steel, padlockable enclosure. The system shall be powered by battery on constant charge from battery charger.

2. Battery

a. The battery, when fully charged, shall power the alarm light and horn for a minimum of five hours. The battery shall be a rechargeable, sealed, maintenance-free, lead-calcium, 12 V, 25 ampere-hour (minimum).
b. The battery shall be Eagle Picher Carefree Magnum or equal.

3. Battery Charger

a. The battery charger, at a minimum, shall be sized to supply power for the maximum battery charging current plus the remaining demand of the alarm devices.
b. The battery charger shall be Power Sonic SLA-type, 12 V, dual-rate charger Model No. PSC-124000A or equal.

4. Alarm Light

a. The alarm light fixture shall be a weatherproof, wall-mounted incandescent, 60 W fixture with a red, polycarbonate globe. The incandescent lamp shall be 12 VDC, 15 W. The alarm light shall be energized through a 12 VDC, 100 W flasher capable of generating 60 flashes per minute.
b. The globe shall be as manufactured by Major, Model BXVP-10PCR or equal.
c. The flasher shall be a Wagner Model No. 552 or equal.

5. Alarm Horn

a. The alarm horn shall be 12 VDC, rated for outdoor, weatherproof service and shall be capable of producing 100 dB as measured 10 feet from the horn. The horn silence pushbutton shall be housed in a NEMA 4X, stainless steel enclosure. The horn silence pushbutton shall be accessible to the general public.
b. The alarm horn shall be Edwards Weatherproof AdaptaHorn Model 877-E1 or equal.

M. Surge Arrester

1. A surge arrester shall be provided to protect equipment against energy surges due to lightning strikes. Surge arrestor shall utilize a metal oxide element inside an enclosure suitable for outdoor mounting. Arrester shall be capable of passing 900 joules of energy per pole and shall be rated for the service voltage.
2. Surge arrester shall be GE TRANQUELL secondary surge arrester.

10.3. EXECUTION

10.3.1. GENERAL

The Contractor shall furnish and install as detailed, at the elevations given and where shown on the Drawings, a complete duplex submersible pump station capable of handling raw, unscreened domestic sewage. The station shall include submersible grinder or non-clog sewage pumps, pump discharge connections, guide rails, guide rail supports, lifting cables, discharge piping and valves, access hatches, vents, liquid level sensors, electrical service and controls, data quality telephone service, telemetry signals pre-wired in the control panel for future connection, and a precast concrete wet well and valve vault.

10.3.2. BACKFILL AND FINISH GRADING

A. Class I (No. 9 crushed stone aggregate) backfill material shall be placed around the pump station to within 18 inches of the surface of the surrounding ground, with sufficient allowance for settlement. The remaining fill shall be earth material free of rocks in the areas of piping and excavated material in all other areas. Rock and/or shale excavation may be placed in the top 18 inches of fill but shall not be above piping or any closer than 12 inches from finished grade.

B. All fill shall be placed so as to load structures symmetrically. Rough grading shall be held below finish grade and then topsoil which has been stockpiled shall be evenly spread over the surface.

C. Grading shall be brought to the levels shown on the Drawings or to elevations established by the Engineer. Final dressing shall be accomplished by hand work, machine work, or a combination of these methods as may be necessary to produce a uniform and smooth finish to all parts of the regrade.

10.3.3. FACTORY PUMP TESTS

A. Factory performance and vibration tests shall be conducted on each pump, including the unit to be furnished as a spare.

1. During each performance test, the pump shall be run at each head condition for a sufficient time to permit accurate determination of discharge, head, and power input.
2. Vibration tests to determine horizontal, vertical, and axial spectrum and wave form shall be performed at each bearing location.

B. All tests shall be run in accordance with the Standards of the Hydraulic Institute.

C. Certified copies of the factory test reports shall be furnished to the Engineer for review and shall be included in the final O&M Manual.

10.3.4. PRE-COMMISSIONING TEST

A. When the facility is substantially complete, the pump manufacturer's representative shall visit the job site to inspect, operate, and test the pumping equipment to ensure that it satisfies the manufacturer's installation standards, meets the prescribed performance criteria, and complies with the requirements specified herein.

B. All adjustments necessary to place the equipment in satisfactory working order shall be made at the time of the pre-commissioning test.

C. The Contractor shall provide all labor, equipment, materials, water, and other utilities required for testing.

D. Copies of the pre-commissioning test report shall be furnished to the Engineer for review and shall be included in the final O&M Manual.

10.3.5. ACCEPTANCE TEST

A. After construction is complete, the pre-commissioning test has been performed, and the final O&M Manual has been submitted and approved, each pump shall be given a running test in the presence of the Engineer and other authorized BCSD representatives to determine its ability to operate without vibration or overheating and to deliver its rated capacity under the specified conditions.

1. During the test, observations shall be made in regard to head, capacity, and motor input.
2. The limits of vibration as set forth in the 13th Edition of the Standards of the Hydraulic Institute shall govern.

B. All defects or defective equipment revealed by or noted during the test shall be corrected or replaced promptly at the expense of the Contractor, and if necessary, the acceptance test shall be repeated until results acceptable to the Engineer are obtained.

C. The Contractor shall provide all labor, equipment, materials, water, and other utilities required for testing.

D. In the event that the Contractor is unable to demonstrate to the satisfaction of the Engineer and BCSD representatives that the units will satisfactorily perform the service required and that they will operate free from vibration and overheating, the pumping units may be rejected. The Contractor shall then remove and replace the equipment at his own expense, and the acceptance test shall be repeated.

E. Copies of the acceptance test report, including all vibration readings made, shall be furnished to the Engineer for review.

10.3.6. PUMP WARRANTY

A. For submersible pumps, the pump manufacturer's standard warranty against defects in workmanship and material shall be provided to Bullitt Utilities, Inc. for the units being supplied. At a minimum, the warranty shall cover 100% parts and labor for five (5) years from the date of acceptance. The pump manufacturer shall repair or replace defective equipment, parts, or components within ten (10) working days of receipt of defective items shipped prepaid by Bullitt Utilities, Inc. to the manufacturer's authorized repair facility.

For grinder pumps, at a minimum the manufacturer's warranty shall cover 100% parts and labor for one (1) year from the date of acceptance. The pump manufacturer shall repair or replace defective equipment, parts, or components within ten (10) working days of receipt of defective items shipped prepaid by Bulllitt Utilities, Inc. to the manufacturer's authorized repair facility.

B. Warranties and guarantees by the suppliers of various components in lieu of a single source responsibility by the manufacturer will not be accepted. The manufacturer shall assume prime responsibility for the guarantee of the station and all components.

C. Those items normally consumed in service, such as oil, grease, etc., shall be the responsibility of BCSD and/or Bullitt Utilities, Inc.

10.3.7. ELECTRICAL INSTALLATION

A. Excavation, Backfilling and Grading:

1. The Contractor shall perform all earth and rock excavation, backfilling and grading required for this part of the work. Rock excavation shall be made to a

depth of 4 inches below pipe and filled to subgrade with dense graded aggregate limestone.

2. Trenches shall be maintained free of water until backfilling is completed.
3. Backfilling material in earth excavation shall be clean earth to a line at least 12 inches above the top of the conduit. From this line upward, rock not more than 6 inches in diameter may be used provided it is spaced at least 12 inches apart. Filling between rock shall be of clean earth, thoroughly tamped in 6-inch layers to the finished grade.
4. Depth of bury for all conduit shall be a minimum of 24 inches below finished grade.

B. Conduit:

1. PVC shall be concrete encased where it passes under roadways. PVC shall not be used where exposed on the exterior nor where exposed to direct sunlight. This Contractor shall plan his work so that runs of conduit miss equipment by other trades. Conduit bushings shall have insulating material which has been permanently fastened to the fittings. Bushings for conduit 1-1/2 inches trade size and larger shall be complete with grounding lug and shall be bonded to the box by means of bare copper wire. All field bends shall be made with standard tools and bending equipment manufactured especially for this purpose. Bends in metallic conduit shall be made while cold and in no case shall the conduits be heated. Conduits shall not be bent through more than 90 degrees. Size of conduits shall not be less than that required by the National Electrical Code.
2. All conduit installed on concrete surfaces shall be anchored with spacer type conduit clamps preventing contact between the conduit and the concrete surface. Conduits penetrating walls shall be grouted in place to form a seal. Conduits penetrating floors shall be sleeved.
3. Provide an anti-oxidation compound on threads of all metallic conduit.
4. All conduit shall be run continuous between devices with a minimum number of bends. Back-to-back 90 degree bends (180 degree change of direction) will not be acceptable. During construction, all new conduits shall be kept dry and free of moisture and debris.
5. No conduit smaller than 3/4-inch trade size shall be used.
6. Conduit Schedule:

Location	Sched. 40 PVC	Sched.80 PVC	Aluminum
Underground/Encased	X	X	
Direct Buried		X	
Exposed			X
Emergence from UG			X

C. Wire and Cable:

1. Direct Burial Cable: No cable buried directly in the earth (not in raceway) will be allowed on this project.
2. Wire shall not be installed until all work of any nature that may cause injury to the wire is completed. Mechanical means shall not be used in pulling in wires No. 8 or smaller. Approved wire pulling lubricant shall be used as required to prevent insulation damage and overstressing of the wire while pulling through

conduit. In no case shall conductors be greased or coated with any substance injurious to the conductor insulation or sheath.

3. All wires connected to terminal boards, terminal blocks, or to other similar terminals shall terminate by means of pressure terminals. Where terminal boards, terminal blocks, etc. are designed and manufactured to accept bare wire and have a pressure plate on each side of the wire, no pressure terminals on the wire will be required. Where the wire would have to encircle the holding screw to make a proper connection, the wire terminals are required.
3. Where the wire is shown larger than that required for the load, it is done so for voltage drop or other purposes and must be installed as shown. Conductors connected to the main service disconnect and to the individual pump starters shall be sized to accommodate the full capacity of the service disconnect and starters. Where the wire is stranded, the removal of strands in order to install the wire into a lug provided on any equipment will not be permitted. A larger lug shall be installed which will accept the wire size indicated.
4. Float switches and associated mounting hardware shall be installed such that they may remain in place during pump removal.

D. Grounding:

1. Ground rods shall be driven vertically into the earth so that the top of the rod is at least 1 foot below finished grade. Where rock is encountered at a depth of less than 4 feet, rods shall buried in a trench at not less than 2 feet below finished grade.
2. Connections to ground rods and all other ground connections below grade shall have a minimum mechanical contact surface area between the conductor and the ground rod of not less than three square inches. All connections made below finished grade shall be exothermic. Installation of grounding conductors shall be such that they are not exposed to physical damage. All connections shall be firm and tight.
3. All metal electrical equipment cabinets shall be securely bonded to a grounding conductor running through any conduit terminating at the cabinet or enclosure by use of a grounding lug bushing and jumper wire to the enclosure wall. Control cabinets shall be provided with an equipment ground bus (including lugs or screw terminals) securely bonded to the enclosure. Junction boxes and other enclosures shall utilize an equipment ground bus or lug as required to securely bond the equipment grounding conductor to the enclosure. The grounding conductor shall be connected with pressure connectors at the main disconnect to the main grounding system. Where screw terminals or set screw lugs are used, sufficient lugs shall be provided such that not more than one conductor is installed into each lug or terminal.
4. No flexible conduit shall serve as a grounding conductor.
5. Where lightning arresters are furnished and installed either separately or with equipment and the grounding connections are not inherently provided, a suitable, separate grounding conductor shall connect the lightning arrester with a separate ground rod. This rod shall be bonded with any adjacent grounding system.

10.3.8. UTILITIES

A. Electricity

The Contractor shall coordinate the installation of a complete electrical service with the Louisville Gas & Electric Company (LG&E). When applying for service, the Contractor shall inform LG&E that the service is for a wastewater pumping facility. Developer's Engineer shall furnish all electrical data requested by LG&E. Raceway, conductors, and other installation details shall be in accordance with the requirements of LG&E. The Contractor shall be responsible for securing all permits, inspections, and approvals necessary for the transfer of a functional electrical service and the associated LG&E account to Bullitt Utilities, Inc., upon acceptance of the facility.

END OF SECTION

Hunters Hollow Pump Station

Contract Documents
&Construction Specifications

Prepared for:
Bullitt Utilities, Inc.
Blue Lick Road
Hillview, Kentucky 40129

December 2014

Prepared by:

3703 Taylorsville Road, Suite 205
Louisville, Kentucky 40220

PROPOSAL FORM

TO: Bullitt Utilities, Inc.
P. O. Box 91588
Louisville, Kentucky 40291

Gentlemen:

The undersigned, having carefully examined the Plans and Specifications for Hunters Hollow Pump Station and having visited the site to familiarize himself, itself or themselves with local conditions affecting the work and cost thereof, hereby certifies that he, it or they will provide all necessary labor, supervision, machinery, tools, equipment, materials and any incidentals necessary to perform the work as delineated, defined, specified, and required by the Plans and Specifications and as directed by the Engineer as defined therein for the following lump sum bid:

Total Lump Sum of_____

_____Dollars

And _____Cents

The undersigned also agrees to the following:

(l) Within five (5) days from the date of "Notice of Acceptance" of this Proposal, to execute the Contract, and to furnish a satisfactory contract bond.

(2) To begin work within five (5) days after Contract is executed not later than _____ 2015, and to prosecute said work in such a manner as to complete the Project as soon as possible.

(3) The undersigned also agrees to accept as full remuneration for extra work as provided in the Specifications sums based upon the following unit prices.

The undersigned acknowledges the right of the Owner to accept or reject the Proposal submitted.

Accompanying this Proposal is a certified check or a bid bond for $_____ (5% of the lump sum bid) payable to Bullitt Utilities, Inc., which is to be forfeited as liquidated damages, if, in the event this Proposal is accepted, the undersigned shall fail to execute the Contract and furnish satisfactory contract bond under the conditions and within the time specified in the Proposal; otherwise said bid bond or certified check is to be returned to the undersigned.

Dated this _____day of _____, 2015.

Signature of Bidder: _____

By: _____

Address of Bidder: _____

If a Corporation:

Incorporated under the laws of the State of _____

President: _____

Secretary: _____

Treasurer: _____

If non-incorporated:

Names and addresses of members of the firm:

_____

_____

_____

_____

BlueStone Engineers, PLLC
3703 Taylorsville Road, Suite 205
Louisville, KY 40220

Bid Proposal Form
for
Hunters Hollow Pump Station

Number	Item	Quantity	Unit	Unit Cost	Total Cost
1.	12-inch PVC Sewer, Type II backfill	48	LF		
2.	4-inch Ductile Iron Force Main w/reducer	8	LF		
3.	6-inch Ductile Iron Force Main	80	LF		
4.	Tie into Existing Manhole/Pump Station	2	Each		
5.	Sewer and Manhole Testing	1	LS		
6.	Bends and Restraints	6	Each		
7.	Standard Silt Fence	170	LF		
8.	Straw Bale Containment	1	LS		
9.	Miscellaneous Grading/Excavation	1	LS		
10.	Rock Removal	1	LS		
11.	Seeding and restoration	1	LS		
12.	Electric Service Including Conduits	1	LS		
13.	VFD Pumps and Controls	1	LS		
14.	Concrete Structures (Manhole, Wet Wells and Valve Vault)	1	LS		
15.	Valves, Vents and Piping	1	LS		
16.	Ladders and Hatches	1	LS		
17.	Air Release Valve	2	Each		
18.	Surge Relief Valve	1	Each		
19.	Flow Meters	3	Each		
20.	Photographs/Video Recording	1	LS		
				Sub-Total	$
21.	Mobilization/Demobilization	1	LS		
22.	Bonds	1	LS		
				Total Base Bid	$

CONTRACT FOR CONSTRUCTION
HUNTERS HOLLOW PUMP STATION

THIS AGREEMENT made this _____ day of _____ 2015, by and between _____, organized and existing under the laws of the State of Kentucky, hereinafter called the "CONTRACTOR", and Bullitt Utilities, Inc., hereinafter called the "OWNER".

WITNESSETH that the Contractor and the Owner for the considerations stated herein mutually agree as follows:

ARTICLE I. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, and perform and complete all work embraced in the Hunters Hollow Pump Station Plans dated January 2015, to complete the project, all in strict accordance with the Contract documents, as set out in Article III below, to include documents prepared by BlueStone Engineers, PLLC, hereinafter referred to as "ENGINEER".

ARTICLE II. The Contract Price. The Owner shall pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in Bid Proposal included as part of the specifications hereof, the lump sum of _____

_____

_____Dollars and _____/100 ($).

ARTICLE III. Contract. The executed Contract Documents shall consist of the following:

a. This Agreement
b. Drawings/Specification Notes
c. KDOT Specifications
d. BCSD/MSD Specifications
e. Project Specifications

THIS AGREEMENT, together with other documents enumerated in this Article III, which said other documents are as fully apart of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto. In the event that any provision in any component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this Article III shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed in three original copies on the day and year first above written:

CONTRACTOR

_____
Signature

By: _____
Print Name/Title

OWNER

_____
Signature

By: _____
Print Name/Title

CERTIFICATIONS:

I, _____ certify that I am the _____
(Name) (Title)

of said Corporation; that said Agreement was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporate powers.

_____
Signature

By: _____
Print Name

_____
Title

WITNESS: _____

CERTIFICATIONS:

I, _____ certify that I am the _____
(Name) (Title)

of said entity; that said Agreement was duly signed for and in behalf of said Bullitt Utilities, Inc., by authority of its governing body and is within the scope of its corporate powers.

_____
Signature

By: _____
Print Name

_____
Title

WITNESS: _____

INFORMATION FOR BIDDERS

1. Bid Requirements. The Bid must be submitted on the blank form of Proposal annexed to these documents. The Bid shall give the price for the items of work required as shown by the drawings and specifications in figures, in ink. The Bidder shall sign the Bid and enclose in a sealed envelope marked "Hunters Hollow Pump Station".

2. Inspection of the Site. Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions, and should inform himself of the facilities involved, the difficulties and restrictions attending the performance of the contract. The Bidder shall thoroughly examine and familiarize himself with the drawings, specifications and all other contract documents. The Contractor by execution of the contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing. **THE BIDDER SHALL DETERMINE/VERIFY ALL QUANTITIES AND BID ACCORDINGLY.**

3. Bid Security. Each Bidder must accompany his Bid with bid bond or a certified check, made payable to Bullitt Utilities, Inc., (hereinafter called Owner) for an amount equal to 5% of the amount of the Bid. No Bid will be considered unless it is accompanied by the required bid security.

4. Bidder's Qualifications. Each Bidder shall upon request by the Owner submit a Statement of Bidder's Qualifications. The Owner shall have the right to take such steps as necessary to determine the ability of the Bidder to perform his obligation under the contract.

The Bidder shall furnish the Owner all such information and data for this purpose as it may request. The Owner reserves the right to reject any Bid where an investigation of the available information does not satisfy the Owner that the Bidder is qualified to carry out the terms of the contract.

5. Opening of Bids. Sealed bids will be received by the Engineer up to_____ P.M., _____, 2015 in the office of the Engineer. The Owner reserves the right to review all bids prior to a formal award. This will be a private bid opening. **The Owner has the right to select the best qualified bid, not necessarily the lowest bid.**

6. Withdrawal of Bids. Bids may be withdrawn at any time prior to the time fixed for the opening of Bids. No Bid may be withdrawn for a period of thirty (30) days after the date of the opening thereof without the consent of the Owner. The bid security of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly, if required for this project.

7. Award of Contract. The Contract will be awarded to the qualified Bidder submitting the lowest Bid subject to the conditions of the Invitation for Bids. The Owner reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interests. The Contract should be awarded _____, 2015, with a start date of _____, 2015, to insure completion by the date specified in Item 10 below.

8. Surety and Insurance. Prior to the execution of the Contract by the Owner, the successful Bidder will be required to present the name of the surety company to be offered as surety, and to execute a Performance Bond in the penal sum not less than the amount of the Contract awarded.

The Contractor must also furnish the Owner prior to the execution of the Contract a Certificate of Insurance certifying that he is covered by Workmen's Compensation in accordance with statutory requirements and by insurance against public liability and property damage sufficient to work under the proposed Contract as required by the section of the Special Provisions entitled "Insurance."

9. Interpretation of Plans and Specifications. If any person contemplating the submission of a Bid for the proposed Contract is in doubt as to the true meaning of any part of the plans, specifications, or other Contract Documents, he shall submit a written request for an interpretation thereof to the Engineer at least three days prior to the date fixed for the receipt of Bids. Any interpretation of the Contract documents prior to the receipt of Bids will be made only by written addenda to each person receiving a set of such documents.

10. Time of Completion and Liquidated Damages. The Contractor shall commence work on or before the date to be specified in a written "Notice to Proceed" from the Owner. The actual completion date for the pump station is to be _____, 2015. Bidders must agree to pay as liquidated damages the sum of $300.00 for each consecutive calendar day after agreed upon completion date.

The Owner, upon written request by the Contractor, shall amend the time of completion of this Contract provided that the Owner has determined that an extension of time is required and is contingent on circumstances beyond the control of the Contractor.

11. Contract Documents. The Contract Documents shall consist of the Information for Bidders, General Conditions, Bid Bond, Performance Bond, the Proposal, the Contract Agreement, Special Provisions (if applicable), Pump Station Technical Specifications (Section 10) , the Contract Drawings and all addenda issued, if any.

12. Construction Observation. General construction observation will be provided by the Engineer. Full time inspection will not be provided.

13. Contract Documents. Each Bidder may obtain copies of the proposed Contract Documents from the Engineer (BlueStone Engineers, PLLC.) for a non-refundable payment of $50.00 for each complete set of Plans, Specifications and Contract Documents.

14. Contract Concellation: The Owner has the right to cancel this contract at any time. If contract is cancelled the Owner will pay for work performed to date.

GENERAL CONDITIONS

DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

a. The term "Contract" means the Contract executed by the Owner and the Contractor, of which these General conditions form a part.

b. The term "Owner" refers to the Owner, Bullitt Utilities, Inc., acting on behalf of the Owner and Owner.

c. The "Contractor" means the person, firm, or joint venture entering into the contract with the Owner to construct and install the improvements embraced in this contract.

d. The term "Engineer" means BlueStone Engineers, PLLC.

e. The term "Project Manager" means the person selected by Bullitt Utilities, Inc., acting on their behalf who will be the Owner's representative on this project. The contractor and subcontractors shall coordinate their work through the Project Manager. All payment requests, change orders and any additions, deletions and/or modifications to the Contract Documents shall be processed through the Project Manager.

f. The term "Geotechnical Engineer" means the person or firm hired by the Contractor to supervise and test as required, pavement, sub-grade construction and pavement placement and/or soil testing and soil borings.

g. The term "Project Area" means the site project, including extents of off-site improvements, within which are the specified contract limits of the improvements contemplated to be constructed in whole or in part under this Contract.

h. The term "Local Government" means Kentucky Department of Transportation, the Bullitt County Engineer, and the Bullitt County Sanitation District.

i. The term "Contract Documents" means and shall include the following: Executed Agreement, General Conditions, General Special Provisions, Detailed Technical Specifications, Drawings, Kentucky Department of Transportation Specifications and Standard Drawings, the Bullitt County Planning & Zoning regulations, the Bullitt County erosion control regulations, and Bullitt County Sanitation District and/or Louisville MSD Specifications and Standard Drawings.

j. The term "Drawings" means the drawings listed in the Index of Drawings on the title plan sheet.

k. The term "Technical Specifications" means that part of the Contract Documents which describes, outlines, and stipulates: the quality of the materials to be furnished, the quality of the workmanship required, and the methods to be used in carrying out the construction work to be performed under this Contract.

l. "Written Notice" shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the joint venture for whom it is intended, or to an authorized representative of such an individual, firm or joint venture, or if delivered to or sent by registered mail to the last business address known to him who gives the notice with a copy sent to the central office of the Contractor.

m. The term "Work" small mean the furnishing of all labor, materials, equipment, transportation, services and other incidentals necessary or convenient to the successful completion of the Contract and the carrying out of all the duties and obligations imposed by the Contract.

n. The term "Extra Work" shall mean such additional labor, materials, equipment, and other incidentals as are required to complete the contract for the purpose for which it was intended but not shown on the Plans or called for in the Specifications, or is desired by the Owner in addition to that work called for in the Plans and Specifications.

SUPERINTENDENCE BY CONTRACTOR

a. Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the Owner and the Engineer, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of this work.

b. The Contractor shall lay out his/her own work, and he shall be responsible for all work executed by him under the Contract. He/she shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

OTHER CONTRACTS

The Owner reserves the right to award all or a part of this work to one or more than one contractor. If more than one contract is awarded, each Contractor shall cooperate fully with such other contractors by scheduling his own work with that to be performed under other contracts as may be directed by the Owner. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor as scheduled.

FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material men engaged upon this Contract. He/she shall be prepared to guarantee to each of his Sub-contractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other contractor or Subcontractor by agreement or arbitration, if such other contractor or Subcontractor will so settle. If such other contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner

will notify this Contractor, who shall defend at his/her own expense any suit based upon such claim, and if any judgment or claim against the Owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

PROGRESS SCHEDULE

The Contractor shall supply a project schedule to be reviewed by the Project Manager and the Engineer.

PAYMENTS TO CONTRACTOR

Initial Payment

Initial payment of 25% of the contract price will be made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

Final Payment

After final inspection and acceptance by the Owner and Local Government of all work under the Contract, the Contractor shall prepare his/her requisition for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable lump sums stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the Owner with a release in satisfactory form of all claims against the Owner arising under and by virtue of his Contract, other than such claims, if any, as may be specifically expected by the Contractor from the operation of the release.

The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems the same necessary in order to protect its interests. The Owner, however, may if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts, and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

Withholding Payments

The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and, if it so elects, may also withhold any amounts due from the Contractor to any Subcontractors or material dealers for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between

the Contractor and his Subcontractors or material dealers or to withhold any monies for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any monies from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his Subcontractors.

CHANGES IN THE WORK

a. The Owner may make changes in the scope of the work required to be performed by the Contractor under the Contract or make additions thereto or omit work therefrom, without invalidating the Contract and without relieving or releasing the Contractor from any of his/her obligations under the Contract or any guarantee given by him/her pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the Improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

c. If applicable lump sums are contained in the Agreement (established as a result of either a lump sum bid or a Supplemental Schedule of Lump sums), the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable lump sums specified in the Contract; provided that in case of a unit contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five percent (25%).

d. Each change order shall include in its final form:

1. A detailed description of the change in the work.

2. The Contractor's proposal (if any) or a confirmed copy thereof.

3. A definite statement as to the resulting change in the contract price and/or time.

4. The statement that all work involved in the change shall be performed in accordance with Contract requirements except as modified by a change order.

INFORMATION NOT GUARANTEED

All information given on the Drawings or in the Contract Documents relating to soundings and borings, materials encountered, ground water, subsurface conditions, and existing pipes and other structures is from the best sources at present available to the Engineer. All such information and the drawings of existing construction are furnished only for the information and convenience of Bidders.

It is agreed and understood that the Engineer does not warrant or guarantee that the materials, conditions and pipes or other structures encountered during construction will be the same as those indicated by the boring samples or by the information given on the drawings or in the Contract Documents. The engineer has made every attempt to verify existing conditions; however the Contractor must satisfy himself regarding the character, quantities, and conditions of the various materials and the work to be done.

It is further agreed and understood that the Contractor will not use any of the information made available to him/her or obtained in any examination made by him in any manner as a basis or ground of claim or demand of any nature against the Engineer and/or Owner arising from or by reason of any variance which may exist between the information offered and the actual materials or structures encountered during the construction work, except as may otherwise be provided for in the Contract Documents.

TERMINATION: DELAYS AND LIQUIDATED DAMAGES

a. Termination of Contract--Breach. If the Contractor refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the Owner, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the Owner may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any additional cost incurred by the Owner for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Owner may take possession of and utilize in completing the work such materials, tools, equipment, and plants as may be on the site of the work and necessary therefore.

b. Liquidated Damages for Delays. If the work is not completed within the time stipulated in the Special Provisions, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount set forth in the Special Provisions hereof, and the Contractor and his sureties
shall be liable to the Owner for the amount thereof.

c. Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

1. To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency.

2. To any acts of the Owner.

3. To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and

4. To any delay of any Subcontractor occasioned by any of the causes specified in subparagraphs 1, 2, and 3 of this paragraph c.

Provided, however, that the Contractor promptly notify the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the term of this Contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or joint venture rendering such labor or services or supplying such materials, tools, or equipment.

DISPUTES

a. All disputes arising under this Contract or its interpretation whether involving law or fact or both or extra work, and all claims for alleged breach of contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Owner for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Owner thereof.

b. The Contractor shall submit in detail his/her claim and his/her proof thereof. Each decision by the Owner will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his/her last known address.

c. If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest, and he may then except the matter in question from the final release.

TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings and/or Technical Specifications, the matter shall be immediately submitted to the Engineer, without whose decision said discrepancy shall not be adjusted by the Contractor, save only at his/her own risk and expense.

SHOP DRAWINGS

a. All required shop drawings, machinery details, layout drawings, etc., shall be submitted to the Engineer in (3) copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his/her own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc., until they are approved, and no claim by the Contractor for extension of the contract time will be granted by reason of his/her failure in this respect.

b. If any Drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of Contract price and/or time; otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the Drawings have been approved.

c. If a Shop Drawing is in accord with the Contract or involves only a minor adjustment in the interest of the Owner not involving a change in Contract price or time, the Engineer may approve the Drawing. The approval shall be general, shall not relieve the Contractor from his/her responsibility for adherence to the Contract or for any error in the drawing.

REQUEST FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Engineer for any additional information not already in his possession which should be furnished by the Engineer under the terms of this Contract, and which he will require in the planning and execution of the work. The request for supplementary information shall not constitute expansion of the Engineer's scope of work with the Owner. Any such work should be considered an extra and shall be charged to the Contractor.

MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.

b. The Contractor shall furnish to the Engineer for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he/she contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he/she proposes to incorporate in the work.

c. Machinery, mechanical and other equipment, materials, or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

d. Materials specified by reference to the number or symbol of a specific standard, such as an A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof, and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the Technical Specifications, shall have full force and effect as though printed therein.

e. The Owner or the Project Manager may require the Contractor to dismiss from the work such employee or employees as the Owner or the Project Manager may deem incompetent, or careless, or insubordinate.

SAMPLES, CERTIFICATES AND TESTS

The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the Contract Documents or required by the Project Manager, promptly after award of the Contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Project Manager. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the Contract time.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Project Manager in passing upon acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with samples and/or certified statements.

Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Project Manager will have such check tests made as he deems necessary in each instance and may

reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Project Manager will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

PERMITS AND CODES

a. The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the local government. All construction work and/or utility installations shall comply with all applicable ordinances and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the Drawings and Technical Specifications fail to comply with such applicable ordinances or codes, the Owner will adjust the Contract by change order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract price or stipulated lump sums.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Owner, but a change order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

b. The Contractor shall at his/her own expense secure and pay to the appropriate department of the local government the fees or charges for all permits for street pavements, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body, utility or any agency.

c. The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

CARE OF WORK

a. The Contractor shall be responsible for all damages to person or property that occur as a result of his/her fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.

b. In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner, is authorized to act at his/her discretion to prevent such threatened loss or injury, and he/she shall so act. He/she shall likewise act if instructed to do so by the Owner.

c. The Contractor shall avoid damage as a result of his/her operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he/she shall at his/her own expense completely repair any damage thereto caused by his operations.

d. Any damage to the site, building(s), utilities, driveways, pavement, or whether stated herein or not caused by the Contractor, his employees or agents of him, shall be repaired to the satisfaction of the Engineer, at no cost to the Owner or Engineer. Any landscaping materials such as earth, sod, shrubs, trees, seed or other which may be required to be moved or removed shall be replaced in kind.

e. The Contractor shall shore up, brace, underpin, secure and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property Owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner, the Project Manager and the Engineer from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner, Project Manager and the Engineer may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

f. Utility, access or other disturbances shall be kept to a minimum and coordinated with the Owner prior to beginning such work. Special attention should be given to maintaining resident access at all times when work is being performed in front of residences. The Contractor shall notify the residents, 24-hours in advance to prepare for any disturbance.

g. Standard erosion control measures shall be applied to this Project. Measures shall consist of stone bags over basin inlets, stone bag inlet protection, filter fabric control fence, headwall inlet protection, stone bag velocity checks, erosion matting and stabilized construction entrances, sedimentation, erosion control as indicated on the erosion control plan.

ACCIDENT PREVENTION

a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his/her prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed, and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.

c. The Contractor shall indemnify and save harmless the Owner and the Engineer from any claims for damages resulting from property damage, personal injury, and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and local governments. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

USE OF PREMISES

a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights-of- way with his materials and construction equipment.

b. The Contractor shall comply with all reasonable instructions of the Owner and the ordinances and codes of the local government regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall clean up the work area on a daily basis, legally dispose of all surplus excavated material and debris weekly, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work he shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole site of the work and public rights of way in a neat and clean condition.

INSPECTION

a. All materials and workmanship shall be subject to inspection, examination, or testing by the Owner and the Project Manager at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The Owner and the Project Manger shall have the right to reject any and all defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may by contract or otherwise have the defect remedied or rejected materials removed from the Project Area and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.

b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests required by the Owner or Project Manager will be performed in

such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.

c. The Contractor shall notify the Project Manager 24 hours in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Engineer, Project Manager, Bullitt County, and Kentucky Department of Transportation, the Contractor shall uncover for inspection and recover such facilities, all at his/her own expense, when so requested by the Project Manager.

Should it be considered necessary or advisable by the Project Manager at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and materials. If such work is found to be defective in any important or essential respect due to fault of the Contractor or his Subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor, and he/she shall in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in the Contract may be made at the place of production, manufacture or shipment, whenever the quality justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of Contract, (3) damage or loss in transit, or (4) fraud or gross mistakes amounting to fraud. Subject to requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

e. Neither inspection, testing, approval nor acceptance of the work in whole or in part by the Owner or its agents shall relieve the Contractor or his/her sureties of full responsibility for materials furnished or work performed in strict accordance with the Contract.

REVIEW BY OWNER AND PROJECT MANAGER

The Owner and the Project Manager, their authorized representatives and agents shall at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices and other relevant data and records pertaining to this Contract.

FINAL INSPECTION

When the Improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner and the Project Manager in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Project Manager determines that the status of the Improvements is as represented, he will make the final inspection along with any governing agencies. The inspection party will also include the representatives of each department of the local government having interest in portions of the construction by virtue of jurisdiction and authority to protect and maintain public improvements.

DEDUCTION FOR UNCORRECTED WORK

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement in case of dispute as herein provided.

PATENTS

The Contractor shall hold and save the Owner, Project Manager and the Engineer, their officers and employees harmless from liability of any nature or kind, including costs and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner unless otherwise specifically stipulated in the Technical Specifications.

WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm or joint venture furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts, and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

BOND REQUIREMENTS

Execution of Agreements: Performance Payment Bond (The Performance Bond will be at the Owner's discretion).

a. Subsequent to the award and within ten days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to Bulitt Utilities, Inc, an agreement in the form included in the Contract Documents.

b. Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful bidder shall, within the period specified in paragraph "A" above, furnish a separate one-hundred percent (100%) of the accepted bid as security for the faithful performance of the Contract and a one hundred percent (100%) material payment bond in an amount at least equal to fifty percent (50%) of the performance bond amount. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to, that of the Contract. The current power of attorney for the person who signs or any surety company shall be attached to such bond. This bond shall be

signed by a guaranty or surety company listed in the latest issue of the U.S. Treasury Circular 570, and the penal sum shall be within the maximum specified for such company in said Circular 570.

c. The Contractor shall provide a maintenance bond in the amount of $5,000.00 to cover costs of all claims, loss or damage, and expenses or reconstruction, or additional work occurring because of settlement of backfill. The date of this bond shall extend one year from the date of acceptance of work.

GUARANTEE

In addition to all material and workmanship, all paving, sod, seeding, etc., which are placed, sowed, planted or replanted by the Contractor, shall be guaranteed for a period of one year from the date of acceptance.

TIME OF COMPLETION

The work which the Contractor is required to perform under this Contract shall be commenced at the time stipulated by the Owner and shall be fully completed by the dates stated above.

RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, tools, labor, equipment, water, lights, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and will deliver all Improvements embraced in this Contract complete in every respect within the specified time.

COMMUNICATIONS

a. All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

b. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the Project Manager.

c. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing when the same should have been received in due course of post or in the case of telegrams, at the time of actual receipt, as the case may be).

d. A Notice to Proceed will not be issued until all approvals have been secured and the Contractor can start on all segments of the work without interference or delay from the Government.

GENERAL SPECIAL PROVISIONS

SCOPE OF WORK

The intent of these Specifications and Plans is to provide for the construction of Hunters Hollow Pump Station as shown on the Plans, and appurtenant work, complete and accepted. More precisely, the work to be executed under this Contract consists of, but not limited to, furnishing all qualified supervision, labor, equipment, materials, and performing all work required for the site grading, rock removal, drainage, roadway improvements, sanitary sewers and pump station, and all other items delineated as part of these Plans and Specifications to complete project.

"AS BUILT" SANITARY SEWER PLANS

The Owner's Kentucky Registered Land Surveyor shall keep records of all deviations from the Contract Drawings and shall, upon completion of the project, prepare "Final Record" Drawings. The final record information on the Drawing will be provided by the Professional Land Surveyor with BlueStone Engineers, PLLC.

If site conditions vary from those indicated, the Contractor shall notify the Design Engineer immediately. The Design Engineer will investigate such conditions and, if warranted, the Design Engineer with Bullitt County Sanitation District approval shall make revisions or adjustments. The Contractor shall not proceed with that portion of the work until the investigation is complete.

"Final Record" information may be added to the original mylars rather than generating a new set of reproducible drawings.

Below are check list items for "Final Record".

- The Land Surveyor shall stamp (seal) and initial ALL SHEETS in the space provided.
- Any horizontal or vertical change in alignment that differs from the original design plans.
  - Changes in Stations on:
    - Manholes
    - Pump Station Wet Wells
    - Pump Station Valve Vaults
    - Air Releases
    - Clean-outs
  - Changes in Elevations for:
    - Inverts
    - Rims
    - Structures

- Manhole collar size.
- All revisions in pipe, sizes, lengths and slopes.
- Changes in offset distances of structures.
- Property Service Connections:
  - Size
  - Length
  - Depth
  - Station
  - End Location
- Changes in lot or unit designations
  - Lot numbers
  - Tract numbers
  - Apartment unit designation
  - Condominium unit designation
  - Patio home unit designation

STANDARD DRAWINGS AND SPECIFICATIONS

When numbered Drawings are referred to as standard drawings in the Plans and Specifications, they shall be construed to be the current standard as issued by the Kentucky Department of Transportation, Standard Specifications for Road and Bridge Construction, latest edition, and shall apply to this project, unless otherwise specified in these General Special Provisions. Additionally, standard specifications shall apply for all local regulatory agencies and utilities, including but not limited to Louisville Water Company, Louisville Gas & Electric Company, Bullitt County Sanitation District, Louisville & Jefferson County Metropolitan Sewer District, Kentucky Transportation District, etc.

INTERPRETATION OF PLANS AND SPECIFICATIONS

If the Contractor, in the course of the work, finds any discrepancy between the Plans and the physical conditions of the locality, or any errors or omissions in the Plans or in the layout as given by survey points and instructions, he/she shall immediately inform the Engineer, in writing, and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

Any difference between Plans and Specifications and questions as to the meaning of Plans and Specifications shall be interpreted by the Engineer, whose decision shall be final and binding on all parties concerned.

The Contractor will not be allowed to take advantage of any errors or omissions in the Plans and Specifications. The Engineer will provide full instructions when errors or omissions are discovered.

WORK IN EASEMENTS AND ON PRIVATE PROPERTY

The Contractor shall conduct his/her operations within the limits of the perpetual easements and shall not enter upon the private property outside of the perpetual easement. If the Contractor's operations within the perpetual easement do cause any damage to the private property outside the perpetual easement, it will be the responsibility of the Contractor to restore and/or replace any private property damaged to a condition as good as or better than the condition that existed prior to the Contractor's operations, at no cost to the Owner or Engineer. This statement or action of the Contractor does not relieve the Contractor from any legal liability for trespassing on private property.

Buildings wholly or partially within the perpetual easements shall not be damaged or otherwise affected by the Contractor's operations.

Trees shall be removed only with direct permission of the Project Manager and/or the Owner. Trees to be saved shall be identified by the Project Manager and/or Owner. The Contractor shall pay special attention to the preservation of all existing vegetated areas along this boundary.

All ground surfaces which are disturbed by the Contractor's operations so as to interfere with the natural drainage shall be graded by the Contractor to conform with contiguous property and shall also be sloped and ditched as necessary to permit surface water to drain to the new drainage facility as specified hereinafter, as indicated on the Plans, or as directed by the Project Manager.

Materials such as trees and debris, which are not suitable for work within the project limits shall be removed, and disposed of on-site as directed by the Owner.

RESTORATION OF GROUND SURFACES DISTRUBED BY THE CONSTRUCTION OPERATIONS

Following the excavation and fill work on this Contract, ground surfaces, both public and private, which were excavated, filled or disturbed, shall be properly graded, sloped, machine finished, seeded and fertilized as noted in the Detailed Special Provisions.

UTILITIES

The Engineer and its agents have made reasonable efforts to determine the location of all utilities and to indicate their location on the Plans. However, it shall be the duty of the Contractor to verify the location of all existing sewers, drains, pipes, conduits, gas and water lines and mains, power lines, or other underground or overhead objects or structures which might be encountered, whether shown on the Plans or not.

An attempt will be made by all utility companies with facilities which interfere with the construction to remove, relocate or adjust these facilities. In the event the Contractor should encounter any public or private sewer, drain, conduit, gas or water lines, etc., crossing or adjacent to the Improvement which interferes with the construction, the Contractor shall lower or

adjust the facility to remove the obstacle from the construction area. Said lowering or adjusting shall be as required by the utility company owning the facility and/or the property Owner, subject also to the direction of the Project Manager. Costs for removing, relocating, etc., such facilities, as defined in this paragraph, shall be resolved between the Owner and the Contractor as described in Part I, General Conditions, Changes in the Work.

The Contractor shall not begin operations which may interfere or impair the normal service being rendered by public or private utility companies unless approved by the affected utility company.

The Contractor shall notify the utility companies of his/her intention to start construction and give them sufficient time to relocate their installations so that normal service to the customer is not interrupted.

The Contractor's attention is directed to the Utility Protection Center (Before-U-Dig) 1-800-752-6007, (or 811) which was established to provide accurate locations of below-ground utilities, i.e., cables, electric wires, and gas and water lines. The Contractor shall notify the Utility Protection Center 48 hours in advance of any construction on this project.

The following is a list of additional precautions to be observed when working near or around gas and electric facilities:

Gas and Electric Facilities

1) The gas and electric company shall be notified in writing so they will have five (5) working days' notice before work is begun. Where revamping of electric facilities will be required for the proper construction of this improvement, at least two weeks advance notice will be given to the gas and electric company to allow sufficient time for engineering work to be completed.

On major revamps or relocations, longer notice will be necessary.

2) In case of rock excavation under or near the gas and electric company's electric lines, blasting shall not be done unless a representative of the utility company is present.

3) When excavating near utility poles, the Contractor shall contact the gas and electric company to determine if the pole should be braced or the trench sheeted to prevent the pole from shifting into the open trench. In case a utility pole is in a direct route of this improvement and the gas and electric company agrees to brace the pole so the work can be installed near the pole, the Contractor shall compact backfill in accordance with the specifications or as directed by the Engineer to prevent the pole from settling.

4) Cables, ropes or attachments of any sort shall not be attached to utility poles.

5) If damage to a main or service should occur, the appropriate utility company shall be notified immediately.

6) Extra precautions shall be taken during construction near gas mains. If gas pipelines require exposing as a precautionary measure, kindly advise by calling the appropriate utility, as depicted on the Plans.

7) Minimum clearance shall be strictly adhered to when gas and sewer lines cross. At no time shall clearance be less than what is shown on the Plans.

Nothing set forth above shall relieve the Contractor from determining the location of other such facilities not named, avoiding damage thereto, and/or paying for the restoration or replacement of all such facilities, named or not named, that are damaged by his operations.

SAFETY PRECAUTIONS

The Contractor shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of I970 (PL 9I-596) and under Section I07 of the Contract Work Hours and Safety Standards Act (PL 9I-54), or latest revision. If at any time in the opinion of the Engineer the work is not properly protected and in all respects safe, both with respect to the Engineer, workmen, public or private property, and if under such circumstances the Contractor does not or cannot immediately put same into proper and approved condition, or if the Contractor or his representative is not upon the ground so that he can be immediately notified of the unsafe condition of the work or insufficiency of the safety precautions, then the Project Manager may put the work into such condition that it shall be, in his/her opinion, in all respects safe, and the Contractor shall pay all such expenses of labor and materials as may have been used for this purpose by the Project Manager. Such actions of the Project Manager shall in no way relieve the Contractor of the entire responsibility for any cost, loss or damage by any part sustained on account of the insufficiency of the safety precautions taken by him or by the Project Manager acting under the authority of this paragraph.

AIR POLLUTION CONTROL AND DUST CONTROL

Air Pollution Control: The Contractor shall obtain and conform to the air pollution control criteria of the Kentucky Department for Natural Resources, Air Pollution Division. Air pollution is likely to occur due to construction operations and shall be minimized by wetting down bare soils during windy periods, requiring the use of properly operating combustion emission control devices on construction vehicles and equipment used by contractors, and by encouraging the shutdown of motorized equipment not actually in use.

Trash burning will not be permitted on the construction site.

If temporary heating devices are necessary for protection of the work, such devices shall be of an approved type that will not cause pollution of the air.

Dust Control: The Contractor shall make such provisions as are necessary for controlling dust resulting from his operations at all times when such dust would, in any way, interfere with or cause any delay or other inconvenience to traffic, both vehicular and pedestrian, or have any detrimental effect upon the environment.

CLEANING UP

Before final acceptance of the work, the Contractor shall clean all roads, drives, walks, lawns, private property, rights-of-way, and structures, leaving them in a neat and clean condition as originally found, to the satisfaction of the Project Manager. At no time shall the roads used as haul roads be allowed to become muddy or in any other way dangerous to the public.

INDEMNITY

The Contractor shall indemnify, protect and save harmless the Owner, Project Manager and the Engineer, their officers and agents, from all suits or claims of every kind or description brought against the Owner, Project Manager and the Engineer, or its officers and/or agents, for or on account of any injuries or damages to persons or property received or sustained by any person or persons, or from the Contractor, his/her servants or agents, by or on account of work done under the Contract or extensions of, or additions thereto, whether caused by negligence or not, or in consequence of any negligence in guarding the same, or by or on account of any accident or of any acts of omission of the Contractor, his servants or agents; and the Contractor further agrees that as much of the money due to him under this agreement as shall be considered necessary by the Project Manager may be retained until all such suits or claims for damages aforesaid have been settled and evidence to that effect has been furnished to the satisfaction of the Owner.

PUBLIC LIABILITY INSURANCE

The Contractors shall include the cost of all insurance as called for in the Specifications.

The Contractor shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on this subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

For the duration of the Contract, the Contractor shall maintain Workmen's Compensation and Employer's Liability Insurance as required by law not less than $1,000,000.00. Contractor shall require subcontractors to provide Workmen's Compensation and Employer's Liability Insurance with the same minimum limits.

For the duration of this Contract, Contractor shall maintain: Comprehensive General Liability including Contractor's Liability, Blanket Contractual Liability, Personal Injury Liability with "C" exclusion deleted, Complete Operations and Products Liability all on the occurrence basis, and Broad Form Property Damage.

Completed Operations Liability shall be kept in force for at least two years after the date of final completion.

Bodily Injury:

Each Occurrence	$1,000,000.00
Aggregate	$1,000,000.00

Property Damage:

Each Occurrence	$1,000,000.00

Aggregate	$1,000,000.00

For the duration of this Contract, Contractor shall maintain: Comprehensive Automobile Liability including non-Ownership and hired-car coverage as well as that for owned vehicles.

Bodily Injury:

Each Occurrence	$1,000,000.00
Each Person	$1,000,000.00

Property Damage:

Each Occurrence	$250,000.00

For public liability against hazards arising out of blasting and explosion and covering damages therefrom to property, $500,000.00 on account of any one accident and $1,000,000.00 on account of all accidents; and to persons, $500,000.00 on account of any one accident and $1,000,000.00 on account of all accidents.

The required insurance must be written by a company licensed to do business in the state in which the project is to be constructed. In addition, the insurers must be acceptable to the Owner. Bullitt Utilities, Inc., is to be named as an insured party in the insurance policy.

The Contractor shall not cause any insurance to be canceled or permit any insurance to lapse. All insurance policies shall include a clause to the effect that the policy shall not be cancelled or reduced, restricted or limited until 30 days after the Owner has received written notice as evidenced by return receipt of registered or certified letter. Certificates of Insurance shall contain transcripts from the proper office of the insurer, evidencing in particular those insured, the extent of the insurance, the locations, and the operations in which the insurance applies, the expiration date, and the above-mentioned notice of cancellation clause.

LIQUIDATED DAMAGES

In accordance with Section 108 of the Kentucky Department of Transportation's Standard Specifications and as amended herein, as actual damages for any delay in completion of the work which the Contractor is required to perform under this Contract are impossible to determine, the Contractor and his/her sureties shall be liable for and shall pay to the Owner the sum of $300.00 as fixed, agreed, and liquidated damages for each calendar day of delay from the stipulated date for completion as determined by the Bid, or as modified in accordance with an approved Change Order until such work is satisfactorily completed and accepted.

DETAILED SPECIAL PROVISIONS

LAYOUT OF WORK

The construction plans will enable Contractor or his/her Surveyor to establish the control points for construction of the roadways, drainage improvements, sanitary sewer, and other site improvements as herein conveyed by these Specifications and accompanying plans. Benchmarks are marked and noted for the contractor's reference. The Engineer will not provide actual field staking for the Contractor. The Engineer will provide traverse points and benchmarks only. Any other construction staking, as required by the Contractor, will be provided by the Contractor's Land Surveyor registered in the State of Kentucky.

CLEARING AND GRUBBING

The site area is currently open and shall include moving of any debris or shrubs in order to perform the work.

UNCLASSIFIED EXCAVATION

Unclassified excavation shall consist of the removal, replacement and grading of materials taken from within the limits of the work contracted and is to be performed in conjunction with pump station construction.

Topsoil and sod shall be removed from all areas to be paved (if applicable). Topsoil shall be stockpiled nearby at a location designated by the Owner and the Project Manager.

Payment for unclassified excavation shall be included as part of the Contractor's Unit Bid Price.

