

Town of Zebulon  
Planning Department  
1003 N Arendell Avenue  
Zebulon, NC 27597

Reference: **0 E. Barbee Street – ID #895911**  
0 E. Barbee Street,  
1<sup>st</sup> Review Comments

Plan review comments are listed below. Our responses are in bold following the comments.

**Sheet 001-Cover Sheet**

1. Please add the project number to this cover sheet that is listed in IDT: 895911.  
**Response: The project # 898911 Has been added to the cover sheet.**
2. Add north arrow to both views.  
**Response: A north arrow has been added to both views.**
3. Add disturbed area. Add impervious areas (roadway/parking, sidewalks, dwellings, total impervious). Add open space required and open space provided  
**Response: The disturbed area has been added to the site data table.**
4. Add public improvement quantities table  
**Response: The public improvement quantities have been added to the Site Data Table.**
5. Only 51 units are shown on the plan. Please correct.  
**Response: The total number of units has been corrected to 51 units.**
6. Project name is not listed  
**Response: The project name has now been listed in the site data table.**
7. Include "portion of 2705556073"  
**Response: Portion of 2705-55-6073 has been added the PIN(S) section of the site data table.**
8. Town of Zebulon  
**Response: Noted. The Jurisdiction has been corrected to Town of Zebulon.**
9. Verify what the minimum lot size can be  
**Response: Per Town of Zebulon UDO section 3.5.4.C the minimum lot area for a residential lot in the Downtown Periphery District is 3,000 S.F.**
10. include Wake County  
**Response: General note #1 has been revised to include Wake County.**
11. please update FIRM panel reference to match Floodplain note.  
**Response: The FIRM panel reference has been updated to match the floodplain note.**

12. Need General Notes sheet - usually the sheet after Cover Sheet  
**Response: General notes sheet added to plans. See new sheet SITE 002.**
13. This sheet is not in the plan set.  
**Response: Our apologies. The survey sheet is included in this submittal.**
14. Plan & Profile sheets will be needed.  
**Response: Response: See new sheets SITE 600 and 601.**
15. Add North Carolina One Call (811) logo  
**Response: The North Carolina One Call (811) logo has been added to the cover sheet.**
16. Provide road classifications.  
**Response: The road classification for this project has been indicated in General Notes #7.**

#### **Sheet 100-Existing Conditions plan**

1. Where is the property owner information for this parcel?  
**Response: Property owner information for the parcel has been added to the plan.**
2. Please confirm these elevations, It would be helpful to the reviewer if minor contours are provided in the vicinity of the railroad. For example, there is a crest elevation of 310 on the north side and if the contour interval is 1 foot. The crest on the railroad is 309. so runoff will flow over the railroad.  
**Response: We have provided minor contours within the vicinity of the railroad. We also performed a field visit to verify the contours in the area and how the track side ditches drain.**
3. Add north arrow.  
**Response: A north arrow has been added the vicinity map on the plan.**
4. Add legend.  
**Response: A legend has been added to the plan sheet.**

#### **Sheet 200-Site Layout Plan**

1. Dimension all sidewalks, public and private.  
**All sidewalks have been dimensioned.**
2. Please Provide the lot width measurements for lots 5, 6, 17, 18, 27, and 28.  
**Response: Lot width measurements for lots 5,6,17,18,27, and 28 have been provided on the plan sheet.**
3. Dead end signing.  
**Response: Dead end signing is now called out on plan sheet.**
4. Dead end signing.  
**Response: Dead end signage is now called out on plan sheet.**
5. This is an acceptable alternative to a 120" hammerhead turnaround but must be R28'.  
**Response: We are showing a 23.5' radius around the curves. The travel way along Public Road B is 26' back-to-back. The travel way in the turnaround/parking area is also 26' back-to-back. We have prepared an exhibit that shows the 20' fire truck access road width and a 28' radius. The edge of the**

**required radius is inside the currently designed edge of pavement. Please see the exhibit included with our resubmittal.**

6. Please continue sidewalk along the remainder of Public Road B

**Response: The sidewalk has been continued along the remainder of Public Road B.**

7. Mail Kiosks must be covered with lighting per sec 6.12.7 of the UDO.

**Response: A note has been added to Sheet SITE 200.**

8. Please extend sidewalk to provide access to the parking lot.

**Response: We have reconfigured the parking area to allow more room for the wet detention basin. The Greenway trail provides pedestrian access to that parking area as well as the dog park and playground beyond.**

9. Need WCR on either side of drive. Label all WCR or provide legend.

**Response: WCR has been added per your request. All WCR's have been labeled.**

10. Please note the R/W width for the alleys behind lots 24-27 and behind lots 28-40.

**Response: The R/W widths for alleys have been noted on the plan sheet.**

11. The dimensions for parking spaces must be 10' x 19' per sec 5.8.5.b of the UDO. The UDO does allow for 30% of the minimum parking to be compact spaces allowing some of the space to be reduced to a 8.5' x 18'.

