Reid Engineering Company, Inc.

Environmental and Civil Engineering Consultants
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August 21, 2015

Ms. Molly Mackil, P.E.
Environmental Engineer IV
Surface Water Discharge Section
Division of Water
Dept. of Natural Resources and Environmental Control
89 Kings Highway
Dover, DE 19901

(P) 302-739-9946

SUBJECT: ALLEN HARIM - HARBESON DE - WWTS UPGRADE AND EXPANSION PERMIT REVIEW

Ms. Mackil:

Reid Engineering Company (REC) has prepared the attached plans and specifications titled Allen Harim Foods, LLC. - Harbeson DE - Wastewater Treatment System Upgrade and Expansion - Phase One. Attached for your review please find one (1) set of full size drawings, one (1) hard copy of the Specifications, one (1) hard copy of the Final Design Summary, and one (1) permit application. The Allen Harim wastewater treatment system upgrade will be performed in two phases. The first phase will address the immediate need to increase the hydraulic and treatment capacity of the existing wastewater treatment system. The second phase will address BNR upgrade required to comply with the anticipated NPDES permit discharge limits. The narrative provided within the permit application lists which components will be included in each phase of the upgrade. Please note that the submitted plans, specifications, Final Design Summary and permit application are only for Phase one of the upgrade.

Upon your review should you have any questions or comments please do not hesitate to contact me at 540-371-8500.

Respectfully,

Adam E. Zimmerman, P.E.
Project Manager

CC:
Jim Quinton-Allen Harim
File

ALLEN HARIM, LLC. – HARBESON, DE
NARRATIVE SUMMARY OF THE PROPOSED FACILITIES

Allen Harim is expanding their chicken processing plant in Harbeson, Delaware from the existing production capacity of 175,000 birds/day and 875,000 birds/week over 5 processing days/week up to 393,000 birds/day and 1,965,000 birds/week over 5 processing days/week. The design capacity of the existing on-site wastewater treatment system is approximately 1,250,000 gallons/day of wastewater which is highly treated prior to disposal by direct discharge. The expanded processing plant is expected to generate a maximum volume of 2,000,000 gallon/day of wastewater, 5 days/week. Consequently, the existing wastewater treatment system must be expanded to increase the treatment capacity provided by the wastewater treatment system in order to accommodate this processing plant expansion.

In order to expand the processing plant and discharge the increased volume of treated wastewater, the Allen Harim NPDES permit must be modified for the higher maximum daily design flow capacity of 2,000,000 gpd. At this higher wastewater discharge volume, the NPDES permit limits for BOD, TSS, fecal coliform and especially Total Nitrogen and Total Phosphorus will be reduced vs. the existing permit limits. Consequently, the existing wastewater treatment process must be upgraded to increase the pollutant removal efficiency attained by the wastewater treatment system in order to comply with the new more restrictive discharge permit limits.

The Allen Harim wastewater treatment system upgrade will be performed in two phases. The first phase will address the immediate need to increase the hydraulic and treatment capacity of the existing wastewater treatment system. The second phase will address BNR upgrade required to comply with the anticipated NPDES permit discharge limits. Phase one will consist of items #1 through #9 as described below. Phase two will consist of items #10 through #16.

The wastewater treatment system upgrade and expansion project will include the installation of the following wastewater treatment system improvements:

1. Two new Raw Wastewater Pumps for the existing Raw Wastewater Pump Station to pump wastewater to the new FEB tank.

2. One new Flow Equalization Basin (FEB) for operation upstream of the existing DAF Cell wastewater pretreatment system.

3. Two new Recycle Pressurization Pumps for the existing DAF Cell.

4. Three new larger HP motors for the existing DAF Cell Effluent pumps.

5. Two new Effluent Pumps for the two existing FEB Anoxic Reactor basins #1A and #1B.

6. One new jet aeration header, jet recirculation pump and air supply blower for existing Nitrification Reactor #2A.

7. New Final Clarifier #2.

8. Modify Existing RAS/WAS Pump Station for new Final Clarifier #2 and Existing Final Clarifier #1.

9. New UV final effluent disinfection system including new concrete tank, two new UV light banks and UV controls.

10. One new Nitrification Reactor #2B tank with diffused aeration equipment and air supply blowers.

11. One new Anoxic Reactor #3 tank with jet recirculation pump and jet header mixing system.

12. One new Aerobic Reactor #4 tank with diffused aeration equipment and air supply blowers, and with mixed liquor flow division unit for Final Clarifiers.