INSPECTION AND ACCEPTANCE

Final inspection and acceptance will be performed by the engineer and owner's representative/operator.

SITE GRADING

Shape grades to smooth lines between contours or spot elevations. Grade within 0.25 foot of established elevation in general grading. Protect newly graded and disturbed areas against erosion.

Unless otherwise shown on the Drawings, slope the sub-grade evenly to provide drainage away from the building or walls in all directions.

Do all cutting, filling, backfilling and grading required to bring the entire project area to subgrade as follows: fifteen inches (15") below the standard pavement specification and six inches (6") below proposed landscape areas, or as otherwise required by specific surfaces being proposed by these construction plans.

At the completion of finish grading operation, spread the available topsoil to a minimum thickness of approximately six inches (6"). Topsoil shall only be applied to areas not to be paved or occupied by buildings.

Upon completion of the work, remove from the site all surplus and discarded materials, machinery, equipment and supplies and restore the site to a neat, presentable condition.

Materials for the backfill shall be clean and unfrozen. It may contain masonry or rock fragments not more than six inches (6") in maximum dimension provided. None are to be placed closer than 24-inches to any surface or unfinished grade.

Engineered fill is to be placed at 6-inch lifts to 95% Proctor Density and shall be certified by a Geotechnical Engineer.

REINFORCED CONCRETE PIPE

All reinforced concrete pipe (RCP) shall conform to ASTM Specification Designation C-76, for circular pipe and C-507 for elliptical pipe, latest revision, Class III Wall B.

Pipe shall be laid by proceeding upgrade with the spigot end of bell-and-spigot pipe, and the tongue ends of tongue-and-groove pipe pointing in the direction of flow.

All work under this item shall conform to Kentucky Department of Transportation Standard Specifications, Section 6ll.

PVC pipe is to be installed per Bullitt County Sanitation District Specifications and Ten State Standards.

PIPE JOINTS

Reinforced Concrete installation shall conform to Kentucky Department of Transportation, Standard Specifications, Section 6ll.

BEDDING

Pipe shall be laid on bedding of six inches (6") of sand or #57 stone (KDOT) Kentucky Department of Transportation's classification, (per paragraph 804.07 KDOT Standard Specifications) below the outside bottom of the pipe and one-half of the outside of the pipe diameter above the bottom of the pipe outside of road right-of-way. Inside of road right-of-way, the sand or #57 stone shall be compacted to the roadway sub-grade or within twelve inches (12") of final grade outside of pavement area.

PROTECTION OF INSTALLED PIPE

As the work progresses, the interior of the pipe shall be protected from and cleaned of all dirt, cement, extruded joint materials, debris, and other extraneous materials. Whenever pipe laying is stopped for any significant length of time, such as at the end of a workday, the unfinished end shall be protected from displacement, floatation, cave-in, and in-wash of soil or debris. A suitable temporary tight-fitting plug, stopper or bulkhead shall be place in the exposed bell or groove end of the pipe.

BACKFILLING TRENCH

Trenches shall be backfilled in six-inch (6") layers and each layer thoroughly tamped to pavement sub-grade for pipe laid under the proposed paving. Pipe laid outside the limits of the paving or curb and gutter shall be tamped in six-inch (6") layers to the top of the pipe where no paving or entrance drives are encountered. Where entrance drives or cross streets are encountered, tamping shall be as described in six-inch (6") layers to the pavement sub-grade. Where tamping is only required to the top of the pipe, the remainder of the ditch shall be backfilled with loose earth and earth heaped above the top of the ground over the trench and allowed to settle until towards completion of the project, after which excess earth shall be removed from the top of the trench to the level of the ground and disposed of by the Contractor.

CONCRETE ENCASEMENT

All sewers within easements or rights-of-way, where crown of pipe is less than 30-inches below ground surface at the time of installation, shall be protected with concrete encasement. Concrete encasement to be installed per Bullitt County Sanitation District and Ten State Standards Specifications.

SAND

The sand bedding and backfill as shown in the pipe trench detail shall be as specified in Section 804 of the Kentucky Department of Transportation Standard Specifications for Road and Bridge Construction.

Percent Passing the 9.5 mm (3/8") sieve 100
Percent Passing the 150mm (No. 700) sieve15 Maximum

All work performed under this item shall conform to the paragraph on "Backfilling Trench" above.

NO. 57 STONE

No. 57 stone bedding shall be placed as shown in the trench detail and compacted according to Section 303 of the Kentucky Department of Highway Specifications.

The aggregate base should be crushed limestone as required by Section 805.04.03 of the Kentucky Department of Transportation Specifications graded as to produce a final mixture in place, meeting the following percentage by weight:

1 1/2 inch square sieve	100
1 inch square sieve	95-100
½ inch square sieve	25-60
No. 4 square sieve	0-10
No. 8 inch square sieve	0-5

All work performed under this item shall conform to Paragraph above "Backfilling Trench".

MANHOLES

All pre-cast manholes and appurtenances shall be installed per Bullitt County Sanitation District specifications.

MANHOLE TESTING

An exfiltration test shall be performed on each manhole in accordance with ASTM C-969, Section 8.23. The manhole shall be filled to a minimum of two feet (2') above the crown of the largest pipe in the manhole. The test period should be 24-hours. The allowable leakage shall be 0.1 gall./(ft. of diameter)(ft. of head)(h).

HEADWALLS

Headwalls for culverts shall be constructed with Class "A" concrete (3,500 pounds per square inch @ 28 days) and as detailed on the Plans, as shown in the KDOT and Bullitt County Sanitation District's Standard Drawings. Work performed under this item shall conform to Kentucky Department of Transportation Specifications, Section 6l0.

CONCRETE CONSTRUCTION

Concrete shall be "ready mixed" conforming to ASTM Specifications C-94. Air entraining admixture for concrete shall conform to ASTM Specifications C-260-77.

Reinforcing steel shall be deformed steel bars conforming to ASTM Specification A6l5, Grade 60.

Welded wire fabric shall conform to ASTM Specification Al85.

Expansion Joint Filler shall be l/2" remolded asphaltic impregnated material conforming to ASTM Dl75l, latest revision, unless otherwise noted on the Plans.

All concrete to be used in construction of headwalls, wingwalls, culverts, catch basins or for any other structural purposes shown on the Plans shall be 3,500 psi and delivered only in quantities for immediate use. Concrete which has set prior to placement shall be discarded.

Forms shall be constructed in accordance with ACI 347. Form ties shall be removed to a point l/2" inside the wall and the resulting holes filled with a rich cement grout.

Bending, placing, fastening and supporting of reinforcement shall be in accordance with ACI (3l8-95).

Mechanical, insertion type, internal vibrators shall be used to compact the concrete.

Concrete work shall be protected against frost and rapid drying and kept moist at least three days after placing. Concrete may not be placed when the temperature is below 35 degrees Fahrenheit, unless sufficient framework and canvas or other housing is maintained at 50 degrees Fahrenheit by the Contractor.

ROCK REMOVAL

The Contractor's unit bid price shall include all removal of mass and trench rock related to all the proposed construction work required by the Plans and Specifications.

The Contractor shall familiarize himself with the rock conditions prior to submitting a bid. The site is accessible to the Contractor for test excavating provided that the Contractor assumes liability for injury or damage incurred during the course of his testing work and that test excavations are backfilled.

Property service connections are to be constructed to the edge of easement or to 15-feet past the edge of right-of-way as directed. Property service connections to be constructed within the right-of-way shall be extended 15' past the edge of right-of-way. Rock is to be shattered to six feet (6') beyond the end of the property service connections.

BONDS

Performance Bond: The Contractor may be required to provide a Performance Bond equal to 100% of the Bid Price to assure the performance of the contract and obligations arising thereunder. This will be at the discretion of the Owner.

GUARANTY

In addition to all material and workmanship, all paving, seeding, and other replacement work, which shall be guaranteed for a period of one (1) year from the date of acceptance of the work under the Contract.

SAFETY REQUIREMENTS

Contractor's Responsibility for Safety: The Contractor shall do whatever is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons and property during the Contract period. This requirement shall apply continuously and not be limited to normal working hours.

Federal, State and Local Safety Requirements: The Contractor's safety provisions shall conform to the federal and state Departments of Labor Occupational Safety and Health Act (KYOSHA), and all other applicable federal, state, county and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirements shall be followed. The Contractor's failure to thoroughly familiarize himself/herself with the aforementioned safety provisions shall not relieve him/her from compliance with the obligations and penalties set forth therein.

Safe Access to the Work: The Contractor shall, at all times, provide proper facilities for safe access to the work by the Owner, Project Manager, Engineer and authorize officials, federal, state and local agencies.

STAKES

For Line and Grade During Construction: The Contractor shall retain a registered Land Surveyor licensed in the Commonwealth of Kentucky to set stakes for the line and grade during construction of the roads, drains and sanitary sewers under this Contract. It will be the Contractor's responsibility to lay out the work from the control set by the Engineer and to transfer elevations from benchmarks.

Should horizontal and vertical survey control be disturbed, the Contractor's Land Surveyor shall relocate the disturbed points, at the Contractor's expense.

If any site conditions vary from those indicated, the Contractor shall notify the Design Engineer, and the Project Manager will investigate such conditions and, if warranted, the Project Manager shall make revisions or adjustments. The Contractor shall not proceed with that portion of the work until the investigation is complete.

EROSION PREVENTION AND SEDIMENT CONTROL

The Contractor shall follow the approved plan for the duration of the Contract, providing supplemental erosion and sediment controls as may be needed and shall maintain and remove all temporary erosion and sediment control devices, but only when they are no longer necessary as determined by the Owner, Project Engineer and the Bullitt County Sanitation District.

The Contractor shall be responsible for the removal of any debris and sedimentation in the existing sewers, drains, catch basins, etc., which is attributed to his work under this Contract.

PROTECTION AND HANDLING FLOWS OF EXISTING SEWERS, DRAINAGE FACILITIES AND DITCHES

The Contractor shall take proper precautions to prevent damage to existing sanitary and storm sewers and drainage facilities, such as headwalls, catch basins, drains, etc.

The Contractor shall make repairs or replacements, or rebuild such damaged section or sections of the existing sewers, drains, headwalls, catch basins, etc., as directed by the Project Manager. All such repairs, replacements and rebuilding shall be paid for by the Contractor.

The Contractor shall make such provisions as are necessary for handling all flows in existing connections, drains, catch basins and ditches by pipes, flumes, or by other approved methods at all times when his operations would, in any way, interfere with normal functioning of these facilities.

The Contractor shall be responsible for the removal of any debris and sedimentation in the existing drains, catch basins, ditches, etc., which is attributable to his work under this Contract.

The Contractor shall use extreme caution when working around creeks and shall remove only the trees necessary to allow the utility crossing. No other trees within 15-feet of the top of bank are to be disturbed.

MAINTENANCE AND CONTROL OF TRAFFIC

Unless otherwise shown in the Contract Documents, all roads and streets, affected by construction, shall be kept clean from mud and debris and open to all traffic by the Contractor. Where so provided on the Drawings or as directed by the Engineer, the Contractor may route the traffic over approved detour routes. The Contractor shall keep the portion of the Project being used by public traffic in such condition that traffic will be adequately and safely accommodated.

- END -

HUNTERS HOLLOW
Pump Station and Force Main
Design Calculations

Prepared for:
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December 28, 2014

BULLITT UTILITIES, INC.

HUNTERS HOLLOW
PUMP STATION & FORCE MAIN
DESIGN CALCULATIONS

Background

Based on an Agreed Order for the Hunters Hollow Sanitary Sewer System, a pump station is being provided to divert wastewater flow from the existing treatment plant site located at Blue Lick Road (Bullitt Utilities) to Bullitt County Sanitation District treatment facilities nearby. The pump station will serve the Hunters Hollow Subdivision, Subdivision II, Smith Grove Addition, and areas along Blue Lick Road. This area is bounded by Jefferson County to the north, I-65 to the west, the Union Tool site to the south, and Pioneer Village to the east, located in Bullitt County. Regional planning efforts with the Bullitt County Sanitation District (BCSD) provides for diversion of wastewater flows from the Hunters Hollow system to both the Union Tool Pump Station (pumping to the Willowbrook Wastewater Treatment Facility located off Brooks Road on the west side of I-65), and also to a regional pump station south of John Harper Road (pumping into the Pioneer Village collection system to the Pioneer Village Wastewater Treatment Facility). Since neither facility can handle the full amount of flow from the Hunters Hollow system, the flow will be split between the two treatment facilities with flows ranging from 160,000 gallons to 300,000 gallons depending on which treatment facility is being pumped to.

Wastewater Flow Calculations:

The Hunters Hollow WWTP was originally designed to treat up to 300,000 gallons per day, with wet weather flows sometimes exceeding this amount and with bypasses occurring. This is most likely due to Infiltration and Inflow that exists in the system, with Wet Weather Peak flows exceeding 1 MGD. A temporary high-rate treatment facility installed onsite has supported these totals over the past 6 to 9 months. The typical average daily dry weather flow for the Hunters Hollow system is 160,000 gpd.

Hunters Hollow Average Daily Flow (ADF) = 160,000 gpd = 111 GPM

For peak flow conditions, a Peaking Factor of 3.91 will be utilized.

$PF = 18 + (P)^{1/2} / 4 + (P)^{1/2}$ (P = 1.6, for approximate population of 1600 est)
$PF = 18 + 1.26 / 4 + 1.26 = 3.66$

Peak Daily Flow = 160,000 GPD x 3.66 = 585,600 GPD = 407 GPM

(The pump station will be sized as a temporary facility and thus will not typically pump up to the total Peak Daily Flow to BCSD facilities. Note, that as indicated in the background summary, the maximum flow condition available at the Bullitt County Sanitation District will be limited to 300,000 gallons per day, or 208 GPM at either Wastewater Treatment Facility location. The pump station however, will provide for the ability to pump up to 320 GPM using one pump, and 432 GPM with both pumps in operation pumping to each separate BCSD facility).

Force Main Sizing

Both a 4" and 6" polyethelene force main will be utilized, splitting flow from the proposed Hunters Hollow pump station, with the 4" force main pumping 1050 feet to an influent manhole upstream of the Union Tool Pump Station (BCSD), and the 6" force main pumping 3020 feet to an influent manhole for the BCSD collection system located east of Blue Lick Road at the south end of Lee Villa Court.

Design Criteria:

1. Pipe velocity shall be in the range of 2 - 5 feet per second for wastewater pumps.
2. A Hazen-Williams coefficient, C, of 120 shall be used for Plastic Pipe and 100 for Metal Pipe.
3. Pipe size equals Design Operating Period flow divided by velocity required for design pumping rate.

Force Main Design:

Check minimum/maximum velocity allowable (2 FPS up to 5 FPS) for pipe size for the range of pumping conditions (111 GPM to 208 GPM),

Check 111 GPM MIN AND MAX PREFERRED:

$$A = \frac{0.002228 \text{ CFS/GPM} \times 111 \text{ GPM}}{2.0 \text{ FPS (min Vel}_{allow})} = 0.1236 \text{ SF}$$

$$D^2 = \frac{0.1236 \text{ SF} \times 144 \text{ IN}^2/\text{SF} \times 4}{3.14} = 22.67 \text{ IN}^2$$

D = **4.76 IN DIAMETER**

$$A = \frac{0.002228 \text{ CFS/GPM} \times 111 \text{ GPM}}{5.0 \text{ FPS (max Vel}_{allow})} = 0.0495 \text{ SF}$$

$$D^2 = \frac{0.0495\ SF \times 144\ IN^2/SF \times 4}{3.14} = 9.08\ IN^2$$

D = **3.01 IN DIAMETER**

Check 208 GPM MIN AND MAX PREFERRED:

$$A = \frac{0.002228\ CFS/GPM \times 208\ GPM}{2.0\ FPS\ (min\ Vel_{allow})} = 0.2317\ SF$$

$$D^2 = \frac{0.2317\ SF \times 144\ IN^2/SF \times 4}{3.14} = 42.50\ IN^2$$

D = **6.52 IN DIAMETER**

$$A = \frac{0.002228\ CFS/GPM \times 208\ GPM}{5.0\ FPS\ (max\ Vel_{allow})} = 0.0927\ SF$$

$$D^2 = \frac{0.0927\ SF \times 144\ IN^2/SF \times 4}{3.14} = 17.00\ IN^2$$

D = **4.12 IN DIAMETER**

Check velocity for use of a 6-inch force main sewer:

$$Vel = \frac{Q/A = 0.002228\ CFS/GPM \times 111\ GPM}{0.196\ SF}$$

Vel = **1.26 FPS, 6-inch force main will need to maintain higher range of flow than the minimum 111 GPM.**

$$Vel = \frac{Q/A = 0.002228\ CFS/GPM \times 208\ GPM}{0.196\ SF}$$

Vel = **2.36 FPS, 6-inch force main will need to maintain flow close to the 208 GPM to keep velocity over 2 fps**

For additional flow that may be added using the variable speed pumps the 6-inch force main could pump up to the following and still be below the 5 fps max preferred condition:

$$5\ fps = \frac{Q/A = 0.002228\ CFS/GPM \times 208\ GPM}{0.196\ SF}\ ;\ \textbf{\textit{Q = 439 GPM}}$$

Check velocity for use of a 4-inch force main sewer:

$$\text{Vel} = \frac{Q/A = 0.002228 \text{ CFS/GPM} \times 111 \text{ GPM}}{0.087 \text{ SF}}$$

Vel = **2.84 FPS, 4-inch force main ok**

$$\text{Vel} = \frac{Q/A = 0.002228 \text{ CFS/GPM} \times 208 \text{ GPM}}{0.087 \text{ SF}}$$

Vel = **5.33 FPS, 4-inch force main slightly over preferred maximum at 208 GPM, will be sufficient from minimum 111 GPM up to almost max 208 GPM.**

Wet Well Design

Optimum wet well volume (including 3-FT drawdown):

$$V = \phi q/4$$

V = required capacity in gallons
ϕ = minimum time of one pumping cycle in minutes, start-to-start (ideally, 15 minutes for medium size to small size facilities)
q = pump capacity in gallons per minute

For Dry Weather Flows Design (low setting pumping to BCSD):

V = (15 Minutes) (111 GPM) / 4
= 416.25 Gallons

For Dry Weather Flows Design (high setting pumping to BCSD):

V = (15 Minutes) (208 GPM) / 4
= 780.00 Gallons

For Peak Daily Flows Design:

V = (15 Minutes) (407 GPM) / 4
= 1,527 Gallons

Calculate Storage:
Maximum Liquid Level = 503.19 (to prevent overflow/backup). Emergency response storage volume in upstream sewer system is as follows:

Existing:
-Original 6' Diam Wetwell (503.19 - 494.24) * 47.12 SF/FT = 421.73 CF
-"MH WWTP#1" (503.19 – 497.76) * 12.56 SF/FT = 68.20 CF
-Influent Sewer Line (from MH WWTP#1 to Existing Pump Station Wetwell) = 11.5 LF of 12" VCP = 11.5 x 0.785 SF = 9.03 CF
-Influent Sewer Line (from MH WWTP#! to upstream MH WWTP#2) = 230 LF of 12" VCP = 230 x 0.785 = 180.55 CF
-"MH WWTP#2" (503.19 – 499.46) * 12.56 SF/FT = 46.85 CF

Proposed:
-Proposed Sewer Line 1(from MH WWTP#1 to Proposed Manhole WWTP#3) = 14 LF of 12" PVC = 14 x 0.785 SF = 10.99 CF
-Proposed Sewer Line 2(from Ex. Pump Station Wetwell to Proposed Manhole WWTP#3) = 13.8 LF of 12" PVC = 12 x 0.785 = 9.42 CF
-Proposed MH WWTP#3 (503.19 – 493.54) * 12.56 SF/FT = 121.20 CF
-Proposed Sewer Line 3 (from MH WWTP#3 to Proposed Wetwell "B") = 15.6 LF of 12" PVC = 15.6 * 0.785 = 12.25 CF
-Proposed Sewer Line 4 (3' stub between wetwells) = 3 * 0.785 = 2.35 CF

Total Line & Manhole Storage = 7.48 gallons/CF x 882.57 CF = 6,602 Gallons

-New 10' Diam. PS Wetwell "A" (503.19 – 488.56) * 78.53 SF/FT =
14.63 * 78.53 SF/FT = 1148.89 CF
Storage in PS Wetwell = 7.48 gallons/CF x 1148.89 CF = 8594 Gallons

-Additional 10' Diam. Wetwell "B" (503.19 – 486.50) * 78.53 SF/FT =
16.69' * 78.53 SF/FT = 1310.66 CF
Storage in Addl Wetwell = 7.48 gallons/CF x 1310.66 CF = 9804 Gallons

Total Emergency Storage in Wetwells = 18,398 Gallons

See table 3 for listings of wet well volumes and depths required. A 10' diameter wetwell/manhole will be constructed to include the storage needed for the design.

TABLE 3
WET WELL VOLUMES

Design Condition	Wet Well Volume for Optimum Operation (gal)	(1) Design Operating Period Peak Flow (gpm)	(2) 120 Min Emergency Response Storage Volume = (1) x 120 (min)	(3) Storage Volume (gal)	(4) Volume Required for Emergency Storage (2) – (3) (gal)	(5) 10' Ø Manhole Vertical Storage Needed (4) ÷ 587.5 (ft)
Avg Flow	416.25	111	13,320	6,602	6,718	11.43
Avg High	780.00	208	24,960*	6,602	18,358	31.25

* In order to provide for additional storage for an hourly peak flow, the peak flow identified at 407 gpm provides 24,420 gallons. The storage provided will additionally meet this requirement.

Float Setting Calculations

Elevation settings for pump station level control switches to be set in the 10' diameter wet well are provided in Table 4.

TABLE 4
LEVEL CONTROL SWITCH SETTINGS

Reference Point	Description	Design Elevations
Wet Well Top	3-feet above finish grade	505.50
Finish Grade	Provide 4" edge above finish grade	505.17
Maximum Liquid Level	Set to avoid overflows/backups	503.19
Influent Sewer	Influent line to Main PS Wetwell	486.50
High Level Alarm	Begin Emergency Storage Depth	488.56
Pump On	12-inches below High Level Alarm	487.56
Pumps Off	12-inches drawdown depth from Pump On	486.56
Minimum Submergence	12-inches below Pump Off	485.56
Wet Well Bottom	24-inches below Minimum Submergence	483.56

Hydraulic Calculations

The 4-inch force main will discharge to an existing 8-inch gravity sewer that runs parallel to Blue Lick Road approximately 1050 feet south to the Union Tool Pump Station. The invert elevation of the force main at the proposed manhole tie-in is 501.00. The high point in the profile, which occurs at station 7+50, is 504.90.

The 6-inch force main will discharge directly to an existing 8-inch gravity sewer that runs southeast of the Union Tool Pump Station on the east side of Blue Lick Road, approximately 3025 feet and directs flow to the Pioneer Village Collection System. The invert elevation of the force main at the proposed manhole tie-in is 486.00. The high point in the profile, which occurs at station 7+50, is 504.90.

Design Static Head (4-inch FM) = I.E. Force Main @ High Point Elevation – "Average of Pump ON/OFF" Elevation

$$H_s = 504.90 - 488.20 = \underline{\mathbf{16.70\ FT}}$$

TABLE 5A
EQUIVALENT LENGTH PUMP STATION LOSSES (4-INCH FORCE MAIN):

Type of Head Loss	Quantity	Equivalent Pipe Length for Each Type of Head Loss (ft.)	Total Equivalent Pipe Length (ft.)
Pump Entrance	1	10	10
Check Valve	1	40	40
4" Flow Meter	1	40	40
4" Discharge Pipe	1	10	10
4" Gate Valve	1	4	4
4" – 90 Bend	0	16	0
4" - 45 Bend	5	9	45
4" – 22 ½ Bend	0	5	0
4" – 11 ¼ Bend	1	2	2
		Equivalent Pipe Length Subtotal	151
		Total Length of Force Main (4-inch)	1,050
		Total Equivalent Length (4-Inch FM)	**1,201**

Tables 6 and 7 calculate TDH (ft) and System Head Data for both the 4-Inch and 6-Inch force mains. Included are pump station losses tabulated in Table 5A and 5B using equivalent pipe lengths determined from force main design plans provided from Derrick Engineering/BCSD. The pumps will be designed to pump to the high point at STA. 7+50, and gravity the rest of the way.

TABLE 5B
EQUIVALENT LENGTH PUMP STATION LOSSES (6-INCH FORCE MAIN):

Type of Head Loss	Quantity	Equivalent Pipe Length for Each Type of Head Loss (ft.)	Total Equivalent Pipe Length (ft.)
Pump Entrance	1	10	10
Check Valve	1	40	40
6" Flow Meter	1	40	40
6" Discharge Pipe	1	10	10
6" Gate Valve	1	4	4
6" – 90 Bend	1	16	16
6" - 45 Bend	8	9	72
6" – 22 ½ Bend	0	5	0
6" – 11 ¼ Bend	3	2	6
		Equivalent Pipe Length Subtotal	198
		Total Length of Force Main (6-inch)	3,025
		Total Equivalent Length (6-Inch FM)	**3,223**

Pump Selection

Specific pump type and other information for each of the design conditions documented above are provided in Table 7 below. The pumps were selected based on specific needs and comparison to pump curves using Table 6A and 6B as shown on the following pages.

For the design, each pump will be operating between 111 and 208 GPM and between 18' and 32' TDH, with a scouring velocity of 2.04 up to 5.30 FPS. For maximum flow conditions one pump can operate up to 320 GPM at 49' of TDH. Refer to attached pump curves as Appendix 1 of this report.

TABLE 7
PUMP CHARACTERISTICS

Pump Information	4-inch Force Main	6-inch Force Main
Design Flow Rate (GPM)	111	208
Force Main Size (IN)	4.0	6.0
Total Dynamic Head (FT)	18'	32'
Type of Pump	Submersible	Submersible
Model	Essco 493 (or Equal)	Essco 493 (or Equal)
Speed (RPM)	1750	1750
Motor	15 hp VFD	15 hp VFD
Discharge Size (IN)	4	4
Solids Size Passing (IN)	3"	3"
Impeller	9" Vortex 8 Vane	9" Vortex 8 Vane

Table 6A

4-inch Force Main Operating Condition

4" Force Main "A" (Equiv. L = 1,201 FT.)					
PUMP FLOW (GPM)	HEAD LOSS (FT./1,000 FT.) h_f	VELOCITY (FPS)	STATIC HEAD (FT.)	TDH (FT.)	
0	0.00	0.00	16.7	17	
10	0.02	0.26	16.7	17	
20	0.07	0.51	16.7	17	
30	0.16	0.77	16.7	17	
40	0.27	1.02	16.7	17	
50	0.41	1.28	16.7	17	
60	0.57	1.53	16.7	17	
70	0.76	1.79	16.7	17	
80	0.97	2.05	16.7	18	**Low**
90	1.21	2.30	16.7	18	
100	1.46	2.56	16.7	18	
110	1.75	2.81	16.7	18	
120	2.05	3.07	16.7	19	
130	2.38	3.33	16.7	19	
140	2.73	3.58	16.7	19	
150	3.10	3.84	16.7	20	
160	3.49	4.09	16.7	20	
170	3.91	4.35	16.7	21	
180	4.34	4.60	16.7	21	
190	4.80	4.86	16.7	22	
200	5.28	5.12	16.7	22	
210	5.78	5.37	16.7	22	**High**
220	6.30	5.63	16.7	23	
230	6.84	5.88	16.7	24	
240	7.40	6.14	16.7	24	
250	7.98	6.40	16.7	25	
260	8.58	6.65	16.7	25	
270	9.20	6.91	16.7	26	
280	9.84	7.16	16.7	27	
290	10.50	7.42	16.7	27	
300	11.18	7.67	16.7	28	
310	11.88	7.93	16.7	29	
320	12.59	8.19	16.7	29	
330	13.33	8.44	16.7	30	
340	14.09	8.70	16.7	31	
350	14.87	8.95	16.7	32	
360	15.66	9.21	16.7	32	
370	16.48	9.47	16.7	33	
380	17.31	9.72	16.7	34	
390	18.16	9.98	16.7	35	
400	19.03	10.23	16.7	36	

Table 6B

6-inch Force Main Operating Condition

6" Force Main "B" (Equiv. L = 3,223 FT.)					
PUMP FLOW (GPM)	HEAD LOSS (FT./1,000 FT.) h_f	VELOCITY (FPS)	STATIC HEAD (FT.)	TDH (FT.)	
0	0.00	0.00	16.7	17	
10	0.05	0.11	16.7	17	
20	0.19	0.23	16.7	17	
30	0.41	0.34	16.7	17	
40	0.70	0.45	16.7	17	
50	1.05	0.57	16.7	18	
60	1.48	0.68	16.7	18	
70	1.96	0.79	16.7	19	
80	2.51	0.91	16.7	19	
90	3.13	1.02	16.7	20	
100	3.80	1.13	16.7	20	
110	4.53	1.25	16.7	21	
120	5.32	1.36	16.7	22	
130	6.17	1.48	16.7	23	
140	7.08	1.59	16.7	24	
150	8.04	1.70	16.7	25	
160	9.06	1.82	16.7	26	
170	10.14	1.93	16.7	27	
180	11.27	2.04	16.7	28	**Low**
190	12.45	2.16	16.7	29	
200	13.69	2.27	16.7	30	
210	14.99	2.38	16.7	32	**High**
220	16.33	2.50	16.7	33	
230	17.73	2.61	16.7	34	
240	19.19	2.72	16.7	36	
250	20.69	2.84	16.7	37	
260	22.25	2.95	16.7	39	
270	23.86	3.06	16.7	41	
280	25.52	3.18	16.7	42	
290	27.23	3.29	16.7	44	
300	28.99	3.40	16.7	46	
310	30.80	3.52	16.7	48	
320	32.67	3.63	16.7	49	
330	34.58	3.74	16.7	51	
340	36.54	3.86	16.7	53	
350	38.56	3.97	16.7	55	
360	40.62	4.08	16.7	57	
370	42.73	4.20	16.7	59	
380	44.89	4.31	16.7	62	
390	47.10	4.43	16.7	64	
400	49.36	4.54	16.7	66	

Buoyancy Calculations (see Figure 3 for dimensions)

Compute buoyancy force:

Buoyancy Force = (displaced volume) (unit weight of water)

Displaced Volume = Volume barrel + Volume bottom slab
= $(\pi\ (5.92\ FT)^2\ (23.67\ FT)) + (\pi\ (8.66)^2)\ (0.67\ FT)$
= $2{,}606.1\ FT^3 + 157.9\ FT^3$
= $2{,}764\ FT^3$

Buoyancy Force = $(2{,}764\ FT^3)\ (62.4\ LB/FT^3)$
= 172,473.6 LBS

Compute opposing force:

Opposing Force = weight of barrel + weight of bottom slab + weight of top slab + weight of saturated soil over bottom slab extension

Barrel Weight = $((\pi r_e^2) - (\pi r_i^2)$ (height) (unit weight concrete)
= $((\pi\ (5.92\ FT)^2) - (\pi\ (5\ FT)^2))\ (23.67\ FT)\ (150\ LB/FT^3)$
= 112,059.8 LB

Bottom Slab = (πr^2) (thickness) (unit weight concrete)
= $(\pi\ (8.67\ FT)^2)(0.67\ FT)\ (150\ LB/FT^3)$
= 23,753.1 LB

Top Slab Weight = (Volume top slab - Volume opening) (unit weight concrete)
= $(\pi\ (5.92\ FT)^2 - (3\ FT \times 2\ FT))\ (0.67)\ (150\ LB/FT^3)$
= 10,462.2 LB

Saturated Soil Weight = (Volume soil over slab) (unit wt. soil - unit wt. water)
= $[((\pi\ (8.67\ FT)^2 - \pi\ (5.92\ FT)^2)\ (23.51\ FT))$
$(120\ LB/FT^3 - 62.4\ LB/FT^3)$
= 170,691.9 LB

Opposing Force = 112,059.8 LB + 23,753.1 LB + 10,462.2 LB + 170,691.9 LB
= 316,967 LB

Factor of Safety = 316,967 / 172,473.6
= 1.84 (> 1.5) OK

Force Main Pressure and Water Hammer Calculations

From the UNI-BELL Handbook of Pipe, Design and Construction, 1986, water hammer is an increase in pressure in a pipe caused by a sudden change in velocity. The velocity change usually results from closing of a valve. The maximum surge pressure encountered related to the wave velocity is defined as follows:

$$a = 4660/(1 + (k/E)(DR-2))^{1/2}$$

Where:

a	=	Wave velocity (FPS)
k	=	Fluid bulk modulus, 300,000 psi for water
DR	=	dimension ratio
	=	(OD (in)/(wall thickness (IN)))
	=	21 for pressure class rating of 200 psi
E	=	Modulus of Elasticity of pipe
	=	400,000 psi for PVC

$$a = 4660/((1+((300{,}000 \text{ psi})/(400{,}000 \text{ psi}))(21-2))^{1/2}$$

$$a = 808 \text{ FPS}$$

And the maximum pressure surge equals:

$$P = aV/2.31g$$

Where:

V	=	Maximum change in velocity
g	=	Acceleration due to gravity (32.2 FT/S^2)
P	=	Pressure Surge, (psi)

Determine maximum change in velocity:

The worst case scenario for maximum velocity in the 6" would occur if the pump station shut down while both pumps were running at the minimum static head condition in the 6" pipe:

$$V = q/A$$
$$= (433 \text{ GPM})\ (0.002228 \text{ CFS/GPM}) / (0.196 \text{ FT}^2)$$
$$= 4.92 \text{ FPS}$$

By assuming velocity goes to 0 FPS when the station is shut down, ΔV becomes 4.92 FPS, and the maximum pressure surge is as follows:

$$P = (808)(4.92)/(2.31)(32.2)$$
$$= 53.4 \text{ psi}$$

Check total Pressure:

$$\text{Total Pressure} = \text{Surge} + \text{Static}$$
$$= 53.4 \text{ psi} + 49 \text{ ft } (62.4 \text{ lb/ft}^3/144 \text{ in}^2/\text{ft}^3) \text{ @max}$$
$$= 53.4 \text{ psi} + 21.1 \text{ psi}$$
$$= 74.5 \text{ psi}$$

Since rated pipe pressure = 150 psi Selection OK

Cyclic Surge (Fatigue) Analysis:

$$C = (5.05 \times 10^{21})S^{-4.906}$$

Where

S = peak hoop stress, psi
C = average number of cycles to failure

In estimating the "worst case" conditions:

$C = (10 \text{ cycles/hr}) \times (24 \text{ hr/day}) \times (365 \text{ day/yr}) \times (80 \text{ yr/lifetime})$
$C = 7.01 \times 10^6 \text{ cycles/lifetime}$

Calculate peak hoop stress

$$S = (5.05 \times 10^{21}/C)^{0.204}$$
$$S = 1{,}067.7 \text{ psi}$$

From "water hammer" analysis

$$P_{max} = 82.7 \text{ psi}$$

From ISO formula;

$$\text{DR Required} = (2S/P) + 1$$
$$= (2*1{,}067.7/82.7) + 1$$
$$= 26.82$$

Therefore, a PVC should be selected with DR < 26.82. The proposed force main has a DR of 17. Selection is OK.

- END -

Construction Plans for Hunters Hollow Pump Station

Hillview, Kentucky (Bullitt County)

Index of Drawings

GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIAL, EQUIPMENT, TOOLS, AND SERVICES REQUIRED TO COMPLETE CONSTRUCTION AND MATERIAL TESTING FOR THE WORK. ALL WORK SHALL BE PERFORMED IN A SAFE AND REASONABLE WORKING MANNER IN ACCORDANCE WITH THE BEST PRACTICES AND PROCEDURES.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL, ORDINANCES, REGULATIONS AND REQUIREMENTS NECESSARY TO COMPLETE THE WORK; THIS INCLUDES PROVISIONS FOR MAINTENANCE OF TRAFFIC, CONSTRUCTION AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
3. ALL CONSTRUCTION METHODS, MATERIALS AND WORK ACTIVITIES SHALL BE IN ACCORDANCE WITH TEN STATES STANDARDS AND THE BULLITT COUNTY SANITATION DISTRICT.UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. INDIVIDUAL SERVICE LINES ARE NOT SHOWN. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER "KENTUCKY 811" (TOLL FREE PHONE NO. 1-800-752-6007 OR LOCAL NO. 502-266-5123) FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS AND WATERLINES). WHEN CONTACTING THE KENTUCKY 811 CALL CENTER, PLEASE STATE THAT THE WORK TO BE DONE IS FOR A PROPOSED MSD SEWER OR DRAINAGE FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS IN THE TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS.
5. ALL SOIL EROSION CONTROL AND PREVENTION, STORM WATER DRAINAGE WORK AND SANITARY SEWER CONSTRUCTION SHALL CONFORM TO BULLITT COUNTY STANDARDS AND REQUIREMENTS AND SPECIFICATIONS.

EROSION PREVENTION AND SEDIMENT CONTROL NOTE

THE APPROVED EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN SHALL BE IMPLEMENTED PRIOR TO ANY LAND-DISTURBING ACTIVITY ON THE CONSTRUCTION SITE. ANY MODIFICATIONS TO THE APPROVED EPSC PLAN MUST BE REVIEWED AND APPROVED BY THE LOCAL AGENCY'S DEVELOPMENT REVIEW OFFICE. EPSC BMP'S (BEST MANAGEMENT PRACTICES) SHALL BE INSTALLED PER THE PLAN AND MSD STANDARDS.

ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.

SOIL STOCKPILES SHALL BE LOCATED AWAY FROM STREAMS, PONDS, SWALES, AND CATCH BASINS. STOCKPILES SHALL BE SEEDED, MULCHED, AND ADEQUATELY CONTAINED THROUGH THE USE OF SILT FENCE.

ALL STREAM CROSSINGS MUST UTILIZE LOW-WATER CROSSING STRUCTURES.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING OR OTHER EXCAVATION ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.

WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 DAYS AFTER THE ACTIVITY HAS CEASED.

AGENCY/UTILITY COMPANY CONTACTS

SANITARY SEWERS BULLITT COUNTY SANITATION DISTRICT 297 LEES LANE NORTH HILLVIEW, KENTUCKY 40159 (502) 957-6410	WATER LOUISVILLE WATER CO. 550 SOUTH THIRD STREET LOUISVILLE, KENTUCKY 40202 (502) 569-3600	BUILDING DEPARTMENT BUILDING PERMITS 149 WALNUT STREET SHEPHERDSVILLE, KY 40156 502-543-6832
GAS & ELECTRIC LOUISVILLE GAS & ELECTRIC 220 WEST MAIN STREET LOUISVILLE, KY 40202 (502) 333-1941	STORMWATER BULLITT COUNTY 149 WALNUT STREET SHEPHERDSVILLE, KY 40156 502-543-6832	KENTUCKY TRANSPORTATION CABINET DISTRICT 5 8310 WESTPORT ROAD LOUISVILLE, KY 40242 502-210-5400
TELEPHONE AT&T TELECOMMUNICATIONS 3719 BARDSTOWN ROAD LOUISVILLE, KENTUCKY 40218 (502) 454-8665	FIRE ZONETON FIRE DISTRICT 5328 PRESTON HWY SHEPHERDSVILLE, KY 40165 (502) 955-8076	BULLITT COUNTY HEALTH DEPARTMENT 181 LEES VALLEY ROAD SHEPHERDSVILLE, KY 40165 502-543-2415

UTILITY NOTE

ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. INDIVIDUAL SERVICE LINES ARE NOT SHOWN. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER KENTUCKY 811 (TOLL FREE PHONE NO. 1-800-752-6007 OR LOCAL NO. 502-266-5123) FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS & WATER LINES). WHEN CONTACTING THE KENTUCKY 811 CALL CENTER, PLEASE STATE THE WORK TO BE DONE IS FOR A PROPOSED MSD SEWER OR DRAINAGE FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS AND IN THE TECHNICAL SPECIFICATIONS & SPECIAL PROVISIONS.

BENCH MARKS (NAVD 1988 DATUM):

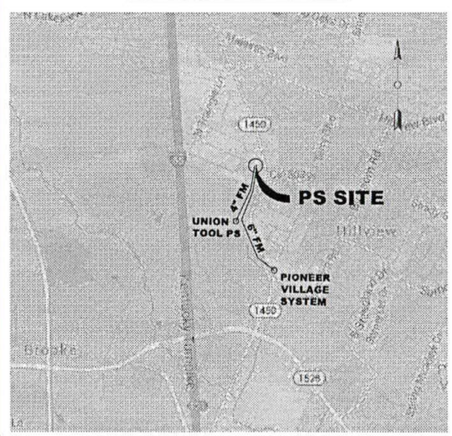
VERTICAL CONTROL FOR THIS PROJECT IS BASED ON REFERENCE MONUMENTATION FRO BULLITT COUNTY SANITATION DISTRICT.

BM #1 CORNER OF EXISTING PUMP HOUSE ELEV. 504.58

BACKFILL TYPE:

TYPE 1 - SAND; FLUSHED AND JETTED
TYPE 2 - EXCAVATED MATERIALS; FLUSHED AND JETTED.
(USE TYPE 2 BACKFILL UNLESS OTHERWISE NOTED)

Vicinity Map



JEFFERSON COUNTY, LOUISVILLE, KENTUCKY SCALE: NTS

The New Look For Digging Safely In Kentucky Kentucky 811 *Call 811 Before You Dig*

APPLICABLE MSD STANDARD DRAWINGS:

SILT FENCE	EF-10-01
CRUSHED STONE ENCASEMENT	GC-02-01
CONCRETE CAP	GC-03-00
PVC VERTICAL DROP INLET	SD-01-01

LEGEND

- 4" PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 4" Y OR T BRANCH WITH STOPPER PSC IS NOT TO BE CONSTRUCTED
- 4" PSC TO BE CONSTRUCTED FROM STACK AT SEWER TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 4" Y OR T BRANCH WITH STOPPER TO BE CONSTRUCTED FROM STACK AT SEWER PSC IS NOT TO BE CONSTRUCTED
- 4" PSC TO BE CONSTRUCTED PSC IS NOT AVAILABLE FOR CONNECTION UNTIL THE CAPACITY CHARGE IS PAID
- 6" PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 6" Y OR T BRANCH WITH STOPPER PSC IS NOT TO BE CONSTRUCTED
- 6" SIAMESE PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 6" PSC TO BE CONSTRUCTED FROM STACK AT SEWER TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 6" Y OR T BRANCH WITH STOPPER TO BE CONSTRUCTED FROM STACK AT SEWER PSC IS NOT TO BE CONSTRUCTED
- 6" PSC TO BE CONSTRUCTED PSC IS NOT AVAILABLE FOR CONNECTION UNTIL THE CAPACITY CHARGE IS PAID
- BENCH MARK
- S• SOUNDING LOCATION (PLAN)
- SOUNDING TO ROCK OR REFUSAL (PROFILE)
- SOUNDING NO ROCK (PROFILE)
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING GAS LINE
- G PROPOSED GAS LINE
- X EXISTING WATER LINE
- W PROPOSED WATER LINE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THESE PLANS AND SURVEY WERE MADE UNDER MY SUPERVISION AND THAT THE ANGULAR AND LINEAR MEASUREMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THE TOPOGRAPHIC FEATURES SHOWN WERE LOCATED OR VERIFIED AT THE TIME THE SURVEY WAS MADE. THE SURVEY INFORMATION SHOWN HEREON MEETS OR EXCEEDS THE MINIMUM STANDARDS OF GOVERNING AUTHORITIES.

SIGNATURE P.L.S. NO. DATE

Kentucky 811 " CALL BEFORE YOU DIG "B.U.D." "
1 (800) 752-6007

NOTE: THE LOCATION OF UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES ONLY, OR UTILITY MARKINGS PERFORMED BY THIRD PARTIES (BEFORE YOU DIG SERVICES AND/OR LOCATION SERVICES).

NOTE: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION AND SHALL CONTACT THE KENTUCKY UNDERGROUND PROTECTION, INC. A MINIMUM OF TWO WORKING DAYS PRIOR TO DIGGING AT TELEPHONE 1 (800) 752-6007. NO EXCAVATION SHALL COMMENCE UNTIL ALL APPLICABLE UTILITIES HAVE BEEN CLEARED

NOTE: PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED, IMMEDIATELY, TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

REVISIONS

Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

COVER

SHEET NO. C1

DATE: 12-18-14
SCALE: NTS

DRAWN BY: CS CHECKED BY: CTC

LEGEND

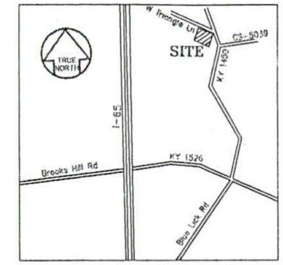
- EXISTING TREE
- DENOTES DRAINAGE FLOW
- PROPOSED CONTOURS
- EXISTING CONTOURS
- EXISTING PSC
- EXISTING DITCH/FLOW LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC

GENERAL NOTES

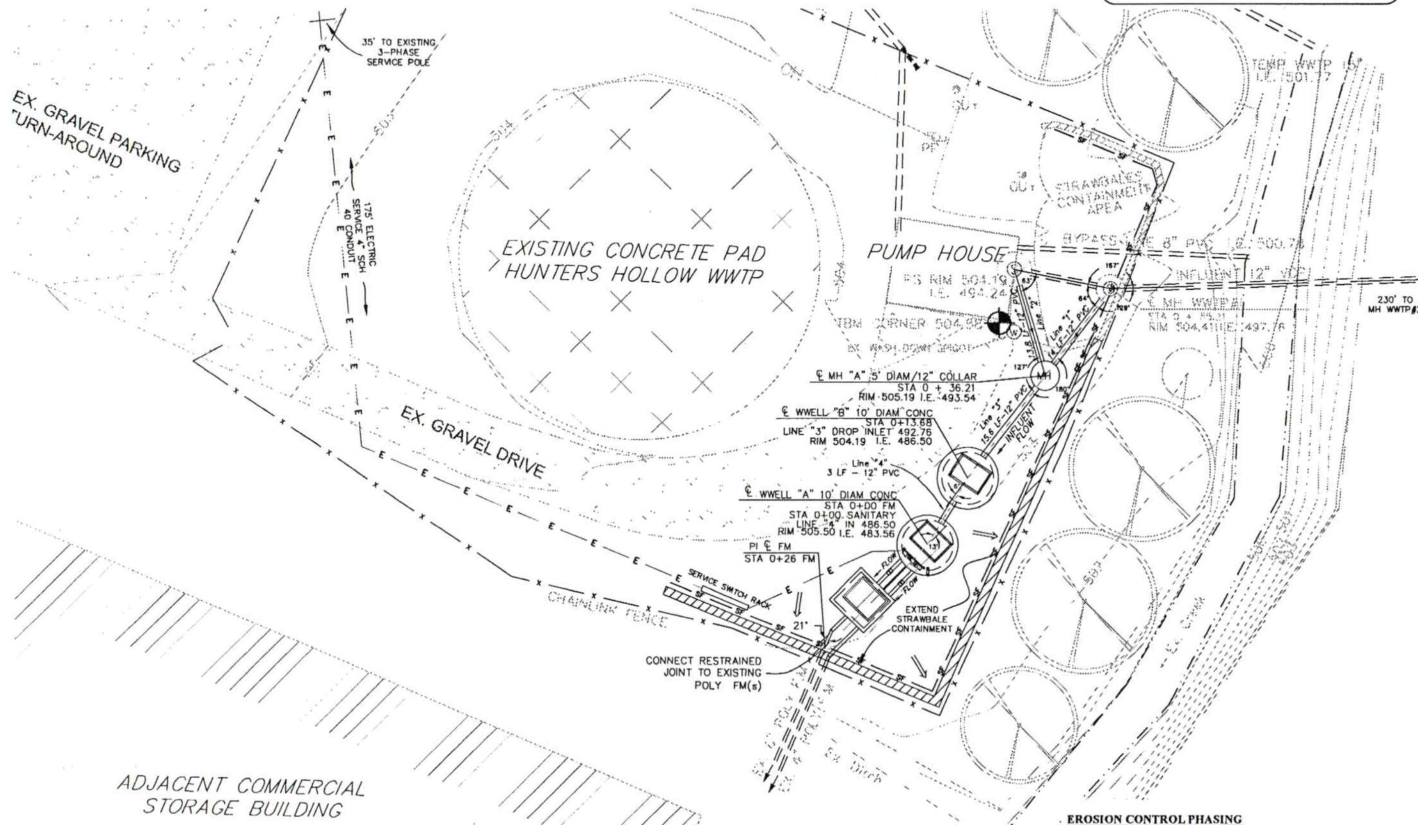
1. TOTAL SITE AREA IS APPROXIMATELY 1.6 ACRES.
2. LIMITS OF DISTURBANCE = 2,600 SF (0.060 AC.)
3. SITE IS LOCATED WITHIN THE BULLITT UTILITIES/BULLITT COUNTY SANITATION DISTRICT SERVICE AREA.
4. FLOODPLAIN ON THIS SITE PER FEMA FIRM PANEL: 21111C0127E.
5. HYDROLOGIC SOIL GROUP AT FINISH GRADE SHALL BE CONSISTENT WITH EXISTING SOIL TYPES.
6. CONTOUR DATA ON THIS PLAN WAS DERIVED FROM FIELD POINTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING EXISTING ROADWAYS ONCE CONSTRUCTION ACTIVITY BEGINS & IN CONFORMITY TO STANDARD EPSC MEASURES.
8. EPSC CONTROLS TO BE INSPECTED EVERY 7 CALENDAR DAYS AND/OR AFTER EVERY RAIN FALL EVEN TOTALING 0.5" OR MORE.
9. RECEIVING BODY OF WATER IS A TRIBUTARY TO BROOKS RUN.
10. ALL DISTURBED AREAS TO BE SEEDED AND STRAWED AFTER GRADING IS COMPLETE

EPSC Legend

- PROPOSED DRAINAGE FLOW ARROW
- SILT FENCE
- LIMITS OF DISTURBANCE
- STRAWBALE CONTAINMENT



LOCATION MAP
NOT TO SCALE



WASTEWATER TREATMENT PLANT CLOSURE PLAN FOR NEW PUMP STATION:

1. Contractor shall initially install silt fence and strawbales to provide a containment area during construction to protect the adjacent stream.
2. Contractor shall then install Manhole "A", and Wetwells "A" and "B" including associated valve vault, fittings, valves, pumps, guidrails and all associated floats and alarms, and connect the wetwells with proposed 12-inch PVC Line "4".
3. 3-phase electric service shall be provided to the proposed Service Switch Rack and service extended to the pump station control panel near Wetwell "A".
4. Proposed Line "3" shall be installed from Wetwell "B" to proposed Manhole WWTP#3, and then Line "2" shall be installed by core drilling and installing rubber boot connector to existing Manhole WWTP#1, and providing a line plug to prevent wastewater flow from entering the new wetwells/pump station.
5. Both the 4-inch and 6-inch force mains shall be connected from the proposed valve vault to the existing 4-inch and 6-inch force main lines adjacent to the pump station site. All sewers, valves, manholes, wetwells, flow meters, electrical control systems, and appurtenances shall be thoroughly tested according to Bullitt County Sanitation District and Ten States Standards. The existing water service line and spigot at the pump house may be used for filling, testing, and cleaning as necessary during construction operations..
6. Pump settings, alarms, and control systems shall be tested and working properly prior to change-over of wastewater flow(removal of plug at ManholeWWTP#1) from the existing pump station and treatment facility to allow wastewater flow to fill the wetwell/pump station. Coordinate/schedule inital pumping to Bullitt County sanitation District (BCSD) Facilities with the inspector.
7. Once the new pump station is operating, Line "2" may be constructed, and connected to the original pump station wetwell at the pump house by core drilling and installing rubber boot connector, to allow for cleaning of the existing wetwell for additional storage as needed.
8. All temporary piping/hosing and connections to the temporary wastewater treatment facility onsite may then be disconnected, and the temporary treatment facility dismantled and removed from the site.
9. The existing pump house will remain onsite to be utilized for access to the existing wetwell, and to be used for general storage of materials, tools, and equipment.
10. Coordinate all final O&M manuals and pump station operations and schedules with Bullitt Utilities and BCSD.

