



**PROPOSED AGENDA
OAK ISLAND PLANNING BOARD
THURSDAY, DECEMBER 14, 2023 – 9:00 AM
COUNCIL CHAMBERS -- OAK ISLAND TOWN HALL**

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ADJUSTMENT/APPROVAL OF THE AGENDA

APPROVAL OF MINUTES

Approval of Minutes

[092623PlanningBdMinutes](#)

[111623PlanningBdMinutes](#)

PUBLIC COMMENT

I. OLD BUSINESS

I.1 Selection of a Chairman

I.2 Continue Review of the Table of Uses and Supplemental Regulations

[SECTION_6.5__TABLE_OF_USES_AND_ACTIVITIES._PBFeedback](#)

II. NEW BUSINESS

II.1 Major Site Plan Review - Pine Forest Quads

[23213.PE PINE FOREST QUADS.pdf](#)

[Exhibit A - Modified Pine Forest Plantation Master Plan - 121222](#)

III. BOARD MEMBER REPORTS

IV. STAFF REPORTS

IV.1 Tree Canopy Assessment Results

[Oak Island - Tree Canopy Assessment Report](#)

[PBRecommendations_Chapter_32__VEGETATION](#)

[Chapter 32 Forester Recommendations Summary](#)

[ForesterRecommendations_Chapter32Clean](#)

IV.2 Items awaiting Council Consideration

IV.3 Planning Staff Updates

V. ADJOURN

**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Approval of Minutes
DATE: December 8, 2023
DEPARTMENT: Administration

Subject Summary: Approval is recommended for Minutes of the following meetings:

- September 26, 2023
- November 16, 2023

Attachments:

[092623PlanningBdMinutes](#)

[111623PlanningBdMinutes](#)

MINUTES
PLANNING BOARD
TUESDAY, SEPTEMBER 26, 2023 - 9:00 AM
COUNCIL CHAMBERS -- OAK ISLAND TOWN HALL

Present: Chairman Terri Cartner, Vice-chairman Kerri McCullough, Board members David Bradley, Gene Brooks, Melanie Morgan and David Purser, Planning Director Matt Kirkland, and Town Clerk Lisa P. Stites, MMC.

Chairman Cartner called the meeting to order at 10:30 a.m. and led the Pledge of Allegiance. Chairman Cartner said that Board member Tim Pittman had indicated he was unable to attend due to a work commitment in Charlotte. Ms. Morgan said that the Board had rescheduled this meeting. **Ms. McCullough made a motion to excuse Mr. Pittman from the meeting. Ms. Morgan seconded the motion and it passed unanimously.**

ADJUSTMENT/APPROVAL OF THE AGENDA

Chairman Cartner made a motion to move New Business 2.1 to be the first item after Public Comments and to move Old Business 1.3 and 1.4 Scheduling a Special Meeting to the next two items. Mr. Bradley seconded the motion, and it passed unanimously. Ms. McCullough made a motion to move the review of the Table of Uses to the special meeting date. She said that she wanted the Board to be able to provide the time and dedication to that. Ms. Morgan seconded, and the motion passed unanimously.

APPROVAL OF MINUTES

Chairman Cartner reviewed a number of typos for the July 20, 2023 Minutes. There were no changes to the August 30, 2023 Special Meeting Minutes. **Mr. Brooks made a motion to approve the Minutes (as amended for the July 20, 2023 meeting and as presented for the August 17, 2023 meeting). Mr. Bradley and Ms. Morgan seconded and the motion passed unanimously.**

PUBLIC COMMENT

Paul DuBay, Chairman of the Parks & Recreation Advisory Board: Mr. DuBay spoke about the proposed sign amendment ordinance. He said he just wanted to give some context for this item. He said the current sign ordinance only addresses businesses, not Town-sponsored events and the Parks & Recreation Advisory Board is proposing a banner flag program to honor fallen, retired and active military personnel to be displayed in Middleton Park and Veterans Park over certain long holiday weekends. He said the proposal would go to Council for the November meeting, and that hopefully, this proposed amendment would go to Council in October.

Phil Dudley, 218 Sellers Street Mr. Dudley said he reviewed the proposed amendments to the vegetation ordinances. He said he would like to see them approved, but he had three suggestions for improvements. He said that one of the proposed changes was that staff "may" review the site prior to development, but that it used to say "shall." He said that he thought a lot of builders didn't know about flexible setbacks to save a tree. Mr. Dudley said that he understood the differentiation between hardwood and softwood trees for heritage trees, but asked to specify 15-inch dbh for live oak trees. Mr. Dudley said that 20 feet spacing comes from a tree canopy that is much taller than what we have here. He said that 10 feet spacing would help reduce friction with the builders.

Bill Millard, 110 SE 10th Street: Mr. Millard said that he participated in the tree stakeholders group. Mr. Millard said that it would be good to remind themselves that this effort started as a response to Randy Moffitt's recommendation, not the Planning Board's. He said the building community was well represented in that group, which was good, because they are a very important part of the community. Mr. Millard review the history of the proposed amendments. He said the proposal started with the Environmental Advisory Committee (EAC), and that every time it got passed around, the protection of trees was reduced to make it easier for building and development, and that it was likely here again with the same goal. He said that on August 17, revisions were brought to the Planning Board and a few additional revisions were made, only two of which he thought were substantial, such as the diameter for a heritage tree at 15 dbh. He said the proposal today was to raise that to 22 inches, and he asked if the benefit was better science or easier building. He said building challenges should be addressed in the permit process. Mr. Millard said that the second revision reduced the total dbh to one inch per 250 square feet, but the proposal was to raise it to 300. He asked what the scientific reasoning was for this. Mr. Millard said that if they were going to revisit this, he recommended going through it line by line and asked if there was natural science behind it or if it was developmental pressure. He said that we need a Chapter 32 that truly has trees and vegetation as its number one priority.

Ann Schading, 2502 W. Yacht Drive: Ms. Schading said that she was concerned that they were here talking about specimen trees again. She said the Planning Board and EAC had worked for months on this. She said that they, and a developer, realized that to do it right, they needed broader and more diverse representation and the tree stakeholders group was formed. She said the public knew this and had the opportunity for input. She said that last month the Planning Board voted to send the revised tree ordinance to Town Council and then 20 minutes later, one of the new Planning Board members wanted to erase the hard work and recommendations of so many and now the Town forester was trying to remove all of the tree protections that the stakeholders and Planning Board were trying to put in place. She asked where Mr. Patterson was when he was representing the Town with the stakeholders group and why he was trying to bring the Town back to ground zero with tree protections. She distributed photographs from the wooded side of the island and said that there were cleared lots. She said that one of them was almost a one-acre lot that was cleared of all trees. She said the view was beautiful, but the lot wasn't as pretty as some of them would like. She said the question she had was whether we wanted the rest of the island to look like that. She asked the Planning Board to please focus on the future of the tree canopy and what the citizens of Oak Island want. She said there were a limited number of open lots left and said they shouldn't allow them to all be cleared. She asked the Board to do the right thing, leave the recommended tree ordinance alone and let it finally go to Town Council.

Chairman Cartner said she wanted to review how the meeting would proceed. She said that after an item was presented, she would give each Board member the opportunity to ask questions of the presenter; for additional questions, members should ask the Chairman to be recognized. She said she would then entertain a motion if one was needed, and if a second was received, at that point they would open it for discussion. After discussion, they would vote. She said that they were all appointed to serve the Town of Oak Island and they were each representatives of the Town, and she encouraged them to remember that they must always not rely on personal situations and circumstances or personal biases. She said none of them were there to advocate for their own interests, personal ideas, or businesses. She said they were there to make decisions based on what was best for the Town and not any of them individually.

New Business II.1 Proposed Text Amendment to the Unified Development Ordinance - Section 10.24 Signs Not Requiring a Permit - Temporary Signs at Middleton and Veterans Park
([SECTION_10.24__SIGNS_NOT_REQUIRING_A_PERMIT](#) PBConsistency [TemporarySigns_09152](#))

Mr. Kirkland gave a brief presentation on the proposed ordinance amendment. Mr. Kirkland said there was not a provision for non-commercial signage on Town-owned property, and the proposed text amendment would create that. Ms. McCullough asked if they needed to specify that it was for a Town function, and Mr. Kirkland said the signs would need approval from the Town Manager, and if someone else put a sign out, it would be removed. He said they could add language like “associated with Town functions” or something similar. Mr. Brooks said that if they added that additional language, if disabled veterans wanted to put up a sign, then that wouldn't be allowed if they were not associated with a Town event. Mr. Kirkland said that was correct. Mr. Purser asked about obtaining permission from the adjacent property owner, and Mr. Kirkland said that was a different category of signs and this proposal was a different subsection. Ms. McCullough asked for discussion on whether they should mandate that it be a Town function.

Ms. McCullough made a motion to approve the proposed amendment, finding that it was consistent with the Land Use Plan in that it would make a simpler, more flexible, and more easily administered document and increase staff-level approvals, and that it was reasonable because the proposed amendment would create an allowance on Town-owned property similar to the current allowance for signage within the right-of-way. Ms. Stites clarified that the motion included the amendment for Town-sponsored functions. Mr. Brooks seconded the motion and it passed unanimously.

New Business I.3 Consideration of Amending the Regular Planning Board Meeting Schedule (for meetings to begin at 9:00 AM): Mr. Brooks said that what he was asked was why these meetings were not at night. Mr. Kirkland said that daytime was when there was better staff ability to attend meetings and that generally the only time they have night meetings was for Council. He said they would have to look at allowance for staff working after regular hours. Chairman Cartner said she thought it would be asking a lot to have these meetings at night. **Ms. Morgan made a motion to change the meeting schedule for the meetings to start at 9 a.m. Mr. Bradley seconded the motion and it passed unanimously.**

New Business I.4 Scheduling a Special Meeting: The Board and staff discussed potential dates. **Ms. McCullough made a motion to schedule a special meeting for October 24, 2023, at 9 a.m. for the purpose of continuing review of the Table of Uses and the supplemental regulations. Mr. Bradley seconded, and the motion passed unanimously.**

Old Business I.1 Discussion of Feedback from the Town Forester on Proposed Amendments to Chapter 32 of the Code of Ordinances ([TownForesterReport_TreeOrdinances10-23 Chapter_32 VEGETATION_STRIKETHROUGH 9-11-23 CLEAN STAFF RECOMMENDATIONS VEGETATION 9-9-23](#))

Chairman Cartner said that she was opposed to this item coming up for discussion because she thought it set a dangerous precedent. She said the Town Forester, the EAC, Planning Board, the Planning Director and other Town staff worked for many months on this item, including convening a stakeholders group. She said that not everyone nor every group got what they wanted and that there was compromise by all parties. She said each party gave a little and to go back and rework something that so many worked so hard on was not only a shame, but in her opinion, disrespectful at best.

Mr. Patterson said that the document was riddled with mistakes, and it was unworkable. He said that the current ordinance was not working and that what everyone wanted was living trees. He spoke about some of the changes, such as dropping the diameter for heritage trees, and he said that a 22-inch tree was a 100-year-old tree. He said the proposed amendments created an incentive for builders to leave trees. He said that the buydown options were included. He also said that many of the ideas from the

stakeholders group were incorporated. but he said at the end of the day, they were talking about private property, expensive lots, small lots and large houses, so they have to find a compromise. Mr. Patterson said that they had reduced a cumbersome planting guide down to one page. He said it wasn't perfect, but it was way better than what the Town had currently.

Mr. Bradley asked how these proposed amendments were more congruous with what the stakeholders meetings produced than what the Board voted on. Mr. Patterson said that the stakeholders group was not charged with making the sole recommendation. Mr. Patterson said that the goal was to guard trees against damage from development. He said the way it was written, he wouldn't even be able to enter his lot because of the large live oak trees at the driveway entrance. He also said he had not reviewed what was proposed to the Planning Board. Mr. Bradley asked how what the Board voted on would affect property rights, and why the root system and canopy and root system were more important than actual numbers of trees. Mr. Patterson said that big trees produce canopy and preserve water, so what we're really trying to do is save big trees. He said that four mature trees were about all a lot could hold without encroaching on a neighbor's property. He said that they should be protecting the trees that we have and that we want trees to live.

Ms. Morgan reviewed a survey of a lot on which she built a house; she said that they were able to save three large trees with a total of 58 dbh. She said that the critical root zone for one of the trees was 59 feet wide, and that square footage was 40 percent of the lot. She said that luckily, the trees were located in the back of the lot, close together. Chairman Cartner said that this point in the meeting was for questions for Mr. Patterson.

Ms. McCullough asked about the definitions of heritage trees. She said that the Planning Board had voted that a 15-inch hardwood was a heritage tree. She said that what she took away from the stakeholders group was that they wanted to preserve mature live oak trees. Mr. Patterson said he had a different take away from those meetings. Ms. McCullough asked if pines would be added back in; Mr. Patterson said that those would both be around 100-year-old trees. He said that that it seemed they were splitting hairs a lot, and asked if they wanted to protect heritage trees or only certain species. Mr. Patterson said that the way it was written, a permit would be needed to cut down every tree eight inches or greater; Ms. McCullough said that her understanding was that the stakeholders intended for that to be outside the building footprint.

Mr. Patterson said that specimen trees would only apply to the trees remaining on the lot, and that right now, to get one credit, a 5-inch specimen tree was needed. Mr. Patterson said that it was only setting a standard for what trees would count toward the total number. Mr. Patterson said the terms specimen tree and heritage had been used interchangeably, and he said that was not correct. Ms. McCullough said that setting a specimen tree at 5 inches seemed to get back toward credit and she thought they were trying to get away from that. Mr. Patterson said this was something that was already in the ordinance, but what was added was the protection for larger, heritage trees. He said the sizes he included would be 100-year-old trees, give or take 25 years.

Ms. McCullough asked about the citations, if it was supposed to be per day per tree. She asked what was done now, if it was per day per tree. Mr. Patterson said he didn't know a citation had been issued for this. He said it would be per day for the first 10 days.

For page 25, Ms. McCullough said they need to make some decisions on hardwood versus softwood, because there seemed to be some confusion about what they want to define. Mr. Patterson said that he thought it was the Board that was getting it confused and that it had been clearly defined. He said increasing the specimen trees to 8 inches and requiring a permit to cut one down would be an additional

layer for homeowners and enforcement. Ms. McCullough said that would be in the interest of protecting the canopy; Mr. Patterson said not building on a lot would also protect the canopy. Ms. McCullough said the stakeholders group had said 15 inches for hardwoods and 8 inches for a specimen tree. Mr. Patterson said that was not what he got out of the stakeholders meeting. Ms. McCullough asked Mr. Patterson if he had attended every stakeholders meeting; Mr. Patterson said he had not.

Ms. McCullough asked about the proposed changes on the top of page 28. Mr. Patterson said that the Planning Board had proposed a requirement for two trees to be in the front setback. He said if a lot met the requirements with trees elsewhere on the lot, two more trees would still have to be planted. He said if they want to shade town property, then the Town should plant trees, not require homeowners to do that. He clarified that if the total dbh were not met on a lot, planting in the front would be priority.

Answering a question from Ms. McCullough, Mr. Patterson agreed that the \$250 per inch buydown should be added back into the proposed amendments. Mr. Kirkland said another option was to reference the fee schedule for the amount.

Under (g)(1), Mr. Patterson said there were a variety of ways to harm a tree, and that this language would simplify that. He said there would be a two-year health check, and if trees that were retained or planted were dead, they would have to be replaced. Mr. Patterson said the damage he sees was when the roots were cut, not so much from activity in the root zone. He said that he would never recommend removing soil from the critical root zone. Ms. McCullough said that she thought protecting specimen trees was important to the community. There was also discussion about spacing and delayed plantings.

On the Table, Ms. McCullough suggested being specific of what was considered the "seaside" area. Mr. Patterson said it was the first two rows, and that it was noted several times in the ordinance.

Mr. Brooks asked Mr. Patterson about his expertise; Mr. Patterson said he had a degree in plant and soil science, and was a certified professional horticulturist. Mr. Brooks also asked about the science used; Mr. Patterson said that there were generalizations, and that each tree would have specific growth conditions. Mr. Patterson said that to be a heritage tree, he would think it needed to at least be mature. He said that a live oak was considered mature at 76 years old with a 15-inch dbh, give or take 5-10 years based on its location.

Mr. Brooks asked if the critical root zone was just to protect trees during construction. Mr. Patterson said that was correct, that the protections were for the construction period, and that a lot of it was common sense, like not stacking construction materials there, etc. Mr. Purser asked what would be allowed within the critical root zone during construction. Mr. Patterson said without his proposed revisions, nothing could be done in that zone. Mr. Purser said he was concerned nothing would be able to be built on a lot because of the size of the critical root zone. He also asked how a damaged or dead tree would be removed from a critical root zone. The Board and Mr. Patterson continued discussion using a specific lot as an example, the trees planted outside Town Hall and the care required for them. Mr. Purser said the tree ordinances had been a battle for years, and as long as something keeps being passed that is not achievable, it would not work. He said that the benefit from planting trees was seen tomorrow, not today. Ms. Morgan said that when someone buys a lot, that person is buying everything on it, like the soil, a fence, structures, and the trees; the trees are not publicly owned.

Chairman Cartner said that this time period was for asking questions of Mr. Patterson and that all the Board members would have time to speak.

Mr. Purser said his other concern was with the delayed planting, because he didn't think new homeowners would plant large trees in the yard after purchasing the house; he said it would be best to require the trees be planted during construction. He asked who would be responsible to explain all of that to homeowners, if it would be Town staff. Mr. Purser said that he thought a lot of this was being asked for by a special interest group of people who want to save trees. He said that when they talk to buyers, they do not want trees because they want the maintenance, except that they do want palm trees. He said that the majority they see do not want trees.

Mr. Purser asked if the buydown would stay with the land and who would keep up with those records. Mr. Patterson said that some jurisdictions require bonds, but that we were trying to do that without requiring bonds here.

Chairman Cartner noted that Mr. Bradley stepped out at 11 a.m. for a work call.

Chairman Cartner asked Mr. Patterson if he could discuss his qualifications to be the Town forester. Mr. Patterson said he had been asked this question many times and that he had clarified it over and over; he suggested anyone with those questions ask Town Manager David Kelly.

Chairman Cartner said that picking the number 22 inches dbh seemed arbitrary, and that if we don't save the trees that are 76 years old, we would never have 100-year-old trees. Mr. Patterson said he based his suggestion based on the research he had done. There was additional discussion about how trees grow here.

In Sec. 32-40, Chairman Cartner asked Mr. Patterson if he would agree to change "guidance" to "direction," and he said he would.

Answering a question from Chairman Cartner, Mr. Patterson said he was working on citations for people who had cut trees on Town property.

Chairman Cartner suggested on page 29, she suggested making it specific that it is funds collected from the buydown, or something specific.

Chairman Cartner asked if they should show a table of the invasive plants, and Mr. Patterson said he wouldn't recommend that; the list changes periodically and the Town doesn't set that list. Chairman Cartner asked if a link could be added.

Chairman Cartner said she also had concerns about striking "specimen trees," through much of the document.

Mr. Purser said that the ordinances should work and a buydown should not be needed to be able to fit on a lot. Chairman Cartner said that she took offense to his use of the term "special interest" and that it was about community interest. Mr. Purser said that they knew different communities.

Mr. Bradley spoke about his property and the need to plant 20 trees; he asked if they wanted to preserve trees or if they wanted to talk about planting trees.

Mr. Patterson said that right now, homeowners can cut all the trees down as soon as the C/O is issued. He said if we continue that, this was a wasted effort.

Chairman Cartner asked if he would be willing to look at the document from the August meeting and compare it to his recommendations. Mr. Patterson said he had watched the previous meeting, and that he didn't think his recommendation would change.

Chairman Cartner led an exercise of listing Board members concerns about the proposed revisions:

Mr. Bradley said two years was too long and it should be one year. He said it wanted this discussed again was that he was under the impression that Mr. Patterson had reviewed the draft the Board saw.

Ms. Morgan said that even a 2-inch dbh tree required heavy equipment to be moved around a lot. She said that requiring 11 2-inch dbh trees on her sample lot was unrealistic. Ms. Morgan also said she supported the buydown option because it gave people choices. She said they need to have something that can be applied. She said she would support 100 percent on the buydown. Answering a question from Chairman Cartner, Ms. Morgan said she thought the number should be one inch per 800 square feet. Ms. Morgan said they needed to go back to the stakeholders because there seemed to be a difference of opinion about what came out of those meetings. She said for protection of trees under construction, she wanted to add "within reason." She said we have to be able to prune trees to accommodate structures. On page 29 under number 4, she suggested eliminating the spacing requirement. Ms. Morgan said that to require maintaining trees would likely mean installing irrigation and buying water from the Town. She also said something that happens on the adjacent property can affect your trees. She said she would be willing to leave it in and let Town Council decide though. In 32-79, she said she was concerned that if there was a heritage tree on a property with a house that's been there 20 years, if they want to put in a pool or a Granny pod, were we going to say that people can't do things on their property. She wanted to add a statement that tree preservation would not inhibit development of property. She said that specimen trees should count at 2-inch dbh.

Mr. Purser said on page 30, he recommended not allowing delayed plantings. He also said he thought one year was more achievable than two. Mr. Purser said in 32-261a, his recommendation would be 1-inch dbh per 400 square feet, or six 2-inch trees per lot.

Mr. Brooks said he shared some of the concerns already mentioned. He also said the previous Planning Board made a motion to send this to Council, and he asked about the status. Chairman Cartner said Council requested it be held until the October meeting so they could see the tree canopy study. Mr. Brooks said the Town had paid money for a tree canopy study that this Planning Board and the previous Planning Board and Mr. Patterson didn't care about. He asked why they wouldn't wait and see the report. He said that they were plowing the same field over and over and over again. Chairman Cartner said she agreed, but that Board members had asked for this to be on the agenda.

Ms. McCullough said that a heritage tree should be 15 inches, and she didn't have a problem with adding softwoods per Mr. Patterson's recommendation. She said she thought the 1-inch dbh at 250 square feet should stand because a homeowner could go to the Board of Adjustment or do the buydown program. She also said that buydowns should not be used to take down a specimen or heritage tree. There was additional discussion about the Board of Adjustment, and whether it was difficult to get a variance.

Chairman Cartner said her suggestion was to hold on to this information and wait until the tree canopy study. She said she was not entertaining any motions on this today. Asked for an opinion on procedure, Ms. Stites said she didn't think the Board needed to make a decision today about what version of the proposed ordinance amendments to send forward to Council since the canopy study would not be presented to Council until the November meeting.

New Business I.2 Review and Discussion of Amendments to the Table of Uses
([SECTION_6.5_TABLE_OF_USES_AND_ACTIVITIES_Draft](#) [ARTICLE_7_SUPPLEMENTAL](#))

This item was removed from the agenda and will be placed on the Special Meeting Agenda for October 24, 2023.

New Business I.5 UDO Audit Tracker ([UDO AUDIT TRACKING.6.5 Table of Uses \(only\) Update](#))

Chairman Cartner said this was a tool that had been developed by the previous Chairman and updated by Ms. McCullough. Ms. McCullough said that when they started the UDO audit process, they decided they would keep track of the changes as they went through the UDO. She said that this section was just for the Table of Uses and had been updated.

III. BOARD MEMBER REPORTS

Ms. McCullough asked if there was a list of Special Use Permits that had been issued. Mr. Kirkland said staff was working to create a spreadsheet and scan documents for a backup of historical documents. Answering a question from Ms. McCullough, Mr. Kirkland spoke about the different types of vested rights. Ms. McCullough also thanked everyone for their work on the tree ordinances and asked them all to keep an open mind for compromise.

Ms. Morgan said that she loves trees, and that they all have a lot in common, but she sees a need for tree ordinances to be applicable for the small lots we have.

Mr. Bradley welcomed the new members.

Chairman Cartner said she appreciated everyone's time today.

IV. STAFF REPORTS

IV.1 Items awaiting Council Consideration: this report was provided in the agenda packets.

IV.2 Planning Staff Updates: Mr. Kirkland said an RFP would be sent to Council for approval for the Land Use Plan update. Planning Board training could be done in November. Mr. Kirkland also spoke about ongoing staff training.

V. **ADJOURN: Ms. McCullough made a motion to adjourn at 12:34 p.m. There were many seconds, and the motion passed unanimously.**

Chairman

Attested: _____
Lisa P. Stites, MMC
Town Clerk

MINUTES
PLANNING BOARD
THURSDAY, NOVEMBER 16, 2023 - 9:00 AM
COUNCIL CHAMBERS -- OAK ISLAND TOWN HALL

Present: Chairman Terri Cartner, Board members David Bradley, Gene Brooks, Melanie Morgan, David Purser, and Tim Pittman, Planning Director Matt Kirkland, and Town Clerk Lisa P. Stites MMC.

Chairman Cartner called the meeting to order at 9 a.m. and led the Pledge of Allegiance.

Vice Chairman Kerri McCullough was not present and could not attend remotely due to a work commitment. **Mr. Pittman made a motion to excuse Ms. McCullough, Mr. Bradley seconded, and the motion passed unanimously.**

ADJUSTMENT/APPROVAL OF THE AGENDA

Chairman Cartner made a motion to add Consideration of Changing the Meeting Date for December to the agenda. Mr. Brooks seconded, and the motion passed unanimously.

APPROVAL OF MINUTES ([101923PlanningBdMinutes](#) 102423PlanningBdMinutes)

Mr. Bradley made a motion to approve the October 19, 2023, Minutes as presented. Mr. Brooks seconded the motion, and it passed unanimously. Ms. Morgan made a motion to approve the October 24, 2023, Minutes as amended (to fix a typo and a change in the last sentence of the third paragraph on the first page to read “and the Table of Uses is one component of the UDO”). Mr. Bradley seconded the motion, and it passed unanimously.

PUBLIC COMMENT: There were no speakers.

PRESENTATIONS (PLANNING BOARD TRAINING)

Wes MacCloud, Local Government Affairs Director for the Cape Fear Council of Governments, led a Planning Board training session.

I. OLD BUSINESS

I.1 Continue Review of the Table of Uses and Supplemental Regulations

Mr. Kirkland gave a brief recap of where the Board was in its review of the Table of Uses and what information had been provided today. He said that last month, the Board had the beginning of a red-lined draft of the Table of Uses based on some of the discussions the Board had and based on staff’s efforts to consolidate some of the uses. He said last month, they had made it through Recreation and started working through Residential, Retail Sales and Services. He said they also tried to incorporate as much of the discussion on Special Uses that he found in their notes. He said the changes to the first half should be things the Board talked about, and then starting with Residential, there were some of the new consolidation recommendations. Mr. Kirkland said a clean version of those changes had also been provided. He asked for feedback from the Board on definitions and supplemental regulations.

Chairman Cartner said that there was a lot of data to capture, and that she started comparing her notes from July with the clean copy of the Table of Uses and said there were some changes that hadn’t been included; there was discussion about how to get those noted items to Mr. Kirkland. Chairman Cartner asked the Board members to review their own notes and the Minutes and compare them to the clean copy of the Table. She said, for example, under Educational on page 25 (the clean copy), they had made note to

strike those from the CB and keep in C-LD and change from “S” to “SS.” Chairman Cartner said that in the new Table, libraries were broken out, and she thought the reason for that was because of the free libraries. Mr. Kirkland said that private libraries were listed as “PS” in certain residential districts, and they would develop supplemental regulations that would essentially require those to be in the form of the small, free box libraries. Chairman Cartner said that all of those were supposed to all be “PS” and permitted in CB and C-LD. She asked everyone to review their notes and list anything they noticed that might need to be changed; those suggested changes would be sent to Chairman Cartner and copied to Ms. Stites.

Regarding Board input on supplemental regulations, Chairman Cartner said she thought it would be most helpful to finalize the Table and then identify areas where they need supplemental regulations or review. She said their goal was to remove as many of the “S” entries as possible and turn them into “SS,” or to eliminate them altogether.

Chairman Cartner said that since the Board members had a good bit of work to do on their own, and Mr. Kirkland wouldn’t have the information and make any changes for Monday; this meeting will not need to be recessed to November 20. The Board also discussed rescheduling the December 21 meeting. **Ms. Morgan made a motion to move the December 21 meeting to December 14 at 9 a.m., Mr. Bradley seconded, and the motion passed unanimously.** Chairman Cartner will have the compiled list to Mr. Kirkland by December 1; she asked Board members to have their information to her by November 28.

II. NEW BUSINESS

Consideration of Changing the Date for the December Meeting (addressed during Old Business)

III. BOARD MEMBER REPORTS

Chairman Cartner said that this was effectively her last formal meeting with the Planning Board. She said she appreciated staff’s dedication to the work of the Planning Board. She also thanked her fellow Board members for their contributions. She said working on the Planning Board was difficult, that it was hard to please everybody and there were lots of moving pieces. She said it may feel like a thankless job, but she was grateful for their willingness to participate and give of their time and expertise. She thanked them for their commitment.

IV. STAFF REPORTS

IV.1 Items awaiting Council Consideration: The report was part of the agenda packet.

IV.2 Planning Staff Updates: Mr. Kirkland said that PlanIT Geo presented the results of the Tree Canopy Assessment at the November Council meeting. He said that the group was working to upload data to a tree plotter app. Mr. Kirkland also said Town Council approved a Request for Proposals for the Land Use Plan update; he said four firms had already reached out to staff and responses were due December 15. Mr. Kirkland also spoke about new certifications members of the Planning staff had achieved and classes some had attended. Answering a question from Ms. Morgan, Mr. Kirkland said he would get clarification about what Council wanted as far as proposed tree ordinance amendments and said that could get back on the Planning Board’s agenda fairly quickly.

V. **ADJOURN: Mr. Bradley made a motion to adjourn at 10:37 a.m. There were many seconds, and the motion passed unanimously.**

Chairman

Attested: _____
Lisa P. Stites, MMC
Town Clerk

**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Selection of a Chairman
DATE: December 8, 2023
DEPARTMENT: Administration

Subject Summary: With the election of Terri Cartner to the Town Council, the Planning Board must select a new Chairman. Members may nominate one or more candidates and vote.

**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Continue Review of the Table of Uses and Supplemental Regulations
DATE: December 8, 2023
DEPARTMENT: Development Services

Subject Summary: The Planning Board will continue its review of the Table of Uses and supplemental regulations.

At the November 2023 meeting, the Board agreed to forward feedback to Staff for drafting. See attached for a redlined draft.

Staff has noted items that will need supplemental regulations developed and items that should be further defined.

Should the Board wish to move forward with this draft, staff will begin drafting definitions and supplemental regulations for the Board to consider.

Attachments:
[SECTION_6.5__TABLE_OF_USES_AND_ACTIVITIES._PBFeedback](#)

SECTION 6.5 TABLE OF USES AND ACTIVITIES.

- P - Permitted Use
- PS - Permitted Use with Supplemental Regulations
- S - Special Use
- SS - Special Use with Supplemental Regulations
- Blank - Not Permitted

Uses	Primary Zoning Districts												Overlay District	Supplemental Regulations
	R-20	R-9	R-7	R-6	R-6MF	R-6MH	CB	CR	C-LD	OS	AD	ID		
ACCESSORY USES/BUILDINGS														
Accessory buildings/structures	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS			PS	Section 7.2
Accessory structures (freestanding)	P	P	P	P	P	P	P	P	P	P			P	
Docks, gazebos, bulkheads, living shorelines, and piers	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS		Section 7.5
Home occupations	PS	PS	PS	PS	PS	PS								Section 7.7
Retaining walls and fences	PS	PS	PS	PS	PS	PS	PS	PS	PS	SS	PS	PS	PS	Section 7.8
Satellite dish antennas	PS	PS	PS	PS	PS	PS	PS	PS	PS		SS			Section 7.9
Solar energy generating facility, accessory	PS	PS	PS	PS	PS	PS	PS	PS	PS		PS	PS		Section 7.10
Temporary storage facility (portable storage units)	PS	PS	PS	PS		PS		PS	PS		PS	PS		Section 7.12
Walls and fences							PS	PS	PS	SS	PS	PS	PS	Section 7.57
Wind energy generating facility, accessory							SS	SS	SS		SS	SS		Section 7.13
EDUCATIONAL														
Colleges, universities, community colleges							S		SS					<u>Need to Draft</u>
Libraries, public *	PS	PS	PS	PS	PS	PS	P		P					<u>Need to Draft</u>
Libraries, private *	PS	PS	PS	PS	PS	PS	P		P					<u>Need to Draft</u>

Asterisk Indicates Needed Definition

School, K-12									PS					Need to Draft
School, trade or vocational *							<u>P</u>		<u>PS</u>			P		Need to Draft
INSTITUTIONAL														
Cemetery									PS					Section 7.14
Religious Institution	<u>PS</u> <u>SS</u>	<u>PS</u> <u>SS</u>	<u>PS-SS</u>	<u>PS-SS</u>	<u>PS</u> <u>SS</u>	<u>PS-SS</u>	PS	PS	PS					Section 7.15
Community or municipal sewage and water treatment plants				SS					SS			P		Need to Draft
Country clubs	SS													
Crematorium									PS					Section 7.16
Fire stations	<u>SS</u>	<u>SS</u>	<u>SS</u>	<u>SS</u>	<u>SS</u>	<u>SS</u>	P	P	P	<u>PS</u>	P	P		Need to Draft
Government buildings/ offices *	<u>SS</u>						P	P	P		P	P		
Governmental postal facilities-processing facilities *	S						P	P	P			P		Need to Draft
<u>Hospitals *</u>									<u>P</u>					
<u>Hospitals</u> , clinics, other medical treatment facilities *							<u>P</u>		P					
Military reserve, national guard centers											P	P		
Penal & correctional facilities												SS		Need to Draft
Private clubs or lodges *							PS	PS	PS					Section 7.17
<u>Non-profit clubs or lodges *</u>				<u>SS</u>			<u>PS</u>	<u>PS</u>	<u>PS</u>					Need to Draft
Public or private utility towers, substations, pumping stations and storage tanks	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	PS	Section 7.18
Recycling center *													P	
Special events *							P	P	P	P	<u>P</u>			
Utility company (no open-air storage)							P						P	
MANUFACTURING AND INDUSTRIAL														

Asterisk Indicates Needed Definition

Artisan's workshop (3,000 square feet or less)							PS	PS							Section 7.19
Artisan's workshop (exceeding 3,000 square feet)							SS						PS		Section 7.19
Building materials sales and storage yards									P				P		
Cabinet and woodworking establishments									P				P		
Cold storage plant													P		
Commercial-Industrial laundries *							P		P				P		
Feed and seed milling and storage													P		
Fertilizer sales													P		
Laboratories for research and testing *									P				P		
Manufacturing, Light													PS		Section 7.20
Manufacturing, Heavy													SS		<u>Need to Draft</u>
Mining or quarrying operations, including on-site sales of products													PS		<u>Need to Draft</u>
Petroleum bulk storage													PS		Section 7.20.2
Reclamation landfill													P		
Recycling processing centers													P SS		<u>Need to Draft</u>
OFFICES, PROFESSIONAL AND SERVICES															
Offices *							P		P						
Contractors offices and <u>with outdoor equipment storage</u> *									PS				PS		Section 7.21
Contractors offices (no outside storage)							P		P						
Engineering/surveying/architectural services-B general							PS		P						<u>Section 7.22</u>
RECREATIONAL															
Automobile and motorcycle racing track													P		
Recreational campgrounds and RV parks								PS	PS						Section 7.23

Asterisk Indicates Needed Definition

Coliseums, stadiums designed to accommodate more than 1,000 people										P					
Public Recreation Facility, Outdoor	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS		Need to Draft
Public Recreation Facility, Indoor	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS		Need to Draft
Commercial Recreation Facility, Outdoor								SS	SS	SS		SS			Need to Draft
Commercial Recreation Facility, Indoor								PS	PS	PS		PS			Need to Draft
Community centers *	<u>SS</u>							P	P	P					Need to Draft
Golf courses	<u>SS</u>	<u>S</u>													Need to Draft
Gun range, closed air										PS					Section 7.24
Gun range, open air													<u>PS-SS</u>		Section 7.24
Marinas/boatominium									PS	PS					Section 7.25
Movie theaters								P		P					
RESIDENTIAL															
Multi-unit assisted living with services *	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>									Need to Draft
Dwelling, garage apartment (as accessory)						S									
Dwelling, manufactured home Class A (on a single lot)							P								
Dwelling, multi-family						SS									
Dwelling, over a business *								PS	PS	PS					
Dwelling, single-family (small)	P	P	P	P	P	P			P	P					
Dwelling, single-family (large)	SS	SS	SS	SS	SS	SS			SS	SS					Section 7.27
Dwelling, single-family (mainland)	P	P	P	P	P	P				P					
Dwelling, three-family apartments						P									
Dwelling, townhouse development						SS					SS				
Dwelling, two-family (duplex)				P		P									
Family care home	PS	PS	PS	PS	PS	PS									Section 7.28

Asterisk Indicates Needed Definition

Family child care home	PS	PS	PS	PS	PS	PS									Section 7.4.2
Family foster home *	P	P	P	P	P	P									
Floating homes								P							
Manufactured housing parks									PS						Section 7.29
Residential child-care facility *	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>									Need to Draft
Small child care center	PS	PS	PS	PS	PS										
Temporary emergency, construction, and repair residences	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	Section 7.30
Tiny houses *						PS									Section 7.31
RETAIL SALES AND SERVICES															
Auction halls									P						
Audio/video production facilities							SS		P						Need to Draft
Automobile parking garages or parking lots (independent) *							SS		PS						Need to Draft
Publicly Owned Parking Lots *	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>PS</u>	<u>P</u>	<u>P</u>	<u>P</u>		<u>P</u>	<u>P</u>			Need to Draft
Automobile parts and accessories *									P						
Automobile repair shop or body shop *									P			P			
Automobile sales and service *									PS						Section 7.32
Automobile service stations *							PS		PS						Section 7.33
Automobile window tinting, stereo or rim installation *									P						
Bars							P		P						
Battery charging station *							SS		SS						Section 7.34
Battery exchange station *									SS						Section 7.34
Bed & breakfast			PS		SS			PS							Section 7.35
Car wash							SS		<u>PS</u>						Need to Draft
Child care center					SS	SS	SS		SS						Section 7.4.1
Coffee shop, no food prepared on site *							P		P						

Asterisk Indicates Needed Definition

Heating and air conditioning installation and repair (open storage allowed)								SS		PS							Section 7.21
Hotels and motels								S	S	P							
Kennels *								P		P							
Laundromat *																	
Manufactured home sales/modular home sales										P							
Microbrewery *								PS	PS	PS							Section 7.40
Motor vehicle, farm equipment, and boat sales or rental or sales and service										P							
Motor vehicle parts and accessories sales with installation										P							
Motor vehicle repair and maintenance, not including substantial body work										P							
Museums								P		P							
Music studio										P							
Night clubs and social clubs								SS	SS	SS							<u>Need to Draft</u>
Nursing home	\$	\$	\$	\$						PS							<u>Need to Draft</u>
Outdoor sales and displays (principal use)								SS	SS	SS							Section 7.44
Outdoor sales and displays (accessory use)								PS	PS	PS							Section 7.44
Plumbing repair contractor (no open storage)								P		P							
Plumbing repair contractor (open storage allowed)										PS							Section 7.21
Printing, publishing, and engraving establishments										P							
Private postal shipping and receiving								P		P							
Radio and TV stations/studios										P							

Asterisk Indicates Needed Definition

Rental of goods, merchandise, and equipment (no outside storage or display of goods)							PS		P			P		Need to Draft
Rental of goods, merchandise, and equipment (with outside storage and display of goods)									PS		PS			Need to Draft
Rental of recreation equipment							P	P	P		P			
Restaurants, without drive thru services *							P	P	P					
Restaurants, with drive thru services *							SS		<u>PS</u>					Need to Draft
Retail sales and services not otherwise listed							P	P	P					
Seafood processing, packing, and sales									PS			PS		Section 7.45
Sexually oriented businesses												PS		Section 7.46
Shopping center, less than 30,000 sq. ft. gross enclosed floor area								P	P					
Shopping center, greater than 30,000 sq. ft. gross enclosed floor area									P					
Tattoo/body piercing parlors									PS					Section 7.47
Theater housed in a permanent indoor structure							P		P					
Towing, automobile and truck									P			P		
Toy store							P		P					
Travel agencies							P		P					
Truck stop									SS			P		Need to Draft
Truck terminals												P		
Truck wash												P		
Upholstery - furniture repair									P					
Vendors							PS	PS	PS					Section 7.48
Vessel (boat) for hire							P	P						
Veterinarian, animal clinic, no outside kennel							SS		P					Need to Draft

Asterisk Indicates Needed Definition

Veterinarian, animal clinic, outside kennel										PS					Section 7.49
Watercraft and recreational vehicle sales										PS	PS				Section 7.32
TRANSPORTATION															
Airports <u>and related uses</u> *										<u>PS</u>		P			
Bus terminal										P					
Taxi stands									SS	P					
WHOLESALE SALES AND WAREHOUSING															
Agricultural product warehousing													P		
Self-service storage facility										P					
Salvage yards, junkyards, automobile graveyards													P		
Storage of goods not related to the sale or use of those goods on the same lot where they are stored													P		
Warehouses													P		
Wholesale sales										<u>SS</u>			P		<u>Need to Draft</u>
OTHER USES															
Agriculturally-related business *										<u>SS</u>					<u>Need to Draft</u>
Community gardens	P	P	P	P	P	P	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>					
Solar farm													PS		Section 7.51
Storage inside completely enclosed structure										P		P	P		
Storage outside completely enclosed structure										<u>SS</u>		<u>SS</u>	P		<u>Need to Draft</u>
Trash and garbage disposal facilities													P		
Temporary uses/sales									SS	SS					Section 7.52
Wind farm													PS		Section 7.53
Wireless communication facilities, 60' tall or less	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS		SS	SS		Section 7.54
Wireless communication facilities, more than 60' tall													PS		Section 7.54

Asterisk Indicates Needed Definition

Yard sales	PS	PS	PS	PS	PS	PS		PS	PS						Section 7.48
------------	----	----	----	----	----	----	--	----	----	--	--	--	--	--	--------------

(Ord. of 10-9-2018; Amend. of 4-9-2019; Amend. of 8-11-2020(2); Amend. of 10-13-2020(2) ; Amend. of 1-29-2021(1) ; Amend. of 2-9-2021(2) ; Amend. of 6-8-2021(10) ; Amend. of 8-10-2021; Amend. of 7-12-2022(3); Amend. of 4-11-2023(2))

**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Major Site Plan Review - Pine Forest Quads
DATE: December 4, 2023
DEPARTMENT: Planning

Subject Summary: Background

A Major Site Plan application for a proposed project within The Pine Forest Planned Unit Development has been submitted by Paramounte Engineering.

