

ORANGE COUNTY
BOARD OF EDUCATION

AGENDA ITEM ABSTRACT

Meeting Date: May 16, 2011

AGENDA ITEM No. 11-05-(2)-11

ACTION ITEM: (Y/N) N

SUBJECT: C.W. Stanford (CWS) Middle School Stormwater Project Update

INFO. CONTACT: Stephanie Grant, Project Manager / Anne Purcell, Principal PHONE: 919-732-6121

ATTACHMENTS: 1. Stormwater Project at C.W. Stanford Middle School.

PURPOSE: To update Board of Education members about the project and expected dollar funds for the upcoming year.

BACKGROUND: Orange County Schools/C.W. Stanford was awarded a grant in 2010 from the Clean Water Management Trust Fund of North Carolina for \$355,430.00. This is an innovative Stormwater Treatment and Stormwater Reuse project that will benefit C.W. Stanford, Orange High and ultimately the Eno River watershed. Through this project, runoff water will be cleaned, stored and reused to water the athletic fields at both schools. Students at both schools are learning interconnectedness of natural systems, the major ecological cycles and environmental stewardship. The attached project description discusses some of the educational value and potential return on the investment.

FINANCIAL IMPACT: The financial impact is a \$46,300 appropriation from the district's capital funds. The projected irrigation savings are \$131,800 annually.

RECOMMENDATION: The Superintendent recommends the Board of Education receive the report and appropriate \$46,300 for the C.W. Stanford Stormwater Project.

Stormwater Project at C.W. Stanford Middle School

1. Project Description

This project is a partnership between OCS, the Piedmont Conservation Council (non-profit that works in eight counties of the central piedmont), and representatives of the Orange County Erosion Control Division and the Orange County Soil & Water Conservation District. The project is funded by a grant (\$355,430) from the Clean Water Management Trust Fund of North Carolina to the PCC, awarded in October 2010. Preliminary design work began back in 2009 when PCC and partners were applying for the grant, and the project is now out for contractor bid. Construction is scheduled to occur between the June 10th 2011 and August 25th 2011.

The grant and match are paying for three major stormwater “best management practices” at the co-located campuses of C.W. Stanford Middle School and Orange High School.

These BMPs are:

- a. Bioretention areas. These will capture and treat runoff from the CWS’s roof and teacher parking lot before discharge and also provide landscaping and educational features.
- b. An oil/water separator. This will capture pollutants and trash running off the OHS parking lot before they go into a wet pond.
- c. Wet pond and captured water for irrigation. An existing low point will be turned into a wet pond to capture runoff from the majority of both campuses and store approximately 500,000 gallons of water on a consistent basis. This water will be used to irrigate 5 of the campuses’ 8 athletic fields: football, baseball, softball fields from CWS and football and soccer fields from OHS.
 - i. The school district currently uses an estimated 4.4 million gallons per year to irrigate these 5 fields, paying potable water rates from the Town of Hillsborough.
 - ii. It is calculated that the wet pond will provide 97% of the irrigation needs for these fields (under drought conditions) and **save the school system \$131,800 annually.**

2. Educational and Scientific Efforts

One reason OCS has been so supportive of this project is because of educational opportunities that will result. Some of the educational opportunities include:

- a. The bioretention areas are going to be right next to the parking lot where middle school students are dropped off and will have signage demonstrating the function of the BMP.
- b. Classes or individual students could perform some routine observations and inspections on all the BMPs.