ADJACENT COMMERCIAL STORAGE BUILDING

EROSION PREVENTION AND SEDIMENT CONTROL NOTE

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ALL STREAM CROSSINGS MUST UTILIZE LOW-WATER CROSSING STRUCTURES.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING OR OTHER EXCAVATION ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.

WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 DAYS AFTER THE ACTIVITY HAS CEASED.

PUMP STATION SITE

GRAPHIC SCALE SUPERCEDES NUMERIC SCALE

0 5' 10' 20'

SCALE: 1" = 10'

TRUE NORTH

GRADING NOTES:

1. THE CONTRACTOR SHALL SLOPE ALL FINISH GRADES TO PROVIDE FOR POSITIVE DRAINAGE.
2. NO GRADING ACTIVITIES WILL BE ALLOWED AROUND OR IN THE ADJACENT STREAM.
3. UPON COMPLETION ALL SILT AND/OR SEDIMENT SHALL BE REMOVED FROM INLETS AND PAVED DITCHES.
4. CONTRACTOR TO VERIFY ALL PLAN DIMENSIONS PRIOR TO INSTALLATION.

EROSION CONTROL PHASING AND SEQUENCING NOTES:

1. Prior to any construction, the contractor must install additional strawbales and silt fence for containment of area.
2. The existing rock/gravel drive will be utilized as the construction entrance. Once strawbales and silt fence are installed the contractor may start necessary grading and excavation for the pump station. Site shall be stabilized as soon as possible with seed/straw and/or sod if necessary..
3. If any erosion control measures are removed, they shall be replaced or modified as such on the approved EPSC Plan with the site inspector.
4. All erosion control measures will remain until grass areas have substantial vegetation.

CLEANOUT & MAINTENANCE SCHEDULE

For the sediment control, the contractor shall construct and maintain the silt fence and shall remove silt accumulation weekly and after six inches of rain or more until construction is complete and vegetation in the drainage area has been established. Please refer to the contractor's self inspection form for maintenance schedule for each BMP item whether shown here on or not.

Kentucky 811 " CALL BEFORE YOU DIG "B.U.D." "
1 (800) 752-6007

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REVISIONS		
Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC. BLUE LICK ROAD HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE: HUNTERS HOLLOW PUMP STATION

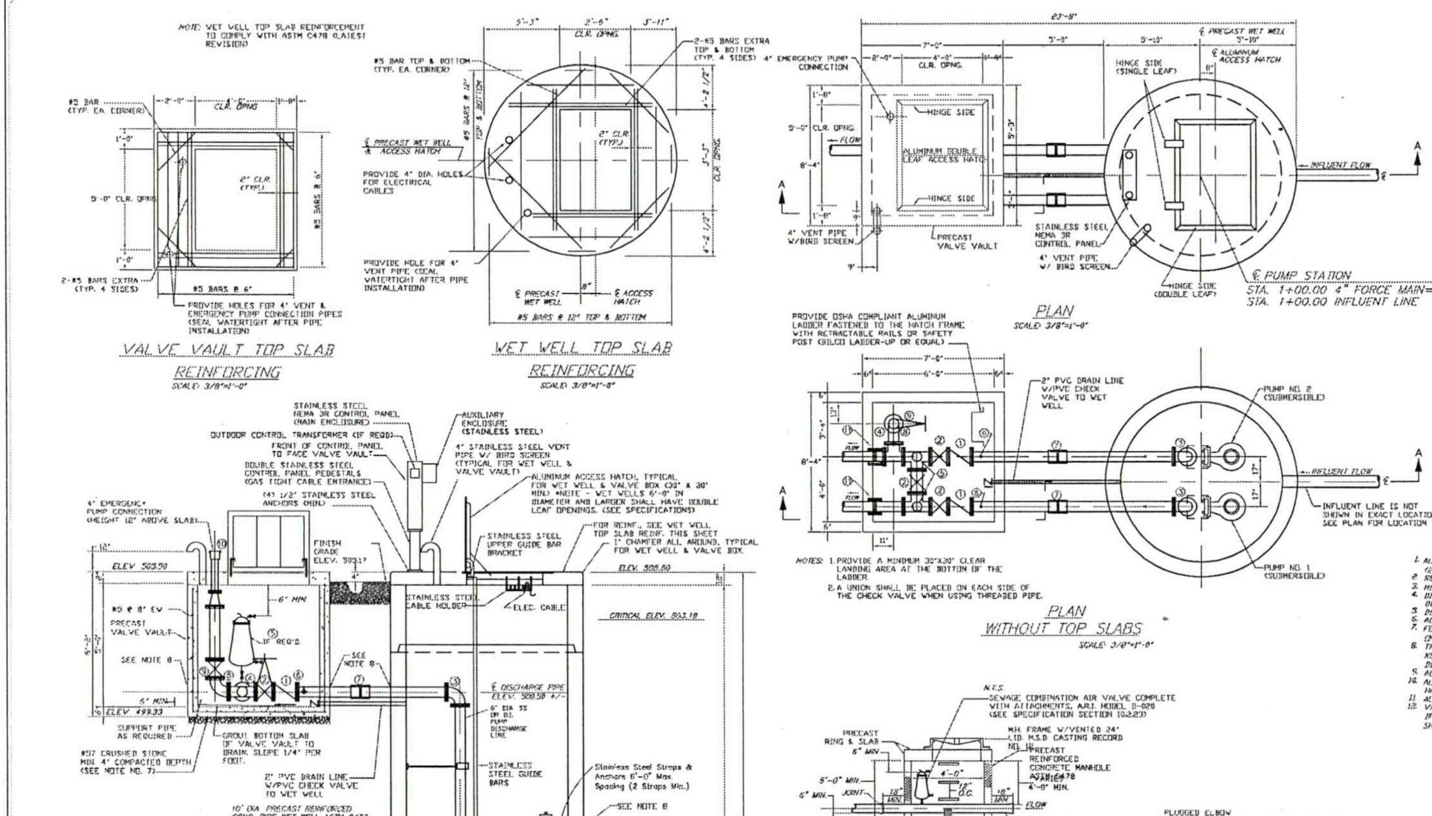
SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE BULLITT COUNTY, KENTUCKY

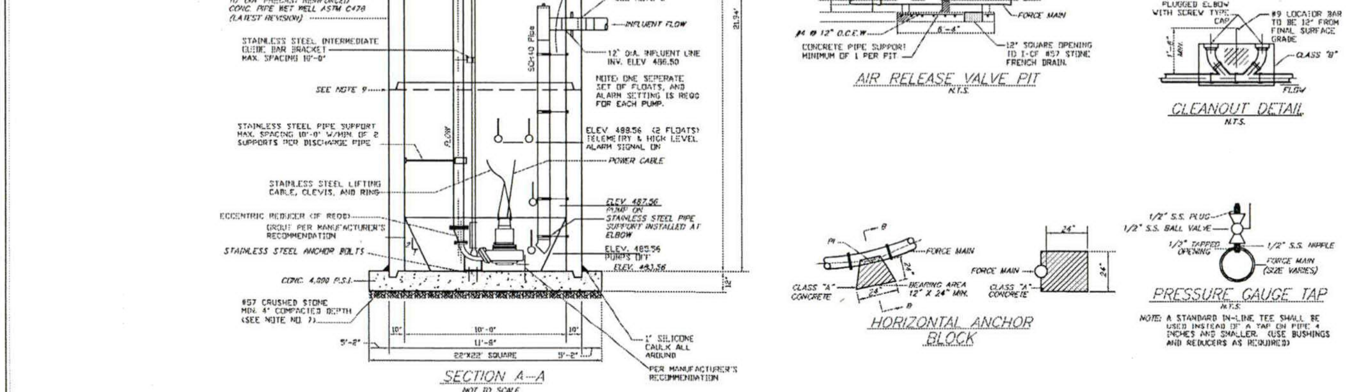
SITE PLAN

SHEET NO. C2

DATE: 12-22-14

DRAWN BY: CS | CHECKED BY: CTC





EQUIPMENT REFERENCE

1. 6" SWING CHECK VALVE WITH LEVER AND WEIGHT LOCATED INWARD
2. 6" GATE VALVE (RESILIENT SEAT, RISING STEM)
3. 6" 90° ELBOW
4. 6" TEE
5. SEWAGE COMBINATION AIR VALVE COMPLETE W/ATTACHMENTS, A.R.I. MODEL D-020 (SEE SPECIFICATION SECTION 10.2.23)
6. SEE PRESSURE GAUGE TAP DETAIL (MIN. 6" CLEARANCE BETWEEN TAP AND EDGE OF WALL)
7. 6" COATED MECHANICAL COUPLING (MUST BE RESTRAINING JOINT TYPE)
8. 6" 90° ELBOW (FOR EMERGENCY PUMP CONNECTION. SIZE EQUIVALENT TO DISCHARGE PIPE)
9. 6" GATE VALVE (RESILIENT SEAT, RISING STEM FOR EMERGENCY PUMP CONNECTION SIZE EQUIVALENT TO DISCHARGE PIPE)
10. 6" STAINLESS STEEL CAM-LOCKING ADAPTER WITH STAINLESS STEEL LOCKING DUST CAP (SEE SPECIFICATION SECTION 10.2.21)
11. 6" CROSS – TEE

GENERAL NOTES

1. ALL CONCRETE SHALL HAVE COMPRESSIVE STRENGTH FC = 4,000 PSI (28 DAY STRENGTH) EXCEPT AS NOTED.
2. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. 615-90, GRADE 60.
3. MINIMUM CLEAR COVER SHALL BE 2" UNLESS OTHERWISE NOTED.
4. DIMENSIONS FROM FACE OF CONCRETE TO REINFORCING BARS ARE CLEAR DISTANCES.
5. DIMENSIONS FOR BAR SPACING ARE CENTER TO CENTER.
6. ALL LAPS SHALL BE 30 BAR DIAMETERS UNLESS OTHERWISE NOTED.
7. FOR #57 CRUSHED STONE BEDDING MATERIAL SEE KENTUCKY DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS, LATEST EDITION.
8. THROUGH WALL CONNECTIONS SHALL BE MADE WITH PRESS-SEAL OR KOR-N-SEAL GASKETS WITH STAINLESS STEEL STRAPS TO PERMIT LIMITED DIFFERENTIAL SETTLEMENT.
9. ALL WET WELL JOINTS SHALL BE WATERTIGHT.
10. ALL BOLTS SHALL BE STAINLESS STEEL TYPE 304L WITH STAINLESS STEEL HARDWARE.
11. ALL TAPS INTO FITTINGS SHALL BE MADE INTO A BOSS.
12. VALVE VAULT SHALL BE LOCATED FIVE (5) FEET FROM THE WET WELL. IF VALVE VAULT IS PLACED ON EXCAVATED MATERIALS, BACKFILL SHALL BE COMPACTED IN 8" LOOSE LIFTS TO 95% STANDARD PROCTOR DENSITY.

PUMP STATION DESIGN DATA

AVG. DAILY SEWAGE FLOW: 1600 PEOPLE @ 100 G.P.C.D.	= 160,000 G.P.D.
AVG. FLOW: 160,000 G.P.D./1,440	= 111 G.P.M.
PUMPING RATE PER PUMP: (VARIABLE FROM 111 GPM TO 208 GPM)	= 111 TO 208 G.P.M.
(HIGHER PUMPING CAPACITY MAY BE ACHIEVED BUT LIMITED BY Bullitt County Sanitation District)	= 320 G.P.M.
STORAGE CAPACITY: 15 MIN. X 111 G.P.M.	= 1665 GALLONS
TWO HRS. EMERGENCY STORAGE: 120 MIN. X 111 G.P.M.	= 13,320 GALLONS
TWO HRS. EMERGENCY STORAGE: 120 MIN. X 208 G.P.M.	= 24,960 GALLONS
4" FORCE MAIN TO UNION TOOL PUMP STATION:	
STATIC HEAD	= 16.7 FEET
FORCE MAIN SIZE: 4" TO UNION TOOL P.S., MATERIAL: POLYETHELYNE	(C=120+)
TOTAL DYNAMIC HEAD (T.D.H.) FROM 111 GPM TO 208 GPM	= 18 TO 22 FEET
6" FORCE MAIN TO PIONEER VILLAGE SYSTEM	
STATIC HEAD	= 16.7 FEET
FORCE MAIN SIZE: 6" TO PIONEER VILLAGE SEWERS, MATERIAL: POLYETHELYNE	(C=120+)
TOTAL DYNAMIC HEAD (T.D.H.) FROM 180 GPM TO 298 GPM	= 28 TO 32 FEET

PUMP STATION EQUIPMENT DATA

- TWO (2) 15 HP (MIN.) PUMPS (VARIABLE)
- CAPACITY (OPERATING POINT): 111 GPM @ 18 T.D.H. UP TO 208 GPM @ 32 T.D.H. (WITH CAPACITY UP TO 320 GPM @49 T.D.H.
- PUMP TYPE & MANUFACTURER: ESSCO VORTEX SUBMERSIBLE MODEL #4G3 (OR APPROVED EQUAL)
  IMPELLER DIA. 9"
- DISCHARGE SIZE: 4"
- PUMP CONTROL: VARIABLE SPEED PROGRAMABLE
- SOLIDS PASSING SIZE: 3"
- FORCE MAIN PRESSURE RATING & TYPE: 125PSI, SDR 17
- CYCLE TIME: 15 MIN.
- ODOR CONTROL: NONE

REVISIONS

Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
BULLITT COUNTY, KY 40129

DATE

SIGNATURE

TITLE: HUNTERS HOLLOW PUMP STATION
SITE INFORMATION: BLUE LICK ROAD, HILLVIEW, KY 40129

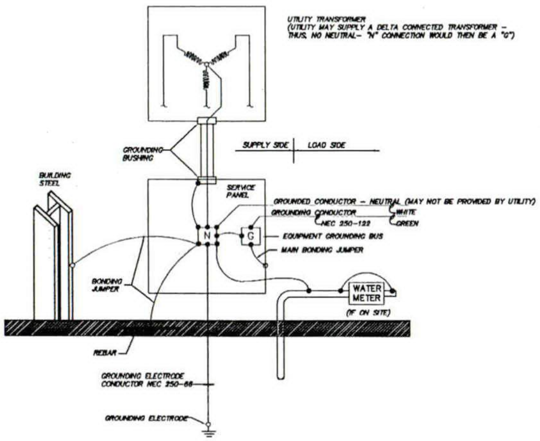
PUMP STATION DETAILS

SHEET NO
C3

DATE: 12-28-14
SCALE: NTS

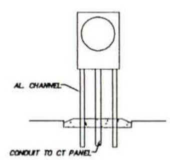
DRAWN BY:	CHECKED BY:
CS	CTC

GROUNDING ELECTRODE SYSTEM
N.E.C. 250–50



GROUNDING DETAIL

NO SCALE
DETAIL SHOWS GENERAL N.E.C.
REQUIREMENTS

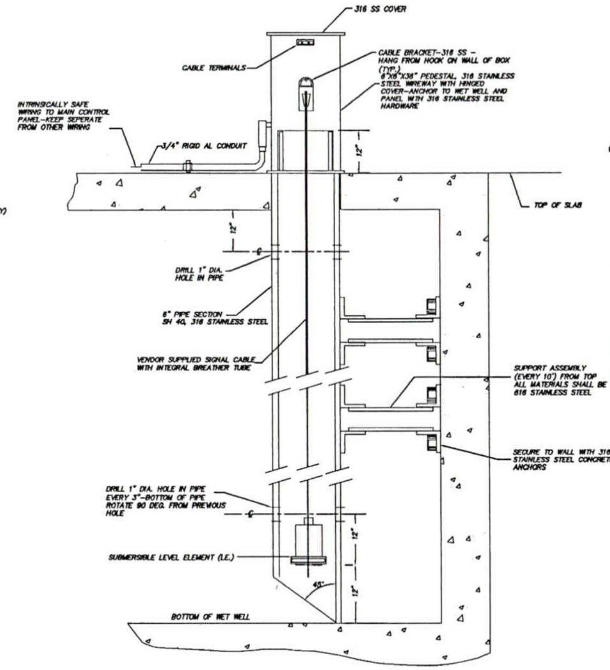


ELECTRIC UTILITY DETAIL

NO SCALE
MOUNT ON OR NEAR TRANSFORMER
IF POLE MOUNTED TRANSFORMER
MOUNT OUTSIDE FENCE

NOTES

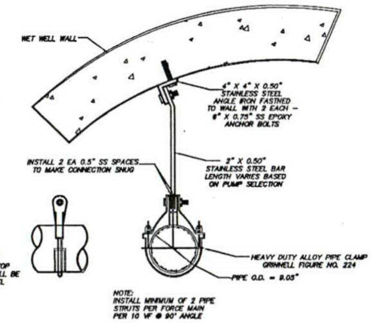
1. ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
2. HORIZONTAL RUN OF CONDUIT UNDERGROUND SHALL HAVE A MINIMUM OF 24" COVER
3. GRIND SMOOTH THE CUT EDGES OF THE ALUMINUM STRUCTURAL MEMBERS. ALL MOUNTING HARDWARE SHALL BE ALUMINUM OR STAINLESS STEEL.
4. ALL EQUIPMENT TO BE BOLTED TO RACK WITH 1/4" DIA. S.S. BOLTS WITH S.S. LOCK WASHERS. DAMAGE THREADS SO NUTS CAN NOT BE REMOVED.
5. TRANSITION FROM BELOW GRADE PVC TO ALUMINUM ABOVE GRADE. STUB AND CAP ABOVE GRADE, STRAP TO BOTTOM HORIZONTAL MEMBER OF RACK. ONE CONDUIT FOR 120 VAC SIGNALS, ONE FOR INTRINSICALLY SAFE CIRCUITS.
6. INTRINSIC SAFE WIRING SHALL BE PHYSICALLY SEPARATED FROM ALL OTHER WIRING PER N.E.C.



LEVEL SENSOR – SUBMERSIBLE
WITH SUBMERGED STILLING WELL

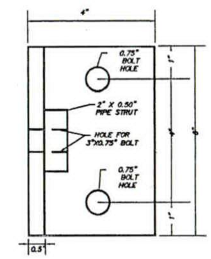
NO TO SCALE

NOTE:
ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.



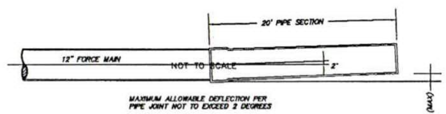
FORCE MAIN PIPE STRUT

SCALE 1"=1'



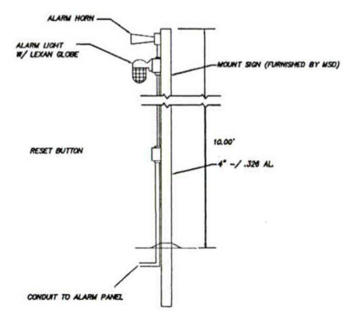
ANGLE IRON DETAIL

SCALE 1"=1'



PIPE JOINT DEFLECTION

NOT TO SCALE



ALARM LIGHT DETAIL

NO TO SCALE

REVISIONS		
Date	Description	By

ENGINEER
BlueStone Engineers, PLLC
3703 Taylorsville Road, Suite 205
Louisville, Kentucky 40220
(502) 267-9288
www.bluestoneengineers.com

CLIENT
BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE
HUNTERS HOLLOW
PUMP STATION

SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

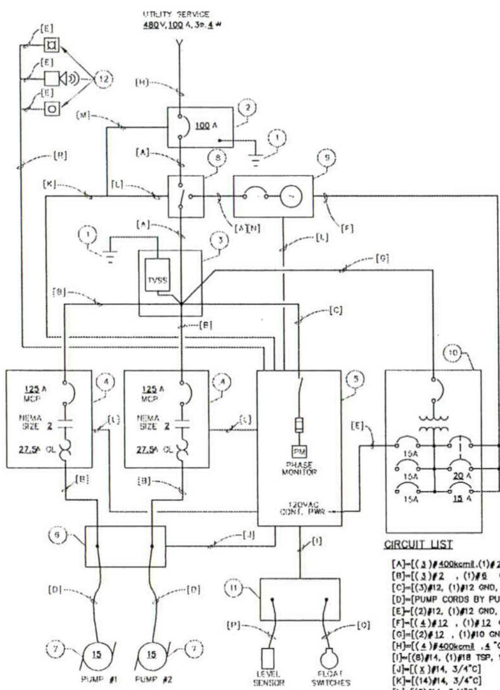
MISC
DETAILS

SHEET NO.
C4

DATE: 12–18–14
SCALE: NTS

DRAWN BY: CS
CHECKED BY: CTC

FILE NAME:



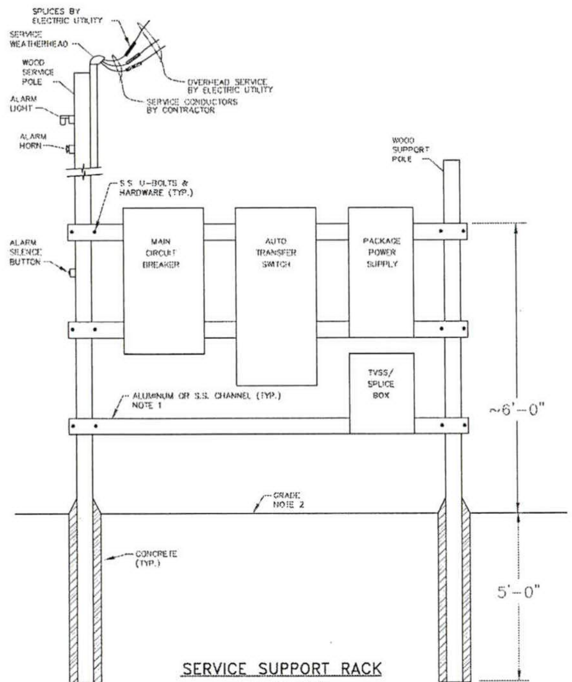
ONE LINE DIAGRAM

CIRCUIT LIST

[A]-[(3)#400kcmil,(1)#2 GND, 3 "C]
[B]-[(3)#2 , (1)#6 GND,1.25C]
[C]-[(3)#12, (1)#12 GND, 1"C]
[D]-[PUMP CORDS BY PUMP MFGR.]
[E]-[(2)#12, (1)#12 GND, 3/4"C]
[F]-[(4)#12 , (1)#12 GND,3/4"C]
[G]-[(2)#12 , (1)#10 GND, 3/4"C]
[H]-[(4)#400kcmil ,4 "C]
[I]-[(8)#14, (1)#18 TSP, 1"C]
[J]-[(X)#14, 3/4"C]
[K]-[(14)#14, 3/4"C]
[L]-[(6)#14, 3/4"C]
[M]-[(4)#14, 3/4"C]
[N]-[(2)#14, 3/4"C]
[O]-NOT USED
[P]-[LEVEL SENSOR CORD BY MFGR.]
[Q]-[FLOAT SW. CORD BY MFGR.]
[R]-[(6)#12, (1)#12 GND, 1"C]

NOTES:

1. DRIVE SEPARATE 3/4"X10' COPPER-CLAD STEEL GROUND ROD. BOND GROUND RODS TOGETHER.
2. 480V, 100 A, 3-POLE, 35 KAIC, THERMAL-MAGNETIC CIRCUIT BREAKER IN NEMA 4X STAINLESS STEEL ENCLOSURE (SQUARE D CLASS 610 OR EQUAL). INCLUDE PROVISION FOR LOCKING IN THE OPEN OR CLOSED POSITION AND A 120 VAC, NORMALLY-CLOSED ALARM CONTACT TO INDICATE BREAKER IS TRIPPED. PROVIDE GROUNDING AS REQUIRED FOR TYPE OF SERVICE.
3. NEMA 4X STAINLESS STEEL J-BOX W/CONTINUOUS HINGE AND PAD LOCK KIT (HOFFMAN CHNFSS OR EQUAL). MOUNT POWER DISTRIBUTION BLOCKS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) AND TVSS (CUTLER HAMMER 50KA/PHASE CLIPPER VL SERIES, VOLTAGE AS REQ'D) WITHIN J-BOX.
4. 480V, 15 HP, 100 A, 3-POLE, NEMA 4X STAINLESS STEEL SOLID STATE REDUCED VOLTAGE (RVSS) COMBINATION MOTOR STARTER WITH INTEGRAL BYPASS CONTRACTOR, BRANCH CIRCUIT BREAKER LOCKABLE IN THE OPENED & CLOSED POSITION, AND PUMP CONTROL ALGORITHM SPECIFICALLY DESIGNED FOR REDUCTION OF WATER HAMMER (ALLEN-BRADLEY SMC FLEX OR EQUAL). INCLUDE HUMAN INTERFACE MODULE (HIM) DIRECTLY MOUNTED ON STARTER FOR PROGRAMMING, STATUS, AND DIAGNOSTICS. PROVIDE N.C. 120VAC BREAKER. "TRIP" CONTACT FOR ALARM.
5. CONTROL PANEL. REFERENCE SCHEMATIC, I/O WIRING, AND ELEVATIONS FOR MORE INFO.
6. NEMA 4X STAINLESS STEEL J-BOX W/LOUVER PLATES AND SCREW CLAMP COVERS. PROVIDE NEMA TYPE TERMINALS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) FOR JUNCTION OF PUMP POWER CORDS WITH SINGLE CONDUCTORS.
7. PUMP HORSEPOWER AS INDICATED.
8. 480 V, 100 A, 3-POLE, AUTOMATIC TRANSFER SWITCH IN NEMA 4X STAINLESS STEEL ENCLOSURE. PROVIDE DUAL OPERATOR WITH CENTER OFF POSITION AND KAIC STAND ALONE INTERRUPT RATING. INCLUDE MICROPROCESSOR CONTROLLER ON INNER DOOR WITH DISPLAY OF VOLTS, AMPS, STATUS, DIAGNOSTICS. OUTER DOOR SHALL BE BLANK WITH HASP & STAPLE FOR MSD PADLOCK (RUSSELECTRIC TYPE RMTD OR EQUAL).
9. 480 V, 160 KW, PHASE, 0.8 PF DIESEL GENERATOR WITH OUTDOOR ENCLOSURE, 24 HR.@100% LOAD SUB-BASE FUEL TANK, BLOCK HEATER, BATTERY CHARGER, MAIN BREAKER, CRITICAL SILENCER AND CONTROLLER. *(NOT TO BE PROVIDED WITH THIS PROJECT)*
10. 10 KVA, 480-240/120V STAINLESS STEEL NEMA 3R INDOOR/OUTDOOR PACKAGED POWER SUPPLY (SQUARE D MINI POWER ZONE OR EQUAL). PROVIDE BREAKERS AS REQUIRED FOR GENERATOR AUXILIARIES AND PANEL CONTROL POWER. (COORD WITH GENERATOR SUPPLY)
11. NEMA 4X STAINLESS STEEL J-BOX W/LOUVRE PLATES AND SCREW CLAMP COVERS. PROVIDE CORROSION RESISTANT TERMINAL BLOCKS (PHOENIX CONTACT TYPE UK2.5 OR EQUAL) FOR JUNCTION OF FLOAT SWITCH AND LEVEL TRANSMITTER CORDS WITH INTRINSICALLY-SAFE WIRING FROM CONTROL PANEL.
12. LOCAL ALARM LIGHT, ALARM HORN, AND SILENCE PUSHBUTTON MOUNTED ON SERVICE SUPPORT RACK. SEE DETAIL THIS SHEET.

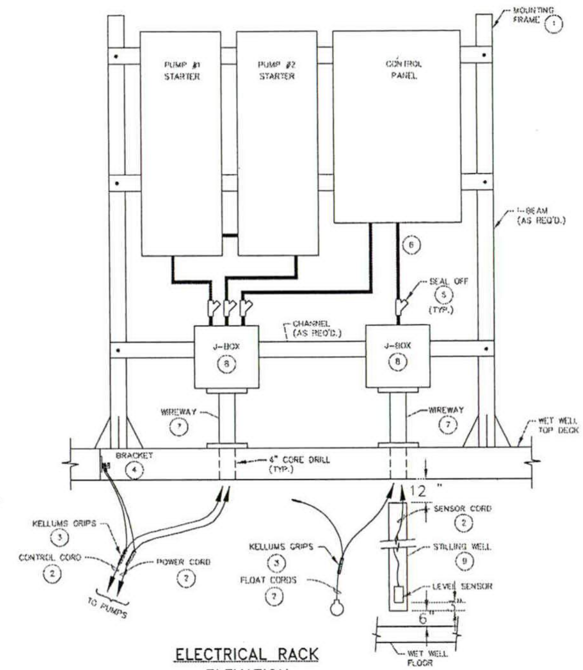


SERVICE SUPPORT RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE CHANNEL OF SUFFICIENT STRENGTH TO BEAR THE WEIGHT OF EQUIPMENT WITHOUT SAGGING. ADD INTERMEDIATE VERTICAL SUPPORTS IF REQ'D.
2. PROVIDE 4" THICK CONCRETE PAD FOR EQUIPMENT THAT MUST BEAR WEIGHT ON A FLOOR SURFACE.

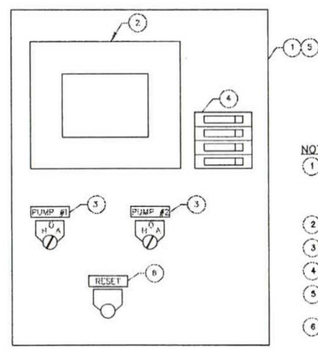


ELECTRICAL RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE FIELD FABRICATED MOUNTING FRAME ATOP WETWELL, UTILIZE ALUMINUM OR STAINLESS STEEL CHANNEL AND I-BEAMS, MOUNTING FEET & MISC. HARDWARE AS REQUIRED FOR MOUNTING THE ENCLOSURES SHOWN. ANCHOR MOUNTING FEET TO WET WELL TOP DECK WITH STAINLESS STEEL ANCHOR BOLTS. COORDINATE WITH WET WELL STRUCTURAL DRAWINGS TO DETERMINE SPACING OF J-BOX AND I-BEAMS. PROVIDE STRUCTURAL MEMBERS OF SUFFICIENT STRENGTH TO ENSURE STRUCTURAL RIGIDITY. NOTE: BOTH SIDES OF RACK MAY BE USED IF NEEDED TO REDUCE WIDTH FOR SMALLER DIAMETER WET WELLS. FOR ANY CONFIGURATION, CONTROL PANEL MUST ALWAYS FACE OUT (AWAY FROM HATCH) SUCH THAT OPERATOR MAY ACCESS CONTROL PANEL WITHOUT STANDING ON HATCH.
2. ARRANGE PUMP POWER AND CONTROL CORDS, FLOAT CORDS, AND LEVEL SENSOR CORD SUCH THAT THEY DO NOT INTERFERE WITH PUMP REMOVAL. USE STRAIN RELIEF MEASURES FOR PUMP AND FLOAT CORDS.
3. STAINLESS STEEL WIRE MESH KELLUMS GRIPS FOR PUMP CORD AND FLOAT CORD STRAIN RELIEF.
4. FABRICATE A STAINLESS STEEL BRACKET WITH HOOKS FOR HANGING KELLUMS GRIPS INSIDE PUMP HATCHES. ANCHOR INSIDE THE PUMP HATCH OPENING WITH STAINLESS STEEL ANCHOR BOLTS.
5. PROVIDE CLASS I, DIV. 1 CONDUIT SEAL-OFFS BETWEEN PUMP CORDS OR FLOAT CORDS J-BOXES AND STARTERS OR CONTROL PANEL.
6. MAINTAIN SEPARATION OF INTRINSICALLY SAFE CIRCUITS FROM ALL OTHER CIRCUITS.
7. 6"X6"X12" STAINLESS STEEL WIREWAY PEDESTAL FOR WET WELL CORDS.
8. NEMA 4X STAINLESS STEEL J-BOX WITH LOUVRE PLATES, SCREW CLAMP COVERS, AND TERMINAL BLOCKS FOR WET WELL CORDS.
9. 4" PERFORATED PVC PIPE WITH STAINLESS STEEL ANCHOR AND MOUNTING HARDWARE TO SERVE AS STILLING WELL.



CONTROL PANEL ELEVATION

(INNER DOOR SHOWN)
SCALE: NONE

NOTES:

1. PROVIDE NEMA 3R 304 STAINLESS STEEL ENCLOSURE WITH SUB-PANEL, DRIP SHIELD, 3-POINT LATCHING HANDLE WITH PROVISION FOR MSD PADLOCK, AND INNER DOOR WITH HINGE KIT FOR MOUNTING OF OPERATOR INTERFACE DEVICES. OUTER DOOR SHALL HAVE ONLY THE 3-POINT LATCHING HANDLE ACCESSIBLE. NO OPERATOR INTERFACE DEVICES WILL BE ACCESSIBLE ON OUTER DOOR. ENCLOSURE DIMENSIONS AS REQUIRED.
2. HUMAN-MACHINE INTERFACE (HMI). REFERENCE WIRING DIAGRAMS FOR MORE DETAIL.
3. HAND-OFF-AUTO (HOA) SELECTOR SWITCH. SEE WIRING DIAGRAMS FOR MORE DETAIL.
4. MISC. 120V, 1-POLE CIRCUIT BREAKERS. SEE WIRING DIAGRAMS FOR MORE DETAILS.
5. CONTROL PANEL SUB-PANEL SHALL INCLUDE INTERNAL 6" H X 14" WITH UNIMPEDED SPACE FOR MOUNTING OF TELEMETRY MODEM BY MSD. OTHER PANEL COMPONENTS SHALL NOT BE MOUNTED SO AS TO BLOCK ACCESS TO MODEM SPACE.
6. STARTER FAULT RESET BUTTON. SEE WIRING DIAGRAM FOR MORE DETAILS..

REVISIONS		
Date	Description	By

ENGINEER
BlueStone Engineers, PLLC

CLIENT
BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

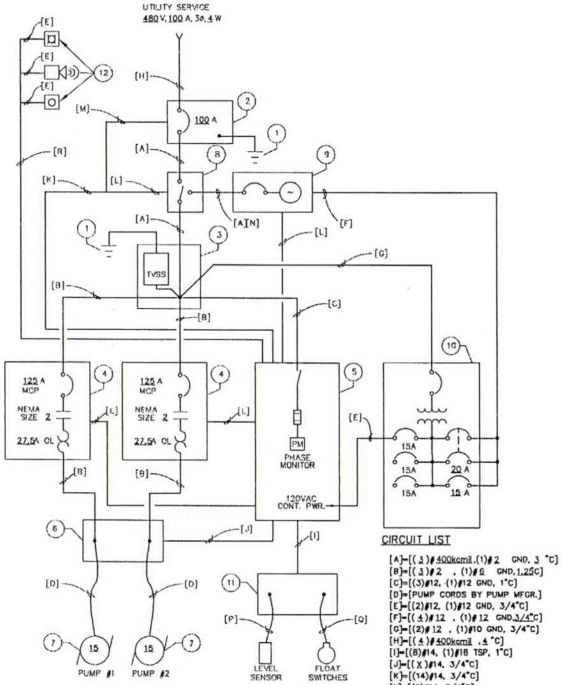
SIGNATURE

TITLE
HUNTERS HOLLOW PUMP STATION
SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

ELECRICAL DETAILS-1

SHEET NO
C5

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS
CHECKED BY: CTC



ONE LINE DIAGRAM

CIRCUIT LIST

[A]-[(3)#400kcmil,(1)#2 GND, 3 "C]
[B]-[(3)#2 , (1)#6 GND, 1.25C]
[C]-[(3)#12, (1)#12 GND, 1"C]
[D]-[PUMP CORDS BY PUMP MFGR.]
[E]-[(2)#12, (1)#12 GND, 3/4"C]
[F]-[(4)#12 , (1)#12 GND, 3/4"C]
[G]-[(2)#12 , (1)#10 GND, 3/4"C]
[H]-[(4)#400kcmil ,4 "C]
[I]-[(8)#14, (1)#18 TSP, 1"C]
[J]-[(X)#14, 3/4"C]
[K]-[(14)#14, 3/4"C]
[L]-[(6)#14, 3/4"C]
[M]-[(4)#14, 3/4"C]
[N]-[(2)#14, 3/4"C]
[O]-NOT USED
[P]-[LEVEL SENSOR CORD BY MFGR.]
[Q]-[FLOAT SW. CORD BY MFGR.]
[R]-[(6)#12, (1)#12 GND, 1"C]

NOTES:

1. DRIVE SEPARATE 3/4"X10' COPPER-CLAD STEEL GROUND ROD. BOND GROUND RODS TOGETHER.
2. 480 V, 100 A, 3-POLE, 35 KAIC, THERMAL-MAGNETIC CIRCUIT BREAKER IN NEMA 4X STAINLESS STEEL ENCLOSURE (SQUARE D CLASS 610 OR EQUAL). INCLUDE PROVISION FOR LOCKING IN THE OPEN OR CLOSED POSITION AND A 120 VAC, NORMALLY-CLOSED ALARM CONTACT TO INDICATE BREAKER IS TRIPPED. PROVIDE GROUNDING AS REQUIRED FOR TYPE OF SERVICE.
3. NEMA 4X STAINLESS STEEL J-BOX W/CONTINUOUS HINGE AND PAD LOCK KIT (HOFFMAN CHNFSS OR EQUAL). MOUNT POWER DISTRIBUTION BLOCKS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) AND TVSS (CUTLER HAMMER 50KA/PHASE CLIPPER VL SERIES, VOLTAGE AS REQ'D) WITHIN J-BOX.
4. 480 V, 15 HP, 100 A, 3-POLE, NEMA 4X STAINLESS STEEL SOLID STATE REDUCED VOLTAGE (RVSS) COMBINATION MOTOR STARTER WITH INTEGRAL BYPASS CONTRACTOR, BRANCH CIRCUIT BREAKER LOCKABLE IN THE OPENED & CLOSED POSITION, AND PUMP CONTROL ALGORITHM SPECIFICALLY DESIGNED FOR REDUCTION OF WATER HAMMER (ALLEN-BRADLEY SMC FLEX OR EQUAL). INCLUDE HUMAN INTERFACE MODULE (HIM) DIRECTLY MOUNTED ON STARTER FOR PROGRAMMING, STATUS, AND DIAGNOSTICS. PROVIDE N.C. 120VAC BREAKER. "TRIP" CONTACT FOR ALARM.
5. CONTROL PANEL. REFERENCE SCHEMATIC, I/O WIRING, AND ELEVATIONS FOR MORE INFO.
6. NEMA 4X STAINLESS STEEL J-BOX W/LOUVER PLATES AND SCREW CLAMP COVERS. PROVIDE NEMA TYPE TERMINALS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) FOR JUNCTION OF PUMP POWER CORDS WITH SINGLE CONDUCTORS.
7. PUMP HORSEPOWER AS INDICATED.
8. 480 V, 100 A, 3-POLE, AUTOMATIC TRANSFER SWITCH IN NEMA 4X STAINLESS STEEL ENCLOSURE. PROVIDE DUAL OPERATOR WITH CENTER OFF POSITION AND KAIC STAND ALONE INTERRUPT RATING. INCLUDE MICROPROCESSOR CONTROLLER ON INNER DOOR WITH DISPLAY OF VOLTS, AMPS, STATUS, DIAGNOSTICS. OUTER DOOR SHALL BE BLANK WITH HASP & STAPLE FOR MSD PADLOCK (RUSSELECTRIC TYPE RMTD OR EQUAL).
9. 480 V, 160 KW, PHASE, 0.8 PF DIESEL GENERATOR WITH OUTDOOR ENCLOSURE, 24 HR. @100% LOAD SUB-BASE FUEL TANK, BLOCK HEATER, BATTERY CHARGER, MAIN BREAKER, CRITICAL SILENCER AND CONTROLLER. *(NOT TO BE PROVIDED WITH THIS PROJECT)*
10. 10 KVA, 480-240/120V STAINLESS STEEL NEMA 3R INDOOR/OUTDOOR PACKAGED POWER SUPPLY (SQUARE D MINI POWER ZONE OR EQUAL). PROVIDE BREAKERS AS REQUIRED FOR GENERATOR AUXILIARIES AND PANEL CONTROL POWER. (COORD WITH GENERATOR SUPPLY)
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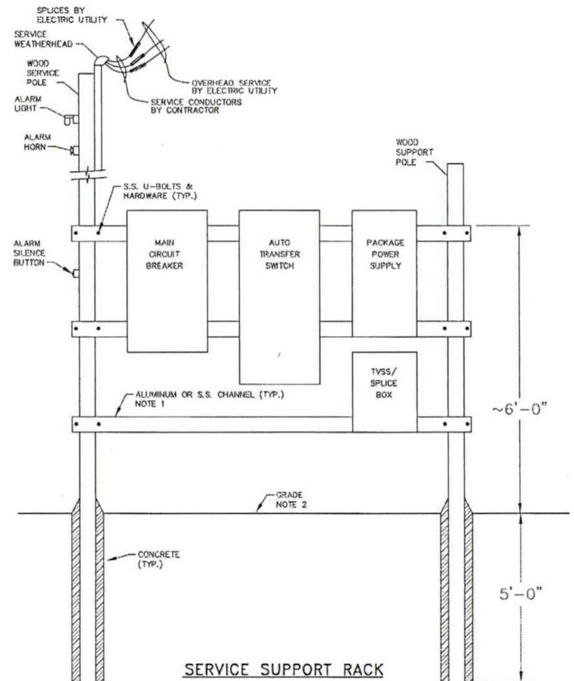
12. LOCAL ALARM LIGHT, ALARM HORN, AND SILENCE PUSHBUTTON MOUNTED ON SERVICE SUPPORT RACK. SEE DETAIL THIS SHEET.

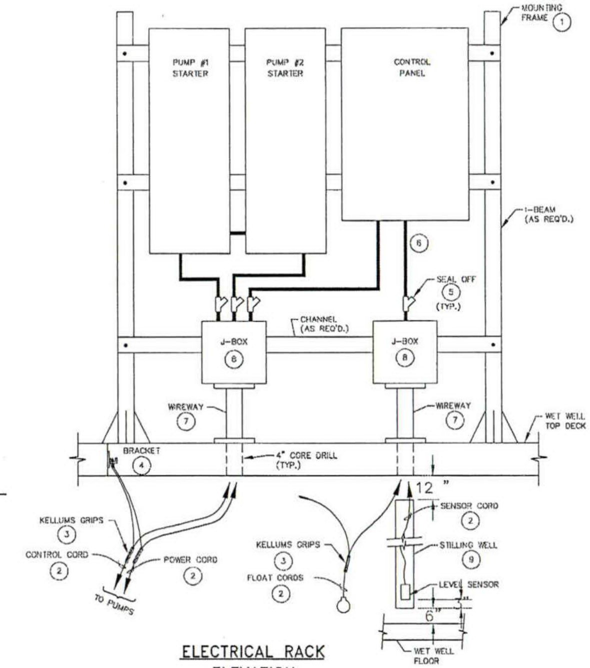


SERVICE SUPPORT RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE CHANNEL OF SUFFICIENT STRENGTH TO BEAR THE WEIGHT OF EQUIPMENT WITHOUT SAGGING. ADD INTERMEDIATE VERTICAL SUPPORTS IF REQ'D.
2. PROVIDE 4" THICK CONCRETE PAD FOR EQUIPMENT THAT MUST BEAR WEIGHT ON A FLOOR SURFACE.

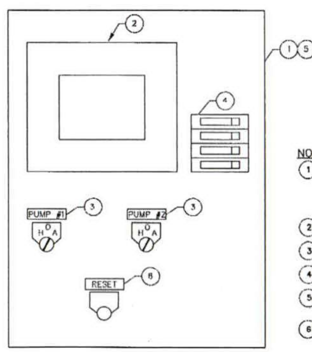


ELECTRICAL RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE FIELD FABRICATED MOUNTING FRAME ATOP WETWELL, UTILIZE ALUMINUM OR STAINLESS STEEL CHANNEL AND I-BEAMS, MOUNTING FEET & MISC. HARDWARE AS REQUIRED FOR MOUNTING THE ENCLOSURES SHOWN. ANCHOR MOUNTING FEET TO WET WELL TOP DECK WITH STAINLESS STEEL ANCHOR BOLTS. COORDINATE WITH WET WELL STRUCTURAL DRAWINGS TO DETERMINE SPACING OF J-BOX AND I-BEAMS. PROVIDE STRUCTURAL MEMBERS OF SUFFICIENT STRENGTH TO ENSURE STRUCTURAL RIGIDITY. NOTE: BOTH SIDES OF RACK MAY BE USED IF NEEDED TO REDUCE WIDTH FOR SMALLER DIAMETER WET WELLS. FOR ANY CONFIGURATION, CONTROL PANEL MUST ALWAYS FACE OUT (AWAY FROM HATCH) SUCH THAT OPERATOR MAY ACCESS CONTROL PANEL WITHOUT STANDING ON HATCH.
2. ARRANGE PUMP POWER AND CONTROL CORDS, FLOAT CORDS, AND LEVEL SENSOR CORD SUCH THAT THEY DO NOT INTERFERE WITH PUMP REMOVAL. USE STRAIN RELIEF MEASURES FOR PUMP AND FLOAT CORDS.
3. STAINLESS STEEL WIRE MESH KELLUMS GRIPS FOR PUMP CORD AND FLOAT CORD STRAIN RELIEF.
4. FABRICATE A STAINLESS STEEL BRACKET WITH HOOKS FOR HANGING KELLUMS GRIPS INSIDE PUMP HATCHES. ANCHOR INSIDE THE PUMP HATCH OPENING WITH STAINLESS STEEL ANCHOR BOLTS.
5. PROVIDE CLASS I, DIV. 1 CONDUIT SEAL-OFFS BETWEEN PUMP CORDS OR FLOAT CORDS J-BOXES AND STARTERS OR CONTROL PANEL.
6. MAINTAIN SEPARATION OF INTRINSICALLY SAFE CIRCUITS FROM ALL OTHER CIRCUITS.
7. 6"X6"X12" STAINLESS STEEL WIREWAY PEDESTAL FOR WET WELL CORDS.
8. NEMA 4X STAINLESS STEEL J-BOX WITH LOUVRE PLATES, SCREW CLAMP COVERS, AND TERMINAL BLOCKS FOR WET WELL CORDS.
9. 4" PERFORATED PVC PIPE WITH STAINLESS STEEL ANCHOR AND MOUNTING HARDWARE TO SERVE AS STILLING WELL.



CONTROL PANEL ELEVATION

(INNER DOOR SHOWN)
SCALE: NONE

NOTES:

1. PROVIDE NEMA 3R 304 STAINLESS STEEL ENCLOSURE WITH SUB-PANEL, DRIP SHIELD, 3-POINT LATCHING HANDLE WITH PROVISION FOR MSD PADLOCK, AND INNER DOOR WITH HINGE KIT FOR MOUNTING OF OPERATOR INTERFACE DEVICES. OUTER DOOR SHALL HAVE ONLY THE 3-POINT LATCHING HANDLE ACCESSIBLE. NO OPERATOR INTERFACE DEVICES WILL BE ACCESSIBLE ON OUTER DOOR. ENCLOSURE DIMENSIONS AS REQUIRED.
2. HUMAN-MACHINE INTERFACE (HMI). REFERENCE WIRING DIAGRAMS FOR MORE DETAIL.
3. HAND-OFF-AUTO (HOA) SELECTOR SWITCH. SEE WIRING DIAGRAMS FOR MORE DETAIL.
4. MISC. 120V, 1-POLE CIRCUIT BREAKERS. SEE WIRING DIAGRAMS FOR MORE DETAILS.
5. CONTROL PANEL SUB-PANEL SHALL INCLUDE INTERNAL 6" H X 14" WITH UNIMPEDED SPACE FOR MOUNTING OF TELEMETRY MODEM BY MSD. OTHER PANEL COMPONENTS SHALL NOT BE MOUNTED SO AS TO BLOCK ACCESS TO MODEM SPACE.
6. STARTER FAULT RESET BUTTON. SEE WIRING DIAGRAM FOR MORE DETAILS.

