NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

April 13, 2011

Mr. Jamie Revels, P.E., Utilities Director
Town of Cary Public Works & Utilities Department
P.O. Box 8005
Cary, North Carolina 27513-8005

SUBJECT: Authorization to Construct
A to C No. 088846A01
Town of Cary and Town of Apex
Western Wake Water Reclamation Facility
Contract 1 – Treatment Works
Wake County
SRF Project No. CS370616-05

Dear Mr. Revels:

A letter of request for an Authorization to Construct was received August 26, 2010, by the Division of Water Quality (Division), and final plans and specifications for the subject project have been reviewed and found to be satisfactory. Authorization is hereby granted for the construction of the new 18 MGD Western Wake Water Reclamation Facility, Contract 1, Treatment Works. Please note that this authorization is only for construction of the subject facilities. Additional authorizations and/or permits for the construction of solids handling, effluent pumping and pipelines must be obtained prior to operating the subject facilities.

This authorization is awarded for the following construction:

The liquid-treatment train of the Western Wake Water Reclamation Facility, consisting of the following components: dual 40 MGD mechanical bar screens; a manual bypass bar screen; an influent Parshall flume flowmeter; an influent composite sampler; a vortex grit removal system rated at 50 MGD peak flow with grit classifier with grit washer and grit removal system, including three (3) 300 gpm grit transfer pumps and a 10,000 cfm capacity odor control system; a 4-way flow splitter with a splitter box scum pump station with one 350 gpm scum pump; four (4) parallel biological reactor trains, each consisting of 0.226 MG anaerobic cell #1 with 15 Hp submersible mixer, 0.226 MG anaerobic cell #2 with 15 Hp submersible mixer, 0.402 MG anoxic cell #3 with two 15 Hp submersible mixers, 0.402 MG anoxic cell #4 with two 15 Hp submersible mixers, 0.628 MG aerobic cell #5 with dual 4,211 gpm jet aeration pumps and jet aeration piping, 0.628 MG aerobic cell #6 with a 4,027 gpm jet aeration pump and jet aeration piping, 0.628 MG aerobic cell #7 with a 5,126 gpm jet aeration pump and jet aeration piping,

1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6492 \ Customer Service: 1-877-623-6748
Internet: www.ncwaterquality.org
An Equal Opportunity \ Affirmative Action Employer

0.628 MG post-anoxic/swing cell #8 with a 5,126 gpm jet aeration pump and jet aeration piping, 0.109 MG re-aeration cell #9 with a 1,100 gpm jet aeration pump and jet aeration piping, with coarse air diffusers in reactor effluent channel; four (4) 6,250 gpm anoxic recycle (ARCY) pumps; four (4) 9,375 gpm nitrified recycle (NRCY) pumps; four (4) 6,835 scfm air blowers; biological reactor basin drain pump station, consisting of one 2,678 gpm pump; coarse air diffusers in clarifier influent channel; four (4) folded rectangular clarifiers, each containing 60-foot by 140-foot basins with 14.3-foot sidewater depth and chain-driven sludge scraper flights; four (4) folded rectangular clarifiers, each containing 45-foot by 85-foot basins with 14.3-foot sidewater depth and chain-driven sludge scraper flights; six (6) 2,536 gpm pumps RAS pump; six (6) 1,156 gpm pumps RAS pumps; three (3) 750 gpm WAS pumps and four (4) 350 gpm scum pumps; eight (8) cloth disk filter units rated for 18 MGD flow; a UV disinfection system rated for 47.3 MGD peak flow consisting of three (3) channels, with two banks per channel; effluent Parshall flume flowmeter; dual 0.108 MG post-aeration basins with four (4) 3,400 gpm self-aspirating jet aeration pumps; effluent composite sampler; dual 4,500 gallon supplemental carbon storage and feed system; dual 20,000 gallon ferric sulfate storage tanks and chemical feed system; dual 6,100 gallon sodium hypochlorite storage tanks and chemical feed system; plant drain pump station #1, consisting of dual 250 gpm pumps; plant drain pump station #2, consisting of dual 915 gpm pumps; effluent (non-potable) plant pump station including three (3) 750 gpm vertical turbine pumps and a hydropneumatic pressure control system; a reclaimed water truck loading station; three (3) 2.25 MW emergency generators; and yard piping and appurtenances, electrical controls, instrumentation, and site work; in conformity with the project plans, specifications, and other supporting data subsequently filed and approved by the Department of Environment and Natural Resources.