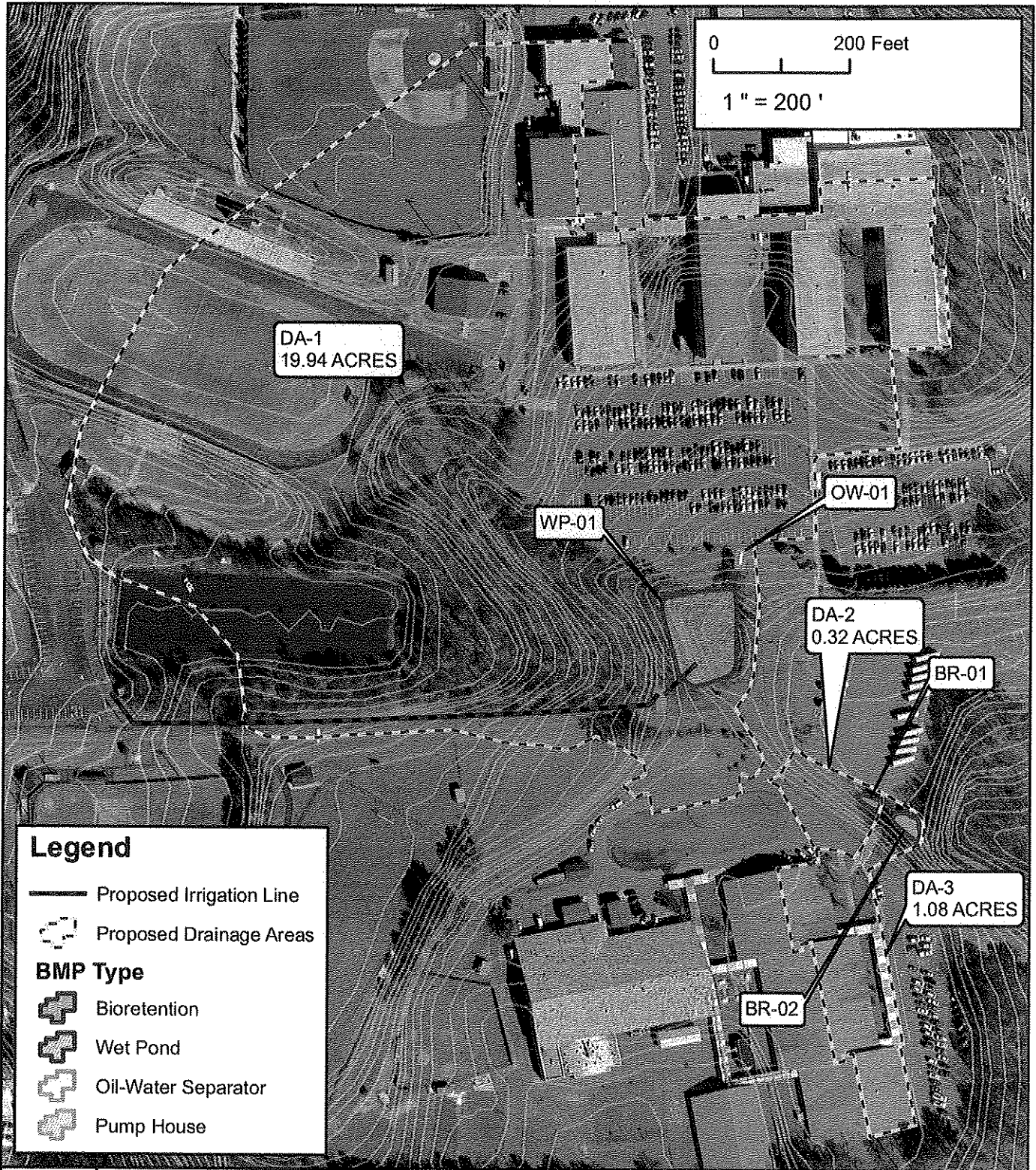
- c. A partnership with the OHS shop class has been discussed for them to make education kiosks marking each BMP.
- d. Classes could also perform sampling on the wet pond and/or oil/water separator if teachers wish to do so.