REVISIONS		
Date	Description	By

ENGINEER
BlueStone Engineers, PLLC
3703 Taylorsville Road, Suite 205
Louisville, Kentucky 40220
(502) 292-9238
www.bluestoneengineers.com

CLIENT
BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE
HUNTERS HOLLOW PUMP STATION

SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

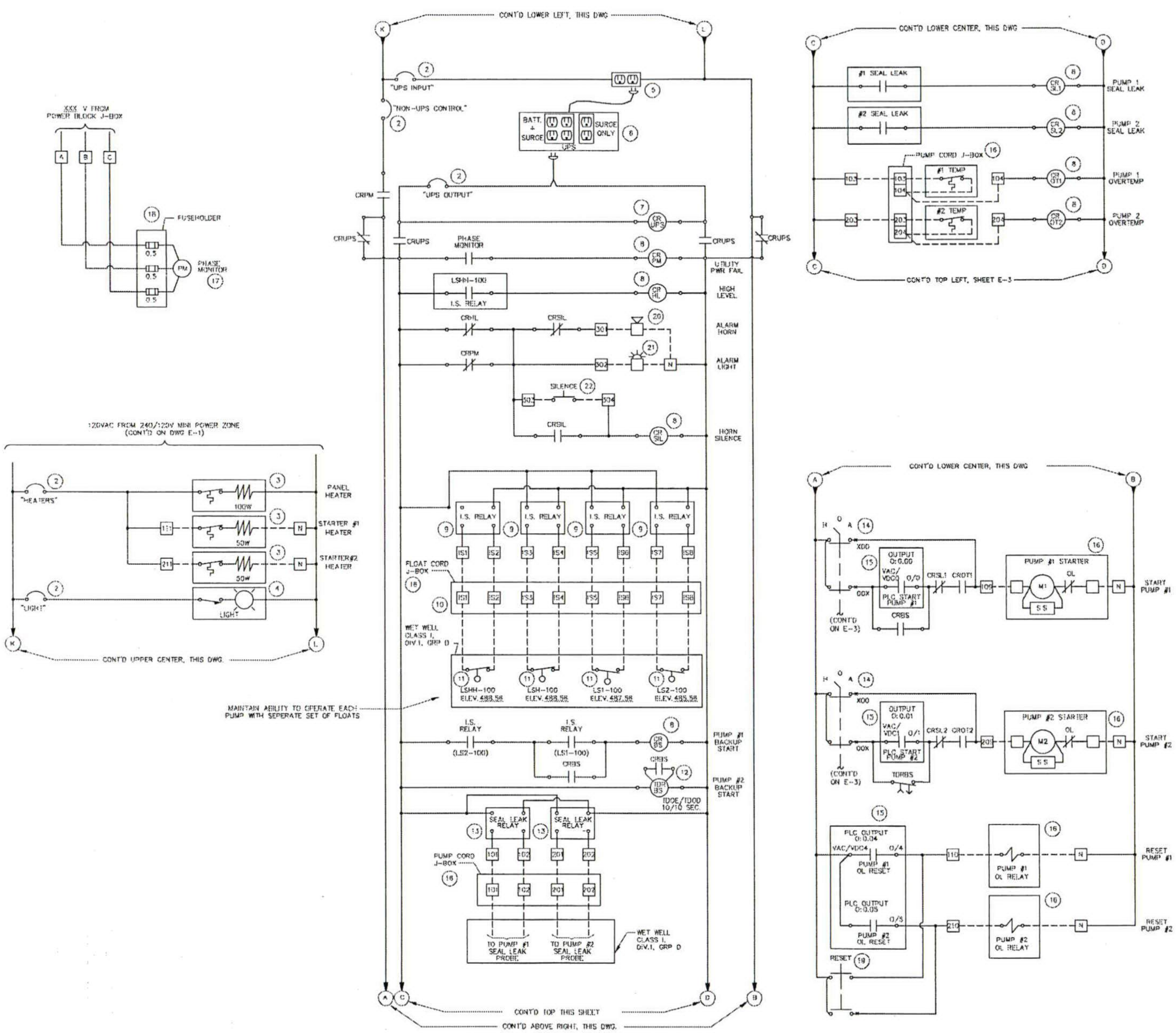
ELECRICAL DETAILS-1

SHEET NO.
C5

DATE: 12-28-14
SCALE: NTS

DRAWN BY:	CHECKED BY:
CS	CTC

FILE NAME:



NOTES:

1. 240V, 15A, 2-POLE, 10 KAIC DIN RAIL MOUNTED MOLDED CASE CIRCUIT BREAKER (SQUARE D TYPE QO OR EQUAL). PANEL LEGEND PLATE AS NOTED.
2. 120V, 15A, 1-POLE, 10KAIC DIN RAIL MOUNTED MOLDED CASE CIRCUIT BREAKERS (SQUARE D TYPE QO OR EQUAL). PANEL LEGEND PLATE AS NOTED.
3. 120V SILICONE RUBBER INSULATED ENCLOSURE HEATER W/INTEGRAL THERMOSTAT FACTORY VULCANIZED TO AN ALUMINUM MOUNTING PLATE (CHROMALOX TYPE SL-B OR EQUAL). WATTAGE AS INDICATED.
4. 120V FLUORESCENT LIGHT W/INTEGRAL DOOR SWITCH (HOFFMAN P/N A-LF16D18 OR EQUAL)
5. 120V, 20A, DUPLEX DIN RAIL MOUNTED GFI RECEPTACLE (PHOENIX CONTACT EM-DUO 120/20/GFI OR EQUAL)
6. 500VA/300W 120V, UNINTERRUPTIBLE POWER SUPPLY (UPS) WITH HOT-SWAPPABLE BATTERY, (4) NEMA 5-15R BATTERY BACKUP + SURGE PROTECTED RECEPTACLES AND (2) NEMA 5-15R SURGE PROTECTED ONLY RECEPTACLES, AUTOMATIC BATTERY TESTING, INPUT CIRCUIT PROTECTOR, AND ONE PAIR OF RJ45 SURGE PROTECTED PORTS (SOLA/HEVI-DUTY TYPE S2K OR EQUAL)
7. 120V, NEMA STYLE RELAY WITH SCREW TERMINALS AND 3 N.O. AND 3 N.C. 10A CONTACTS (SQUARE D CLASS 8501 TYPE X OR EQUAL)
8. 120V, 3PDT CONTROL RELAY W/10A CONTACTS, MANUAL OPERATOR, PILOT LIGHT, AND BLADE-TYPE TERMINALS AND DIN RAIL MOUNT SOCKET (SQUARE D CLASS 8501 TYPE K OR EQUAL)
9. 120V, CLASS I, DIV 1, GROUP D, SINGLE-CHANNEL PLUG-IN INTRINSICALLY-SAFE RELAY W/SPST N.O. 10A CONTACT AND RELAY SOCKET (ATC DIVERSIFIED ELECTRONICS P/N ISO-120-AFA OR EQUAL) ***(PROVIDE ONE FOR EACH PUMP)***
10. 300V, 20A DIN RAIL MOUNTED UNIVERSAL SCREW-TYPE TERMINAL BLOCKS W/ TERMINALS MADE OF CORROSSION-RESISTANT COPPER ALLOYS (PHOENIX CONTACT TYPE UK2,5N OR EQUAL) ***(PROVIDE ONE FOR EACH PUMP)***
11. SUSPENDED TYPE FLOAT SWITCH WITH MERCURY SWITCH, POLYPROPYLENE CASING, INTEGRAL WEIGHT, ENCAPSULATED FOR A WATERTIGHT SEAL (ANCHOR SCIENTIFIC ROTO-FLOAT TYPE S OR EQUAL). PROVIDE CORD LENGTH AS REQUIRED. ***(PROVIDE SEPERATE SET OF FLOATS FOR EACH PUMP)***
12. 120V, DPDT ON-DELAY OFF-DELAY TIMER RELAY W/10A CONTACTS, ADJUSTABLE TIMING RANGE, AND DIN RAIL MOUNT SOCKET (DIVERSIFIED ELECTRONICS TDJ SERIES OR EQUAL).
13. SEAL LEAK RELAY PER SUPPLIED PUMP MFGR. REQUIREMENTS, REVISE AS NEEDED TO ACCOMMODATE SPECIFIC PUMP MFGR. REQUIREMENTS.
14. 3-POSITION, 30MM, NEMA 4/13 MAINTAINED SELECTOR SWITCH W/600V, 10A CONTACTS, STANDARD KNOB, AND "HAND-OFF-AUTO" LEGEND PLATE (SQUARE D CLASS 9001 TYPE K OR EQUAL).
15. REFERENCE DRAWING E-3 FOR DESCRIPTION OF THESE ITEMS.
16. REFERENCE DRAWING E-1 FOR DESCRIPTION OF THESE ITEMS.
17. UNDER VOLTAGE PLUG-IN MONITOR WITH ADJUSTABLE DROP OUT VOLTAGE, LED INDICATOR, TUBE-BASE TERMINALS DIN RAIL SOCKET, AND DPDT 5A CONTACT (ATC DIVERSIFIED ELECTRONICS UOA SERIES OR EQUAL).
18. 600V, 30A, 3-POLE FUSE HOLDER CLASS H AND R FUSEHOLDER WITH CLASS CC FUSES (SQUARE D CLASS 9080 TYPE FB OR EQUAL).
19. 120V MOMENTARY PUSHBUTTON WITH FLUSH RED OPERATOR (SQUARE D CLASS 9001 TYPE K OR EQUAL).
20. 120V, NEMA 4X, 103dB @ 10 FT. ALARM HORN (EDWARDS SIGNALING MODEL 870P SERIES OR EQUAL)
21. 120V, NEMA 4X, 15W INCANDESCENT FLASHING ALARM LIGHT (EDWARDS SIGNALING MODEL 114 FIN SERIES OR EQUAL)
22. 120V, NEMA 4/13, WATERTIGHT/OILTIGHT 30.5 MM FLUSH PUSHBUTTON IN NEMA 4X ENCLOSURE (SQUARE D CLASS 9001 TYPE K OR EQUAL)

REVISIONS

Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE: HUNTERS HOLLOW PUMP STATION

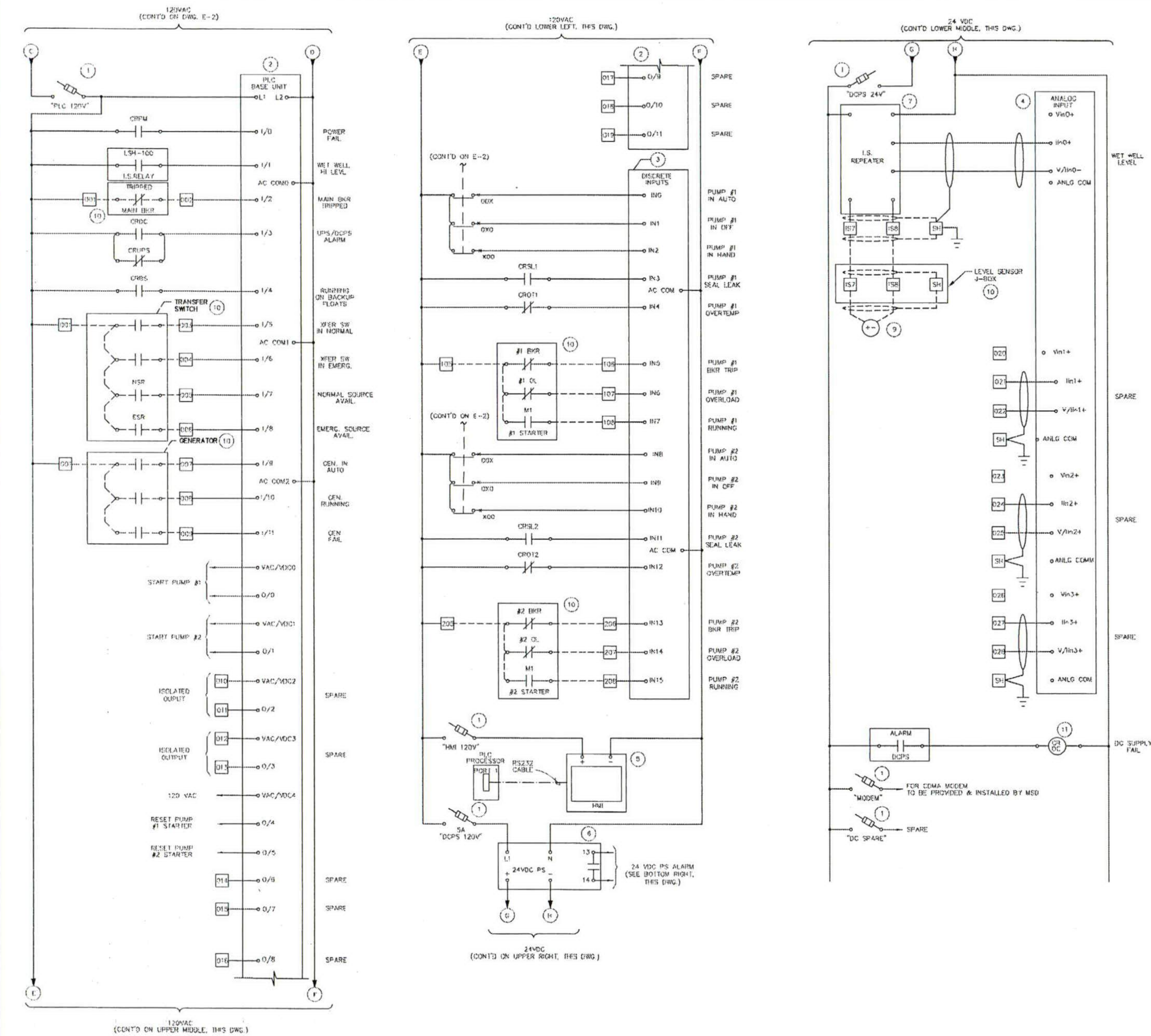
SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

ELECRICAL DETAILS-2

SHEET NO. C6

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS
CHECKED BY: CTC

FILE NAME:



NOTES:

1. 600V, 25A FUSED DIN RAIL MOUNTED TERMINAL BLOCK WITH DISCONNECT LEVER AND BLOWN FUSE INDICATOR (PHOENIX CONTACT TYPE UK 6, 3-HESI OR EQUAL), FUSE WITH HIGH SPEED FUSES AS REQUIRED. LABEL DISCONNECT AS INDICATED.
2. PLC BASE UNIT WITH (12) 120 VAC DISCRETE INPUTS; (12) 240/120V. 1800 VA MAKE, 180 VA BREAK RELAY CONTACT OUTPUTS; POWERED BY 120 VAC (ALLEN-BRADLEY MICROLOGIX 1500 P/N 1764-24AWA OR EQUAL). INCLUDE PLC PROCESSOR W/14K USER WORDS; USER CONFIGURABLE PROGRAM AND MEMORY AMOUNTS; (1) NON-ISOLATED RS232C PORT AND (1) ISOLATED PORT CONFIGURABLE FOR DF1 FULL OR HALF DUPLEX COMM. PROTOCOL; PROGRAMMABLE VIA RSLOGIX 500 SOFTWARE (ALLEN-BRADLEY 1764-LRP, FIRMWARE VERSION 7.0 OR GREATER, OR EQUAL) PLC PROGRAMMING BY OTHERS.
3. 120VAC, 16-INPUT DISCRETE INPUT MODULE (ALLEN-BRADLEY 1769-IA16 OR EQUAL).
4. 4-20mA, 4-SINGLE-ENDED OR DIFFERENTIAL ANALOG INPUT MODULE (ALLEN-BRADLEY 1769-IF4 OR EQUAL)
5. 8.3"WX6.2"H COLOR 120VAC, TOUCH SCREEN OPERATOR INTERFACE SCREEN W/RS232 DF1 COMMUNICATION PORT AND RS232 PRINTER/DOWNLOAD PORT (ALLEN-BRADLEY PN/2711-T10C16 OR EQUAL). OPERATOR INTERFACE PROGRAMMING BY OTHERS.
6. 120VAC INPUT, 24VDC/10A OUTPUT DIN RAIL MOUNTED POWER SUPPLY W/INTEGRAL INPUT FUSING AND TRANSIENT SURGE PROTECTION (PHOENIX CONTACT QUINT-PS-100-240AC/24DC/10 OR EQUAL)
7. INTRINSICALLY SAFE 4-20mA ANALOG SIGNAL REPEATER, DIN RAIL MOUNTED, 24VDC POWERED (PHOENIX CONTACT PROCESS INTERFACE REPEATER PI-EX-RPSS-I/I OR EQUAL)
8. NOT USED.
9. SUBMERGED PRESSURE COMPENSATING LIQUID LEVEL TRANSDUCER WITH PRESSURE SENSING ELEMENT AND TRANSMITTER BOTH CONTAINED WITHIN THE SUBMERSIBLE HOUSING. HOUSING SHALL BE POLYPROPYLENE WITH 316 STAINLESS STEEL DIAPHRAGM. WEIGHT SHALL BE SUPPORTED BY STEEL REINFORCED SIGNAL CABLE. PROVIDE MJK MODEL 7060 OR EQUAL.
10. REFERENCE DRAWING E-1 FOR DESCRIPTION OF THESE ITEMS.
11. 24VDC, 3PDT CONTROL RELAY W/10A 120V CONTACTS, MANUAL OPERATOR, PILOT LIGHT, BLADE TYPE TERMINALS, AND DIN RAIL MOUNTED SOCKET (SQUARE D CLASS 8501 TYPE K OR EQUAL).

REVISIONS — Date | Description | By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE, BULLITT COUNTY, KENTUCKY

ELECRICAL DETAILS-3

SHEET NO C7

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS
CHECKED BY: CTC

DXP

DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

February 6, 2015

TO: CHRIS CRUMPTON
WITH: BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: BULLITT CO. SANITATION
TLC CONTROL PANEL QUOTATION

Chris,

Quotation for TLC control panel follows. The quotation is per the intent of the specifications. TLC does use Alan-Bradley components however some other brands may vary. Panel is set-up to operate the pumps as a dual system with the pumps discharging to 2 different force mains. Provisions are made for manual by-pass and duplex alternation if need be.

ITEM	DESCRIPTION
1	1 NEMA 3R 304 TYPE STAINLESS STEEL DUPLEX CONTROL PANEL TO OPERATE TWO 15HP MOTORS USING 2 VFD'S ON 460V 3PH SERVICE ICLUDING;
	1 NEMA 4X STAINLESS STEEL ENCLOSURE
	2 VARIABLE SPEED DRIVES ABB550-03U-023A 15HP 460V 3PH
	1 U/L LABEL
	1 COOLING SYSTEM
	1 DEAD FRONT /INNER DOOR
	1 FLUORSCENT INTERIOR LIGHT
	1 INTERIOR LIGHT OFF-ON SELECTOR SWITCH(ES)
	1 200WATT GROUND FAULT TYPE OUTLET
	1 HEATER WITH THERMOSTAT
	1 12ga. MINIMUM POWER WIRE
	1 14ga. CONTROL WIRE
	1 MAIN DISCONNECT SWITCH
	1 SURGE ARRESTOR
	1 PHASE FAILURE RELAY
	2 MOTOR CIRCUIT PROTECTOR(S)
	2 MOUNT CUSTOMER SUPPLIED VFD(S)
	2 NEMA SIZE 2 BYPASS MOTOR STARTER(S)
	2 OVERLOAD RESET PUSH BUTTON(S)
	1 SET PRIMARY TRANSFORMER FUSES
	1 3 KVA TRANSFORMER
	4 CONTROL CIRCUIT BREAKER(S)
	2 HAND-OFF-AUTO SELECTOR SWITCH(ES)
	2 VARIABLE-OFF-CONSTANT SPEED SELECTOR SWITCH
	2 SPEED POTENTIOMETER
	4 RUN PILOT LIGHT(S) PUSH-TO-TEST TYPE
	2 ELAPSED TIME METER(S)
	2 MOISTURE DETECTION RELAY(S)

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Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

2 SEAL LEAK PILOT LIGHT(S) PUSH-TO-TEST
2 HIGH TEMPERATURE RELAY(S)
2 HIGH TEMP. PILOT LIGHT(S) PUSH-TO-TEST
2 4-20MA INTRINSIC BARRIER
2 SUBMERSIBLE LEVEL TRANSDUCER WITH 50ft CABLE
3 INTRINSIC SAFE RELAY(S) EACH FOR TWO FLOATS
1 500VA UNINTERUPTED POWER SUPPLY
1 POWER SUPPLY
1 120V TRANSEINT SURGE ARRESTOR
1 5.7in. TOUCHSCREEN PLC CONTROLLER
1 HIGH WATER ALARM PILOT LIGHT PUSH TO TEST TYP
1 SET(S) AUX. CONTACTS
1 12V DC STROBE LIGHT
1 ALARM HORN WITH SILENCE PUSH BUTTON
1 GEL CEL BATTERY
1 BATTERY CHARGER
1 ALARM TEST PUSH BUTTON(S)

NOTES: NOT INCLUDED IN PRICING:
AUTOMATIC TRANSFER SWITCH, GENERATOR EQUIPMENT, TELEMETRY, POWER PANEL, FLOW METER EQUIPMENT, FLOAT SWITCHES, JUNCTION BOXES AND SEAL-OFFS.

Quote Compiled From: SPEC PAGE DP-1 THRU 29 AND DRAWINGS C3, C5 & C6.

YOUR DELIVERED PRICE INCLUDING 1 DAY START-UP: ..... $ 55,262.00

Drawings 1-2 weeks ARO. Shipment 6-7 weeks after approval.

Prices are FOB shipping point, freight included. Terms N30 days. Quote good for 30 days. Prices subject to DXP Enterprises Inc. terms and conditons.

Thank you,

Keith Lipe
DXP Enterprises - Louisville

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Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

February 4, 2015

TO: CHRIS CRUMPTON
WITH: BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: BULLITT CO - ITT PUMPSMART CONTROL QUOTE

Chris,

We are pleased to offer the following ITT PumpSmart PS200 Ultra-Low Harmonic Dead Front Duplex Control Panel. Panel is rated for 15 HP 460/3/60 and includes manual by-pass and float control system.

The quoted panel takes exception to the specifications. ITT PumpSmart proposes a standard Duplex panel that can maintain a level off a level transmitter and cycle the pumps on/off using the floats when the system is in bypass. They did take liberty to add some items found in the specification but did not focus on the spec. Many of the design and spec requirements are specific to a starter cabinet only.

See attached ITT PumpSmart Scope of Equipment for details. Also note comments/exceptions listed below and in attached Scope of Equipment.

The following specifications apply:

- Electrical Details-1, C5
- Electrical Details-2, C6
- Pump Station Details, C3
- Section 10 Standard Spe3cifications Duplex Sewage Pump Station Hunters Hollow

SPECIFIC TECHNICAL COMMENTS/EXCEPTIONS

ITT takes exception to all the stated specification above and is providing a variable frequency drive package believed to meet the intent of these specifications. A complete detail as to what is being offered follows.

Panel Description –
Fabricated and tested NEMA 3R stainless steel dead front Duplex panel, PS200 460Vac drive with v5.05 firmware (x2), mains distribution block, through door lockable fused disconnect with fast acting fuses (x2), door mounted NEMA rated keypad (x2), door mounted Hand-Off-Auto selector switch (x2), Reset & E-Stop pushbuttons (x2), fused 120Vac control transformer, NEMA 3R fan cooling, manual bypass with Bypass/Off/VFD selector switch & electronic overloads (x2), safety relay‡, indicator lights for VFD Mode/VFD Run/VFD Fault/Bypass Selected/Bypass Running, float switch controller (in bypass mode), elapsed time meter (x2), alarm horn & beacon. Panel dimension: 60"H x 48"W x 18"D.

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Note: Specific exceptions to specifications:

- Dead front is made of painted steel
- Fused 1000VA control transformer
- 200W cabinet heaters w/thermostat

CLARIFICATIONS AND EXCEPTIONS TO SPECIFICATIONS

GENERAL

IEEE519-1992 is a guideline for electrical systems as a whole; and not individual devices such as VFDs. ITT cannot confirm compliance without a harmonic analysis to ensure system guidelines are met. System electrical information including transformer (PCC) size, transformer

impedance, transformer short circuit rating, and a one-line drawing with all linear and non-linear loads is required to perform these calculations.

We propose to supply the PumpSmart PS200 drive design on the ABB ACS800 platform with features indicated in this proposal.

ITT is acting as an equipment supplier only, not as a contractor, or sub-contractor. The listed specifications, (*see* **Applicable Specifications,** page 1) are applicable only to the extent of the ITT "Equipment Provider" scope of supply as described.

Specifically not included in this proposal is: Special crating, offloading at job-site, storage, installation and testing equipment, foundations, anchor bolts, templates, external wiring, field testing, independent analysis, seismic calculations and video taping of seminars.
NOTE: these items are the sole responsibility of the purchaser.

PRICE ITT PUMPSMART PS200 CONTROL PANEL: ..... $ 52,105.00

Price includes commissioning start-up services.

Shop drawings 2 weeks ARO. Lead-time is 6-8 weeks after drawing approval.

Prices are FOB shipping point, freight included. Terms N30 days. Price subject to DXP Enterprises, Inc. terms and conditions. Price good for 30 days.

Thanks,

Keith Lipe
Louisville Office

3600 Chamberlain Lane • Suite 416 • Louisville, KY 40241
Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

DXP

DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

January 14, 2015
February 4, 2015

TO: LARRY SMITHER & CHRIS CRUMPTON
WITH: CAMDEN ENVIRONMENTAL & BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: BULLITT CO. SANITATION – HUNTERS HOLLOW PUMP STATION
320 GPM @ 49' TDH (PEAK) 1750 RPM
ADDENDA 0 – REVISION 2

We are pleased to offer the following for your consideration. **We have added for a spare pump and 50' cord for each.**

Two (2) ESSCO model 493F-15-4 Torque Fluid Flanged Submersible Vortex Pumps with a 100% recessed vortex style impeller capable of passing 3 inch diameter and long length solids. Each unit shall be constructed of heavy duty engineered Cast Iron with Ductile Iron impeller, Cast Iron volute, assembled with Stainless Steel hardware. Each pump shall be painted with standard factory paint.

Each pump shall be equipped with a Cool Agivent device which shall vent the pump case, cool he motor and agitate the wet well. The Cool Agivent shall provide enough cooling to dissipate any excess heat generated by the motor in the event of prolonged operation with the motor exposed.

Each pump will be equipped with a Reliance UL Listed 15 HP, 1750 RPM, 460/3/60hz., 210TY frame, submersible motor with Buna-N O-rings, carbon/ceramic upper mechanical seal with Buna-N elastomers and tungsten/carbide lower mechanical seal with Buna-N elastomers, 416 Stainless Steel shaft, Class F insulation, oil buffer zone, moisture sensing probes, built-in thermal overload protection, **50 ft. motor leads**, and ESSCO/Reliance five year warranty. The exterior of the motor shall be coated with standard factory paint. Approximate FLA- 21 Standard motor can be operated on a VFD but will be derated to a 1.0 Service Factor.

Optional Items:

- 493 210TY- Wear Plates
- 4" Design 3 spark proof for 2" Guide Pipe Straight-thru slide rail assemblies to include Cast Iron stationary base, Bronze faced sliding flange, 2.00" Inch top guide bracket, and Bronze rail guides. The slide rail stationary base assembly shall be coated with standard factory paint.
- 4" Flanged Base 90° Elbows (Footed) 125# Cast Iron with Slotted Flanges

Six (6) Mechanical float switch level controls with 30' cable.

One (1) Halliday Products S1R 030042FBB 30x42 Aluminum Pump Access Cover 300 PSF.

One (1) Halliday Products SIR 030030FBB 30x30 Aluminum Valve Vault Access Cover 300 PSF.

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DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

TOTAL COST FOR ABOVE EQUIPMENT: ..... $ 35,186.00

ADD: $ 12,204.00 FOR ADDITIONAL 493F-15-4 PUMP.

TOTAL COST WITH ADDITIONAL PUMP: .....$ 46,390.00

Price is FOB shipping point, freight allowed to jobsite.

Price includes expedited lead-time for the pumps. They can ship FOB Los Angles CA in 2 weeks after credit approval and order release. Two (2) Reliance motors are available in Portland OR at this moment on a first come first serve basis.

Prices do not include dual VFD control panel, piping, installation, valves, wiring, or 2" 304 SST guide rails or any other items other than those mentioned above.

Prices are valid for 30 days. Prices are subject to DXP Enterprises terms and conditions.

Regards,

Keith Lipe
DXP Louisville
(502) 426-2400

DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

February 4, 2015

TO: CHRIS CRUMPTON
WITH: BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: McCROMETER MAG METER 320 GPM

CHRIS:

Budget price options for McCrometer Mag Meters are below for your review.

Each Ultra Mag is equipped with remote readout,totalizer and 4-20 mA output for telemetry by others. A grounding ring and 50' sensor cable are standard with each meter.

Remote electronics are IP-67 rated however, we recommend you install inside additional box for security.

Price for 4" UM 06 meter...$ 5,780.00

Price for 6" UM 06 meter...$ 5,940.00

Delivery is 3-4 weeks.

Prices are FOB shipping point, freight included. Terms N30 days. Price subject to DXP Enterprises, Inc. terms and conditions. Price good for 30 days.

Thanks,

Keith Lipe
Louisville Office

3600 Chamberlain Lane • Suite 416 • Louisville, KY 40241
Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

[redacted]

From: dave derrick [mailto:derrickinc@bellsouth.net]
Sent: Saturday, March 07, 2015 8:14 PM
To: chris@bluestoneengineers.com; Jerry Kennedy; chuckc1@windstream.net; Lynn Spencer
Subject: Hunters Hoillow Pump Station Review Comments

Dear Chris:

You recently submitted to the Bullitt County Sanitation District construction plans, specifications, and design calculations for the Hunters Hollow Pump Station. The Sanitation District staff and our staff have reviewed the documents and generated the attached review comments. As soon as these comments have been resolved, the Sanitation District will provide you with the approval letter needed to apply for a construction permit from the Kentucky Division of Water.

Dave Derrick

Bullitt County Sanitation District
Hunters Hollow Pump Station
Plans and Specifications Review Comments

1. Sheet C2 needs to show location of flow meter on existing by-pass line.
   The flow meter for the by-pass line will be installed inside of the existing pump house. Please confirm if this is a part of the agreement with Bullitt County Sanitation District and we will include this in the specification.

2. Sheer C3 shows flow meter vault, but no flow meters in vault.
   Flows meters are identified in the vault. Note has been corrected accordingly.

3. On Sheet C3 change the 4" emergency pump connection to indicate 6".
   This has been corrected.

4. On Sheet C3 note that valves and nipples on air release valves to be stainless steel.
   This has been corrected.

5. On Sheet C4 note that service pole and support post to be treated lumber.
   This has been corrected.

6. Add to the specifications variable frequency drives for both pumps.
   The variable frequency drive specifications are included in the specifications provided to Bullitt County Sanitation District. These variable frequency drives are provided by the pump supplier and are included at the end of the specifications.

7. Add to the specifications three magnetic flow meters.
   The magnetic flow meter specifications are provided in the packet to Bullitt County Sanitation District. Two (2) flow meters are identified. Please confirm if we are including a third flow meter on the by-pass line.

8. Add to the specifications Rayco dialer to advise of pump failure, high wet well level, and power failure.
   This has been added to the specifications.

9. Indicate in specifications that one spare pump is to be provided.
   This has been corrected.

10. Provide information from pump manufacturer confirming that each pump can operate between 55 gallons per minute and 00 gallons per minute using variable frequency drive.
    See attached letter confirming operation of pumps.

Cogan/Hunters

Robert Moore

Hollow

From: Larry Smither [larrys76@bellsouth.net]
Sent: Tuesday, March 10, 2015 10:26 AM
To: [redacted]; Chris Cogan
Cc: Chris Crumpton
Subject: Hunters Hollow
Attachments: Scan0313.pdf

Please find attached the revised quote from Larry Clark Construction for the lift station project at Hunters Hollow. As a result of Larry Clarks meeting with Chris Crumpton last week Larry had to make some minor changes in his original quote. The attached quote confirms that he will complete the project for $216,600.00, which makes him the low bidder. (You should note that this quote does not include the pumps, controls and the remainder of the items that Larry Clark as listed at the bottom of page one.) Chris Crumpton is waiting on the updated quote from Keith Lipe for these items.

After reviewing the quote, Chris Crumpton and I advise that Bullitt Utilities should enter into a contract with Larry Clark Construction to complete this project as per the plans and specification. Note however, that the plans and specs have not been approved by the Division of Water. They are still in the hands of Dave Derrick and BCSD (Jerry Kennedy).

Let me know if you have any questions.

Larry Smither
P.O. Box 137
Crestwood, KY 40014
(502) 241-4809
(502) 241-7943 FAX

Larry Smither

From: "Larry Clark" <lcc5427@yahoo.com>
To: "Larry SMITHER" <larrys76@bellsouth.net>
Cc: "Mary Richardson" <mary@bluestoneengineers.com>
Sent: Wednesday, March 04, 2015 11:41 AM
Subject: Hunters Hollow Lift Station

Larry,

Our bid from the Bid Proposal was $ 213,800.00
After meeting with Chris Crumpton on Monday there was a few things I misinterpreted or changed from the plan. The changes amount to $ 2,800.00 and are listed below.

Our new Bid Proposal is $ 216,600.00

1) Raise the finish grade of wet well B 1 foot
2) Change 2 valves from 4" to 6" inside the meter vault, reducing to 4" on the outlet side instead of inlet side of the meter vault.
3) Install drop-inlet inside wet well B as shown in wet well A.

So we are all on the same page I am listing some of the items I bid and excluded.

Per addendum #1 both wet wells to have standard flat bottoms poured by structure provider.
We have bid a apx 15' by 15' area for placement of each wet well.
We will dial rebar into the structure base and into rock wall and pour concrete for anti-flotation.

No step in wet wells A or B

No electric except for 2-4" holes in top of wet well lid.

Access hatch and ladder furnished by others, we will install the ladder inside valve vault, access hatches poured in concrete lid by structure provider with placement location approval by others.

Base ells, pumps,pump lifting cable or chain, floats, float cable holder, flow or magmeters, guide rails furnished by others.
We will install base ells, pumps, guide rails, lifting chain or cable only.

We bid assuming we could use the west side of the existing treatment plant to temporary store dirt and rock that would later be used to backfill and raise the elevation of the work area as on the plan. We can meet on site to find a suitable location.

No demo of old existing or temporary treatment plants. No improvements to any existing structures.

We can start the process of getting structure and pipping submittals or shop drawings immediately. I would assume starting construction apx April 1 with completion by May 1st.
to 15th.

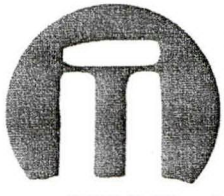
We can meet on site at almost anytime to address any concerns you might have.
Let me know if I missed anything.

Thanks
Larry Clark
Larry Clark Construction Inc.

HUNTERS HOLLOW
Sanitary Sewer Evaluation Study

Prepared for:
Bullitt Utilities, Inc.
Blue Lick Road
Louisville, KY 40129

Prepared by:



3703 Taylorsville Road, Suite 205
Louisville, Kentucky 40220

January 19, 2015

INTRODUCTION & BACKGROUND

The Hunters Hollow Wastewater Collection System is a separate wastewater collections system managed and operated by Bullitt Utilities, Inc with approximately 35,188 linear feet of 8", 10", and 12" VCP and PVC sewers. The system also includes (2) pumping stations that divert within the collection area. The main system was televised and inspected during 2014.

The goals for the Sanitary Sewer Evaluation Study (SSES) include reducing or eliminating any bypassing or overflows experienced at the Hunters Hollow Wastewater Treatment Plant, as well as reducing or eliminating backups and surcharging in the collection system and pump stations. The results of this SSES will be used to identify system defects to help prioritize rehabilitation efforts so that repairs can be made to ultimately reduce the peak flows in the existing collection system. Improvements will be made annually based on these recommendations and findings. This evaluation included review of construction plans for various parts of the collection system and combining them into one system map that was then compared and updated based on the CCTV inspections. This final system map was then utilized as part of the SSES summary results.

1.1 Description of the Hunters Hollow and Hillview Study Area

The Hunters Hollow collection system is located in north Bullitt County and lies just south of the Jefferson County line in a primarily residential area called Hillview, bounded to the west by I-65, to the east by Pioneer Village, and to the south by Jeffie Lane. The collection system is divided into (4) four sub-areas named for their corresponding subdivision names and systems that gravity either to the Hunters Hollow Treatment Plant, or to a localized pumping station that pumps into the main collection system.

- ***Hunters Hollow Subdivision (HH1)*** includes the original portion of Hunters Hollow Subdivision, Smith Grove Subdivision (Shelby Circle) off of Smith Lane, and also the commercial area along Carter Avenue and Terry Blvd. This part of the collection system serves approximately 198 customers, mainly residential with a few commercial warehousing/offices. The system has approximately 8,744 linear feet (LF) of 8", 10", and 12" mainline sewer, comprised mainly of vitrified clay pipe (VCP) and Polyvinylchloride (PVC) pipe constructed in the 1960's and later. For sewers made with vitrified clay pipe, it is not surprising to find many defects during system investigations. Given that much of this system is part of the original collection system however, a good portion of HH1 is for the most part in acceptable condition.
- ***Hunters Hollow Subdivision 2 (HH2)*** includes Hunters Hollow Subdivision to the north of the original subdivision, with the Bigwood Way Pumping Station that diverts wastewater flow over to HH1. This part of the collection system serves approximately 168 residential customers. The system has approximately 12,152 linear feet (LF) of 8" sewer, comprised mainly of VCP.

- ***Hunters Hollow 3 (HH3)*** includes the Benjamin Woods Subdivision & Majestic Acres Subdivision located to the north and west of the original Hunters Hollow Subdivision, and includes the Ziniz Pump Station off Hillview Blvd that diverts flow from Majestic Acres (165 customers) over to HH1. Benjamin Woods ties 99 customers into the HH2 system by gravity. This part of the collection system serves approximately 264 residential customers. The system has approximately 10,829 linear feet (LF) of 8" sewer, comprised mainly of VCP) and PVC pipe. *(Note: For purposes of this SSES Report, televising & inspection data was just recently made available for HH3. An amended report will be provided incorporating this recently provided data.)*

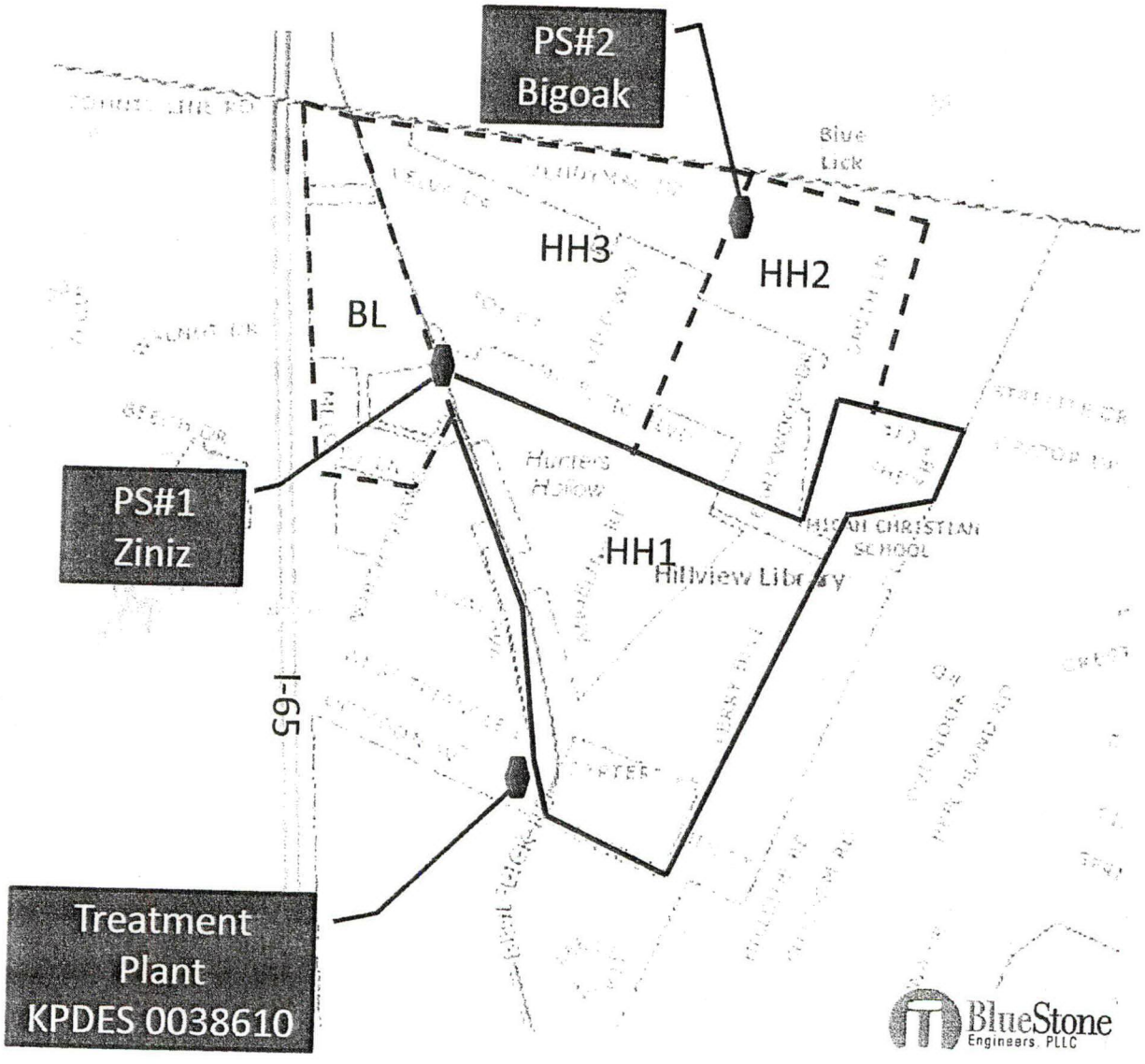
- ***Blue Lick Road (BL)*** includes collectors that provide service to small residences, and apartments west of Blue Lick Road, as well as commercial buildings running north along Blue Lick Road to the Jefferson County line. This collection area also connects to the Ziniz Pump Station which diverts flow back into HH1 and includes approximately 45 customers, with approximately 3,463 linear feet (LF) of 8" sewer, comprised mainly of vitrified clay pipe VCP and PVC pipe.

Exhibit 1.1.1 provides a Service Area Map identifying the (4) four subareas listed.

1.2 Historical Data

Historical data for the Hunters Hollow system only included construction plans for various portions of the system, as well as recent monitoring information from usage of the Veolia temporary WWTP. Monitoring of flow indicated a typical dry weather flow of approximately160,000 gallons per day. Peak flows during wet weather events typically overloaded the 300,000 gallon temporary treatment system. These increases confirm increased wet weather flows throughout the study area, demonstrating the magnitude of inflow and infiltration at various locations within the system. No pump station run time data was available to analyze additional portions of wet weather impacts in the system.

Exhibit 1.1.1 – Hunters Hollow Service Area Map



Gravity System to WWTP

Collection System Pumped to HH1

SECTION 2: FIELD INVESTIGATION & RESULTS

The field investigation and inspection portion of this study generates the required information to analyze the sanitary collection system. The mainline sanitary sewers were televised for a major portion of the system and defects were noted. Manholes were inspected to determine if any major structural or other deficiencies could be found. Smoke testing was not currently performed, however as indicated in discussions with operation staff, smoke testing was performed approximately 10 years ago, with limited results. No additional internal or external property assessments were performed on private property to verify basement connections or downspout connections to the system.

2.1 Sanitary Sewer Manhole Inspections

Field inspection and investigation was conducted to evaluate the sanitary sewer manhole structures that comprise the Hunters Hollow collection system in areas HH1, HH2, and BL. The inspections focused on issues related to Inflow and Infiltration concerns, structural deficiencies and gathering any additional "as-built" sewer information.

2.1.1 Typical Defects Found During Manhole Inspections

The following details typical defects that are looked for during the inspection of sanitary sewer manholes.

Cover

Common defects that occur with the cover are wrong size or type, cracked, and below grade. Covers that are the wrong size for the intended frame are either too small and ultimately do not rest on the seat correctly. When the structure resides in the path of traffic, this situation creates the potential for the cover to come loose as vehicles travel over the cover.

Frame

Common defects that occur within the frame are lateral cracks, non-level frames, and offset frames. Structures that reside in the path of vehicular traffic require the frame to be level with the roadway to ensure that the cover remains at grade with the pavement. Vehicles that travel over an uneven cover can cause structural damage to the manhole and / or the frame.

Wall/Cone

The materials used for the construction of walls and cones ranges from precast or cast in place concrete in newer construction to brick and mortar for earlier construction. Common defects that can be found within this component of the sewer include missing material, loose

material and fractures or cracks. In areas of high ground water, cracks may keep growing due to the additional pressure of water and may lead to continual infiltration within the sewer.

Bench

The bench of a manhole is usually built of bricks and mortar in older manholes and concrete in newer construction. Common defects that occur are cracks in the bench and infiltration where the wall meets the bench. These areas of concern should be corrected with a high strength cement or mortar material. The material selected would require a short cure time in order to minimize restrictions of flow from the upstream pipe during repairs.

Channel

The trough is commonly built from vitrified clay, brick, and concrete. Defects that occur within this component primarily consist of cracks, and obstructions. Cracks are corrected by applying the same type of cement or mortar material as described above in the "bench" discussion.

Steps

Steps are commonly made from cast iron, or steel materials. Over time, the material deteriorates making the step unsafe, or the connection to the manhole wall fails resulting in missing steps. Prior to replacing missing or unsafe steps, the entire manhole should be assessed for other rehabilitation issues.

2.1.2 Inspection Protocol / Techniques

The following steps detail the protocol and techniques used during the inspection to identify and quantify possible defects with each component of a sanitary manhole. Manhole inspections consisted of the following general format:

1) Manholes were located by the field inspection crews with a reasonable effort, defined as an on-the-ground search using available system maps. Buried manholes were not uncovered.
2) If crews were unable to locate manholes, they were designated as "could not locate" (CNL).
3) A detailed inspection of each structure was performed by the field crews from the surface (no confined space entry occurred in any case), addressing applicable items on a standard inspection form. Visual inspections included the following information, documented in the appropriate fields using standard manhole inspection codes:
    - General information regarding the inspection conditions, date/time, crew, location, flow depth, surcharging, silt build-up, and ponding evidence;

- Type, depth, and diameter of manhole structural assets (manhole, cover, and barrel);
- The type/material and condition of pertinent internal structures;
- Size and quantification of defects;
- The size, material, and condition of pipe connections; and,
- Documentation of observations in the comment field.

2.1.3 Inspection Results

The defects identified can be categorized into two primary areas; either Inflow and Infiltration concerns or structural deficiencies.

Of the 153 total manholes identified in the Hunters Hollow system, 12 could not be located and 41 were in area HH3.

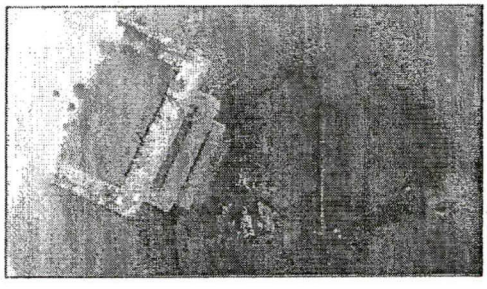


Figure 2.1.2 Manhole Inspection

Table 2.1.1 lists the manholes that could not be found or were buried

Table 2.1.1 Manholes Not Found/Buried

MANHOLE ID	
002 (Smith)	065 (HH1)
006 (Smith)	076 (HH1)
009 (Smith)	077 (HH1)
010 (Smith)	080 (HH1)
012 (Smith)	054 (BL)
014 (Smith)	BL4A(BL)

Most all of the manholes inspected were in fair condition with typical concrete walls and benches with either VCP or PVC channels. Most manholes did not have cones and most all manhole covers were cast iron with fitting lids. A few manholes near the existing treatment plant were deteriorating due to prior system backups and overflows. These manholes are listed in **Table 2.1.2** along with a few other manholes in the system that require repairs.

Table 2.1.2 Manholes Requiring Grouting/Repair

MANHOLE ID		
WWTP_1	074 (HH1)	045 (HH2)
WWTP_2	066 (HH1)	046 (HH2)
023 (HH1)	068 (HH1)	BL1 (BL)
019 (HH1)	069 (HH1)	BL2 (BL)
018 (HH1)	027 (HH2)	BL3 (BL)
017 (HH1)	025 (HH2)	BL4 (BL)
075 (HH1)	034 (HH2)	BL5 (BL)

There were no chimney seals found on any of the manholes in the system, and a number of manholes showed some signs of leakage at the chimney rings. Installation of either chemical or mechanical chimney seals is recommended for all of the manholes in the Hunters Hollow system.

2.2 Closed Circuit Television Inspection

CCTV inspections were performed on a major portion of the sanitary sewer gravity lines in the Hunters Hollow system from 8-inch to 12-inch in diameter. This includes approximately 24,359 LF of sanitary sewer pipe. CCTV inspections are used to identify main line defects and discrepancies to help prioritize required improvements

2.2.1 Inspection Protocol / Techniques

The CCTV inspections were conducted by Pipe Eyes, LLC and divided into areas similar to this report. Some areas were found to have severe root intrusions, intruding joints or obstacles that inhibited the camera from passing through the pipe.

The inspection identified pipe materials, pipe deficiencies, laterals, pipe connections and general condition of the pipes.

Additional steps taken during the inspection to increase the quality of the inspection and quantify possible defects are listed.

1) If an obstruction in the line did not allow the camera to pass, the field crew attempted to enter the camera from the opposite manhole in order to complete the inspection of the line segment up to the original obstruction.

2) If the field crews found configurations that were different than what was shown from original system data, changes were marked on a field map for later updating.

3) All inspection videos and associated reports were submitted in digital format and were coded in PACP 4.4 format.

4) Typical Defect Codes used during the CCTV process included:

- Deposits/Grease
- Roots
- Hole
- Obstacle or Obstruction (some utilities)
- Fracture
- Sag
- Joint Offset/Repair Point
- Collapse (or pipe failure)
- Tap Intrusion
- Infiltration (Dripper, Weeper, Runner or Gusher)

5) Defect Condition/Severity Codes are based on the following color scheme:

- Black – very minor
- Green – minor
- Blue – moderate
- Brown – poor
- Red - severe

2.3 Inspection Results

Overall the pipes inspected showed a random series of defects. Even older sections tended to show similarly both good and bad sections of pipe with typical defects. All three areas of the system have lines that should be prioritized for improvements.

The Blue Lick (BL) area included a number of defects all on the same line segments such as holes, cracks and/or fractures, major root intrusions, and signs of significant Infiltration and Inflow (mainly Melody Lane and Brooks Run off North Triangle Lane at Blue Lick Road). These sewers were added to the system at a later date and seem to be missing manholes that would normally be installed between pipe segments.

The Hunters Hollow 2 (HH2) area included major defects including those listed above, as well as line sags, significant amounts of deposits, and even a portion of collapsed line (mostly line segments in the rear of houses paralleling Earlywood Way, or close to the Hunters Hollow pump station off Bigwood Way).

The Hunters Hollow (HH) area is similar to the HH2 area except that there are fewer/shorter line segments classified as severe that require improvements to be made. Some of these line segments additionally are located under pavements and may be easier to access than areas behind homes in HH2.

If a section of pipe has three (3) or more structural defects, but appears to be sound in terms of slope, overall integrity and operational capabilities, the section can be considered for CIPP lining. In cases where there are numerous minor structural issues along with some major structural issues such as holes in the pipe, the section is recommended for spot repairs and possibly also CIPP lining. Many of these repairs may simply require spot repairs at the location of the pipe section that is offset, or has a hole or fracture.

At some locations, the sanitary collection system has significant deposits of grease. These pipes should be prioritized for some heavy cleaning, in conjunction with major root cutting. Some of the pipes contain major root intrusion, enough to warrant root treatment or other maintenance or improvement. Some pipes were nearly full or completely blocked by roots creating blockages that may result in, or contribute to, surcharging in the sewer (see **Figure 2.3.1**). These pipes should be prioritized for Root Cutting and root control measures in the future. Section 3 provides a summary for recommended repairs, root cutting, and heavy cleaning for line segments.