Section 5.4 of the Unified Development Ordinance (UDO) requires that projects not considered Minor Site Plans be reviewed by the Planning Board and sent to Town Council for approval.

Section 5.4.4 of the UDO allows the UDO Administrator to circulate the plans to relevant governmental agencies and officials for comments and recommendation.

The application was sent to the following agencies for review:

- Town of Oak Island Administration
- Town of Oak Island Building Inspections (Building and Fire Code review)
- Town of Oak Island Police
- Town of Oak Island Fire Department
- Town of Oak Island Public Works (Public Works, Water, and Sewer review)
- Town of Oak Island CAMA LPO and Floodplain Administrator
- Brunswick County Schools
- Brunswick County 911
- Brunswick County Utilities
- NCDOT
- Army Corps of Engineers
- NCDEQ
- Military Ocean Terminal Sunny Point

All relevant regulatory comments have been addressed and the Site Plan meets the requirements of the ordinance.

Summary

The proposed project is located within The Pine Forest Planned Unit Development and will use the existing access along Lake Club Circle. The Tax Parcel ID is 2030001712.

The Parcel is currently zoned C-LD. Development in the PUD is regulated by the Special Use Permit Master Plan, which is attached.

The Parcel is within an area of the PUD that is indicated as SFR (Single Family Residential). This designation

permits detached and attached residential as well as Performance Residential Development. The Parcel is labeled SFR23 on the attached Master Plan.

The proposed development would create 22 townhome-style residences for a density of 4.1 dwelling units per acre. The maximum density for this style of development in the PUD is 5.8 dwelling units per acre.

The proposed building height is a maximum of 20 ft.

The development has proposed 54 parking spaces for a ration of 2.45 spaces per unit and 6 ADA spaces. In addition, the proposed development includes 3 bicycle racks with 5 spaces per rack.

The site is not with in a Special Flood Hazard Area.

The proposal includes approximately 2.23 acres of open space, which is 42% of the site. The proposed development would preserve approximately 1.54 acres of wetlands within the open space. The residents of the proposed development will have access to the existing pool and clubhouse amenities in Pine Forest.

The proposal includes street yard buffers and parking lot landscaping that exceed of the requirements of the ordinances.

Attachments:

[23213.PE PINE FOREST QUADS.pdf](#)

[Exhibit A - Modified Pine Forest Plantation Master Plan - 121222](#)

Suggested Motion: Motion to recommend Town Council approve the major site plan for The Preserve.

PINE FOREST QUADS

PINE FOREST PLANTATION
OAK ISLAND, NORTH CAROLINA

DESIGN DRAWINGS
SEPTEMBER 2023

DEVELOPER:
PINE FOREST DEVELOPMENT COMPANY, LLC
355 INDUSTRIAL PARK DRIVE
BOONE, NC 28607

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

CONTRACTORS SHALL CONTACT OVERHEAD ELECTRIC PROVIDER TO COMPLY WITH FEDERAL OSHA 1910.333 MINIMUM APPROACH DISTANCE TO ENERGIZED POWERLINES AND OSH 29 CFR 1926.1407-1411 MUST BE FOLLOWED.

TOWN OF OAK ISLAND PLANNING
ATTN: MATTHEW KIRKLAND, PLANNING DIRECTOR
PH: 910-201-8054

PIEDMONT NATURAL GAS
ATTN: CATHY PLEASANT
PH: 910-251-2827

EMERGENCY DIAL 911
POLICE - FIRE - RESCUE

BRUNSWICK COUNTY PUBLIC UTILITIES
(WATER & SEWER)
ENGINEERING/INSPECTIONS
ATTN: WILLIAM PINNIX
PH: 910-253-4208

OPERATIONS/MAINTENANCE
PH: 910-253-2657

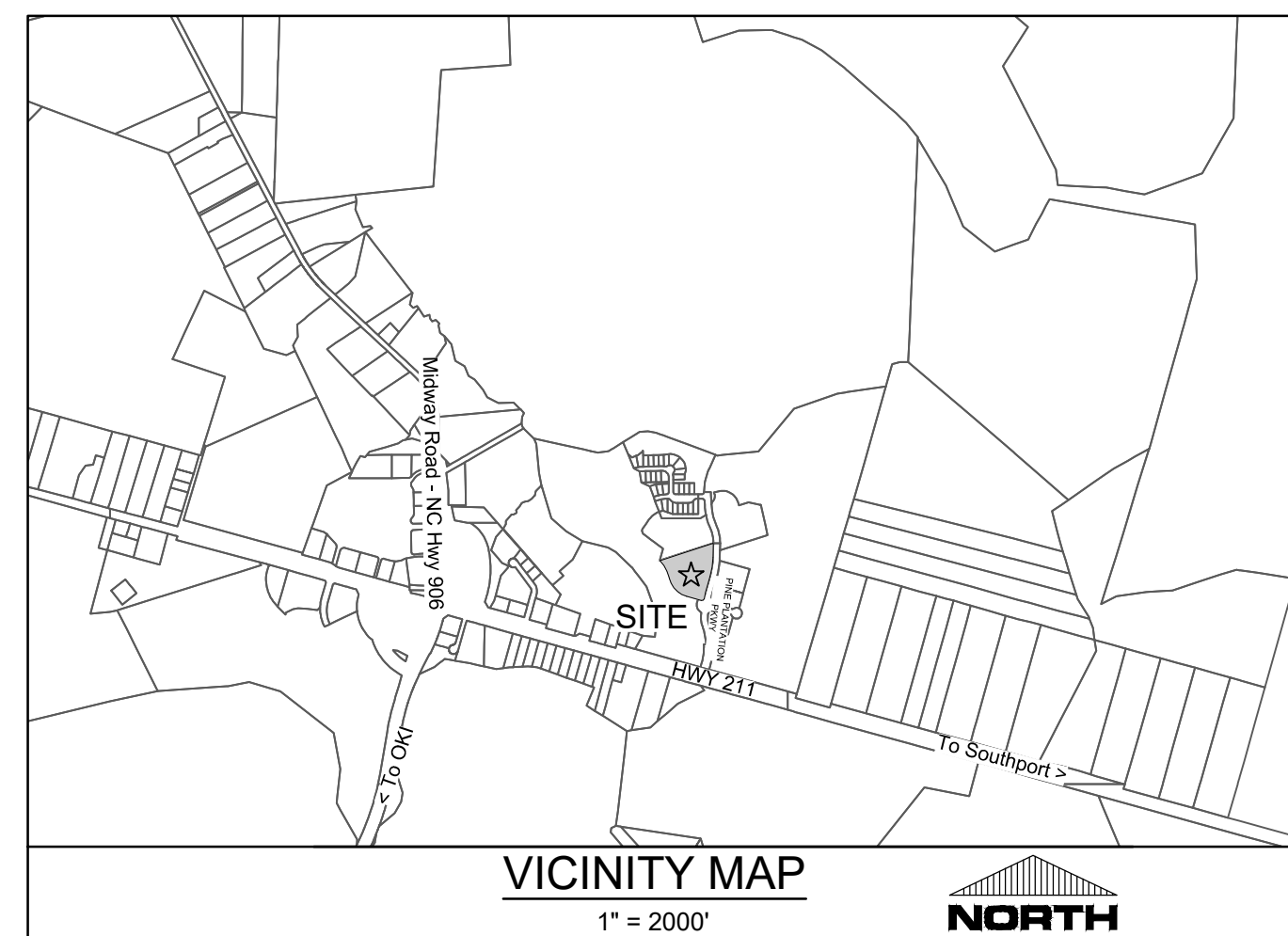
BRUNSWICK ELECTRIC MEMBERSHIP CORP.
SERVICE
PH: 1-800-842-5871

AT&T/BELL SOUTH
ATTN: JAMES BATSON, ENGINEERING
PH: 910-341-1621

TIME WARNER CABLE
PH: 910-763-4638



Know what's below.



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

PINE FOREST QUADS

PROJECT # 23213.PE SEPTEMBER 11, 2023

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-1.0 - C-1.1	GENERAL NOTES
C-2.0	SITE PLAN
C-3.0	EROSION CONTROL
C-4.0	GRADING & DRAINAGE
C-5.0 - C-5.2	PLAN AND PROFILES
C-6.10 - C-6.11, C-6.20	DETAILS
C-7.0 - C-7.3	UTILITY DETAILS

PROJECT CONSULTANTS

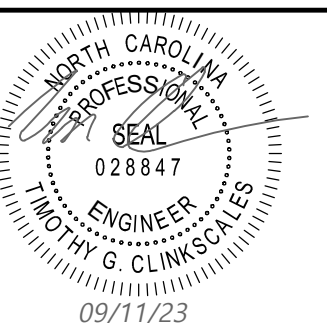
ARCHITECT
PLANWORX ARCHITECTURE
5711 Six Forks Road Suite 100
Raleigh, NC 27609
Brian Bates (919) 424 1941

ENGINEER/ LAND PLANNER/ LANDSCAPE ARCHITECT
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NC 28403
CIVIL: TIM CLINKSCALES, PE (910-791-6707)
LANDSCAPE ARCHITECT: JIM CIRELLO, RLA (910-791-6707)

SURVEYOR
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NC 28403
JOSH TAYLOR, PLS (910-791-6707)

PREPARED BY:

PARAMOUNTE
ENGINEERING, INC.
122 Cinema Drive Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846



COORDINATION NOTES:

- 1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND WITH BRUNSWICK COUNTY, & BRUNSWICK COUNTY UTILITIES AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT.
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK.
5. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS BY OTHERS FOR ALL BUILDING DIMENSIONS AND DETAILS.

GENERAL NOTES:

- 1. TREE INVENTORY AND TOPOGRAPHIC SURVEY COMPLETED BY PARAMOUNT ENGINEERING, INC. THE SURVEY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE OWNER AND ENGINEER.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES.
3. CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES.
4. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
5. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
7. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AN ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
8. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION.
9. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
10. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
11. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
12. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
13. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
14. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, CURB AND GUTTERS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED OR REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
15. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT.
16. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW.
17. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES.
18. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
19. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
20. ALL LOT STRIPING AND DIRECTIONAL ARROWS TO BE REFLECTIVE MARKINGS AND SHALL CONFORM TO MUTCD.
21. LANDSCAPE PLANTINGS AT ENTRANCE/ EXITS WILL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCE/EXIT LOCATIONS PER LOCAL STANDARDS.
22. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

- 1. THE EROSION CONTROL PLAN SHALL INCLUDE PROVISIONS FOR GROUND COVER ON ALL EXPOSED PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK.
3. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
5. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
6. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO NEW HANOVER COUNTY FOR APPROVAL.
7. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER THE REVIEWING AGENCY OR THE ENGINEER.
8. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
9. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SOODED OR SEEDED AS INDICATED AND STABILIZED.
10. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.
11. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RAINOFF-PRODUCING EVENT.
12. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE ENGINEER.
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA.
14. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE DIVISION OF WATER QUALITY SHALL BE CONTACTED PRIOR TO DISTURBING A CREEK.
15. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
16. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
17. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AN ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
18. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION.
19. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
20. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
21. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
22. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
23. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
24. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, CURB AND GUTTERS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED OR REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
25. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT.
26. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW.
27. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES.
28. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
29. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
30. ALL LOT STRIPING AND DIRECTIONAL ARROWS TO BE REFLECTIVE MARKINGS AND SHALL CONFORM TO MUTCD.
31. LANDSCAPE PLANTINGS AT ENTRANCE/ EXITS WILL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCE/EXIT LOCATIONS PER LOCAL STANDARDS.
32. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.

DEMOLITION NOTES:

- 1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL PRODUCE A PHOTOGRAPHIC RECORD (DIGITAL) OF DEVELOPMENT COMMENCING WITH A RECORD OF THE SITE AS IT APPEARS BEFORE DEMOLITION HAS BEGUN.
7. EXISTING CURB AND GUTTER, LIGHTS, SIDEWALK, AND UTILITIES NOT INTENDED FOR DEMOLITION SHALL BE MAINTAINED, PROTECTED AND UNDISTURBED DURING DEMOLITION.
8. ALL EXISTING IMPROVEMENTS INDICATED OR REQUIRED TO BE DEMOLISHED SHALL INCLUDE REMOVAL FROM THE PROPERTY AND PROPER DISPOSAL.
9. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES INCLUDING CABLE, GAS, TELEPHONE AND ELECTRIC AND ANY OTHER UTILITIES THROUGH THE SITE WITH THE RESPECTIVE COMPANIES.
10. CONTRACTOR SHALL MAINTAIN REQUIRED DISTANCES FROM HIGH VOLTAGE OVERHEAD LINES AND REMOVE TREES SO THEY DO NOT FALL TOWARDS OVERHEAD ELECTRICITY.
11. PROVIDE SMOOTH SAW CUT OF EXISTING PAVEMENTS, CURBS AND GUTTERS AND SIDEWALKS TO BE DEMOLISHED.
12. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS OSHA REGULATIONS.
13. EXISTING FIRE HYDRANTS ON OR NEAR THE SITE ARE TO REMAIN IN SERVICE.
14. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS.

EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES:

- NOTE: THESE EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES ARE INTENDED FOR EACH PHASE OF CONSTRUCTION. THE ORDER AND STEPS TAKEN MUST BE IMPLEMENTED AS EACH PART OF THE PROJECT IS DEVELOPED.
1. CONSTRUCT TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S), ESTABLISH THE LIMITS OF DISTURBANCE, TREE PROTECTION FENCING, AND TEMPORARY SILT FENCE.
2. CLEAR AND REMOVE FROM SITE TREES AS DESIGNATED, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING LIMITS.
3. CONSTRUCT TEMPORARY SEDIMENT BASIN(S) AND ASSOCIATED SKIMMER, OUTLET PIPE, SPILLWAY, ETC.
4. INSTALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE PLANS WITHIN THE AREA DISTURBED.
5. PLANT GRASS OVER ALL GRADED AREAS WITHIN 14 WORKING DAYS OF CEASE OF ANY GRADING ACTIVITY.
6. IMMEDIATELY UPON THE INSTALLATION OF ANY STORM DRAINAGE CATCH BASIN, DROP INLET, ETC., THE CONTRACTOR SHALL INSTALL INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION CONTROL MEASURES.
8. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETE, THE CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL APPROVAL BY ENGINEER OR EROSION CONTROL INSPECTOR.
9. UPON RECEIVING FINAL APPROVAL, THE CONTRACTOR CAN REMOVE TEMPORARY EROSION CONTROL MEASURES.
10. THE CONTRACTOR SHALL CONTINUE TO WATER, FERTILIZE, MOW AND MAINTAIN GRASS & PLANTED AREAS UNTIL ALL CONSTRUCTION IS COMPLETE.

EROSION CONTROL MAINTENANCE PLAN:

- 1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY 1/2-INCH OR GREATER RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH.
3. SEDIMENT FENCE - SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF-FILLED.
4. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS ON THESE PLANS AND CONTRACT SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
5. INLET PROTECTION - SEDIMENT SHALL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL.
6. SEDIMENT BASIN/SEDIMENT TRAPS - REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO WITHIN ONE HALF OF THE DESIGN DEPTH.
7. SKIMMER - INSPECT SKIMMER AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL.
8. OUTLET PROTECTION - INSPECT RIP RAP OUTLET STRUCTURES WEEKLY AND AFTER RAINFALL EVENTS.
9. EMERGENCY SPILLWAY / FOREBAY PROTECTION - AFTER EVERY HIGH-WATER EVENT INSPECT THE INTEGRITY OF THE LINED SPILLWAY AND THE ADJACENT EARTHEN BANKS.
10. DIVERSION DITCHES / GRASS SWALES - INSPECT THE CHANNEL OUTLET AND ALL ROAD CROSSINGS FOR BANK STABILITY AND EVIDENCE OF PIPING OR SCOUR HOLES.
11. CHECK DAMS - EXCELSIOR OR RIP-RAP - SEDIMENT SHALL BE REMOVED FROM THE DAM WHEN IT REACHES HALF-FILLED.
12. TEMPORARY CULVERT - INSPECT THE CULVERT AND SUPPORTING DIVERSION AFTER EVERY RAINFALL.
13. CONCRETE WASHOUTS - CONCRETE WASHOUTS SHOULD BE INSPECTED DAILY AND AFTER HEAVY RAINS.
14. WATTLE BARRIER - IT IS IMPORTANT THAT THE WATTLE BARRIERS BE KEPT CLEAN TO ALLOW WATER TO FLOW THROUGH THE NATURAL FIBERS.

PERMANENT SEEDING

Table with 4 columns: GRASS TYPE, LBS/ ACRE, TIME OF SEEDING, FERTILIZER LIMESTONE. Rows include Bermuda, Hulled Bermuda, Centipede, Tall Fescue, and Slopes >= 2:1 Centipede.

TEMPORARY SEEDING

Table with 4 columns: GRASS TYPE, LBS/ ACRE, TIME OF SEEDING, FERTILIZER LIMESTONE. Rows include Rye Grass, Sweet Sudan Grass, German or Browntop Millet, and Straw Mulch.

NO ACCESSIBILITY NOTES:

- GENERAL NOTES:
1. SPECIAL ATTENTION SHALL BE GIVEN TO COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE(ANSI) A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. IT IS ESSENTIAL THAT CONTRACTORS ARE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS.
3. THESE NOTES AND DETAILS ARE INTENDED TO DEPICT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY.
ACCESSIBLE ROUTE NOTES:
1. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES.
2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS, AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
3. WALKING SURFACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL HAVE A MAXIMUM RUNNING SLOPE OF 5.0% AND A MAXIMUM CROSS SLOPE OF 2.0%.
4. ANY WALKING SURFACE THAT IS PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5.0% IS A RAMP AND SHALL COMPLY WITH THE GUIDELINES FOR RAMPS OR CURB RAMPS.
5. TRANSITIONS BETWEEN RAMPS, WALKS, LANDINGS, GUTTERS OR STREETS SHALL BE FLUSHAND FREE OF ABRUPT VERTICAL CHANGES (14 INCH MAXIMUM VERTICAL CHANGE IN LEVEL PERMITTED).
6. FLOOR SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.
7. THE MINIMUM CLEAR WIDTH OF EXTERIOR ACCESSIBLE ROUTES SHALL BE FORTY-EIGHT (48) INCHES MINIMUM MEASURED BETWEEN HANDRAILS WHERE HANDRAILS ARE PROVIDED (NC BUILDING CODE 1104.1 & 1104.2).
8. WHERE AN ACCESSIBLE ROUTE MAKES A 180 DEGREE TURN AROUND AN OBJECT THAT IS LESS THAN FORTY-EIGHT (48) INCHES IN WIDTH, CLEAR WIDTH SHALL BE FORTY-TWO (42) INCHES MINIMUM APPROACHING THE TURN, FORTY-EIGHT (48) INCHES MINIMUM DURING THE TURN, AND FORTY-TWO (42) INCHES MINIMUM LEAVING THE TURN.
9. AN ACCESSIBLE ROUTE WITH A CLEAR WIDTH LESS THAN SIXTY (60) INCHES SHALL PROVIDE PASSING SPACES AT INTERVALS OF TWO HUNDRED (200) FEET MAXIMUM.
10. DOORS, DOORWAYS AND GATES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE(ANSI) A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
11. DIRECTIONAL SIGNAGE INDICATING THE ROUTE TO THE NEAREST ACCESSIBLE BUILDING ENTRANCE SHALL BE PROVIDED AT INACCESSIBLE BUILDING ENTRANCES.
12. WHERE POSSIBLE, DRAINAGE INLETS SHALL NOT BE LOCATED ON AN ACCESSIBLE ROUTE.
13. FLOOR SURFACES OF RAMPS AND LANDINGS SHALL BE STABLE, FIRM AND SLIP RESISTANT.
14. EDGE PROTECTION COMPLYING WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NC BUILDING CODE(ANSI) A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND ON EACH SIDE OF RAMP LANDINGS.
15. WHERE DOORWAYS ARE LOCATED ADJACENT TO A RAMP LANDING, MANEUVERING CLEARANCES REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NC BUILDING CODE(ANSI) A117.1 SHALL BE PERMITTED TO OVERLAP THE REQUIRED LANDING AREA.
16. CURB RAMP NOTES:
1. THE MAXIMUM RUNNING SLOPE OF A CURB RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
2. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 5%.
3. THE CLEAR WIDTH OF A CURB RAMP SHALL BE 36 INCHES (36) MINIMUM, EXCLUSIVE OF FLARED SIDES, IF PROVIDED.
4. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS.
5. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES.
6. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT EXCEED 10%.
7. CURB RAMPS AND THE FLARED SIDES OF CURB RAMPS SHALL BE LOCATED SO THAT THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES, PARKING SPACES OR PARKING ACCESS AISLES.
8. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.
9. IT IS RECOMMENDED TO PROVIDE CURB RAMPS WITH A TWENTY-FOUR (24) INCH DEEP DETECTABLE WARNING COMPLYING WITH 406.12 A117.1, EXTENDING THE FULL WIDTH OF THE RAMP.
10. FLOOR SURFACES OF CURB RAMPS SHALL BE DEEP GROOVED, 1/4 INCH WIDE BY 1/4 INCH DEEP, ONE (1) INCH CENTERS TRANSVERSE TO THE RAMP.
11. WHERE PROVIDED, STOP LINES SHALL BE LOCATED IN ADVANCE OF CURB RAMP.
12. WHERE PROVIDED, PEDESTRIAN ACTIVATED SIGNALS SHALL BE LOCATED ADJACENT TO THE SIDEWALK AND NOT ON THE SIDEWALK.
13. WHERE PROVIDED, DRAINAGE INLETS SHALL BE LOCATED UPSTREAM OF CURB RAMPS AND NOT IN THE RAMP AREA.
14. CURB RAMP TYPE AND LOCATION ARE PER PLAN.

NC ACCESSIBILITY NOTES CONTD.

- PARKING SPACE NOTES:
1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTES OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE.
2. ACCESSIBLE PARKING SPACES SHALL BE AT LEAST NINETY-SIX (96) INCHES WIDE.
3. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH PROVISIONS FOR ACCESSIBLE ROUTES.
4. TWO (2) ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.
5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACE THEY SERVE.
6. ACCESS AISLES SHALL BE MARKED SO AS TO DISCOURAGE PARKING IN THEM.
7. ACCESS AISLES SHALL NOT OVERLAP THE VEHICULAR WAY.
8. FLOOR SURFACES OF PARKING SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT.
9. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
10. PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE.
11. PARKING SPACES FOR VANS AND ACCESS AISLES AND VEHICULAR ROUTES SERVING THEM SHALL PROVIDE A VERTICAL CLEARANCE OF NINETY-EIGHT (98) INCHES MINIMUM.
12. EACH ACCESSIBLE PARKING SPACE SHALL BE PROVIDED WITH SIGNAGE DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
13. SIGNAGE AT ACCESSIBLE PARKING SPACES REQUIRED BY THE NC BUILDING CODE SECTION 1106.15 SHALL COMPLY WITH THE REQUIREMENTS OF NORTH CAROLINA GENERAL STATUTE 20-37.6 AND 136-30 AND THE NC DOT UNIFORM MANUAL ON TRAFFIC CONTROL DEVICES.
14. ACCESSIBLE PARKING SPACE, ACCESS AISLE STRIPING, AND INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE PAINTED BLUE (OR ANOTHER COLOR THAT CAN BE DISTINGUISHED FROM PAVEMENT).
PASSENGER LOADING ZONE NOTES:
1. PASSENGER LOADING ZONES SHALL PROVIDE VEHICULAR PULL-UP SPACE NINETY-SIX (96) INCHES WIDE MINIMUM AND TWENTY (20) FEET LONG MINIMUM.
2. PASSENGER LOADING ZONES SHALL PROVIDE A CLEARLY MARKED ACCESS AISLE THAT IS SIXTY (60) INCHES WIDE MINIMUM AND EXTENDS THE FULL LENGTH OF THE VEHICLE PULL-UP SPACE THEY SERVE.
3. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE AND NOT OVERLAP THE VEHICULAR WAY.
4. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
5. FLOOR SURFACES OF VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT.
6. VEHICLE PULL-UP SPACES, ACCESS AISLES SERVING THEM AND A VEHICULAR ROUTE FROM AN ENTRANCE TO THE PASSENGER LOADING ZONE, AND FROM THE PASSENGER LOADING ZONE TO A VEHICULAR EXIT SERVING THEM, SHALL PROVIDE A VERTICAL CLEARANCE OF ONE HUNDRED FOURTEEN (114) INCHES MINIMUM.
ACCESSIBLE ENTRANCE NOTES:
1. ACCESSIBLE ENTRANCES SHALL BE PROVIDED AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) AND THE NORTH CAROLINA BUILDING CODE, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. ENTRANCE DOORS, DOORWAYS AND GATES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) THE NC BUILDING CODE(ANSI) A117.1 AND SHALL BE ON AN ACCESSIBLE ROUTE.

LEGEND:

Legend table mapping symbols to field conditions: IRF (Iron Rod Found), IRS (Iron Rod Set), PKF (PK Nail Found), PKNS (PK Nail Set), W (Water Line), FM (Forcemain Line), SS (Sanitary Sewer Line), EP (Edge of Pavement), WET (Wetland Delineation), UT (Utility), GUY (Guy Anchor), TRANS (Transformer), TEL (Telephone Riser), WTR (Water Meter), VAL (Water Valve), FHY (Fire Hydrant), IRR (Irrigation Valve), CLE (Clean-Out), SSM (Sanitary Sewer Manhole), SDR (Storm Drainage Manhole), WEL (Well), CIB (Curb Inlet), CATCH (Catch Basin), GAS (Gas Meter), MAIL (Mailbox), TREE (Tree See Descr).

Vertical sidebar containing: REVISIONS table, CLIENT INFORMATION (PINE FOREST DEVELOPMENT COMPANY, LLC), PROJECT STATUS (CONCEPTUAL LAYOUT, FINAL DESIGN, RELEASED FOR CONSTRUCTION), DRAWING INFORMATION (DATE: 09/11/2023, SCALE: AS SHOWN, DRAWN BY: JER, CHECKED BY: JEC), PROJECT STATUS (09/11/2023), DRAWING INFORMATION (09/11/2023), SEAL (Professional Engineer Seal for J. E. Clumley, No. 02884), 811 logo with text 'Know what's below. Call before you dig.', and C-1.0 title block with PEI JOB#: 23213.PE.

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

GENERAL NOTES

PINE FOREST QUADS TOWN OF OAK ISLAND BRUNSWICK CO., NORTH CAROLINA

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Site Area Description	Required Ground Stabilization Timeframes	
	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING EFFECTIVE: 04/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and the will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected. 2. Date and time of the inspection. 3. Name of the person performing the inspection. 4. Indication of whether the measures were operating properly. 5. Description of maintenance needs for the measure. 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected. 2. Date and time of the inspection. 3. Name of the person performing the inspection. 4. Evidence indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration. 5. Indication of visible sediment leaving the site. 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits. 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframes or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&SC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC Plan.	Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC Plan.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC Measures.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation

In addition to the E&SC Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This general permit as well as the certificate of coverage, after it is received.
- Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that must be reported

Permittees shall report the following occurrences:

- Visible sediment deposition in a stream or wetland.
- Oil spills if:
 - They are 25 gallons or more.
 - They are less than 25 gallons but cannot be cleaned up within 24 hours.
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
- Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 149-215.85.
- Anticipated bypasses and unanticipated bypasses.
- Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(d) above	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions that may endanger health or the environment [40 CFR 122.41(j)(7)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(j)(6). Division staff may waive the requirement for a written report on a case-by-case basis.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING EFFECTIVE: 04/01/19



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

NPDES NCG01 NOTES

PINE FOREST QUADS TOWN OF OAK ISLAND BRUNSWICK CO., NORTH CAROLINA

C-1.1

PEI JOB#: 23213.PE

PROJECT STATUS: 08/11/2023
 CONCEPTUAL LAYOUT: 08/11/2023
 FINAL DESIGN: 08/11/2023
 RELEASED FOR CONSTRUCTION: 08/11/2023

DRAWING INFORMATION: 08/11/2023
 DATE: 08/11/2023
 SCALE: 1"=40'
 DRAWING: 08/11/2023
 CHECKED: TGC

SEAL: 028847
 ENGINEER: [Signature]
 09/11/23

REVISIONS:
 CLIENT INFORMATION:
 PINE FOREST DEVELOPMENT COMPANY, LLC
 355 Industrial Park Drive
 Boone, NC 28607

PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6760 (F)
 NC License #: C-2846

STORM SCHEDULE:

Upstream Structure	Downstream Structure	Diameter (in)	Upstream Rim Elev. (ft)	Downstream Rim Elev. (ft)	Upstream Pipe Invert (ft)	Downstream Pipe Invert (ft)	Pipe Length (ft)	Slope (%)	Material
MH-A2	EX-MH	30	49.00	50.84	41.33	41.18	61	0.25	Concrete
MH-A1	MH-A2	30	48.72	49.00	41.46	41.33	50	0.25	Concrete
DI-C1	MH-A1	24	48.64	48.72	41.59	41.46	53	0.25	Concrete
DI-C2	DI-C1	24	48.14	48.64	41.93	41.59	136	0.25	Concrete
DI-C3	DI-C2	24	48.06	48.14	42.13	41.93	82	0.25	Concrete
DI-B1	MH-A1	30	48.32	48.72	41.54	41.46	35	0.25	Concrete
DI-B2	DI-B1	24	48.21	48.32	41.80	41.54	101	0.25	Concrete
DI-B3	DI-B2	24	48.07	48.21	42.02	41.80	90	0.25	Concrete
DI-B4	DI-B3	24	48.06	48.07	42.22	42.02	77	0.25	Concrete

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- SPOT GRADE

DRAINAGE NOTES:

- DRAINAGE EASEMENT AND STORMWATER SYSTEM MAINTENANCE IS THE RESPONSIBILITY OF THE DEVELOPER OR HOA, INCLUDING PONDS, PIPES, AND INFILTRATION BASINS AND TRENCHES.
- ALL IMPERVIOUS AREA MUST DRAIN TO THE DESIGNED STORMWATER SYSTEM, PER THE APPROVED PLANS.
- NO OBSTRUCTIONS ARE ALLOWED IN DRAINAGE EASEMENTS, INCLUDING FENCES.
- ALL STORM DRAINAGE STRUCTURES SHALL MEET NCDOT STANDARDS AND SPECIFICATIONS AND SHALL BE TRAFFIC RATED FOR H-20 LOADS AT A MINIMUM.
- ALL CATCH BASIN (CB) RIM ELEVATIONS AND YARD INLET (YI) THROAT ELEVATIONS ARE LISTED AS THE "GUTTER OF FLOWLINE ELEVATION" WITHIN THE CURB SECTION. THE CONTRACTOR SHALL MAINTAIN A UNIFORM EDGE OF PAVEMENT (EOP) WHEN PLACING THE STORM INLETS WITHIN THE CURB-LINE (SEE "CURB TRANSITION" DETAIL). FOR CATCH BASINS WITHIN A TRANSITION FROM 24" STANDARD CURB & GUTTER, THE RIM ELEVATION GIVEN IS 1 INCH BELOW EOP.
- MANHOLE RIM ELEVATION SHOWN ABOVE IS FLUSH WITH PROPOSED GRADE. CONTRACTOR SHALL PROVIDE 6" CLEARANCE ABOVE PROPOSED GRADE WHEN PLACED IN A GRASS/PERVIOUS AREA, AND A FLUSH CONDITION WITH PROPOSED PAVEMENT OR IMPERVIOUS COVER.
- PROPOSED BUILDINGS SHALL DIVERT ROOF DRAINAGE TO STORMWATER COLLECTION SYSTEM.
- CONTRACTOR SHALL ADJUST ALL FRAMES OF EX. UTILITY INFRASTRUCTURE WITHIN ASPHALT OVERLAY AREAS TO MATCH PROPOSED GRADES.
- THE CONTRACTOR SHALL USE EITHER RCP (CL III UNLESS OTHERWISE NOTED) OR HDPE PIPE FOR THE STORM DRAINAGE SYSTEM. IF THE CONTRACTOR CHOOSES TO USE HDPE PIPE, IT SHALL BE ADS-N-12 WT STORM PIPE OR APPROVED EQUAL AND SHALL BE INSTALLED TO MANUFACTURER SPECIFICATIONS. IN ADDITION, THE CONTRACTOR SHALL BE SURE TO PROVIDE CONCRETE COLLARS AROUND EACH F.E.S. TO PREVENT FLOTATION IF HDPE PIPE IS CHOSEN.

NOTES:

- SEE GENERAL NOTES SHEET (C-1.0) FOR GRADING, DRAINAGE AND EROSION CONTROL NOTES AND DETAILS FOR MORE INFORMATION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF NC AND BRUNSWICK COUNTY STANDARDS AND SPECIFICATIONS.
- GEOTECHNICAL TESTING SHALL BE PERFORMED ON-SITE. A GEOTECHNICAL ENGINEER SHALL BE CONSULTED TO CONFIRM SUITABILITY OF SUBGRADE MATERIAL AND PROPER COMPACTION IN FILL AREAS.

ASPHALT AREA NOTE:

- SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITABLE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED SUBGRADE, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

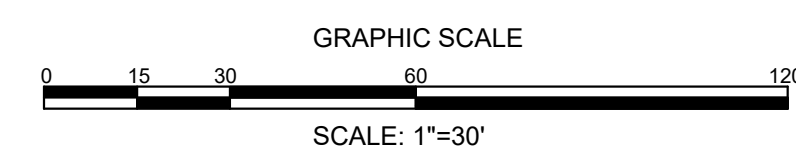
BUILDING PAD NOTE:

- SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITABLE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED BUILDING PAD, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

NOTATION:

CB = CATCH BASIN	TC = TOP OF CURB ELEVATION
DI = DROP INLET	BC = BOTTOM OF CURB (GUTTER) ELEVATION
MH = STORM MANHOLE	PG = PROPOSED GRADE
YD = YARD DRAIN	HP = HIGH POINT ELEVATION
FFE = FIRST FLOOR ELEVATION	LP = LOW POINT ELEVATION
RD* = ROOF DRAIN CONNECTION*	SW = SIDEWALK ELEVATION

*PROVIDE IN-LINE CLEANOUT AND CONNECTION TO DOWNSPOUT - SEE ARCHITECTURAL & PLUMBING PLANS FOR DOWNSPOUT CONNECTIONS.



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

<p>REVISIONS:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION				<p>CLIENT INFORMATION:</p> <p>PINE FOREST DEVELOPMENT COMPANY, LLC 355 Industrial Park Drive Boone, NC 28607</p>	<p>PROJECT STATUS:</p> <p>CONCEPTUAL LAYOUT: 08/01/2023 FINAL DESIGN: 08/11/2023 RELEASED FOR CONSTRUCTION: 09/11/23</p>
NO.	DATE	DESCRIPTION						
<p>PARAMOUNT ENGINEERING</p> <p>122 Cinema Drive Wilmington, North Carolina 28403 (910) 791-6707 (O) (910) 791-6760 (F) NC License #: C-2846</p>		<p>DRAWING INFORMATION:</p> <p>DATE: 08/11/2023 SCALE: 1" = 30' DESIGNED: LER CHECKED: TTC</p>						
<p>GRADING AND DRAINAGE PLAN</p> <p>PINE FOREST QUADS TOWN OF OAK ISLAND BRUNSWICK CO., NORTH CAROLINA</p>		<p>SEAL:</p>						
<p>C-4.0</p>		<p>PEI JOB#: 23213 PE</p>						



WETLANDS WITHIN PROPERTY
± 1.54 ACRES

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0904 & T15A.18C.0906)

1. WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
2. WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
5. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
6. A MINIMUM VERTICAL DISTANCE OF 12" SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF OTHER UTILITIES.

GRAVITY SEWER NOTES:

1. ALL MANHOLES LOCATED WITHIN 50' OF WETLANDS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - 1.1. SEAMS SHALL BE EXTERNALLY TAPED / SEALED WITH WATERTIGHT MATERIAL.
 - 1.2. ALL MANHOLE INTERIORS SHALL BE FULLY LINED WITH WATERPROOF COATING.
 - 1.3. MANHOLES SHALL BE TESTED IN ACCORDANCE WITH ASTM C1244 "STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY NEGATIVE AIR PRESSURE (VACUUM) TEST PRIOR TO BACKFILL."
2. ALL SEWER PIPE MATERIALS, INSTALLATION, AND TESTING SHALL MEET WATER MAIN STANDARDS WHEN LOCATED WITHIN 50' OF WETLANDS.

