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## MEMORANDUM

Date: 08/25/2023  
To: Michael Elabarger  
From: Jacqueline Thompson, PE  
Subject: Frazier Farm Park  
CID-23-05, V2  
Town of Rolesville, NC

This memo summarizes the review of Construction Drawings, Storm Drainage Calculations, and the Water Buffer Report submitted by McAdams, dated August 01, 2023 (received August 18, 2023).

Cover Sheet:

1. The following items will need to be added to the site data table.
  - a. Parking data
  - b. Impervious area pre-development
  - c. Impervious area post-development
2. Please update the sheet index to correctly correspond with the sheets included in the document.
3. Provide the existing condition sheets with the next submittal.
  - a. C1.00
  - b. C1.01
4. Update the profile stationing to match the profiles shown on the plan and profile sheets.
5. Include the Wake County Signature/ Approval block on cover sheet, per Wake County Sediment and Erosion control submittal checklist.
  - a. Block detail: [Sediment and Erosion Control Standard Details | Wake County Government](#)

Sheet C1.10 Overall Demolition Plan:

6. Please provide the existing condition sheets C1.01 and C1.00 in the next submittal with existing features called out, there are several notes/callouts on this sheet that can be placed on the existing condition sheets.
7. Provide a label that the archaeological site is to be protected.
8. Denote if the utility easement is public or private in all areas where a utility easement is called out, owner included if private.
9. Provide easement label with owner information.
10. Please include labels for the existing storm drainage system in these areas.
11. Please include labels for the existing drainage system with inverts and pipe description, this pipe or structure is included in limits of disturbance.
12. Clarify the purpose of the green label keep if needed.

Sheet C2.00 Overall Site Plan:

13. The label "Archaeological area to be protected" should be included on the existing condition sheets.
14. The hatch provided for the wetland and buffer appear very similar, please adjust to better distinguish between the two areas.
15. Prior comment: if parking is to be allowed on streets or drives in future show street width and revision section. Grading and storm culverts to be revised.

Sheet C2.01 Site Plan Area "A":

16. All of the areas of pavement look the same, provide ability to distinguish the transition from the 401 road widening to the heavy duty pavement section.
17. Please shift the street width label for ease of reading.
18. Please provide a label or add line type to legend.
19. The Town of Rolesville has suggested that parking be added along the street, if that is not the intended plan please indicate "No Parking" signage and the locations.
20. Provide the location and dimensions of the proposed guard rail from the edge of gravel.
21. The radius shown into the parking for "future parking lot" is smaller than the minimum standard per Wake County Fire access route. 30' is the minimum (typ). Radius must be approved by Wake County Fire.
22. There are no curbs or walks called out to be installed in this phase of the project, linework indicates there is to be curb installed.
23. This driveway entrance will need to accommodate truck and trailer access as it will be a parking lot for a future "event center". Hence, both radii will need to be sized appropriately to provide this access. 23

Sheet C2.02 Site Plan: Area "B":

24. All of the areas of pavement look the same, provide the ability to distinguish the transition location from the 401-road to the heavy-duty pavement section.
25. Several centerline radiuses are below minimum length. The centerline radius must be 230' at minimum per LDO and NCDOT road standards. Please revise radii.
26. Wake County Fire must approve this radius, the minimum is specified at 30'.
27. This driveway entrance will need to accommodate truck and trailer access as it will be a parking lot for a future "event center". Hence, radii will need to be sized appropriately to provide this access.
28. There will need to be "No parking" signs at the dead end to provide a fire truck turnaround, add location and label.
29. In order to match detail sheet provide proposed handicap/van accessible sign location
30. Due to parking being for a "Future Event Center" this radius is below the minimum for fire access, Wake County must approve of radius length.
31. Please provide the detail for the property barricade.
32. There are no curbs or walks to be installed in this phase of the project, linework indicates that there is to be a curb installed within the limits of disturbance. Update accordingly.
33. There is no boardwalk or walk to be installed during this phase of the project. Linework indicates that there is to these items installed within the limits of disturbance. Update accordingly.

Sheet C2.03 Site Plan: Area "C":

34. Clarify if this sheet is all future construction, the stationing seems to not correspond to any currently proposed alignment, please provide centerline alignment to go with the stations.
35. Several centerline radiuses are below minimum length. The centerline radius must be 230' at minimum per LDO and NCDOT road standards. Please revise radii.
36. Please provide label or include shading in legend on current sheet to denote that this area is a wetland to provide clarity.

Sheet 3.00 Overall Grading & Drainage Plan:

37. This parking lot is included in this phase, update label.

Sheet 3.01 Grading & Drainage Plan: Area "A":

38. As per NCDOT Storm Drain Guidelines, the pipe shown is an open cross pipe at a depth of 1' or less. Hence 18" Class V RCP must be used.
  - a. NCDOT guidelines for reference: [2022 Guidelines for Drainage Studies and Hydraulic Design.pdf \(ncdot.gov\)](#)
39. Please provide additional contour labels in this area to clarify if this land is a mound or depression.
40. Reverify grading in this area to have a positive drainage flow.
41. The proposed 268 contour line needs to continue to provide drainage clarity.
42. Confirm if this area is being filled, it is within the limits of disturbance.
43. The swale/ditch that is graded appears to be close to the pavement section, within 4' near the entrance ensure that there is proper drainage.
44. The shoulder appears to be cut off shorter along the entrance, reference Roadway Design Manual to size the appropriate cross section.
45. This area is a low point, please provide existing culvert size and invert elevations to better understand drainage.