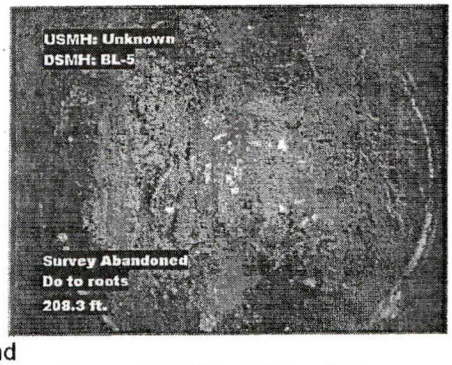


Figure 2.3.1 Root Intrusion

SECTION 3: Recommendations

The key goal of this analysis was to perform a condition assessment on the sanitary sewer collection system and develop various cost effective rehabilitation improvements to alleviate excessive inflow and infiltration in the Hunters Hollow system.

3.1 Rehabilitation Overview

The evaluation of the sanitary collection system assessed condition grades of **3(Moderate), 4(Poor), and 5(Severe)** for rehabilitation and repairs. The condition assessment included evaluating the extent of the rehabilitation for the sanitary sewers.

It is noted that besides the Blue Lick area (BL) that requires rehabilitation, line segments in both Hunters Hollow (HH) and Hunters Hollow 2 (HH2) require repairs to fix holes and fractures mostly on lines in easements behind houses. This could be due to settlement in those areas (as compared to lines that run in the streets). Many of these same line segments have been listed for root cutting and cleaning as well. Prioritization of these line segments by removing roots, providing heavy cleaning, and providing point repairs followed by some CIPP lining should remove a majority of the public I&I occurring in the main system. Prioritzation of these top 25 line segments (as indicated on **Table 3.1 located at the end of Section 3)** will eliminate almost all of the severe, poor, and moderate defects identified from the line inspections.

3.2 Rehabilitation Recommendations

A capital improvement program should be implemented to reduce or eliminate the public and private sources of inflow and infiltration into the Hunters Hollow collection system. The removal of sources of direct inflow into mainline sewers typically results in significant improvements on the sanitary collection system during wet weather events. While infiltration is problematic in terms of the length of time, clear water may affect the sanitary collection system (infiltration can last for days or weeks after a storm event), inflow sources have a nearly immediate impact on the available capacity of the sanitary collection system. For purposes of this report only rehabilitation to sewer mainlines is provided. Evaluation of I&I from private sources (i.e. laterals and downspouts) is beyond the scope of this study.

3.2.1 Sanitary Sewer Mainlines

Based on the evaluation, approximately 4,500 linear feet of 8-inch and 12-inch sanitary sewer is recommended for repairs and/or lining. These sewers showed multiple signs of inflow, and rated high in defects. The segments recommended are those that have structural deficiencies that could affect the operation of the sanitary collection system. The sanitary sewers will need to be cleaned and roots cut as part of recommended improvements. **Table 3.2.1(a)** lists the sewer

segments recommended for root cutting. **Table 3.2.1(b)** lists the additional sewer segments recommended for heavy cleaning due to deposits (in addition to the segments for root cutting). **Table 3.2.1(c)** lists the Top 25 sewer segments recommended for repairs and possible CIPP Lining due to identification of severe inflow (note that some of these are also listed on the root cutting and the heavy cleaning list as well).

Table 3.2.1(a) Sewer Segments Prioritized for Root Cutting

AREA	PRIORITY	SEGMENT ID	STREET
Blue Lick	Severe	Unknow to BL5	Melody
HH2	Severe	068_069	Earlywood
HH2	Poor	074-082	Easement
HH	Poor	015_016	Angelina
HH	Poor	013_014	Arbor Tr
HH2	Moderate	033_034	Cadenza
HH2	Moderate	036_037	Fawn Ct
HH2	Moderate	004_075	Easement
HH2	Moderate	077_079	Baracha
HH	Moderate	002_006	Angelina
HH	Moderate	025_027	Bigoak
HH	Moderate	26152 19501	Medium

Table 3.2.1(b) Addl Sewer Segments Prioritized for Heavy Cleaning

AREA	PRIORITY	SEGMENT ID	STREET
HH2	Severe	042_043	Carissa
HH	Poor	06_07	Angelina
HH2	Moderate	018_019	Easement

Table 3.2.1(c) Sewer Segments Prioritized for Repairs

AREA	PRIORITY	SEGMENT ID	STREET
Blue Lick	Severe	Unknow to BL5	Melody
Blue Lick	Severe	BL3_BL4	Melody
Blue Lick	Severe	BL4_BL5	Melody
HH2	Severe	033_034	Cadenza
HH	Severe	015_016	Anglelina
HH2	Severe	046_047	Bally Castl
HH2	Severe	042_043	Carissa
Blue Lick	Severe	Unknown_BL5	Blue Lick
HH2	Severe	034_035	Cadenza
HH	Severe	008_010	Cannon
HH2	Severe	059_061	Easement
HH2	Severe	037_34	Fawn Ct
Blue Lick	Severe	BL4_BL6	Blue Lick
Blue Lick	Severe	Unknown_BL5	Blue Lick
HH	Poor	002_006	Angelina
HH2	Severe	029_044	Bigoak
HH2	Severe	048_051	Easement
HH2	Poor	036_037	Fawn Ct
HH2	Severe	050_051	Bally Cast
HH2	Severe	066_068	Earlywood
HH2	Poor	004_075	Easement
HH2	Severe	066_067	Earlywood
Blue Lick	Severe	067_068	Blue Lick
HH	Poor	006_007	Angelina
HH	Severe	024_026	Bigoak
HH	Poor	025_027	Bigoak
Blue Lick	Severe	BL3_BL5	Blue Lick
HH2	Poor	044_045	Bigoak

Other line segments that have deficiencies that could affect the operation of the sanitary collection system include those with major obstacles (such as utilities). **Table 3.2.1(d)** lists the additional sewer segments recommended for utility removal, not already listed in the Top 25 segments, or in the table for root removal.

Table 3.2.1(d) Sewer Segments Requiring Utility Removal

AREA	PRIORITY	SEGMENT ID	STREET
HH	Moderate	008_010	Cannon
HH	Moderate	015_16	Angelina

3.2.2 Sanitary Sewer Manholes

The condition assessment of the sanitary manholes assessed conditions such as root intrusion, infiltration and structural defects. Manhole rehabilitation recommendations include the installation of mechanical and non-mechanical chimney seals, epoxy lining of the manholes, and manhole grouting. Currently no manholes are being recommended for epoxy lining, however a few are listed to be cleaned and regrouted as shown on **Table 3.2.2(a)** for manholes recommended for repair.

Table 3.2.2(a) Manholes Recommended for Repair

MANHOLE ID	REHAB TYPE	PRIORITY
WWTP_1 (HH1)	New Rings/Collar/Cleaning	Severe
WWTP_2 (HH1)	New Rings/Collar/Cleaning	Severe
023 (HH1)	Cleaning/Grouting	Moderate
019 (HH1)	Cleaning/Grouting	Moderate
018 (HH1)	Cleaning/Grouting	Moderate
017 (HH1)	Cleaning/Grouting	Moderate
075 (HH1)	Cleaning/Grouting	Moderate
074 (HH1)	Cleaning/Grouting	Moderate
066 (HH1)	Cleaning/Grouting	Moderate
068 (HH1)	Cleaning/Grouting	Moderate
069 (HH1)	Cleaning/Grouting	Moderate
027 (HH2)	Cleaning/Grouting	Moderate
025 (HH2)	Cleaning/Grouting	Moderate
034 (HH2)	Cleaning/Grouting	Moderate
045 (HH2)	Cleaning/Grouting	Moderate
046 (HH2)	Cleaning/Grouting	Moderate
BL1 (BL)	Cleaning/Grouting	Moderate
BL2 (BL)	Cleaning/Grouting	Moderate
BL3 (BL)	Cleaning/Grouting	Moderate
BL4 (BL)	Cleaning/Grouting	Moderate
BL5 (BL)	Cleaning/Grouting	Moderate

There were no chimney seals found on any of the manholes in the system, and a number of manholes showed some signs of leakage at the chimney rings. Installation of either chemical or mechanical chimney seals is recommended for all of the manholes in the Hunters Hollow system.

3.3 Flow Reduction Analysis

As a part of this evaluation, a flow reduction analysis was performed to determine the estimated peak flow reduction that could result from the recommended rehabilitation plan. **Table 3.3.1** represents the estimated peak flow reduction calculated using typical values for other systems.

Table 3.3.1 Estimated Flow Reduction

DESCRIPTION OF REHABILITATION AND REPAIR	QUANTITY	UNIT	FLOW REDUCTION / UNIT (GPD)	Credit (GPD)
Sanitary Manhole Chimney Seal				
In Non-Paved Area	50	EA	656	34,768
In Paved Area	103	EA	156	16,068
Sanitary Sewer Repair				
Manhole Grouting	19	EA	1440	27,360
Point Repair	20	EA	720	14,400
8-inch CIPP Lining (4500 LF)	6.82	IDM	500	3410
			TOTAL (GPD)	**96,006**

3.4 Rehabilitation Costs

The estimated project cost for the rehabilitation improvements for the Hunters Hollow collection system has been estimated at approximately **$415,837.** **Table 3.4.1** lists the items and estimated costs for the rehabilitation and repairs.

By undertaking the various recommended improvements to correct the deficiencies in the sanitary collection system, the inflow and infiltration will be reduced in the Hunters Hollow collection system. Additionally, a systematic and on-going cleaning, and root control program should be provided for over the long-term.

Table 3.4.1 Opinion of Probable Construction Costs

DESCRIPTION	QUANTITY/UNIT		UNIT PRICE	ITEM TOTAL
Mobilization-Bonds and Insurance	1	LS	$15,000.00	$15,000.00
Maintenance of Traffic	1	LS	$15,000.00	$15,000.00
8-inch Cured-in-Place Pipe	4500	FT	$28.50	$128,250.00
8-inch Spot Lining	1	EA	$4,000.00	$4,000.00
8-inch Pipe Replacement	250	LF	$300.00	$75,000.00
8-inch Point Repairs	160	FT	$325.00	$52,000.00
Heavy Cleaning	6,000	FT	$3.00	$18,000.00
Root Cutting	3500	FT	$4.00	$14,000.00
Additional CCTV and Field Inspections	10,829	FT	$3.00	$32,487.00
Manhole Repair/Grouting	21	EA	$1,350.00	$28,350.00
Manhole Chimney Seal-Mechanical	50	EA	$375.00	$18,750.00
Bypass Pumping	1	LS	$15,000.00	$15,000.00

ESTIMATED TOTAL = $415,837.00

TABLE 3.1 - SSES SUMMARY PRIORITIZATION - SORTED BY SCORE TOTAL

HUNTERS HOLLOW SANITARY SEWERS

AREA	LINE ID	MH UP	MH DOWN	STREET	MAT	SIZE	LENGTH	#Defects	DEPOSITS	SAG	TAP BREAK	TAP INTR	ROOTS	CRACK	JOINT OFF	Rep Point	OBST	HOLE	FRACT	Collapse	INFILTR	MH II	TOTAL	COMMENTS
MHSUBD	016_017	16	17	Angelina	VCP	8	165.[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	067_070	67	70	Earlywood	VCP	8	169.[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	070_072	70	72	Earlywood	VCP	10	122.3	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	021_020	21	20	Terry Blvd	PVC	8	312.4	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	025_026	25	26	Brook Dr	VCP	8	88.7	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	030_031	30	31	Earlywood	VCP	8	249.1	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	028_029	28	29	Easement	VCP	10	149.1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
BLUELICK	WWTP_PS WWTP	PS		Blue Lick	VCP	10	0	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	001_002	1	2	Angelina	VCP	8	295.4	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	020_022	20	22	Terry Blvd	PVC	8	512.[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSUBD	[illegible]	[illegible]	29	Brook Dr	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	[illegible]	[illegible]	41	Carrissa	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	038_039	[illegible]	39	Bigwood Way	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	[illegible]	[illegible]	40	Bigwood Way	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	040_048	40	48	[illegible]	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	[illegible]	46	49	[illegible]	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	071_070	71	70	Earlywood	VCP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	[illegible]	73	72	Earlywood	VCP	[illegible]	295.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	072_074	72	74	Earlywood	VCP	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MHSECT2	[illegible]	74	76	Earlywood	VCP	10	294.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SMITHGR	015_010	15	10	Shelby Cir	PVC	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SMITHGR	011_010	11	10	Shelby Cir	PVC	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SMITHGR	012_011	12	11	Shelby Cir	PVC	8	216.[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SMITHGR	[illegible]	[illegible]	36	Smith Lane	PVC	8	144.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 3.1 - SSES SUMMARY PRIORITIZATION - SORTED BY SCORE TOTAL

HUNTERS HOLLOW SANITARY SEWERS

AREA	LINE ID	MH UP	MH DOWN	STREET	MAT	SIZE	LENGTH	#Defects	DEPOSITS	SAG	TAP BREAK	TAP INTR	ROOTS	CRACK	JOINT OFF	Rep Point	OBST	HOLE	FRACT	Collapse	INFILTR	MH II	TOTAL	COMMENTS
SMITHGR	017_016	17	16	Smith Lane	PVC	8	146.4	1		2													2	
SMITHGR	002_004	2	4	Shelby Cir	PVC	8	239.3	2								1	1						2	
SMITHGR	010_009	10	9	Shelby Cir	PVC	8	159.5	1		2													2	
SMITHGR	008_017	8	17	Shelby Cir	PVC	8	148.6	1		2													2	
SMITHGR	007_008	7	8	Shelby Cir	PVC	8	272.8	1		2													2	
BLUELICK	056_067	66	67	Blue Lick	VCP	8	96.3	1		2													2	
BLUELICK	BL1_BL2	BL-1	BL02	Blue Lick	PVC	8	396.2	1		2													2	
BLUELICK	BL2_BL3	BL-2	BL-3	Blue Lick	PVC	8	395.1	1		2													2	
BLUELICK	068_WWTP	68	WWTP	Blue Lick	VCP	10	69.8	1		2													2	
HH SUBD	022_023	22	23	Terry Blvd	PVC	8	395.7	2			1												1	
HH SUBD	014_007	14	7	Arbor Trace	PVC	10	182	1			1												1	
HHSECT2	057_058	57	58	Terry Rd	PVC	8	315.6	1			1												1	
HHSECT2	060_061	60	61	Easement	VCP	8	224.9	1			1												1	
HHSECT2	063_064	63	64	Carter Ave	PVC	8	237.5	1			1												1	
HH SUBD	007_015	7	15	Angelina	VCP	8	120.7	0															1	
HH SUBD	023_019	23	19	Terry Blvd	PVC	8	338.4	0															0	
HH SUBD	026_028	26	28	Bigoak Dr	VCP	8	156.6	0															0	
HH SUBD	028_029	28	29	Bigoak Dr	VCP	8	112.8	0															0	
HH SUBD	009_008	9	8	Cannon Ct	PVC	10	161.2	0															0	
HH SUBD	010_012	10	12	Arbor Trace	PVC	10	359.3	0															0	
HH SUBD	011_010	11	10	Arbor Trace	PVC	10	220.5	0															0	
HH SUBD	012_013	12	13	Arbor Trace	PVC	10	149.5	0															0	
HHSECT2	003_004	3	4	Arcadia Ct	VCP	8	335.8	0															0	
HHSECT2	017_018	17	18	Angelina	VCP	8	0																0	
HHSECT2	032_033	32	33	Cadenza	VCP	8	347.9	0															0	Not checked from other side??
HHSECT2	041_029	41	29	Carrissa	VCP	8	299.9	0															0	
HHSECT2	045_046	45	46	Bigoak	VCP	8	41	0															0	
HHSECT2	049_050	49	50	Bally Castle	VCP	8	288.4	0															0	
HHSECT2	051_060	51	60	Easement	VCP	8	83.1	0															0	
HHSECT2	052_053	52	53	Blue Lick	PVC	8	385.2	0															0	
HHSECT2	053_052	53	54	Blue Lick	PVC	8	100.4	0															0	
HHSECT2	054_055	54	55	Blue Lick	PVC	8	396.8	0															0	
HHSECT2	055_056	55	56	Blue Lick	PVC	8	392.5	0															0	
HHSECT2	058_059	58	59	Terry Rd	PVC	8	82.4	0															0	
HHSECT2	061_062	61	62	Easement	VCP	8	270.1	0															0	
HHSECT2	064_065	64	65	Carter Ave	PVC	8	158.2	0															0	
HHSECT2	071_070	71	70	Earlywood	VCP	8	0	0															0	
HHSECT2	078_076	78	76	Balboa	VCP	8	305.7	0															0	
HHSECT2	047_stub	Stub	47	Bally Castle	VCP	8	67.8	0															0	
HHSECT2	017_018	17	18	Easement	VCP	10	231.9	0															0	
HHSECT2	074_075	74	75	Earlywood	VCP	10	244.8	0															0	
HHSECT2	076_077	76	77	Earlywood	VCP	10	310.4	0															0	
HHSECT2	077_017	77	17	Earlywood	VCP	10	256.7	0															0	
HHSECT2	019_080	19	80	Easement	VCP	12	0	0															0	
SMITHGR	013_012	13	12	Shelby Cir	PVC	8	100.3	0															0	
SMITHGR	014_013	14	13	Shelby Cir	PVC	8	254.2	0															0	
SMITHGR	014_013	14	13	Shelby Cir	PVC	8	0	0															0	
SMITHGR	004_005	4	5	Shelby Cir	PVC	8	220.5	0															0	
SMITHGR	003_005	3	5	Shelby Cir	PVC	8	86.1	0															0	
SMITHGR	005_006	5	6	Shelby Cir	PVC	8	133.7	0															0	
SMITHGR	005_006	5	6	Shelby Cir	PVC	8	0	0															0	
SMITHGR	006_007	6	7	Shelby Cir	PVC	8	123.7	0															0	
BLUELICK	056_BL1	56	BL-1	Blue Lick	PVC	8	393.6																0	Not summarized in report

PROJECT:
MAJESTIC ACRES SUBDIVISION

Martin's Pipeline Inspection

P.O. Box 5343

Paris, Ky. 40362

Phone # (859) 987-2529

Fax # (859) 987-2583

MARTIN'S PIPELINE INSPECTION 859-987-2529
113 West 2nd Street
Paris, KY 40362
Tel: 1-859-987-2529, Fax: 1-859-987-2583

INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		**sunny, dry**	**DONALD**	**1**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH: **MH-2**
CITY: **BULLITT COUNTY**	MAP #2:	MH: **MH-1**
LOCALE:	TAPE #: **0**	TV'D LGTH: **403.3 ft**

INSPECT REASON:	PIPE SIZE: **8"**	
SECTION TYPE: **SANITARY**	MATERIAL:	PVC JT LGTH: **14FT**
AREA:	LINING:	
	RSRVD:	

REMARK:

1:900	POSITION	OBSERVATION	MPEG	PH
MH-2	0.00	inspection begins at downstream manhole		
	28.50	sag begins	00:02:07	
	45.80	sag ends	00:02:41	
	56.30	service connection, at 03 o´clock	00:03:05	
	123.40	service connection, at 09 o´clock	00:05:14	
	147.50	service connection, at 03 o´clock	00:06:07	
	189.30	sag begins	00:07:26	
	196.40	sag ends	00:07:43	
	199.40	service connection, at 03 o´clock	00:07:58	
	203.70	service connection, at 09 o´clock	00:08:46	
	220.70	sag begins	00:09:35	
	246.90	sag ends	00:10:26	
	274.00	service connection, at 09 o´clock	00:11:24	
	278.30	service connection, at 03 o´clock	00:11:51	
	367.40	service connection, at 09 o´clock	00:15:24	
	371.80	service connection, at 03 o´clock	00:16:07	
MH-1	403.30	inspection ends at upstream manhole	00:18:09	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		sunny, dry	DONALD	2	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: MH-2
CITY: BULLITT COUNTY	MAP #2:	MH: MH-3
LOCALE:	TAPE #: 0	TV'D LGTH: 412.3 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:

1:925 POSITION	OBSERVATION	MPEG	PH
MH-2 0.00	inspection begins at upstream manhole		
26.90	service connection, at 09 o´clock	00:01:43	
33.60	service connection, at 03 o´clock	00:02:07	
43.10	sag begins	00:02:35	
52.10	sag ends	00:02:54	
100.10	service connection, at 09 o´clock	00:04:13	
122.20	service connection, at 03 o´clock	00:05:00	
163.60	service connection, at 09 o´clock	00:06:12	
188.00	service connection, at 03 o´clock	00:07:02	
241.90	service connection, at 09 o´clock	00:08:40	
247.70	service connection, at 03 o´clock	00:09:02	
287.40	sag begins	00:10:19	
311.00	sag ends	00:11:03	
314.10	service connection, at 09 o´clock	00:11:16	
335.00	sag begins	00:12:05	
340.70	sag ends	00:12:21	
376.10	pipe deformed	00:13:39	
387.50	service connection, at 09 o´clock	00:14:13	
MH-3 412.30	inspection ends at downstream manhole	00:15:35	

MPI MARTINS PIPELINE INSPECTION 859-987-2529

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		sunny, dry	DONALD	3	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	310

STREET:	MAP #1:	MH:	MH3
CITY: BULLITT COUNTY	MAP #2:	MH:	MH-9
LOCALE:	TAPE #: 0	TV'D LGTH:	298.1 ft

INSPECT REASON:		PIPE SIZE:	8"
SECTION TYPE: SANITARY		MATERIAL:	PVC JT LGTH: 14FT
AREA:		LINING:	
		RSRVD:	

REMARK:

1:675 POSITION	OBSERVATION	MPEG	PH
MH3 0.00	inspection begins at upstream manhole		
37.00	sag begins	00:01:15	
48.90	service connection, at 09 o´clock	00:01:42	
58.90	sag ends	00:02:08	
59.00	debris	00:02:08	
105.00	service connection, at 09 o´clock	00:03:32	
184.00	service connection, at 09 o´clock	00:06:18	
259.10	service connection, at 09 o´clock	00:08:54	
MH-9 298.10	inspection ends at downstream manhole	00:10:32	

MIDI MARTIN'S PIPELINE INSPECTION 859-987-2529

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		**sunny, dry**	**DONALD**	**4**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH:	**MH 6**
CITY: **BULLITT COUNTY**	MAP #2:	MH:	**MH 8**
LOCALE:	TAPE #: **0**	TV'D LGTH:	**85.9 ft**

INSPECT REASON:		PIPE SIZE:	**8"**
SECTION TYPE: **SANITARY**		MATERIAL:	**PVC** JT LGTH: **14FT**
AREA:		LINING:	
		RSRVD:	

REMARK:

1:200 POSITION	OBSERVATION	MPEG	PH
MH 6 0.00	inspection begins at downstream manhole		
5.00	service connection, at 09 o´clock	00:00:52	
46.40	service connection, at 09 o´clock	00:03:45	
84.50	service connection, at 09 o´clock	00:05:36	
MH 8 85.90	inspection ends at upstream manhole	00:06:27	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		sunny, dry	DONALD	5	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH:	MH 6
CITY: BULLITT COUNTY	MAP #2:	MH:	MH 7
LOCALE:	TAPE #: 0	TV'D LGTH:	145.3 ft

INSPECT REASON:		PIPE SIZE:	8"
SECTION TYPE: SANITARY		MATERIAL:	PVC JT LGTH: 14FT
AREA:		LINING:	
		RSRVD:	

REMARK:

1:325	POSITION	OBSERVATION	MPEG	PH
MH 6	0.00	inspection begins at downstream manhole		
	36.30	sag begins	00:02:47	
	40.40	sag ends	00:04:24	
	79.70	service connection, at 09 o´clock	00:07:38	
MH 7	145.30	inspection ends at upstream manhole	00:10:21	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		sunny, dry	DONALD	6	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	250

STREET:	MAP #1:	MH:	MH 6
CITY: BULLITT COUNTY	MAP #2:	MH:	MH 4
LOCALE:	TAPE #: 0	TV'D LGTH:	326.5 ft

INSPECT REASON:	PIPE SIZE:	8"	
SECTION TYPE: SANITARY	MATERIAL:	PVC	JT LGTH: 14FT
AREA:	LINING:		
	RSRVD:		

REMARK:

1:750	POSITION	OBSERVATION	MPEG	PH
MH 6	0.00	inspection begins at upstream manhole		
	88.00	service connection, at 03 o´clock	00:04:34	
	107.10	service connection, at 09 o´clock	00:05:56	
	134.70	offset joint, medium	00:08:11	
	158.50	service connection, at 03 o´clock	00:09:32	
	210.40	service connection, at 03 o´clock	00:11:51	
	272.30	service connection, at 03 o´clock	00:14:18	
MH 4	326.50	inspection ends at downstream manhole	00:17:00	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		sunny, dry	DONALD	7	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: No	RATE: 0

STREET:	MAP #1:	MH: MH 4
CITY: BULLITT COUNTY	MAP #2:	MH: MH 3
LOCALE:	TAPE #: 0	TV'D LGTH: 301.9 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:

1:675 POSITION	OBSERVATION	MPEG	PH
MH 4 0.00	inspection begins at upstream manhole		
6.80	service connection, at 03 o´clock	00:01:02	
58.00	service connection, at 03 o´clock	00:03:13	
93.10	service connection, at 03 o´clock	00:04:48	
123.30	service connection, at 03 o´clock	00:06:31	
186.20	service connection, at 03 o´clock	00:09:06	
245.00	service connection, at 03 o´clock	00:11:35	
250.10	service connection, at 09 o´clock	00:12:14	
MH 3 301.90	inspection ends at downstream manhole	00:15:17	

MARTINS PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
Paris, KY 40362
Tel: 1-859-987-2529, Fax: 1-859-987-2583

INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/08/2012		**sunny, dry**	**DONALD**	**8**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH:	**MH 5**
CITY: **BULLITT COUNTY**	MAP #2:	MH:	**MH 4**
LOCALE:	TAPE #: **0**	TV'D LGTH:	**158.4 ft**

INSPECT REASON:		PIPE SIZE:	**8"**
SECTION TYPE: **SANITARY**		MATERIAL:	PVC JT LGTH: **14FT**
AREA:		LINING:	
		RSRVD:	

REMARK:

1:375 POSITION	OBSERVATION	MPEG	PH
0.00	inspection begins at upstream manhole		
9.40	service connection, at 03 o´clock	00:01:22	
10.90	service connection, at 09 o´clock	00:01:53	
88.70	service connection, at 03 o´clock	00:04:37	
158.40	inspection ends at downstream manhole	00:06:45	

MARTIN'S PIPELINE INSPECTION 859-987-2529

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	9	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	500

STREET:	MAP #1:	MH:	MH 9
CITY: BULLITT COUNTY	MAP #2:	MH:	MH 10
LOCALE:	TAPE #: 0	TV'D LGTH:	203.6 ft

INSPECT REASON:	PIPE SIZE:	8"
SECTION TYPE: SANITARY	MATERIAL:	PVC JT LGTH: 14FT
AREA:	LINING:	
	RSRVD:	

REMARK:

1:475	POSITION	OBSERVATION	MPEG	PH
MH 9	0.00	inspection begins at downstream manhole		
	57.40	service connection, at 09 o´clock	00:05:31	
	59.60	service connection, at 03 o´clock	00:05:59	
	106.40	service connection, at 03 o´clock	00:07:42	
	122.00	service connection, at 10 o´clock	00:08:49	
	128.00	Infiltration Seeping at 12 o´clock	00:09:30	
	156.00	Infiltration Seeping at 12 o´clock	00:11:09	
	179.20	service connection, at 03 o´clock	00:12:54	
	186.30	service connection, at 09 o´clock	00:13:32	
MH 10	203.60	inspection ends at upstream manhole	00:15:00	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	10	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	550

STREET:	MAP #1:	MH: MH 10
CITY: BULLITT COUNTY	MAP #2:	MH: MH 11
LOCALE:	TAPE #: 0	TV'D LGTH: 233.6 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:

1:525 POSITION	OBSERVATION	MPEG	PH
0.00	inspection begins at downstream manhole		
34.00	service connection, at 03 o´clock	00:01:37	
39.30	service connection, at 09 o´clock	00:02:15	
96.30	service connection, at 03 o´clock	00:04:25	
98.20	offset joint, medium	00:06:43	
105.50	service connection, at 09 o´clock	00:07:40	
155.30	service connection, at 03 o´clock	00:09:49	
158.90	service connection, at 09 o´clock	00:10:25	
181.80	offset joint, slight	00:12:02	
187.90	offset joint, slight	00:12:43	
214.30	service connection, at 03 o´clock	00:14:13	
217.60	service connection, at 09 o´clock	00:14:44	
233.60	inspection ends at upstream manhole	00:17:00	

MARTIN'S PIPELINE INSPECTION 859-987-2529

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		**sunny, dry**	**MATT**	**11**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH: **MH 9**
CITY: **BULLITT COUNTY**	MAP #2:	MH: **MH 12**
LOCALE:	TAPE #: **0**	TV'D LGTH: **288.6 ft**

INSPECT REASON:	PIPE SIZE: **8"**
SECTION TYPE: **SANITARY**	MATERIAL: PVC JT LGTH: **14FT**
AREA:	LINING:
	RSRVD:

REMARK:

1:650	POSITION	OBSERVATION	MPEG	PH
MH 9	0.00	inspection begins at upstream manhole		
	23.50	service connection, at 09 o´clock	00:02:05	
	100.10	service connection, at 09 o´clock	00:04:15	
	177.20	service connection, at 09 o´clock	00:06:26	
	254.00	service connection, at 09 o´clock	00:08:53	
MH 12	288.60	inspection ends at downstream manhole	00:11:13	

MARTIN'S PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
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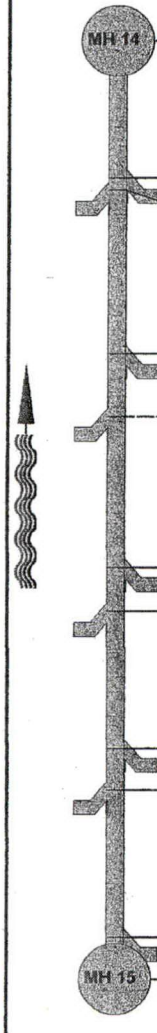
INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		**sunny, dry**	**MATT**	**12**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	**0**

STREET:	MAP #1:	MH: **MH 14**
CITY: **BULLITT COUNTY**	MAP #2:	MH: **MH 15**
LOCALE:	TAPE #: **0**	TV'D LGTH: **305.1 ft**

INSPECT REASON:	PIPE SIZE: **8"**
SECTION TYPE: **SANITARY**	MATERIAL: **PVC** JT LGTH: **14FT**
AREA:	LINING:
	RSRVD:

REMARK:



1:700 POSITION	OBSERVATION	MPEG	PH
0.00	inspection begins at downstream manhole		
44.60	service connection, at 09 o´clock	00:04:57	
48.50	service connection, at 03 o´clock	00:05:30	
101.60	service connection, at 09 o´clock	00:07:03	
121.90	service connection, at 03 o´clock	00:08:11	
170.80	service connection, at 09 o´clock	00:10:56	
185.10	service connection, at 03 o´clock	00:11:45	
229.90	service connection, at 09 o´clock	00:13:12	
243.60	service connection, at 03 o´clock	00:13:58	
291.40	service connection, at 09 o´clock	00:16:10	
305.10	inspection ends at upstream manhole	00:17:17	

MARTIN'S PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	13	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: MH 15
CITY: BULLITT COUNTY	MAP #2:	MH: MH 16
LOCALE:	TAPE #: 0	TV'D LGTH: 307.6 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:

1:700 POSITION	OBSERVATION	MPEG	PH
MH 15 0.00	inspection begins at downstream manhole		
7.20	service connection, at 03 o´clock	00:01:02	
47.70	service connection, at 09 o´clock	00:02:41	
68.60	service connection, at 03 o´clock	00:03:58	
115.70	service connection, at 09 o´clock	00:06:08	
133.80	service connection, at 03 o´clock	00:07:19	
170.20	service connection, at 09 o´clock	00:08:49	
191.60	service connection, at 03 o´clock	00:09:55	
232.10	service connection, at 09 o´clock	00:11:27	
250.80	service connection, at 03 o´clock	00:12:29	
289.40	service connection, at 09 o´clock	00:14:04	
MH 16 307.60	inspection ends at upstream manhole	00:15:14	

MPI MARTIN'S PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
Paris, KY 40362
Tel: 1-859-987-2529, Fax: 1-859-987-2583

INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	14	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: mh 16
CITY: BULLITT COUNTY	MAP #2:	MH: mh 17
LOCALE:	TAPE #: 0	TV'D LGTH: 267.2 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:

1:600	POSITION	OBSERVATION	MPEG	PH
mh 16	0.00	inspection begins at downstream manhole		
	8.20	service connection, at 03 o'clock	00:01:51	
	47.20	service connection, at 09 o'clock	00:03:08	
	67.70	service connection, at 03 o'clock	00:04:00	
	113.60	service connection, at 09 o'clock	00:05:20	
	129.50	service connection, at 03 o'clock	00:06:05	
	174.60	service connection, at 09 o'clock	00:07:36	
	193.20	service connection, at 03 o'clock	00:08:27	
	240.70	service connection, at 09 o'clock	00:09:54	
	260.60	service connection, at 03 o'clock	00:10:45	
mh 17	267.20	inspection ends at upstream manhole	00:11:37	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	15	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: mh 13
CITY: mh13	MAP #2:	MH: mh 14
LOCALE:	TAPE #: 0	TV'D LGTH: 314.4 ft

INSPECT REASON:	PIPE SIZE:	8"
SECTION TYPE: SANITARY	MATERIAL:	PVC JT LGTH: 14FT
AREA:	LINING:	
	RSRVD:	

REMARK:

1:700 POSITION	OBSERVATION	MPEG	PH
mh 13 0.00	inspection begins at downstream manhole		
32.00	service connection, at 03 o´clock	00:02:41	
99.00	service connection, at 03 o´clock	00:04:24	
165.50	service connection, at 03 o´clock	00:06:17	
219.00	service connection, at 03 o´clock	00:07:59	
272.40	service connection, at 03 o´clock	00:09:51	
mh 14 314.40	inspection ends at upstream manhole	00:11:56	

MARTIN'S PIPELINE INSPECTION 859-987-2529

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INSPECTION REPORT

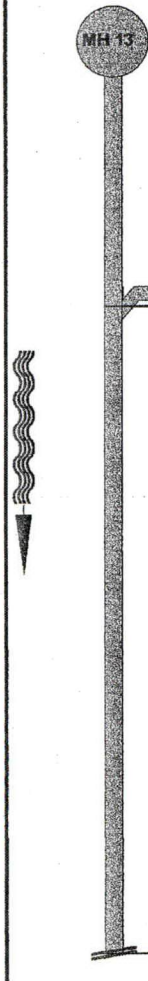
DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	16	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH:	MH 13
CITY: mh13	MAP #2:	MH:	MH 12
LOCALE:	TAPE #: 0	TV'D LGTH:	84.7 ft

INSPECT REASON:		PIPE SIZE:	8"
SECTION TYPE:	SANITARY	MATERIAL:	PVC JT LGTH: 14FT
AREA:		LINING:	
		RSRVD:	

REMARK:

1:200	POSITION	OBSERVATION	MPEG	PH
MH 13	0.00	inspection begins at upstream manhole		
	24.50	service connection, at 09 o´clock	00:02:28	
	84.70	inspection abandoned	00:09:04	



MARTIN'S PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
Paris, KY 40362
Tel: 1-859-987-2529, Fax: 1-859-987-2583

INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		**sunny, dry**	**MATT**	**17**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH: **MH 13**
CITY: **mh13**	MAP #2:	MH: **MH 18**
LOCALE:	TAPE #: **0**	TV'D LGTH: **305.7 ft**

INSPECT REASON:	PIPE SIZE:	**8"**
SECTION TYPE: **SANITARY**	MATERIAL:	PVC JT LGTH: **14FT**
AREA:	LINING:	
	RSRVD:	

REMARK:

1:700 POSITION	OBSERVATION	MPEG	PH
MH 13 0.00	inspection begins at downstream manhole		
41.40	service connection, at 03 o´clock	00:02:07	
48.50	service connection, at 09 o´clock	00:02:53	
108.30	service connection, at 03 o´clock	00:04:43	
116.00	service connection, at 09 o´clock	00:05:25	
183.30	service connection, at 03 o´clock	00:07:39	
188.70	service connection, at 09 o´clock	00:08:06	
242.00	service connection, at 03 o´clock	00:09:56	
249.60	service connection, at 09 o´clock	00:11:50	
295.10	service connection, at 03 o´clock	00:13:27	
299.80	service connection, at 09 o´clock	00:14:02	
MH 18 305.70	inspection ends at upstream manhole	00:15:01	

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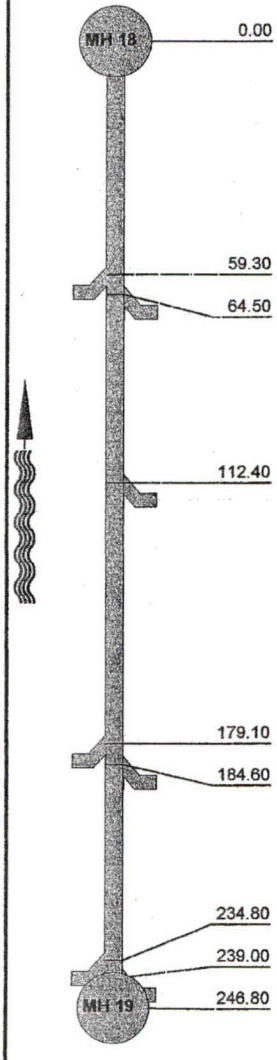
INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	18	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: MH 18
CITY: mh13	MAP #2:	MH: MH 19
LOCALE:	TAPE #: 0	TV'D LGTH: 246.8 ft

INSPECT REASON:	PIPE SIZE: 8"
SECTION TYPE: SANITARY	MATERIAL: PVC JT LGTH: 14FT
AREA:	LINING:
	RSRVD:

REMARK:



1:550 POSITION	OBSERVATION	MPEG	PH
0.00	inspection begins at downstream manhole		
59.30	service connection, at 03 o´clock	00:01:59	
64.50	service connection, at 09 o´clock	00:02:37	
112.40	service connection, at 09 o´clock	00:04:44	
179.10	service connection, at 03 o´clock	00:06:32	
184.60	service connection, at 09 o´clock	00:07:01	
234.80	service connection, at 03 o´clock	00:08:46	
239.00	service connection, at 09 o´clock	00:09:15	
246.80	inspection ends at upstream manhole	00:10:15	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/12/2012		sunny, dry	MATT	19	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH: MH 19
CITY:	MAP #2:	MH: MH 20
LOCALE:	TAPE #: 0	TV'D LGTH: 217.6 ft

INSPECT REASON:	PIPE SIZE:	8"
SECTION TYPE: SANITARY	MATERIAL:	PVC JT LGTH: 14FT
AREA:	LINING:	
	RSRVD:	

REMARK:

1:500	POSITION	OBSERVATION	MPEG	PH
MH 19	0.00	inspection begins at downstream manhole		
	54.90	service connection, at 03 o´clock	00:02:32	
	66.20	service connection, at 09 o´clock	00:03:15	
	114.10	service connection, at 03 o´clock	00:05:28	
	128.70	service connection, at 09 o´clock	00:06:14	
	171.80	service connection, at 03 o´clock	00:08:10	
	192.50	service connection, at 09 o´clock	00:09:16	
	217.60	inspection abandoned	00:14:02	

MPI MARTIN'S PIPELINE INSPECTION 859-987-2529

113 West 2nd Street
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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/26/2012		**sunny, dry**	**MATT**	**20**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH: **mh 23**
CITY:	MAP #2:	MH: **mh 22**
LOCALE:	TAPE #: **0**	TV'D LGTH: **169.4 ft**

INSPECT REASON:	PIPE SIZE: **8"**
SECTION TYPE: **SANITARY**	MATERIAL: **PVC** JT LGTH: **14FT**
AREA:	LINING:
	RSRVD:

REMARK:

1:400	POSITION	OBSERVATION	MPEG	PH
mh 23	0.00	inspection begins at downstream manhole		
mh 22	169.40	inspection ends at upstream manhole	00:08:43	

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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/26/2012		sunny, dry	MATT	21	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	0

STREET:	MAP #1:	MH:	mh 22
CITY:	MAP #2:	MH:	mh 21
LOCALE:	TAPE #: 0	TV'D LGTH:	140.9 ft

INSPECT REASON:		PIPE SIZE:	8"
SECTION TYPE:	SANITARY	MATERIAL:	PVC JT LGTH: 14FT
AREA:		LINING:	
		RSRVD:	

REMARK:

1:325	POSITION	OBSERVATION	MPEG	PH
mh 22	0.00	inspection begins at downstream manhole		
mh 21	140.90	inspection ends at upstream manhole	00:07:44	

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INSPECTION REPORT

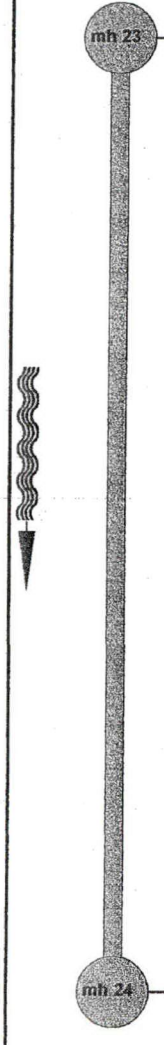
DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/26/2012		**sunny, dry**	**MATT**	**22**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED: **No**	RATE: **0**

STREET:	MAP #1:	MH: **mh 23**
CITY:	MAP #2:	MH: **mh 24**
LOCALE:	TAPE #: **0**	TV'D LGTH: **66.5 ft**

INSPECT REASON:	PIPE SIZE: **8"**
SECTION TYPE: **SANITARY**	MATERIAL: **PVC** JT LGTH: **14FT**
AREA:	LINING:
	RSRVD:

REMARK:

1:150	POSITION	OBSERVATION	MPEG	PH
mh 23	0.00	inspection begins at upstream manhole		
mh 24	66.50	inspection ends at downstream manhole	00:04:07	



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INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
10/26/2012		**sunny, dry**	**MATT**	**23**	
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:
				No	**0**

STREET:	MAP #1:	MH: **mh 24**
CITY:	MAP #2:	MH: **lift station**
LOCALE:	TAPE #: **0**	TV'D LGTH: **18 ft**

INSPECT REASON:	PIPE SIZE: **8"**	
SECTION TYPE: **SANITARY**	MATERIAL:	PVC JT LGTH: **14FT**
AREA:	LINING:	
	RSRVD:	

REMARK:

1:50	POSITION	OBSERVATION	MPEG	PH
mh 24	0.00	inspection begins at upstream manhole		
lift station	18.00	inspection ends at downstream manhole	00:02:51	

TO: Larry Clark, Larry Clark Construction
Dwane Robison, Dirt Design Construction
Tim Dues, E-Z Construction
Larry Smither

FROM: Chris Crumpton, PE

SUBJECT: Hunters Hollow Pump Station
Addenden No. 1

The bid date has been extended to Tuesday, February 24, 2015.

You are being forwarded answers to questions submitted by bidders:

- Is there a geotechnical report? No Geotech report but we know rock is 5.5 deep from boring and may have to be hoerammed if cannot rip out.

- Is Straeffer supplying the pumps/control panel package for the owner? Straeffer is not supplying because they do not supply variable speed wastewater pumps any longer, so we are using DXP supplying Essco pumps and controllers, with TLC supplying control panel.

- The plans note that the bottom of the wet well will have a 22'x22'x12" thick bottom. I'm going to assume that we could use a standard flange on the bottom of the precast structure and pour concrete around the base if it's needed for anti-flotation. A 22x22 base would conflict with the adjacent wet well and also require much more rock excavation. That would be acceptable, and we can provide a structural detail for this.

- You're only giving 30 days for the schedule. That's going to be tight when you figure lead times on the precast structures. Probably take 1 week for shop drawings and at least another week for production. It would be 2nd or maybe 3rd week of March before the structures are set. That would only give 1 week to get all the piping and pumps etc. in place. Yes, I'm issuing a clarification for each contractor to supply their projected schedule and we will remove any liquidated damages from the contract. Just provide your best projected schedule and we will work with the State on this. Any requirements related to completion dates for the project, based on the contractor's projected schedule, will be negotiated with the winning bidder and made a part of the final contract.

Cogan / Hunters Hollow

Robert Moore

From: Chris Crumpton [chris@bluestoneengineers.com]
Sent: Saturday, February 07, 2015 9:49 AM
To: Robert Moore
Cc: Larry Smither
Subject: Update for Hunters Hollow Pump Station
Attachments: bullitt(tlc control panel quote)06feb.docx; bullitt(itt pumpsmart quotation)06feb.docx; bullitt co(essco pump quote rev2)04feb.docx; bullitt(mag meter budget bluestone)04feb.docx

Guys I just wanted to give everyone a quick update since we were finally able to get pricing from the suppliers.

1. We have finally been able to get some pricing and fortunately the pricing is slightly less than the budgeting being provided by DXP (the main pump supplier of the ESSCO pumps) that they were telling was originally going to be $70,000 for the pump controls/panel. Two main suppliers of pump controls were used that provided control panels, one TLC and the other ITT. From the beginning TLC has attempted to meet the intent of the MSD specification. On the other hand ITT took exception to most of the MSD spec and provided mostly a "standard" panel for the variable speed pumps/controls. We expected these to be quite a bit different in price however TLC (meeting most of the spec) has provided a price of $55,262, while the ITT Standard Panel has a price of $52,105. That being said, we along with the supplier feel much more comfortable selecting TLC to provide the control panel/pump control systems for the small difference. Remember still that the selected electrical contractor would still have an install price for this package, that would additionally include getting power to the pump station.
2. We had previously discussed the pump package itself from ESSCO pumps, but just as a clarification the ESSCO package includes (2) pumps, a backup pump to be stored, cabling, etc.. (this is supposed to also include guiderails and lifting chains which we are clarifying with supplier). This packing price is $46,390.
3. The additional flow metering quote is provided at $11,720. There may be some add to provide for box mounting of the totalizers that read the flow.
4. The pump station itself as designed and approved by BCSD includes (2) 10' diameter wetwells and associated piping and manhole to connect up to the existing pump station and wetwell. This also includes the additional valves, valve vault, air release valves, pump station piping, etc.. This package will be available on Monday for the (3) site contractors to provide pricing for, each of which have already been contacted and the project discussed. This bid package will also include installation of pumps and guiderails into the pump station wetwells (even though they are supplied by the pump supplier). We would expect this bid package to cost around $153,225 based on our attached estimate. Larry take a look at this and see if you agree.

This should give a clearer picture of where we stand. Note the lead time on the pump and control system orders as spelled out in the price quotes. Let me know if anyone has any questions. Thanks.

Chris Crumpton, P.E.
BlueStone Engineers, PLLC
3703 Taylorsville Road, Suite 205, Louisville, Kentucky 40220
502-298-2272 Main | 502-292-9288 Mobile
chris@bluestoneengineers.com | www.bluestoneengineers.com

Robert Moore

From: Chris Crumpton [chris@bluestoneengineers.com]
Sent: Wednesday, March 18, 2015 4:22 PM
To: Larry Smither; [redacted]
Subject: Revised Quote for the Control Panel/Package & Pumps
Attachments: bullitt(tlc control panel quote-rev1)12mar.docx; bullitt co(essco pump quote rev4)09mar.docx

Here is the revised quote as discussed that revised the price for the control panel/drive package to $58,329.

Also attached is the pump package pricing for $52,045, there were some adds and deducts based on the final BCSD review items.

Note that the cost of the (2) 6" flow meters is $5940 each or $11,880. We don't have to add this type of meter in the pump station house for the bypass, we can get Larry to pick up something more cost effective and have it installed.

The contract price from Larry Clarke to build the pump station is $216,600.

Note that we will still need a price from electrical contractor to route electric line and move service switches.

Let me know if you have any questions.

Chris Crumpton, P.E.
BlueStone Engineers, PLLC
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DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

March 13, 2015

TO: CHRIS CRUMPTON
WITH: BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: BULLITT CO. SANITATION
TLC CONTROL PANEL QUOTATION
REVISION 1

Chris,

We have added the RACO dialer to this quote. We will have to go with a larger cabinet to get it to fit.

Quotation for TLC control panel follows. The quotation is per the intent of the specifications. TLC does use Alan-Bradley components however some other brands may vary. Panel is set-up to operate the pumps as a dual system with the pumps discharging to 2 different force mains. Provisions are made for manual by-pass and duplex alternation if need be.

ITEM	DESCRIPTION
1	1 NEMA 3R 304 TYPE STAINLESS STEEL DUPLEX CONTROL PANEL TO OPERATE TWO 15HP MOTORS USING 2 VFD'S ON 460V 3PH SERVICE ICLUDING;
	1 NEMA 4X STAINLESS STEEL ENCLOSURE
	2 VARIABLE SPEED DRIVES ABB550-03U-023A 15HP 460V 3PH
	1 U/L LABEL
	1 COOLING SYSTEM
	1 DEAD FRONT /INNER DOOR
	1 FLUORSCENT INTERIOR LIGHT
	1 INTERIOR LIGHT OFF-ON SELECTOR SWITCH(ES)
	1 200WATT GROUND FAULT TYPE OUTLET
	1 HEATER WITH THERMOSTAT
	1 12ga. MINIMUM POWER WIRE
	1 14ga. CONTROL WIRE
	1 MAIN DISCONNECT SWITCH
	1 SURGE ARRESTOR
	1 PHASE FAILURE RELAY
	2 MOTOR CIRCUIT PROTECTOR(S)
	2 MOUNT CUSTOMER SUPPLIED VFD(S)
	2 NEMA SIZE 2 BYPASS MOTOR STARTER(S)
	2 OVERLOAD RESET PUSH BUTTON(S)
	1 SET PRIMARY TRANSFORMER FUSES
	1 3 KVA TRANSFORMER
	4 CONTROL CIRCUIT BREAKER(S)
	2 HAND-OFF-AUTO SELECTOR SWITCH(ES)
	2 VARIABLE-OFF-CONSTANT SPEED SELECTOR SWITCH

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2 SPEED POTENTIOMETER
4 RUN PILOT LIGHT(S) PUSH-TO-TEST TYPE
2 ELAPSED TIME METER(S)
2 MOISTURE DETECTION RELAY(S)
2 SEAL LEAK PILOT LIGHT(S) PUSH-TO-TEST
2 HIGH TEMPERATURE RELAY(S)
2 HIGH TEMP. PILOT LIGHT(S) PUSH-TO-TEST
2 4-20MA INTRINSIC BARRIER
2 SUBMERSIBLE LEVEL TRANSDUCER WITH 50ft CABLE
3 INTRINSIC SAFE RELAY(S) EACH FOR TWO FLOATS
1 500VA UNINTERUPTED POWER SUPPLY
1 POWER SUPPLY
1 120V TRANSEINT SURGE ARRESTOR
1 5.7in. TOUCHSCREEN PLC CONTROLLER
1 HIGH WATER ALARM PILOT LIGHT PUSH TO TEST TYP
1 SET(S) AUX. CONTACTS
1 12V DC STROBE LIGHT
1 ALARM HORN WITH SILENCE PUSH BUTTON
1 GEL CEL BATTERY
1 BATTERY CHARGER
1 ALARM TEST PUSH BUTTON(S)
1 RACO VSS8 EIGHT CHANNEL ALARM DIALER

NOTES: NOT INCLUDED IN PRICING:
AUTOMATIC TRANSFER SWITCH, GENERATOR EQUIPMENT, TELEMETRY, POWER PANEL, FLOW METER EQUIPMENT, FLOAT SWITCHES, JUNCTION BOXES AND SEAL-OFFS.