WATER DISTRIBUTION NOTES:

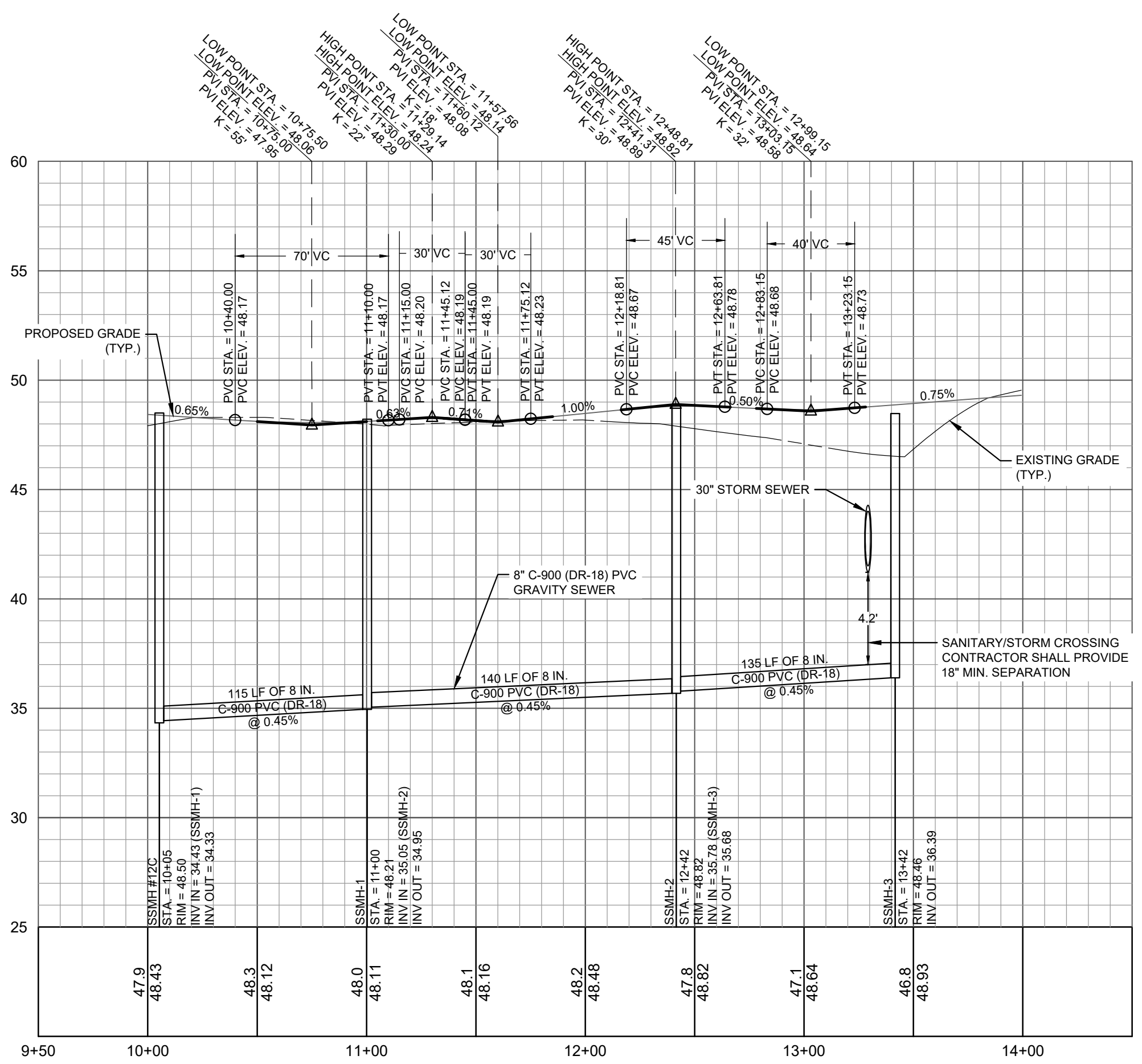
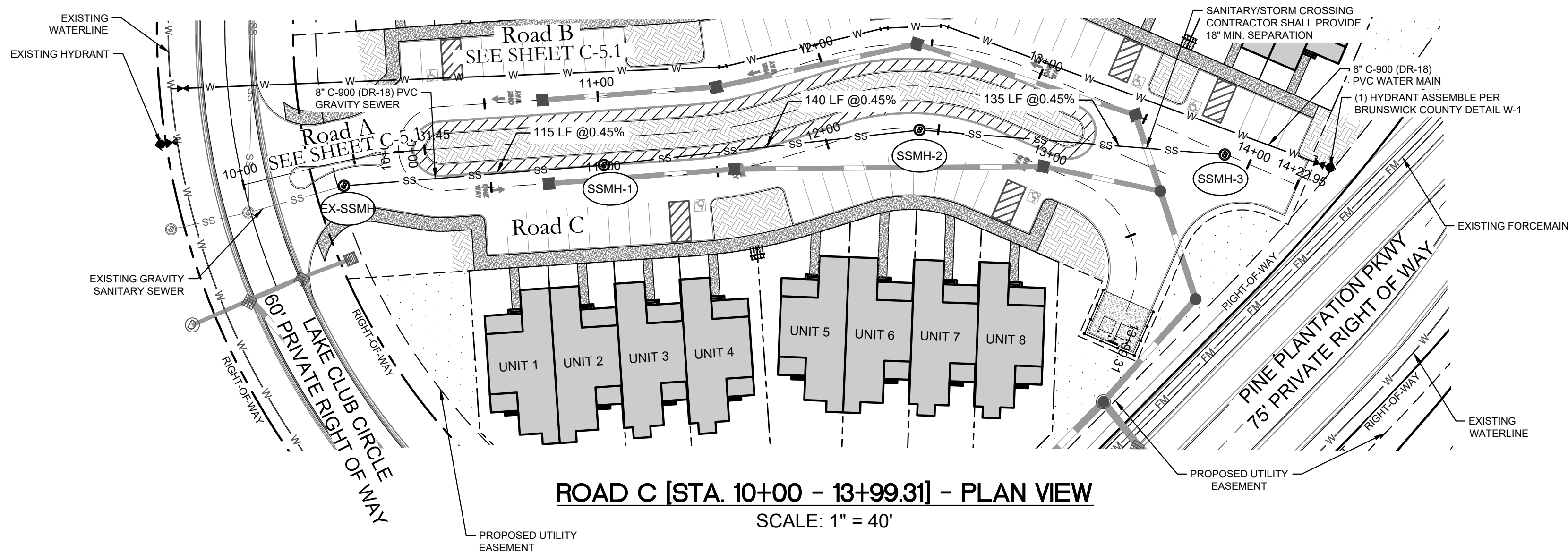
1. PER RULE T15A.18C.1001, BACTERIOLOGICAL SAMPLES FOLLOWING WATER MAIN DISINFECTION MUST BE ANALYZED BY A STATE APPROVED LAB.

SERVICE NOTE:
CONTRACTOR SHALL INSTALL THE FOLLOWING FOR EACH APARTMENT BUILDING:
ONE (1) 2-INCH IPS PE (SDR 9) WATER SERVICE W/ 2" METER & BFP
ONE (1) 4-INCH IPS PE (SDR 18) FIRE SERVICE W/ BFP, REMOTE FDC, & PIV
ONE (1) 6-INCH PVC SCH-40 SEWER SERVICE @ 1/8" PER 1' MIN. SLOPE.
IN ACCORDANCE WITH BRUNSWICK COUNTY STANDARD DETAILS AND SPECIFICATIONS.

SCALE: 1"=30'

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

PROJECT STATUS CONCEPTUAL LAYOUT: 09/11/2023 PRELIMINARY LAYOUT: RELEASED FOR CONST:		CLIENT INFORMATION: PINE FOREST DEVELOPMENT COMPANY, LLC 355 Industrial Park Drive Boone, NC 28607
DRAWING INFORMATION DATE: 09/11/23 DESIGNED: MANDRETTA DRAWN: MANDRETTA CHECKED:		
PROJECT INFORMATION PLAN & PROFILE INDEX MAP PINE FOREST QUADS TOWN OF OAK ISLAND BRUNSWICK CO., NORTH CAROLINA		PARAMOUNT ENGINEERING, INC. 122 Cinema Drive Wilmington, North Carolina 28403 (910) 791-6707 (O) / (910) 791-6766 (F) NC License #: C-2846
PEI JOB#: 23213.PE		



ROAD C [STA. 10+00 - 13+99.31] - PROFILE VIEW
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0904 & T15A.18C.0906)

1. WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
2. WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
5. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
6. A MINIMUM VERTICAL DISTANCE OF 12" SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF OTHER UTILITIES.

GRAVITY SEWER NOTES:

1. ALL MANHOLES LOCATED WITHIN 50' OF WETLANDS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - 1.1. SEAMS SHALL BE EXTERNALLY TAPED / SEALED WITH WATERTIGHT MATERIAL.
 - 1.2. ALL MANHOLE INTERIORS SHALL BE FULLY LINED WITH WATERPROOF COATING.
 - 1.3. MANHOLES SHALL BE TESTED IN ACCORDANCE WITH ASTM C1244 STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY NEGATIVE AIR PRESSURE (VACUUM) TEST PRIOR TO BACKFILL.
2. ALL SEWER PIPE MATERIALS, INSTALLATION, AND TESTING SHALL MEET WATER MAIN STANDARDS WHEN LOCATED WITHIN 50' OF WETLANDS.

WATER DISTRIBUTION NOTES:

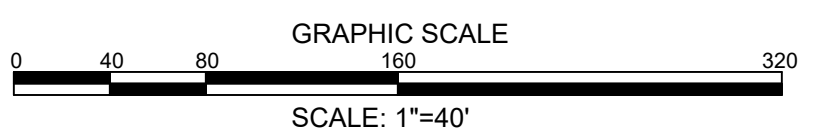
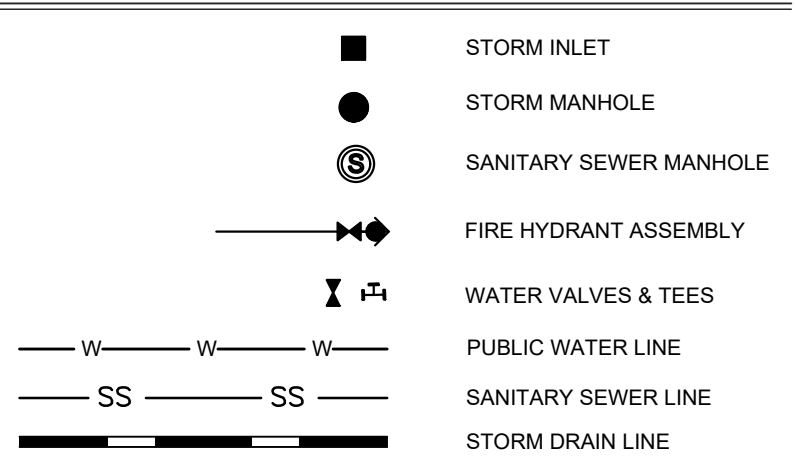
1. PER RULE T15A.18C.1001, BACTERIOLOGICAL SAMPLES FOLLOWING WATER MAIN DISINFECTION MUST BE ANALYZED BY A STATE APPROVED LAB.

SERVICE NOTE:
 CONTRACTOR SHALL INSTALL THE FOLLOWING FOR EACH APARTMENT BUILDING:
 ONE (1) 2-INCH IPS PE (SDR 9) WATER SERVICE W/ 2" METER & BFP
 ONE (1) 4-INCH IPS PE (SDR 18) FIRE SERVICE W/ BFP, REMOTE FDC, & PIV
 ONE (1) 6-INCH PVC SCH-40 SEWER SERVICE @ 1/8" PER 1' MIN. SLOPE.
 IN ACCORDANCE WITH BRUNSWICK COUNTY STANDARD DETAILS AND SPECIFICATIONS.

UTILITY KEYNOTES:

- 1 2" DOMESTIC SERVICE W/ 8"x2" TAP & 2" RJ GATE VALVE
- 2 2" DOMESTIC METER
- 3 2" DOMESTIC BFP
- 4 (1) 8"x4" MJ TEE
- 5 4" FIRE SERVICE
- 6 4" FIRE LINE BFP
- 7 POST INDICATOR VALVE
- 8 REMOTE MOUNTED FDC
- 9 6" SANITARY SEWER SERVICE AT 1/8" PER 1' MINIMUM SLOPE
- 10 SANITARY SEWER CLEAN-OUT [SEE PLUMBING PLANS FOR CONNECTION TO BUILDING]
- 11 2" DOMESTIC SERVICE W/ 12"x2" TAP & 2" RJ GATE VALVE
- 12 (1) 12"x4" MJ TEE

LEGEND:



REVISIONS:

NO.	DATE	DESCRIPTION

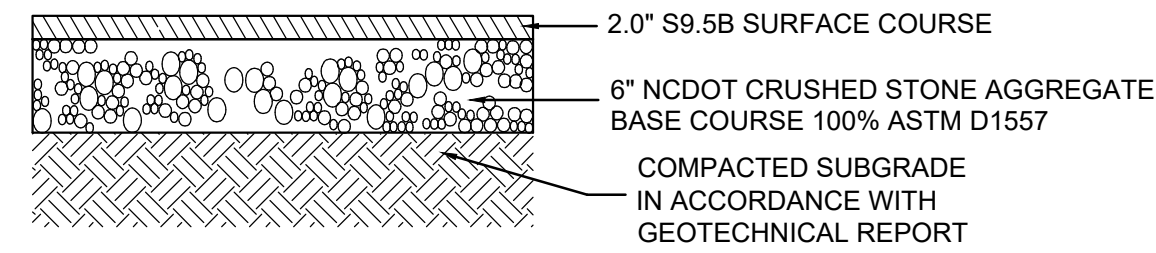
PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6766 (F)
 N.C. License #: C-2846

PLAN & PROFILE ROAD C
 PINE FOREST QUADS
 TOWN OF OAK ISLAND
 BRUNSWICK CO., NORTH CAROLINA

PROJECT STATUS:
 CONCEPTUAL LAYOUT: 09/11/2023
 PRELIMINARY LAYOUT:
 RELEASED FOR CONSTRUCTION:
DRAWING INFORMATION:
 DATE: 09/11/23
 DESIGNED: [Signature]
 CHECKED: [Signature]
 SEAL: [Professional Seal]

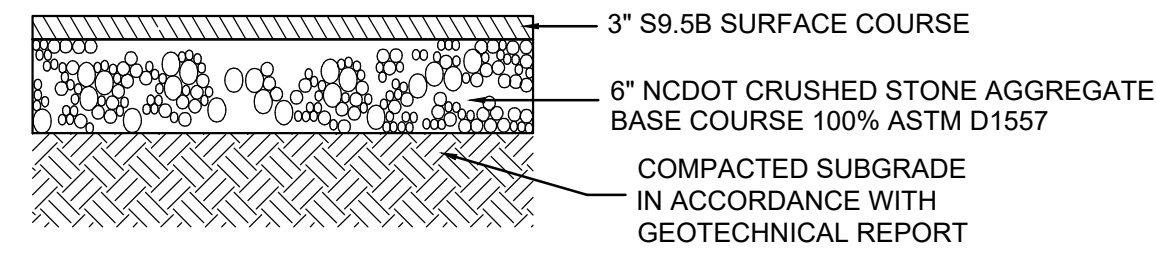
C-5.2
 PEI JOB#: 23213.PE

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION



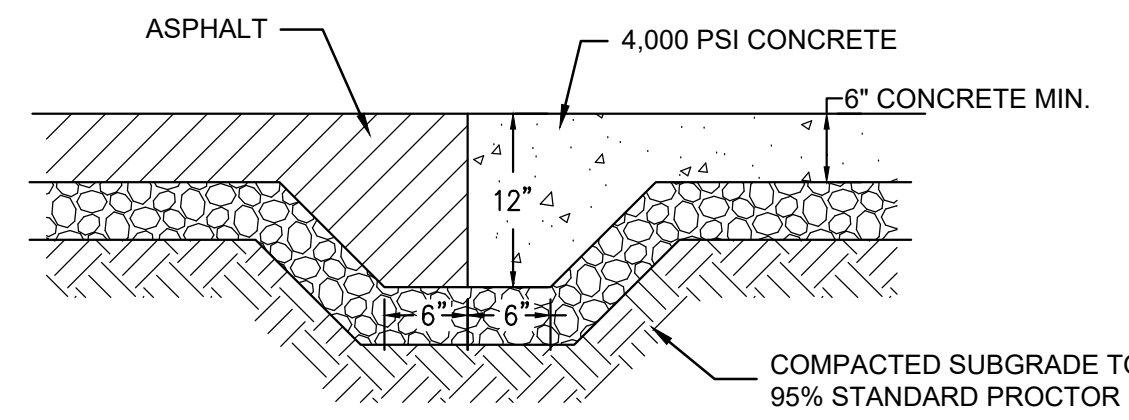
LIGHT DUTY ASPHALT PAVING SECTION (PRIVATE PARKING & DRIVE AISLES)

NOT TO SCALE



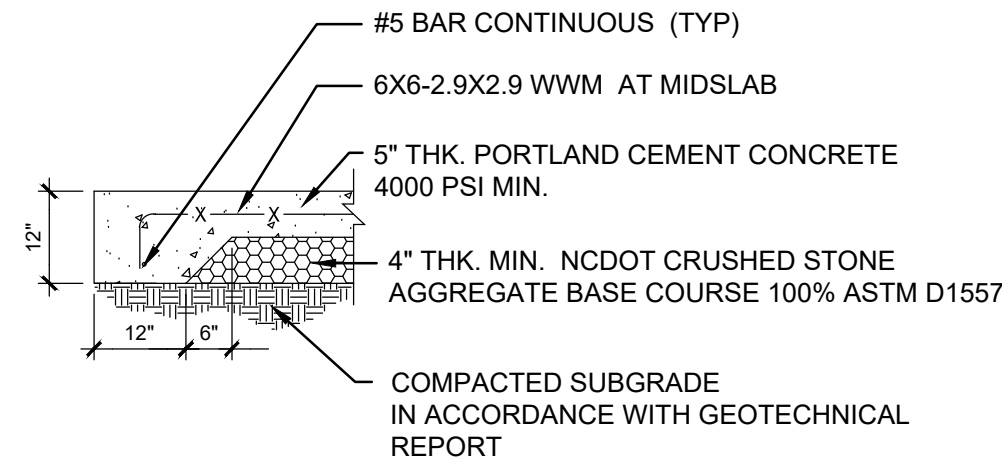
HEAVY DUTY ASPHALT PAVING SECTION (PUBLIC R.O.W.)

NOT TO SCALE



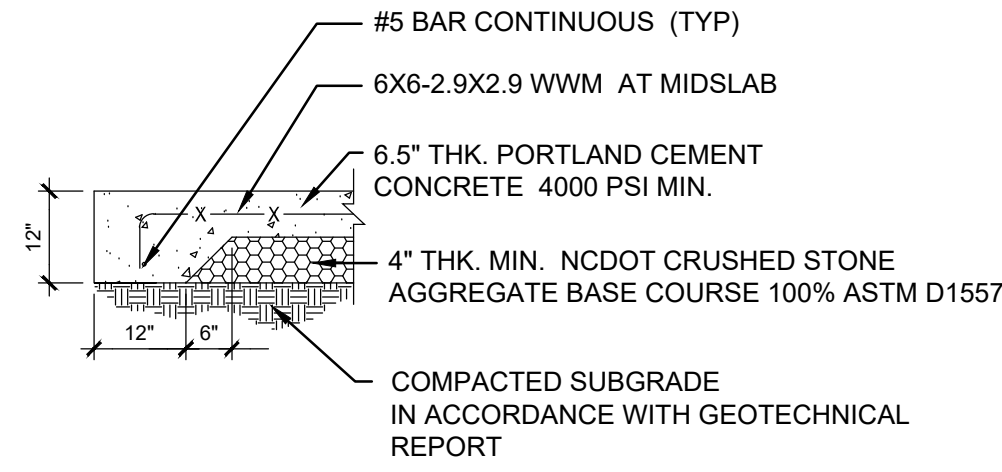
ASPHALT TO CONCRETE PAVEMENT TRANSITION

NOT TO SCALE



CONCRETE PAVING SECTION

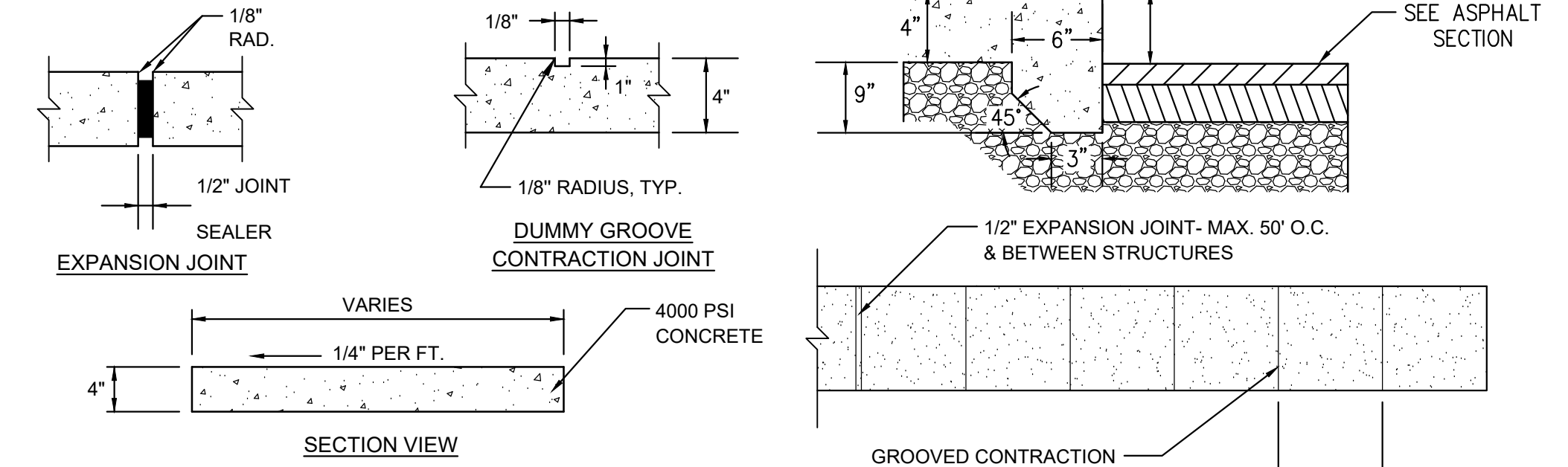
NOT TO SCALE



HEAVY DUTY CONCRETE PAVING SECTION

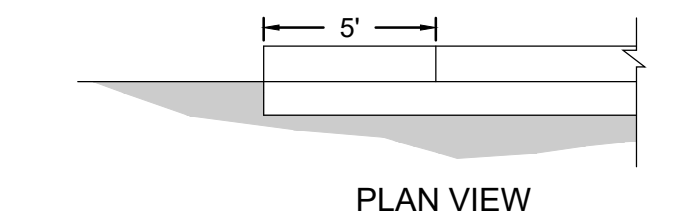
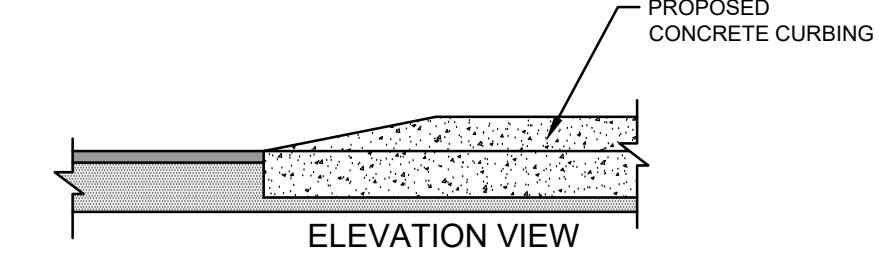
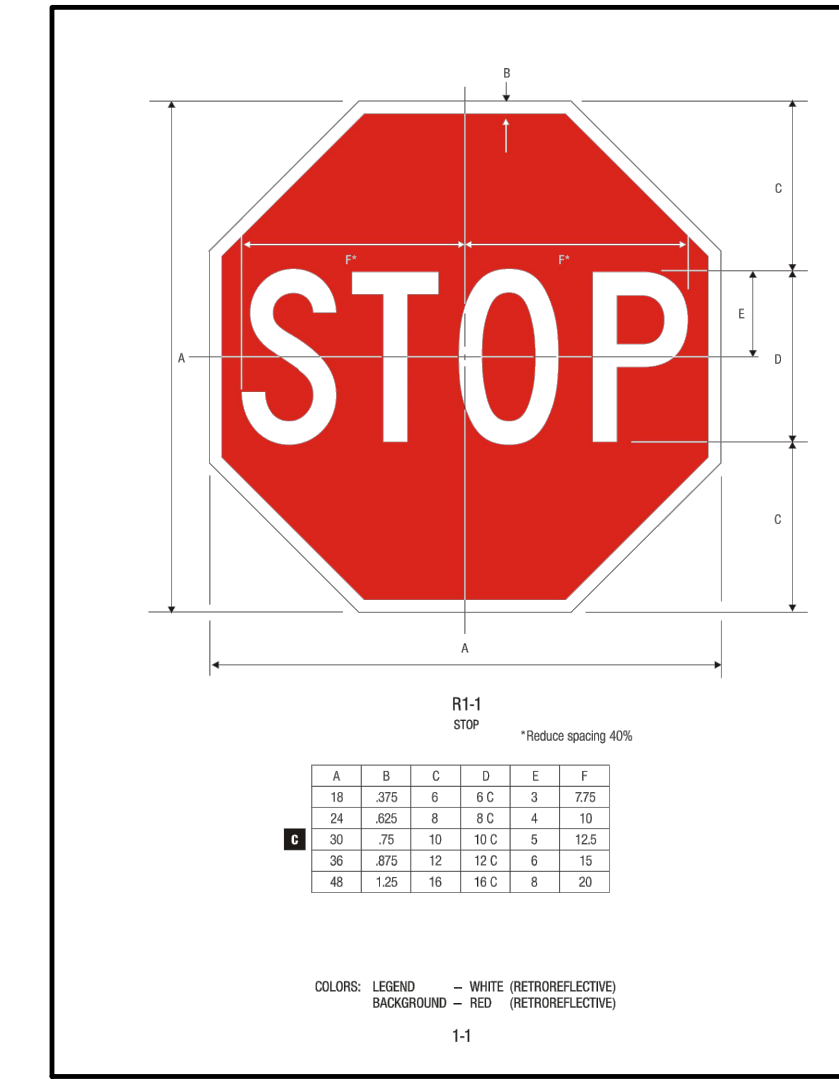
NOT TO SCALE

PAVEMENT NOTES:
CONTRACTOR SHALL CONFIRM PAVING SECTIONS PER GEOTECHNICAL REPORT



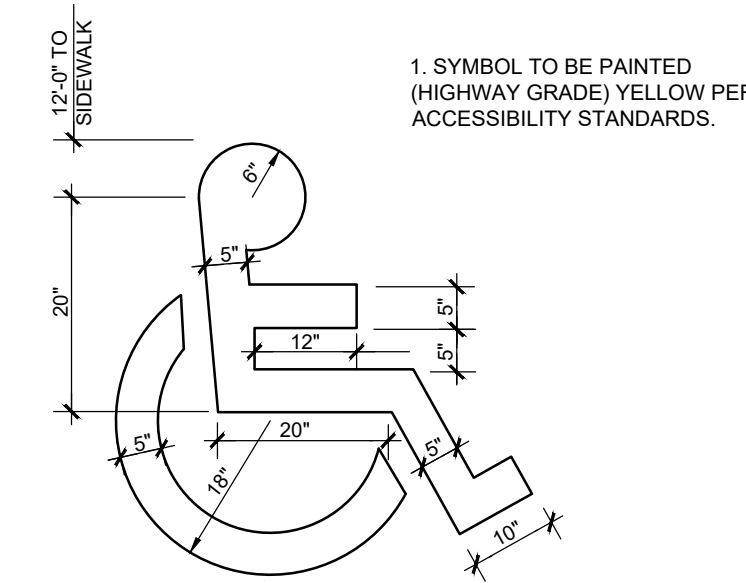
DROP SIDEWALK DETAIL

NOT TO SCALE



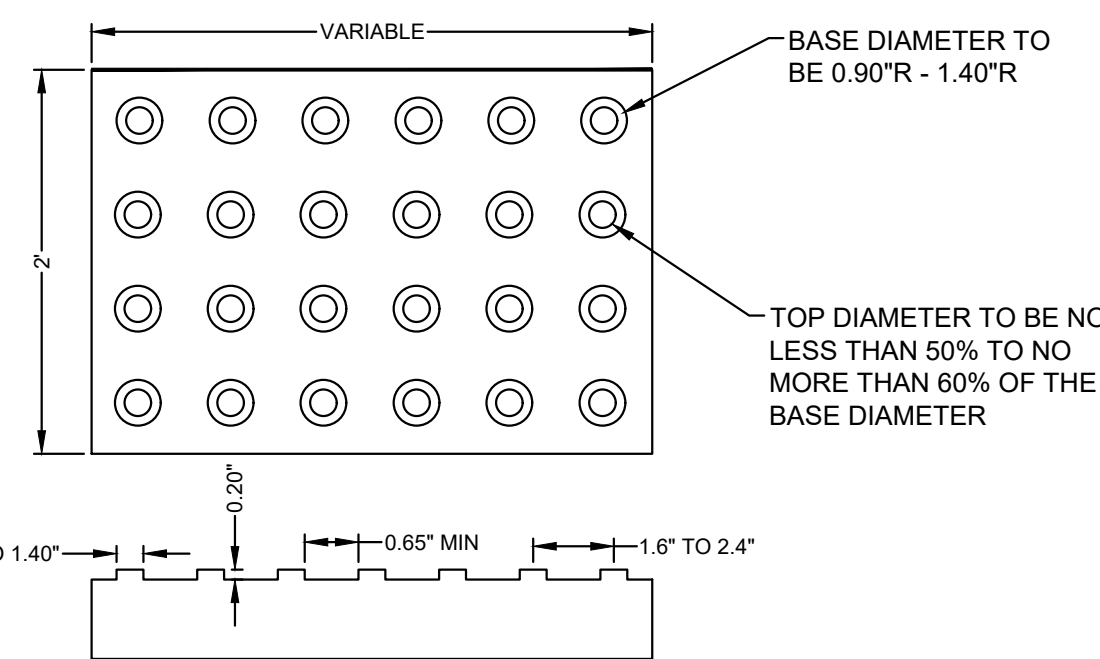
CURB END TAPER DETAIL

NOT TO SCALE



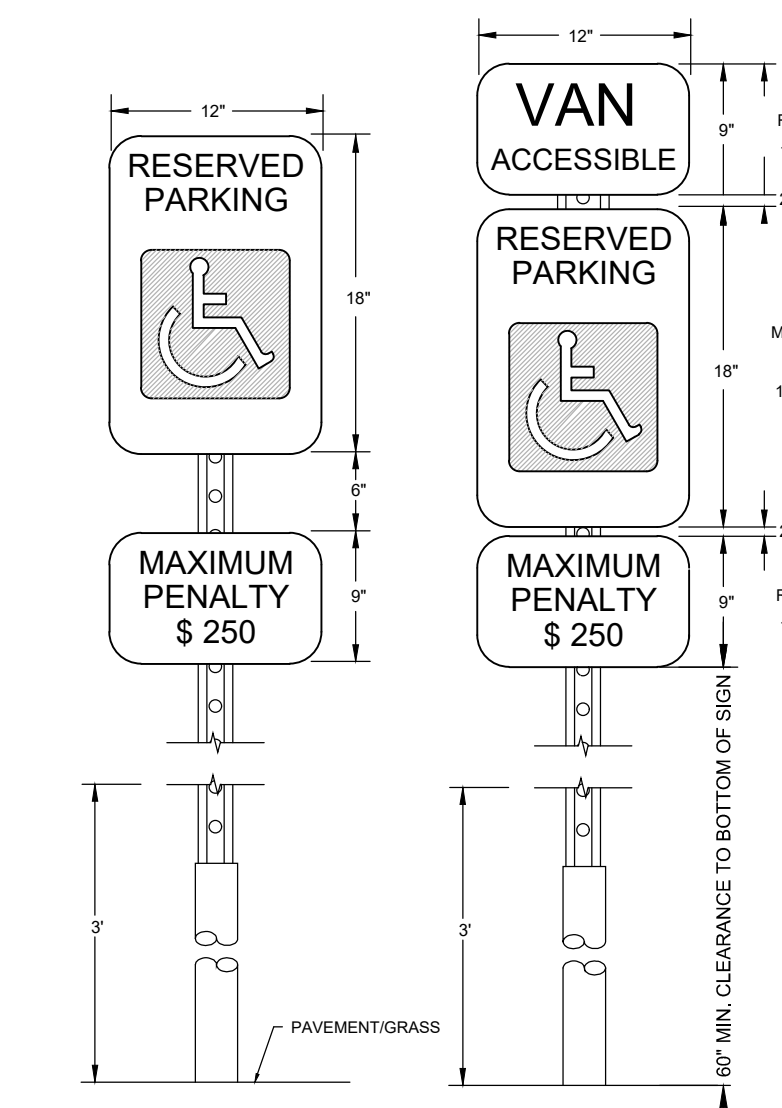
HANDICAPPED PARKING SYMBOL

NOT TO SCALE



DETECTABLE WARNING MAT

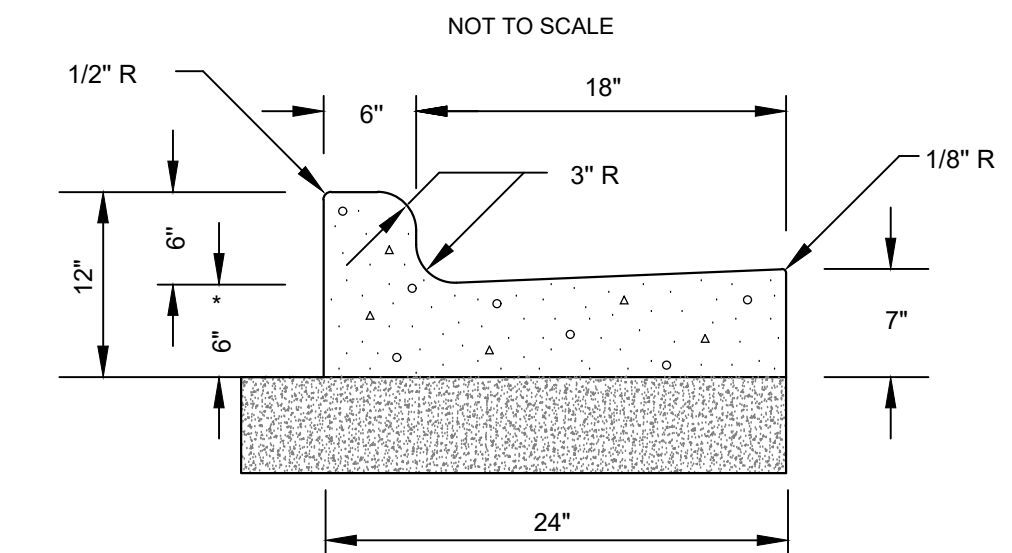
NOT TO SCALE



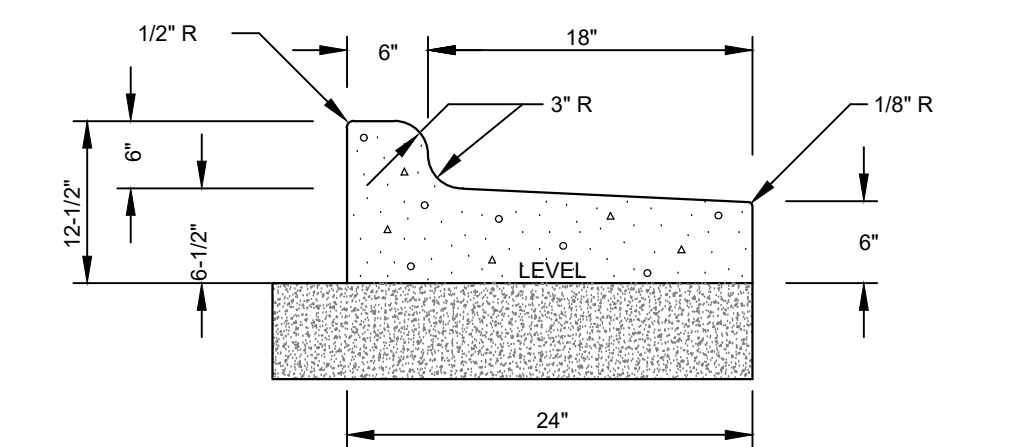
- NOTES:
- METAL POST AND ALL HARDWARE SHALL BE GALVANIZED STEEL, ASTM A307-90.
 - POST HOLES SHALL BE FILLED WITH GRANULAR BACKFILL IN 3-INCH TO 4-INCH LIFTS. THOROUGHLY HAND TAMP EACH LIFT AND CROWN BACKFILL AT TOP TO SHED WATER.
 - CONCRETE FOR FOOTING SHALL BE PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
 - SIGNS SHALL BE CONSTRUCTED OF ALUMINUM, TYPE 6061-T6 AND IN CONFORMANCE WITH ASTM STD B-209. THICKNESS SHALL BE 0.30 INCHES.
 - CONCRETE FOR FOOTING SHALL BE PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
 - SIGNS SHALL BE CONSTRUCTED OF ALUMINUM, TYPE 6061-T6 AND IN CONFORMANCE WITH ASTM STD B-209. THICKNESS SHALL BE 0.30 INCHES.
 - TOP EDGE TREATMENT FILM SHALL BE 3" WIDE, CLEAR AND TRANSPARENT WITH A SUB-RESISTANT PRESSURE SENSITIVE NON-YELLOWING ADHESIVE, "SKOTCHCAL" TRANSPARENT FILE #639 OR APPROVED EQUAL.
 - REFLECTIVE FACING MATERIAL SHALL BE SCOTCHLITE HIGH INTENSITY, MANUFACTURED BY 3M COMPANY OR APPROVED EQUAL.
 - SIGN LETTERING SHALL BE NPS MODIFIED CLARENDON TYPEFACE. UPPERCASE LETTERS SHALL BE 3.75" HEIGHT AND LOWERCASE LETTERS SHALL BE 2.5" HEIGHT WITH 3.75" SPACING BETWEEN LINES.
 - CORNER RADIUS OF SIGNS SHALL BE 2.5".
 - ARROWS SHALL BE 5.625" LONG BY 3.75" HIGH.
 - MOUNT ON BUILDING OR METAL POST AS DIRECTED.

HANDICAPPED PARKING SIGN

NOT TO SCALE



24" CURB AND GUTTER

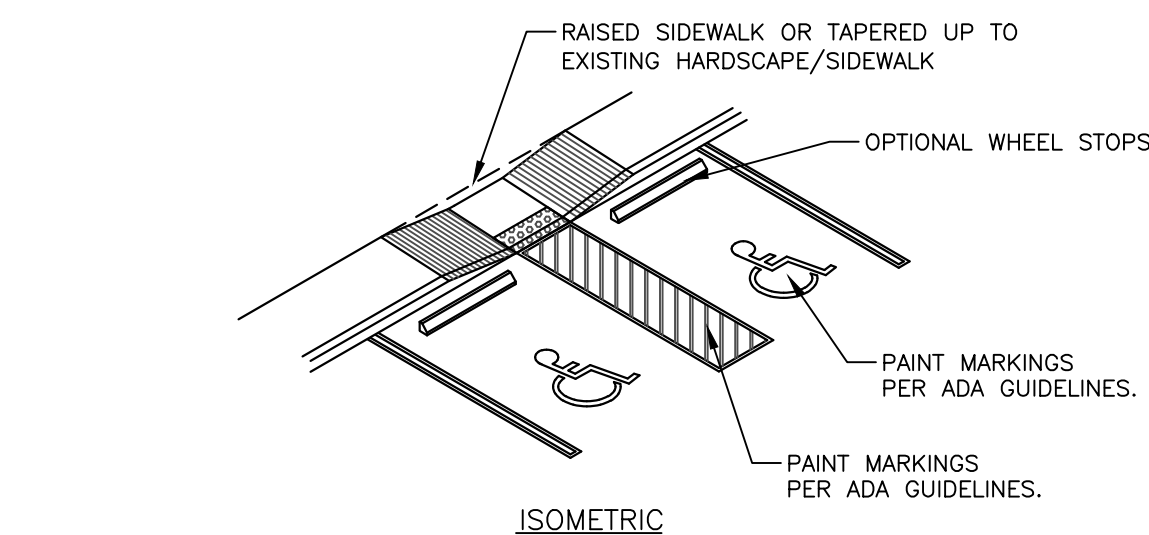


24" CURB AND GUTTER (REVERSE SLOPE)

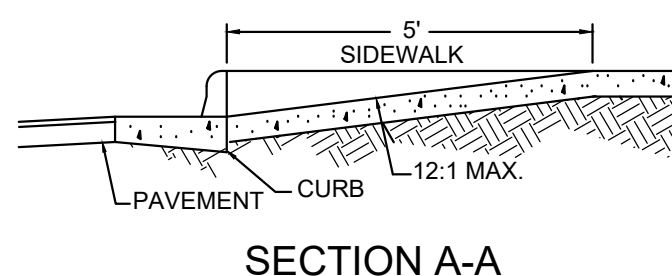
NOT TO SCALE

GENERAL NOTES:

CONTRACTION JOINTS SHALL BE SPACED AT MAX. 10' INTERVALS, EXCEPT THAT A 15 FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS, WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED. ALL CONTRACTION JOINTS EXCEPT IN 8' X 6' MEDIAN CURB SHALL BE FILLED WITH JOINT SEALER. EXPANSION JOINTS SHALL BE SPACED AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.

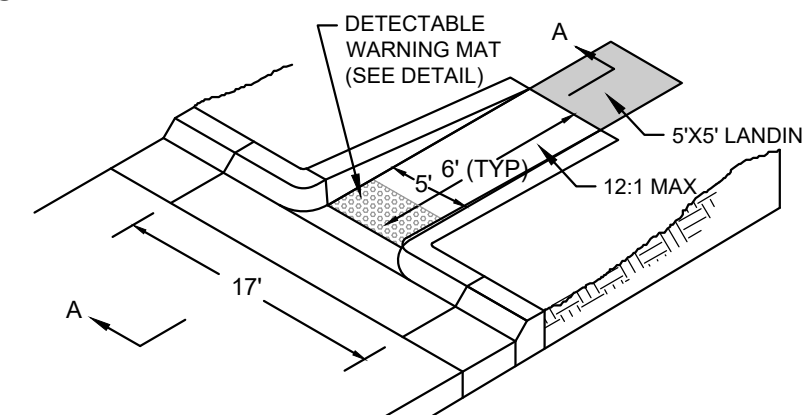


WHEELCHAIR RAMP - TYPE I



TYPE 2 - WHEELCHAIR RAMP (DROP CURB)

NOT TO SCALE



TYPE 3 - WHEELCHAIR RAMP (CURB RETURN)

NOT TO SCALE

REVISIONS:

CLIENT INFORMATION:
PINE FOREST DEVELOPMENT COMPANY, LLC
355 Industrial Park Drive
Boone, NC 28607

PARAMOUNT
ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6766 (F)
NC License #: C-2846

DETAILS
PINE FOREST QUADS
TOWN OF OAK ISLAND
BRUNSWICK CO., NORTH CAROLINA

PROJECT STATUS:
CONCEPTUAL LAYOUT: 09/11/2022
PRELIMINARY LAYOUT: 09/11/2022
RELEASED FOR CONST: 09/11/2022

DRAWING INFORMATION:
DATE: 09/11/2022
DESIGNED: [Signature]
DRAWN: [Signature]
CHECKED: [Signature]

SEAL: [Professional Engineer Seal]

C-6.10

PEI JOB#: 23213.PE

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

NOTES:

- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.10, 840.14, 840.15, 840.17, 840.19, 840.25, 840.26, 840.27, 840.28, 840.31, 840.32 and 840.41.
- INSTALL PRECAST DRAINAGE STRUCTURES AND FRAMES FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
- DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURD.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCDOOT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM D913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-5-21A, ANDSTD # 18, TYPE B BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

ENDWALL DIMENSIONS

PIPE DIA. (IN.)	MIN. (FT.)	MIN. (IN.)	MIN. (IN.)	MIN. (IN.)	MIN. (IN.)	MIN. (IN.)
12	1.0	1.25	2.00	1.25	1.25	1.25
18	1.25	1.50	2.25	1.50	1.50	1.50
24	1.50	1.75	2.50	1.75	1.75	1.75
30	1.75	2.00	2.75	2.00	2.00	2.00
36	2.00	2.25	3.00	2.25	2.25	2.25
42	2.25	2.50	3.25	2.50	2.50	2.50
48	2.50	2.75	3.50	2.75	2.75	2.75
54	2.75	3.00	3.75	3.00	3.00	3.00
60	3.00	3.25	4.00	3.25	3.25	3.25
66	3.25	3.50	4.25	3.50	3.50	3.50
72	3.50	3.75	4.50	3.75	3.75	3.75

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

GENERAL NOTES:

- USE CLASS "B" CONCRETE THROUGHOUT.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCDOOT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM D913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-5-21A, ANDSTD # 18, TYPE B BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN
12" THRU 54" PIPE

GENERAL NOTES:

- USE CLASS "B" CONCRETE THROUGHOUT.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCDOOT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM D913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-5-21A, ANDSTD # 18, TYPE B BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

NOTES:

- USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE NOTED.
- ALTERNATE FRAME WITH THINER SIDE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT.