This Authorization to Construct is issued in accordance with Part III, Paragraph A of NPDES Permit No. NC0088846 issued January 7, 2011, and shall be subject to revocation unless the wastewater treatment facilities are constructed in accordance with the conditions and limitations specified in Permit No. NC0088846.

The treatment facilities shall be constructed and, after receipt of other required permits, certifications and authorizations, be operated in accordance with the conditions and requirements of all approved state and/or federal environmental documents and permits including, but not limited to, provisions for vegetative buffer, noise levels, and lighting.

The sludge generated from these treatment facilities must be disposed of in accordance with G.S. 143-215.1 and in a manner approved by the Division.

In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by the Division, such as the construction of additional or replacement wastewater treatment or disposal facilities.

The Raleigh Regional Office, telephone number (919) 791-4200, shall be notified at least forty-eight (48) hours in advance of operation of the installed facilities so that an on site inspection can be made. Such notification to the regional supervisor shall be made during the normal office hours from 8:00 a.m. until 5:00 p.m. on Monday through Friday, excluding State Holidays.

Upon completion of construction and prior to operation of this permitted facility, a certification must be received from a professional engineer certifying that the permitted facility has been installed in accordance with the NPDES Permit, this Authorization to Construct and the approved plans and specifications. Mail the Certification to: Construction Grants & Loans, DWQ/DENR, 1633 Mail Service Center, Raleigh, NC 27699-1633.

Upon classification of the facility by the Certification Commission, the Permittee shall employ a certified wastewater treatment plant operator to be in responsible charge (ORC) of the wastewater treatment facilities. The operator must hold a certificate of the type and grade at least equivalent to or greater than the classification assigned to the wastewater treatment facilities by the Certification Commission.

The Permittee must also employ a certified back-up operator of the appropriate type and grade to comply with the conditions of T15A:8G.0202. The ORC of the facility must visit each Class I facility at least weekly and each Class II, III and IV facility at least daily, excluding weekends and holidays, must properly manage the facility, must document daily operation and maintenance of the facility, and must comply with all other conditions of T15A:8G.0202.

A copy of the approved plans and specifications shall be maintained on file by the Permittee for the life of the facility.

During the construction of the proposed additions/modifications, the permittee shall continue to properly maintain and operate the existing wastewater treatment facilities at all times, and in such a manner, as necessary to comply with the effluent limits specified in the NPDES Permit.

You are reminded that it is mandatory for the project to be constructed in accordance with the North Carolina Sedimentation Pollution Control Act, and when applicable, the North Carolina Dam Safety Act. In addition, the specifications must clearly state what the contractor's responsibilities shall be in complying with these Acts.

Prior to entering into any contract(s) for construction, the recipient must have obtained all applicable permits from the State.

Failure to abide by the requirements contained in this Authorization to Construct may subject the Permittee to an enforcement action by the Division in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.

The issuance of this Authorization to Construct does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction.

One (1) set of approved plans and specifications is being forwarded to you. If you have any questions or need additional information, please contact Seth Robertson, P.E. at telephone number (919) 715-6206.

Sincerely,

Daniel M. Blackwell for

Coleen H. Sullins

kp:sr

cc: Robert Vinay, P.E., ARCADIS, 801 Corporate Center Drive, Suite 300, Raleigh, NC 27607-5073
Tim Donnelly, Utilities Director, Town of Apex, PO Box 250, Apex, 27502-0250
Wake County Health Department
DWQ Raleigh Regional Office, Surface Water Protection
DWQ, Technical Assistance and Certification Unit
DWQ, Point Source Branch, NPDES Program
Ken Pohlig, P.E.
SRF File

Town of Cary
Western Wake Water Reclamation Facility
Contract 1 – Treatment Works
A To C No. 088846A01
Project No. CS370616-05
Issued April 13, 2011