Quote Compiled From: SPEC PAGE DP-1 THRU 29 AND DRAWINGS C3, C5 & C6.

YOUR DELIVERED PRICE INCLUDING 1 DAY START-UP: ..... $ 58,329.00

Drawings 1-2 weeks ARO. Shipment 6-7 weeks after approval.

Prices are FOB shipping point, freight included. Terms N30 days. Quote good for 30 days. Prices subject to DXP Enterprises Inc. terms and conditons.

Thank you,

Keith Lipe
DXP Enterprises - Louisville

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Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

DXP

DXP Enterprises, Inc.
THE INDUSTRIAL DISTRIBUTION EXPERTS

January 14, 2015
February 4, 2015
February 9, 2015
March 9, 2015

TO: LARRY SMITHER & CHRIS CRUMPTON
WITH: CAMDEN ENVIRONMENTAL & BLUESTONE ENGINEERS
FROM: KEITH LIPE

RE: BULLITT CO. SANITATION – HUNTERS HOLLOW PUMP STATION
320 GPM @ 49' TDH (PEAK) 1750 RPM
ADDENDA 0 – **REVISION 4**

We are pleased to offer the following for your consideration.

Revision 4 –

- **DEDUCT - $ 742.00 for 30x42 Pump Wet-Well Access Cover**
- **DEDUCT - $ 655.00 for 30x30 Valve Vault Access Cover**

Revision 3 –

- **Added for intermediate guide-rail brackets and float bracket– drawing shows @ 10' but pump manufacturer doesn't require until 20'.**
- **Added for 25' 304 stainless steel lifting chain for each pump.**
- **Added for 5-20' Sections of 304 stainless steel 2" pipe.**
- **Added for pump certified hydraulic performance test.**

Revision 2 –

- **Added for a spare pump and 50' cord for each.**

Two (2) ESSCO model 493F-15-4 Torque Fluid Flanged Submersible Vortex Pumps with a 100% recessed vortex style impeller capable of passing 3 inch diameter and long length solids. Each unit shall be constructed of heavy duty engineered Cast Iron with Ductile Iron impeller, Cast Iron volute, assembled with Stainless Steel hardware. Each pump shall be painted with standard factory paint.

Each pump shall be equipped with a Cool Agivent device which shall vent the pump case, cool he motor and agitate the wet well. The Cool Agivent shall provide enough cooling to dissipate any excess heat generated by the motor in the event of prolonged operation with the motor exposed.

Each pump will be equipped with a Reliance UL Listed 15 HP, 1750 RPM, 460/3/60hz., 210TY frame, submersible motor with Buna-N O-rings, carbon/ceramic upper mechanical seal with Buna-N elastomers and tungsten/carbide lower mechanical seal with Buna-N elastomers, 416 Stainless Steel shaft, Class F insulation, oil buffer zone, moisture sensing probes, built-in thermal overload protection, **50 ft. motor leads**, and ESSCO/Reliance five year warranty. The exterior

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of the motor shall be coated with standard factory paint. Approximate FLA- 21 Standard motor can be operated on a VFD but will be derated to a 1.0 Service Factor.

Optional Items:

- 493 210TY- Wear Plates
- 4" Design 3 spark proof for 2" Guide Pipe Straight-thru slide rail assemblies to include Cast Iron stationary base, Bronze faced sliding flange, 2.00" Inch top guide bracket, and Bronze rail guides. The slide rail stationary base assembly shall be coated with standard factory paint.
- 4" Flanged Base 90° Elbows (Footed) 125# Cast Iron with Slotted Flanges

Six (6) Mechanical float switch level controls with 30' cable.

One (1) Halliday Products S1R 030042FBB 30x42 Aluminum Pump Access Cover 300 PSF.

One (1) Halliday Products SIR 030030FBB 30x30 Aluminum Valve Vault Access Cover 300 PSF.

TOTAL COST FOR ABOVE EQUIPMENT: ..... $ 35,186.00

ADD: $ 12,204.00 FOR ADDITIONAL 493F-15-4 PUMP.

TOTAL COST WITH ADDITIONAL PUMP: ..... $ 46,390.00

ADDS:

- **INTER GUIDE-RAIL & FLOAT BRACKETS: ..... $ 995.00**
- **4 - 20' SECTIONS 304 SST SCHD 40 GUIDE RAILS $ 1,560.00**
- **2 – SECTIONS 25' 304 SST LIFTING CHAIN: ..... $ 1,600.00**
- **2 Certified Hydraulic Performance Tests: ..... $ 1,500.00**

TOTAL COST WITH ADDERS: ..... $ 52,045.00

Price is FOB shipping point, freight allowed to jobsite.

Price includes expedited lead-time for the pumps. They can ship FOB Los Angles CA in 2 weeks after credit approval and order release. Two (2) Reliance motors are available in Portland OR at this moment on a first come first serve basis.

Prices do not include dual VFD control panel, piping, installation, valves, wiring or any other items other than those mentioned above.

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Phone 502-426-2400 • Fax 502-426-3400 • Toll Free 800-457-8467

Prices are valid for 30 days. Prices are subject to DXP Enterprises terms and conditions.

Regards,

Keith Lipe
DXP Louisville
(502) 426-2400

BlueStone
Engineers, PLLC

Civil Engineering
Land Planning
Construction Inspection

3703 Taylorsville Road, Suite 205
Louisville, Kentucky 40220
502.296.2272
www.bluestoneengineers.com

February 25, 2015

Mr. Lawrence Smither
Bullitt Utilities, Inc.
P. O. Box 91588
Louisville, KY 40291

SUBJECT: Hunters Hollow Pump Station Bids
Bullitt County, Kentucky

Dear Mr. Smither:

Please find below a summary of the bid amounts received on the above project. A copy of the bids are attached:

Dirt-Design Construction	$ 338,230
E-Z Construction	$ 221,354
Larry Clark Construction, Inc.	$ 213,800

These prices are slightly higher than our estimate due to higher rock removal prices and hauling expenses which have shown up in miscellaneous grading line item. This cost summary does not truly reflect the "projected" bid total for each contractor since some units were adjusted by two of the contractors. These adjustments could make a difference in the projected low bidder.

Please review this information and give me a call so we can discuss.

Sincerely,

Christopher T. Crumpton, P.E.
Engineering Director/Principal

CTC/mlr

Bid Proposal Form for Hunters Hollow Pump Station

Number	Item	Quantity	Unit	Unit Cost	Total Cost
1	12-inch PVC Sewer,Type II backfill	48	LF	40.00	1920.00
2	4-inch Ductile Iron Force Main w/reducer	8	LF	30.00	240.00
3	6-inch Ductile Iron Force Main	80	LF	35.00	2800.00
4	Tie into Existing Manhole/Pump Station	2	Each	3000.00	6000.00
5	Tie to Existing Force Main(s)	1	LS	2000.00	2000.00
6	Sewer and Manhole Testing	1	LS	3500.00	3500.00
7	Bends and Restraints	6	Each	200.00	1200.00
8	Standard Silt Fence	170	LF	3.00	510.00
9	Straw Bale Containment	1	LS	560.00	560.00
10	Miscellaneous Grading/Excavation	1	LS	90,000	90,000
11	Rock Removal 460 ~~370~~		CY	200.00	80,000
12	Seeding and restoration	1	LS	10,000	10,000.
13	Concrete Structures (Manhole, Wet Wells, Valve Vault & Meter Vault)	1	LS	80,000	80,000.
14	Valves, Vents, and Piping Appurt.	1	LS	35,000	35,000
15	Ladders and Hatches*	1	LS	25.00.00	2500.00
16	Air Release Valve	2	Each	200000	4000.00
17	Surge Relief Valve	1	Each	2500.00	2500.00
18	Installation of Flow Meters**	1	LS	1500.00	1500.00
19	Install Pumps/Guiderails/Chains***	1	LS	9500.00	9500.00
20	Photographs/Video Recording	1	LS	1500.00	1500.00
				Sub-Total	335,230
21	Mobilization/Demobilization	1	LS	3000.00	3000.00
22	Bonds	1	LS		
Total Base Bid					$338,230.00

*Access hatches to be provided with Pump & Controls package to be purchased by the owner. This bid item includes installation of the hatches.

**Flow meters to be provided with Pump & Controls package to be purchased by the owner. This bid item includes installation of the meters only.

*** Pumps, Guiderails, and lifting chains to be provided with Pump Supplier package to be purchased by the owner. This bid item includes installation of the pumps, guiderails and lifting chains only.

Duane Collison

E - Z Construction

Hunters Hollow Lift Station

Bid Proposal

No.	Item	Quantity	Unit	Unit Price	Total Price
1	12" PVC Sewer, Type 2 Backfill	48	lf	$52.00	$2,496.00
2	4" DI Force Main w/Reducer	8	lf	$46.00	$368.00
3	6" DI Force Main	80	lf	$48.00	$3,840.00
4	Tie-In to Existing Manholes/Pump Station	2	ea	$2,000.00	$4,000.00
5	Tie-In to Existing Force Mains	1	ls	$1,100.00	$1,100.00
6	Sewer and Manhole Testing	1	ls	$1,400.00	$1,400.00
7	Bends and Restraints	6	ea	$300.00	$1,800.00
8	Standard Silt Fence	170	lf	$5.00	$850.00
9	Straw Bale Containment	1	ls	$1,300.00	$1,300.00
10	Misc Grading and Excavation	1	ls	$3,500.00	$3,500.00
11	Rock Removal	370	cy	$145.00	$53,650.00
12	Seeding and Restoration	1	ls	$850.00	$850.00
13	Concrete Structures (MH, Wet Wells, Valve Vault, Meter Vau	1	ls	$85,000.00	$85,000.00
14	Valves, vents and piping appurtencances	1	ls	$41,800.00	$41,800.00
15	Ladders and Hatches	1	ls	$1,800.00	$1,800.00
16	Air Release Valve	2	ea	$2,600.00	$5,200.00
17	Surge Release Valve	1	ea	$2,600.00	$2,600.00
18	Installation of Flow Meters	1	ls	$1,500.00	$1,500.00
19	Install Pumps/Guardrails/Chains	1	ls	$2,200.00	$2,200.00
20	Photographs/Video Recording	1	ls	$800.00	$800.00
				Subtotal	**$216,054.00**
21	Mobilization/Demobilization	1	ls	$2,000.00	$2,000.00
22	Bonds	1	ls	$3,300.00	$3,300.00
				Total Bid	**$221,354.00**

Larry Clark
Clark Construction

Bid Proposal Form for Hunters Hollow Pump Station

Number	Item	Quantity	Unit	Unit Cost	Total Cost
1	12-inch PVC Sewer,Type II backfill	48	LF	75.00	3600
2	4-inch Ductile Iron Force Main w/reducer	~~85~~	LF	60.00	300
3	6-inch Ductile Iron Force Main	~~80~~ 5	LF	40.00	200
4	Tie into Existing Manhole/Pump Station	2	Each	1000.00	2000
5	Tie to Existing Force Main(s)	1	LS		1500
6	Sewer and Manhole Testing	1	LS		500
7	Bends and Restraints	6	Each	150.00	900
8	Standard Silt Fence	170	LF	2.50	425
9	Straw Bale Containment	1	LS		375
10	Miscellaneous Grading/Excavation	1	LS		87,000
11	Rock Removal 270	~~370~~	CY	130.00	35,100
12	Seeding and restoration	1	LS		1,000
13	Concrete Structures (Manhole, Wet Wells, Valve Vault & Meter Vault)	1	LS		46,000
14	Valves, Vents, and Piping Appurt.	1	LS		20,000
15	Ladders and Hatches*	1	LS		300
16	Air Release Valve	2	Each	2000.00	4,000
17	Surge Relief Valve	1	Each		No bid
18	Installation of Flow Meters**	1	LS		200
19	Install Pumps/Guiderails/Chains***	1	LS		1200
20	Photographs/Video Recording	1	LS		100
				Sub-Total	204,700
21	Mobilization/Demobilization	1	LS		2500
22	Bonds	1	LS		6600
Total Base Bid					$213,800

*Access hatches to be provided with Pump & Controls package to be purchased by the owner. This bid item includes installation of the hatches.
**Flow meters to be provided with Pump & Controls package to be purchased by the owner. This bid item includes installation of the meters only.
*** Pumps, Guiderails, and lifting chains to be provided with Pump Supplier package to be purchased by the owner. This bid item includes installation of the pumps, guiderails and lifting chains only.

D. Cleveland

COMMONWEALTH OF KENTUCKY
ENERGY AND ENVIRONMENT CABINET
FILE NO. DOW - 34022

ENERGY AND ENVIRONMENT CABINET PLAINTIFF

VS. **AGREED ORDER**

BULLITT UTILITIES, INC. DEFENDANT

****

WHEREAS, the parties to this Agreed Order, the Energy and Environment Cabinet ("Cabinet") and Bullitt Utilities, Inc. ("BUI"), state:

1. The Cabinet is charged with the statutory duty of protecting human health and the environment by enforcing KRS Chapter 224 and the regulations promulgated pursuant thereto.

2. BUI is a Kentucky for-profit corporation, in good standing, that owns a sewage system, as defined in KRS 224.01-010(25), that included a residential wastewater treatment plant and collection lines located on Blue Lick Road, Hunters Hollow, Kentucky, Hunters Hollow Subdivision ("Hunters Hollow WWTP"), providing sewer service to the residents of the cities of Hunters Hollow and Hillview in Bullitt County, Kentucky.

3. BUI holds Kentucky Pollutant Discharge Elimination System ("KPDES") permit No. KY0038610 issued by the Cabinet's Division of Water ("DOW") which became effective on December 1, 2008. A permit renewal application was submitted in a timely manner to DOW on September 13, 2013.

4. The Hunters Hollow WWTP is designed to treat up to 0.250 million gallons per day of sanitary sewage before discharging the treated effluent to an unnamed tributary of Brooks Run from the Hunters Hollow WWTP.

5. BUI estimates the dry weather wastewater flow at the Hunters Hollow WWTP to be 160,000 gallons per day ("Dry Weather Flow"). Due to inflow and infiltration ("I&I") issues with the Hunters Hollow WWTP collection system, the wet weather wastewater flow at the Hunters Hollow WWTP increased significantly ("Wet Weather Flow"). The Wet Weather Flow can exceed the Hunters Hollow WWTP's treatment capacity and lead to bypasses of the treatment process during rain events.

6. From April 16, 2009, until October 25, 2013, Cabinet personnel inspected the Hunters Hollow WWTP and reviewed required discharge monitoring reports multiple times which resulted in the Cabinet issuing Notices of Violation ("NOVs") on April 16, 2009; January 25, 2010; September 17, 2010; March 24, 2011; December 12, 2011; February 21, 2012; July 24, 2012; July 2, 2013; and November 12, 2013, citing violations of the following regulations;

a. 401 KAR 5:005 Section 11 - Failure to provide for proper disinfection.

b. 401 KAR 5:015 Section 2 - Failure to report a spill. (8 Counts)

c. 401 KAR 5:065 Section 1(5) - Failure to provide proper operation and maintenance (O&M)

d. 401 KAR 5:065 Section 2(1) - Failure to report a spill. (13 Counts)

e. 401 KAR 10:031 Section 2 - Degradation of the waters of the Commonwealth. (9 Counts)

f. KRS 224.70-110- Discharging a pollutant into the waters of the Commonwealth. (7 Counts)

7. On March 29, 2014, the Hunters Hollow WWTP suffered a catastrophic tank failure and discharged more than 250,000 gallons of untreated and undertreated wastewater into the receiving stream.

8. The discharge of untreated wastewater continued unabated until April 2, 2014, when BUI established an initial temporary treatment system referred to as the "Pecco WWTP". The initial temporary treatment system had capacity to provide treatment of the Dry Weather Flow, but could not abate the bypasses caused by the Wet Weather Flow.

9. On or about July 17, 2014, BUI established a second temporary treatment system referred to as the "Veolia WWTP", capable of treating the Dry Weather Flow and abating the bypasses caused by the Wet Weather Flow.

10. Since March 29, 2014, Cabinet personnel have conducted multiple inspections of the Hunters Hollow WWTP site and reviewed required discharge monitoring reports which resulted in the Cabinet issuing NOVs on April 2, 2014; May 16, 2014; June 19, 2014; and August 18, 2014, citing violations of the following regulations;

a. 401 KAR 10:031 Section 2 - Degradation of the waters of the Commonwealth. (3 Counts)

b. KRS 224.70-110 - Discharging a pollutant into the waters of the Commonwealth. (11 Counts)

c. 401 KAR 5:065 Section 2(1) - Failure to report a spill. (3 Counts)

d. 401 KAR 5:005 Section 11 - Failure to provide for proper disinfection. (2 Counts)

e. 401 KAR 5:045 Section 1 - Failure to provide for secondary treatment.

f. 401 KAR 5:065 Section 2 - Failure to comply with the terms of the KPDES Permit.

11. The current cash receipts generated by the Public Service Commission authorized rate associated with BUI's operation of the Hunters Hollow WWTP are insufficient to operate

and maintain the Veolia WWTP for an extended period of time.

12. BUI does not admit the alleged violations described herein, but agrees to the entry of this Agreed Order to fully and finally resolve the violations alleged, as well as any other violations that occurred prior to the date of the entry of this Agreed Order.

NOW THEREFORE, in the interest of fully and finally settling all claims and controversies involving the alleged violations described above, the parties hereby consent to the entry of this Agreed Order and agree as follows:

REMEDIAL MEASURES

13. At all times, BUI shall report to the Cabinet all spills, bypass discharges, upset condition discharges and other releases of substances from its WWTP and sewer collection system which would result in or contribute to the pollution of the waters of the Commonwealth, including emergency and accidental releases, in accordance with KRS 224.1-400, and 401 KAR Chapter 5. BUI shall make its initial report of the above discharges or releases by telephone to the Louisville Regional Office at 502-429-7122, or the Cabinet's 24-hour notification number, 800-928-2380 or 502-564-2380.

14. BUI shall immediately perform any necessary remedial actions upon discovery of a spill, discharge, bypass or upset condition.

15. While BUI owns the Hunters Hollow collection system, defined herein as the system of pipes, pumps, pump stations, manholes, the wet-well, flow meters and other appurtenances owned by BUI and which are used to serve the customers of the Hunters Hollow WWTP, BUI shall provide for regular operation and maintenance of the Hunters Hollow collection system including any structures which should be added to prevent solids and floatables from entering into the unnamed tributary of the Brooks Run. BUI shall also provide for the

operation and maintenance of the Veolia temporary WWTP while it is on site and prior to any connection of the Hunters Hollow collection system to the Bullitt County Sanitary District ("BCSD") sewer system.

16. BUI shall immediately begin implementing steps to correct I&I into the Hunters Hollow collection system, and, beginning January 1, 2015, BUI shall spend no less than $30,000 per year to address this I&I until it conveys the Hunters Hollow collection system to another entity, or until the Cabinet concurs in writing that I&I into the Hunters Hollow collection system has been substantially corrected. Corrective steps shall minimally include the following:

a) On or before December 1, 2014, BUI shall submit to the Cabinet's Division of Enforcement (DENF) for review and acceptance the report of the I&I Study of the Hunters Hollow WWTP collection system previously completed by BUI's contract engineer;

b) On or before March 1, 2015, BUI shall submit to the DENF for review and acceptance, a written Corrective Action Plan (CAP) with a schedule of implementation. The CAP shall identify specific actions BUI will implement to address I&I into the Hunters Hollow WWTP collection system.

c) Upon reviewing the CAP submitted by BUI, DENF may, in whole or in part, (1) approve, (2) disapprove or (3) provide comments to BUI identifying any deficiencies in the CAP.

i) Upon written notification by DENF that the CAP is accepted, BUI shall immediately begin implementing the CAP.

ii) Upon written notification by DENF that the CAP is deficient, BUI shall have thirty (30) days from the date of written notification to submit an amended

CAP addressing DENF's comments. If any part of the CAP is disapproved after it has been submitted a second time, the Cabinet may, in its reasonable discretion, deem BUI to be out of compliance with the Agreed Order for failure to timely submit a CAP and may assess stipulated penalties pursuant to this Agreed Order.

iii) If BUI receives no response from DENF within sixty (60) days of DENF's receipt of a CAP, such CAP shall be deemed approved effective upon the expiration of that sixty (60) day period.

d) Beginning January 15, 2015, BUI shall submit quarterly progress reports for compliance with the Agreed Order by the fifteenth (15th) day of the first month following each quarter to DENF and the DOW Frankfort Regional Office;

17. Unless otherwise stated by a specific paragraph, all correspondence, documents, notices, and/or requests required to be sent or submitted to the Cabinet by this Agreed Order shall be sent to the Director, Division of Enforcement, 300 Fair Oaks Lane, Frankfort, KY 40601.

PENALTIES AND COST RECOVERY

18. BUI shall be liable for civil penalties in the amount of thirty thousand dollars ($30,000) for the violations described in paragraph six (6) above. Payment shall be due fifteen (15) days after this Agreed Order is entered by the Secretary or his designee, unless BUI provides DENF written notice of its intent to implement a Supplemental Environmental Project as outlined in paragraph twenty-five (25) below.

19. BUI shall be liable for civil penalties in the amount of one hundred twenty-five thousand dollars ($125,000) for the violations described in paragraph ten (10) above. Payment shall be due ninety (90) days after this Agreed Order is entered by the Secretary or his designee.

20. As of October 1, 2014, the Cabinet has expended thirteen thousand six hundred six dollars and fifteen cents ($13,606.15) in oversight and response costs related to the environmental emergency following the failure of the Hunters Hollow WWTP. BUI shall reimburse the Cabinet for the full amount of the response costs as stated herein. Payment shall be due on the fifteenth (15th) day of the month after this Agreed Order is entered by the Secretary or his designee.

21. The Cabinet may assess against BUI a stipulated penalty of five hundred dollars ($500) for each failure to comply with the remedial measures contained in paragraphs thirteen (13) through seventeen (17) above. The stipulated penalty shall be due and payable in full within thirty (30) days of the Cabinet issuing written notice demanding stipulated penalty. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed as specifically stated in this Agreed Order.

22. Notwithstanding the language of paragraph twenty-one (21) above, a stipulated penalty of one hundred dollars ($100) may be assessed for each violation of BUI's KPDES permit and each bypass, spill, discharge bypass discharge, upset condition discharge and other releases of substances originating from BUI's collection system, as "collection system" is defined in paragraph fifteen (15) of this Agreed Order, including any bypasses occurring at the former Hunters Hollow WWTP site, which results in or contributes to the pollution of the waters of the Commonwealth. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed as specifically stated in this Agreed Order.

23. If BUI believes the demand for payment of a stipulated penalty is erroneous or contrary to law, BUI may request a hearing in accordance with KRS 224.10-420(2). The request for hearing does not excuse timely payment of the stipulated penalty. If an order is entered

pursuant to KRS 224.10-440 that excuses payment, the Cabinet will refund the payment. Failure to make timely payment shall constitute an additional violation.

24. Payment of civil penalty and stipulated penalties shall be by cashiers check, certified check, or money order, made payable to "Kentucky State Treasurer" and sent to the attention of Accounts Payable, Office of Administrative Hearings, Energy and Environment Cabinet, 35-36 Fountain Place, Frankfort, Kentucky 40601. Please note "Case No. DOW - 34022" on all instruments of payment.

SUPPLEMENTAL ENVIRONMENTAL PROJECTS

25. In lieu of payment of the civil penalties set forth in paragraph eighteen (18) BUI shall allocate thirty thousand dollars ($30,000) toward the performance of a Supplemental Environmental Project ("SEP") as set forth below:

a) BUI shall fully implement the SEP within twelve (12) months of the Secretary executing this Agreed Order.

b) BUI shall develop and implement a CAP to eliminate sources of I&I within the customers' portions of the sewer lines that connect to the Hunters Hollow WWTP collection system as determined through smoke testing, dye testing, television or visual inspection;

c) Items scheduled for repair and/or replacement can include, but need not be limited to, defective lateral lines, illegal downspout connections, clean out traps, and illegal sump pumps; and

d) BUI shall notify the DOW Louisville Regional Office prior to initiating any remediation of a private source of I&I.

BUI may satisfy its obligations under this SEP by entering into an agreement with an appropriate

local government or agency requiring it to comply with the requirements of this paragraph twenty-five (25). The Cabinet shall have the right to review and accept any such agreement to perform the SEP set forth by this paragraph.

26. In the event that BUI fails to complete the SEP as described in paragraph twenty-five (25) above, BUI shall pay in full the civil penalties described or assessed in paragraph eighteen (18) within fifteen (15) days of written notice from the Cabinet. Payment shall be made as described in paragraph twenty-four (24) above.

27. In lieu of payment of the civil penalties set forth in paragraph nineteen (19) above, BUI shall perform the following SEP. No later than sixty (60) days after the date the Secretary executes this Agreed Order, BUI shall connect its collection system to the BCSD sanitary sewer system to divert the Dry Weather Flow and as much of the Wet Weather Flow as possible, under terms of an agreement negotiated between BCSD and BUI generally in the form of Attachment "A" to this Agreed Order, and disconnect the Pecco WWTP and the Veolia WWTP. BUI shall minimally comply with the provisions set forth in said Agreement, which include but are not limited to the payment of $125,000 to BCSD and the payment of the cost to design and construct that part of the pipeline connecting the Hunters Hollow WWTP collection system to the BCSD sanitary sewer system, which part consists of the pumps, pipeline and two (2) flow meters from the Hunters Hollow WWTP site to the location where the flow meters are reasonably installed as agreed to by BUI and BCSD.

28. In the event that BUI fails to complete the SEP as described in paragraph twenty-seven (27) above, BUI shall pay in full the civil penalties described or assessed in paragraph nineteen (19) above within fifteen (15) days of written notice from the Cabinet. Payment shall be made as described in paragraph twenty-four (24) above.

MISCELLANEOUS PROVISIONS

29. This Agreed Order only addresses violations specified or addressed in this Agreed Order. Except as otherwise provided herein, nothing contained in this Agreed Order shall be construed to waive or limit any remedy or cause of action by the Cabinet based on statutes or regulations under its jurisdiction, and the Defendant reserves its defenses thereto. The Cabinet expressly reserves its right at any time to issue administrative orders and to take any other action it deems necessary, that is consistent with this Agreed Order. However, provided that the Defendant complies with all provisions of this Agreed Order, including but not limited to paying all response costs, performing all required remedial actions, paying all civil penalties or completing any SEPs, the Cabinet shall release the Defendant, and its successors and assigns, predecessors, parent companies, officers, agents, representatives and shareholders from any claims arising under KRS 224.70 and 401 KAR Chapters 5, 10, and 11or out of the matters addressed in paragraphs one (1) through twelve (12) of the Agreed Order herein, up to and through and including the effective date of this Agreed Order.

30. This Agreed Order shall not prevent the Cabinet from issuing, reissuing, renewing, modifying, revoking, suspending, denying, terminating, or reopening any permit to BUI. BUI reserves its rights and defenses thereto, except that BUI shall not use this Agreed Order as a defense.

31. BUI waives its right to any hearing on the matters admitted herein. However, failure by BUI to comply strictly with any or all of the terms of this Agreed Order shall be grounds for the Cabinet to seek enforcement of this Agreed Order in Franklin Circuit Court and to pursue any other appropriate administrative or judicial action under KRS Chapter 224, and the regulations promulgated pursuant thereto.

32. The Agreed Order may not be amended except by a written order of the Cabinet's Secretary or his designee. BUI may request an amendment by writing the Director of the Division of Enforcement at 300 Fair Oaks Lane, Frankfort, Kentucky 40601 and stating the reasons for the request. If granted, the amended Agreed Order shall not affect any provision of this Agreed Order unless expressly provided in the amended Agreed Order.

33. The Cabinet does not, by its consent to the entry of this Agreed Order, warrant or aver in any manner that BUI's complete compliance with this Agreed Order will result in compliance with the provisions of KRS Chapter 224, and the regulations promulgated pursuant thereto. Notwithstanding the Cabinet's review and approval of any plans formulated pursuant to this Agreed Order, BUI shall remain responsible for compliance with the terms of KRS Chapter 224 and the regulations promulgated pursuant thereto, this Agreed Order and any permit and compliance schedule requirements.

34. The Cabinet agrees to allow the performance of the above-listed remedial measures, above listed SEPs and/or payment of civil penalties by BUI to satisfy its obligations to the Cabinet generated by the violations described above.

35. The Cabinet and BUI agree that the remedial measures agreed to herein are facility specific and designed to comply with the statutes and regulations cited herein. This Agreed Order applies specifically and exclusively to the unique facility referenced herein and is inapplicable to any other site or facility owned and/or operated by BUI.

36. BUI shall give notice of this Agreed Order to any purchaser, lessee or successor in interest prior to the transfer of ownership and/or operation of any part of its now-existing facility occurring prior to termination of this Agreed Order, shall notify the Cabinet that such notice has been given, and shall follow all statutory and regulatory requirements for a transfer. Whether or

not a transfer takes place, BUI shall remain fully responsible for completing any SEP, payment of any stipulated penalties and for performance of all remedial measures identified in this Agreed Order.

37. Compliance with this Agreed Order is not conditional on the receipt of any federal, state, or local funds, or upon the approval of rate increases or surcharges by local or state boards, commissions, or other agencies that regulate private utilities.

38. This Agreed Order shall be of no force and effect unless and until it is entered by the Secretary or his designee as evidenced by his signature thereon. If this Agreed Order contains any date by which BUI is to take any action or cease any activity, and the Secretary enters the Agreed Order after that date, then BUI is nonetheless obligated to have taken the action or ceased the activity by the date contained in this Agreed Order.

TERMINATION

39. This Agreed Order shall terminate upon BUI's completion of all requirements described in this Agreed Order. BUI may submit written notice to the Cabinet when they believe all requirements have been performed. The Cabinet will notify BUI in writing of whether it intends to agree with or object to termination. The Cabinet reserves its right to enforce this Agreed Order, and BUI reserves its right to file a petition for hearing pursuant to KRS 224.10-420(2) contesting the Cabinet's determination.

AGREED TO BY:

Mr. Chris Cogan, AS POWER OF ATTORNEY FOR CARROLL F. COGAN, ITS PRESIDENT
Bullitt Utilities, Inc.

Nov 3, 2014
Date

Robert C. Moore, Esq.
Attorney for the Defendant

11/7/14
Date

APPROVAL RECOMMENDED BY:

Daniel Clark Cleveland, Attorney
Office of General Counsel

11/7/14
Date

Jeffrey A. Cummins, Director
Division of Enforcement

11/12/14
Date

C. Michael Haines, Executive Director
Office of General Counsel

11.18.14
Date

HAVE SEEN:

Hon. Susan Rose Green, Hearing Officer
Office of Administrative Hearing

11/21/14
Date

ORDER

Wherefore, the foregoing Agreed Order is entered as the final Order of the Energy and Environment Cabinet this 24th day of Nov., 2014.

ENERGY AND ENVIRONMENT CABINET

FILE NO. DOW-34022

LEONARD K. PETERS, SECRETARY

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing **AGREED ORDER** was mailed, postage prepaid, to the following this 24th day of Nov., 2014.

Hon. Robert Moore
Hazelrigg and Cox, LLP
P.O. Box 676
415 West Main Street
Frankfort, KY 40602

BULLITT UTILITIES INC
PO BOX 91588
LOUISVILLE KY 40291

and hand delivered to:

Hon. Daniel C. Cleveland
Office of General Counsel
200 Fair Oaks Lane, 1st Floor
Frankfort, Kentucky 40601

Lisa Booth
DOCKET COORDINATOR

Distribution:
DOW
DENF – Philip Kejzlar
File
FBT
BGO
Stites

D. Cleveland

COMMONWEALTH OF KENTUCKY
ENERGY AND ENVIRONMENT CABINET
FILE NO. DOW - 34022

ENERGY AND ENVIRONMENT CABINET PLAINTIFF

VS. **AMENDED AGREED ORDER**

BULLITT UTILITIES, INC. DEFENDANT

****

WHEREAS, an Agreed Order was entered into between the Energy and Environment Cabinet (hereinafter the "Cabinet") and Bullitt Utilities, Inc. (hereinafter "BUI"), which was executed by the Secretary on November 24, 2014;

WHEREAS, paragraph nineteen (19) of the Agreed Order requires BUI to pay a civil penalty in the amount of one hundred twenty-five thousand dollars ($125,000) within ninety (90) days of the Agreed Order's entry;

WHEREAS, paragraph twenty-seven (27) of the Agreed Order allows BUI, in lieu of making the above-described $125,000 payment, to perform a Supplemental Environmental Project (hereinafter "SEP") in the form of paying for and constructing the necessary appurtenances to connect its collection system to the Bullitt County Sanitation District (hereinafter "BCSD") sanitary sewer system within sixty (60) days of November 24, 2014;

WHEREAS, reports provided to the Cabinet by BUI and BCSD indicated BUI continues to take necessary engineering and construction steps to implement the SEP;

WHEREAS, pursuant to paragraph thirty-two (32) of the Agreed Order, on January 23, 2015 BUI made a written request to the Cabinet to amend the Agreed Order to extend the deadline to complete the SEP by seventy-five (75) days;

NOW THEREFORE, the Agreed Order is hereby amended as follows:

1. Paragraph twenty-seven (27) of the Agreed Order is hereby amended to state that BUI shall connect its collection system to the BCSD sanitary sewer system no later than April 8, 2015.

2. Paragraph nineteen (19) of the Agreed Order is hereby amended to state that if the SEP is not performed pursuant to the amended paragraph twenty-seven (27), payment of the $125,000 civil penalty shall be due no later than April 8, 2015.

3. All other terms and conditions of the November 24, 2014 Agreed Order, including, but not limited to, all other terms of paragraphs twenty-seven (27) and nineteen (19) not amended hereby, remain in full force and effect.

AGREED TO BY:

Mr. Chris Cogan as Power of Attorney for
Carroll F. Sogan, President
Bullitt Utilities, Inc..

2/20/15
Date

Robert C. Moore, Esq.
Attorney for Defendant

2/24/15
Date

APPROVAL RECOMMENDED BY:

Daniel Clark Cleveland, Attorney
Office of General Counsel

2/25/15
Date

Jeffery A. Cummins, Director
Division of Enforcement

3/2/15
Date

C. Michael Haines, Esq., Executive Director
Office of General Counsel

3.6.15
Date

HAVE SEEN:

Hon. Susan Rose Green, Hearing Officer
Office of Administrative Hearings

3/11/15
Date

ORDER

Wherefore, the foregoing Amended Agreed Order is entered as the final Order of the Energy and Environment Cabinet this 26th day of March, 2015

ENERGY AND ENVIRONMENT CABINET

LEONARD K. PETERS, SECRETARY

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing **AMENDED AGREED ORDER** was mailed, postage prepaid, to the following this 26th day of March, 2015.

Hon. Robert Moore
Hazelrigg and Cox, LLP
P.O. Box 676
415 West Main Street
Frankfort, KY 40602

Bullitt Utilities Inc
PO Box 91588
Louisville Ky 40291

and hand-delivered to:

FILE NO. DOW-34022

Daniel Cleveland, Attorney
Office of General Counsel
2 Hudson Hollow
Frankfort, Kennucky 40601

Livia Booth
DOCKET COORDINATOR

Distribution:

DOW
DENF - Kejzlar
~~LFS~~
file

AGREEMENT BETWEEN BULLITT COUNTY SANITATION DISTRICT AND BULLITT UTILITIES, INC.

DATED 10/01/14

Come Bullitt County Sanitation District ("BCSD") and Bullitt Utilities, Inc. ("Bullitt Utilities"), on this the 10 day of October, NOVEMBER, 2014 and hereby enter into this Agreement.

WHEREAS, Bullitt Utilities is a privately owned wastewater utility that owns the Hunters Hollow wastewater treatment plant ("WWTP") and collection system located in Bullitt County, Kentucky. The Hunters Hollow WWTP was a 250,000 gallon per day ("gpd") WWTP providing service for approximately 696 residential and commercial customers at a residential rate of $26.83 per month. On or about March 29, 2014, the Hunters Hollow WWTP suffered a catastrophic failure.

WHEREAS, Bullitt Utilities has provided treatment for the wastewater generated by the Hunters Hollow collection system ("Collection System") since March 29, 2014 through the use of a Pecco temporary WWTP and a Veolia temporary WWTP. The cost to operate these temporary WWTPS is exorbitant, and a short term and long term solution to the failure of the Hunters Hollow WWTP is needed in order to provide treatment for the wastewater generated by the Collection System.

WHEREAS, in order to avoid an environmental emergency, BCSD is willing to provide short term emergency treatment for the wastewater generated by the Collection System until a permanent solution to the failure of the Hunters Hollow WWTP can be implemented which is expected to be on or before December 31, 2016.

NOW THEREFORE, in consideration of the premises set forth herein, BCSD and Bullitt Utilities hereby agree to the following terms:

1. BCSD agrees to make any and all reasonable efforts to accept the wastewater flow from the Collection System within sixty (60) days of the execution of this Agreement. BCSD shall not be responsible for failure to complete the construction of the proposed facilities due to state or federal permitting requirements (Division of Water, Department of Transportation, etc.), acquisition of easements or any other delay due to causes beyond the control of BCSD.
2. BCSD agrees to provide treatment for the wastewater generated by the Collection System until December 31, 2016.
3. Bullitt Utilities will purchase and install two (2) magnetic flow meters, and BCSD shall maintain the two (2) flow meters. One meter will be provided for the Collection System's flow diverted to Union Tool (divided between Plant Three and Willabrook), and the second meter will be provided for the Collection System's flow diverted to Pioneer Village.
4. BCSD shall make every reasonable attempt to accept from the Collection System an average daily flow of 160,000 gallons with a maximum peak daily flow of up to 300,000 gallons. The amount of maximum peak day flow accepted shall be dependent upon performance of BCSD

treatment facilities. BCSD shall have all authority to make adjustments to the pump rates from the Collection System.

5. Any overflows from the Collection System caused by flows in excess of those stated in paragraph 4 above, shall be reported to the Kentucky Division of Water by Bullitt Utilities, and shall be the responsibility of Bullitt Utilities until the Collection System is conveyed to BCSD or another entity.
6. BCSD shall only be responsible for the portion of the pipeline from the flow meters installed by Bullitt Utilities to the BCSD's treatment plants.
7. Bullitt Utilities shall be responsible for maintaining the Hunters Hollow Collection System and for the operation and maintenance of the pumps at the site of the former Hunters Hollow WWTP.
8. Bullitt Utilities agrees to pay BCSD for treatment of wastewater from the Collection System an amount equal to eighty percent (80%) of the gross revenue , excluding surcharge receipts, received by Bullitt Utilities from its customers per month. Bullitt Utilities shall request the Louisville Water Company to, if possible, pay this eighty percent of monthly gross revenue, excluding surcharge receipts, directly to BCSD.
9. BCSD shall engineer the pipeline from BCSD's existing facilities up to the two (2) new flow meters for the Hunters Hollow Collection System and shall engineer upgrades required at BCSD pump stations to accept the increased flows from the Collection System. Bullitt Utilities shall engineer the two (2) new flow meters, and the pumping and piping systems from its existing facilities to said flow meters. BCSD shall have review authority of Bullitt Utilities' pumping system engineering design to the two (2) new flow metering points, including the flow meters, to assure that flow rates can be controlled during peak day flow events. Bullitt Utilities' pumps shall have variable rate adjustment for controlling flow rates.
10. BCSD shall require a contribution in aid of construction in the amount of $125,000.00. The $125,000 is to be paid directly to BCSD upon execution of this Agreement.
11. Due to the unusual situation that this customer connection is for short term emergency treatment only, the tap fee required by BCSD Resolution Number 2012-08 will be waived for connection of Bullitt Utilities to BCSD in exchange for the engineering and construction contribution provided by Bullitt Utilities.
12. Bullitt Utilities agrees to pledge as security for fulfilling its duties under this agreement, until December 31, 2016, its interest in any surcharge proceeds that the Public Service Commission ("PSC") may authorize, that exceeds the surcharge proceeds authorized to pay for services and/or equipment provided by Veolia, Pecco and other individuals or entities to Bullitt Utilities to respond to the failure of the Hunters Hollow WWTP.
13. BCSD and Bullitt Utilities agree to work to develop a long term solution to the failure of the Hunters Hollow WWTP.
14. At any time during the term of this agreement, BCSD may purchase from Bullitt Utilities the Hunters Hollow Collection System, including its piping, manholes, pump stations, pumps and appurtenances for the amount of One Dollar ($1.00), contingent upon and subject to, the PSC's authorization of the payment of a surcharge to Bullitt Utilities and the surcharge proceeds will continue to be paid to Bullitt Utilities or its assignee(s) after the sale of the Collection System. Should the PSC authorize the payment of a surcharge to Bullitt Utilities , but not the right to

continue to receive the surcharge proceeds after Bullitt Utilities' sale of the Collection System, the BCSD shall have the right to purchase the Collection System for the amount of One Dollar ($1.00) upon the expiration of the surcharge.

15. General provisions

15.1 Successors and Assigns. No party shall assign, sublet or transfer its interest in this Agreement without the prior written consent of the other parties. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public or private body which may be a party thereto, nor shall it be construed as giving any rights or benefits hereunder to anyone other than the parties to the Agreement.

15.2 Mediation. Claims, disputes or other matter in question between the parties to this Agreement shall be first subject to pre-suit mediation prior to the filing of any legal claims or litigation. Pre-suit mediation is a condition precedent to litigation. The obligation to mediate is a material and essential provision of this Agreement. Unless otherwise agreed to in writing, the parties shall continue to provide and/or make the treatment, work and payments to be performed pursuant to this Agreement during any mediation or litigation, except for payments for items or work in dispute. Either party may initiate a mediation proceeding by submitting a request in writing to the other party within a reasonable time after the claim, dispute or other matter in question has arisen, but in no event after the applicable statute of limitations has expired. The parties shall endeavor in good faith to mutually agree upon an acceptable mediator. Each party is to bear its own fees, costs and expenses of said mediation. In the event that mediation is unsuccessful, all claims, disputes, or other matters in question shall be resolved in the Circuit or District Courts of Bullitt County, Kentucky and shall be governed by the laws of the Commonwealth of Kentucky.

15.3 This Agreement may be executed in two or more original or facsimile counterparts, each of which shall be deemed an original and all of which shall constitute but one and the same Agreement.

15.4 Construction. Should any provision of this Agreement require interpretation or construction, it is agreed by the parties hereto that the Court, administrative body or other entity interpreting or construing this Agreement shall not apply the presumption that the provisions hereof shall be more strictly construed against one party than another by reason of the rule of construction that a document is to be more strictly construed against the party who itself or through its agent prepared the same. The headings of sections and subsections are for convenience only and shall not affect or control the meaning or construction of any of the provisions of this Agreement.

15.5 Notices. All notices, requests, demands, or other communications required under this Agreement shall be made in writing and shall be served by hand delivery or by placing such in the United States Mail, certified mail, return receipt requested and bearing adequate postage or by overnight mail. Each notice shall be effective upon receipt.

15.6 Waiver. No waiver by any party of any default or non-performance by either party shall be considered a waiver of any subsequent default or non-performance.

15.7 Severability. In the event that any term, provision or covenant hereunder shall be held invalid or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall remain valid and enforceable by any party to the Agreement and the invalid unenforceable covenant shall automatically be deemed modified and amended to provide the maximum rights available under applicable law to the party who is the beneficiary of the term, provision, or covenant in question.

15.8 Authority of Parties. The individuals who have executed this Agreement on behalf of the respective parties expressly represent and warrant that they are authorized to sign on behalf of such entities for the purpose of duly binding such entities to this Agreement.

15.9 IN THE EVENT THAT EITHER THE BCSD AND/OR BULLITT UTILITIES IS UNABLE TO NEGOTIATE AN AGREED ORDER WITH THE ENERGY AND ENVIRONMENT CABINET THAT IS NOT ACCEPTABLE TO THE PARTY TO THE AGREED ORDER, THIS AGREEMENT SHALL BECOME NULL AND VOID AND UNENFORCEABLE.

15.10 Entire Agreement. This Agreement sets forth the entire Agreement between the parties hereto and, except as otherwise expressly provided, fully replaces, cancels and supersedes any and all prior Agreements or understandings between the parties hereto pursuant to the subject matter hereof.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

Bullitt County Sanitation District

Jerry Kennedy

JERRY KENNEDY
DISTRICT MGR 11-10-14

Print name and title

Bullitt Utilities, Inc.

CHRISTOPHER G. COGAN, AS:
POWER OF ATTORNEY FOR:
CARROLL F. COGAN, ITS:
PRESIDENT

Print name and title

HAZELRIGG & COX, LLP
ESCROW ACCOUNT
415 W MAIN ST
FRANKFORT, KENTUCKY 40601

1345

73-416-421

DATE 11-7-14

PAY TO THE ORDER OF Bullitt County Sanitation District $ 125,000.00

One hundred twenty five thousand & 00/100 DOLLARS

Whitaker Bank

FOR Bullitt Utilities / BCSD Agreement

Robert C. Moore

[redacted]

Details on back. Security Features

COGAN / HUNTERS HOLLOW

HAZELRIGG & COX, LLP
ATTORNEYS AT LAW
415 WEST MAIN STREET, SUITE 1
P.O. BOX 676
FRANKFORT, KENTUCKY 40602-0676

JOHN B. BAUGHMAN
ROBERT C. MOORE
MARK R. BRENGELMAN

DYKE L. HAZELRIGG (1881-1970)
LOUIS COX (1907-1971)

FAX: (502) 875-7158
TELEPHONE: (502) 227-2271

November 7, 2014

Via Electronic and Overnight Mail
Scott Stutler, Esquire
Assistant County Attorney
Courthouse
300 S. Buckman St.
Shepherdsville, Kentucky 40129

Re: Agreement between Bullitt Utilities, Inc. ("Bullitt Utilities") and Bullitt County Sanitation District ("BCSD")

Dear Scott:

As you are aware, Paragraph 10 of the above referenced agreement between Bullitt Utilities and BCSD requires Bullitt Utilities to pay BCSD a contribution in aid of construction in the amount of $125,000.00. Accordingly, I have enclosed a check made payable to BCSD in the amount of $125,000.00 to satisfy this requirement. Based upon our telephone conversation of November 7, 2014, it is my understanding that you will not deliver this check to Jerry Kennedy, BCSD's representative, until the above-referenced agreement has been signed by Mr. Kennedy. It is also my understanding that you will scan or fax a copy of the signed agreement to me immediately upon Mr. Kennedy signing same.

Thank you for your attention to this matter, and please contact me immediately if my understanding is incorrect or if you would like to discuss this matter.

Yours truly,

Robert C. Moore

Robert C. Moore

cc: Chris Cogan - via Electronic Mail
Jerry Kennedy - via Electronic Mail
Reginald R. VanStockum - via Electronic Mail
Daniel Cleveland - via Electronic Mail

HAZELRIGG & COX, LLP
ATTORNEYS AT LAW
415 WEST MAIN STREET, SUITE 1
P.O. BOX 676
FRANKFORT, KENTUCKY 40602-0676

JOHN B. BAUGHMAN
ROBERT C. MOORE
MARK R. BRENGELMAN

DYKE L. HAZELRIGG (1881-1970)
LOUIS COX (1907-1971)

FAX: (502) 875-7158
TELEPHONE: (502) 227-2271

January 21, 2015

Via Hand Delivery
Jeff Cummins, Director
Department of Environmental Protection
Division of Enforcement
300 Fair Oaks Lane
Frankfort, KY 40601

Re: Bullitt Utilities, Inc. ("Bullitt Utilities")
Hunters Hollow Wastewater Treatment and Collection System
("Hunters Hollow")

Dear Jeff:

Pursuant to Paragraph 20 of the Agreed Order entered into between Bullitt Utilities and the Kentucky Energy and Environment Cabinet ("Cabinet"), I have enclosed a check made payable to the Kentucky State Treasurer in the amount of $13,606.15. This check pays in full the cost recovery due pursuant to the Agreed Order.

Please contact me if you would like to discuss this matter, or have any questions concerning same.

Yours truly,

Robert C. Moore

Robert C. Moore

RCM/neb
cc: Daniel Cleveland - via electronic mail
Bullitt Utilities, Inc. - via electronic mail
Ronald R. VanStockum, Jr. - via electronic mail
Philip Kejzlar - via electronic mail

Bullitt Utilities – Exhibit 13

HOLD TO LIGHT TO VIEW WATERMARK IN PAPER. HEAT SENSITIVE RED IMAGE DISAPPEARS WITH HEAT. DETECTION AREA REVEALS A LOCK WHEN TESTED.

1363

HAZELRIGG & COX, LLP
ESCROW ACCOUNT
415 W MAIN ST
FRANKFORT, KENTUCKY 40601

EZShield™ Check Fraud Protection for Business
73-416-421

DATE 1-21-15

PAY TO THE ORDER OF Kentucky State Treasurer $ 13,606.15/100

Thirteen thousand six hundred six & 15/100 DOLLARS

Whitaker Bank
A Subsidiary of Whitaker Bank Corporation of Kentucky
130 West Main Street
Frankfort, Kentucky 40601
Member FDIC

FOR Cost recovery - Agreed order

Robert C. Moore

Details on back. Security Features

HAZELRIGG & COX, LLP
ATTORNEYS AT LAW
415 WEST MAIN STREET, SUITE 1
P.O. BOX 676
FRANKFORT, KENTUCKY 40602-0676

JOHN B. BAUGHMAN
ROBERT C. MOORE
MARK R. BRENGELMAN

DYKE L. HAZELRIGG (1881-1970)
LOUIS COX (1907-1971)

FAX: (502) 875-7158
TELEPHONE: (502) 227-2271

February 20, 2015

Via Facsimile - 1-502-957-0224
Jerry Kennedy
Bullitt County Sanitation District
297 Lees Lane North
Louisville, Kentucky 40229

Re: Bullit Utilities, Inc.