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

DETAIL SHOWING TYPES OF GRATES
USE ACCORDING TO WATER FLOW.

RAISED FLOW ARROW
1/2" HIGH

ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN
12" THRU 54" PIPE

GENERAL NOTES:

- USE CLASS "B" CONCRETE THROUGHOUT.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCDOOT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM D913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-5-21A, ANDSTD # 18, TYPE B BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

THE PATTERN OF THE KNOCDOOT PANELS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

WAFFLE WALL ISOMETRIC VIEW

SOLID WALL ISOMETRIC VIEW

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

GENERAL NOTES:

- THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.10, 840.14, 840.15, 840.17, 840.19, 840.25, 840.26, 840.27, 840.28, 840.31, 840.32 and 840.41.
- INSTALL PRECAST DRAINAGE STRUCTURES AND FRAMES FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
- DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURD.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCDOOT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM D913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-5-21A, ANDSTD # 18, TYPE B BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

SECTION VIEWS

OPTIONAL JOINT DETAILS

PLAN VIEW OF BASE UNIT

PRECAST RISER PLAN

PLAN TOP SLAB

TYPICAL PRECAST RISER SECTION

TYPICAL SECTION OF BASE UNIT

ISOMETRIC VIEW

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

MINIMUM WEIGHTS - LBS.

FRAME	COVER	TOTAL
180	10	300

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

MINIMUM WEIGHTS - LBS.

FRAME	COVER	TOTAL
180	10	300

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL
FOR SIZE 12" THRU 72" PIPE - 30" DEEP

MINIMUM WEIGHTS - LBS.

FRAME	COVER	TOTAL
180	10	300

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:

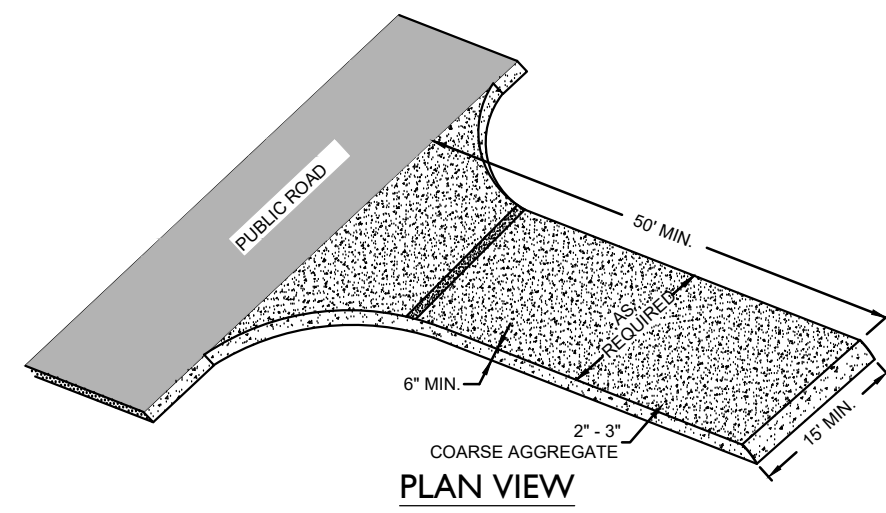
CLIENT INFORMATION:
PINE FOREST DEVELOPMENT COMPANY, LLC
355 Industrial Park Drive
Boone, NC 28607

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6766 (F)
NC License #: C-2846

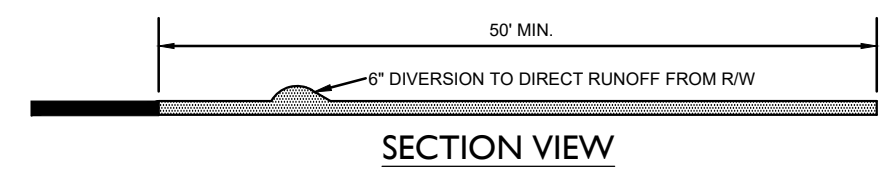
DETAILS
PINE FOREST QUADS
TOWN OF OAK ISLAND
BRUNSWICK CO., NORTH CAROLINA

PROJECT STATUS:
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
RELEASED FOR CONST.
DATE: 09/11/2025
DESIGNED BY: [Signature]
DRAWN BY: [Signature]
CHECKED BY: [Signature]

PEI JOB#: 23213.PE
C-6.11

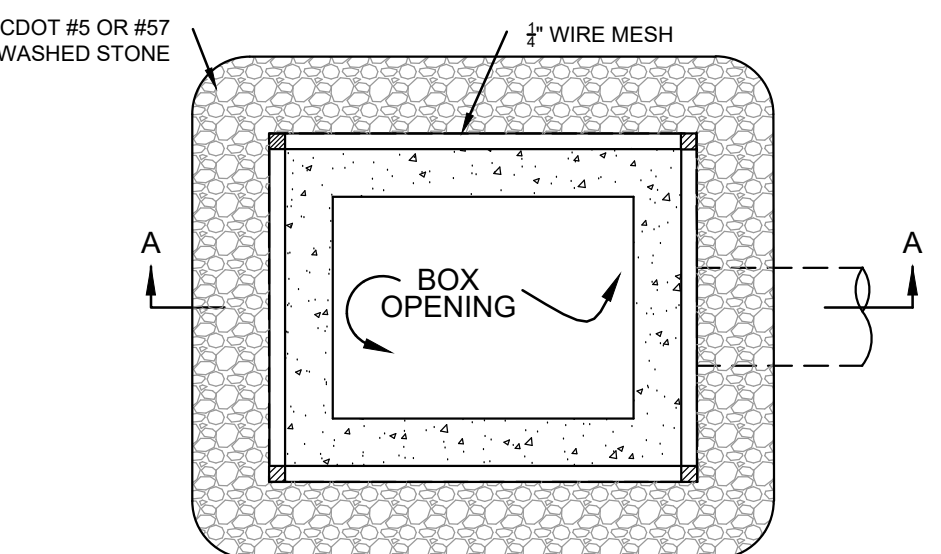


PLAN VIEW



SECTION VIEW

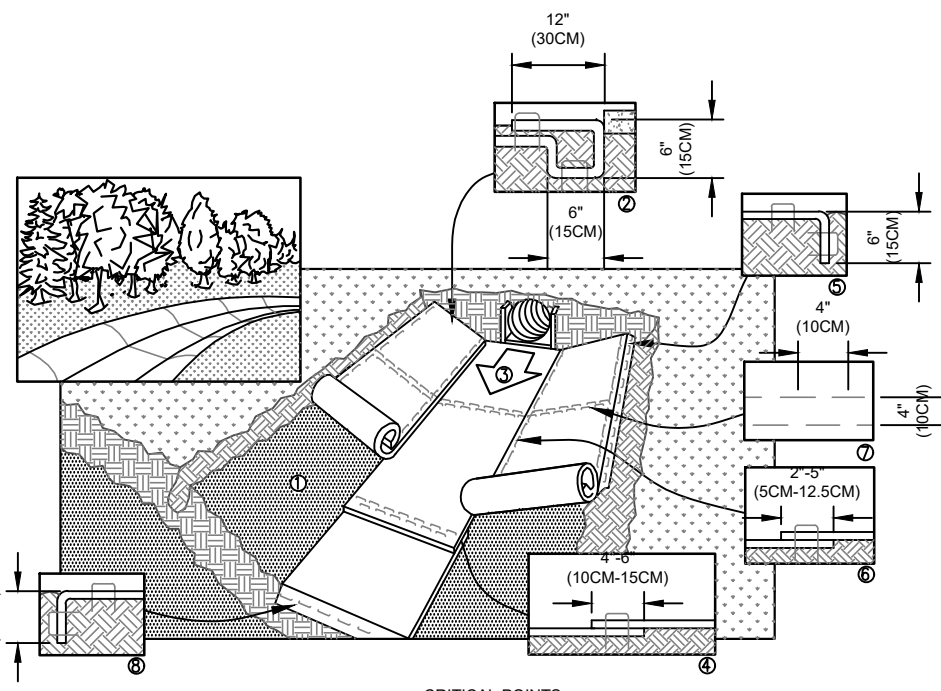
TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE



SECTION A - A

NOTE:
FOR CURB INLETS AND DROP INLETS

INLET PROTECTION



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOMSIDE SLOPE VERTICES

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 18" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.

ROLLED EROSION CONTROL LINING
NOT TO SCALE

BAFFLES

CONSTRUCTION SPECIFICATION

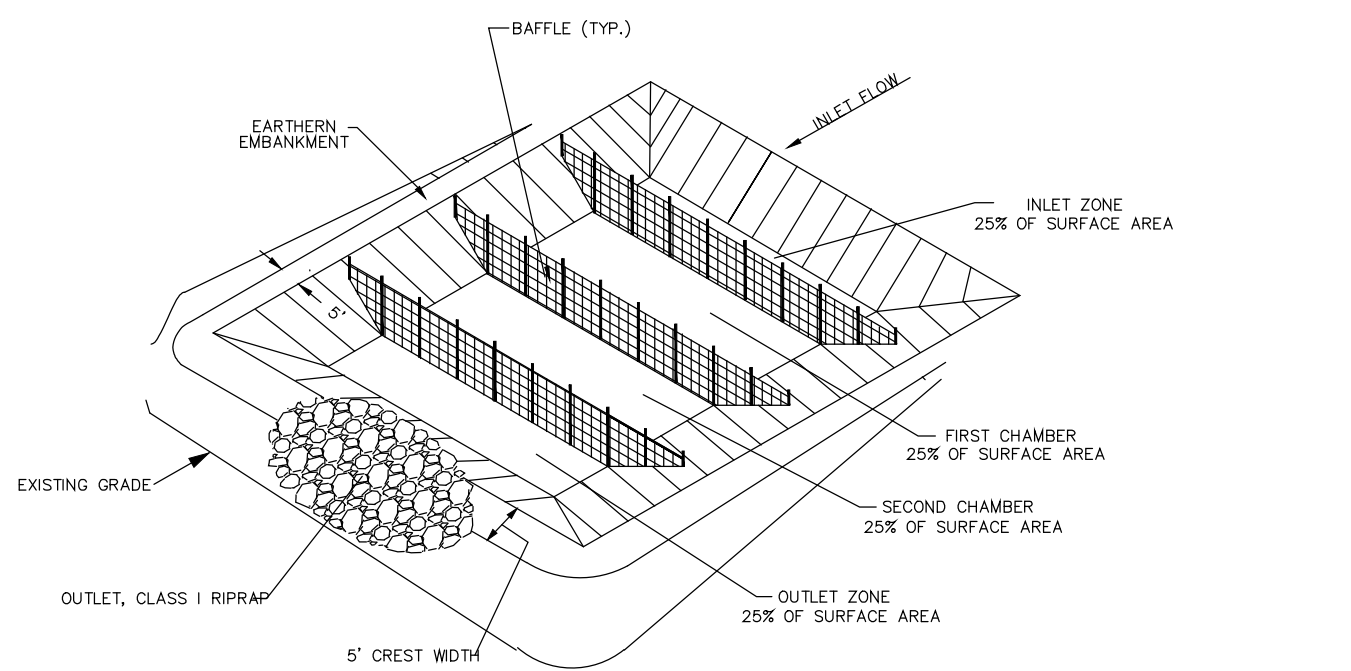
- Grade the basin so that the bottom is level front to back and side to side.
- Install posts or saw horses across the width of the sediment trap (Practice 6.62, *Sediment Fence*).
- Steel posts should be driven to a depth of 24 inches, spaced a maximum of 4 feet apart, and installed up the side of the basin as well. The top of the fabric should be 6 inches higher than the invert of the spillway. Tops of baffles should be 2 inches lower than the top of the berms.
- Install at least three rows of baffles between the inlet and outlet discharge point. Basins less than 20 feet in length may use 2 baffles.
- When using posts, add a support wire or rope across the top of the measure to prevent sagging.
- Wrap jute, backed by coir material, over a sawhorse or the top wire. Hammer rebar into the sawhorse legs for anchoring. The fabric should have five to ten percent openings in the weave. Attach fabric to a rope and a support structure with zip ties, wire or staples.
- The bottom and sides of the fabric should be anchored in a trench or pinned with 8-inch erosion control matting staples.
- Do not splice the fabric, but use a continuous piece across the basin.

MAINTENANCE

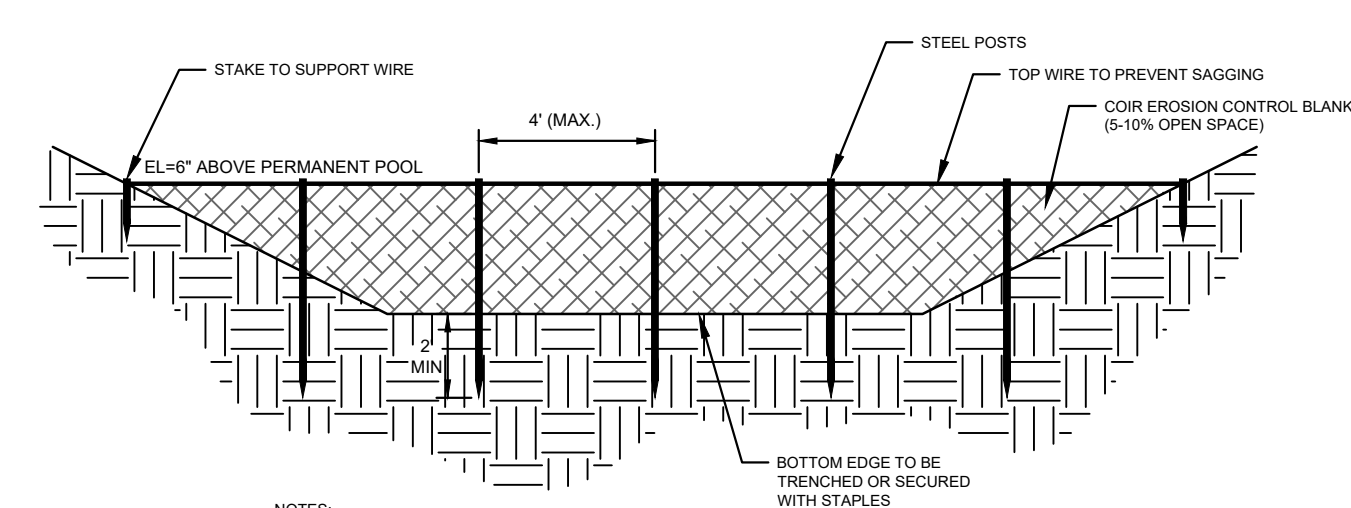
Inspect baffles at least once a week and after each rainfall. Make any required repairs immediately. Be sure to maintain access to the baffles. Should the fabric of a baffle collapse, tear, decompose, or become ineffective, replace it promptly.

Remove sediment deposits when it reaches half full to provide adequate storage volume for the next rain and to reduce pressure on the baffles. Take care to avoid damaging the baffles during cleanout. Sediment depth should never exceed half the designed storage depth.

After the contributing drainage area has been properly stabilized, remove all baffle materials and unstable sediment deposits, bring the area to grade, and stabilize it.

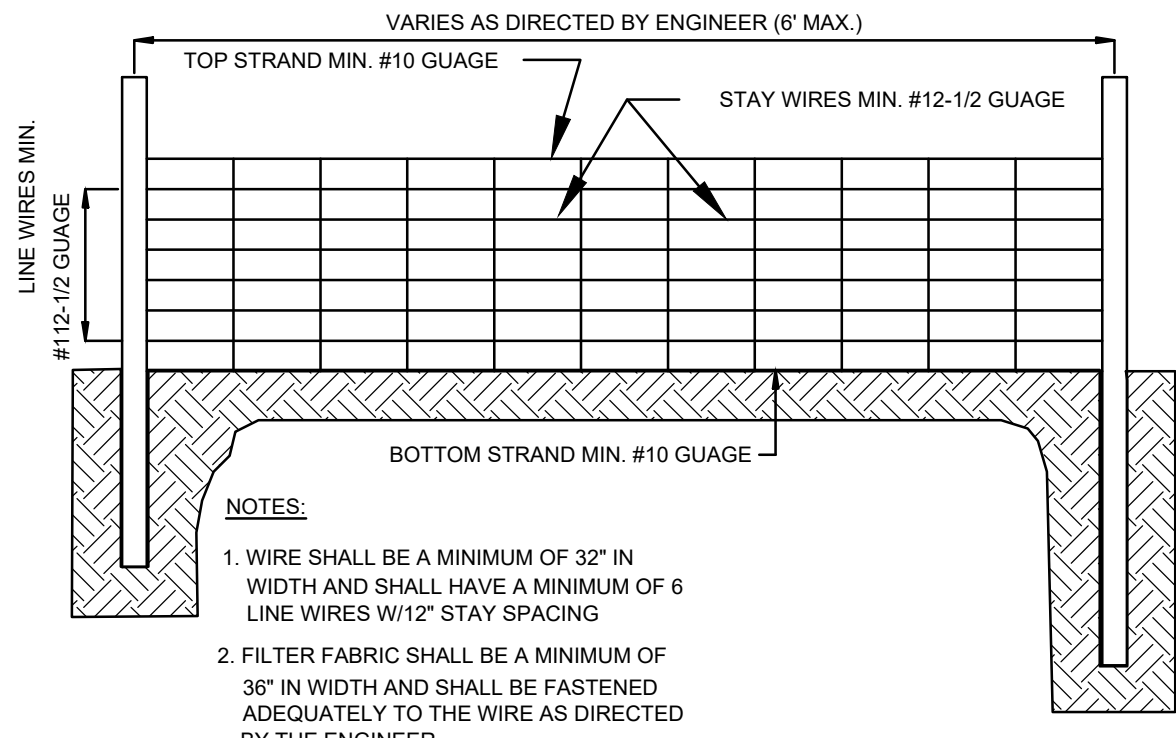


BAFFLE DETAIL
NOT TO SCALE



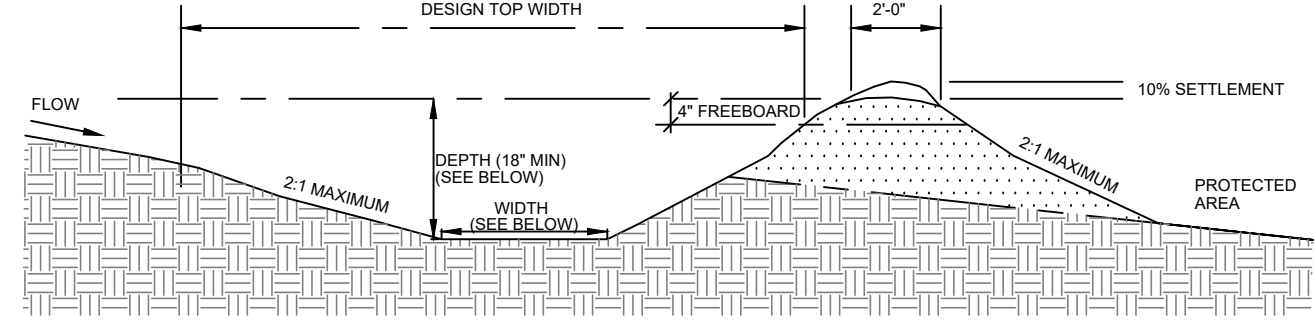
FAIRCLOTH SKIMMER DETAIL
NOT TO SCALE

Basin #	Skimmer Size (in.)	Skimmer Orifice Diameter (in.)
SKIMMER BASIN #1	1.5	1



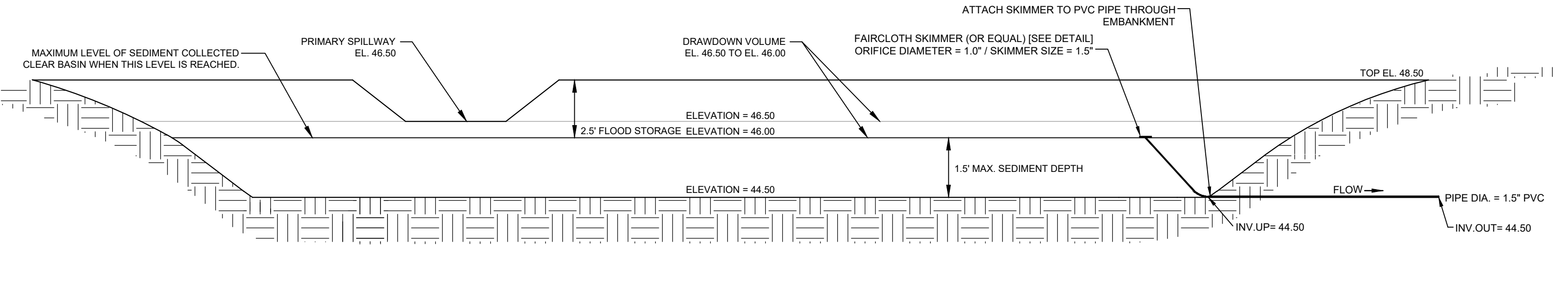
GUIDELINES FOR TEMPORARY SILT FENCE DETAIL
NOT TO SCALE

- NOTES:
- WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES W/12" STAY SPACING
 - FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER
 - STEEL POST SHALL BE 5" 0" IN HEIGHT AND BE OF SELF FASTENER ANGLE STEEL TYPE

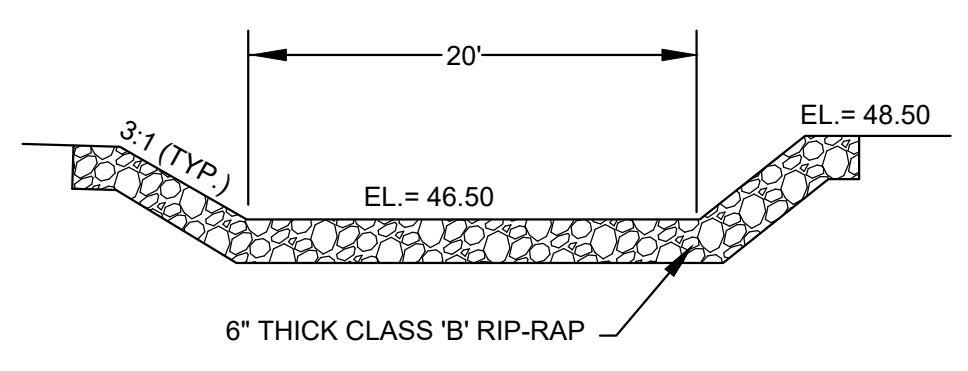


TEMPORARY DIVERSION DITCH
NOT TO SCALE

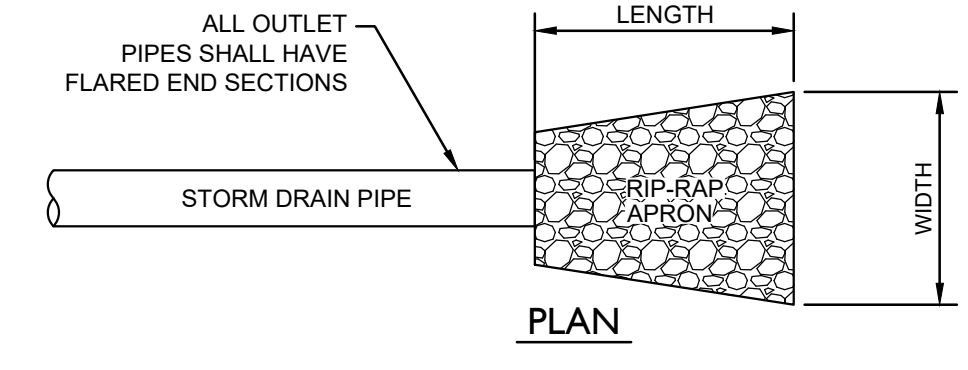
TDD #	LENGTH (FT)	INV UP	INV DN	SLOPE (FT/FT)	WIDTH (FT)	DEPTH (FT)	SIDE SLOPE (H:V)
1	360	47.50	47.00	0.0014	5	1.5	3:1



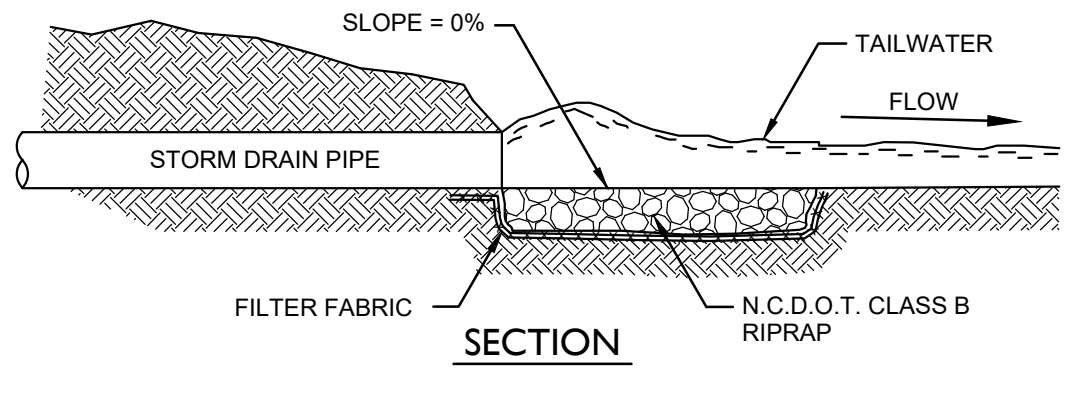
SKIMMER SEDIMENT BASIN #1 DETAIL
NOT TO SCALE



TEMP SKIMMER SEDIMENT BASIN #1 SPILLWAY DETAIL
NOT TO SCALE



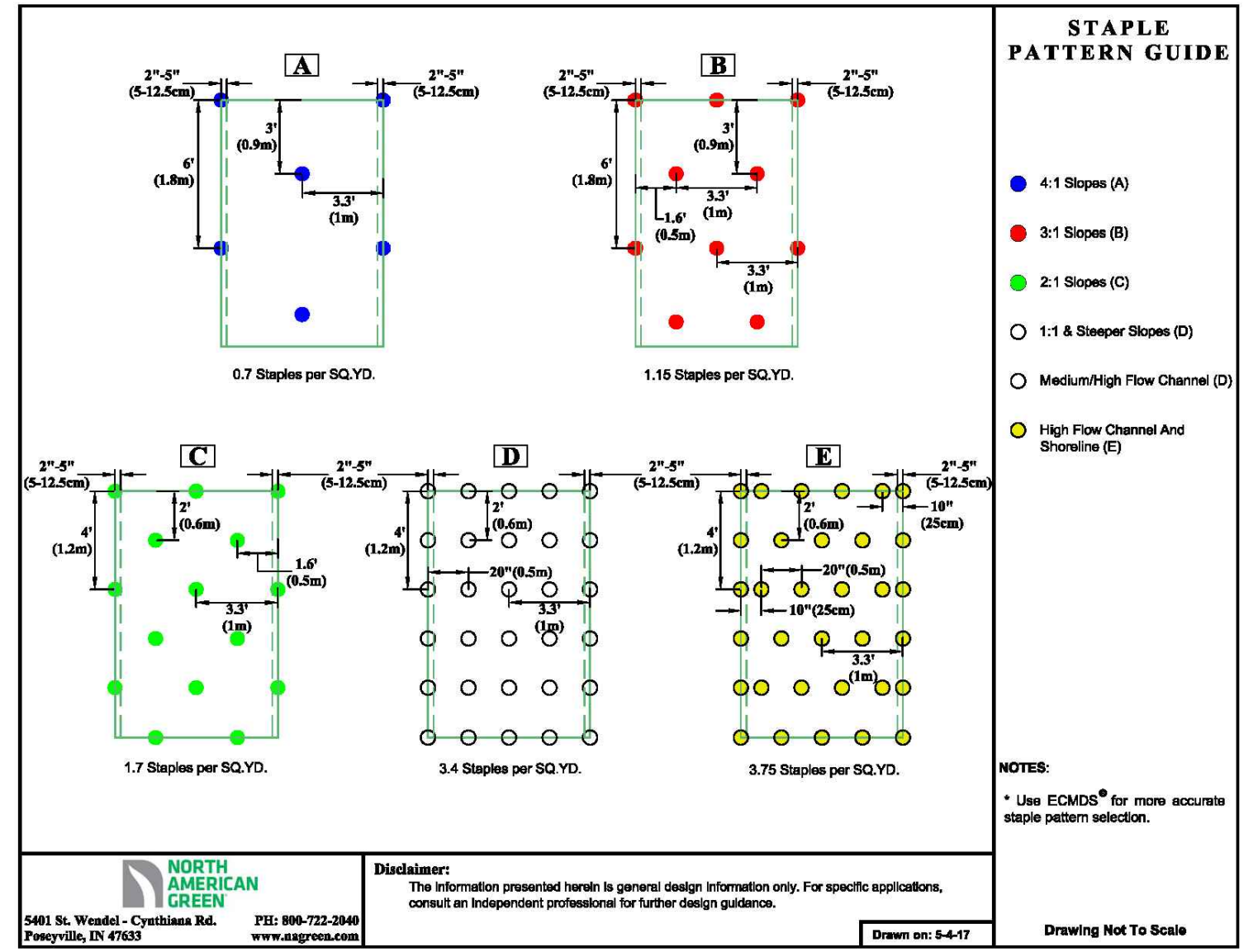
PLAN



SECTION

RIP-RAP SCHEDULE					
APRON #	PIPE DIA. (IN.)	LENGTH (FT.)	UP. WIDTH (FT.)	DWN. WIDTH (FT.)	THICKNESS (IN.)
FES-1	1.5	4	3	5	18

RIP-RAP APRON
NTS



STAPLE PATTERN GUIDE

NOTES:
* Use ECMDS® for more accurate staple pattern selection.

NORTH AMERICAN GREEN
5460 St. Wendel - Cynthiana, KY 40301
781-896-723-2346
www.nagreen.com

Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 04-17
Drawing Not To Scale

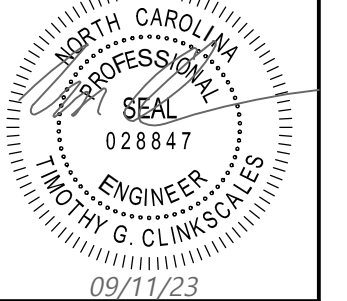
PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

EROSION CONTROL DETAILS

PINE FOREST QUADS
TOWN OF OAK ISLAND
BRUNSWICK CO., NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 09/11/2022
DESIGNED: LER
DRAWN: LER
CHECKED: LER



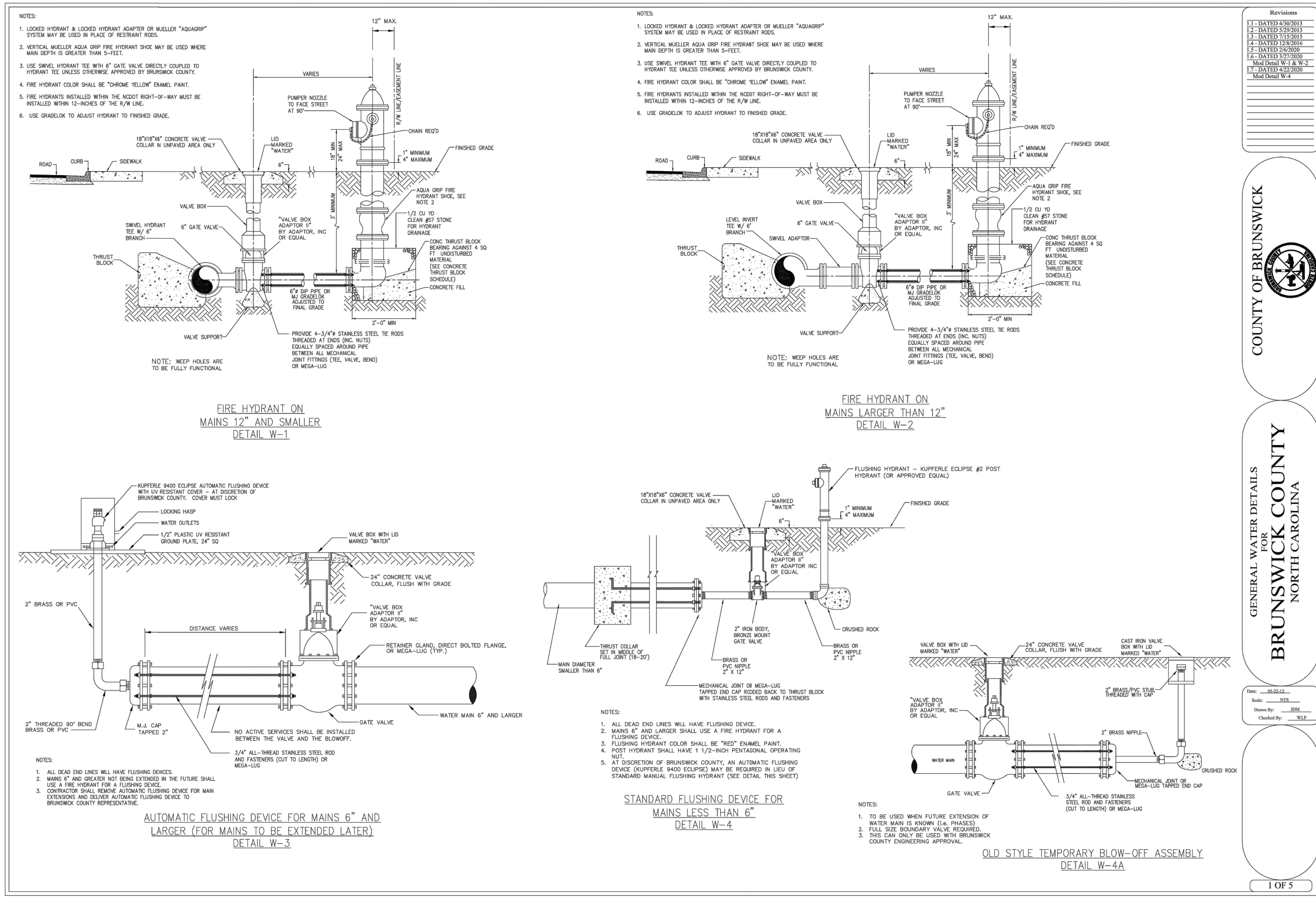
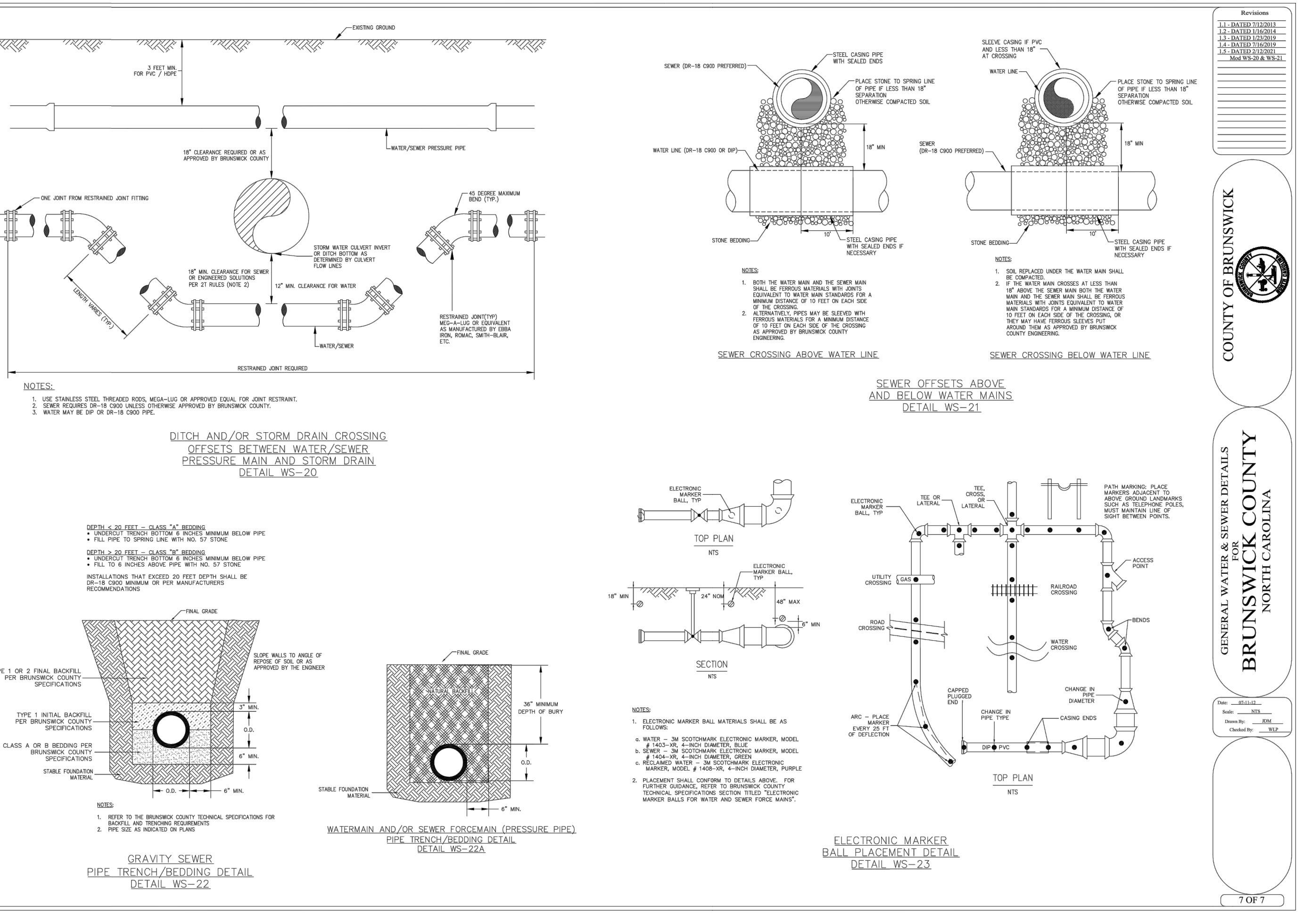
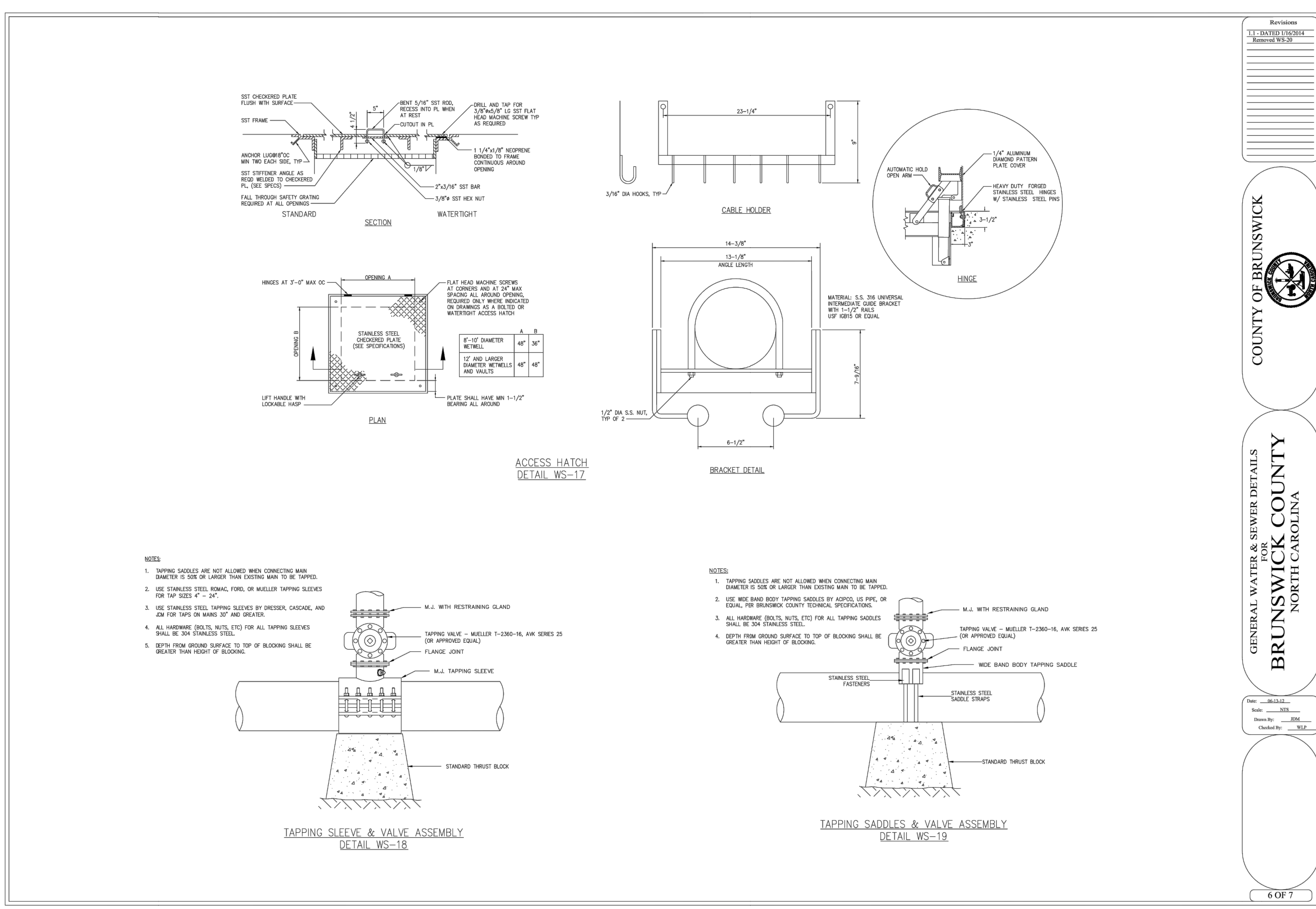
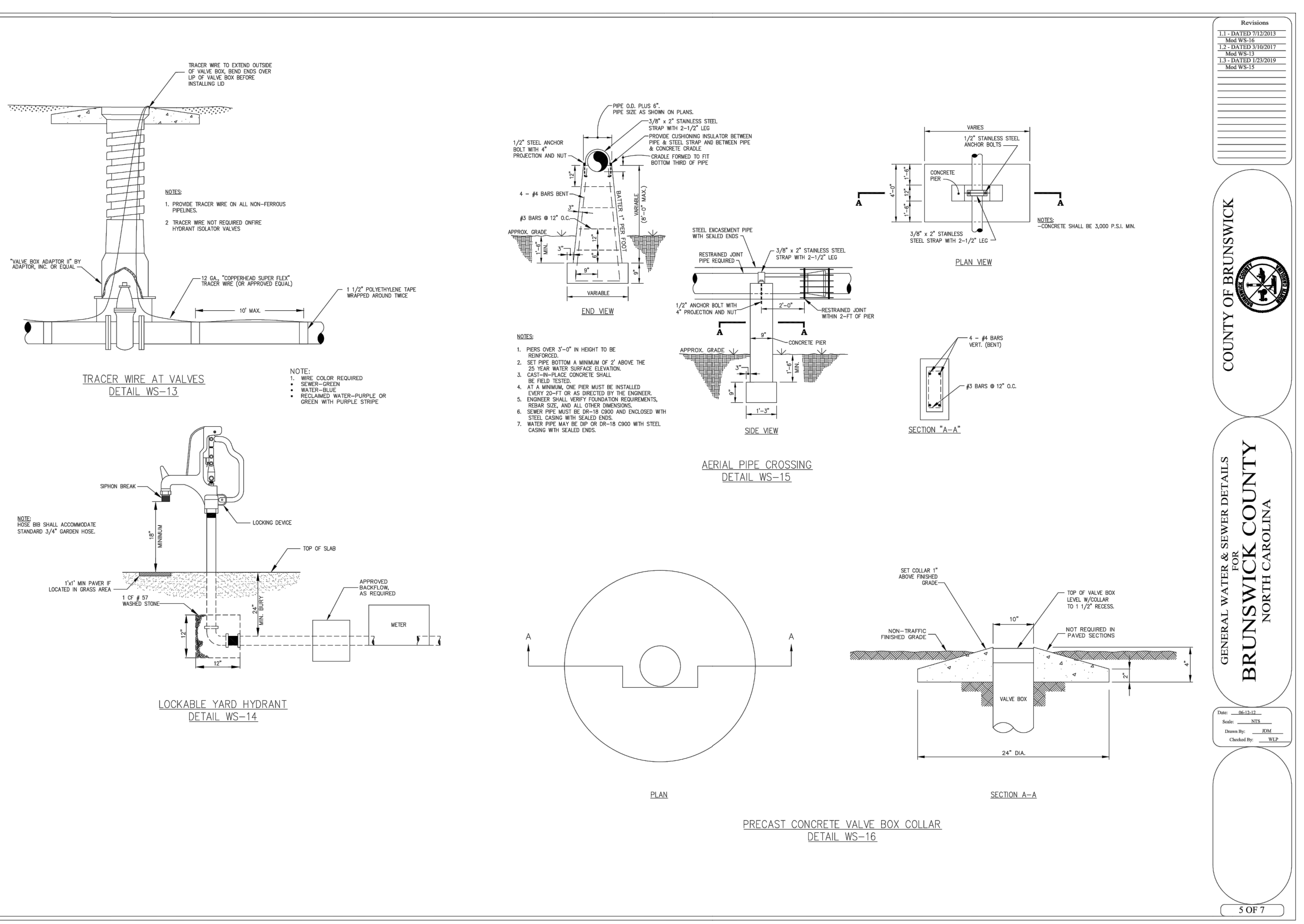
C-6.20

