Engineering has reviewed the plans for the Cottages at College Acres project submitted July 9, 2019 and have the following comments:

Stormwater Management Permit Application Form

1. IV. Project Information; #5: This entry should match the number entered for #2 with no wetlands or surface water areas on site.

Operation and Maintenance Agreement

2. A revised Operation & Maintenance Agreement form was submitted to the City, but the form has not been signed and notarized by the applicant.

Supplement-EZ Form

3. Drainage Area Information: Wet Pond: The Total BUA in project number is incorrect.
4. Elevations: Infiltration System1: Will the spreadsheet allow you to change the Bottom elevation from 39.00' to 39.20'?

Stormwater and Erosion Control Narrative

5. Wet Pond-NCDEQ Wet Retention Basin MDC:
    a. Elevation of Wet Detention Pond Bottom should be 31.00'. The spreadsheet says to exclude the 1 foot of sediment storage.
    b. Depth of Permanent Pool is 5 feet (36'-31'=5'). Exclude the sediment storage.
6. Infiltration System Design #1-DA 1:
    a. Provide the HydroCAD stage-storage volumes for Infiltration System #1 in order to verify that adequate storage is provided at elevation 40.20'.
    b. The Trench width of 15.50' appears to be too wide for Infiltration System #1 for four rows of chambers. Using the ADS SC-310 chamber diagram found on sheet C-6.3, the trench width should be 14.83'. Demonstrate how 15.50' is achieved.
7. Infiltration System Design #2-DA 2:
    a. Provide the HydroCAD stage-storage volumes for Infiltration System #2 in order to verify that adequate storage is provided at elevation 39.80'.
    b. The Trench width of 7.80' appears to be too narrow for Infiltration System #2 for two rows of chambers. Using the ADS SC-310 chamber diagram found on sheet C-6.3, the trench width should be 8.17'. Demonstrate how 7.80' is achieved
8. Pond Routing:
    a. Summary for Pond 1P: SC-310 IT-1/IT-2: Verify the trench dimensions are consistent with the Infiltration System Design #1/#2 calculations.
    b. Summary for Pond 4P: SC-310 IT-2 Verify the Total Available Storage (2,723cf) is consistent with the Infiltration System Design #2 Provided Storage (2,695cf).
9. 10/50-year HGL Calculations:
    a. I still cannot determine where the outflows from the underground infiltration systems and the wet pond during the 10- and 50-year storms were accounted for in the HGL calculations for the system along College Acres Drive. IT outflows should be added at FES 403 and the Pond outflow should be accounted for at DI 402, correct? Please clarify.
    b. Pipe length for run IT #2-DI 201 should be 20' instead of 35'?
    c. If starting HGL for IT #1 is 41.50', then the upstream HGL elevations should start at or above that elevation, but they do not.
    d. Submit current inlet DA, SC DA and Pre/post Watershed DA maps.

Design Documents

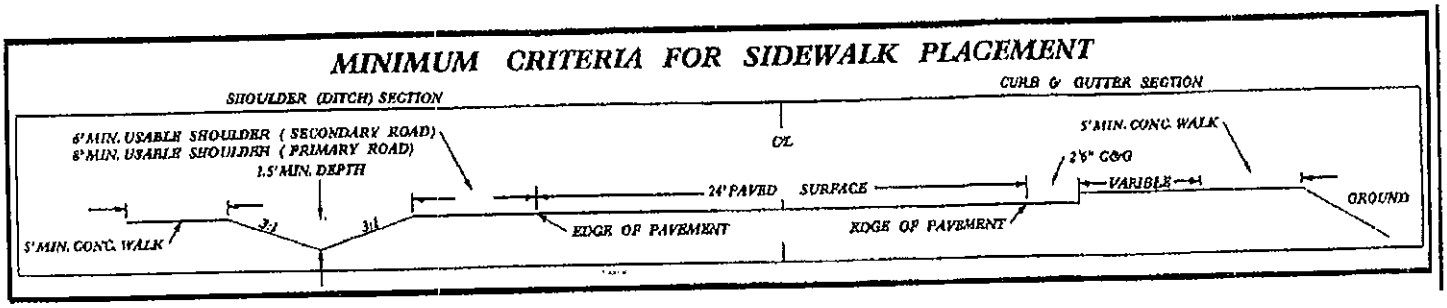
10. All sheets:
    a. Remove the linework for the retaining wall within the C.A. Drive r/w from all sheets.
    b. The Stormwater Approval Stamp needs to be on all sheets in the plan set.