**Response: The parking spaces throughout the site have been updated to satisfy the 10' x 19' requirement per Town of Zebulon UDO sec 5.8.5.b.**

12. If there's an existing trail it needs to be shown on the existing conditions map. If there's no existing trail there needs to be signing/barricade for end of greenway; future greenway extension.

**Response: The end of greenway signing and barricade has been called out on SITE 200.**

13. Label fence.

**Response: The fence has been labeled.**

14. Please provide lot width measurements for lots 41-45

**Response: The lot width measurements have been provided for lots 41-45.**

15. Provide driveway measurements.

**Response: The driveway measurements have been provided on the plan.**

16. Remove language of the private access easement from the site plan. This is not relevant because the Barbee St extension will need to be public right-of-way.

**Response: The private easement dimension has been removed from Sheet 200.**

17. Show connection from the front door/porch to the public sidewalk in front of each unit.

**Response: Connection from the units to the public sidewalk are now shown on the plans.**

18. Need alignments for Barbee Street, Road A, and Road B. Provide curve data table and line table. Label bearings on plans

**Response: Please see SITE 600 and 601 for road profiles.**

19. Add stop signs, stop bars, and crosswalks to plan. Add any other signing that is needed; provide sign legend. Follow MUTCD standards.

**Response: Stop signs, stop bars, and crosswalks have been added to plans.**

20. Provide typical section for public roads.

**Response: A typical public road section is now show on Sheet SITE 200.**

**Sheet 300-Grading Plan**

1. Please add the information pertaining to the existing 42-inch CMP Pipe under the railroad.

**Response: The 42" CMP under the railroad is now shown on Sheet SITE 300.**

2. This point on the wall is the lowest. Please confirm. Based on the current design water will pond at this location.

**Response: The high side of the wall now has a ditch that transmits water from the R/R R/W to the west. The grades for the alley on the low side of the wall to come to a low point in this location. The area is planned to drain into YI-19. If that storm box is obstructed the alley way is lower than the units and the overflow will run down to YI-18.**

3. There appears to be a typo with the top of wall elevation. Please revise.

**Response: The typo has been corrected on this sheet.**

4. Around the perimeter of the project and in front of the wall, we suggest you add a ditch with an under drain to intercept and convey off site runoff (TYP) that may be trapped.

**Response: We have graded in a ditch on the top side of the wall. Please see the detail on sheet SITE 700. We elected to show an 8" layer of low permeability soil beneath the ditch. Any surface runoff that gets through that layer will be conveyed to the wall foundation via the gravel layer adjacent to the blocks and then through the foundation drain for the retaining wall. A third-party structural engineer will need to design the segmental block retaining walls, gravel, and piping. We show them generally on our plans and label them "by others".**

5. Will need to provide easements for offsite work.

**Response: It is not likely that offsite easements will be viable/obtainable for this project. As a result, we have elected to back up the improvements so that they can all be completed without offsite easements. We will submit a fee-in-lieu estimate for the remaining infrastructure that cannot be built with this development.**

6. It appears that that flow coming from the 42-inch CMP will be blocked. We suggest providing a pipe to convey the flow. There also appears to be a significant amount of flow being trapped as shown. Please see our comments to the report.

**Response: Terribly sorry about that. Our previous design was a work in progress. We originally had a pipe shown under that section of Road B but it was accidentally removed prior to submittal. We have decided to back up the**

7. And Wake County.

**Response: Noted. Wake county has been added to grading notes #1.**

8. A pre-construction meeting is required.

**Noted. The wording of the note has been revised to entail that a pre-construction meeting will be required.**

9. Should be referencing the Town's Unified Development Ordinance (UDO).

**Response: The reference has been removed from the grading notes.**

10. Is this project part of a bigger project because there is grading and utilities the extend past the property line. Please confirm and add a sign or bollards or curbing. As shown off site runoff will enter the site and could potentially cause for an increase in the wet detention pond.

**Response: This project is not part of a larger project. We also do not expect to be able to acquire easements offsite to build the improvements all the way to the property line. For that reason, we have revised the plans to stop road, utilities, etc. short of the property lines. Sorry for the confusion. Thank you.**

11. Provide hatch legend.

**Response: The SCM planting hatches have been frozen on this sheet. We added a hatch legend for the wetlands and the wetland impact hatches.**

12. Where does this trail go?

**Response: The proposed trail ends near our property line.**

13. Should the bottom of the fore bay be raised out of the water to enhance treatment and should the gabion wall be an earthen berm with an overflow spillway that is above the required treatment volume as indicated in NCDEQ Stormwater Manual.