Sheet C3.02 Grading & Drainage Plan: Area "B":

46. Due to removal of the existing driveway, clarify if driveway area will need to be regraded to keep proper drainage.
47. Location of low point here, please provide the existing culvert size and the invert elevations.
48. Please provide the existing pipe size, rim elevation, and invert elevation.
49. As per NCDOT Storm Drain Guidelines, the pipe shown is a open cross pipe at a depth of 1' or less, hence 18" Class V RCP must be used. Ensure minimum coverage is met.
  - a. NCDOT reference: [2022 Guidelines for Drainage Studies and Hydraulic Design.pdf \(ncdot.gov\)](#)
50. The shoulder appear to be cut off shorter along the entrance, please reference the Roadway Design Manual to size the appropriate cross section.
51. Please shift rip rap hatch to be centered with FES-300.
52. There is a square assumed rip rap patch located partially on sheet C3.02 and partially on C3.03, please label and clarify the purpose.

Sheet C3.03 Grading & Drainage Plan: Area "C":

53. Clarify or Callout this assumed rip rap patch.

Sheet C5.00 Plan and Profile-Street A, Sta 10+00 thru Sta 20+95:

54. Adjust rip rap patch to be centered with structure
55. Provide information on the size of this rip rap patch.
56. Provide centerline alignment or remove stationing along area with no proposed road.
57. Based on there being 1' of cover over pipe an 18" Class V RCP must be used. Refer to previous comments.
58. Vertical curves must be in 50' increments.
59. Please provide information for this proposed vertical curve.
60. Typically, there is proposed and existing stationing and grades on plan and profile sheets.
61. Provide information on this curve.

Sheet C5.01 Plan and Profile-Street B, Sta 10+00 thru Sta 16+35:

62. Please provide the centerline alignment associated with these stations.
63. The top of the pipe in this location was roughly calculated to be at a depth of at or less than 1'. This requires that a Class V pipe must be used or ensure appropriate pipe depth in compliance with NCDOT requirements. See previous comments.

Sheet C6.00 Erosion Control Notes:

64. Provide Wake County Basin Removal Sequence Note
  - a. Wake County ESC Reference: [Designing and Permitting | Wake County Government](#)

Sheet C6.01 Overall Erosion Control Plan Stage I:

65. Provide and label a construction entrance location.
66. Provide and label a stockpile location.
67. Remove demolition items, add hatch to legend if indicating erosion control method. Additionally, these removals are outside of the limits of disturbance.
68. Provide label for the black line surrounding the existing inlet, if presumed to be inlet protection use the denoted legend style.
69. Wake County Erosion and Sediment Control standards require the sediment bag to be dimensioned on plan sheets, provide bag dimensions.
70. Please clarify what this green label is being used for, remove if not necessary.

#### Sheet C6.02 Overall Erosion Control Plan-Stage II

71. Provide inverts to existing structures along with pipe descriptions, in order to clarify where the rest of the site is draining.
72. Update and verify the drainage areas for culverts with existing storm drainage shading indicates proposed areas.
73. Please consider adjusting the contour labels in several locations to ensure clarity while reading.
74. Label assumed rip rap box or include in legend.

#### Sheet C6.11 Erosion Control Details:

75. Ensure all details are from Wake County Sediment and Erosion Control Standard Details, provide details from website.
  - a. [Sediment and Erosion Control Standard Details | Wake County Government](#)
76. To match what is proposed on ESC plan and the legend, add the following details
  - a. Silt Fence Detail
  - b. Silt Outlet Detail
  - c. Construction Entrance Detail
  - d. Baffle Detail
  - e. Diversion Ditch Detail
  - f. Filter Berm Detail
  - g. Check Dam Detail
  - h. Slope Drain Detail
  - i. Pipe Outlet to Flat area

#### Sheet C7.00 Louisburg Rd. Widening Plan:

77. Will need to indicate a silt fence outlet or SEC for ditch.

#### Sheet C8.00 Site Details:

78. If an accessible parking sign is to be used according to details specified please show location on site plan.
79. Show that the guardrail offset location that is proposed.
80. Show additional width for parallel parking. This will need to be included in the road section dimensions. Reference the NCDOT Roadway Design manual.

#### Sheet C8.03 Storm Drainage and Utility Details:

81. Reference NCDOT pipe material selection table.

Storm Drainage Calculations-Page 1

82. The following items are required in the Storm Drainage Calculation Report
- a. Skimmer
  - b. Diversion ditch
  - c. Velocity calculations
  - d. USGS Map
  - e. FEMA Flood maps

Storm Drainage Calculations-Page 38

83. Please include a pre and post development impervious/pervious report for drainage areas. Additionally provide time of concentration calculations, including sheet shallow, and channel flow specified on drainage area map for pre and post development.
84. Check the location of this edge of water label.

Storm Drainage Calculations-Page 39

85. Consider adjusting the existing and proposed contour labels to provide ease of analysis while reading drainage area map.
86. Verify the drainage area.
87. Verify the drainage area and add to drainage area 2 as this culvert outlet is located in DA 2.

Storm Drainage Calculations-Page 40

88. Provide the drainage area for the existing storm system.
89. Verify the drainage area in this location.

Storm Drainage Calculations-Page 41

90. Refer to sheet C3.01 for comment regarding the pipe size.
91. Repeat comment: What storm is this system designed for, denote that on subsequent HGL profile sheets (pages 42,43,44) Please provide calculations for 25-year storm.