3. OCS Commitment

- a. Financial - The CWMTF requires at least a 20% match on the grant. CWMTF is providing \$355,430, and \$90,203 is expected in match. OCS has agreed (at a school board meeting in January 2009 and reiterated in November 2010 when grant was awarded) to contribute a portion of this match, in the amount of **\$46,300** (this is roughly 15% of the construction cost). Piedmont Conservation Council will be the recipient of these funds as the official grantee of the CWMTF. OCS funds will be used to pay for construction. In order to meet our timeline, we request a deposit from OCS **by July 1, 2011 to help pay for construction this summer.**
- b. Maintenance - Operations and Maintenance agreement – CWMTF requires that the recipient of the BMPs make a written commitment to maintain the BMPs for 10 years. Piedmont Conservation Council has been coordinating with engineers and the OCS maintenance department on what this agreement should include/exclude. Who will likely sign representing OCS?
- c. Liability Insurance – The question of whether OCS would like to purchase liability insurance for the pond has been raised. What is the board's opinion on this?

4. Attachments/Supporting Materials

- a. A map showing the locations and drainage areas of the BMPs to be installed.
- b. The overall estimated budget for project construction
- c. Water usage and anticipated savings calculation



Title		BMP SITE PLAN AERIAL MAP (NC ONE MAP IMAGE, 2008)		
Prepared For: PIEDMONT CONSERVATION COUNCIL, INC.	Project	CW STANFORD MIDDLE SCHOOL - INNOVATIVE STORMWATER TREATMENT AND STORMWATER REUSE PROJECT Orange County, North Carolina		
	Date	3/22/2011	KHA Project Number	011191000
				Figure 4

IRRIGATION ANALYSIS: POTABLE WATER USAGE

Project Information

Project Name: CW STANFORD MIDDLE SCHOOL INNOVATIVE STORMWATER

KHA Project #: 11191000

Designed by: RTL Date: 3/22/2011

Town of Hillsborough, NC - Water and Sewer Rates - Out of town rates (as of 03/22/2011)

\$ 14.14 for additional 1,000 gal water
 \$ 15.52 for additional 1,000 gal sewer
 \$ 29.66 total for additional 1,000 gal use

Collected Data from Director of Maintenance on 02/23/2011 and 1/21/2009

Irrigation Demand for one(1) five (5) recreational fields

Football Field 1 (CWS Middle School) :	10,500 gallons/cycle
Football Field 2 (Orange High School):	16,000 gallons/cycle
Softball Field:	8,000 gallons/cycle
Baseball Field:	15,000 gallons/cycle
Soccer Field:	14,000 gallons/cycle
Total Irrigation Cycle Demand:	63,500 gallons/cycle

Irrigation Schedule: March - October

Total Months: 8 months

Total Days: 245 days

Total Weeks: 35 weeks

Irrigation Rate: 2 times/week

Watering Zones Per Field: 12

Time per zone: 20 minutes

Potable water usage per year = 4,445,000 gallons

Water Bill For Irrigation Per Year = \$ 131,838.70

KIMLEY-HORN & ASSOCIATES, INC.

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**ENGINEER'S PRELIMINARY OPINION OF PROBABLE
COST OF CONSTRUCTION
STANFORD MIDDLE SCHOOL INNOVATIVE STORMWATER RETROFIT PROJECT**

PROJECT: STANFORD MIDDLE SCHOOL INNOVATIVE STORMWATER RETROFIT PROJECT
CLIENT: ORANGE COUNTY
PREPARED BY: JOSH ALLEN, E.I.
REVIEWED BY: RYAN T. LEWIS, PE

JOB NUMBER: N/A
FILE: K:\RAL_Environmental\011191000 - Stanford
MS Stormwater\Construction
DATE: 3/22/2011