**Response: Unfortunately, there is no room to provide a typical earthen forebay because that would result in a significantly larger wet detention basin. The gabion wall is made of Class A sized stones. It is meant to slow water but not stop it. The level of the water in the forebay will not be higher than the level inside the main pool. There will be no case where water splashed over the forebay and resuspends sediment. I have included a photo of a recent pond completed with a very similar gabion forebay design. We have done several of these recently since land costs are so high. They allow a taller average depth for the pond overall.**



14. How will the wet detention pond be accessed for maintenance. Couldn't the roadway in the vicinity of inlet YI-22 be graded to the top of berm to enable access from both sides of the emergency spillway.

**Response: The wet detention pond will be accessed via the parking lot at the end of Barbee ST. A hatch has been added to SITE 200 to show the access easement.**

15. The SCM is required to have a private access and maintenance easement extended to the public ROW - please show.

**Response: A hatch has been added to SITE 200 to show the access easement.**

16. Provide permit for buffer impacts as well.

**Response: Noted. Buffer impact permits will be provided.**

17. We suggest adding a detail of the wall with the ditch to the plans.

**Response: The ditch detail has been added to the plans. See sheet SITE 700.**

#### **Sheet 301-SCM Plan**

1. Update reference.

**Response: The reference has been updated to "NCDEQ Stormwater Design Manual".**

2. Please show the location of tee.

**Response: The 4" PVC tee is now shown on the plan.**

3. Could the detention pond be larger so that the fore bay can be the primary area for sediment storage. Based on our understanding, a storm larger than the WQV event will over top the gabion wall and have the potential to resuspend the sediment in the main pond. the whole purpose of the fore bay is to provide pretreatment of either the total WQV or a portion of the WQV.

**Response: A wet pond design summary has been added to the plan sheet.**

4. Please add a summary table listing the results of the of design of the detention pond. The table should include but not limited to a summary of the design volumes versus what is shown on the plan. We cannot verify the volumes. See sheet 302 for a similar table or call out.

**Response: Pond calculations added to sheet SITE 301.**

5. Could the elevation of the gabion wall be raised to prevent resuspension of sediment (see comment above)

**Response: Unfortunately, there is no room to provide a typical earthen forebay because that would result in a significantly larger wet detention basin. The gabion wall is made of Class A sized stones. It is meant to slow water but not stop it. The level of the water in the forebay will not be higher than the level inside the main pool. There will be no case where water splashed over the forebay and resuspends sediment.**

6. Please provide WQV elevation.

**Response: WQV elevation is now provided on the plan.**

7. Shouldn't the outlet structure be located within the pond in the event the detention basin can be drained to access the sediment layer?

**Response: The outlet structure is located inside the pond on the edge of the littoral shelf. The outlet of this pond is not designed to be drained through the control structure.**

8. What is the elevation of the restricted layer (ledge, ground water, etc.)

**Response: We have proposed a sealed bottom wet detention basin using a 6" thick clay liner. The SHWT and ground water will not come into play. The pond is placed in cut and will not drain the surrounding**

9. We suggest adding a layer of stone on top of the clay liner so that the maintenance crew will not compromise the clay liner during sediment removal.

**Response: We have never proposed this on a wet detention basin. I suspect the underlying soils are also low permeability. I do not think this is necessary but if you have experience providing that layer and it works well, please let me know and we will consider adding it.**

### **Sheet 302-Initial Erosion Control Plan**

1. Erosion Control will be handled by Wake County. Please update notes and sequence accordingly. **Response: The erosion control notes and sequence have been updated accordingly.**

2. Area of disturbance should be expanded to include the piping of the ditch.

**Response: Sorry about that. We have adjusted the plans.**

3. We suggest creating a temporary ditch around the area to be disturbed to bypass the off-site runoff.

**Response: We are now proposing a silt fence/tree protection combo at the northern property line to act as a clean water diversion to bypass off site runoff.**

4. Stormwater and Erosion Control will be reviewed during construction plan review.

**Response: Noted.**

**Sheet 303-Erosion Control Plan**

1. Need to add existing pipe to all plans and extend disturbance area west to include the piping of the railroad flows.  
**Response: Noted. Apologies that this was left off.**
2. Spelling.  
**Response: The spelling has been corrected.**
3. This area should be included in the limits of disturbance.  
**Response: Noted. Limits of disturbance have been moved to include the area.**
4. See comments on sheet 302 for information regarding the piping of the railroad runoff and providing a ditch around the perimeter to bypass any off-site runoff.  
**Response: We have included the piping necessary to bypass the off-site drainage.**