Dear Jerry:

As we discussed during our telephone conversation on February 2, 2015, Bullitt Utilities would like to move forward immediately to complete a temporary connection of the Hunters Hollow collection system to the Bullitt County Sanitation District ("BCSD") sanitary sewer system. The necessary type of pumps will be leased and installed to direct the wastewater into the BCSD system. The permanent connection would be made once the construction of the lift station has been completed. During our telephone conversation on that date, you indicated that the lines being installed by BCSD to connect the two systems should be available for use the first of the week of February 16, 2015. Accordingly, please let me know if the connecting lines are available for use at this time, so that the Hunters Hollow collection system flow can be directed into BCSD's system.

During our February 2, 2015, telephone conversation, you indicated that BCSD may request Bullitt Utilities to escrow the cost to construct the lift station before it will accept the temporary flow. Bullitt Utilities hereby offers to place the amount of $50,000 into escrow for this purpose, so that the connection can be made as soon as possible. Based on our February 18, 2015, telephone conversation, it is my understanding that BCSD will not accept a good faith escrow deposit of $50,000, but will require the escrow of an amount equal to the total construction cost of the lift station. I will advise Bullitt Utilities of your preliminary response, but request that you discuss the offer to place $50,000 into escrow with the BCSD Commissioners and provide me with a response to this proposal.

Thank you for your prompt response to this request.

Yours truly,

Robert C. Moore

Robert C. Moore

RCM/neb
cc: Chris Cogan - via electronic mail
Jeff Cummins - via electronic mail
Daniel Cleveland - via electronic mail

Bullitt Utilities – Exhibit 14

Construction Plans for Hunters Hollow Pump Station

Hillview, Kentucky (Bullitt County)

Index of Drawings

GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIAL, EQUIPMENT, TOOLS, AND SERVICES REQUIRED TO COMPLETE CONSTRUCTION AND MATERIAL TESTING FOR THE WORK. ALL WORK SHALL BE PERFORMED IN A SAFE AND REASONABLE WORKING MANNER IN ACCORDANCE WITH THE BEST PRACTICES AND PROCEDURES.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL, ORDINANCES, REGULATIONS AND REQUIREMENTS NECESSARY TO COMPLETE THE WORK; THIS INCLUDES PROVISIONS FOR MAINTENANCE OF TRAFFIC, CONSTRUCTION AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
3. ALL CONSTRUCTION METHODS, MATERIALS AND WORK ACTIVITIES SHALL BE IN ACCORDANCE WITH TEN STATES STANDARDS AND THE BULLITT COUNTY SANITATION DISTRICT.UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. INDIVIDUAL SERVICE LINES ARE NOT SHOWN. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER "KENTUCKY 811" (TOLL FREE PHONE NO. 1-800-752-6007 OR LOCAL NO. 502-266-5123) FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS AND WATERLINES). WHEN CONTACTING THE KENTUCKY 811 CALL CENTER, PLEASE STATE THAT THE WORK TO BE DONE IS FOR A PROPOSED MSD SEWER OR DRAINAGE FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS IN THE TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS.
5. ALL SOIL EROSION CONTROL AND PREVENTION, STORM WATER DRAINAGE WORK AND SANITARY SEWER CONSTRUCTION SHALL CONFORM TO BULLITT COUNTY STANDARDS AND REQUIREMENTS AND SPECIFICATIONS.

EROSION PREVENTION AND SEDIMENT CONTROL NOTE

THE APPROVED EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN SHALL BE IMPLEMENTED PRIOR TO ANY LAND-DISTURBING ACTIVITY ON THE CONSTRUCTION SITE. ANY MODIFICATIONS TO THE APPROVED EPSC PLAN MUST BE REVIEWED AND APPROVED BY THE LOCAL AGENCY'S DEVELOPMENT REVIEW OFFICE. EPSC BMP'S (BEST MANAGEMENT PRACTICES) SHALL BE INSTALLED PER THE PLAN AND MSD STANDARDS.

ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.

SOIL STOCKPILES SHALL BE LOCATED AWAY FROM STREAMS, PONDS, SWALES, AND CATCH BASINS. STOCKPILES SHALL BE SEEDED, MULCHED, AND ADEQUATELY CONTAINED THROUGH THE USE OF SILT FENCE.

ALL STREAM CROSSINGS MUST UTILIZE LOW-WATER CROSSING STRUCTURES.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING OR OTHER EXCAVATION ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.

WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 DAYS AFTER THE ACTIVITY HAS CEASED.

AGENCY/UTILITY COMPANY CONTACTS

SANITARY SEWERS BULLITT COUNTY SANITATION DISTRICT 287 LEES LANE NORTH HILLVIEW, KENTUCKY 40159 (502) 957-6410	WATER LOUISVILLE WATER CO. 550 SOUTH THIRD STREET LOUISVILLE, KENTUCKY 40202 (502) 569-3600	BUILDING DEPARTMENT BUILDING PERMITS 149 WALNUT STREET SHEPHERDSVILLE, KY 40156 502-543-6832
GAS & ELECTRIC LOUISVILLE GAS & ELECTRIC 220 WEST MAIN STREET LOUISVILLE, KY 40202 (502) 333-1941	STORMWATER BULLITT COUNTY 149 WALNUT STREET SHEPHERDSVILLE, KY 40156 502-543-6832	KENTUCKY TRANSPORTATION CABINET DISTRICT 5 8310 WESTPORT ROAD LOUISVILLE, KY 40242 502-210-5400
TELEPHONE AT&T TELECOMMUNICATIONS 3718 BARDSTOWN ROAD LOUISVILLE, KENTUCKY 40218 (502) 454-6665	FIRE ZONETON FIRE DISTRICT 5328 PRESTON HWY SHEPHERDSVILLE, KY 40165 (502) 955-8076	BULLITT COUNTY HEALTH DEPARTMENT 181 LEES VALLEY ROAD SHEPHERDSVILLE, KY 40165 502-543-2415

UTILITY NOTE

ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. INDIVIDUAL SERVICE LINES ARE NOT SHOWN. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER KENTUCKY 811 (TOLL FREE PHONE NO. 1-800-752-6007 OR LOCAL NO. 502-266-5123) FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS & WATER LINES). WHEN CONTACTING THE KENTUCKY 811 CALL CENTER, PLEASE STATE THE WORK TO BE DONE IS FOR A PROPOSED MSD SEWER OR DRAINAGE FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS AND IN THE TECHNICAL SPECIFICATIONS & SPECIAL PROVISIONS.

BENCH MARKS (NAVD 1988 DATUM):

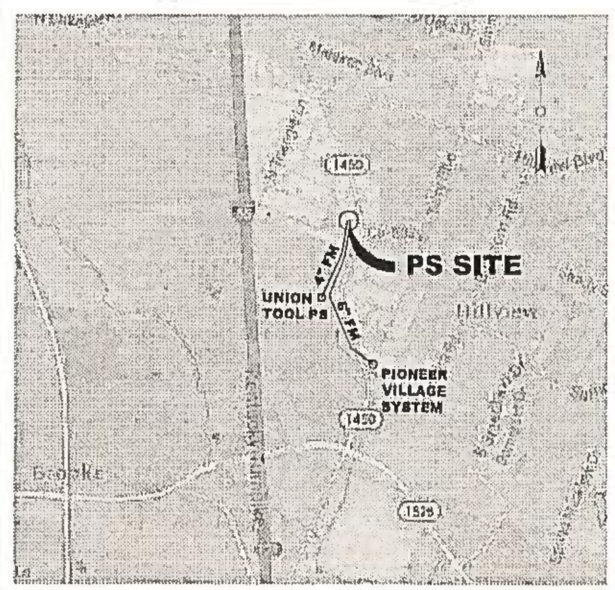
VERTICAL CONTROL FOR THIS PROJECT IS BASED ON REFERENCE MONUMENTATION FRO BULLITT COUNTY SANITATION DISTRICT.

BM #1 CORNER OF EXISTING PUMP HOUSE ELEV. 504.58

BACKFILL TYPE:

TYPE 1 – SAND; FLUSHED AND JETTED
TYPE 2 – EXCAVATED MATERIALS; FLUSHED AND JETTED.
(USE TYPE 2 BACKFILL UNLESS OTHERWISE NOTED)

Vicinity Map



JEFFERSON COUNTY, LOUISVILLE, KENTUCKY — SCALE: NTS

The New Look For Digging Safely In Kentucky — Kentucky 811 — Call 811 Before You Dig

APPLICABLE MSD STANDARD DRAWINGS:

SILT FENCE	EF-10-01
CRUSHED STONE ENCASEMENT	CC-02-01
CONCRETE CAP	CC-03-00
PVC VERTICAL DROP INLET	SD-01-01

LEGEND

- 4" PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 4" Y OR T BRANCH WITH STOPPER PSC IS NOT TO BE CONSTRUCTED
- 4" PSC TO BE CONSTRUCTED FROM STACK AT SEWER TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 4" Y OR T BRANCH WITH STOPPER TO BE CONSTRUCTED FROM STACK AT SEWER PSC IS NOT TO BE CONSTRUCTED
- 4" PSC TO BE CONSTRUCTED PSC IS NOT AVAILABLE FOR CONNECTION UNTIL THE CAPACITY CHARGE IS PAID
- 6" PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
- 6" Y OR T BRANCH WITH STOPPER PSC IS NOT TO BE CONSTRUCTED
- 6" SIAMESE PSC TO BE CONSTRUCTED TO PROPERTY OR EASEMENT LINE, OR 15' BEYOND R-O-W, AS DIRECTED
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- 6" PSC TO BE CONSTRUCTED PSC IS NOT AVAILABLE FOR CONNECTION UNTIL THE CAPACITY CHARGE IS PAID
- BENCH MARK
- SOUNDING LOCATION (PLAN)
- SOUNDING TO ROCK OR REFUSAL (PROFILE)
- SOUNDING NO ROCK (PROFILE)
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING GAS LINE
- PROPOSED GAS LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THESE PLANS AND SURVEY WERE MADE UNDER MY SUPERVISION AND THAT THE ANGULAR AND LINEAR MEASUREMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THE TOPOGRAPHIC FEATURES SHOWN WERE LOCATED OR VERIFIED AT THE TIME THE SURVEY WAS MADE. THE SURVEY INFORMATION SHOWN HEREON MEETS OR EXCEEDS THE MINIMUM STANDARDS OF GOVERNING AUTHORITIES.

SIGNATURE P.L.S. NO. DATE

Kentucky 811 "CALL BEFORE YOU DIG "B.U.D." "
1 (800) 752-6007

NOTE: THE LOCATION OF UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES ONLY, OR UTILITY MARKINGS PERFORMED BY THIRD PARTIES (BEFORE YOU DIG SERVICES AND/OR LOCATION SERVICES).

NOTE: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION AND SHALL CONTACT THE KENTUCKY UNDERGROUND PROTECTION, INC A MINIMUM OF TWO WORKING DAYS PRIOR TO DIGGING AT TELEPHONE 1 (800) 752-6007. NO EXCAVATION SHALL COMMENCE UNTIL ALL APPLICABLE UTILITIES HAVE BEEN CLEARED.

NOTE: PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED, IMMEDIATELY, TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

REVISIONS — Date | Description | By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE BULLITT COUNTY, KENTUCKY

COVER

SHEET NO C1

DATE: 12-18-14
SCALE: NTS
DRAWN BY: CS CHECKED BY: CTC

LEGEND

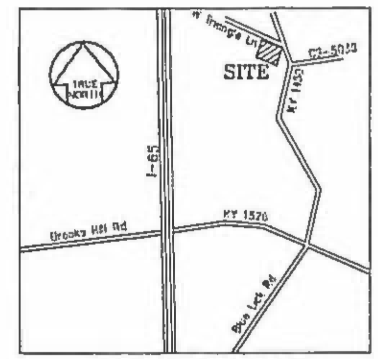
- EXISTING TREE
- DENOTES DRAINAGE FLOW
- PROPOSED CONTOURS
- EXISTING CONTOURS
- EXISTING PSC
- EXISTING DITCH/FLOW LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC

GENERAL NOTES

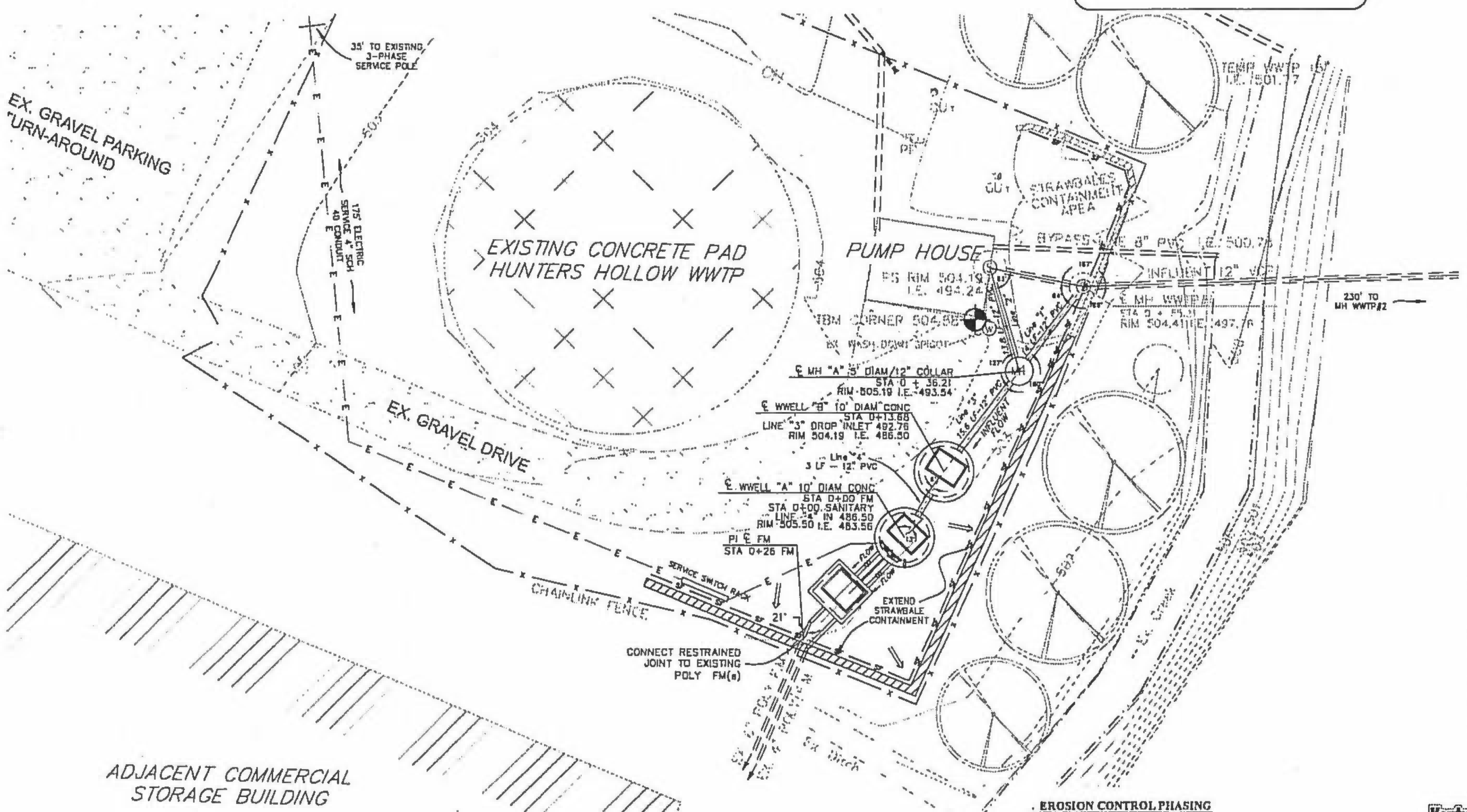
1. TOTAL SITE AREA IS APPROXIMATELY 1.6 ACRES.
2. LIMITS OF DISTURBANCE = 2,600 SF (0.060 AC.)
3. SITE IS LOCATED WITHIN THE BULLITT UTILITIES/BULLITT COUNTY SANITATION DISTRICT SERVICE AREA.
4. FLOODPLAIN ON THIS SITE PER FEMA FIRM PANEL: 21111C0127E.
5. HYDROLOGIC SOIL GROUP AT FINISH GRADE SHALL BE CONSISTENT WITH EXISTING SOIL TYPES.
6. CONTOUR DATA ON THIS PLAN WAS DERIVED FROM FIELD POINTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING EXISTING ROADWAYS ONCE CONSTRUCTION ACTIVITY BEGINS & IN CONFORMITY TO STANDARD EPSC MEASURES.
8. EPSC CONTROLS TO BE INSPECTED EVERY 7 CALENDAR DAYS AND/OR AFTER EVERY RAIN FALL EVEN TOTALING 0.5" OR MORE.
9. RECEIVING BODY OF WATER IS A TRIBUTARY TO BROOKS RUN.
10. ALL DISTURBED AREAS TO BE SEEDED AND STRAWED AFTER GRADING IS COMPLETE

EPSC Legend

- PROPOSED DRAINAGE FLOW ARROW
- SILT FENCE
- LIMITS OF DISTURBANCE
- STRAWBALE CONTAINMENT



LOCATION MAP
NOT TO SCALE



WASTEWATER TREATMENT PLANT CLOSURE PLAN FOR NEW PUMP STATION:

1. Contractor shall initially install silt fence and strawbales to provide a containment area during construction to protect the adjacent stream.
2. Contractor shall then install Manhole "A", and Wetwells "A" and "B" including associated valve vault, fittings, valves, pumps, guidrails and all associated floats and alarms, and connect the wetwells with proposed 12-inch PVC Line "4".
3. 3-phase electric service shall be provided to the proposed Service Switch Rack and service extended to the pump station control panel near Wetwell "A".
4. Proposed Line "3" shall be installed from Wetwell "B" to proposed Manhole WWTP#3, and then Line "2" shall be installed by core drilling and installing rubber boot connector to existing Manhole WWTP#1, and providing a line plug to prevent wastewater flow from entering the new wetwells/pump station.
5. Both the 4-inch and 6-inch force mains shall be connected from the proposed valve vault to the existing 4-inch and 6-inch force main lines adjacent to the pump station site. All sewers, valves, manholes, wetwells, flow meters, electrical control systems, and appurtances shall be thoroughly tested according to Bullitt County Sanitation District and Ten States Standards. The existing water service line and spigot at the pump house may be used for filling, testing, and cleaning as necessary during construction operations..
6. Pump settings, alarms, and control systems shall be tested and working properly prior to change-over of wastewater flow(removal of plug at ManholeWWTP#1) from the existing pump station and treatment facility to allow wastewater flow to fill the wetwell/pump station. Coordinate/schedule inital pumping to Bullitt County sanitation District (BCSD) Facilities with the inspector.
7. Once the new pump station is operating, Line "2" may be constructed, and connected to the original pump station wetwell at the pump house by core drilling and installing rubber boot connector, to allow for cleaning of the existing wetwell for additional storage as needed.
8. All temporary piping/hosing and connections to the temporary wastewater treatment facility onsite may then be disconnected, and the temporary treatment facility dismantled and removed from the site.
9. The existing pump house will remain onsite to be utilized for access to the existing wetwell, and to be used for general storage of materials, tools, and equipment.
10. Coordinate all final O&M manuals and pump station operations and schedules with Bullitt Utilities and BCSD.

EROSION PREVENTION AND SEDIMENT CONTROL NOTE

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PUMP STATION SITE

GRAPHIC SCALE SUPERCEDES NUMERIC SCALE
0 5' 10' 20'
SCALE: 1" = 10'
TRUE NORTH

GRADING NOTES:

1. THE CONTRACTOR SHALL SLOPE ALL FINISH GRADES TO PROVIDE FOR POSITIVE DRAINAGE.
2. NO GRADING ACTIVITIES WILL BE ALLOWED AROUND OR IN THE ADJACENT STREAM.
3. UPON COMPLETION ALL SILT AND/OR SEDIMENT SHALL BE REMOVED FROM INLETS AND PAVED DITCHES.
4. CONTRACTOR TO VERIFY ALL PLAN DIMENSIONS PRIOR TO INSTALLATION.

EROSION CONTROL PHASING AND SEQUENCING NOTES:

1. Prior to any construction, the contractor must install additional strawbales and silt fence for containment of area.
2. The existing rock/gravel drive will be utilized as the construction entrance. Once strawbales and silt fence are installed the contractor may start necessary grading and excavation for the pump station. Site shall be stabilized as soon as possible with seed/straw and/or sod if necessary..
3. If any erosion control measures are removed, they shall be replaced or modified as such on the approved EPSC Plan with the site inspector.
4. All erosion control measures will remain until grass areas have substantial vegetation.

CLEANOUT & MAINTENANCE SCHEDULE

For the sediment control, the contractor shall construct and maintain the silt fence and shall remove silt accumulation weekly and after six inches of rain or more until construction is complete and vegetation in the drainage area has been established. Please refer to the contractor's self inspection form for maintenance schedule for each BMP item whether shown here on or not.

Kentucky 811 * CALL BEFORE YOU DIG "B.U.D." *
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REVISIONS		
Date	Description	By

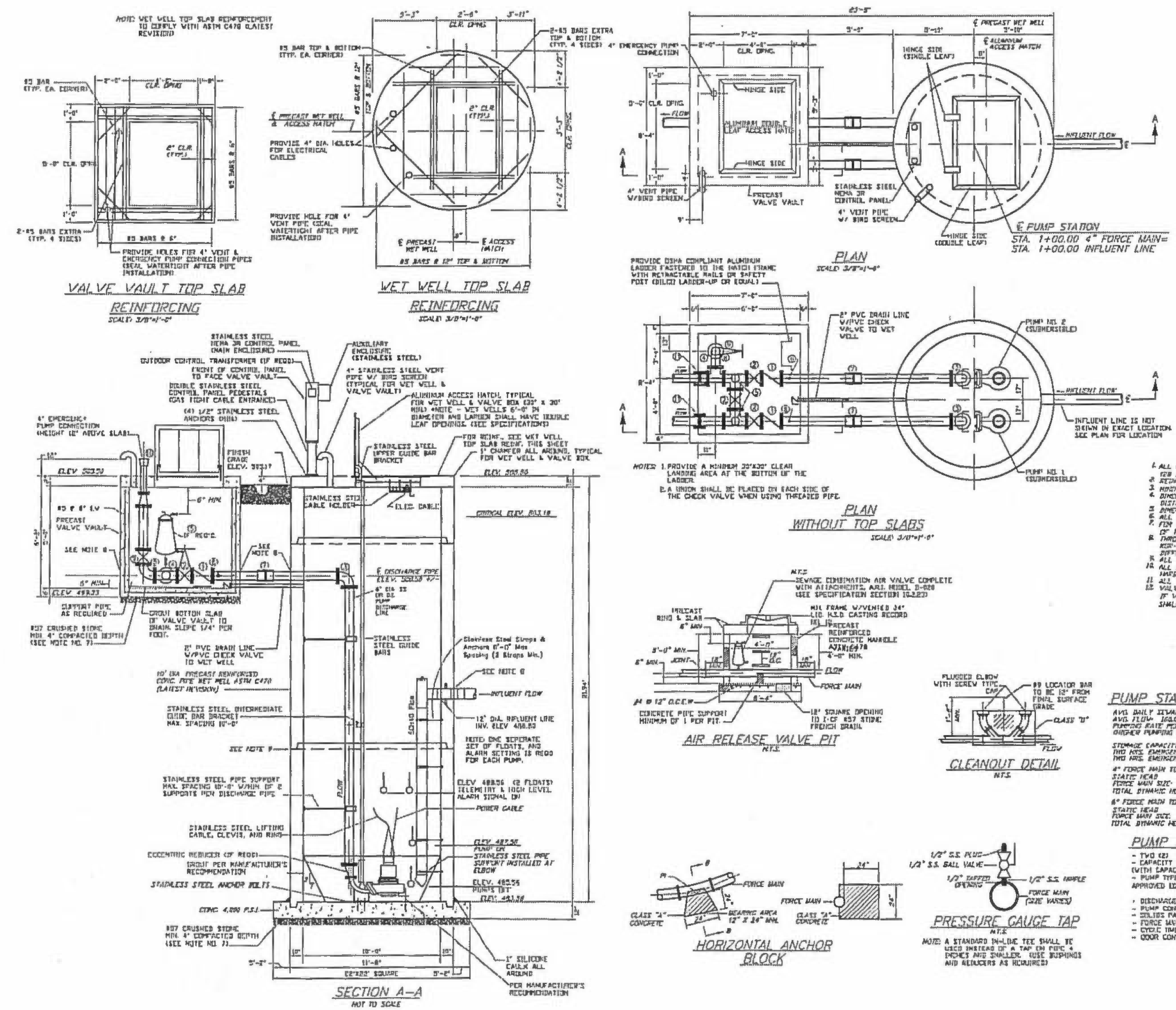
ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

TITLE: HUNTERS HOLLOW PUMP STATION
SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE, BULLITT COUNTY, KENTUCKY

SITE PLAN

SHEET NO: C2
DATE: 12-22-14
DRAWN BY: CS | CHECKED BY: CTC



NOTE: THE ACTUAL CLEAR OPENING OF THE WET WELL ACCESS HATCH FRAME SHALL PROVIDE A MINIMUM OF 3 1/2 INCHES CLEARANCE BEHIND THE PUMP OPPOSITE THE DISCHARGE AND A MINIMUM OF 2 1/2 INCHES CLEARANCE ON THE SIDE OF THE PUMP.

EQUIPMENT REFERENCE

1. 6" SWING CHECK VALVE WITH LEVER AND WEIGHT LOCATED INWARD
2. 6" GATE VALVE (RESILIENT SEAT, RISING STEM)
3. 6" 90° ELBOW
4. 6" TEE
5. SEWAGE COMBINATION AIR VALVE COMPLETE W/ATTACHMENTS, ARI MODEL D-020 (SEE SPECIFICATION SECTION 10.22)
6. SEE PRESSURE GAUGE TAP DETAIL (MIN. 6" CLEARANCE BETWEEN TAP AND EDGE OF WALL)
7. 6" COATED MECHANICAL COUPLING (MUST BE RESTRAINING JOINT TYPE)
8. 6" 90° ELBOW (FOR EMERGENCY PUMP CONNECTION SIZE EQUIVALENT TO DISCHARGE PIPE)
9. 6" GATE VALVE (RESILIENT SEAT, RISING STEM FOR EMERGENCY PUMP CONNECTION SIZE EQUIVALENT TO DISCHARGE PIPE)
10. 6" STAINLESS STEEL CAM-LOCKING ADAPTER WITH STAINLESS STEEL LOCKING DUST CAP (SEE SPECIFICATION SECTION 10.22)
11. 6" CROSS - TEE

GENERAL NOTES

1. ALL CONCRETE SHALL HAVE COMPRESSIVE STRENGTH FC = 4,000 PSI (28 DAY STRENGTH) EXCEPT AS NOTED
2. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. 615-82, GRADE 60
3. MINIMUM CLEAR COVER SHALL BE 3" UNLESS OTHERWISE NOTED
4. DIMENSIONS FROM FACE OF CONCRETE TO REINFORCING BARS ARE CLEAR DISTANCES
5. DIMENSIONS FOR BAR SPACING ARE CENTER TO CENTER
6. ALL LAPS SHALL BE 30 BAR DIAMETERS UNLESS OTHERWISE NOTED
7. FOR #57 CRUSHED STONE BEDDING MATERIAL SEE KENTUCKY DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS, LATEST EDITION
8. THROUGH WALL CONNECTIONS SHALL BE MADE WITH PRESS-SEAL OR KOR-N-SEAL GASKETS WITH STAINLESS STEEL STRAPS TO PERMIT LIMITED DIFFERENTIAL SETTLEMENT.
9. ALL WET WELL JOINTS SHALL BE WATERTIGHT.
10. ALL BOLTS SHALL BE STAINLESS STEEL TYPE 304L WITH STAINLESS STEEL HARDWARE
11. ALL TAPS INTO FITTINGS SHALL BE MADE INTO A BOSS
12. VALVE VAULT SHALL BE LOCATED FIVE (5) FEET FROM THE WET WELL. IF VALVE VAULT IS PLACED ON EXCAVATED MATERIALS, BACKFILL SHALL BE COMPACTED IN 8" LOOSE LIFTS TO 95% STANDARD PROCTOR DENSITY.

PUMP STATION DESIGN DATA

AVG. DAILY SEWAGE FLOW: 1600 PEOPLE @ 100 G.P.C.D.	= 160,000 G.P.D.
AVG. FLOW: 160,000 G.P.D./1,440	= 111 G.P.M.
PUMPING RATE PER PUMP: (VARIABLE FROM 111 GPM TO 208 GPM HIGHER PUMPING CAPACITY MAY BE ACHIEVED BUT LIMITED BY Bullitt County Sanitation District)	= 111 TO 208 G.P.M. = 320 G.P.M.
STORAGE CAPACITY: 15 MIN. X 111 G.P.M.	= 1665 GALLONS
TWO HRS. EMERGENCY STORAGE: 120 MIN. X 111 G.P.M.	= 13,320 GALLONS
TWO HRS. EMERGENCY STORAGE: 120 MIN. X 208 G.P.M.	= 24,960 GALLONS
4" FORCE MAIN TO UNION TOOL PUMP STATION	
STATIC HEAD	= 16.7 FEET
FORCE MAIN SIZE: 4" TO UNION TOOL P.S., MATERIAL: POLYETHYLENE (C=120+)	
TOTAL DYNAMIC HEAD (T.D.H.) FROM 111 GPM TO 208 GPM	= 18 TO 20 FEET
6" FORCE MAIN TO PIONEER VILLAGE SYSTEM	
STATIC HEAD	= 16.7 FEET
FORCE MAIN SIZE: 6" TO PIONEER VILLAGE SEWERS, MATERIAL: POLYETHYLENE (C=120+)	
TOTAL DYNAMIC HEAD (T.D.H.) FROM 100 GPM TO 200 GPM	= 20 TO 32 FEET

PUMP STATION EQUIPMENT DATA

- TWO (2) 15 HP (H.I.) PUMPS (VARIABLE)
- CAPACITY (OPERATING POINT): 111 GPM @ 18 T.D.H. UP TO 208 GPM @ 20 T.D.H. (WITH CAPACITY UP TO 320 GPM @49 T.D.H.)
- PUMP TYPE & MANUFACTURER: ESSCO VORTEX SUBMERSIBLE MODEL #493 (OR APPROVED EQUAL) IMPELLER DIA. 8"
- DISCHARGE SIZE: 4"
- PUMP CONTROL: VARIABLE SPEED PROGRAMMABLE
- SOLIDS PASSING SIZE: 3"
- FORCE MAIN PRESSURE RATING & TYPE: 125PSI, SDR 17
- CYCLE TIME: 15 MIN.
- ODOR CONTROL: NONE

REVISIONS		
Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
BULLITT COUNTY, KY 40129

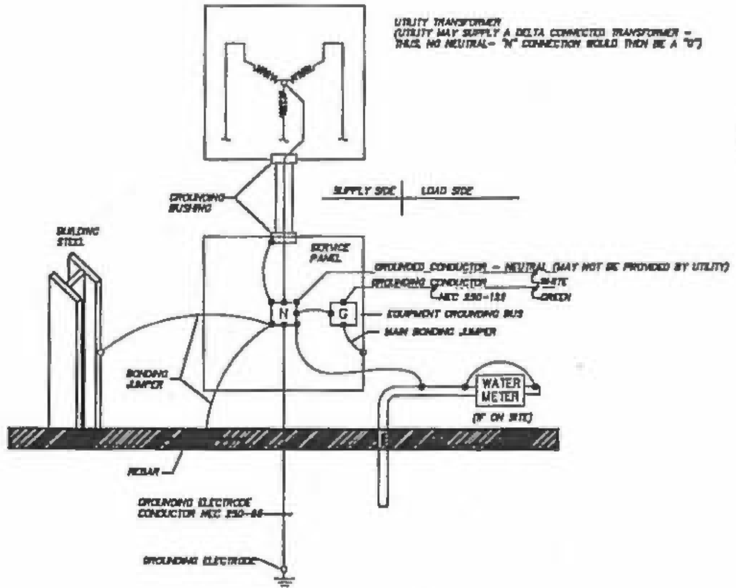
TITLE: HUNTERS HOLLOW PUMP STATION
SITE INFORMATION: BLUE LICK ROAD, HILLVIEW, KY 40129

PUMP STATION DETAILS

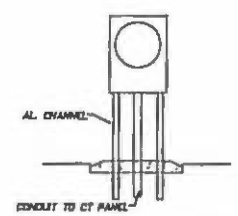
SHEET NO. C3

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS
CHECKED BY: CTC

GROUNDING ELECTRODE SYSTEM
N.E.C. 250-50



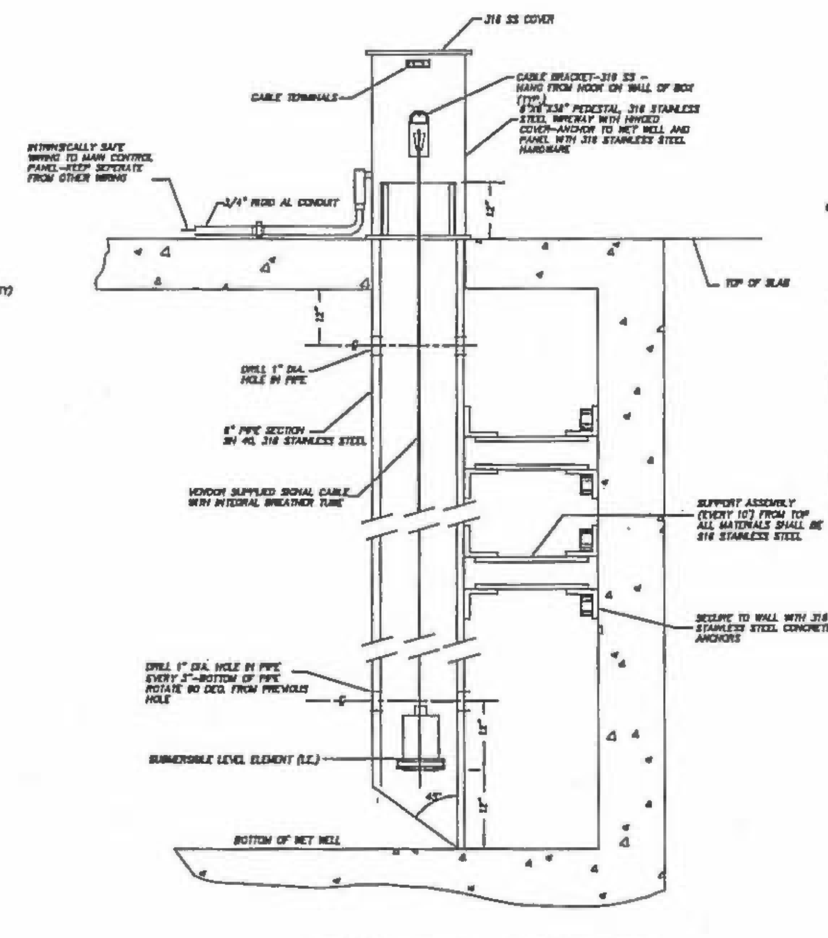
GROUNDING DETAIL
NO SCALE
DETAIL SHOWS GENERAL N.E.C. REQUIREMENTS



ELECTRIC UTILITY DETAIL
NO SCALE
MOUNT ON OR NEAR TRANSFORMER
IF POLE MOUNTED TRANSFORMER
MOUNT OUTSIDE FENCE

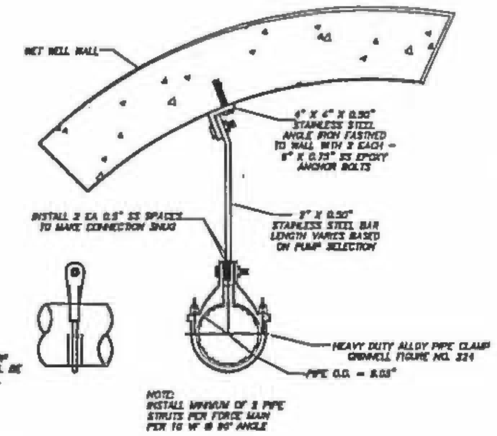
NOTES

1. ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
2. HORIZONTAL RUN OF CONDUIT UNDERGROUND SHALL HAVE A MINIMUM OF 24" COVER
3. GRIND SMOOTH THE CUT EDGES OF THE ALUMINUM STRUCTURAL MEMBERS. ALL MOUNTING HARDWARE SHALL BE ALUMINUM OR STAINLESS STEEL.
4. ALL EQUIPMENT TO BE BOLTED TO RACK WITH 1/4" DIA. S.S. BOLTS WITH S.S. LOCK WASHERS. DAMAGE THREADS SO NUTS CAN NOT BE REMOVED.
5. TRANSITION FROM BELOW GRADE PVC TO ALUMINUM ABOVE GRADE. STUB AND CAP ABOVE GRADE, STRAP TO BOTTOM HORIZONTAL MEMBER OF RACK. ONE CONDUIT FOR 120 VAC SIGNALS, ONE FOR INTRINSICALLY SAFE CIRCUITS.
6. INTRINSIC SAFE WIRING SHALL BE PHYSICALLY SEPARATED FROM ALL OTHER WIRING PER N.E.C.

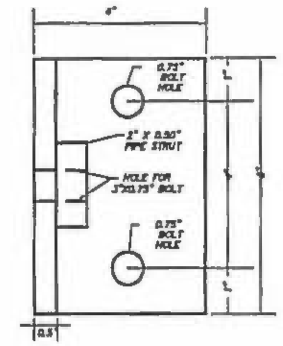


LEVEL SENSOR – SUBMERSIBLE WITH SUBMERGED STILLING WELL
NO TO SCALE

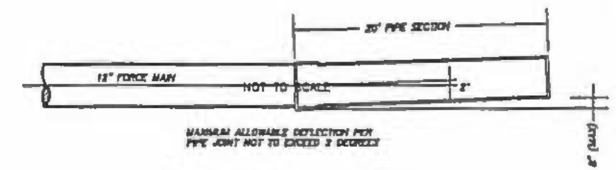
NOTE:
ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.



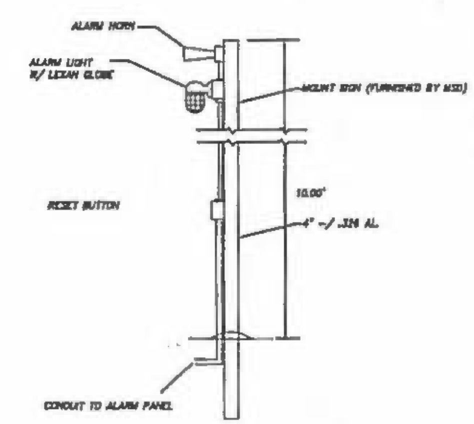
FORCE MAIN PIPE STRUT
SCALE 1"=1'



ANGLE IRON DETAIL
SCALE 1"=1'



PIPE JOINT DEFLECTION
NOT TO SCALE



ALARM LIGHT DETAIL
NO TO SCALE

REVISIONS		
Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

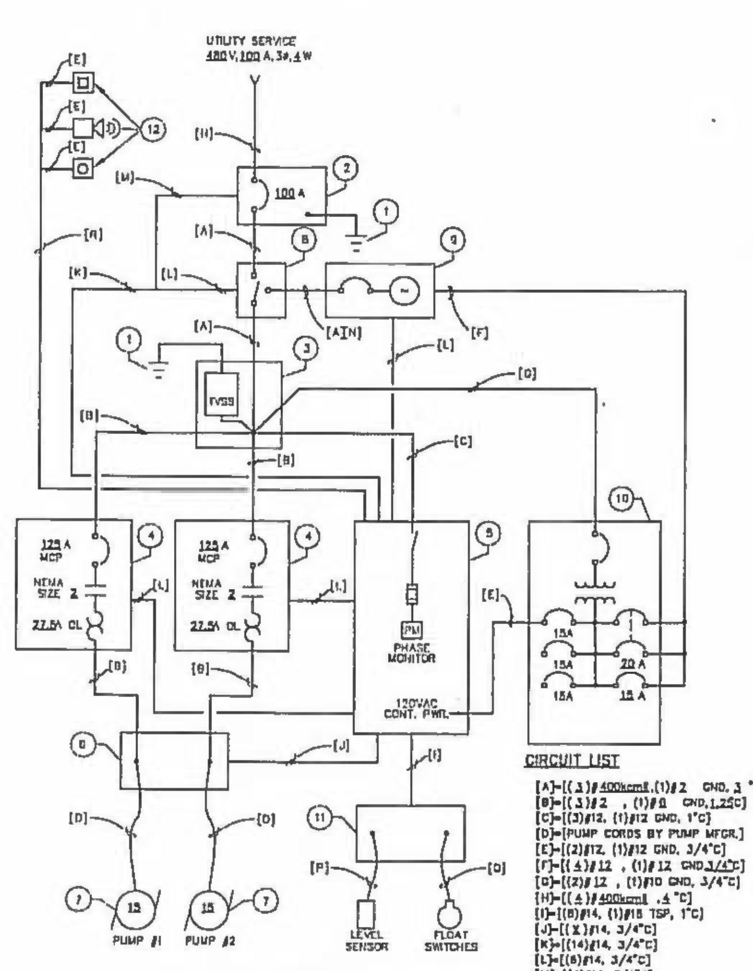
TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

MISC DETAILS

SHEET NO
C4

DATE: 12-18-14
SCALE: NTS
DRAWN BY: CS | CHECKED BY: CTC



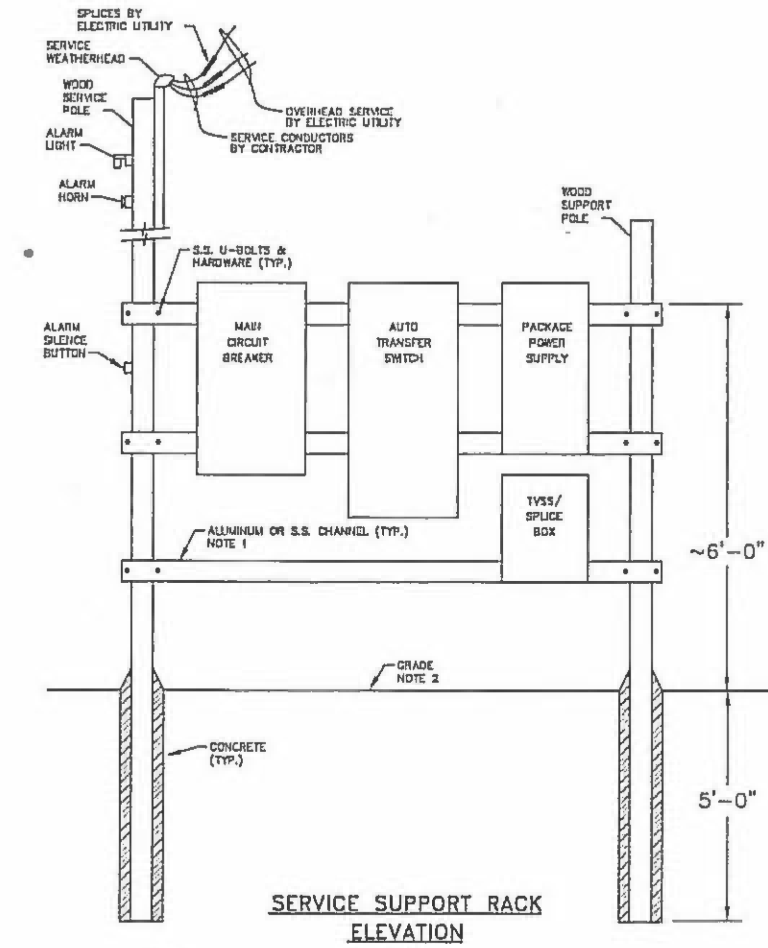
ONE LINE DIAGRAM

CIRCUIT LIST

[A]-[(3)#400kcmil,(1)#2 GND, 3 "C]
[B]-[(3)#2 , (1)#8 GND, 1.25"C]
[C]-[(3)#12, (1)#12 GND, 1"C]
[D]-[PUMP CORDS BY PUMP MFGR.]
[E]-[(2)#12, (1)#12 GND, 3/4"C]
[F]-[(4)#12 , (1)#12 GND, 3/4"C]
[G]-[(2)#12 , (1)#10 GND, 3/4"C]
[H]-[(4)#400kcmil , 4 "C]
[I]-[(8)#14, (1)#18 TSP, 1"C]
[J]-[(X)#14, 3/4"C]
[K]-[(14)#14, 3/4"C]
[L]-[(6)#14, 3/4"C]
[M]-[(4)#14, 3/4"C]
[N]-[(2)#14, 3/4"C]
[O]-NOT USED
[P]-[LEVEL SENSOR CORD BY MFGR.]
[Q]-[FLOAT SW. CORD BY MFGR.]
[R]-[(6)#12, (1)#12 GND, 1"C]

NOTES:

1. DRIVE SEPARATE 3/4"X10' COPPER-CLAD STEEL GROUND ROD. BOND GROUND RODS TOGETHER.
2. 480V, 100 A, 3-POLE, 35 KAIC, THERMAL-MAGNETIC CIRCUIT BREAKER IN NEMA 4X STAINLESS STEEL ENCLOSURE (SQUARE D CLASS 610 OR EQUAL). INCLUDE PROVISION FOR LOCKING IN THE OPEN OR CLOSED POSITION AND A 120 VAC, NORMALLY-CLOSED ALARM CONTACT TO INDICATE BREAKER IS TRIPPED. PROVIDE GROUNDING AS REQUIRED FOR TYPE OF SERVICE.
3. NEMA 4X STAINLESS STEEL J-BOX W/CONTINUOUS HINGE AND PAD LOCK KIT (HOFFMAN CHNFSS OR EQUAL). MOUNT POWER DISTRIBUTION BLOCKS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) AND TVSS (CUTLER HAMMER 50KA/PHASE CLIPPER VL SERIES, VOLTAGE AS REQ'D) WITHIN J-BOX.
4. 480V, 15 HP, 100 A, 3-POLE, NEMA 4X STAINLESS STEEL SOLID STATE REDUCED VOLTAGE (RVSS) COMBINATION MOTOR STARTER WITH INTEGRAL BYPASS CONTRACTOR, BRANCH CIRCUIT BREAKER LOCKABLE IN THE OPENED & CLOSED POSITION, AND PUMP CONTROL ALGORITHM SPECIFICALLY DESIGNED FOR REDUCTION OF WATER HAMMER (ALLEN-BRADLEY SMC FLEX OR EQUAL). INCLUDE HUMAN INTERFACE MODULE (HIM) DIRECTLY MOUNTED ON STARTER FOR PROGRAMMING, STATUS, AND DIAGNOSTICS. PROVIDE N.C. 120VAC BREAKER. "TRIP" CONTACT FOR ALARM.
5. CONTROL PANEL. REFERENCE SCHEMATIC, I/O WIRING, AND ELEVATIONS FOR MORE INFO.
6. NEMA 4X STAINLESS STEEL J-BOX W/LOUVER PLATES AND SCREW CLAMP COVERS. PROVIDE NEMA TYPE TERMINALS (SQUARE D CLASS 9080 TYPE LB OR EQUAL) FOR JUNCTION OF PUMP POWER CORDS WITH SINGLE CONDUCTORS.
7. PUMP HORSEPOWER AS INDICATED.
8. 480 V, 100 A, 3-POLE, AUTOMATIC TRANSFER SWITCH IN NEMA 4X STAINLESS STEEL ENCLOSURE. PROVIDE DUAL OPERATOR WITH CENTER OFF POSITION AND KAIC STAND ALONE INTERRUPT RATING. INCLUDE MICROPROCESSOR CONTROLLER ON INNER DOOR WITH DISPLAY OF VOLTS, AMPS, STATUS, DIAGNOSTICS. OUTER DOOR SHALL BE BLANK WITH HASP & STAPLE FOR MSD PADLOCK (RUSSELECTRIC TYPE RMTD OR EQUAL).
9. 480 V, 100 KW, PHASE, 0.8 PF DIESEL GENERATOR WITH OUTDOOR ENCLOSURE, 24 HR. @100% LOAD SUB-BASE FUEL TANK, BLOCK HEATER, BATTERY CHARGER, MAIN BREAKER, CRITICAL SILENCER AND CONTROLLER. *(NOT TO BE PROVIDED WITH THIS PROJECT)*
10. 10 KVA, 480-240/120V STAINLESS STEEL NEMA 3R INDOOR/OUTDOOR PACKAGED POWER SUPPLY (SQUARE D MINI POWER ZONE OR EQUAL). PROVIDE BREAKERS AS REQUIRED FOR GENERATOR AUXILIARIES AND PANEL CONTROL POWER. (COORD WITH GENERATOR SUPPLY)
11. NEMA 4X STAINLESS STEEL J-BOX W/LOUVRE PLATES AND SCREW CLAMP COVERS. PROVIDE CORROSION RESISTANT TERMINAL BLOCKS (PHOENIX CONTACT TYPE UK2.5 OR EQUAL) FOR JUNCTION OF FLOAT SWITCH AND LEVEL TRANSMITTER CORDS WITH INTRINSICALLY-SAFE WIRING FROM CONTROL PANEL.
12. LOCAL ALARM LIGHT, ALARM HORN, AND SILENCE PUSHBUTTON MOUNTED ON SERVICE SUPPORT RACK. SEE DETAIL THIS SHEET.

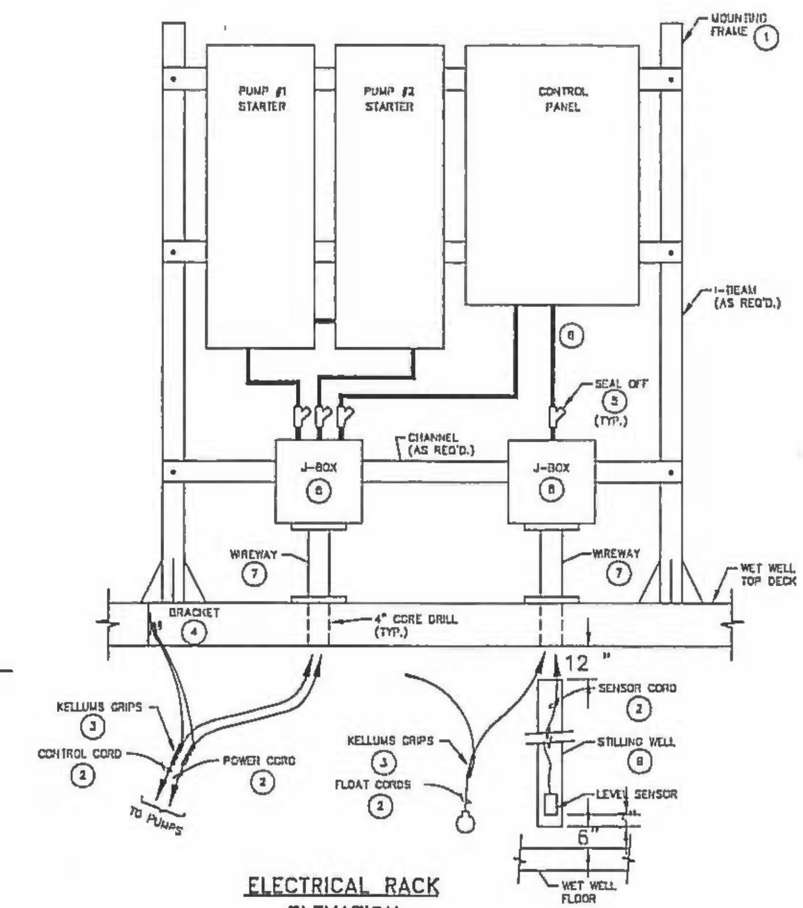


SERVICE SUPPORT RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE CHANNEL OF SUFFICIENT STRENGTH TO BEAR THE WEIGHT OF EQUIPMENT WITHOUT SAGGING. ADD INTERMEDIATE VERTICAL SUPPORTS IF REQ'D.
2. PROVIDE 4" THICK CONCRETE PAD FOR EQUIPMENT THAT MUST BEAR WEIGHT ON A FLOOR SURFACE.