11. Cover sheet: Change the City contact from Eryn Futral to Gilbert Combs. His number is 341-4661.
12. C-2.0: Confirm that the existing inlet at the Domino's property line does not have piping extending further down College Acres.
13. C-2.1:
    a. Previous comment: *Flares are only required to be 13-feet wide. They also should be in line with the rear edge of the sidewalk, not the front edge. Please see the Commercial Driveway detail (SD 3-03.3).* Your response stated the flares to be 'revised', but there are still flare dimensions of 14 and 15 feet? Is this correct? Or are the dimensions not for the flares? The flares are still not drawn correctly. Extend the flares from the eop to the back side of the sidewalk at the r/w line.
    b. The proposed sidewalk along C.A. Drive still appears to have conflicts with existing utilities (poles, telephone pedestals). Are utilities being relocated? Or is the sidewalk to shift to avoid the utilities? The plans are not clear. The sidewalk must have a minimum of 12-18" between the utility and the edge of sidewalk, the two cannot abut.
    c. Spot grades along the proposed sidewalk that connects the site to the bus stop do not have any spot grades to demonstrate constructability and compliance with city cross and longitudinal slopes. Demonstrate ADA compliance.
    d. The 10-foot non-municipal easement along C.A. Drive r/w is still not shown.
14. C-2.4:
    a. Add a note to the plans that the existing pipes under the existing driveways are also to be removed.
    b. Again, why not remove the entire existing storm pipe system along College Acres Drive and just install a new driveway pipe under the proposed eastern driveway? Keep the entire College Acres frontage a ditch section. The SCMs would all outfall to an open ditch. Site inspection shows the existing pipe system to be very shallow and sediment laden making it difficult to see the condition of the system.
15. C-3.0: The limits of disturbance must include the utility installations that will occur in the College Acres Drive r/w.
16. C-4.0:
    a. Provide multiple cross-sections of College Acres Drive from the centerline to the right-of-way to illustrate how the roadside ditch is to be constructed. Show shoulders adjacent to the eop and between the top back slope and the proposed sidewalk. Make sure that adequate vertical separation or the necessary clear zone distance is provided between the eop and the sidewalk. See attached guidelines.
17. C-5.0: Realign the sanitary sewer leg to remove the SSMH 100 from the driveway apron.
18. C-6.0/6.1/6.2:Add the appropriate city details for the utility installations within the public r/w (SD 1-04, 1-05, 1-07).
19. C-6.3: If the pond emergency spillway is activated, where will the water go? To an already full pipe?
20. DA-1: this sheet was not resubmitted.

Please submit one complete set of plans, application, supplement, stormwater narrative and calculations and any other supporting documentation to Engineering for additional review. Please call or email if there are any questions. Thank you.

Division Sidewalk Guidelines

April 2009



CLEAR ZONE DISTANCES
(IN FEET FROM EDGE OF TRAVEL LANE)

DESIGN SPEED	DESIGN ADT		FILL SLOPES	
		6:1 OR FLATTER	5:1 TO 4:1	3:1
40 MPH OR LESS	UNDER 750	7 - 10	7 - 10	* *
	750 - 1500	10 - 12	12 - 14	* *
	1500 - 6000	12 - 14	14 - 16	* *
	OVER 6000	14 - 16	16 - 18	* *
45 - 50 MPH				
	UNDER 750	10 - 12	12 - 14	* *
	750 - 1500	12 - 14	16 - 20	* *
	1500 - 6000	16 - 18	20 - 26	* *
	OVER 6000	18 - 20	24 - 28	* *
55 MPH				
	UNDER 750	12 - 14	14 - 18	* *
	750 - 1500	16 - 18	20 - 24	* *
	1500 - 6000	20 - 22	24 - 30	* *
	OVER 6000	22 - 24	26 - 32*	* *
60 MPH				
	UNDER 750	16 - 18	20 - 24	* *
	750 - 1500	20 - 24	26 - 32*	* *
	1500 - 6000	26 - 30	32 - 40*	* *
	OVER 6000	30 - 32*	36 - 44*	* *
65 - 70 MPH				
	UNDER 750	18 - 20	20 - 26	* *
	750 - 1500	24 - 26	28 - 36*	* *
	1500 - 6000	28 - 32*	34 - 42*	* *
	OVER 6000	30 - 34*	38 - 46*	* *

* CLEAR ZONE DISTANCES CAN BE LIMITED TO 30 FEET UNLESS IN A HIGH ACCIDENT RATE AREA.

** SINCE 3:1 SLOPES ARE NOT RECOVERABLE, ADDITIONAL RUNOUT AREA MUST BE PROVIDED AT THE TOE OF THE SLOPE. PLEASE REFER TO FIGURE 1 ON SHEET 1-4M.

If no vertical separation is provided, then sidewalk should be placed outside the necessary clear zone distance determined from the clear zone distances table.

These guidelines must be followed unless otherwise determined by an engineer.