**Sheet 400-Utility Plan**

1. Do you anticipate the power poles being relocated?  
**Response: Yes, we have shown the poles in new locations and now added call outs that the poles are to be relocated.**
2. Is this public ROW?  
**Response: Yes.**
3. Why is this main shown like this? CORPUD does not allow mains to run parallel.  
**Response: The sewer main has been updated to follow CORPUD guidance and this issue has been eliminated.**
4. This hydrant will need a COR waterline easement if outside the ROW.  
**Response: A COR waterline easement is now shown on the plans.**
5. see comments regarding dead end.  
**Response: Dead end signing has been called out on SITE 200.**
6. This can be a 6" clean-out as a private manifold collection system.  
**Response: The sewer main has been updated to follow CORPUD suggestion and this issue has been eliminated.**
7. The waterline will either need to be relocated inside the ROW or a City of Raleigh Waterline easement will need to be dedicated.  
**Response: The water line has been relocated to be inside the ROW.**
8. Possible suggestion for a private sewer route.  
**Response: Thank you for the suggestion, we have updated the sewer line on the plan to follow the guidance.**
9. TYP.  
**Response: Adjusted text box to show "typ.", it was obstructed.**



10. The new minimum width for sanitary sewer easements is 30'. An additional 10' will need to be dedicated for the existing sanitary sewer easement through the site.

**Response: Easement has been adjusted to 30' wide.**

#### **Sheet 500-Landscape Plan**

1. Show water and sewer services on landscape plan. Ensure at least 5' of horizontal clearance for water and sewer services from any proposed street trees.

**Response: Water and sewer services now showing on landscape plan.**

2. Provide a street tree in this location.

**Response: Street tree added at desired location.**

3. Is there a way to add landscaping here to screen the termination of the alleyways, as well as provide a barrier between the sidewalk and alley?

**Response: Shrubs have been added at the end of alleyways for screening.**

4. May be a good idea to provide perimeter plantings (shrubs) here between parking lot and the residential lots.

**Response: Shrubs have been added as perimeter plantings at the edge of the two parking lots adjacent to residential lots.**

5. Please add street trees along this side of the road per section 5.6.13 of the UDO.

**Response: Planting strip is not wide enough to allow for it. It is currently 3' and minimum for a planting strip is a 5' width.**

6. A type A buffer is required to screen the wet detention basin per section 5.6.19 of the UDO.

**Response: Type A buffer added around wet detention basin on edges facing residential lots.**

7. Please provide and label the location of the tree protection fence on all applicable plans.

**Response: Tree protection fence is now shown and labeled.**

8. Provide a legend for the planting symbols.

**Response: Planting symbol legend has been added**

#### **Sheet 703-Site Details**

1. Add NCDOT Standard Detail 1205.07 Pavement Markings - Pedestrian Crosswalks

**Response: The NCDOT Standard Detail 1205.07 Pavement Marking have been added to the plan sheet.**

#### **Stormwater Impact Analysis**

1. The contents of this report may change depending on the comments on the plans and the comments in this report.

**Response: Noted. Report will be updated accordingly.**

2. See comments on the plans regarding the fore bay and WQV. Was the detention pond sized and designed in accordance with the NCDEQ stormwater Manual?

**Response: The wet detention pond has been redesigned, see SITE 301.**

3. Area to the Rail Road culvert and new piping is larger than shown and extends off the page. Please revise.

**Response: The rail road culvert has been added to the drainage Pre-Post Drainage area maps.**

4. Please add overland flow arrows and change the drainage area boundary that is light blue to a darker blue

**Response: The rail road culvert has been added to the drainage Pre-Post Drainage area maps. The drainage area boundary has been changed to dark blue.**

5. Area to the Rail Road culvert and new piping is larger than shown and extends off the page. Please revise.

**Response: The rail road culvert has been added to the drainage Pre-Post Drainage area maps.**

6. Please add Railroad pipe and piping of channel through the site

**Response: The rail road culvert has been added to the drainage Pre-Post Drainage area maps.**

7. Please add overland flow arrows and flow paths for the different areas.

**Response: Overland flow arrows and flow paths have been added.**

Please feel free to call me at (919) 996-9136 or email at [srn@thesitegroup.net](mailto:srn@thesitegroup.net) if you would like to discuss any aspect of this project.

Sincerely,

*Samuel R. Nye*

Samuel R. Nye, PE

The Site Group, PLLC