Engineer's Certification

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically/weekly/full time) the construction of the modifications and improvements to the Western Wake Water Reclamation Facility, located in New Hill, NC in Wake County for the Towns of Cary and Apex, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the following construction:

The liquid-treatment train of the Western Wake Water Reclamation Facility, consisting of the following components: dual 40 MGD mechanical bar screens; a manual bypass bar screen; an influent Parshall flume flowmeter; an influent composite sampler; a vortex grit removal system rated at 50 MGD peak flow with grit classifier with grit washer and grit removal system, including three (3) 300 gpm grit transfer pumps and a 10,000 cfm capacity odor control system; a 4-way flow splitter with a splitter box scum pump station with one 350 gpm scum pump; four (4) parallel biological reactor trains, each consisting of 0.226 MG anaerobic cell #1 with 15 Hp submersible mixer, 0.226 MG anaerobic cell #2 with 15 Hp submersible mixer, 0.402 MG anoxic cell #3 with two 15 Hp submersible mixers, 0.402 MG anoxic cell #4 with two 15 Hp submersible mixers, 0.628 MG aerobic cell #5 with dual 4,211 gpm jet aeration pumps and jet aeration piping, 0.628 MG aerobic cell #6 with a 4,027 gpm jet aeration pump and jet aeration piping, 0.628 MG aerobic cell #7 with a 5,126 gpm jet aeration pump and jet aeration piping, 0.628 MG post-anoxic/swing cell #8 with a 5,126 gpm jet aeration pump and jet aeration piping, 0.109 MG re-aeration cell #9 with a 1,100 gpm jet aeration pump and jet aeration piping, with coarse air diffusers in reactor effluent channel; four (4) 6,250 gpm anoxic recycle (ARCY) pumps; four (4) 9,375 gpm nitrified recycle (NRCY) pumps; four (4) 6,835 scfm air blowers; biological reactor basin drain pump station, consisting of one 2,678 gpm pump; coarse air diffusers in clarifier influent channel; four (4) folded rectangular clarifiers, each containing 60-foot by 140-foot basins with 14.3-foot sidewater depth and chain-driven sludge scraper flights; four (4) folded rectangular clarifiers, each containing 45-foot by 85-foot basins with 14.3-foot sidewater depth and chain-driven sludge scraper flights; six (6) 2,536 gpm pumps RAS pump; six (6) 1,156 gpm pumps RAS pumps; three (3) 750 gpm WAS pumps and four (4) 350 gpm scum pumps; eight (8) cloth disk filter units rated for 18 MGD flow; a UV disinfection system rated for 47.3 MGD peak flow consisting of three (3) channels, with two banks per channel; effluent Parshall flume flowmeter; dual 0.108 MG post-aeration basins with four (4) 3,400 gpm self-aspirating jet aeration pumps; effluent composite sampler; dual 4,500 gallon supplemental carbon storage and feed system; dual 20,000 gallon ferric sulfate storage tanks and chemical feed system; dual 6,100 gallon sodium hypochlorite storage tanks and chemical feed system; plant drain pump station #1, consisting of dual 250 gpm pumps; plant drain pump station #2, consisting of dual 915 gpm pumps; effluent (non-potable) plant pump station including three (3) 750 gpm vertical turbine pumps and a hydropneumatic pressure control system; a reclaimed water truck loading station; three (3) 2.25 MW emergency generators; and yard piping and appurtenances, electrical controls, instrumentation, and site work; in conformity with the project

Town of Cary
Western Wake Water Reclamation Facility
Contract 1 – Treatment Works
A To C No. 088846A01
Project No. CS370616-05
Issued April 15, 2011

plans, specifications, and other supporting data subsequently filed and approved by the Department of Environment and Natural Resources.

I certify that the construction of the above referenced project was observed to be built within substantial compliance and intent of the approved plans and specifications.

I understand that this Authorization is for construction only.

Signature _____ Registration No._____

Date_____

Send to: Construction Grants & Loans
DENR/DWQ
1633 Mail Service Center
Raleigh, NC 27699-1633

SEAL