	PERCENT TIMES TOTAL COST
MOBILIZATION	5
CONTINGENCY	10

STANFORD MIDDLE SCHOOL INNOVATIVE STORMWATER RETROFIT PROJECT				
DESCRIPTION	QUANTITY	UNIT	COST/UNIT	TOTAL COST
MOBILIZATION/DEMOLITION	1	LS	\$12,000	\$12,000
CONSTRUCTION SURVEY AND STAKE OUT	1	LS	\$8,000	\$8,000
TREE REMOVAL 4" DBH TO 18" DBH	6	EA	\$50.00	\$300.00
TREE REMOVAL 16" DBH TO 32" DBH	10	EA	\$300.00	\$3,000.00
BIO-RETENTION AREA				
BIO-RETENTION GRADING (350 CY)	350	CY	\$15	\$5,250
FLUME	1	LS	\$2,600	\$2,600
GABION WALLS	16	SY	\$300	\$4,800
WOODEN BOLLARDS	33	EA	\$10	\$330
LANDSCAPE MULCH	1000	SF	\$0.30	\$300
RIP-RAP	15	TONS	\$65	\$975
BIO-SOIL MIX	230	CY	\$12	\$2,760
WET POND				
WET POND CUT, FILL, AND COMPACT	200	CY	\$10	\$2,000
WET POND CUT AND HAUL	3,800	CY	\$16	\$60,800
WET POND OUTLET STRUCTURE	1	EA	\$8,000	\$8,000
WET POND LINER	12,000	SF	\$1.25	\$15,000
SAFETY FENCE FOR WET POND	350	LF	\$22	\$7,700
FENCE GATE 4 FT WIDE	1	EA	\$450	\$450
FENCE GATE 12 FT WIDE	1	EA	\$1,400	\$1,400
OIL-WATER SEPARATOR	1	EA	\$30,000	\$30,000
IRRIGATION SYSTEM				
CLASS 200 PVC PIPE - 3" DIAMETER	830	LF	\$15	\$12,450
PUMP SYSTEM WITH ENCLOSURE AND AUTOMATIC FLUSHING FILTER	1	LS	\$45,000	\$45,000
WET WELL AND INTAKE PIPE	1	LS	\$18,000	\$18,000
PIPING CONNECTION AT EXISTING PUMP	1	LS	\$2,500	\$2,500
THREE PHASE ELECTRICAL SERVICE TO NEW PUMP HOUSE	265	LF	\$10	\$2,650
EROSION CONTROL				
CONSTRUCTION ENTRANCES	2	EA	\$2,000	\$4,000
TEMPORARY ROCK SILT CHECK DAM	2	EA	\$2,000	\$4,000
SILT FENCE	450	LF	\$3	\$1,400
TREE PROTECTION FENCE	150	LF	\$3	\$450
TEMPORARY SEEDING AND MULCHING	1.5	AC	\$1,500	\$2,250
PLANTING				
SODDING	300	SY	\$10	\$3,000
PERMANENT SEEDING AND MULCH	0.06	AC	\$4,000	\$240
1-GALLON SHRUBS	25	EA	\$45	\$1,130
CONTAINERIZED TREES	25	EA	\$80	\$2,000
ASPHALT REPAVEMENT				
CONSTRUCTION ADMINISTRATION				
DESIGNER CONSTRUCTION OBSERVATION (ASSUME 6 WEEKS AT 20HRS/MWK)	1	LS	\$15,000	\$15,000
DESIGNER CONSTRUCTION ADMINISTRATION (ASSIST IN BID DOCUMENTS AND INVOICING)	1	LS	\$12,000	\$12,000
SUBTOTAL				\$286,935
TOTAL PROJECT CONSTRUCTION COST (with 10% contingency)				\$312,935

Notes:

- This cost opinion is based upon the preliminary concept plan for the CWMTF application prepared by Kimley-Horn and Associates, Inc.
- This cost opinion does not include costs for land acquisition, unless otherwise noted.
- Unit costs used in this cost opinion are representative of typical market costs for this area as of the date of this cost opinion, and do not account for inflationary cost escalation during the time period from the date of this cost opinion to the start of construction.
- This cost opinion does not account for rock excavation and unsuitable soils, which are subject to revision upon completion of geotechnical report. No geotechnical reports have been completed at this stage of the probable opinion of cost.

The Engineer has no control over the cost of labor, materials, or equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs, as provided here, are made on the basis of the Engineer's experience and qualifications and represent the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from opinions of probable cost prepared for the Owner.