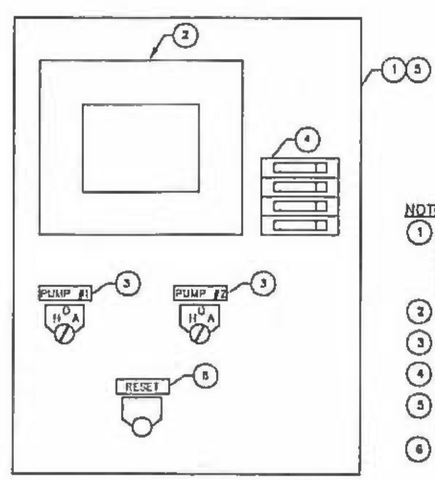


ELECTRICAL RACK ELEVATION

SCALE: NONE

NOTES:

1. PROVIDE FIELD FABRICATED MOUNTING FRAME ATOP WETWELL. UTILIZE ALUMINUM OR STAINLESS STEEL CHANNEL AND I-BEAMS, MOUNTING FEET & MISC. HARDWARE AS REQUIRED FOR MOUNTING THE ENCLOSURES SHOWN. ANCHOR MOUNTING FEET TO WET WELL TOP DECK WITH STAINLESS STEEL ANCHOR BOLTS. COORDINATE WITH WET WELL STRUCTURAL DRAWINGS TO DETERMINE SPACING OF J-BOX AND I-BEAMS. PROVIDE STRUCTURAL MEMBERS OF SUFFICIENT STRENGTH TO ENSURE STRUCTURAL RIGIDITY. NOTE: BOTH SIDES OF RACK MAY BE USED IF NEEDED TO REDUCE WIDTH FOR SMALLER DIAMETER WET WELLS. FOR ANY CONFIGURATION, CONTROL PANEL MUST ALWAYS FACE OUT (AWAY FROM HATCH) SUCH THAT OPERATOR MAY ACCESS CONTROL PANEL WITHOUT STANDING ON HATCH.
2. ARRANGE PUMP POWER AND CONTROL CORDS, FLOAT CORDS, AND LEVEL SENSOR CORD SUCH THAT THEY DO NOT INTERFERE WITH PUMP REMOVAL. USE STRAIN RELIEF MEASURES FOR PUMP AND FLOAT CORDS.
3. STAINLESS STEEL WIRE MESH KELLUMS GRIPS FOR PUMP CORD AND FLOAT CORD STRAIN RELIEF.
4. FABRICATE A STAINLESS STEEL BRACKET WITH HOOKS FOR HANGING KELLUMS GRIPS INSIDE PUMP HATCHES. ANCHOR INSIDE THE PUMP HATCH OPENING WITH STAINLESS STEEL ANCHOR BOLTS.
5. PROVIDE CLASS I, DIV. 1 CONDUIT SEAL-OFFS BETWEEN PUMP CORDS OR FLOAT CORDS J-BOXES AND STARTERS OR CONTROL PANEL.
6. MAINTAIN SEPARATION OF INTRINSICALLY SAFE CIRCUITS FROM ALL OTHER CIRCUITS.
7. 6"X6"X12" STAINLESS STEEL WIREWAY PEDESTAL FOR WET WELL CORDS.
8. NEMA 4X STAINLESS STEEL J-BOX WITH LOUVRE PLATES, SCREW CLAMP COVERS, AND TERMINAL BLOCKS FOR WET WELL CORDS.
9. 4" PERFORATED PVC PIPE WITH STAINLESS STEEL ANCHOR AND MOUNTING HARDWARE TO SERVE AS STILLING WELL.



CONTROL PANEL ELEVATION

(INNER DOOR SHOWN)
SCALE: NONE

NOTES:

1. PROVIDE NEMA 3R 304 STAINLESS STEEL ENCLOSURE WITH SUB-PANEL, DRIP SHIELD, 3-POINT LATCHING HANDLE WITH PROVISION FOR MSD PADLOCK, AND INNER DOOR WITH HINGE KIT FOR MOUNTING OF OPERATOR INTERFACE DEVICES. OUTER DOOR SHALL HAVE ONLY THE 3-POINT LATCHING HANDLE ACCESSIBLE. NO OPERATOR INTERFACE DEVICES WILL BE ACCESSIBLE ON OUTER DOOR. ENCLOSURE DIMENSIONS AS REQUIRED.
2. HUMAN-MACHINE INTERFACE (HMI). REFERENCE WIRING DIAGRAMS FOR MORE DETAIL.
3. HAND-OFF-AUTO (HOA) SELECTOR SWITCH. SEE WIRING DIAGRAMS FOR MORE DETAIL.
4. MISC. 120V, 1-POLE CIRCUIT BREAKERS. SEE WIRING DIAGRAMS FOR MORE DETAILS.
5. CONTROL PANEL SUB-PANEL SHALL INCLUDE INTERNAL 6" H X 14" WITH UNIMPEDED SPACE FOR MOUNTING OF TELEMETRY MODEM BY MSD. OTHER PANEL COMPONENTS SHALL NOT BE MOUNTED SO AS TO BLOCK ACCESS TO MODEM SPACE.
6. STARTER FAULT RESET BUTTON. SEE WIRING DIAGRAM FOR MORE DETAILS.

REVISIONS		
Date	Description	By

ENGINEER
BlueStone Engineers, PLLC

CLIENT
BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

DATE

SIGNATURE

TITLE
HUNTERS HOLLOW PUMP STATION

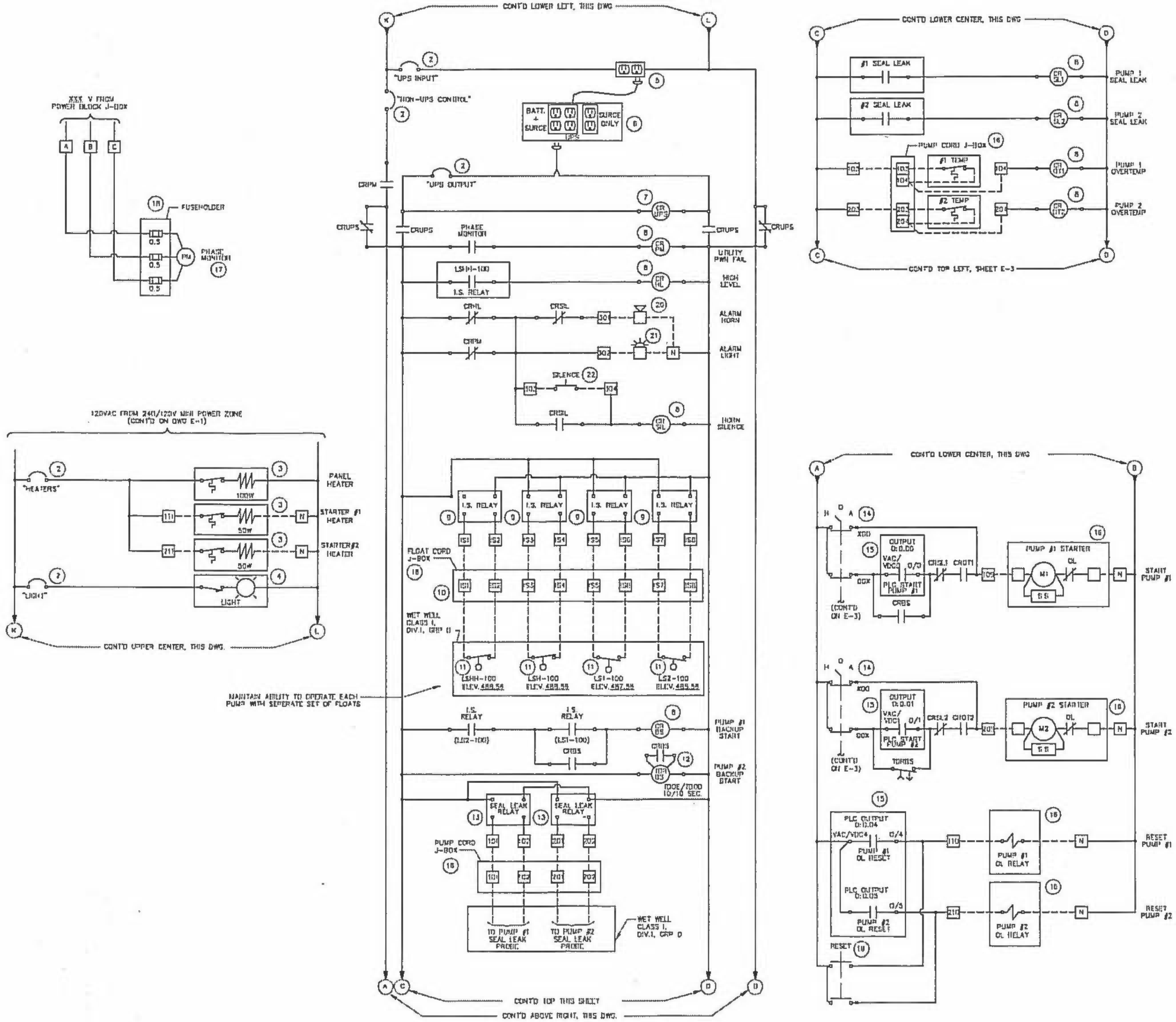
SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

ELECRICAL DETAILS-1

SHEET NO.
C5

DATE: 12-28-14
SCALE: NTS

DRAWN BY: CS
CHECKED BY: CTC



NOTES:

1. 240V, 15A, 2-POLE, 10 KAIC DIN RAIL MOUNTED MOLDED CASE CIRCUIT BREAKER (SQUARE D TYPE QO OR EQUAL). PANEL LEGEND PLATE AS NOTED.
2. 120V, 15A, 1-POLE, 10KAIC DIN RAIL MOUNTED MOLDED CASE CIRCUIT BREAKERS (SQUARE D TYPE QO OR EQUAL). PANEL LEGEND PLATE AS NOTED.
3. 120V SILICONE RUBBER INSULATED ENCLOSURE HEATER W/INTEGRAL THERMOSTAT FACTORY VULCANIZED TO AN ALUMINUM MOUNTING PLATE (CHROMALOX TYPE SL-B OR EQUAL). WATTAGE AS INDICATED.
4. 120V FLUORESCENT LIGHT W/INTEGRAL DOOR SWITCH (HOFFMAN P/N A-LF18D18 OR EQUAL)
5. 120V, 20A, DUPLEX DIN RAIL MOUNTED GFI RECEPTACLE (PHOENIX CONTACT EM-DUO 120/20/GFI OR EQUAL)
6. 500VA/300W 120V, UNINTERRUPTIBLE POWER SUPPLY (UPS) WITH HOT-SWAPPABLE BATTERY, (4) NEMA 5-15R BATTERY BACKUP + SURGE PROTECTED RECEPTACLES AND (2) NEMA 5-15R SURGE PROTECTED ONLY RECEPTACLES, AUTOMATIC BATTERY TESTING, INPUT CIRCUIT PROTECTOR, AND ONE PAIR OF RJ45 SURGE PROTECTED PORTS (SOLA/HEVI-DUTY TYPE S2K OR EQUAL)
7. 120V, NEMA STYLE RELAY WITH SCREW TERMINALS AND 3 N.O. AND 3 N.C. 10A CONTACTS (SQUARE D CLASS 8501 TYPE X OR EQUAL)
8. 120V, 3PDT CONTROL RELAY W/10A CONTACTS, MANUAL OPERATOR, PILOT LIGHT, AND BLADE-TYPE TERMINALS AND DIN RAIL MOUNT SOCKET (SQUARE D CLASS 8501 TYPE K OR EQUAL)
9. 120V, CLASS I, DIV 1, GROUP D, SINGLE-CHANNEL PLUG-IN INTRINSICALLY-SAFE RELAY W/SPST N.O. 10A CONTACT AND RELAY SOCKET (ATC DIVERSIFIED ELECTRONICS P/N ISO-120-AFA OR EQUAL) *(PROVIDE ONE FOR EACH PUMP)*
10. 300V, 20A DIN RAIL MOUNTED UNIVERSAL SCREW-TYPE TERMINAL BLOCKS W/ TERMINALS MADE OF CORROSION-RESISTANT COPPER ALLOYS (PHOENIX CONTACT TYPE UK2,5N OR EQUAL) *(PROVIDE ONE FOR EACH PUMP)*
11. SUSPENDED TYPE FLOAT SWITCH WITH MERCURY SWITCH, POLYPROPYLENE CASING, INTEGRAL WEIGHT, ENCAPSULATED FOR A WATERTIGHT SEAL (ANCHOR SCIENTIFIC ROTO-FLOAT TYPE S OR EQUAL). PROVIDE CORD LENGTH AS REQUIRED. *(PROVIDE SEPERATE SET OF FLOATS FOR EACH PUMP)*
12. 120V, DPDT ON-DELAY OFF-DELAY TIMER RELAY W/10A CONTACTS, ADJUSTABLE TIMING RANGE, AND DIN RAIL MOUNT SOCKET (DIVERSIFIED ELECTRONICS TDJ SERIES OR EQUAL).
13. SEAL LEAK RELAY PER SUPPLIED PUMP MFGR. REQUIREMENTS, REVISE AS NEEDED TO ACCOMMODATE SPECIFIC PUMP MFGR. REQUIREMENTS.
14. 3-POSITION, 30MM, NEMA 4/13 MAINTAINED SELECTOR SWITCH W/600V, 10A CONTACTS, STANDARD KNOB, AND "HAND-OFF-AUTO" LEGEND PLATE (SQUARE D CLASS 9001 TYPE K OR EQUAL).
15. REFERENCE DRAWING E-3 FOR DESCRIPTION OF THESE ITEMS.
16. REFERENCE DRAWING E-1 FOR DESCRIPTION OF THESE ITEMS.
17. UNDER VOLTAGE PLUG-IN MONITOR WITH ADJUSTABLE DROP OUT VOLTAGE, LED INDICATOR, TUBE-BASE TERMINALS DIN RAIL SOCKET, AND DPDT 5A CONTACT (ATC DIVERSIFIED ELECTRONICS UDA SERIES OR EQUAL).
18. 600V, 30A, 3-POLE FUSE HOLDER CLASS H AND R FUSEHOLDER WITH CLASS CC FUSES (SQUARE D CLASS 9080 TYPE FB OR EQUAL).
19. 120V MOMENTARY PUSHBUTTON WITH FLUSH RED OPERATOR (SQUARE D CLASS 9001 TYPE K OR EQUAL).
20. 120V, NEMA 4X, 103dB @ 10 FT. ALARM HORN (EDWARDS SIGNALING MODEL 870P SERIES OR EQUAL)
21. 120V, NEMA 4X, 15W INCANDESCENT FLASHING ALARM LIGHT (EDWARDS SIGNALING MODEL 114 FH SERIES OR EQUAL)
22. 120V, NEMA 4/13, WATERTIGHT/OILTIGHT 30.5 MM FLUSH PUSHBUTTON IN NEMA 4X ENCLOSURE (SQUARE D CLASS 9001 TYPE K OR EQUAL)

REVISIONS

Date	Description	By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

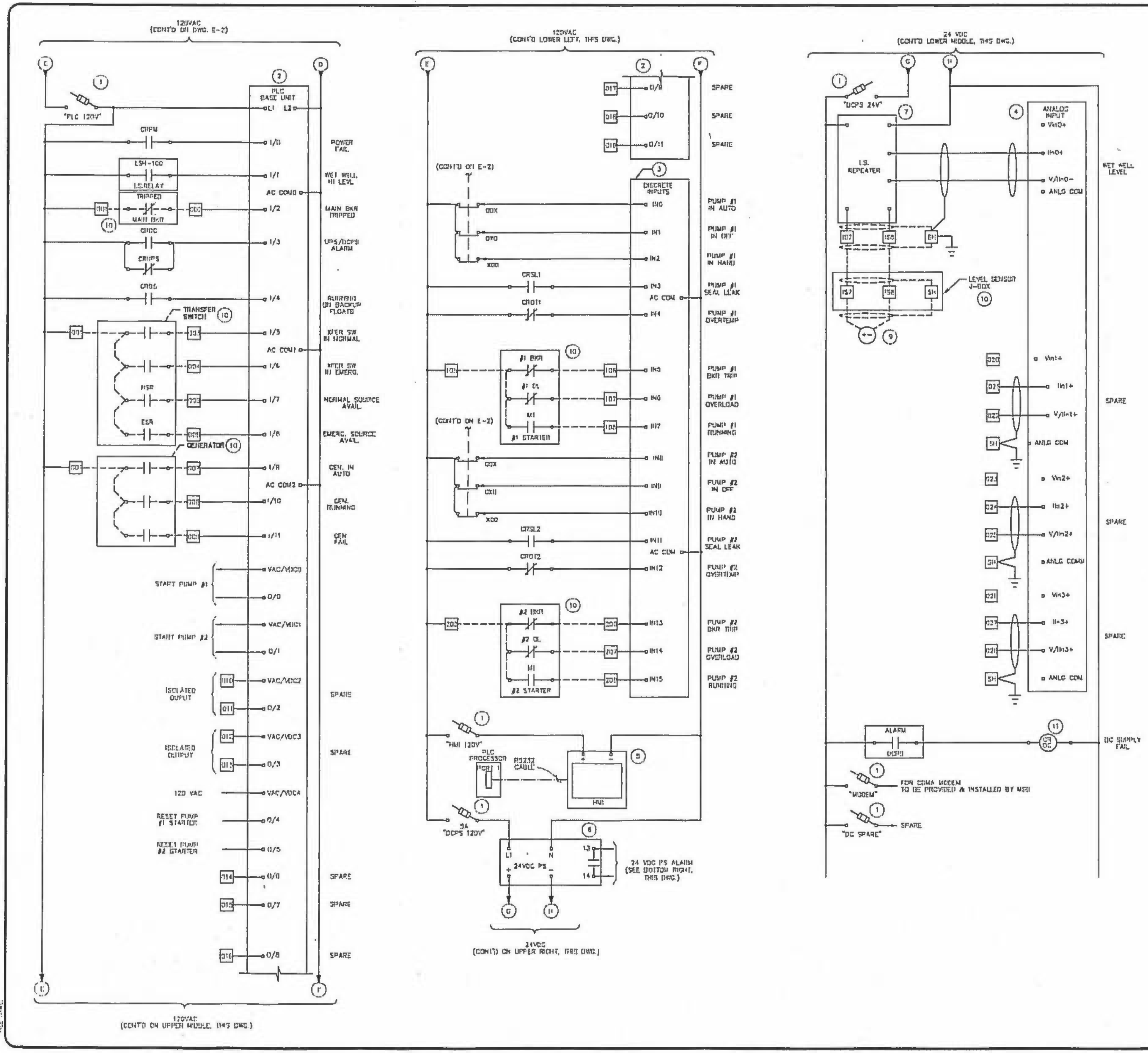
TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION: BLUE LICK ROAD & W. TRIANGLE LANE, BULLITT COUNTY, KENTUCKY

ELECTRICAL DETAILS-2

SHEET NO: C6

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS
CHECKED BY: CTC



NOTES:

1. 600V, 25A FUSED DIN RAIL MOUNTED TERMINAL BLOCK WITH DISCONNECT LEVER AND BLOWN FUSE INDICATOR (PHOENIX CONTACT TYPE UK 6, 3-HESI OR EQUAL), FUSE WITH HIGH SPEED FUSES AS REQUIRED. LABEL DISCONNECT AS INDICATED.
2. PLC BASE UNIT WITH (12) 120 VAC DISCRETE INPUTS; (12) 240/120V, 1800 VA MAKE, 180 VA BREAK RELAY CONTACT OUTPUTS; POWERED BY 120 VAC (ALLEN-BRADLEY MICROLOGIX 1500 P/N 1764-24AWA OR EQUAL). INCLUDE PLC PROCESSOR W/14K USER WORDS; USER CONFIGURABLE PROGRAM AND MEMORY AMOUNTS; (1) NON-ISOLATED RS232C PORT AND (1) ISOLATED PORT CONFIGURABLE FOR DF1 FULL OR HALF DUPLEX COMM. PROTOCOL; PROGRAMMABLE VIA RSLOGIX 500 SOFTWARE (ALLEN-BRADLEY 1764-LRP, FIRMWARE VERSION 7.0 OR GREATER, OR EQUAL) PLC PROGRAMMING BY OTHERS.
3. 120VAC, 16-INPUT DISCRETE INPUT MODULE (ALLEN-BRADLEY 1769-IA16 OR EQUAL).
4. 4-20mA, 4-SINGLE-ENDED OR DIFFERENTIAL ANALOG INPUT MODULE (ALLEN-BRADLEY 1769-IF4 OR EQUAL)
5. 8.3"Wx6.2"H COLOR 120VAC, TOUCH SCREEN OPERATOR INTERFACE SCREEN W/RS232 DF1 COMMUNICATION PORT AND RS232 PRINTER/DOWNLOAD PORT (ALLEN-BRADLEY PN/2711-T10C10 OR EQUAL). OPERATOR INTERFACE PROGRAMMING BY OTHERS.
6. 120VAC INPUT, 24VDC/10A OUTPUT DIN RAIL MOUNTED POWER SUPPLY W/INTEGRAL INPUT FUSING AND TRANSIENT SURGE PROTECTION (PHOENIX CONTACT QUINT-PS-100-240AC/24DC/10 OR EQUAL)
7. INTRINSICALLY SAFE 4-20mA ANALOG SIGNAL REPEATER, DIN RAIL MOUNTED, 24VDC POWERED (PHOENIX CONTACT PROCESS INTERFACE REPEATER PI-EX-RPSS-I/I OR EQUAL)
8. NOT USED.
9. SUBMERGED PRESSURE COMPENSATING LIQUID LEVEL TRANSDUCER WITH PRESSURE SENSING ELEMENT AND TRANSMITTER BOTH CONTAINED WITHIN THE SUBMERSIBLE HOUSING. HOUSING SHALL BE POLYPROPYLENE WITH 316 STAINLESS STEEL DIAPHRAGM. WEIGHT SHALL BE SUPPORTED BY STEEL REINFORCED SIGNAL CABLE. PROVIDE MJK MODEL 7060 OR EQUAL.
10. REFERENCE DRAWING E-1 FOR DESCRIPTION OF THESE ITEMS.
11. 24VDC, 3PDT CONTROL RELAY W/10A 120V CONTACTS, MANUAL OPERATOR, PILOT LIGHT, BLADE TYPE TERMINALS, AND DIN RAIL MOUNTED SOCKET (SQUARE D CLASS 8501 TYPE K OR EQUAL).

REVISIONS: Date | Description | By

ENGINEER: BlueStone Engineers, PLLC

CLIENT: BULLITT UTILITIES, INC.
BLUE LICK ROAD
HILLVIEW, KY 40129

TITLE: HUNTERS HOLLOW PUMP STATION

SITE INFORMATION:
BLUE LICK ROAD & W. TRIANGLE LANE
BULLITT COUNTY, KENTUCKY

ELECTRICAL DETAILS-3

SHEET NO C7

DATE: 12-28-14
SCALE: NTS
DRAWN BY: CS | CHECKED BY: CTC

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF ENFORCEMENT
300 FAIR OAKS LANE
FRANKFORT KENTUCKY 40601
www.kentucky.gov

March 20, 2015

Bullitt Utilities Inc.
Attn: Chris Cogan
1800 2nd St
West Tower, Suite 892
Sarasota, FL 34236

Re: AI ID: 448
AI Name: Hunters Hollow Subdivision
Activity ID: ERF20140001
Permit No. KY0038610
Bullitt County, KY
Case No. DOW 140088, DOW-34022

Dear Mr. Cogan:

The Division of Water has reviewed the Inflow and Infiltration Study (I&I Study) submitted on behalf of Hunters Hollow Subdivision/Bullitt Utilities Inc. Please find the Cabinets comments attached below. In addition to the requested information below, the Corrective Action Plan as specified in paragraph 16(b) of the Agreed Order was required to be submitted by March 1, 2015. As of todays date it has not been received. Per Mr. Moore's letter dated January 20, 2015, an amended I&I Study was to be submitted "shortly". Please see that a revised I&I Study is submitted within fifteen days (15) and include responses to the requested changes and comments provided below.

If you have any questions, please contact Philip Kejzlar of my staff at (502) 564-2150 extension 3604.

Sincerely,

E-Signed by Cummins, Jeff
VERIFY authenticity with ApproveIt

Jeffrey A. Cummins
Director

JC/pek

CC:
Hazelrigg & Cox, LLP
Attn: Robert C. Moore
415 West Main Street
P.O. Box 676
Frankfort, KY 40602-0676

Hunter's Hollow
AI # 448

General Comments: In addition to the SSES guidance review comments.

1. Approximately 10,000 feet of sewers were not examined for this survey. Why were these lines left out of the survey? How were the lines CCTV'd selected for study?

2. No smoke testing was performed to try and locate system breaks and illegal connections; Why not?

3. Has any work on the sewer system started since the Agreed Order was entered, and if so, what has been accomplished?

4. What are the Inspection Report documents at the end of the SSES for Majestic Subdivision? There is no reference to them in the document that explains their relevance.

Additional notes of Hunters Hollow; AI# 448

5. Per the AO; paragraph # 16.a. They have not submitted a complete I/I study. Hunters Hollow Section 3 was not included in the original submittal.

Below is the guidance that Division of Water-Wet Weather Section offers communities interested in developing an I&I Study-SSES for their sewer system. The submitted I&I Study-SSES was reviewed against this guidance.

I. Identify Collection system problems.

A. Discuss its history.
   - This was done is a very basic manner. It could be improved.

B. Review and analyze existing flow records such as: plant influent data, pump station data, Overflow locations and estimated amounts.
   - This was not done.

C. Divide the collection system into subsystems and identify the key manholes which are located at the outlet of each subsystem.
   - The system was divided into 4 subsystems: HH1, HH2, HH3, and Blue Lick Road.
   - Key manholes were not identified as the survey examined all manholes. Some discussion as to how the survey method was created. HH3 was not submitted.

D. Monitor flows to key manholes and compare them to the expected sewer flows from the subsystems. Identify problem subsystems and determine if further study is needed. Discuss and explain the basis for these decisions.

- Flow monitoring was not conducted. A decision was made to CCTV the "main" lines. Over 10,000 feet of the remaining sewers were not examined. No reason for not doing this was offered. No reason for not smoke testing to look for defects in service connections or to attempt to locate illegal connections: down spouts, sump pumps and basement pumps.

E. Determine if the excessive flow problem is due to infiltration or inflow or both and decide the appropriate time period of the year to monitor the problem subsystems.

- All subsystems were CCTV'd but not all of the sewer lines.
- In section 3.2 there are statements about inflow being the main problem but a program to discover I/I sources in the private side of the system should be developed and executed.
- This was not going to be done at this time; it is said that it is beyond the scope of this plan.
- No discussion as to the proper time of the year to determine excessive flows was mentioned.

II. Define the Infiltration and Inflow Problem.

A. Physical Inspection.

1. Inspect all manholes in the area.
   - Every manhole that could be found was examined for integrity: 153 were examined internally. HH3 was not included in this report and has yet to be reviewed by this reviewer.

2. Prepare a manhole inspection report.
   - No report was prepared for all the manholes examined. There was a general recommendation for the manholes found to need rehabilitation to receive certain repairs.

3. If ground water infiltration is suspected to be a problem, groundwater gauges should be installed at manholes or other sites to evaluate the groundwater conditions.
   - This was not mentioned nor done. Such detail may not be warranted for this project.

4. Measure early morning flows at key manholes and upstream manholes to identify infiltration. Subtract approximated domestic flow from the actual flow measurement to determine infiltration.
   - This was not done.

5. Obtain daily rainfall data and correlate this with detected flow levels.
   - This may not be appropriate with this study. Was not done.

III. Rainfall Simulation.

A. Perform rainfall simulation to identify sewer sections with I/I problems. (This reviewer believes that this is not appropriate for such a small system).

1. Smoke test – A smoke test should be used to identify inflow sources on the private side.
   - No updated smoke testing was done and no explanation as to why not was given.

2. Dye testing - A dye test should be used on ditches, streams, or storm sewers to see if the SS is ex-filtrating.
    - This was not done.

3. Ex-filtrating air and water tests should be used in the SS to detect leaks.
    - This was not done.

IV. Prepare Map and field Report.

A. Once the survey is complete, prepare a sewer system map locate and present problem sewers and manholes.
    - Problem manholes were mentioned in a minimal way. Sewer line problems were discussed. A better explanation of Table 3.1 is needed.

V. Conduct a Cost Effective Analysis.

A. This analysis was not conducted. What was included was a cost estimate of the repairs the consultant believed would help make SS repairs.

VI. Prepare Survey Recommendations.

A. Recommendations for repairs were given and the expected I/I reductions were provided.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF ENFORCEMENT
300 FAIR OAKS LANE
FRANKFORT KENTUCKY 40601
www.kentucky.gov

January 7, 2015

Certified No. 7011 3500 0001 1971 0426
Return Receipt Requested

Bullitt Utilities Inc.
Attn: Chris Cogan
1800 2nd St
West Tower, Suite 892
Sarasota, FL 34236

Re: AI ID: 448
AI Name: Hunters Hollow Subd
Activity ID: ERF20140001
Permit No. KY0038610
Bullitt County, KY
Case No. DOW 140088, DOW-34022

DEMAND FOR REMEDIAL MEASURE AND COST RECOVERY

Dear Mr. Cogan:

Agreed Order DOW-34022 (executed November 24, 2014) between Bullitt Utilities Inc. (BUI) and the Cabinet required BUI to submit to the Cabinet an Inflow and Infiltration Study (I&I Study) of the Hunters Hollow WWTP collections system. As specified in paragraph sixteen (16) of the Agreed Order this was to be submitted no later than December 1, 2014. In addition to the I&I Study, BUI was to remit Cost Recovery in the amount of thirteen thousand six hundred six dollars and fifteen cents ($13,606.15) was to be paid no later than December 15, 2014. In Mr. Rob Moore's letter dated December 17, 2014, an extension until January 5, 2015, to submit both the I&I Study and payment of the Cost Recovery was requested. On December 18, 2014, the Cabinet responded to Mr. Moore's request granting the extension. As of January 7, 2015, neither the I&I Study nor the Cost Recovery payment have been submitted. Within seven (7) days of receipt of this Demand Letter BUI is directed to submit to the Cabinet a complete I&I Study and outstanding Cost Recovery.

In addition to the outstanding remedial measure and Cost Recovery above, BUI is also required to pay a stipulated civil penalty for the violations cited therein. As specified in paragraph twenty one (21) of the above mentioned Agreed Order, BUI has failed to comply with paragraph sixteen (16), for the timely submittal of the I&I Study. Please remit a Stipulated Penalty payment of **five hundred ($500.00) dollars** to the Cabinet within **thirty (30)** days from receipt of this letter.

GENERAL INFORMATION

The Cost Recovery and Stipulated Penalty shall be paid **by two separate** certified checks, cashier's checks, or money orders payable to the **"Kentucky State Treasurer"**. Note "**Case No. DOW-34022**" on the instrument of payment. All correspondence, reports, cost recovery payments, and penalty payments shall be submitted to the following address:

Attention: Philip Kejzlar
Division of Enforcement
300 Fair Oaks Lane
Frankfort, Kentucky 40601

Failure to comply with this Demand Letter will result in the Cabinet seeking enforcement of the Agreed Order in Franklin Circuit Court. This Demand Letter addresses only those matters specifically referred to in this document and in no way waives any obligation or liabilities that may result from any other activities.

If you have any questions, please contact Philip Kejzlar of my staff at (502) 564-2150 extension 3604.

Sincerely,

E-Signed by Cummins, Jeff
VERIFY authenticity with ApproveIt

Jeffrey A. Cummins
Director

JC/pek

CC:
Hazelrigg & Cox, LLP
Attn: Robert C. Moore
415 West Main Street
P.O. Box 676
Frankfort, KY 40602-0676

Cummins

COMMONWEALTH OF KENTUCKY
ENERGY AND ENVIRONMENT CABINET
DIVISION OF ENFORCEMENT
CASE NO. DOW 140177A

IN RE: BCSD Hillview Sewer Plant 3, Pioneer Village Sewer Plant 1, Willabrooke Sanitation Inc.
297 Lees Lane N
Louisville, Kentucky 40229
Master AI No. 436
Activity ID No. ERF20140003

AGREED ORDER

* * * * * * * * * * * *

WHEREAS, the parties to this Agreed Order, the Energy and Environment Cabinet (hereinafter "Cabinet") and the Bullitt County Sanitation District (hereinafter "BCSD") state:

STATEMENTS OF FACT

1. The Cabinet is charged with the statutory duty of enforcing KRS Chapter 224 and the regulations promulgated pursuant thereto.

2. BCSD is a county utility that provides wastewater services to residence and businesses in northern Bullitt County, Kentucky.

3. BCSD operates the Hillview Sewer Plant 3 wastewater treatment plant (hereinafter "WWTP"), located at 12325 Western Road, in Hillview, Kentucky.

4. BCSD holds Kentucky Pollutant Discharge Elimination System (hereinafter "KPDES") Permit Number KY0034177, issued by the Cabinet's Division of Water (hereinafter "DOW"), for the facility described in paragraph 3.

5. BCSD operates the Pioneer Village Sewer Plant 1 WWTP, located at 12600 Morningside Drive, in Louisville, Kentucky.

6. BCSD holds KPDES Permit Number KY0034185, issued by the Cabinet's DOW,

MK

for the facility described in paragraph 5.

7. BCSD operates the Willabrooke Sanitation Inc. WWTP, located at I-65 and Brooks Road, in Shepherdsville, Kentucky.

8. BCSD holds KPDES Permit Number KY0094307, issued by the Cabinet's DOW, for the facility described in paragraph 7.

9. On or about July 21, 2014, an authorized representative of the Cabinet conducted a file review of BCSD's Discharge Monitoring Reports (hereinafter "DMRs"), and identified violations of KRS Chapter 224 and the regulations promulgated pursuant thereto at the WWTP described in paragraph 3. On July 21, 2014, the Cabinet issued BCSD a Notice of Violation citing KRS 224.70-110, for the following violations:

a. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Biochemical Oxygen Demand (hereinafter "BOD") during the months of November 2013 and April 2014.

b. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Total Suspended Solids (hereinafter "TSS") during the month of April 2014.

c. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Fecal Coliform Bacteria (hereinafter "FCB") during the month of April 2014.

d. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for failing to submit the DMR for the month of March 2013.

10. On or about July 22, 2014, an authorized representative of the Cabinet conducted

a file review of BCSD's DMRs, and identified violations of KRS Chapter 224 and the regulations promulgated pursuant thereto at the WWTP described in paragraph 5. On July 22, 2014, the Cabinet issued BCSD a Notice of Violation citing KRS 224.70-110, for the following violations:

a. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, by failing to monitor and report data for Phosphorus (hereinafter "P") during the months of January through December 2012; and January, February, and April through December 2013.

b. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for failing to submit the DMR for the month of March 2013.

c. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, by failing to monitor and report data for P during the month of January 2014.

d. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, by failing to monitor and report data for Total Nitrogen (hereinafter "N") during the month of January 2014.

e. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for BOD during the months of April and May 2014.

f. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Total Ammonia Nitrogen (hereinafter "TAN") during the month of May 2014.

11. On or about July 17, 2014, an authorized representative of the Cabinet conducted a file review of BCSD's DMRs, and identified violations of KRS Chapter 224 and the regulations promulgated pursuant thereto at the WWTP described in paragraph 7. On July 17, 2014, the Cabinet issued BCSD a Notice of Violation citing KRS 224.70-110, for the following violations:

a. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for TAN during the months of April, May, and June 2012; and April, May, June, and July 2013.

b. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for FCB during the month of November 2012.

c. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Dissolved Oxygen during the month of September 2013.

d. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for BOD during the months of December 2013 and May 2014.

e. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for Total Recoverable Copper during the 4th Quarter 2012 and the 4th Quarter 2013.

f. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for failing to submit the DMR for the month of March 2013.

g. BCSD failed to comply with 401 KAR 5:065, by violating the terms and conditions of its KPDES Permit, for failing to submit the DMR for the 2nd Quarter 2012 and the 1st Quarter 2013.

12. At all times relevant to the violations listed in this Agreed Order, BCSD operated the Hillview Sewer Plant 3, Pioneer Village Sewer Plant 1, and Willabrooke Sanitation Inc. WWTPs (hereinafter "facilities") described above.

13. BCSD has agreed in principle with Bullitt Utilities Incorporated (hereinafter "BUI") to make the connection to the collection system for the Hunters Hollow WWTP, located on Blue Lick Road, in Louisville, Kentucky. The Hunters Hollow WWTP is permitted under KPDES Permit Number KY0038610.

NOW THEREFORE, in the interest of settling all civil claims and controversies involving the violations described above, the parties hereby consent to the entry of this Agreed Order and agree as follows:

SUPPLEMENTAL ENVIRONMENTAL PROJECT

14. Within sixty (60) days of the execution of this Agreed Order, BCSD shall connect to its facilities described above, the collection system that was previously connected to the Hunters Hollow WWTP, located on Blue Lick Road, in Hunters Hollow, Kentucky. BCSD shall accept and properly treat the Dry Weather Flow and as much of the Wet Weather Flow as possible, under terms of an agreement negotiated between BCSD and BUI generally in the form of Attachment "A" to this Agreed Order. BCSD shall comply with the provisions set forth in said Agreement.

REMEDIAL MEASURES

15. Commencing immediately and at all times, BCSD shall properly operate and maintain the facilities described above in accordance with 401 KAR 5:065.

16. Commencing immediately and at all times, BCSD shall report all spills, bypasses, and\or non-compliance, as required by 401 KAR 5:065 Section 2(1), for the facilities described above.

17. Commencing immediately and at all times, BCSD shall report spills and discharges to the DOW, as required by 401 KAR 5:015 Section 2, for the facilities described above.

18. Commencing immediately and at all times, BCSD shall not aesthetically or otherwise degrade the waters of the Commonwealth.

19. Commencing immediately and at all times, BCSD shall properly submit DMRs for its facilities described above, in accordance with each facility's KPDES permit.

20. Within one hundred and eighty (180) days of the publication of the regional wastewater treatment system feasibility study being completed pursuant to authority granted by KRS 65.8901 et. seq., BCSD shall submit to the Cabinet, facility specific Corrective Action Plans (CAPs) for review and acceptance. The CAPs shall address how BCSD will return to and maintain compliance with each of the KPDES permits listed in paragraphs 4, 6, and 8 above. Each CAP must contain facility specific corrective actions with dates for completion. The CAPs shall address the permit effluent violations at each facility, and contain final compliance dates by which BCSD will be back in full compliance with each of its KPDES permits at the facilities described above.

a. Upon review of each of the CAPs, the Cabinet shall, in whole or in part, (1)

approve, (2) disapprove, or (3) provide comments to BCSD identifying any deficiencies. Within thirty (30) days of receipt of Cabinet's comments, BCSD shall revise and resubmit the CAP(s) to the Cabinet for review and acceptance. Upon resubmittal by BCSD, the Cabinet may, in whole or in part, (1) approve, (2) disapprove or (3) provide comments to BCSD identifying any deficiencies. Upon such resubmittal, if any part of the CAP(s) is disapproved, the Cabinet may deem BCSD to be out of compliance with this Agreed Order for failure to timely submit the CAP(s). If BCSD has received no response from the Cabinet within thirty (30) days of the Division's receipt of the CAP(s) or amended CAP(s), such plan shall be deemed accepted and shall become effective upon the expiration of that thirty (30) day period. BCSD may request an extension of time within which to submit the CAP(s) pursuant to paragraph 20 of this Agreed Order and the time frame within which to submit an amended CAP pursuant to this paragraph. Approval of any request for an extension of time shall be at the sole discretion of the Director of the Division of Enforcement.

b. If BCSD requests an amendment to any of the CAPs, it shall notify the Cabinet in writing that an amendment request is forthcoming and shall outline the reasons why the amendment is necessary. Approval of any request for an amendment of a CAP shall be at the sole discretion of the Director of the Division of Enforcement.

   i. If the Cabinet denies the request for an amendment to the CAP, the existing CAP shall remain in full effect.

   ii. If the Cabinet approves the request for an amendment to the CAP, BCSD shall then submit a draft amended CAP to the Cabinet for review and

acceptance, within thirty (30) days of receipt of the Cabinets' approval. Upon review, the Cabinet may, in whole or in part, (1) approve or (2) disapprove, or (3) provide comments to BCSD identifying the deficiencies. Within thirty (30) days of receipt of Cabinet's comments, BCSD shall revise and resubmit the amended CAP to the Cabinet for review and acceptance. Upon resubmittal by BCSD, the Cabinet may, in whole or in part, (1) approve, (2) disapprove or (3) provide comments to BCSD identifying any deficiencies. Upon such resubmittal, if any part of the amended CAP is disapproved, the Cabinet may deem BCSD to be out of compliance with this Agreed Order for failure to timely submit an amended CAP.

c. The CAP submittal required by the terms of this Agreed Order shall be submitted to: Division of Enforcement, Attention: Director, 300 Fair Oaks Lane, Frankfort, Kentucky, 40601.

21. Within one (1) year of the publication of the regional wastewater treatment system feasibility study being completed pursuant to authority granted by KRS 65.8901 et. seq., BCSD shall submit to the Cabinet an interim feasibility study for review and acceptance. The interim feasibility study shall research the most cost effective, viable, and environmentally protective solution to treating BCSD's current wastewater, during the interim period between now and the implementation of any solution recommended by the regional study. The interim feasibility study shall be certified by an independent third party engineer.

22. BCSD shall complete all the corrective actions described in the CAPs and be in compliance with its KPDES Permits for the facilities described above, by the dates specified in

the CAPs accepted by the Cabinet pursuant to paragraph 20.

CIVIL PENALTY

23. BCSD shall be assessed a civil penalty in the amount of one hundred thousand dollars ($100,000) for the violations described in paragraphs 9-11 above. Payment of the civil penalty shall be offset by the completion of the Supplemental Environmental Project (hereinafter "SEP") described in paragraph 14.

24. In the event that BCSD fails to complete the SEP as described in paragraph 14 above, BCSD shall pay in full the civil penalty assessed in paragraph 23 within fifteen (15) days of written notice from the Cabinet. Payment shall be made as described in paragraph 25.

25. Payment of the civil penalty shall be by cashier's check, certified check, money order, or company check, made payable to "Kentucky State Treasurer" and sent to the attention of the Director, Division of Enforcement, Department for Environmental Protection, 300 Fair Oaks Lane, Frankfort, Kentucky 40601; note "DOW 140177A" on the instrument of payment.

STIPULATED PENALTIES

26. BCSD shall pay stipulated penalties assessed by the Cabinet for failure to comply with this Agreed Order as follows:

a. For each failure to comply with the remedial measures listed in paragraphs 15-19, the Cabinet may assess a stipulated penalty in an amount not to exceed two thousand dollars ($2,000);

b. For failing to comply with the remedial measures listed in paragraphs 20 and 21, the Cabinet may assess a stipulated penalty in an amount not to exceed five hundred dollars ($500) per day, for each day that either submittal is past due;

c. For failing to submit an acceptable interim feasibility study in accordance with

paragraph 21, the Cabinet may assess a stipulated penalty not to exceed twenty-five thousand dollars ($25,000); and

d. For a period of one year following with final compliance date(s) contained in the CAPs accepted by the Cabinet pursuant to paragraph 20, the Cabinet may assess a stipulated penalty not to exceed five hundred dollars ($500), for each numeric permit violation.

27. Stipulated penalties are in addition to and not in lieu of, any other penalty which could be assessed by the Cabinet. The Cabinet may, in its discretion, waive stipulated penalties that would otherwise be due.

28. If the Cabinet determines that a stipulated penalty is due in accordance with paragraph 26 above, it will send BCSD a written notice, including the amount of the stipulated penalty. BCSD shall pay the stipulated penalty within thirty (30) days of receipt of the notice. If BCSD believes that a request for payment of stipulated penalties is erroneous or contrary to law, it may request a hearing in accordance with KRS 224.10-420(2). This request for a hearing does not excuse timely payment of the stipulated penalty. If an order is entered pursuant to KRS 224.10-440 that excuses payment, the Cabinet will refund the payment to BCSD. Failure to pay the stipulated penalty may be deemed an additional violation of this Agreed Order. The stipulated penalty specified in paragraph 26 shall be waived upon BCSD's full completion of the obligations referenced in this Agreed Order.

29. Payment of stipulated penalties shall be by cashier's check, certified check, money order, or company check, made payable to "Kentucky State Treasurer" and sent to the attention of the Director, Division of Enforcement, Department for Environmental Protection, 300 Fair Oaks Lane, Frankfort, Kentucky 40601; note "DOW 140177A" on the instrument of

payment.

MISCELLANEOUS PROVISIONS

30. This Agreed Order addresses only the violations specifically alleged above. Other than those matters resolved by entry of this Agreed Order, nothing contained herein shall be construed to waive or to limit any remedy or cause of action by the Cabinet based on statutes or regulations under its jurisdiction and BCSD reserves its defenses thereto. The Cabinet expressly reserves its right at any time to issue administrative orders and to take any other action it deems necessary that is not inconsistent with this Agreed Order, including the right to order all necessary remedial measures, assess penalties for violations, or recover all response costs incurred, and BCSD reserves its defenses thereto.

31. This Agreed Order shall not prevent the Cabinet from issuing, reissuing, renewing, modifying, revoking, suspending, denying, terminating, or reopening any permit to BCSD. BCSD reserves its defenses thereto, except that BCSD shall not use this Agreed Order as a defense.

32. BCSD waives its right to any hearing on the matters admitted herein. However, failure by BCSD to comply strictly with any or all of the terms of this Agreed Order shall be grounds for the Cabinet to seek enforcement of this Agreed Order in Franklin Circuit Court and to pursue any other appropriate administrative or judicial action under KRS Chapter 224 and the regulations promulgated pursuant thereto.

33. The Agreed Order may not be amended except by a written order of the Cabinet's Secretary or his designee. BCSD may request an amendment by writing the Director of the Division of Enforcement at 300 Fair Oaks Lane, Frankfort, Kentucky 40601, and stating the reasons for the request. If granted, the amended Agreed Order shall not affect any provision of

this Agreed Order unless expressly provided in the amended Agreed Order.

34. The Cabinet does not, by its consent to the entry of this Agreed Order, warrant or aver in any manner that BCSD's complete compliance with this Agreed Order will result in compliance with the provisions of KRS Chapter 224 and the regulations promulgated pursuant thereto. Notwithstanding the Cabinet's review and approval of any plans formulated pursuant to this Agreed Order, BCSD shall remain solely responsible for compliance with the terms of KRS Chapter 224 and the regulations promulgated thereto, this Agreed Order, and any permit and compliance schedule requirements.

35. BCSD shall give notice of this Agreed Order to any purchaser, lessee or successor in interest prior to the transfer of ownership and/or operation of any part of the facility occurring prior to termination of this Agreed Order, shall notify the Cabinet that such notice has been given, and shall follow all statutory requirements for a transfer. Whether or not a transfer takes place, BCSD shall remain fully responsible for payment of all civil penalties and for performance of all remedial measures identified in this Agreed Order.

36. The Cabinet agrees to allow payment of civil penalties and completion of remedial measures to satisfy BCSD's obligations to the Cabinet generated by the violations alleged above.

37. This Agreed Order applies specifically and exclusively to the unique facilities referenced herein and is inapplicable to any other facility.

38. Compliance with this Agreed Order is not conditional on the receipt of any federal, state, or local funds.

39. This Agreed Order shall be of no force and effect unless and until it is entered by the Secretary or his designee as evidenced by his signature thereon. If this Agreed Order

contains any date by which BCSD is to take any action or cease any activity, and the Secretary enters the Agreed Order after that date, then BCSD is nonetheless obligated to have taken the action or ceased the activity by the date contained in this Agreed Order.

TERMINATION

40. This Agreed Order shall terminate upon BCSD's completion of all requirements described in this Agreed Order. BCSD may submit written notice to the Cabinet when it believes all requirements have been performed. The Cabinet shall notify BCSD in writing whether it concurs that all requirements of this Agreed Order have been completed. The Cabinet reserves its right to enforce this Agreed Order, and BCSD reserves its right to file a petition for hearing pursuant to KRS 224.10-420(2) contesting the Cabinet's determination.

CASE NO. DOW 140177A

AGREED TO BY:

Jerry Kennedy

Mr. Jerry Kennedy, District Manager
Bullitt County Sanitation District

1-22-15

Date

CASE NO. DOW 140177A

APPROVAL RECOMMENDED BY:

Jeffrey A. Cummins, Director
Division of Enforcement

1/30/2015
Date

C. Michael Haines, General Counsel
Energy and Environment Cabinet

2.9.15
Date

CASE NO. DOW 140177A

ORDER

Wherefore, the foregoing Agreed Order is entered as the final Order of the Energy and Environment Cabinet this 13th day of February, 2015.

ENERGY AND ENVIRONMENT CABINET

LEONARD K. PETERS, SECRETARY

CASE NO. DOW 140177A

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing **AGREED ORDER** was mailed, postage prepaid, to the following this 13th day of February, 2015.

Bullitt County Sanitation District
Attn: Jerry Kennedy
PO Box 818
Hillview, KY 40129

And mailed, messenger to:

Jeffrey A Cummins, Director
Division of Enforcement
300 Fair Oaks Lane
Frankfort, Kentucky 40601

C. Michael Haines, Executive Director
Office of General Counsel
Energy and Environment Cabinet
500 Metro Street
Frankfort, Kentucky 40601

Kathy McDonald
DOCKET COORDINATOR

BGD
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