PEI JOB#: 23213.PE

REVISIONS:

CLIENT INFORMATION:
PINE FOREST DEVELOPMENT COMPANY, LLC
355 Industrial Park Drive
Boone, NC 28607

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6766 (F)
NC License #: C-2846



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

UTILITY DETAILS

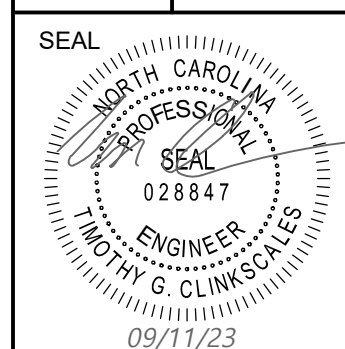
PINE FOREST QUADS
TOWN OF OAK ISLAND
BRUNSWICK CO., NORTH CAROLINA

PARAMOUNT ENGINEERING

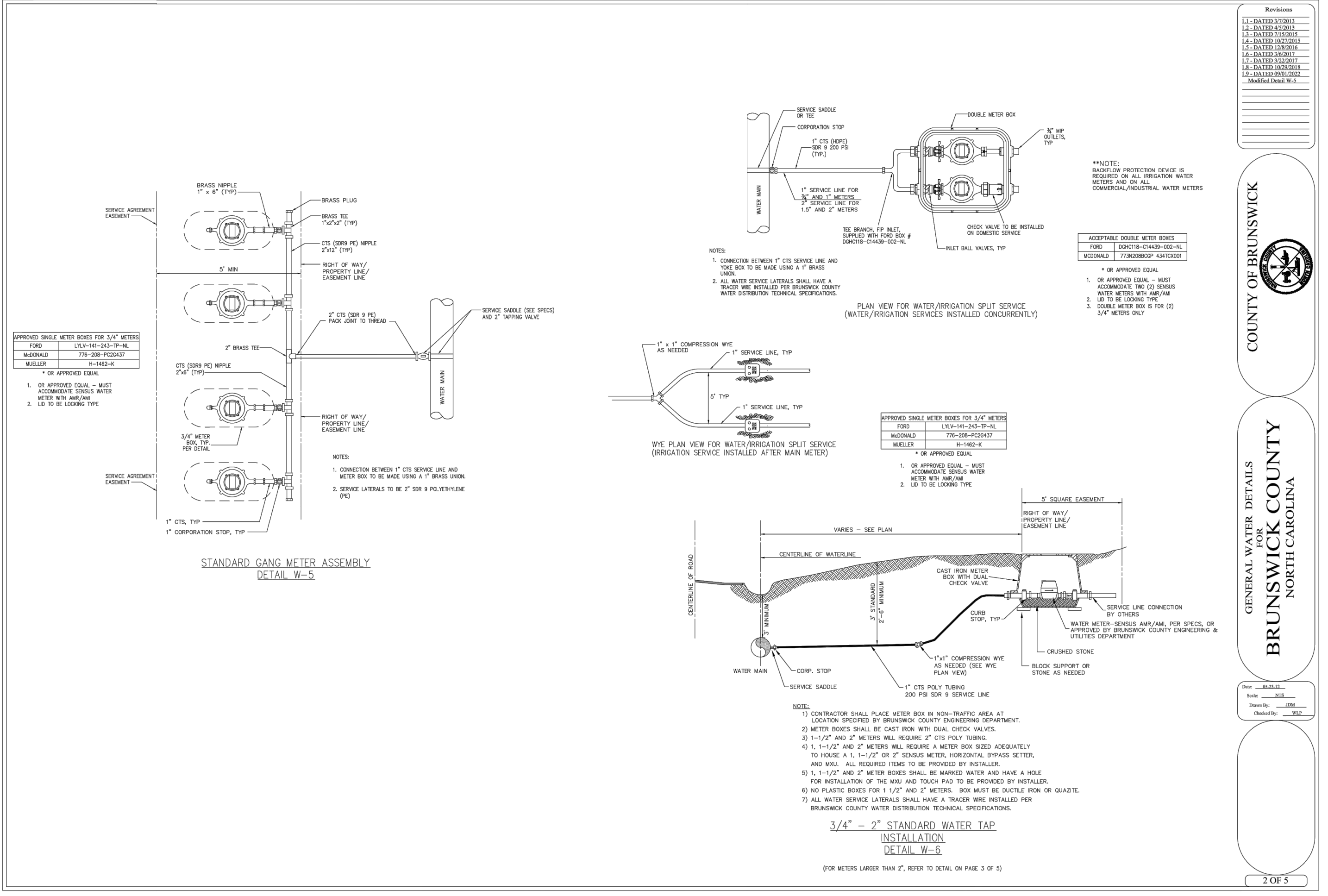
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

PINE FOREST DEVELOPMENT COMPANY, LLC
355 Industrial Park Drive
Boone, NC 28607

REVISIONS:



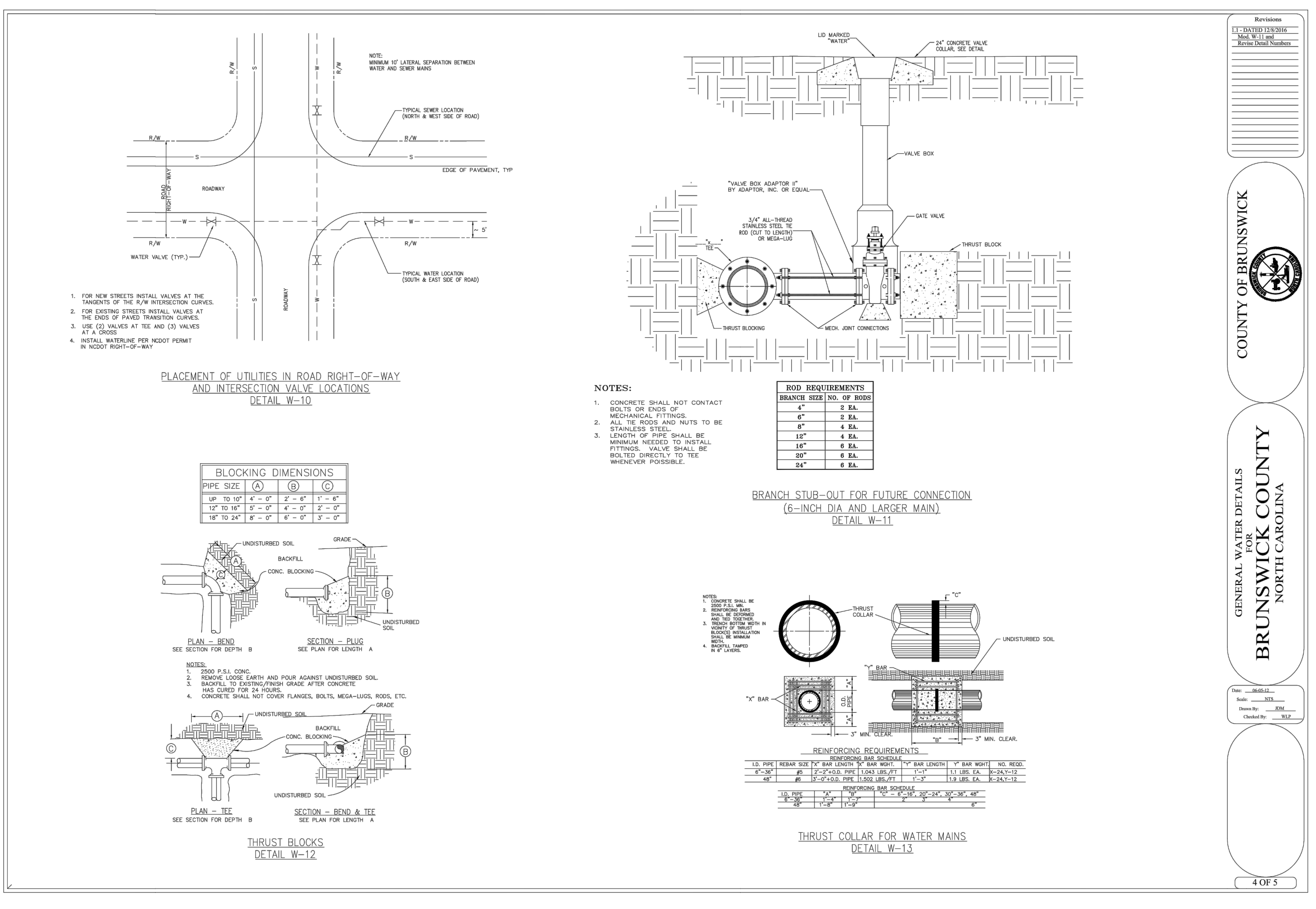
C-7.1
PEI JOB#: 23213.PE



Revisions

1	DATE: 11/11/2023
2	DATE: 11/11/2023
3	DATE: 11/11/2023
4	DATE: 11/11/2023
5	DATE: 11/11/2023
6	DATE: 11/11/2023
7	DATE: 11/11/2023
8	DATE: 11/11/2023
9	DATE: 11/11/2023
10	DATE: 11/11/2023
11	DATE: 11/11/2023
12	DATE: 11/11/2023

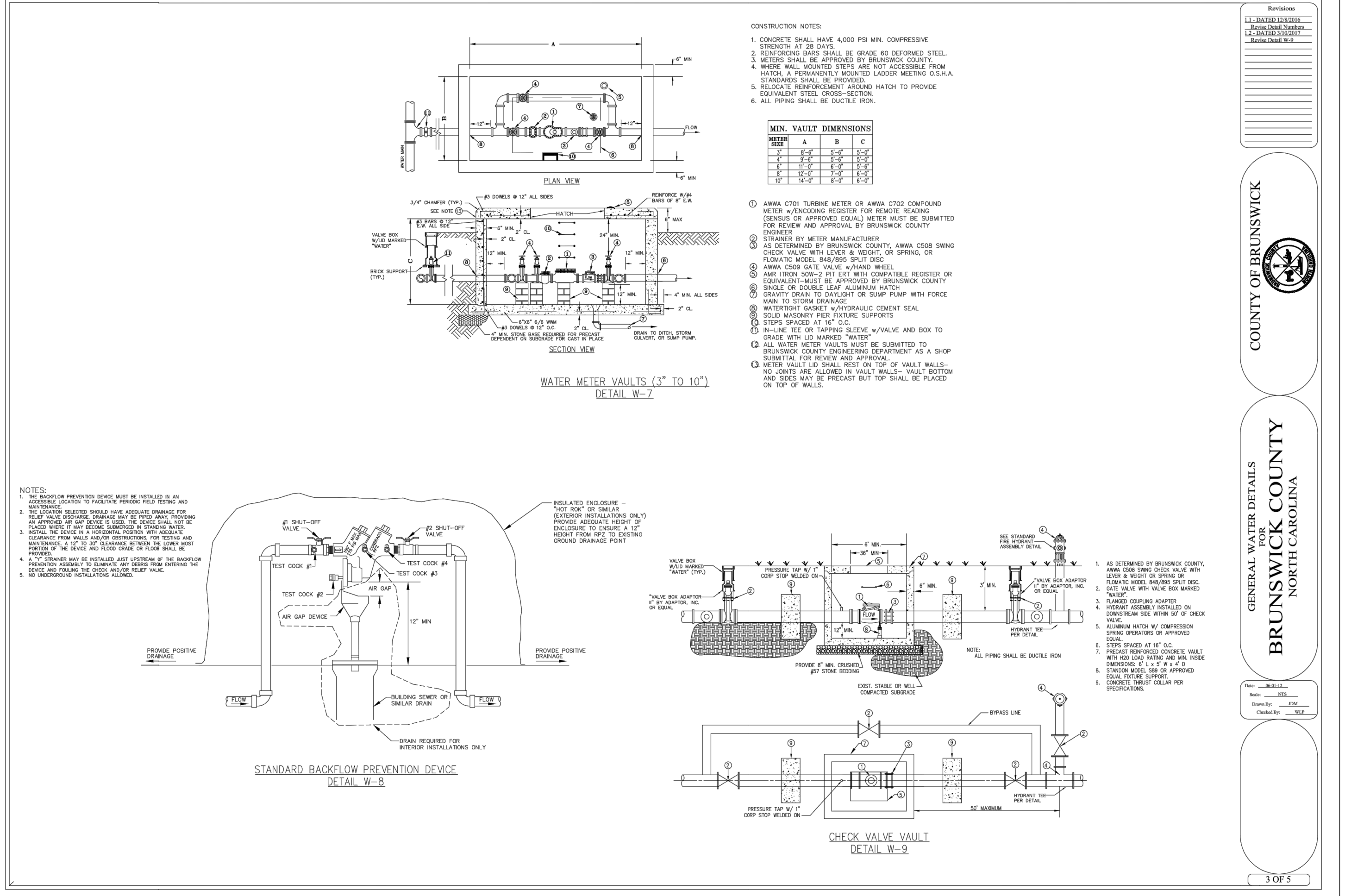
GENERAL WATER DETAILS
BRUNSWICK COUNTY
NORTH CAROLINA



Revisions

1	DATE: 11/11/2023
2	DATE: 11/11/2023
3	DATE: 11/11/2023
4	DATE: 11/11/2023
5	DATE: 11/11/2023
6	DATE: 11/11/2023
7	DATE: 11/11/2023
8	DATE: 11/11/2023
9	DATE: 11/11/2023
10	DATE: 11/11/2023
11	DATE: 11/11/2023
12	DATE: 11/11/2023

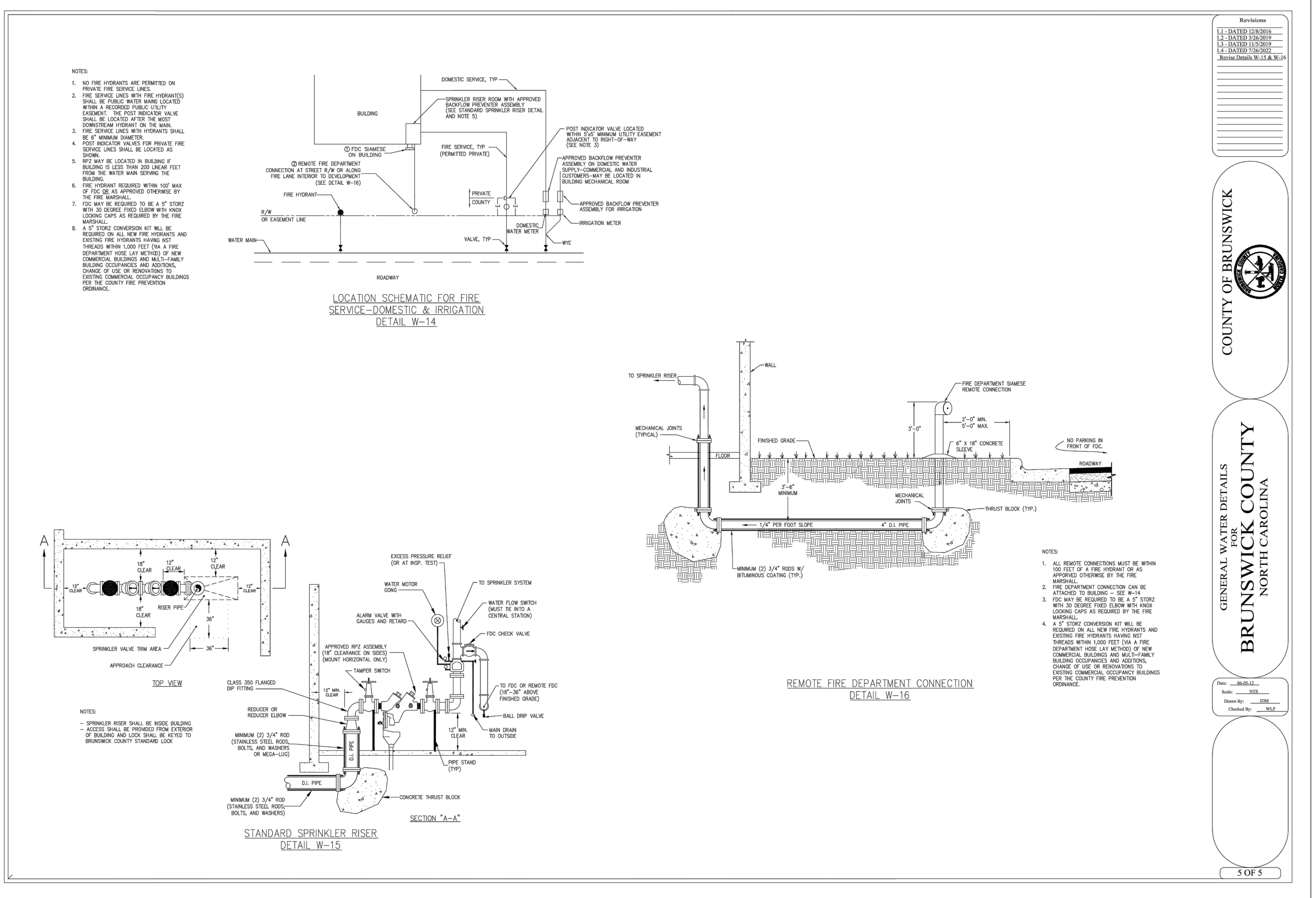
GENERAL WATER DETAILS
BRUNSWICK COUNTY
NORTH CAROLINA



Revisions

1	DATE: 11/11/2023
2	DATE: 11/11/2023
3	DATE: 11/11/2023
4	DATE: 11/11/2023
5	DATE: 11/11/2023
6	DATE: 11/11/2023
7	DATE: 11/11/2023
8	DATE: 11/11/2023
9	DATE: 11/11/2023
10	DATE: 11/11/2023
11	DATE: 11/11/2023
12	DATE: 11/11/2023

GENERAL WATER DETAILS
BRUNSWICK COUNTY
NORTH CAROLINA



Revisions

1	DATE: 11/11/2023
2	DATE: 11/11/2023
3	DATE: 11/11/2023
4	DATE: 11/11/2023
5	DATE: 11/11/2023
6	DATE: 11/11/2023
7	DATE: 11/11/2023
8	DATE: 11/11/2023
9	DATE: 11/11/2023
10	DATE: 11/11/2023
11	DATE: 11/11/2023
12	DATE: 11/11/2023

GENERAL WATER DETAILS
BRUNSWICK COUNTY
NORTH CAROLINA

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

UTILITY DETAILS

GENERAL WATER DETAILS
BRUNSWICK COUNTY
NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL LAYOUT: 08/11/2023
PRELIMINARY LAYOUT: 08/11/2023
RELEASED FOR CONSTRUCTION: 08/11/2023

DRAWING INFORMATION
DATE: 08/11/2023
DESIGNED BY: LER
DRAWN BY: LER
CHECKED BY: LER

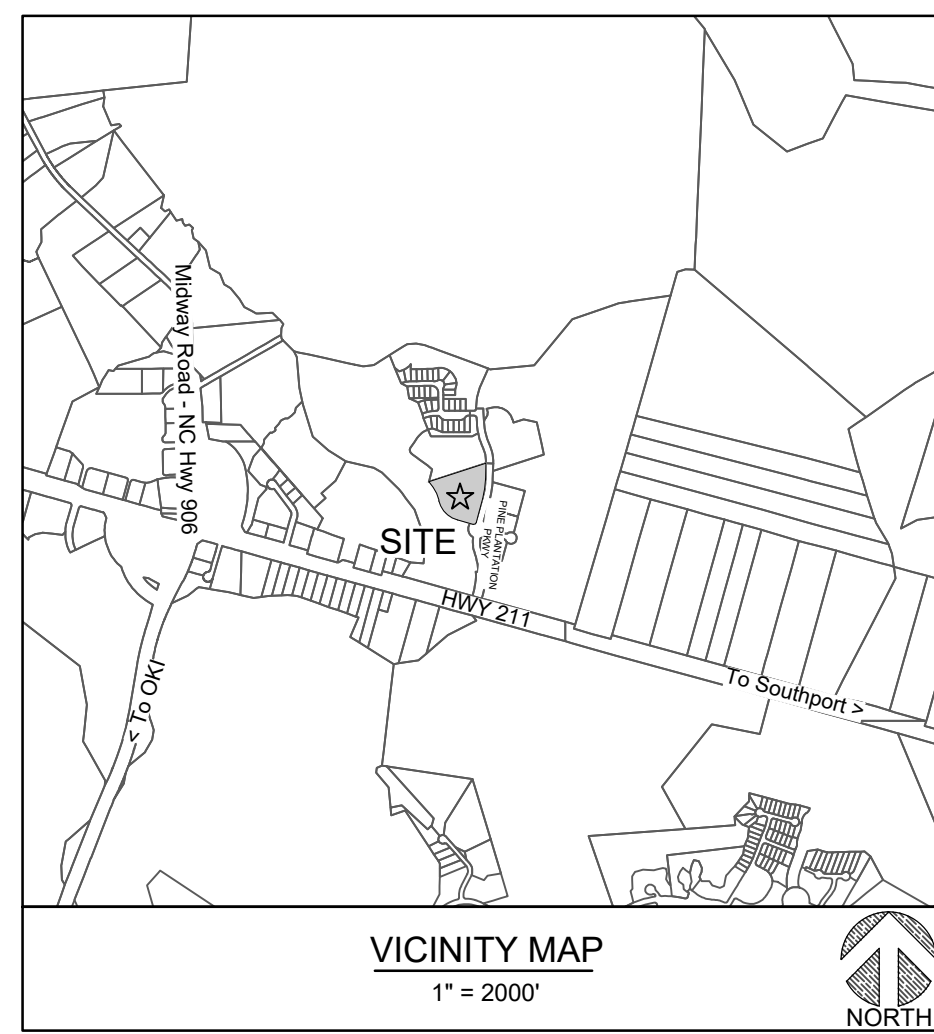
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
028847
09/11/23

PEI JOB#: 23213.PE

REVISIONS:

CLIENT INFORMATION:
PINE FOREST DEVELOPMENT COMPANY, LLC
355 Industrial Park Drive
Boone, NC 28607

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846



LEGEND

	PROPOSED SUBJECT
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	PROPOSED SETBACK
	PROPOSED BUFFER
	PROPOSED DUMPSTER FENCING
	EXISTING CONTOURS
	PROPOSED SIDEWALKS
	EXISTING WETLANDS

EXISTING SITE DATA
PROJECT NAME & ADDRESS: PINE FOREST TOWNHOMES
2941 PINE PLANTATION PKWY
OAK ISLAND, NC 28461

PROPERTY OWNER: PINE FOREST DEVELOPMENT CO, LLC
355 INDUSTRIAL PARK DR
BOONE, NC 28607

PARCEL ID: 2030001712
PARCEL PIN: 206819612904

DEED BOOK / DEED PAGE: 4182 / 30

TOTAL SITE AREA: ± 5.34 ACRES (± 232,524.68 SF)
CURRENT ZONING: PUD
FLOOD ZONE: THIS PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FEMA FLOOD MAP NO. 3720206800J BEARING AN EFFECTIVE DATE OF 6/2/2006.

WETLAND ACREAGE: WETLANDS EXIST ON SITE

DEVELOPMENT DATA
TOTAL NUMBER OF RESIDENTIAL UNITS: 22 UNITS
ALLOWED DENSITY: 5.8 DUAC / 31 UNITS
PROPOSED DENSITY: 4.1 DUAC / 22 UNITS
PROPOSED MAX BUILDING HEIGHT: 20 FT (RESIDENTIAL UNIT)
OPEN SPACE PROVIDED: ± 2.23 ACRES (± 42% OF SITE)

STREET YARD REQUIREMENTS (10.4)

- MINIMUM DEPTH OF 7.5'
- 2 SHADE TREES AND 6 INTERMEDIATE SHRUBS REQUIRED FOR EVERY 50 LF OF FRONTAGE
- EXISTING TREES MAY BE GRANTED AS CREDIT TOWARDS THE REQUIRED PLANTINGS

REQUIRED: 1,035 LF (NOT INCLUDING DRIVEWAYS AND WETLAND AREAS) / 50 = 20.7
20.7 X 2 = 41 SHADE TREES
20.7 X 6 = 124 SHRUBS

PROVIDED: 41 SHADE TREES
195 SHRUBS

PARKING FACILITY LANDSCAPE REQUIREMENTS

- AT LEAST 8% OF THE PAVED AREAS WITHIN PARKING FACILITIES HAVING 15 OR MORE SPACES SHALL BE LANDSCAPED.
REQUIRED: ± 2,680 SF (± 33,500 SF X 8%)
PROVIDED: ± 7,086 SF
- LANDSCAPED ISLANDS SHALL BE AT LEAST 8 FT WIDE AND BR AT LEAST 100 SF IN AREA
- ISLANDS SHALL CONTAIN ONE SHADE TREE, OR ONE SMALL TREE AND SIX SHRUBS.
- ISLANDS SHALL BE INSTALLED AT EACH BLOCK OF 15 CONSECUTIVE PARKING SPACES AND AT THE END OF ALL PARKING ROWS.

BUFFER YARD REQUIREMENTS

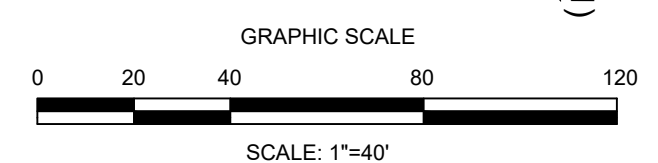
- BUFFER YARDS ARE REQUIRED FOR MULTI-FAMILY DEVELOPMENT WITH 10 OR MORE PARKING SPACES
- MULTI-FAMILY RESIDENTIAL REQUIRES A TYPE A BUFFER AGAINST INDUSTRIAL, COMMERCIAL, AND SINGLE FAMILY RESIDENTIAL
- NO BUFFER REQUIRED WHEN A MULTI-FAMILY DEVELOPMENT IS ADJACENT TO A MULTIFAMILY DEVELOPMENT
- TYPE A BUFFER: MINIMUM 7.5' WIDE; 2 SHADE TREES 40' ON-CENTER AND 10 EVERGREEN SHRUBS 8' ON CENTER EVERY 100 LF

SCREENING REQUIREMENTS

- ALL DUMPSTERS AND TRASH RECEPTABLES SHALL BE SCREENED FROM VIEW IN ACCORDANCE WITH SECTION 10.7.4 OF THE UDO
- ALL UTILITY AND MECHANICAL EQUIPMENT SHALL BE SCREENED IN ACCORDANCE WITH SECTION 10.16.6 OF THE UDO

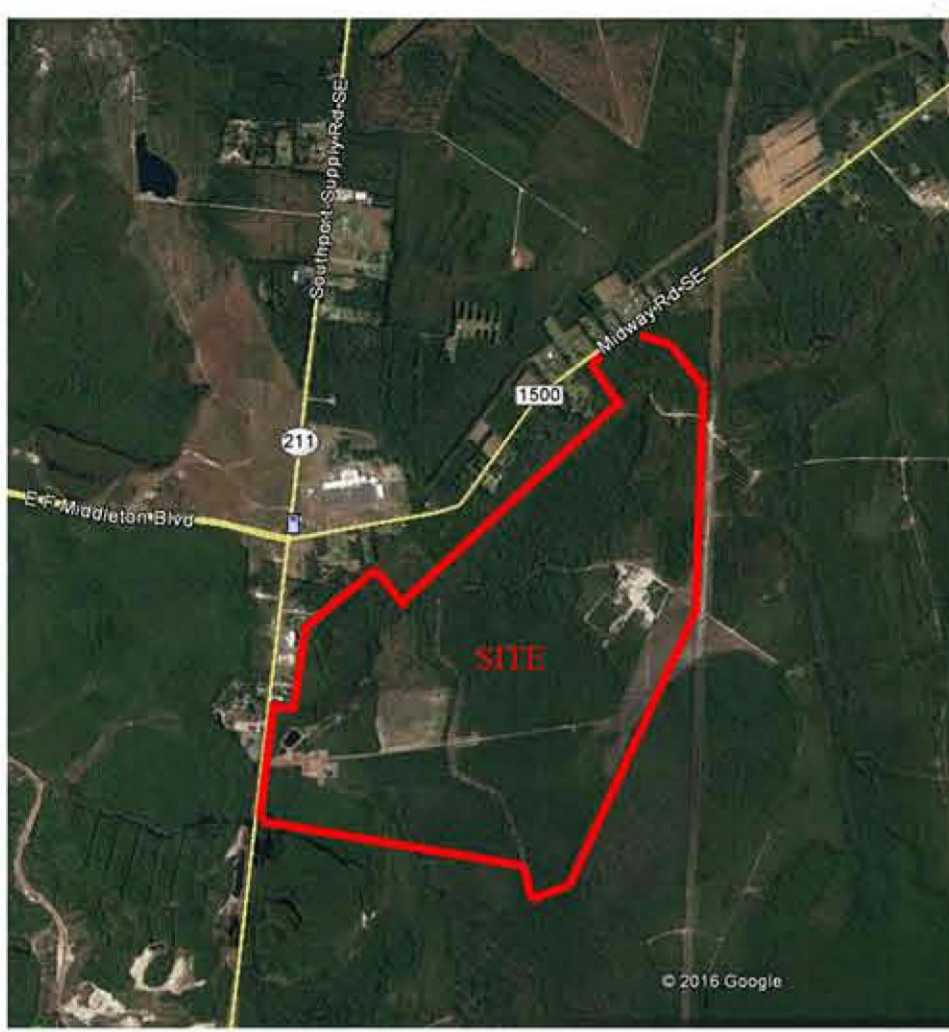
PLANT SCHEDULE

CANOPY TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	NO	41	QUERCUS NUTTALLII NUTTALL OAK	2" CAL. (MIN.)
	LO	14	QUERCUS VIRGINIANA SOUTHERN LIVE OAK	2" CAL. (MIN.)
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER
	DAR	195	LOROPETALUM C. 'DARUMA' DARUMA LOROPETALUM	3 GAL



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

<p>REVISIONS:</p> <table border="1" style="width: 100%; height: 40px;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>											<p>CLIENT INFORMATION:</p> <p>PINE FOREST DEVELOPMENT COMPANY, LLC 355 Industrial Park Drive Boone, NC 28607</p>	<p>PARAMOUNT ENGINEERING</p> <p>122 Cinema Drive Wilmington, North Carolina 28403 (910) 791-6707 (O) (910) 791-6700 (F) NC License #: C-2846</p>
<p>SITE PLAN PINE FOREST QUADS PINE FOREST QUADS TOWN OF OAK ISLAND BRUNSWICK CO., NORTH CAROLINA</p>												
<p>PROJECT STATUS:</p> <p>CONCEPTUAL LAYOUT: 09/11/2023 PRELIMINARY LAYOUT: 09/11/2023 RELEASED FOR CONST: 09/11/2023</p>	<p>DRAWING INFORMATION:</p> <p>DATE: 09/11/2023 DRAWN BY: BWS DESIGNED BY: BWS CHECKED BY: JRC</p>											
<p>SEAL</p>	<p>L-2.0</p> <p>PEI JOB#: 23213.PE</p>											



VICINITY MAP

Project Description:

- (1) **Project Name:** Pine Forest Plantation of Oak Island
- (2) **Total Estimated / Potential Population & Commercial Square Footage:**
 - (A) Project PUD acreage: 564 acres
 - (B) Residential Population: 2850 Units (5 du/ac)

Proposed density within the PUD-C is based upon a calculation of a lot size of 7500 square feet as stated in section 18-226, thus the maximum allowed density within the PUD-C is 5.8 du/ac (43560/sq acre/7500 sf)

- (C) **General retail/commercial - mixed use sf:** 150,000 Square Feet
- (D) **Medical/Healthcare Campus:** 100,000 SF (11 acres)
- (E) **Existing zoning:** Commercial low density, R7500
- (F) **Proposed open space:** 90 acres (16%)

General Development Philosophy: To provide a mixed use multi-phased project containing residential, commercial, medical and healthcare campus, office & institutional, assisted and independent living, retail services with integrated open space and conservation areas.

Master Plan: The development is to be segregated into specific planned unit development districts (PUD Districts), the entirety of which is to be considered one comprehensive project, which is illustrated in Exhibit A, Conceptual PUD Master Plan.

Description of Character: Pine Forest Plantation of Oak Island will create a work and play lifestyle, facilitating a sense of community with safe havens for recreation and inter-community pedestrian walks and trails. Accessibility to Highway 211 and Midway Road will highlight the Town of Oak Island's emphasis on strategically planned growth, environmental sensitivity and wealth of natural resource. Each District within Pine Forest Plantation will be both individually unique and integrated by architecture and landscape design with the other Districts.

PUD SFR Districts (Single Family Residential) 279 acres (UPDATED - March 2022)

1. Combination of detached and attached residential (duplex, zero lot line, triplex, condominium, assisted living and independent living facilities)
2. Wide variety of product type and price point
3. Associate density with communities integrated within communities
4. Lot typology for conventional lots consist of front load, side load, and rear load product type
5. Minimum Lot Size -
 - a. Conventional Residential Development: 5,000 SF
 - b. Performance Residential Development: No minimum lot size. The density shall not exceed 5.8 du/ac.
6. Setbacks and Spacing
 - a. Conventional Residential Lots Setbacks
 - 1. Front load and side load a. 5 ft. side yard
 - 2. Rear load a. 0 ft. front yard
 - 3. Zero lot line attached a. 15 ft. front yard
 - b. 15 ft. front yard b. 5 ft. side yard
 - c. 10 ft. rear yard c. 10 ft. rear yard
 - b. Performance Residential Development
 - 1. Buildings on the periphery in the PUD shall be setback a minimum of 20 feet from the adjoining property line.
 - 2. Dwellings shall be spaced a minimum of 10 feet from each other.

PUD AR District (Attached/Multi Family Residential) 23.5 acres

1. Moderate to high density
2. Multi story buildings oriented around common open space

PUD MOI District (Medical Office & Institutional) 11 acres

1. Campus related health care facility
2. Pedestrian friendly with integrated common areas

PUD MX District (Mixed Use: Commercial & Residential)

1. Mixed use/multi story buildings to allow for greater open space
2. Walkable and pedestrian oriented streetscape
3. Associated retail and professional business to support residential
4. Public and community destination
5. Potential residential over retail
6. Building setbacks -
 - a. 0 ft. side yard
 - b. 0 ft. front yard
 - c. 10 ft. rear yard

PUD WCH District (Wetland Conservation Habitat areas) 130 acres

1. Wetland and conservation areas provide buffers and transition to proposed uses
2. Protect and conserve wetlands and other natural features for storm protection functions and natural resources giving recognition to public health, safety and welfare issues

PUD CAFL District (Community supported Agriculture and Farm land) 16.5 ac

1. Large and small scale community farming
2. Emphasis on community and/or local produce
3. Growers and consumers sharing the risks and benefits of food production

PUD CA District (Community Amenity) 6 acres

1. Both passive and active recreation
2. Community gathering destination within 15-minute walk

PUD ALIR District (Assisted Living-Independent Living facility) 14 acres

1. 80 bed Adult Care Facility with potential expansion
2. Independent Living - 100,000 sf - 120 units

PUD CR District (Civic-Retail/Commercial) 14.8 acres

1. Civic and institutional uses
2. Neighborhood type retail
3. Building setbacks -
 - a. 0 ft. side yard
 - b. 0 ft. front yard
 - c. 10 ft. rear yard

PUD PN District (Park recreation nodes greenbelt) 10 acres

1. Community type linear parks and gathering spaces
2. Integrated trail systems and greenbelts providing pedestrian and bicycle connectivity from residential and non-residential development tracts

(6) **Ownership:** Tax Parcel ID# 20300017
Equity Investments Associates, LLC
355 Industrial Park Road
Boone, NC 28607

(7) **Development:** Project Commencement: 3rd Quarter 2016 (Novant)
Schedule: Assisted living/SFR2-SFR3: 3rd Quarter 2017
Mixed use: 1st Quarter 2018
Project Completion: 2030 Year End

At this point in the development of this project, proposed timelines and schedules may vary. Variations in market conditions will dictate projected construction and timetables. The Town of Oak Island will be notified through the public hearing process of any modifications.