13. Retrofit existing CMAS #2 tank into one new Waste Sludge Storage Tank #3.

14. New traveling bridge Tertiary Sand Filters for post treatment of Final Clarifier effluent.

15. One new Screw Press for mechanical dewatering of excess thickened biosolids pumped from the two Sludge Storage Tanks.

16. One new Wastewater Equipment Building for enclosure of new blowers, pumps, Tertiary Filter, chemical equipment and operator office, bathroom and lab.

Project scope items #1, #2 and #3 are required in order to significantly improve the pollutant removal efficiency and reliability of the existing DAF Cell wastewater pretreatment system operated upstream of the biological activated sludge final treatment system.

Project scope items #4, #5, #6, #7, and #8 are required in order to increase the treatment capacity and improve the nitrogen removal treatment efficiency of the existing activated sludge treatment reactors.

Project scope items #7, #8, #10, #11, #12 and #14 are required in order to upgrade the existing two stage biological nitrogen removal (BNR) system into a four stage BNR system which will provide capability to reduce final effluent total nitrogen concentration to comply with new permit TN limits.

Project scope item #9 is required to expand final effluent disinfection capacity, efficiency, redundancy and reliability to comply with new permit enterococcus limits.

Project scope item #13 and #15 are required to expand biosolids dewatering capacity.

APPLICATION FOR THE CONSTRUCTION OF WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

Application must be complete, typewritten or clearly printed

Date Application Submitted 8/21/15

PROJECT INFORMATION

Project Name and Location
Wastewater Upgrade & Expansion
Allen Harim Foods, LLC
Harbeson, Delaware

Tax Parcel Number(s)

County	Watershed (www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx)
☐ Kent ☐ New Castle ☒Sussex	☐ Chesapeake Bay ☐ DE Bay/Estuary ☒Inland Bays/Atl Ocean ☐ Piedmont
Sewer District or Interceptor NA	Wastewater Treatment/Disposal Facility Name Allen Harim Foods, LLC - Harbeson, DE Wastewater Treatment System
Anticipated Construction Start Date February 2016	Treatment/Disposal Facility Owner and Operating Permit Number Allen Harim Foods, LLC - Harbeson, DE Wastewater Treatment System DE0000299

Please note, construction permits expire three (3) years from the date of permit issuance.

Are you requesting plan review and comment or WPCC Construction Permit issuance? (circle one)

Design Flow (gallons/day) Average	Peak	Peak Factor	Basis of Design
1,600,000	2,000,000	1.25	2,000,000

Description
The existing wastewater treatment system must be expanded to increase the treatment capacity provided by the wastewater treatment system in order to accommodate a proposed processing plant expansion. The existing wastewater treatment process must be upgraded to increase the pollutant removal efficiency attained by the wastewater treatment system in order to comply with the new more restrictive discharge permit limits.

OWNER/DEVELOPER

Company Name
Allen Harim Foods, LLC.

Mailing Address
126 North Shipley Street

City	State	Zip
Seaford	DE	19973

Contact Name
Jim Quinton – Senior Manager of Environmental and Transportation

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ENGINEER		
Company Name Reid Engineering Company, Inc.		
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City Fredericksburg	State VA	Zip 22401
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GRAVITY SEWER INFORMATION					
Ownership ☐ Public ☒Private	Type of Sewer System and Process Piping ☐ Residential ☐ Commercial ☒Industrial ☐ Other?			If Other, list below	
Type of Pipe Ductile Iron	Length (ft) Various	Diameter (in) 4" to 20"	Joint Specification Push on mechanical	Min. Slope (ft/ft) NA	Min. Velocity (ft/sec) NA
C900PVC	Various	4" to 12"	Push on mechanical	NA	NA

Minimum Pipe Cover (ft)	Number of Manholes	Drop manholes provided?	Maximum Distance Between Manholes (ft)
2.0 ft.	Precast Concrete	☐ Yes ☒No	NA

Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained?	If not, explain provisions to prevent cross-contamination:
☒Yes ☐ No	

Explain any special challenges (for example, stream, highway and/or railroad crossings, directional drilling, elevated sewers, etc.)
NA

Comments
No new gravity sewer lines are included in this project. The project includes new force mains and gravity flow lines; connecting wastewater treatment process reactor tanks; process pump stations; pump suction and discharge lines; and reactor tank drain lines.