



Date: February 8, 2011

To: Thomas J. Bonfield, City Manager

Through: Theodore L. Voorhees, Deputy City Manager
Donald F. Greeley, Director, Water Management

From: Bryant J. Green, Civil Engineer III

Subject: Southern Reinforcing Main Phase II Design Contract– Kimley-Horn and Associates, Inc. – Amendment #1

Executive Summary:

On October 4th, 2010, City Council awarded a contract to Kimley-Horn and Associates, Inc., to provide design, survey, construction administration and construction observations services for the Southern Reinforcing Main Phase II (SRM II) water transmission main project. The contract also includes the evaluation of the condition of high priority sanitary sewer lines crossing over Goose and Ellerbe Creeks near the North Durham Water Reclamation Facility (NDWRF). The evaluation of these aerial crossings has been completed. Both crossings are in poor condition and must be either replaced or re-routed as soon as possible. The Department is recommending an amendment with Kimley-Horn to cover the structural design, permitting and construction administration of the rehabilitation and/or elimination of these crossings.

Recommendations:

The Department recommends the City Council:

1. Authorize the City Manager to execute Contract Amendment #1 with Kimley-Horn and Associates, Inc, for the Southern Reinforcing Main Phase II Design Contract in the amount of \$244,411, for a total contract cost not to exceed \$1,279,407.
2. Authorize the City Manager to negotiate change orders for the contract provided that the cost of all change orders does not exceed \$103,000 and the total project cost does not exceed \$1,382,407.

Background:

The City of Durham Department of Water Management owns and operates two parallel 30” sewer outfalls that parallel Club Boulevard and cross Ellerbe Creek near NDWRF with an aerial crossing. The parallel sewer outfalls carry much of the sewage that is treated at NDWRF. Recent inspections by City staff indicate the sewer crossings are in need of rehabilitation, the evaluation for which was included in the Southern Reinforcing Main Phase II contract. During a site visit by Kimley-Horn during a period of low flow in Ellerbe Creek, it became apparent that the condition of the aerial crossing foundation is significantly worse than originally observed, and that

a full replacement of the aerial crossing would be necessary. A temporary repair measure recommended by Kimley-Horn was constructed by City maintenance staff to prevent further immediate degradation of the stream crossing, and to allow time to develop a fully engineered solution.

While investigating the Ellerbe Creek dual crossing, it became apparent that a line that connects to the downstream side of the Ellerbe parallel lines, referred to as the Goose Creek Interceptor, was also in disrepair. The condition of the Goose Creek Interceptor was significantly worse than Ellerbe Creek crossing, so much so that it was unclear if the Goose Creek interceptor would survive the next major rainfall event. Kimley-Horn was directed by the Department to immediately design a replacement for the Goose Creek interceptor. The design, including all required survey and subsurface utility exploration, has been completed.

The issues identified at the parallel Ellerbe Creek crossings were initially discovered as part of the Department's High Priority Line (HPL) inspection program. The HPL inspection program involves the inspection of sewer lines that are in close proximity to water courses and, if the HPL were to fail, would result in adverse impacts to the environment and/or punitive fines from state regulators. The inspection program also involves the inspection of these lines twice a year. Inspections typically occur in the spring and fall, and are intended to visually verify the integrity and condition of the affected HPLs. The first round of inspections for calendar year 2011 are scheduled to begin soon. The identification of HPLs and their inspection twice a year are required as part of the City's sewer collection system permit.

Issues and Analysis:

The Ellerbe Creek parallel 30" lines and the Goose Creek Interceptor combined represent a majority of the flow in to the NDWRF. Should either of the aerial crossings for each of these sewer lines fail, millions of gallons of sewage will immediately discharge in to Ellerbe and Goose Creek., both of which drain to Falls Lake. Due to the danger of imminent failure, the sewer lines need to be replaced or re-routed as soon as possible. The most expeditious means of completing the engineering design is to amend the current Kimley-Horn contract as proposed.

The Department has already directed Kimley-Horn to design the replacement of the Goose Creek interceptor. The contingency funds for this contract were used for this design. The design of the Southern Reinforcing Main Phase II water transmission main is still in the preliminary engineering phase. The Department is recommending re-establishment of the contingency funding used for the Goose Creek interceptor design.

The total amount of the proposed Amendment will cover the costs of the Ellerbe Creek design as well as re-establish the Southern Reinforcing Main Phase II project contingency amount.

Alternatives:

There are two alternatives:

Alternative 1: Do not enter in to a contract with Kimley-Horn and Associates, Inc. and attempt to design the aerial crossings with City staff. City personnel do not currently have the availability or resources to design the construction of such a large scale project within the timeframe required. Because the contingency money has been depleted, any additional engineering work needed for the SRM II design project will necessitate a future amendment.

Alternative 2: Do not enter in to a contract with Kimley-Horn and Associates, Inc. and delay the design of the crossing until a full RFP can be prepared, evaluated and prepared or cancel the aerial crossing design projects. Under this alternative, the Ellerbe Creek parallel 30” aerial crossings will remain in service with the temporary repair. It is important to note that the repair to the Ellerbe Creek aerial crossing is only a temporary repair and its ability to withstand a large storm or hurricane event has not been evaluated. A delay or cancellation could result in the failure of the Ellerbe Creek dual 30” aerial crossing. Because the contingency money has been depleted, any additional engineering work needed for the SRM II design project will necessitate a future amendment.

Financial Impacts:

Funds for the Southern Reinforcing Main Phase II Design Contract are budgeted in the Southern Reinforcing Main Phase Account in the Capital Improvement Program. There are currently funds available for this contract in account 4100P762-731000-P071A.

SDBE Summary:

This is a contract amendment and is not reviewed by the Department of Equal Opportunity/Equity Assurance for compliance with the Ordinance to Promote Equal Opportunities in City Contracting.

Kimley-Horn and Associates, Inc. will be using the following SDDBE firm for the additional scope of services:

Firm	ID	City/State	Amount	% of Contract
Cooper and Associates Surveyors, PA	WSDBE	Morrisville, NC	\$12,115	5%