This site plan is a graphic representation and should be utilized for discussion purposes only. The site plan approximates existing conditions relating to structures, wetlands, roads, parking, vegetation, and property boundaries. Plan components may change based upon regulatory and municipal regulations and requirements at the time of approvals and/or development activity.

ADJACENT PROPERTY OWNERS

Key	Name	Address	City	State	Zon Code
19	EVANS HIRSHL	27 BOX 632	BOONE, NC	NC	28276
20	ANDREW W FACIOMI TRUSTEE	2524 HECKMAN ROAD	ANN ARBOR, MI	MI	48105
24	BUDORSH ASSOC OF NC	1650 MIDWAY RD SE	BOULDER, CO	CO	28222
27	CAROL A SMITH	4008 WETHEL ROAD SE	SOUTHPORT, NC	NC	28661
33	CAROLINA FORESTS LLC	355 INDUSTRIAL PARK DR	BOONE, NC	NC	28607
9	CHARLES B HANLEY	3440 SOUTHPORT SUPPLY RD	BOULDER, CO	CO	28222
35	ECOMATL REALTY & DEVELOPMENT LLC	3930 WINDY DR	MT PALOMAR, CA	CA	29669
18	DANIEL B ANGELA C BOWLING	2822 MIDWAY RD SE	BOULDER, CO	CO	28222
11	DAPHNE S BOLES	2280 SOUTHPORT SUPPLY RD SE	BOULDER, CO	CO	28222
28	DAVID B ANGELINE LAMB	2455 MIDWAY RD SE	BOULDER, CO	CO	28222
12	EQUITY INVESTMENTS ASSOCIATES LLC	355 INDUSTRIAL PARK DR	BOONE, NC	NC	28607
34	ERIC B RUTH BRANST	3232 BELLA COOLA ROAD	LAKE WACCAWAMP, NC	NC	28420
25	MARSHALL C JR & DEBORAH EVANS	2540 MIDWAY RD SE	BOULDER, CO	CO	28222
22	JOHN CLAUDIOS	2016 MIDWAY RD SE	BOULDER, CO	CO	28222
23	LARRY & VINCENT BAKER	300 FORD ATLANA	BOULDER, CO	CO	28222
7	LIMPOKO LLC	RD BOX 411	SHALLLOTTE, NC	NC	28559
14	MARITZA PROFFELA HORNE	5602 LYNN STREET SE	SOUTHPORT, NC	NC	28661
21	MATTHE C SMITH	23 GILES AVE	NEW HAVEN, CT	CT	6473
17	MIDWAY LANDINGS LLC	233 FORD ST	NEWINGTON, NC	NC	28653
10	PAMELA A MCKEY	2465 MIDWAY RD SE	BOULDER, CO	CO	28222
26	MICHAEL & KELLY ANN PAYNE	2530 MIDWAY ROAD SE	BOULDER, CO	CO	28222
8	QUANTUM INC	6174 N BEACH DRIVE	COCOA BEACH, FL	FL	28620
5	QUELLA MAE HOLDEN	3439 SOUTHPORT SUPPLY RD	BOULDER, CO	CO	28222
1	RESERVE DEVELOPMENT CO., LLC	RD BOX 18879	SOUTHPORT, NC	NC	28661
16	SARA ANNE LEWIS	2916 RIPLEY DR SE	BOULDER, CO	CO	28222
4	SHARON A HICKS	8559 E US HWY 64	THOMASVILLE, NC	NC	27360
3	SIGNATURE CONSTRUCTION GROUP	UNIT 100	SOUTHPORT, NC	NC	28661
9 & 10	SOUTHPORT HOUSING LLC	273 WASHINGTON SQ SMALL	WASHINGTON, NC	NC	27889
6	T & G REAL ESTATE SERVICES INC	2829 MARSH POINT LN	SOUTHPORT, NC	NC	28661
13	THOMAS & BRENDA B MOORE	3425 MIDWAY RD SE	BOULDER, CO	CO	28222
19	THOMAS BASS	2920 RIPLEY DR	BOULDER, CO	CO	28222
12	THOMAS COOPER	2900 RIPLEY DRIVE	BOULDER, CO	CO	28222
11	TRINCHETTI & ELMERTH CARPENTER	2900 MIDWAY RD	BOULDER, CO	CO	28222
16	TRUDY SOBERE	RD BOX 1304	BEESMER CITY, NC	NC	28024
3	TWO ELEVEN LLC	4133 HICKLY LN	CLOR, NC	NC	29060
21	WILLIAM E WELT	1111 HOMESTEAD DRIVE	BOULDER, CO	CO	27350
15	WILLIAM PEARCE JR HORNE	2954 RIPLEY DR SE	BOULDER, CO	CO	28222
17	WYOMAC LLC	2905 BLUE RIDGE RD. S-330	WELDON, NC	NC	27827

Please note: STS DMC 1 is under the same ownership as the property owner: Equity Investments Assoc.

Ownership: Tax Parcel ID# 20300017
Equity Investments Associates, LLC
355 Industrial Park Road
Boone, NC 28607

Development: Project Commencement: 3rd Quarter 2016 (Novant)
Schedule: Assisted living/SFR2-SFR3: 3rd Quarter 2017
Mixed use: 1st Quarter 2018
Project Completion: 2030 Year End

At this point in the development of this project, proposed timelines and schedules may vary. Variations in market conditions will dictate projected construction and timetables. The Town of Oak Island will be notified through the public hearing process of any modifications.

- Project Team:**
- (A) **Member Manager:** Tommy Soffeld
Equity Investments Associates, LLC
 - (C) **Project Planner:** Tom Harrington, Dan Weeks RLA
H+W Design PLLC
 - (D) **Project Engineer:** Tim Clinkscales, PE
Paramount Engineering, Inc.
 - (E) **Environmental Consultant:** Craig Turner
Land Management Group, Inc.
 - (F) **Traffic Consultant:** Ramey F. Kemp, PE, PTOE
Ramey Kemp & Associates, Inc.



Legend

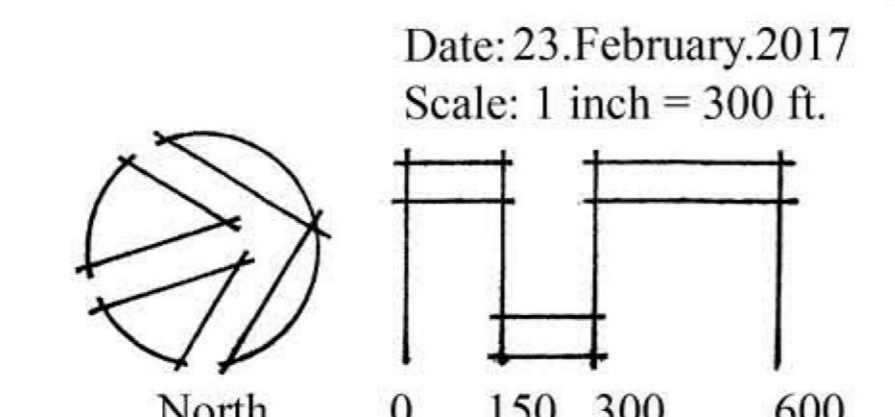
- Proposed connection points to major roadways and connectivity to adjacent properties
- Pedestrian trails/greenbelt
- Greenway node
- Park nodes-community gathering places
- Community supported Agriculture and Farm land
- Community amenity site
- Wetland conservation habitat areas
- Single family residential attached and detached product
- Attached residential
- Assisted Living Adult Care & Independent Living residential
- Medical Office and Institutional
- Mixed Use- combination of multi-story building with associated retail, office and potential residential
- Civic/Retail-Commercial

EXHIBIT A
PUD - C
Phased Conceptual Development Plan

Pine Forest
PLANTATION®

Town of Oak Island, North Carolina

Prepared for:
EQUITY INVESTMENT ASSOCIATES, LLC
Boone, NC



**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Tree Canopy Assessment Results
DATE: December 4, 2023
DEPARTMENT: Planning

Subject Summary: The Town of Oak Island was awarded a grant from the North Carolina Forest Service to have a Tree Canopy Assessment conducted by PlanIt Geo. The Canopy Assessment is complete and a final draft of the report is attached.

The Planning Board has in the past year reviewed Chapter 32 of the Code of Ordinances and discussed possible revisions. See attached for a draft recommended by the Planning Board as well as a draft based on feedback from the Town Forester, Rick Patterson.

The Planning Board should discuss and consider how to move forward with any recommended changes to Chapter 32.

Attachments:

[Oak Island - Tree Canopy Assessment Report](#)
[PBRecommendations_Chapter_32__VEGETATION](#)
[Chapter 32 Forester Recommendations Summary](#)
[ForesterRecommendations_Chapter32Clean](#)

TREE CANOPY COVER ASSESSMENT

OAK ISLAND,
NORTH CAROLINA
SEPTEMBER | 2023



PlanIT Geo
developers of TreePlotter

Funding for this project was provided in part through an Urban & Community Forestry Grant from the North Carolina Forest Service, Department of Agriculture and Consumer Services, in cooperation with the USDA Forest Service, Southern Region.





7,093
ACRES OF CANOPY

59%
OF OAK ISLAND'S
LAND AREA WAS
COVERED WITH
CANOPY IN 2022

EXECUTIVE --- SUMMARY

SUMMARY

BACKGROUND OF THIS ANALYSIS

Oak Island distinguishes as one of North Carolina's premier beach locations, situated along the Southeastern Coast of the state. This barrier island is celebrated for its networks of bicycle and pedestrian pathways, historical lighthouse, and the nesting and hatchings of loggerhead sea turtles. Oak Island encompasses approximately 19.8 square miles, or 12,718 acres, within the jurisdiction of Brunswick County. It's urban forest serves as an invaluable addition to the rich natural environment, providing residents, businesses, and visitors with many environmental, social, and economic benefits. This assessment mapped tree canopy (TC), possible planting area (PPA), and analyzed how they are distributed throughout Oak Island's town boundary, zoning, right-of-way (ROW), and census block groups. Oak Island's urban forest is a valuable asset. **For the purpose of this report, total tree canopy refers to percentage of tree canopy coverage for the town's total land excluding water bodies.**

PROJECT METHODOLOGY

The results, based on 2022 imagery from the USDA's National Agriculture Imagery Program (NAIP), provide a near-current look at land cover in Oak Island and will allow the Town to revise existing and develop new strategies to protect and expand the urban

forest throughout both public and private lands. This study utilized modern machine learning techniques to create land cover data that are more reproducible and will allow for a more uniform comparison in future tree canopy and land cover assessments.

OAK ISLAND'S FORESTS

In 2022, Oak Island had 59% tree canopy cover and 23% possible planting area, and the other 18% of the town was classified as unsuitable for planting without significant land modification. The Town's total area, **including water bodies**, was categorized by 56% tree canopy, 2% shrubs, 21% non-canopy vegetation; 4% soil/dry vegetation; 12% impervious surfaces, and 6% water. The 7,093 acres of tree canopy in Oak Island provide ecosystem benefits valued at over \$2.6 million per year through air quality improvements, stormwater runoff prevention, and carbon sequestration.

Results from this assessment found that canopy cover changed from 50% to 59% from 2014 to 2022 (+9% or 1,113 acres) using the current town boundary. Regenerative growth of preexisting forest patches contributed the most to the town's canopy gain. The town's mainland extension is predominately forested, categorized by expansive, uninhabited woodlands. These sizable tracts are likely candidates for prospective developmental properties as the town undergoes inland expansion. Given these considerations, it becomes crucial to prioritize residential zones for canopy preservation in tandem with the Town's expansion.



Figure 1. The Town of Oak Island occupies approximately 19 square miles along the southeastern coast of North Carolina.

RECOMMENDATIONS

The findings from this analysis can serve as a foundation for crafting an ongoing plan to safeguard and enhance Oak Island's urban forest. This study revealed that the Town of Oak Island contains 7,093 acres of tree canopy. With 2,736 acres of possible planting area, Oak Island has the opportunity to continue to increase tree canopy coverage on both public and private property.

It is important for the Town to use this assessment to inform future investments in the urban forest so that all those who live, work, and play in Oak Island can benefit from the urban forest. The Town should proactively work to protect the existing urban forest and replenish the canopy with additional trees in new developments. Through management actions, strategic plantings, and protections for existing canopy informed by the TC and PPA metrics included in this report, the Town of Oak Island has an exciting opportunity to expand the quality and quantity of its current tree canopy for the benefit of future generations.

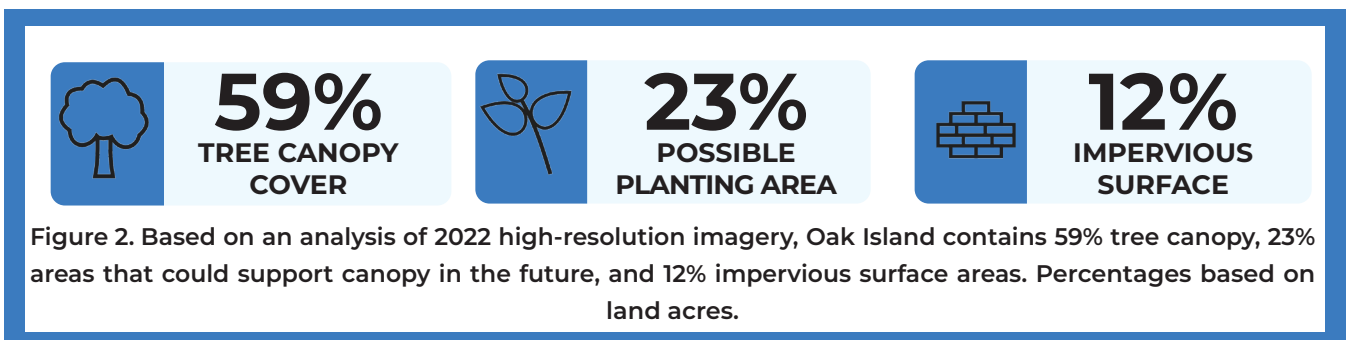


Figure 2. Based on an analysis of 2022 high-resolution imagery, Oak Island contains 59% tree canopy, 23% areas that could support canopy in the future, and 12% impervious surface areas. Percentages based on land acres.

PROJECT

METHODOLOGY

Land cover, tree canopy, and possible planting areas were mapped using the sources and methods described below. These data sets provide the foundation for the metrics reported at the selected geographic assessment scales.

DATA SOURCES

This assessment utilized high-resolution (60-centimeter) multispectral imagery from the U.S. Department of Agriculture’s National Agriculture Imagery Program (NAIP) collected in 2022 to derive the land cover data set. The NAIP imagery was used to classify all types of land cover.

MAPPING LAND COVER

The land cover data set is the most fundamental component of an tree canopy assessment. Tree canopy and land cover data from the EarthDefine US Tree Map (<https://www.earthdefine.com/treemap/>) provided a six class land cover data set. The US Tree Map is produced using a modern machine learning technique to extract tree canopy cover and other land cover types from the latest available 2022 and 2014 NAIP imagery. These six classes are shown in Figure 3 and described in the Glossary found in the Appendix.

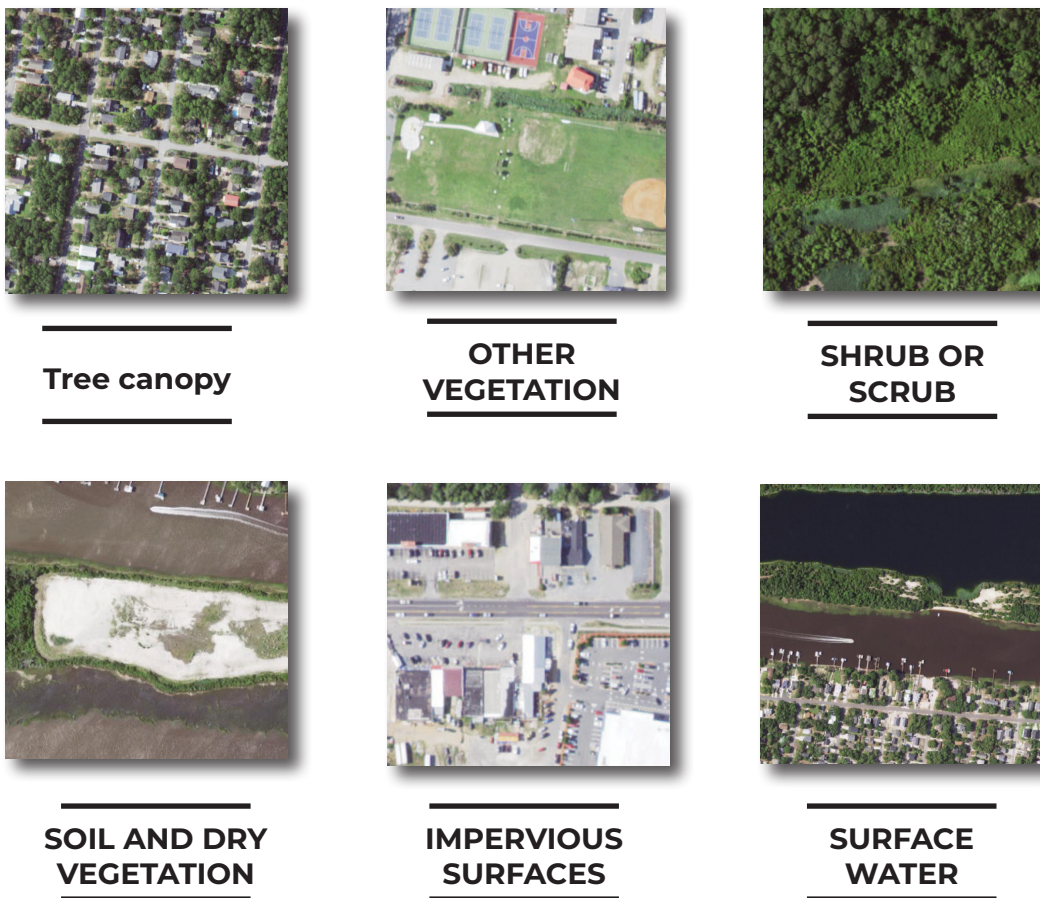


Figure 3. Six (6) distinct land cover classes were identified in the 2022 tree canopy assessment: tree canopy, shrubs, other vegetation, bare soil and dry vegetation, impervious surfaces, and water.

IDENTIFYING POSSIBLE PLANTING AREAS AND UNSUITABLE AREAS FOR PLANTING

In addition to quantifying the Town of Oak Island's existing tree canopy cover, another metric of interest in this assessment was the area where tree canopy could be expanded. To assess this, all land area in the Town of Oak Island that was not existing tree canopy coverage was classified as either possible planting area (PPA) or unsuitable for planting.

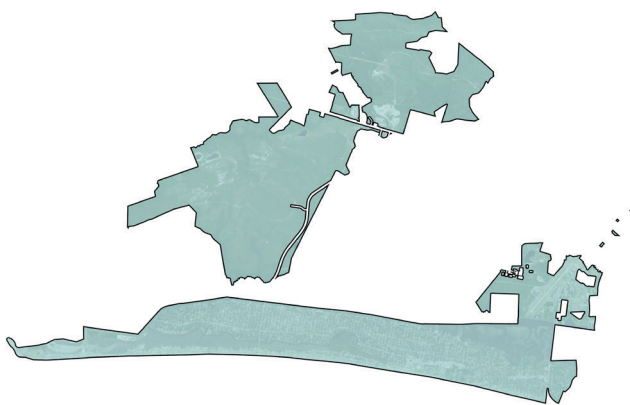
Possible planting areas were derived from the vegetation and shrubs layer. Unsuitable areas, or areas where it was not feasible to plant trees due to biophysical or land use restraints (e.g. golf course playing areas, recreation fields, utility corridors, airports, etc.) were manually delineated and overlaid with the existing land cover data set (Figure 4). The final results were reported as PPA Vegetation, Unsuitable Impervious, Unsuitable Vegetation, Unsuitable Soil, and Water.



Figure 4. Vegetated areas where it would be biophysically feasible for tree plantings but undesirable based on their current usage (left) were delineated in the data as “Unsuitable” (right). These areas included recreational sports fields, golf courses, and other open space.

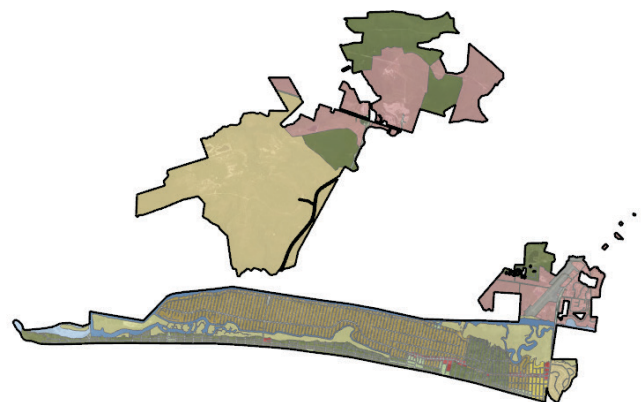
DEFINING ASSESSMENT LEVELS

In order to best inform Oak Island's various stakeholders, tree canopy and other associated metrics were tabulated across a variety of geographic boundaries. These boundaries include the town boundary, zoning, census block groups, public property, and parcels.



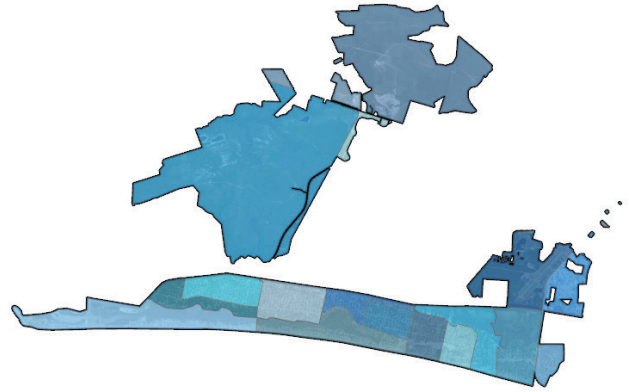
TOWN BOUNDARY

Oak Island's **town boundary** is the one (1) main area of interest over which all metrics are summarized.



ZONING

Thirteen (13) **zoning** types were analyzed to assess the impact of zoning ordinances and policy on a smaller scale.



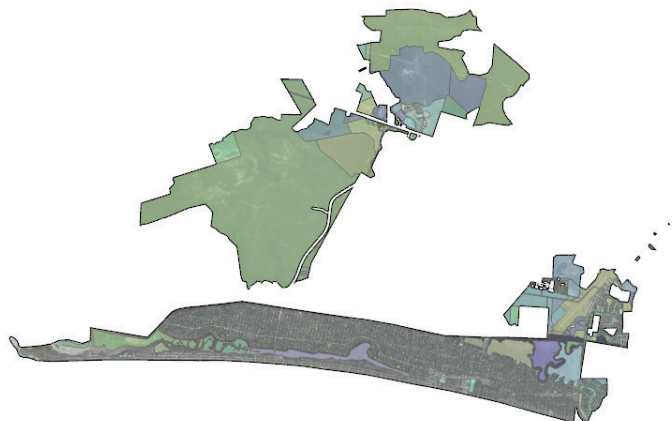
CENSUS BLOCK GROUPS

Twenty (20) **census blocks groups** were assessed to show relationships between canopy and sociodemographic factors, and highlight potential environmental justice issues.



PUBLIC PROPERTY

One hundred and forty (140) **public property** parcels were analyzed to determine how tree canopy differs on land owned by different public entities.



PARCELS

The smallest unit of analysis was **parcels**, of which there were over twelve thousand (12,607) total. This granular assessment level reveals hidden information that larger scales may show.

Figure 5. Five (5) distinct geographic boundaries were explored in this analysis: the Town boundary, zoning, census block groups, public property, and parcels.

STATE OF THE CANOPY AND --- **KEY FINDINGS**

OK-R-6 (RESIDENTIAL) AREAS LOST 176 ACRES OF CANOPY IN EIGHT YEARS.

OK-CLD (COMMERCIAL LOW DENSITY DISTRICT) ZONED AREAS HAVE 530 ACRES OF POSSIBLE PLANTABLE SPACE.

OAK ISLAND GAINED 1,113 ACRES OF CANOPY FROM 2018 TO 2022.

OAK ISLAND'S TREES PROVIDE OVER \$2.5 MILLION IN ANNUAL ECOSYSTEM BENEFITS.

+9% CANOPY CHANGE

23% PLANTABLE SPACE

59% TREE CANOPY

12% IMPERVIOUS

**1% OF
TREE CANOPY
SHADES
IMPERVIOUS**



This study mapped and quantified tree canopy, plantable space, and canopy change throughout the Town of Oak Island. These metrics help inform a strategic approach for identifying existing canopy to preserve as well as areas suitable to plant trees in the future. Tree canopy cover, possible planting area, and areas unsuitable for planting are represented as percentages of the Town's land area with bodies of water excluded.

TOWN-WIDE TREE CANOPY COVER

This tree canopy assessment utilized the land cover data as a foundation to determine tree canopy cover and possible planting areas (PPA) throughout the Oak Island. After assessing the Town's 12,001 land acres, 59% was found to be covered with canopy. Even though Oak Island's canopy covers over half the town, there is still space to plant more trees. There are still 2,736 acres available for tree planting opportunities. If the Town utilized 100% of its plantable space, it would theoretically have the potential to reach 82% tree canopy cover.

However, not all of the land area in town is feasible for trees. About 12% of the town is covered with impervious surfaces such as roads and parking lots. There is also another 6% composed of recreational sports fields, areas of bare sand and dry vegetation. Altogether, 18% of the town is not a good fit for trees.



Figure 7. Distribution of land cover throughout the town boundary.

Tree Canopy Potential in Oak Island

- Tree Canopy
- Possible Planting Area
- Unsuitable Area

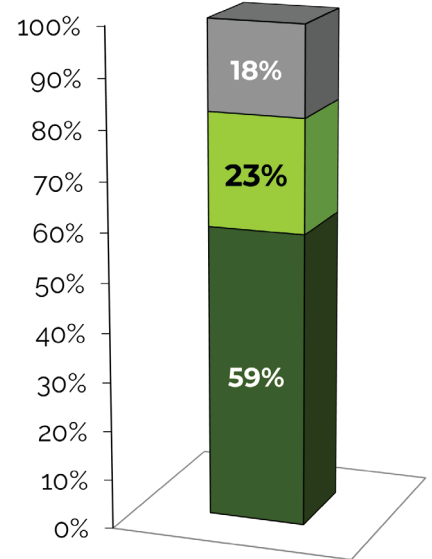


Figure 6. Tree canopy, possible planting area, and area unsuitable for tree canopy in Oak Island.

TOWN-WIDE TREE CANOPY CHANGE

Over the 8-year study period, there was an overall increase in Oak Island's tree canopy. Tree canopy increased by 1,113 acres, a 9% raw increase from 2014 to 2022. However, it can be assumed that the tree canopy fluctuated throughout the eight-year study period. This assessment serves as a snapshot of the canopy at the time of imagery collection. Generally, most large losses of canopy can be traced back to development along Oak Island Drive. Canopy growth can be attributed to the growth of existing trees and natural regeneration. Current levels of tree canopy in Oak Island can continue to be improved with careful planning and planting efforts of native species.

Table 1. Tree canopy cover assessment results by acres and percent. (Percentages based on land acres.)

Study Area	Total Area	Land Area	2014 Tree Canopy		2022 Tree Canopy		Canopy Change	
	Acres	Acres	Acres	%	Acres	%	Acres	%
Oak Island	12,718	12,001	5,980	50%	7,093	59%	1,113	9%

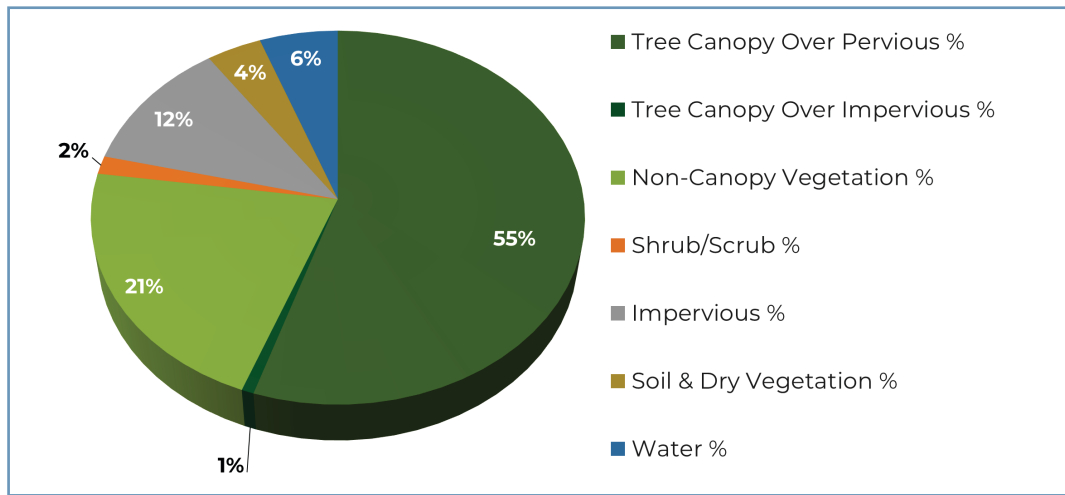


Figure 8. Distribution of land cover (percentages based on total acres including water bodies).

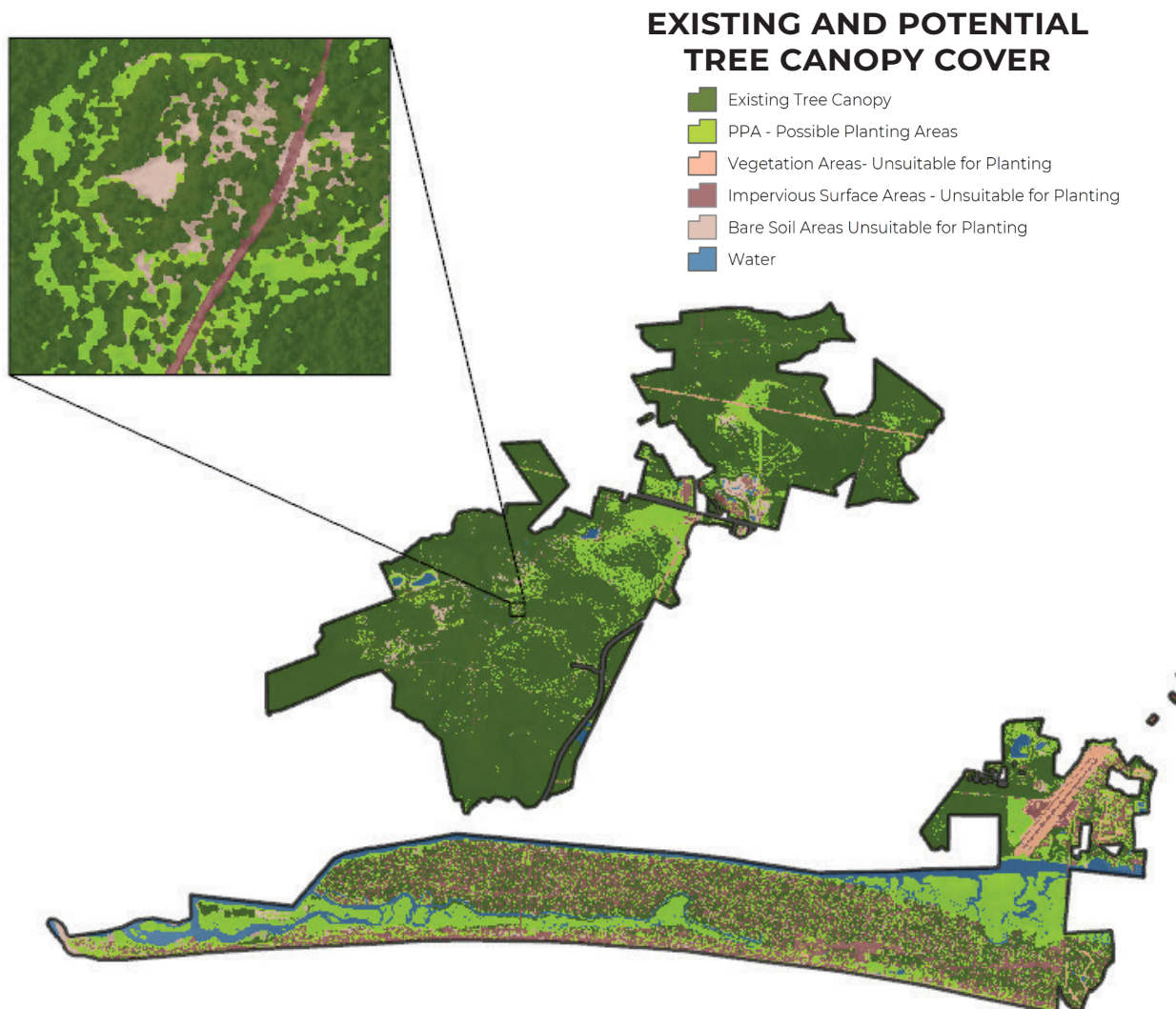


Figure 9. Distribution of existing and potential tree canopy cover throughout the Town.

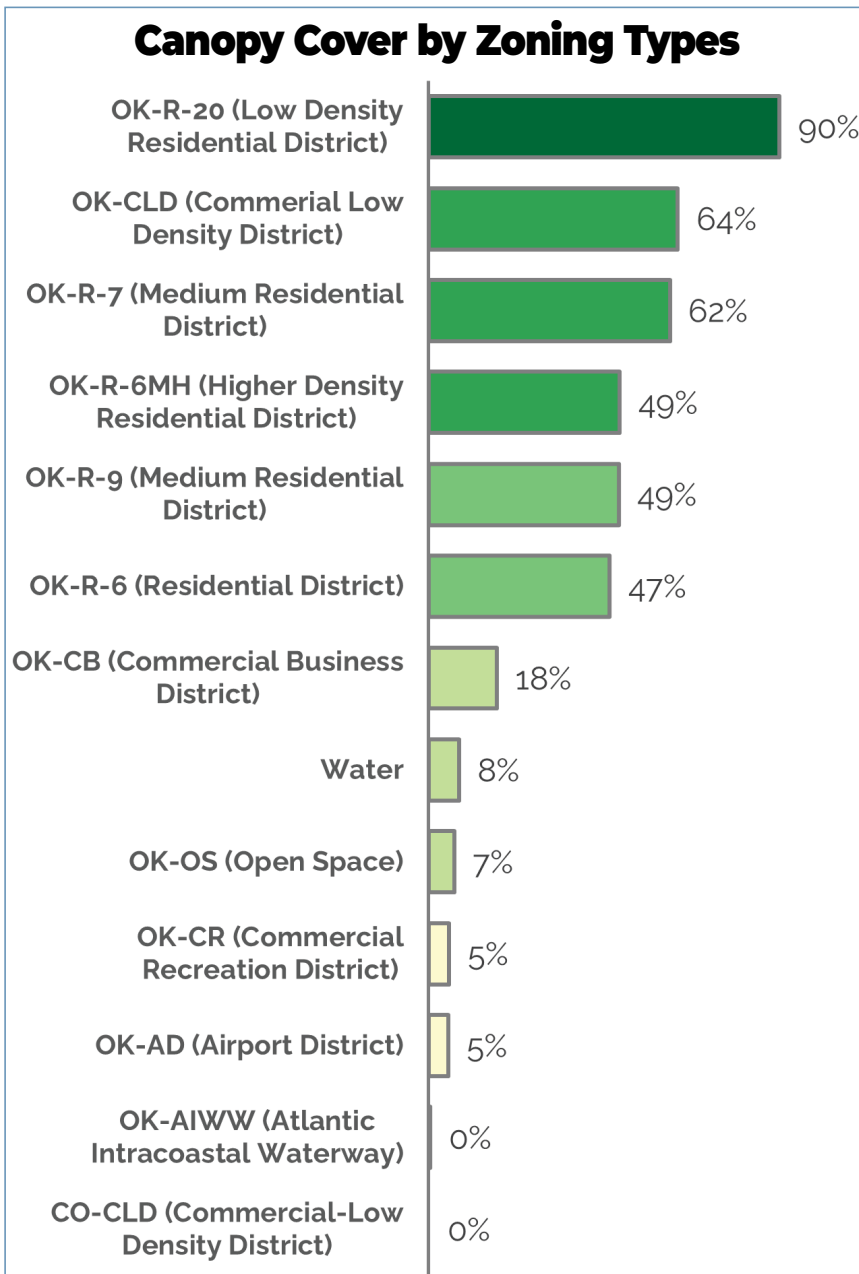
TREE CANOPY COVER BY ZONING

Tree canopy and PPA were assessed for Oak Island’s 14 zoning types. A majority of the town area falls under two categories: OK-R-20 (Low Density Residential District) and OK-CLD (Commercial Low Density District) with 21% and 32% of land area respectively. Remarkably, Low Density Residential District contained almost half (46%) of all the tree cover on Oak Island, featuring an impressive 90% canopy cover within its own boundaries. However, this extensive canopy is largely attributed to the expansive undeveloped forested areas situated on the mainland. Given these circumstances, protective ordinances and strategic collaborations with property developers should be prioritized to safeguard these forested areas.

The areas zoned for OK-R-7 (Medium Residential District) and OK-R-20 (Low Density Residential District) saw about a 20% increase in tree canopy cover (19% and 18% respectively). OK-CLD (Commercial Low Density District) areas added a significant 271 acres.

Only two zoning types exhibited significant losses in canopy. OK-R-6 (Residential District) areas lost 176 acres, or 11% of its tree canopy cover in 8 years. These losses occurred in developments along East Oak Island Drive. OK-R-6MH

(Higher Density Residential District) also lost 11% of its trees, dropping its canopy cover from 60% to 49% during the study period. All other zoning types had small changes, gaining or losing less than 10 acres of trees.



**OK-R-6MH
(Higher Density Residential District)**

lost 11% of its canopy in 8 years



Figure 10. Tree canopy percent by zoning.

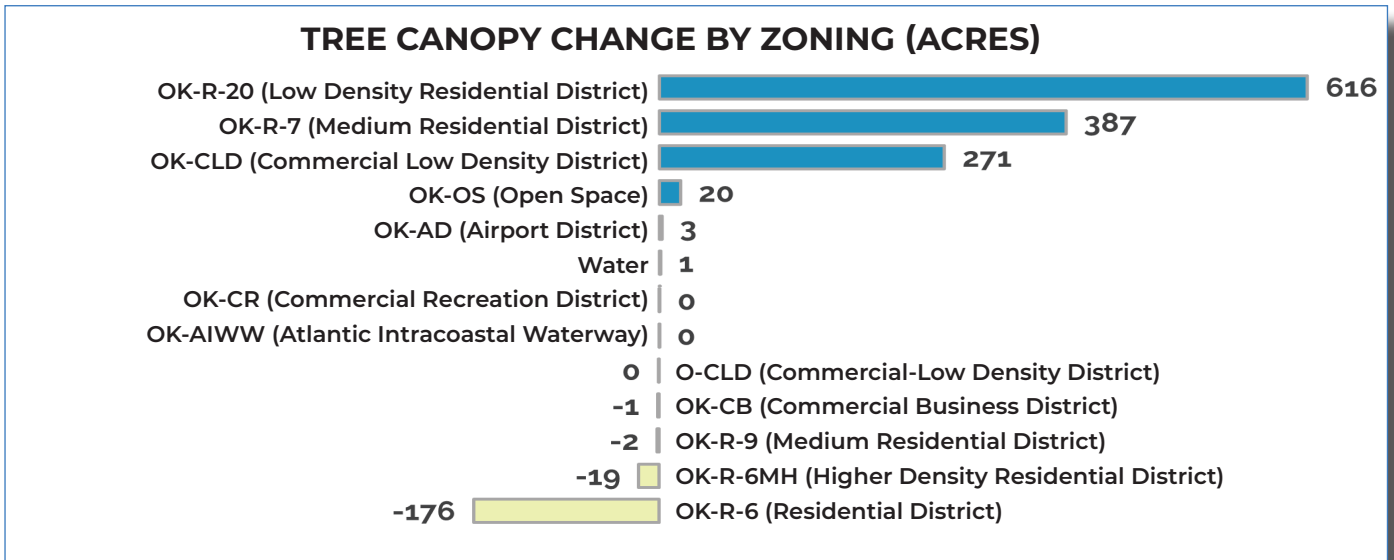


Figure 11. Tree canopy change percent by zoning in Oak Island from 2014-2022.

Table 2. Tree canopy coverage, potential planting area, and tree canopy change by zoning districts.

Zoning Districts	Total Area	Land Area	2022 Tree Canopy		2022 PPA		Canopy Change	
	Acres	Acres	Acres	%	Acres	%	Acres	%
OK-R-20 (Low Density Residential District)	3,514	3,489	3,153	90%	212	6%	616	18%
OK-CLD (Commercial Low Density District)	2,342	2,307	1,481	64%	530	23%	271	12%
OK-R-7 (Medium Residential District)	2,098	2,071	1,288	62%	459	22%	387	19%
OK-R-6MH (Higher Density Residential District)	175	175	86	49%	42	24%	-19	-11%
OK-R-9 (Medium Residential District)	85	85	42	49%	19	22%	-2	-2%
OK-R-6 (Residential District)	1,551	1,543	721	47%	332	22%	-176	-11%
OK-CB (Commercial Business District)	78	78	14	18%	17	22%	-1	-1%
Water	552	96	7	8%	83	87%	1	1%
OK-OS (Open Space)	911	849	56	7%	775	91%	20	2%
OK-CR (Commercial Recreation District)	87	87	5	5%	26	30%	0	1%
OK-AD (Airport District)	150	150	8	5%	11	7%	3	2%
OK-AIWW (Atlantic Intracoastal Waterway)	135	40	0	0%	24	61%	0	0%
CO-CLD (Commercial-Low Density District)	1	1	0	0%	1	66%	0	0%

TREE CANOPY COVER BY PUBLIC PROPERTY

The assessment was also conducted within the Town's public property parcels. This metric helps quantify trees managed and maintained by the town. These 140 public property parcels, were predominately situated in proximity to the Intracoastal Waterway and its floodplain. The trees present in a riparian corridor (areas surrounding rivers and streams) provide many benefits. These benefits range from removing microscopic pollutants, intercepting and absorbing stormwater, and providing shade to regulate aquatic temperatures to name a few.

Tree canopy across these public tracts constituted a mere 12%-considerably less than the town-wide average of 59%. Although, 80% of this layer was deemed suitable for future tree plantings, planting trees or other vegetation near the Atlantic Intracoastal Waterway comes with many challenges. These areas may not be viable planting sites because the lands are controlled by the federal or state government, or because they are often inundated by tides. It is important to ground truth these areas before planning planting events.

Coastal areas present unique challenges for vegetation due to salt spray, sandy soils, inundation from tides, and frequent storms. However, certain tree species are well-adapted to thrive in these conditions along the coast of North Carolina.



OAK ISLAND'S PUBLIC PROPERTY
contains 775 acres of possible plantable area



Most instances of canopy loss occurred in parcels along SE 48th Street and developments surrounding the Oak Island Par 3 Golf Course on the eastern side of town. However, these changes were minor, the largest loss of canopy in a single area did not exceed 1.5 acres. Conversely, the most significant canopy increase (14 acres) was observed on the land mass between the Intracoastal Waterway and the Montgomery Slough (Figure 12). Significant canopy gains also occurred behind the water tower near Davis Creek Kayak Dock. These areas of growth can be attributed to natural regeneration and flourishing existing canopy.



Figure 12. Tree canopy cover in Oak Island's Intracoastal Waterway.

TREE CANOPY BY CENSUS BLOCK GROUPS

TC and PPA were also assessed at the census block group level. Census block groups contain clusters of census block boundaries. This is the second smallest geographic unit of measure at which the U.S. Census publishes statistical data within a state and represents between 600 and 3,000 people. Census block groups are particularly valuable for assessing the equitable distribution of tree canopy throughout the town, as the block groups are linked to readily available demographic and socio-economic data. Results indicated that canopy cover varied substantially throughout Oak Island’s 20 census block groups, as seen in Figure 13.

The census block group in the northern part of the town has the largest canopy cover, at 84%. However, most areas (7 out of 20) have between 40-50% canopy cover. The block groups with the least amount of tree cover can be found along the coast.

Over the last eight years, 13 out of 20 census block groups lost some of their tree cover. The area that lost the most canopy acres can be found between N Middleton Ave and Highway 133 along E Oak Island Dr. This block group lost 38 acres or 8% of its canopy. On the other hand, the northern portion of the town saw a large increase in tree cover - up to 21% in one block group. This area gained 814 acres of canopy in just 8 years.

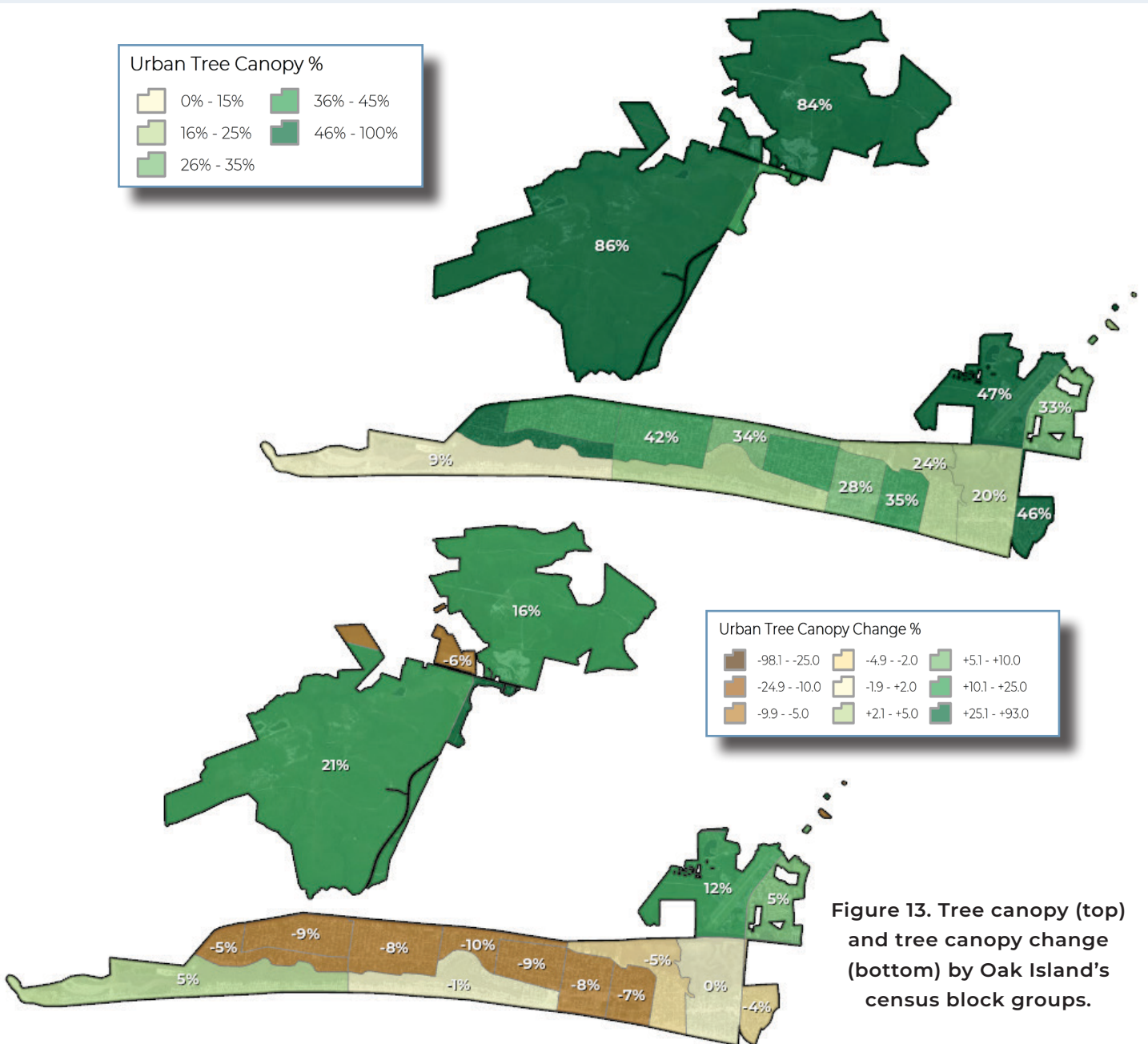


Figure 13. Tree canopy (top) and tree canopy change (bottom) by Oak Island’s census block groups.

TREE CANOPY BY PARCELS

Tree canopy cover and PPA were assessed for the town's 12,607 individual parcels. Short of quantifying every individual tree, this unit of measure provides the finest possible scale at which to interpret the results, defining TC and PPA metrics for every parcel within the town boundary. Only 11% of the Town's parcels had a tree canopy cover of 10% or lower. However, 88% of parcels met or exceeded the town-wide average of 59%. 10,971 parcels were entirely covered by canopy while 1,410 had no canopy at all. At 24%, the average canopy cover of all parcels fell short of the town-wide average of 36%. For the full tree canopy results by parcel, refer to the Parcels shapefile in a GIS software.



Figure 14. Tree canopy (top) and tree canopy change (bottom) by parcels.

ASSESSMENT OF ECOSYSTEM BENEFITS

Using the best available science from i-Tree tools, values were calculated for some of the benefits and functions provided by the tree canopy in Oak Island, North Carolina. The following values were calculated using the USDA Forest Service’s i-Tree Landscape tool with Oak Island’s total acres of tree canopy as the input data.

AIR QUALITY

Trees produce oxygen, indirectly reduce pollution by lowering air temperature, and improve public health by reducing air pollutants which cause death and illness. The existing tree canopy in Oak Island removes approximately 610,300 pounds of air pollution annually, valued at over \$587,790.

STORMWATER AND WATER QUALITY

Trees and forests mitigate stormwater runoff which minimizes flood risk, stabilizes soil, reduces sedimentation in streams and riparian land, and absorbs pollutants, thus improving water quality and habitats. The tree canopy in Oak Island absorbs almost 47 million gallons of water per year. Extrapolated county wide, this means that Oak Island’s existing canopy provides over \$418,800 million annually in stormwater benefits

CARBON STORAGE AND SEQUESTRATION

Trees accumulate carbon in their biomass; with most species in a forest, the rate and amount increase with age. The trees of Oak Island store approximately 229,500 tons of carbon, valued at over \$39.1 million, and each year the tree canopy absorbs and sequesters 9,072 tons of carbon dioxide, valued at over \$1.5 million.

Ecosystem Benefit Values of Oak Island’s Tree Canopy

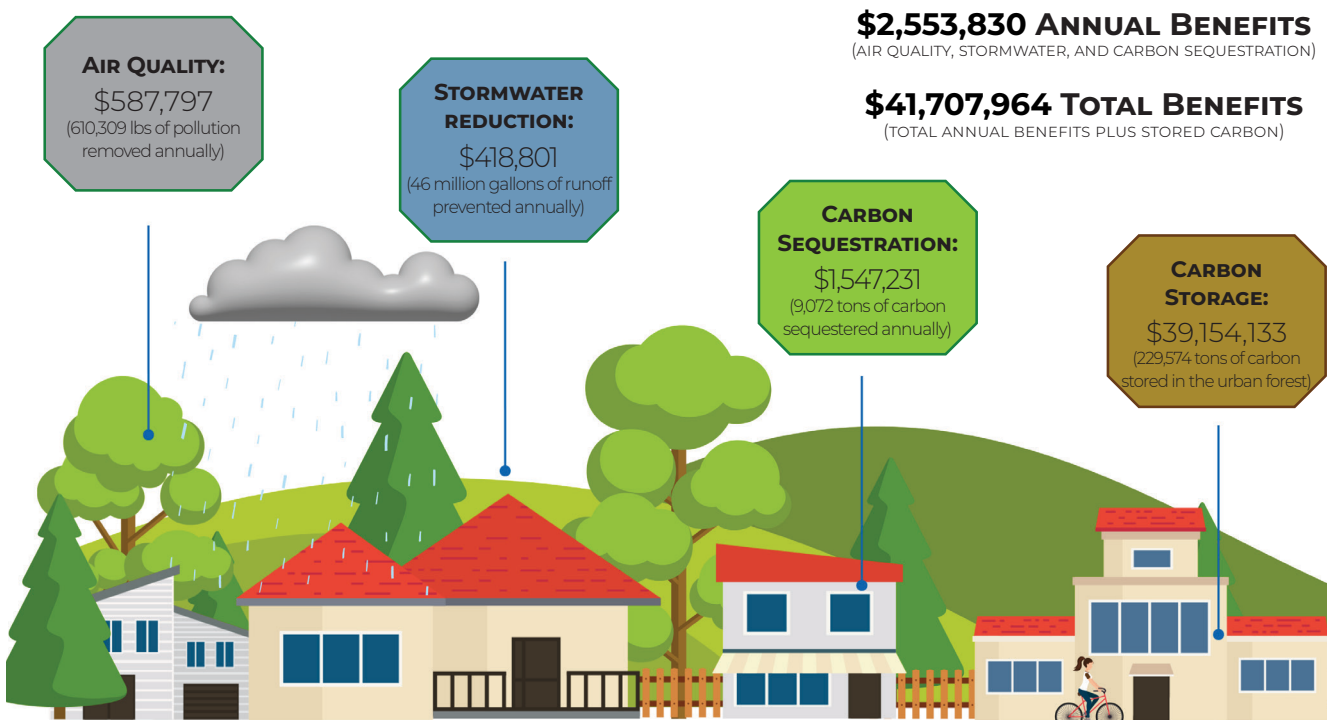


Figure 15. Ecosystem service benefits of Oak Island’s canopy cover.

TREE PLANTING

PRIORITIZATION

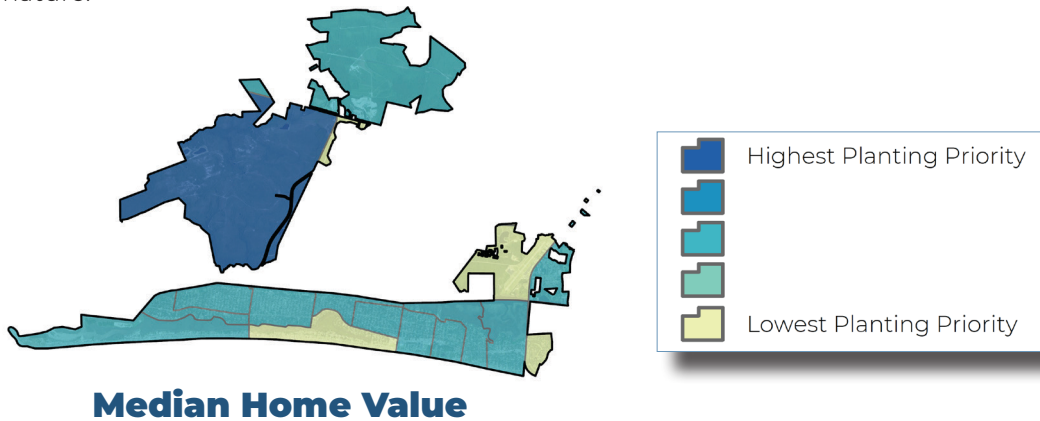
Increased tree canopy cover can provide a wide array of benefits to a local community and its residents and visitors. To locate specific areas in need, socioeconomic data from the US census bureau was downloaded and analyzed at the census block group scale. Rankings are sorted from high (dark blue) to low (light yellow), so areas that contain higher home values were denoted in yellow and areas that have houses that cost relatively less were highlighted in dark blue



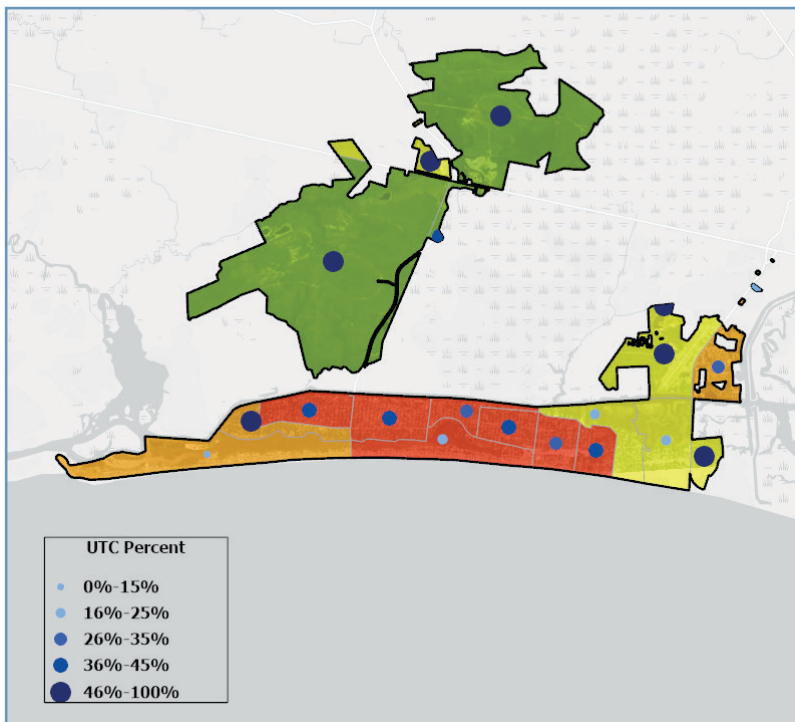
Median Home Value: Mature trees can increase home and property values. This criteria highlights areas with lower median home value.



NatureScore™: NatureScore, created by NatureQuant, is a measure of nature and human health created through the use of machine learning to identify correlations between environmental data sets and health conditions. Through these correlations, NatureScore determines what beneficial nature is, where it is present, and where it is lacking. This criteria highlights areas with less access to nature.



Median Home Value



NATURE DEFICIENT
 Low Density of natural elements. Effort required for immersive nature exposure opportunities.

NATURE LIGHT
 Moderate to low density of natural elements. Effort may be required for immersive nature exposure opportunities.

NATURE ADEQUATE
 Balanced mix of natural and built environmental elements. Modest effort may be required for immersive nature exposure opportunities.

NATURE RICH
 Significant natural elements. Modest effort may be required for immersive nature exposure opportunities.

NATURE UTOPIA
 Abundant natural elements and nature exposure opportunities.

Figure 16. Census block group prioritization by median home value (top) and NatureScore™ (bottom).

Table 4. Prioritization scores by census block groups.

	People of Color Populations (%)	Median Household Income (\$)	Median Home Value (\$)	Poverty Rate (%)	NatureScore™
37-019-020204-2	12	32,418	211,500	46	73
37-019-020304-3	1	114,958	416,200	5	60
37-019-020304-4	6	N/A	416,200	27	50
37-019-020304-5	4	78,000	416,200	33	59
37-019-020305-2	18	44,297	221,000	31	36
37-019-020305-3	13	65,625	221,000	9	8
37-019-020308-1	6	101,042	292,200	10	35
37-019-020308-2	6	63,750	292,200	45	14
37-019-020308-3	N/A	87,857	292,200	12	23
37-019-020312-3	N/A	64,259	N/A	N/A	75
37-019-020313-1	3	88,333	233,500	20	9
37-019-020313-2	N/A	65,833	233,500	16	11
37-019-020313-3	N/A	91,477	233,500	20	11
37-019-020314-1	7	63,351	477,500	17	8
37-019-020315-1	N/A	67,101	289,800	22	7
37-019-020315-2	8	N/A	289,800	37	14
37-019-020315-3	3	69,485	289,800	14	45
37-019-020315-4	N/A	56,786	289,800	40	52
37-019-020316-1	5	125,795	416,700	10	54
37-019-020406-3	3	89,583	385,000	8	N/A
37-019-020603-1	19	56,786	216,000	40	60

CONCLUSIONS AND RECOMMENDATIONS

Oak Island has demonstrated that it values its natural resources and wants to maintain a healthy and sustainable urban environment. Recurring assessments of the Town’s tree canopy represent important steps in ensuring the long-term health of its local canopy. As the Town grows, it will be able to use these data to ensure that its canopy policies and management practices prioritize its maintenance, health, and growth. An even greater percent of canopy cover can be achieved with proper planning, investment, and care of existing trees. The Town should continue to monitor the health of the local forest and implement the following recommendations to ensure the canopy is considered during future town planning and development to sustain and enhance the benefits that trees provide to the community.



LEVERAGE THE RESULTS OF THIS ASSESSMENT TO PROMOTE TREE CANOPY

Encourage investment in urban forest monitoring, maintenance, and management; prepare supportive information for local budget requests/grant applications; help establish new canopy cover goals; engage the community and develop an urban and community forest plan to guide the management, conservation, and renewal of the Town’s trees; repeat assessment at least every five years to track progress towards goals.

IDENTIFY AREAS TO PRIORITIZE CANOPY EXPANSION

Plantable space in the right-of-way is often found close to high concentrations of impervious surfaces. The Town of Oak Island can develop a proactive street tree maintenance program to take on the responsibility of planting and managing street trees, ensuring healthy trees are distributed equitably across the town. Planting near the coast can mitigate noise and light pollution that can disturb the nesting practices of loggerheads and other native turtles species.



DEVELOP OUTREACH PROGRAMS TOWARDS PRIVATE LANDOWNERS



Community outreach and education programs can better inform citizens and private landholders of the environmental, health, social, and financial benefits that trees provide. Tree canopy in Oak Island provides over \$2.5 million in annual ecosystem service benefits. Tree giveaways, tree planting programs, and tree maintenance events can help to promote new tree plantings.

FOCUS NEW PLANTINGS IN HIGH PRIORITY AREAS

This report and the State’s TreePlotter CANOPY application can be used to locate priority areas based on tree canopy cover, available planting space, socio-demographic factors, and nature accessibility. Efforts should focus on outreach to the residents of these neighborhoods, as well as local business and land owners, in order to promote new tree plantings and continued maintenance of existing trees.



SEPTEMBER | 2023

TREE CANOPY COVER
ASSESSMENT
OAK ISLAND, NORTH CAROLINA



Funding for this project was provided in part through an Urban & Community Forestry Grant from the North Carolina Forest Service, Department of Agriculture and Consumer Services, in cooperation with the USDA Forest Service, Southern Region.

August 2023 Planning Board Recommendations

Clean Copy

PART II - CODE OF ORDINANCES

Chapter 32 VEGETATION

Chapter 32 VEGETATION¹

ARTICLE I. IN GENERAL

Sec. 32-1. Authority.

The provisions of this section operate under authorities granted to municipalities under G.S. 160D, Article 1 and are limited by provisions of G.S. 160D-921.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 7-14-2020(2))

Secs. 32-2—32-30. Reserved.

ARTICLE II. TREE MANAGEMENT PROGRAM

Sec. 32-31. Applicability of article provisions.

This article applies to town-owned or controlled property including leased property and public rights-of-way within the town.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-31.1. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning.

Diameter at Breast Height (dbh). Dbh is the standard for measuring existing trees. Dbh refers to the tree diameter measured at 4.5 feet above the ground.

¹Editor's note(s)—Ord. of Mar. 10, 2009, deleted the former Ch. 32, Art. I, § 32-1, Art. II, §§ 32-31—32-40, Art. III, §§ 32-71—32-80, and enacted a new Ch. 32 as set out herein. The former Ch. 32 pertained to vegetation and derived from Ord. of 4-10-2001(6), §§ 1—10; Ord. of 4-10-2001(7), §§ 1—10; Ord. of 6-14-2005; Ord. of 7-12-2005; Ord. of 12-13-2005; Ord. of 6-13-2006(2); Ord of 3-10-2009.

Cross reference(s)—Buildings and building regulations, ch. 8; environment, ch. 14; land use development, ch. 18; zoning, § 18-31 et seq.; subdivision regulations, § 18-371 et seq.; parks and recreation, ch. 22; leaves and yard debris, § 24-65; streets, sidewalks and other public places, ch. 26.

State law reference(s)—Environmental Policy Act, G.S. 113A-1 et seq.

Hazardous tree. A tree that has a structural defect that makes it likely to fail in whole or in part; a tree that is rotten, has a dangerous lean, or a tree with roots being pulled from the ground.

Heritage Tree. A tree of any hard or softwood species with a minimum dbh of 30 inches or greater.

Large Tree. A woody perennial plant, typically having a single stem or trunk typically growing over 30 feet in height at maturity (excluding palm trees).

Pruning. The elimination of live and dead branches from a tree's crown to improve tree structure, enhance vigor and/or maintain safety.

Required site improvements. Any primary structure, accessory structure, stormwater facilities, utilities, and driveway access, and grading or fill permitted by the Unified Development Ordinance that is required to make the site buildable.

Small Tree. A woody perennial plant, typically having a single stem or trunk typically growing under 30 feet in height at maturity (excluding palm trees).

Specimen tree. Existing trees of any Oak species with a minimum dbh of 8 inches or greater.

Topping. A pruning technique of cutting back the terminal leader to a bud.

Town forester. The qualified designated town employee who is assigned by the town manager to carry out the provisions of this chapter.

Tree value. For applications under this chapter shall mean the appraised value of a tree based on the latest edition of the "Guide for Plant Appraisal" by the Council of Tree and Landscape Appraisers.

Utility. Public utilities, businesses or organizations in the business of supplying communication services, electrical energy, gas, heat, steam, water, or sewage disposal and treatment.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 9-10-2019; Amend. of 10-13-2020(1) ; Amend. of 7-13-2021(1))

Sec. 32-32. Environmental advisory committee; responsibility.

The Oak Island Environmental Advisory Committee shall assist staff in maintaining the Town's Tree City USA status.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-33. Duty of the town to maintain trees.

The Town Forester shall perform the following duties:

- (1) Supervise the planting, maintenance and removal, as necessary, of trees on public property in coordination with affected town departments. Direct town employees in tree removals and plantings.
- (2) Develop and periodically update arboricultural and horticultural specifications and standards of practice governing the planning, planting, maintenance, removal, fertilization, pruning, and bracing of trees and shrubs on public property. Arboricultural specifications and standards of practice shall be based on the most current arboricultural practices described in the American National Standards Institute ASC A300 and Z60.1 for nursery stock and as referenced by the American Society of Horticultural Science (ASHS), as amended.

-
- (3) Review all development plans submitted by the town to ensure compliance with town ordinances, master plans and standards. The development services staff shall make a physical site inspection prior to issuance of any building permit and recommend specific changes if necessary.
 - (4) Inspect construction and utility work sites on public property to ensure compliance with plans, permits, and ordinances; issues stop-work orders and assesses penalties for violations with development services staff.
 - (5) Design, implement, and provide maintenance specifications for all landscaping on town property.
 - (6) Enforce the provisions of this chapter.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-34. Damage to trees.

- (a) It shall be unlawful to intentionally damage or destroy trees planted on municipally owned or controlled property except as a part of a town-authorized improvement program. It shall also be a violation of this code to attach or place any rope or wire (other than one to support a young or broken tree), sign, poster, handbill, or anything to any such public tree.
- (b) A person damaging a tree on public property shall be liable to the town for any loss of value. In the event damage is so pervasive as to result in the treatment or removal of the tree, the person damaging such tree shall also be liable for costs of treatment or removal. Values for public trees shall be appraised in accordance with the Council of Tree and Landscape Appraisers Guide for Plant Appraisal, as amended. These values will be kept on file in the town's development services office.
- (c) Any violation of the provisions of this article shall be deemed a misdemeanor making the violation subject to punishment in accordance with section 1-7 of this Code in addition to the recovery of damage assessed as outlined in subsection (b) above.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-35. Arbor day celebration.

The town shall annually hold an Arbor Day celebration that focuses attention to the value of trees in the urban environment.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-36. Approved tree list.

Trees planted on municipal property shall be selected from the species found in Table 1 in Appendix A of this Chapter.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-37. Reserved.

Editor's note(s)—An amendment of Dec. 9, 2014, repealed § 32-37, which pertained to tree inventory and derived from an ordinance adopted March 10, 2009; and an amendment of May 15, 2012.

Sec. 32-38. Development of annual tree program.

The town or its designee shall annually review its tree installation needs including new projects and replacement of diseased or damaged trees in conjunction with development of the town's annual budget.
(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-39. Community awareness.

The environmental advisory committee or its designated successor and the Town Forester shall make recommendations to the town council to enhance the community's awareness of the value of trees and qualify for points toward the Tree City USA Growth Award.
(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-40. Maintenance of public trees/projects.

- (a) The public works department shall be responsible for the maintenance of trees on municipal property.
- (b) The town shall have the right to prune, maintain and remove any tree on public grounds which interferes with the safe flow of traffic, any traffic control device or sign.
- (c) It shall be unlawful for any person to top or cut back the crown of any tree on public grounds.
- (d) Trees severely damaged by storms or other causes where required pruning practices are impractical may be exempted from this section. This also includes dead, dying, or diseased trees as determined by the Town Forester and which pose a threat to the safety of the community.
- (e) All other town departments shall cooperate fully with the public works department in carrying out the responsibilities of this section.
- (f) Planting, maintenance, and removal activities on public trees shall meet current arboricultural practices described in the most recent version of the American National Standards Institute standards for tree care operations, as amended. Town departments, contractors, community organizations and individuals performing tree related activities on town-managed property are required to adhere to these standards.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

State law reference(s)—Cultivating or removing timber from public lands, G.S. 14-130.

Sec. 32-40.1. Hazardous trees.

- (a) Every owner of any tree overhanging a street or sidewalk within the town is responsible for pruning the branches so that such branches shall not obstruct vehicles or pedestrians. Provided further, that all property owners within the town are hereby required to cause the removal of any dead or diseased trees on their property whenever such trees constitute a hazard to life and property, or harbor insects or diseases which constitute a potential threat to other trees.
- (b) If the owner or owners of any lot or other real property within the town, after the giving of ten days' notice in writing by Town Forester or their designated representative, shall refuse or neglect to perform the duties in connection with his or their property as specified in subsection (a) hereof, the Town Forester or their designated representative is hereby authorized to enter upon the property and have said tree and/or branches cut and removed; and the cost thereof shall be charged against said premises and shall constitute a

lien thereon. The Town Forester or their designated representative; shall also have the option of issuing a citation of \$50.00 a day, per day for the first ten days following the time allowed for abatement, if compliance is not met within the allotted timeframe.

- (c) In case the owner of any lot or other real property is unknown or his whereabouts is not known or is a nonresident of this state, then a copy of the written notice herein above referred to shall be posted upon the premises for a period of 48 hours and, before any action to enforce such lien shall be had, the town clerk shall make an affidavit setting out the facts as to the unknown address or whereabouts of nonresidents; and, thereupon, service of the publication as now provided for by law against a nonresident defendant may be had, and an authority ad litem shall be appointed to notify the defendant by registered letter addressed to his last known place of residence if same can be found.
- (d) If a tree falls across multiple properties due to inclement weather or otherwise it shall be the responsibility of each individual owner where the tree lies across their property to properly remove the remains of the tree off the property.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Ord. of 3-14-2017; Amend. of 9-10-2019)

Sec. 32-40.2. Protection utilities.

Public utilities shall exercise reasonable care and utilize best management practices to avoid damage and injury to public trees during the installation and maintenance of its facilities. The public works department will provide assistance on any utility project to see that the utilities can be installed or repaired with minimal damage to any public tree.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-40.3. Notification for work near public trees.

- (a) No person or business shall perform any grading, excavation, place any fill, compact the soil or construct any building structure, street, sidewalk, driveway, pavement or public utility within 25 feet of any public tree without first notifying and consulting with the Town Forester. Any such work shall be conducted in accordance with this article.
- (b) Any public utility constructing or maintaining any overhead wires or underground pipes or conduits within 25 feet of public trees shall consult with the development services staff and Town Forester prior to performing work which may cause injury to public trees.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Secs. 32-41—32-70. Reserved.

ARTICLE III. VEGETATION MANAGEMENT PROGRAM

Sec. 32-71. Purpose of article.

- (a) The purpose of the tree and vegetation preservation program is to provide a means to preserve and manage significant natural areas and specimen trees in the community on private property.
- (b) The objectives of the program are as follows:

-
- (1) Maintain and enhance property values;
 - (2) Preserve and enhance the visual appearance of the town;
 - (3) Preserve unique and productive coastal habitats;
 - (4) Reduce the impacts of development on the town's stormwater system;
 - (5) Assist the town in preserving and enhancing the quality of its estuarine waters; and
 - (6) Help create and protect the protective dune systems.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-72. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Bush hogging. The clearing of a lot using a rotary or similar type mower for the purpose of controlling vines and shrubs. Bush hogging is done prior to grading and may be done without obtaining a permit. Rutting and soil disturbance is prohibited.

Clearing. The permitted removal and proper disposal of any existing structures, rubble, brush, trees as well as roots and other debris which might interfere with construction of a permitted building. This may be done only after the issuance of a permit by development services.

Critical Root Zone. A radius measuring 1 foot per 1-inch dbh of a tree measured from the trunk.

Development permit. A permit that must be obtained from development services prior to the removal and proper disposal of trees on undeveloped properties.

Diameter at Breast Height (dbh). Dbh is the standard for measuring existing trees. Dbh refers to the tree diameter measured at 4.5 feet above the ground.

Dune. Those mounds of sand and/or sand management project areas, either manmade or natural, in existence as of December 10, 1999, and/or those restored by the town or other public entity after that date. A primary dune is the first mound of sand (measured from the ocean) that is six feet taller than the mean flood level for the area. Frontal dunes are the first mounds of sand that have enough vegetation, height and continuity to offer protection.

Grading. Altering the shape of the ground surfaces to a predetermined condition; this includes stripping, cutting, filling, stockpiling and shaping or any combination thereof and shall include the land in its cut or filled condition.

Ground cover. Typically, herbaceous plants that grow over an area of ground. Most ground covers are less than two feet in height, vigorous, help control soil erosion, and reduce surface flow rates.

Herbaceous plants. Are vascular plants that have no persistent woody stems above ground. Herbaceous plants include most perennial, annual, and biennial plants.

Heritage Tree. A tree of any hard or softwood species with a minimum dbh of 15 inches or greater.

Large Tree. A woody perennial plant, typically having a single stem or trunk typically growing over 30 feet in height at maturity (excluding palm trees).

Natural area. An area of at least 50 square feet comprised of native vegetation.

Preserved vegetation. Any plant or groups of plants existing prior to development of a property that is protected so that it remains after the development has been completed.

Pruning. The elimination of live and dead branches from a tree's crown to improve tree structure, [health](#), enhance vigor and/or maintain safety.

Required site improvements. Any primary structure, accessory structure, stormwater facilities, utilities, and driveway access, and grading or fill permitted by the Unified Development Ordinance that is required to make the site buildable.

Rut. A long deep track made by the repeated passage of the wheels or tracks of a vehicle.

Shrub. A woody plant typically smaller than a tree with multiple stems arising at or near the ground.

Small Tree. A woody perennial plant, typically having a single stem or trunk typically growing under 30 feet in height at maturity (excluding palm trees).

Specimen tree. Existing trees of any Oak species with a minimum dbh of 8 inches or greater.

Topping. The severe cutting back of branches to a stub, bud, or a lateral branch not large enough to assume the terminal role.

Town forester. The qualified designated town employee who is assigned by the town manager to carry out the provisions of this chapter.

Tree value. For applications under this chapter, the appraised value of a tree based on the latest edition of the "Guide for Plant Appraisal" by the Council of Tree and Landscape Appraisers.

Utility. Public utilities, businesses or organizations in the business of supplying communication services, electrical energy, gas, heat, steam, water, or sewage disposal and treatment.

Vegetation plan. A plan submitted to the development services department staff in conjunction with subdivision of land, alteration of an existing drainage system, issuance of a grading or development permit, issuance of a building permit, or start of site development. The vegetation plan is a scaled drawing that shows the site information specified in section 32-74. Photographs are not acceptable to locate natural areas and dbh shall be listed on the plan. The vegetation plan will be finalized and adjusted if needed after construction to ensure existing trees are healthy and undamaged.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 10-13-2020(1) ; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Cross reference(s)—Definitions generally, § 1-2.

Sec. 32-73. Reserved.

Sec. 32-74. Vegetation plans required.

- (a) A vegetation plan must be submitted to the department of development services for the following actions:
 - (1) Issuance of a grading permit;
 - (2) Alteration of an existing drainage system;
 - (3) Issuance of a building permit;
 - (4) Issuance of a development permit.
- (b) Agricultural activities that do not involve artificial drainage of land and the maintenance, alteration, or improvement of an existing structure that does not involve an increase in impervious surface are exempt from the requirement for a landscape plan.

(c) The sketch vegetation plan may be prepared in conjunction with the stormwater plan required by article V of chapter 18 of this Code and must include the following information:

- (1) Lot width and length;
- (2) Front, rear and side setbacks;
- (3) Location of house, driveway, walkways, accessory buildings, and other required site improvements;
- (4) Location of trees to be left marked with an (L) on the plan/worksheet (marked with flagging on the ground); trees to be removed marked with an (R) on the plan/worksheet;
- (5) Location and type of vegetation that will be replaced after development or construction;
- (6) Location of natural areas to be left;
- (7) Location of areas to be filled.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Sec. 32-75. Vegetation plan review.

- (a) The vegetation plan will be reviewed by the Town Forester or their designee for compliance with the requirements and guidelines of this Chapter.
- (b) Plan submittal, review, and approval are mandatory prior to any land disturbing activity.
- (c) An on-site inspection shall be conducted by the Town Forester or their designee prior to land disturbing activity. The applicant shall provide a sketch vegetation plan meeting the requirements of Sec. 32-74 (c). The Town Forester may provide guidance and comments on the proposed plan based on the existing site conditions. The sketch plan shall be amended based on the Town Forester comments and incorporated into the vegetation plan.
- (d) Preserved trees shall be protected per Section 32-76 prior to land disturbing activities.
- (e) After land disturbing activity, an inspection shall be conducted by the Town Forester or their designee to ensure compliance with the approved vegetation plan.
- (f) Changes made to the approved vegetation plan must be reviewed and approved by the Town Forester or their designee prior to the removal of any trees shown as being preserved on the originally approved vegetation plan. Changes must be compliant with Sec. 32-76.
- (g) Compliance with the approved vegetation plan is required prior to issuance of a certificate of occupancy.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1))

Sec. 32-76. Tree and vegetation guidelines.

Vegetation plans shall comply with the following guidelines:

- (1) Provide for the retention and protection of existing trees and the planting of new trees as follows:
 - a. A minimum of one inch dbh per 200 square feet of lot area shall be preserved.
 1. If trees are located where permit required site improvements are proposed, trees from the species listed in Table 1 shall be replanted to meet the minimum requirements.

-
2. The dbh of Specimen or Heritage Trees being preserved per Section 32-79 shall be counted toward this minimum requirement.
 3. Preserved trees shall be a Large Tree Species a minimum of 5 dbh to be counted toward the total required dbh.
 4. Planted trees shall be a Large Tree Species a minimum of 2 dbh to be counted toward the total required dbh.
- b. A minimum of 2 dbh per 25 linear ft of street frontage shall be saved or restocked within the front setback area. If the development application shows an additional two-dbh per 50 linear feet of street frontage located within the front setback beyond the minimum tree amount required to be preserved then the development permit fee will be waived.
 - c. Oceanfront and second row properties are excluded from the requirements of Sec. 32-76 (1) a, b, c, and e. A combination of trees, herbaceous plants, and/or grasses shall be planted or preserved to provide a planted area of 50 square feet for each 500 square feet of heated area for oceanfront and second row lots.
 - d. The applicant may request a reduction of tree dbh up to 30% of the total required amount. Should the applicant request a reduction, the applicant shall pay \$250 per inch dbh reduced. These funds shall be used by the Town for the planting and maintenance of trees in public spaces including, but not limited to, parks, streets, open spaces, and other Town-owned facilities. Such reduction shall not be used for the removal of heritage or specimen trees.
 - e. Lots devoid of trees or do not meet the required dbh to be saved shall be planted to the minimum dbh required under 32-76 (1) prior to issuance of any development or building permit.
 - f. A permit application to demolish and replace or rebuild a principal structure on a lot with an already established residential principal structure must maintain the ordinance required minimum number of trees.
 - g. Preserved trees shall be guarded during development against the following:
 1. Cutting, breaking, or skinning of roots within the critical root zone.
 2. Skinning and bruising of bark.
 3. No attachments or wires other than those of a protective nature shall be attached to any tree.
 4. Soil disturbances within the critical root zone of a preserved tree shall be limited to two inches in depth removed or two inches in depth added. Any soil added in the critical root zone of the tree shall be a loamy soil mix to ensure minimal compaction.
 5. During land clearing and construction stage of development, the Town Forester or their designee may periodically inspect the site to ensure compliance with the provisions of this section.
 6. Tree location and replacement activity permitted or required under this section shall be done in accordance with standard forestry practices and procedures, and all such plantings shall be reasonably maintained and attended to promote successful establishment thereof.
- (2) Preserve and protect as much natural area on the site as is practicable.
 - (3) Incorporate existing vegetation, natural areas, and specimen trees into required shoreline, wetland, and visual buffers where possible.

-
- (4) Where vegetation is being replaced, applicants shall select plant types from the Oak Island Approved Native Plant Material List found as Table 1 in Appendix A of this Chapter. New plantings shall be spaced a minimum of 10 feet from existing trees, other new plantings, and the foundation of any permanent structure.
 - (5) Applicants shall not completely clear shrubs and grasses in areas designated as preserved natural areas in vegetation plans without the approval of development services the Town Forester or their designee.
 - (6) Planted or preserved trees shall be maintained in a healthy state for a minimum of 2 years after the issuance of the Certificate of Occupancy. Trees may only be removed during the 2-year period upon the issuance of a Tree Removal Permit and shall be replaced to meet the minimum dbh requirements at the time the Certificate of Occupancy was issued.
 - (7) The Town Forester or their designee may delay plantings during the months of May, June, July, and August. When planting is delayed, the Town Forester or their designee shall set a date certain during September that the planting shall be completed and shall inspect the site to determine compliance.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Secs. 32-76.1—32-76.3. Reserved.

Amend. of 7-13-2021(1) repealed § 32-76.1, which pertained to parking facilities landscaping for new development projects; § 32-76.2, which pertained to tree and shrub preservation; and § 32-76.3, which pertained to landscaping maintenance for projects other than single-family residential; and all derived from Ord. of 3-10-2009; Amend. of 5-15-2012; and Amend. of 12-9-2014.

Sec. 32-77. No clearing without permit.

No clearing or removal of vegetation other than bush hogging shall be permitted on any undeveloped lot or parcel or any lot or parcel to be redeveloped without a valid land use permit from the town. The following activities are exempt from this section: bona fide forestry and agricultural practices, and minor clearing of vegetation for line-of-sight surveying, footpaths, and minor clearing and/or cutting of grasses, weeds, vines and so on as required for responsible property maintenance. Vegetative material will be disposed of properly as indicated in section 24-65.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-78. Flexible setbacks.

The allowable building area on each lot or parcel may be moved toward one side lot line and either the rear lot line or the front street line a distance of up to 25 percent of the required setback for the zoning district for the purpose of preserving natural areas and/or specimen trees. This section does not increase the maximum permitted length and width of the allowable building area. Such setback or yard modifications must be approved by the development services staff in writing prior to construction beginning. Setback adjustments shall be noted on the final survey. A conservation easement shall be recorded at the Brunswick County Register of Deeds for the areas being preserved and a copy of the recorded easement provided to the Town Forester prior to issuance of a Certificate of Occupancy.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-79. Tree Preservation

(a) Applicability. This subsection shall apply to all development within the Town's jurisdiction.

(b) Specimen Tree Preservation. No person, directly or indirectly, shall remove any specimen tree from public or private property within the required setback areas during development or from any location on developed property without first obtaining a tree removal permit.

(d) Heritage Tree Preservation. No person, directly or indirectly, shall remove any heritage tree without first obtaining a tree removal permit.

(c) Tree Removal Permit. All persons seeking a permit for removal of specimen or heritage tree from the areas outlined in subsection (b) shall make application to the Town Forester. The application shall contain the following.

(1) The name, address, and phone number of the property owner of the site.

(2) The address of the construction site or site of tree removal if different than the property owner's legal address.

(3) The name, address, and telephone number of the applicant.

(4) A site plan containing the following information. For new construction, this information can be included in the tree and vegetation plan required by Chapter 32 of the Code of Ordinances.

a. The shape and dimensions of the property.

b. Location of existing or proposed structures and improvements.

c. The location and dbh of all trees.

(d) Criteria for Tree Removal Permit Issuance. No tree removal permit shall be issued unless one (1) or more of the following criteria are met.

(1) The specimen or heritage tree is dead, severely diseased, injured or in danger of falling close to existing or proposed structures.

(2) The specimen or heritage tree is causing disruption of existing utility service or causing drainage or passage problems upon the right of way.

(3) The specimen or heritage tree is posing an identifiable threat to pedestrian or vehicular safety.

(4) The specimen or heritage tree violates state or local safety regulations.

(5) Removal of the specimen or heritage tree is necessary to enhance or benefit the health or condition of adjacent trees on the property.

(e). Issuance, denial of Tree Removal Permit. The Town Forester shall review all properly submitted applications for tree removal permits and shall grant or deny a permit in accordance with the provisions of this chapter within ten (10) business days of submittal. In applying the provisions of this chapter, he shall follow normal landscaping practices and may seek additional technical assistance, as appropriate. A tree removal permit shall be issued for a qualified application as set forth above and shall apply to the specifics of that request.

Sec. 32-80. Enforcement; penalties for violations of article.

(1) Violations. Any person violating the requirements of this article shall be subject to a civil penalty of \$500.00 as permitted by G.S. 14-4. The Town Forester or their designee may stay enforcement of the

civil penalty if the offender replants the disturbed area in accordance with an approved vegetation preservation plan that meets the guidelines of subsection 32-74(c) and section 32-76.

- (2) Appeals. Appeals of decisions of the Town Forester or their designee concerning enforcement of this article shall be made to the board of adjustments. Appeals to the board of adjustments shall be made in accordance with section 4.10 of the Unified Development Ordinance.
- (3) Variances. Variances of this Chapter shall be heard by the Board of Adjustment. The Board of Adjustment must follow the standards found in Section 4.10 of the Unified Development Ordinance.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1))

Appendix A – Tables

Table 1: Oak Island Approved Native Plant Material List

Botanical Name	Common Name	Traits	Aerosol Salt Tolerance	Maritime Forest Planting	Seaside Planting
Large (Shade) Tree installed at minimum 2-inch caliper; mature height typically greater than 30 feet					
<i>Quercus virginiana</i>	Live Oak	E, N, D	M	x	
<i>Magnolia grandiflora</i>	Southern Magnolia	E, N, D	M	x	
<i>Prunus caroliniana</i>	Cherry Laurel	E, N, D	M	x	
<i>Persea borbonia</i>	Red Bay	E, N, D	H	x	x
<i>Carya glabra</i>	Pignut Hickory	N, D	M	x	
<i>Quercus falcata</i>	Southern Red Oak	N, D	M	x	
<i>Quercus shumardii</i>	Shumard Oak	N, D	M	x	
<i>Pinus palustris</i>	Long Leaf Pine	E, N, D	H	x	x
<i>Nyssa sylvatica</i>	Black Gum	N	M	x	
<i>Taxodium distichum</i>	Bald Cypress	N, D	M	x	
<i>Juniperus virginiana</i>	Eastern Red Cedar	E, D, *N,	H	x	x
Small Tree installed at minimum 2-inch caliper; mature height typically less than 30 feet					
<i>Magnolia grandiflora</i>	'Little Gem" Magnolia	E, N, D	M	x	
<i>Quercus geminata</i>	Sand Live Oak	E, N	H	x	x
<i>Ilex vomitoria</i>	Yaupon Holly	E, N, D	H	x	x
<i>Ilex opaca</i>	American Holly	E, N, D	S-M	x	
<i>Diosporos virginiana</i>	Common Persimmon	N, D	H	x	x
<i>Morella cerifera</i>	Wax Myrtle	E, N, D	H	x	x
<i>Cartrema americana</i>	Devilwood, Wild Olive	E, N	M	x	
<i>Zanrhoxylum clava-hercules</i>	Toothache Tree, Hercules Club	N, D	H	x	x
<i>Myrica cerifera</i>	Southern Wax Myrtle	E, N, D	H	x	x
<i>Sabal minor</i>	Dwarf Palmetto	E, N, D	M	x	
Shrubs, Grasses, and Herbaceous Plants transplanted from 5-gallon containers; typical height 3-15 feet					
<i>Ilex vomitoria "Nana"</i>	Dwarf Yaupon Holly	E, N, D	H	x	x
<i>Ilex vomitoria "Pendula"</i>	Weeping Yaupon Holly	E, N, D	H	x	x
<i>Yucca filamentosa</i>	Yucca	E, N, D	H	x	x
<i>Sorghastrum nutans</i>	Indiangrass	N, D	H	x	x

Schizachyrium scoparium	Little Bluestem Grass	N, D	H	x	x
Muhlenbergia capillaris)	Pink Muhly Grass	N, D	H	x	x
Uniola paniculata	Sea Oats	N, D	H	x	x
Ammophila breviligulata	American Beachgrass	N, D	H	x	x

Traits Key: E = EVERGREEN, N = NATIVE, D = DROUGHT TOLERANT, *N = NATIVE TO NORTH AMERICA MAINE TO TEXAS

Salt Tolerance Key: HIGH (H)—DIRECT SALT SPRAY; PLANT ON DUNES/BEACH FRONT, MODERATE (M)—INDIRECT SALT SPRAY, SLIGHT (S)—LOW/NO SALT SPRAY

Reasons and Concerns for Changes to Chapter 32

Prepared By: Richard Patterson, Town Forester
ASHS - Certified Professional Horticulturist (CPH) # 30095

The loss of tree canopy and shade due to urbanization are important issues for our Town and many other communities across the nation. Locally, we are experiencing strong public outcry opposing the cutting of large canopy producing trees during residential house construction. What seems like a simple issue with a simple solution quickly becomes complicated when dealing with small (high valued) lots, large homes, and underground utilities (sewer, electric, water, stormwater) on private property.

Our current Chapter 32 “*tree ordinance*” is confusing and **does not provide:**

- realistic numbers of canopy producing trees based on the square footage (ft²) of a lot,
- incentives to leave existing large/shade trees,
- recognize nor protect ancient heritage trees,
- flexibility in planting dates for increased tree planting success,
- follow-up on tree health after the Certificate of Occupancy (CO) has been obtained,
- future tree maintenance, planting, or distribution of trees,
- list of native trees and plants adapted specifically to Oak Island’s unique growing conditions.

The overall goal of these proposed changes to Chapter 32 is to save existing trees, protect large heritage trees (100+ years old), and plant native trees and herbaceous materials that will survive on Oak Island. These amendment changes are sensible, reasonable, enforceable, and achievable on private and public property.

I have highlighted several of the proposed changes to Chapter 32 that **will allow** these objectives to be met:

1) Simplification and standardization of definitions and terms to industry standards. This includes using *diameter at breast height* (dbh) when determining the number of trees needed to be retained or planted. Using dbh allows us to provide additional credit for the retention of larger trees and identify heritage sized trees.

2) Establishes the *Oak Island Approved Native Plant Material List* (Table 1) which lists native North Carolina species that are highly adaptive for survival on Oak Island. Species listed in Table 1 are tolerable to wind damage, drought, and aerial salt spray, all of which occurs on Oak Island. Table 1 identifies trees and plants recommended for planting along the seaside (1st & 2nd rows) and in the maritime forest position in the landscape. Having a smaller number of approved plant species allows local nurseries to better plan future demands. Additionally, requiring a reasonable number of trees (dbh) per lot allows homeowners space to plant and landscape their property.

4) Allows correct tree spacing to ensure healthy, mature shade trees while reducing structural damage, and encroachment into adjacent lots.

5) Allows additional credits and incentives for builders to save larger existing and heritage trees. Provides incentives for Builders if additional trees are retained or planted in highly visible areas such as the front setback area of a lot.

6) Provides an opportunity for future funding to plant and maintain trees on Town property and distribute free trees to residents for planting.

7) Establishes the size for hardwood and softwood “*heritage*” trees and protects them from being removed except with a permit approved by the Town Forester. Examples of some situations that would allow “*heritage*” trees to be removed includes: a) public safety, b) location within the building footprint, and c) insect/disease damage.

8) Allows flexibility to avoid unfavorable growing conditions when planting trees by allowing delayed planting dates. These delayed planting dates will not affect the Builder from receiving a CO before the tree plantings are completed.

9) Provides a 2-year follow-up inspection to ensure newly planted and retained trees are alive and healthy. Homeowner’s will be responsible for replacement of unhealthy and/or dead trees during the 2-year follow-up.

10) Adds the 2nd row along the Atlantic Ocean into a “seaside” planting zone in which only highly aerial salt tolerant plants can survive. These select species of trees, grasses, and herbaceous plants are listed in Table 1 for seaside planting.

Many individuals, professionals, groups, and stakeholders have assisted in providing their recommendations, concerns, and expectations in preserving Oak Island’s unique landscape. Finding the correct balance to ensure private property owners have the right to develop their land while maintaining Oak Island’s unique characteristics is challenging. These proposed changes to Chapter 32 are a step in the right direction to preserving our tree canopy for future generations.

TOWN FORESTER
RECOMMENDATION

Clean Copy

PART II - CODE OF ORDINANCES
Chapter 32 VEGETATION

Chapter 32 VEGETATION¹

ARTICLE I. IN GENERAL

Sec. 32-1. Authority.

The provisions of this section operate under authorities granted to municipalities under G.S. 160D, Article 1 and are limited by provisions of G.S. 160D-921.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 7-14-2020(2))

Secs. 32-2—32-30. Reserved.

ARTICLE II. TREE MANAGEMENT PROGRAM

Sec. 32-31. Applicability of article provisions.

This article applies to town-owned or controlled property including leased property and public rights-of-way within the town.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-31.1. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning.

Diameter at Breast Height (dbh). Dbh is the standard for measuring existing trees. Dbh refers to the tree diameter measured at 4.5 feet above the ground.

Hazardous tree. A tree that has a structural defect that makes it likely to fail in whole or in part; a tree that is rotten, has a dangerous lean, or a tree with roots being pulled from the ground.

¹Editor's note(s)—Ord. of Mar. 10,2009, deleted the former Ch. 32, Art. I, § 32-1, Art. II, §§ 32-31—32-40, Art. III, §§ 32-71—32-80, and enacted a new Ch. 32 as set out herein. The former Ch. 32 pertained to vegetation and derived from Ord. of 4-10-2001(6), §§ 1—10; Ord. of 4-10-2001(7), §§ 1—10; Ord. of 6-14-2005; Ord. of 7-12-2005; Ord. of 12-13-2005; Ord. of 6-13-2006(2); Ord of 3-10-2009.

Cross reference(s)—Buildings and building regulations, ch. 8; environment, ch. 14; land use development, ch. 18; zoning, § 18-31 et seq.; subdivision regulations, § 18-371 et seq.; parks and recreation, ch. 22; leaves and

yard debris, § 24-65; streets, sidewalks and other public places, ch. 26.

State law reference(s)—Environmental Policy Act, G.S. 113A-1 et seq.

Oak Island, North Carolina, Code of Ordinances

Created: 2023-04-20 10:56:23 [EST]

Heritage Tree. A tree of any hardwood species with a minimum 22 inches or greater dbh and softwood species of 30 inches or greater dbh.

Large Tree. A woody perennial plant, typically having a single stem or trunk typically growing over 30 feet in height at maturity (excluding palm trees).

Pruning. The elimination of live and dead branches from a tree's crown to improve tree structure, enhance vigor and/or maintain safety.

Required site improvements. Any primary structure, accessory structure, stormwater facilities, utilities, and driveway access, and grading or fill permitted by the Unified Development Ordinance that is required to make the site buildable.

Small Tree. A woody perennial plant, typically having a single stem or trunk typically growing under 30 feet in height at maturity (excluding palm trees).

Specimen tree. Existing trees of any species with a minimum dbh of 5 inches or greater.

Topping. A pruning technique of cutting back the terminal leader to a bud.

Town forester. The qualified designated town employee who is assigned by the town manager to carry out the provisions of this chapter.

Tree value. For applications under this chapter shall mean the appraised value of a tree based on the latest edition of the "Guide for Plant Appraisal" by the Council of Tree and Landscape Appraisers.

Utility. Public utilities, businesses or organizations in the business of supplying communication services, electrical energy, gas, heat, steam, water, or sewage disposal and treatment.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 9-10-2019; Amend. of 10-13-2020(1) ; Amend. of 7-13-2021(1))

Sec. 32-32. Environmental advisory committee; responsibility.

The Oak Island Environmental Advisory Committee shall assist staff in maintaining the Town's Tree City USA status.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-33. Duty of the town to maintain trees.

The Town Forester shall perform the following duties:

- (1) Supervise the planting, maintenance and removal, as necessary, of trees on public property in coordination with affected town departments. Direct town employees in tree removals and plantings.
- (2) Develop and periodically update arboricultural and horticultural specifications and standards of practice governing the planning, planting, maintenance, removal, fertilization, pruning, and bracing of trees and shrubs on public property. Arboricultural specifications and standards of practice shall be based on the most current arboricultural practices described in the American National Standards Institute ASC A300 and Z60.1 for nursery stock and as referenced by the American Society of

Horticultural Science (ASHS), as amended.

- (3) Review all development plans submitted by the town to ensure compliance with town ordinances, master plans and standards. The development services staff shall make a physical site inspection prior to issuance of any building permit and recommend specific changes if necessary.
- (4) Inspect construction and utility work sites on public property to ensure compliance with plans, permits, and ordinances; issues stop-work orders and assesses penalties for violations with development services staff.
- (5) Design, implement, and provide maintenance specifications for all landscaping on town property.
- (6) Enforce the provisions of this chapter.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-34. Damage to trees.

- (a) It shall be unlawful to intentionally damage or destroy trees planted on municipally owned or controlled property except as a part of a town-authorized improvement program. It shall also be a violation of this code to attach or place any rope or wire (other than one to support a young or broken tree), sign, poster, handbill, or anything to any such public tree.
- (b) A person damaging a tree on public property shall be liable to the town for any loss of value. In the event damage is so pervasive as to result in the treatment or removal of the tree, the person damaging such tree shall also be liable for costs of treatment or removal. Values for public trees shall be appraised in accordance with the Council of Tree and Landscape Appraisers Guide for Plant Appraisal, as amended. These values will be kept on file in the town's development services office.
- (c) Any violation of the provisions of this article shall be deemed a misdemeanor making the violation subject to punishment in accordance with section 1-7 of this Code in addition to the recovery of damage assessed as outlined in subsection (b) above.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-35. Arbor day celebration.

The town shall annually hold an Arbor Day celebration that focuses attention to the value of trees in the urban environment.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-36. Approved tree list.

Trees planted on municipal property shall be selected from the species found in Table 1 in Appendix A of this Chapter unless pre-approved by the Town Forester.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-37. Reserved.

Editor's note(s)—An amendment of Dec. 9, 2014, repealed § 32-37, which pertained to tree inventory and derived from an ordinance adopted March 10, 2009; and an amendment of May 15, 2012.

Sec. 32-38. Development of annual tree program.

The town or its designee shall annually review its tree installation needs including new projects and replacement of diseased or damaged trees in conjunction with development of the town's annual budget.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-39. Community awareness.

The environmental advisory committee or its designated successor and the Town Forester shall make recommendations to the town council to enhance the community's awareness of the value of trees and qualify for points toward the Tree City USA Growth Award.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-40. Maintenance of public trees/projects.

- (a) The public works department shall be responsible for the maintenance of trees on municipal property with guidance from the Town Forester.
- (b) The town shall have the right to prune, maintain and remove any tree on public grounds which interferes with the safe flow of traffic, any traffic control device or sign.
- (c) It shall be unlawful for any person to top or cut back the crown of any tree on public grounds.
- (d) Trees severely damaged by storms or other causes where required pruning practices are impractical may be exempted from this section. This also includes dead, dying, or diseased trees as determined by the Town Forester and which pose a threat to the safety of the community.
- (e) All other town departments shall cooperate fully with the public works department in carrying out the responsibilities of this section.
- (f) Planting, maintenance, and removal activities on public trees shall meet current arboricultural practices described in the most recent version of the American National Standards Institute standards for tree care operations, as amended. Town departments, contractors, community organizations and individuals performing tree related activities on town-managed property are required to adhere to these standards.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

State law reference(s)—Cultivating or removing timber from public lands, G.S. 14-130.

Sec. 32-40.1. Hazardous trees.

- (a) Every owner of any tree overhanging a street or sidewalk within the town is responsible for pruning the branches so that such branches shall not obstruct vehicles or pedestrians. Provided further, that all property owners within the town are hereby required to cause the removal of any dead or diseased trees on their property whenever such trees constitute a hazard to life and property, or harbor insects or diseases which constitute a potential threat to other trees.
- (b) If the owner or owners of any lot or other real property within the town, after the giving of ten days' notice in writing by Town Forester or their designated representative, shall refuse or neglect to perform the duties in connection with his or their property as specified in subsection (a) hereof, the Town Forester or their designated representative is hereby authorized to enter upon the property and have said tree and/or branches cut and removed; and the cost thereof shall be charged against said premises and shall constitute a lien thereon. The Town Forester or their designated representative; shall also have the option of issuing a citation of \$50.00 a day, per day for the first ten days following the time allowed for abatement, if compliance is not met within the allotted timeframe.
- (c) In case the owner of any lot or other real property is unknown or his whereabouts is not known or is a nonresident of this state, then a copy of the written notice herein above referred to shall be posted upon the

premises for a period of 48 hours and, before any action to enforce such lien shall be had, the town clerk shall make an affidavit setting out the facts as to the unknown address or whereabouts of nonresidents; and, thereupon, service of the publication as now provided for by law against a nonresident defendant may be had, and an authority ad litem shall be appointed to notify the defendant by registered letter addressed to his last known place of residence if same can be found.

- (d) If a tree falls across multiple properties due to inclement weather or otherwise it shall be the responsibility of each individual owner where the tree lies across their property to properly remove the remains of the tree off the property.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Ord. of 3-14-2017; Amend. of 9-10-2019)

Sec. 32-40.2. Protection utilities.

Public utilities shall exercise reasonable care and utilize best management practices to avoid damage and injury to public trees during the installation and maintenance of its facilities. The public works department will provide assistance on any utility project to see that the utilities can be installed or repaired with minimal damage to any public tree.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 10-13-2020(1))

Sec. 32-40.3. Notification for work near public trees.

- (a) No person or business shall perform any grading, excavation, place any fill, compact the soil or construct any building structure, street, sidewalk, driveway, pavement or public utility within 25 feet of any public tree without first notifying and consulting with the Town Forester. Any such work shall be conducted in accordance with this article.
- (b) Any public utility constructing or maintaining any overhead wires or underground pipes or conduits within 25 feet of public trees shall consult with the development services staff and Town Forester prior to performing work which may cause injury to public trees.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Secs. 32-41—32-70. Reserved.

ARTICLE III. VEGETATION MANAGEMENT PROGRAM

Sec. 32-71. Purpose of article.

- (a) The purpose of the tree and vegetation preservation program is to provide a means to preserve and manage significant natural areas and specimen trees in the community on private property.
- (b) The objectives of the program are as follows:
 - (1) Maintain and enhance property values;
 - (2) Preserve and enhance the visual appearance of the town;
 - (3) Preserve unique and productive coastal habitats;
 - (4) Reduce the impacts of development on the town's stormwater system;

-
- (5) Assist the town in preserving and enhancing the quality of its estuarine waters; and
 - (6) Help create and protect the protective dune systems.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-72. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Bush hogging. The clearing of a lot using a rotary or similar type mower for the purpose of controlling vines and shrubs. Bush hogging is done prior to grading and may be done without obtaining a permit. Rutting and soil disturbance is prohibited.

Clearing. The permitted removal and proper disposal of any existing structures, rubble, brush, trees as well as roots and other debris which might interfere with construction of a permitted building. This may be done only after the issuance of a permit by development services.

Critical Root Zone. A circular area measuring 1 foot per 1-inch dbh of a tree measured from the trunk.

Development permit. A permit that must be obtained from development services prior to the removal and proper disposal of trees on undeveloped properties.

Diameter at Breast Height (dbh). Dbh is the standard for measuring existing trees. Dbh refers to the tree diameter measured at 4.5 feet above the ground.

Dune. Those mounds of sand and/or sand management project areas, either manmade or natural, in existence as of December 10, 1999, and/or those restored by the town or other public entity after that date. A primary dune is the first mound of sand (measured from the ocean) that is six feet taller than the mean flood level for the area. Frontal dunes are the first mounds of sand that have enough vegetation, height and continuity to offer protection.

Grading. Altering the shape of the ground surfaces to a predetermined condition; this includes stripping, cutting, filling, stockpiling and shaping or any combination thereof and shall include the land in its cut or filled condition.

Ground cover. Typically, herbaceous plants that grow over an area of ground. Most ground covers are less than two feet in height, vigorous, help control soil erosion, and reduce surface flow rates.

Herbaceous plants. Are vascular plants that have no persistent woody stems above ground. Herbaceous plants include most perennial, annual, and biennial plants.

Heritage Tree. A tree of any hardwood species with a minimum 22 inches or greater dbh and softwood species of 30 inches or greater dbh.

Large Tree. A woody perennial plant, typically having a single stem or trunk typically growing over 30 feet in height at maturity (excluding palm trees).

Natural area. An area of at least 50 square feet comprised of native vegetation.

Preserved vegetation. Any plant or groups of plants existing prior to development of a property that is protected so that it remains after the development has been completed.

Pruning. The elimination of live and dead branches from a tree's crown to improve tree structure, health, enhance vigor and/or maintain safety.

Required site improvements. Any primary structure, accessory structure, stormwater facilities, utilities, and driveway access, and grading or fill permitted by the Unified Development Ordinance that is required to make the site buildable.

Rut. A long deep track made by the repeated passage of the wheels or tracks of a vehicle.

Shrub. A woody plant typically smaller than a tree with multiple stems arising at or near the ground.

Small Tree. A woody perennial plant, typically having a single stem or trunk typically growing under 30 feet in height at maturity (excluding palm trees).

Specimen tree. Existing trees of any species with a minimum dbh of 5 inches or greater.

Topping. The severe cutting back of branches to a stub, bud, or a lateral branch not large enough to assume the terminal role.

Town forester. The qualified designated town employee who is assigned by the town manager to carry out the provisions of this chapter.

Tree value. For applications under this chapter, the appraised value of a tree based on the latest edition of the "Guide for Plant Appraisal" by the Council of Tree and Landscape Appraisers.

Utility. Public utilities, businesses or organizations in the business of supplying communication services, electrical energy, gas, heat, steam, water, or sewage disposal and treatment.

Vegetation plan. A plan submitted to the development services department staff in conjunction with subdivision of land, alteration of an existing drainage system, issuance of a grading or development permit, issuance of a building permit, or start of site development. The vegetation plan is a scaled drawing that shows the site information specified in section 32-74. Photographs are not acceptable to locate natural areas and dbh shall be listed on the plan. The vegetation plan will be finalized and adjusted if needed after construction to ensure existing trees are healthy and undamaged.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 10-13-2020(1) ; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Cross reference(s)—Definitions generally, § 1-2.

Sec. 32-73. Reserved.

Sec. 32-74. Vegetation plans required.

- (a) A vegetation plan must be submitted to the department of development services for the following actions:
 - (1) Issuance of a grading permit;
 - (2) Alteration of an existing drainage system;
 - (3) Issuance of a building permit;
 - (4) Issuance of a development permit.
- (b) Agricultural activities that do not involve artificial drainage of land and the maintenance, alteration, or improvement of an existing structure that does not involve an increase in impervious surface are exempt from the requirement for a landscape plan.
- (c) The sketch vegetation plan may be prepared in conjunction with the stormwater plan required by article V of chapter 18 of this Code and must include the following information:
 - (1) Lot width and length;
 - (2) Front, rear and side setbacks;
 - (3) Location of house, driveway, walkways, accessory buildings, and other required site improvements;

-
- (4) Location of trees to be left marked with an (L) on the plan/worksheet (marked with flagging on the ground); trees to be removed marked with an (R) on the plan/worksheet;
 - (5) Location and type of vegetation that will be replaced after development or construction;
 - (6) Location of natural areas to be left;
 - (7) Location of areas to be filled.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Sec. 32-75. Vegetation plan review.

- (a) The vegetation plan will be reviewed by the Town Forester or their designee for compliance with the requirements and guidelines of this Chapter.
- (b) Plan submittal, review, and approval are mandatory prior to any land disturbing activity.
- (c) An on-site or aerial inspection may be conducted by the Town Forester or their designee prior to land disturbing activity. The applicant shall provide a sketch vegetation plan meeting the requirements of Sec. 32-74 (c). The Town Forester may provide guidance and comments on the proposed plan based on the existing site conditions. The sketch plan shall be amended based on the Town Forester comments and incorporated into the vegetation plan.
- (d) Preserved trees shall be protected per Section 32-76 prior to land disturbing activities.
- (e) After land disturbing activity, an on-site or aerial inspection shall be conducted by the Town Forester or their designee to ensure compliance with the approved vegetation plan.
- (f) Changes made to the approved vegetation plan must be reviewed and approved by the Town Forester or their designee prior to the removal of any trees shown as being preserved on the originally approved vegetation plan. Changes must be compliant with Sec. 32-76.
- (g) Compliance with the approved vegetation plan is required prior to issuance of a certificate of occupancy.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1))

Sec. 32-76. Tree and vegetation guidelines.

Vegetation plans shall comply with the following guidelines:

- (1) Provide for the retention and protection of existing trees and the planting of new trees as follows:
 - a. A minimum of one inch dbh per 300 square feet of lot area shall be preserved.
 - 1. If trees are located where permit required site improvements are proposed, trees from the species listed in Table 1 shall be replanted to meet the minimum requirements.
 - 2. The dbh of Specimen and/or Heritage Trees being preserved per Section 32-79 shall be counted toward this minimum requirement.
 - 3. Preserved trees shall be any Tree Species with a minimum of 5 dbh to be counted toward the total required dbh.
 - 4. Planted trees shall be Large Tree Species (from Table 1) a minimum of 2 dbh to be counted toward the total required dbh.

-
- b. A minimum of 2 dbh per 25 linear ft of street frontage shall be saved or restocked within the front setback area, if the lot's total dbh requirement has not been met. If the development application shows a total of 4 dbh per 50 linear feet of street frontage located within the front setback then the development permit fee will be waived.
 - c. Oceanfront and second row properties are excluded from the requirements of Sec. 32-76 (1) a, b, c, and e. Any combination of trees, herbaceous plants, and/or grasses shall be planted or preserved to provide a planted area of 50 square feet for each 500 square feet of heated area for oceanfront and second row lots. Only species listed in Table 1 and recommended for seaside plantings shall be planted to meet the minimum requirements for oceanfront and second row lots.
 - d. The applicant may request a reduction of tree dbh up to 30% of the total required amount. Should the applicant request a reduction, the applicant shall pay \$250 per inch dbh reduced. These funds shall be used by the Town for the planting, maintenance, distribution, enhancement, and preservation of trees in public spaces including, but not limited to: parks, streets, open spaces, greenways, and other Town-owned facilities.
 - e. Lots devoid of trees or do not meet the required dbh to be saved shall need an approved vegetation plan showing the minimum dbh required under 32-76 (1) prior to issuance of any development or building permit.
 - f. A permit application to demolish and replace or rebuild a principal structure on a lot with an already established residential principal structure must maintain the ordinance required minimum number of trees.
 - g. Preserved trees and their root systems shall be guarded during development against all injury including the following:
 - 1. Cutting, breaking, bruising, and skinning of limbs, roots, or bark of preserved trees shall not be allowed.
 - 2. No attachments including wires, ropes, cables, signs, or other materials shall be made to preserved trees.
 - 3. No parking, storage, or equipment traffic shall be allowed within the critical root zone of preserved trees.
 - 4. During and after land clearing and construction stage of development, the Town Forester or their designee may inspect the site to ensure compliance with the provisions of this section.
- (2) Preserve and protect as many natural areas on the site as is practicable.
 - (3) Incorporate existing vegetation, natural areas, specimen trees, and heritage trees into required shoreline, wetland, and visual buffers where possible.
 - (4) Where vegetation is being replaced, applicants shall select plant types from the Oak Island Approved Native Plant Material List found as Table 1 in Appendix A of this Chapter. New large tree plantings shall be spaced a minimum of 20 feet from existing trees, other new plantings, and 10 feet from the foundation of any permanent structure.
 - (5) Applicants shall not completely clear shrubs and grasses in areas designated as preserved natural areas in vegetation plans without the approval of development services and the Town Forester or their designee.
 - (6) Planted or preserved trees shall be maintained in a healthy state for a minimum of 2 years after the issuance of the Certificate of Occupancy. Trees may only be removed during the 2-year period upon the issuance of a Tree Removal Permit and shall be replaced to meet the minimum dbh requirements

at the time the Certificate of Occupancy was issued. The Town Forester or their designee shall inspect the health of planted or preserved trees at any time during the 2-year period.

- (7) The Town Forester or their designee may delay tree planting any time of the year growing conditions are unfavorable. When planting is delayed, the Town Forester or their designee shall set a date certain that the planting shall be completed and shall inspect the site to determine compliance.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 12-11-2018; Amend. of 7-13-2021(1) ; Amend. of 9-13-2022(1))

Secs. 32-76.1—32-76.3. Reserved.

Amend. of 7-13-2021(1) repealed § 32-76.1, which pertained to parking facilities landscaping for new development projects; § 32-76.2, which pertained to tree and shrub preservation; and § 32-76.3, which pertained to landscaping maintenance for projects other than single-family residential; and all derived from Ord. of 3-10-2009; Amend. of 5-15-2012; and Amend. of 12-9-2014.

Sec. 32-77. No clearing without permit.

No clearing or removal of vegetation other than bush hogging shall be permitted on any undeveloped lot or parcel or any lot or parcel to be redeveloped without a valid land use permit from the town. The following activities are exempt from this section: bona fide forestry and agricultural practices, control of non-native invasive species identified by the North Carolina Department of Agriculture, and minor clearing of vegetation for line-of-sight surveying, footpaths, and minor clearing and/or cutting of grasses, weeds, and vines as required for responsible property maintenance. Vegetative material will be disposed of properly as indicated in section 24-65.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-78. Flexible setbacks.

The allowable building area on each lot or parcel may be moved toward one side lot line and either the rear lot line or the front street line a distance of up to 25 percent of the required setback for the zoning district for the purpose of preserving natural areas, heritage trees, and specimen trees. This section does not increase the maximum permitted length and width of the allowable building area. Such setback or yard modifications must be approved by the development services staff in writing prior to construction beginning. Setback adjustments shall be noted on the final survey. A conservation easement shall be recorded at the Brunswick County Register of Deeds for the areas being preserved and a copy of the recorded easement provided to the Town Forester prior to issuance of a Certificate of Occupancy.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014)

Sec. 32-79. Tree Preservation

(a) Applicability. This subsection shall apply to all development within the Town's jurisdiction.

(b) Heritage Tree Preservation. No person, directly or indirectly, shall remove any heritage tree from within the setback area during development or without first obtaining a tree removal permit.

(c) Tree Removal Permit. All persons seeking a permit for removal of a heritage tree from the areas outlined in subsection (b) shall make application to the Town Forester. The application shall contain the following.

(1) The name, address, and phone number of the property owner of the site.

(2) The address of the construction site or site of tree removal if different than the property owner's

legal address.

(3) The name, address, and telephone number of the applicant.

(4) A site plan containing the following information. For new construction, this information can be included in the tree and vegetation plan required by Chapter 32 of the Code of Ordinances.

- a. The shape and dimensions of the property.
- b. Location of existing or proposed structures and improvements.
- c. The location and dbh of the heritage trees.

(d) Criteria for Tree Removal Permit Issuance. No tree removal permit shall be issued unless one (1) or more of the following criteria are met.

(1) The heritage tree is dead, severely diseased, injured or in danger of falling close to existing or proposed structures.

(2) The heritage tree is causing disruption of existing utility service or causing drainage or passage problems upon the right of way.

(3) The heritage tree is posing an identifiable threat to pedestrian or vehicular safety.

(4) The heritage tree violates state or local safety regulations.

(e). Issuance, denial of Tree Removal Permit. The Town Forester shall review all properly submitted applications for tree removal permits and shall grant or deny a permit in accordance with the provisions of this chapter within fourteen (14) business days of submittal. In applying the provisions of this chapter, he shall follow normal landscaping practices and may seek additional technical assistance, as appropriate. A tree removal permit shall be issued for a qualified application as set forth above and shall apply to the specifics of that request.

Sec. 32-80. Enforcement; penalties for violations of article.

(1) Violations. Any person violating the requirements of this article shall be subject to a civil penalty of \$500.00 as permitted by G.S. 14-4 and shall be required to replant the disturbed area in accordance with an approved vegetation preservation plan that meets the guidelines of subsection 32-74(c) and section 32-76. The Town Forester with concurrence from the Town Manager may stay enforcement of the civil penalty.

(2) Appeals. Appeals of decisions of the Town Forester or their designee concerning enforcement of this article shall be made to the board of adjustments. Appeals to the board of adjustments shall be made in accordance with section 4.10 of the Unified Development Ordinance.

(3) Variances. Variances of this Chapter shall be heard by the Board of Adjustment. The Board of Adjustment must follow the standards found in Section 4.10 of the Unified Development Ordinance.

(Ord. of 3-10-2009; Amend. of 5-15-2012; Amend. of 12-9-2014; Amend. of 7-13-2021(1))

Appendix A – Tables

Table 1: Oak Island Approved Native Plant Material List

Botanical Name	Common Name	Traits	Aerosol Salt Tolerance	Maritime Forest Planting	Seaside Planting
Large (Shade) Tree installed at minimum 2-inch caliper; mature height typically greater than 30 feet					
<i>Quercus virginiana</i>	Live Oak	E, N, D	M	x	
<i>Magnolia grandiflora</i>	Southern Magnolia	E, N, D	M	x	
<i>Prunus caroliniana</i>	Cherry Laurel	E, N, D	M	x	
<i>Persea borbonia</i>	Red Bay	E, N, D	H	x	x
<i>Carya glabra</i>	Pignut Hickory	N,D	M	x	
<i>Quercus falcata</i>	Southern Red Oak	N, D	M	x	
<i>Quercus shumardii</i>	Shumard Oak	N, D	M	x	
<i>Pinus palustris</i>	Long Leaf Pine	E, N, D	H	x	x
<i>Nyssa sylvatica</i>	Black Gum	N	M	x	
<i>Taxodium distichum</i>	Bald Cypress	N, D	M	x	
<i>Juniperus virginiana</i>	Eastern Red Cedar	E, D, *N,	H	x	x
Small Tree installed at minimum 2-inch caliper; mature height typically less than 30 feet					
<i>Magnolia grandiflora</i>	'Little Gem" Magnolia	E, N, D	M	x	
<i>Quercus geminata</i>	Sand Live Oak	E, N	H	x	x
<i>Ilex vomitoria</i>	Yaupon Holly	E, N, D	H	x	x
<i>Ilex opaca</i>	American Holly	E, N, D	S-M	x	
<i>Diosporos virginiana</i>	Common Persimmon	N, D	H	x	x
<i>Morella cerifera</i>	Wax Myrtle	E, N, D	H	x	x
<i>Cartrema americana</i>	Devilwood, Wild Olive	E, N	M	x	
<i>Zanrhexylum clava-hercules</i>	Toothache Tree, Hercules Club	N. D	H	x	x
<i>Myrica cerifera</i>	Southern Wax Myrtle	E, N, D	H	x	x
<i>Sabal minor</i>	Dwarf Palmetto	E, N, D	M	x	
Shrubs, Grasses, and Herbaceous Plants transplanted from 5-gallon containers; typical height 3-15 feet					
<i>Ilex vomitoria "Nana"</i>	Dwarf Yaupon Holly	E, N, D	H	x	x
<i>Ilex vomitoria "Pendula"</i>	Weeping Yaupon Holly	E, N, D	H	x	x
<i>Yucca filamentosa</i>	Yucca	E, N, D	H	x	x
<i>Sorghastrum nutans</i>	Indiangrass	N, D	H	x	x
<i>Schizachyrium scoparium</i>	Little Bluestem Grass	N, D	H	x	x
<i>Muhlenbergia capillaris)</i>	Pink Muhly Grass	N, D	H	x	x
<i>Uniola paniculata</i>	Sea Oats	N, D	H	x	x
<i>Ammophila breviligulata</i>	American Beachgrass	N, D	H	x	x

Traits Key: E = EVERGREEN, N = NATIVE, D = DROUGHT TOLERANT, *N = NATIVE TO NORTH AMERICA MAINE TO TEXAS

Salt Tolerance Key: HIGH (H)—DIRECT SALT SPRAY; PLANT ON DUNES/BEACH FRONT, MODERATE (M)—INDIRECT SALT SPRAY, SLIGHT (S)—LOW/NO SALT SPRAY



**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Items awaiting Council Consideration
DATE: December 6, 2023
DEPARTMENT: Planning

Subject Summary:

The Planning Board has requested a running list of Items that are awaiting consideration by the Town Council. See below for a list and the current status.

Item awaiting Council action

- Open Space recommendations for Town-Owned Property - Awaiting Council direction on a review of all town-owned properties.

Items forwarded to Council then later rescinded by the Planning Board

- Proposed Text Amendment to Section 6.5 of the Unified Development Ordinance - Table of Uses- Removal of Several Uses Listed as "Special Use" in the Table - Recommendation rescinded at the July 20, 2023 Planning Board Meeting
- Proposed Amendments to Section 6.5 and A.3 of the Unified Development Ordinance - Restaurants and Drive-Thru Services - Recommendation rescinded at the July 20, 2023 Planning Board Meeting
- Proposed Text Amendment to Part IV Article 10 of the Unified Development Ordinance - Sign Regulations -- Recommendation rescinded at the July 20, 2023 Planning Board Meeting

Item recommended for approval and remanded to Planning Board by Council

- Proposed Text Amendments of Section 6.5 and Appendix A of the Unified Development Ordinance - Amusement Facilities - Town Council remanded the proposed amendment to the Planning Board to work through the modernization of the Table of Uses

Items on hold pending trees/stakeholders meetings (now completed) and tree canopy study report

- Proposed Text Amendments to Chapter 32 of the Code of Ordinances - Discussed and Planning Board recommended at the August 2023 meeting, then discussed further with the Town Forester at the September 2023 Planning Board meeting

**PLANNING BOARD
AGENDA ITEM MEMO**

SUBJECT: Planning Staff Updates
DATE: December 6, 2023
DEPARTMENT: Planning

Subject Summary: Comprehensive Plan Update

The request for proposals has been sent out and submissions are due December 15, 2023.

Wellhead Protection Overlay District

The Town Administration is working with the County and Town Council to schedule a date for presentation of the current program in the County's jurisdiction.

Staff Training Updates

Courtney Milliron, CAMA LPO/Floodplain Administrator, and Brady Golden, Planner I, attended a CAMA Local Permit Officer training on Minor Permits. Courtney was recognized at the training with the Outstanding Achievement Award from the Division of Coastal Management for exceptional performance and service.