



Cabarrus County Government

Cabarrus County Planning and Zoning Commission
Tuesday, December 14, 2021 @ 6:30 p.m.
Board of Commissioners Meeting Room
Cabarrus County Governmental Center

Agenda

1. Roll Call
2. Approval of November 9, 2021, PZ Meeting Minutes
3. Approval of the Granting Order with Finding of Facts for CUSE2018-00004 - Close out documents for the amendment to CUSE2017-00001, Conditional Use Permit for Public Service Facility (Solar Farm). Applicant is Canadian Solar Solutions, Inc
4. New Business Board of Adjustment Function:
 - A. CUSE2021-00007 –Special Use Permit request for Public Service Facility (Well House). Applicant, Brian LaFranchi/Dewberry. Owner is Aqua North Carolina, Inc. Address is 5309 Historic Spring Dr. PIN 5559-76-1541.
5. New Business Planning Board Function:
 - A. Proposed Text Amendments
6. Legal Update
7. Director's Report
8. Adjourn



Cabarrus County Government – Planning and Zoning Commission

Planning and Zoning Commission Minutes

December 14, 2021

Mr. Adam Dagenhart, Chair, called the meeting to order at 6:36 p.m. Members present, in addition to the Chair, were Mr. Jeff Corley, Mr. David Hudspeth, Mr. Andrew Nance, Ms. Ingrid Nurse, Mr. Charles Paxton, Mr. Chris Pinto, Mr. Brent Rockett, and Mr. Stephen Wise. Attending from the Planning and Zoning Division were, Ms. Susie Morris, Planning and Zoning Manager, Mr. Phillip Collins, Sr. Planner, Ms. Sandy Howell, Planner, Ms. Arlena Roberts, Clerk to the Board, Mr. Richard Koch, County Attorney and Mr. David Goldberg, Deputy County Attorney.

Roll Call

Approval of November 9, 2021 Planning and Zoning Commission Meeting Minutes

There being no corrections or additions to the minutes, Mr. Jeff Corley **MOTIONED, SECONDED** by Mr. Brent Rockett to **APPROVE** the November 9, 2021, meeting minutes. The vote was unanimous.

Approval of Granting Order with Findings of Facts for CUSE2018-00004 – Close out documents for the amendment to CUSE2017-00001, Conditional Use Permit for Public Service Facility (Solar Farm). Applicant is Canadian Solar Solutions, Inc.

There being no corrections or additions to the Granting Order or Findings of Fact, Mr. Brent Rockett **MOTIONED, SECONDED** by Mr. Jeff Corley to **APPROVE** the Granting Order with Findings of Fact for CUSE2018-00004. The vote was unanimous.

The Chair said anyone wishing to speak tonight for an agenda item, they need to complete a blue card and give it the Clerk.

The Chair read the following rules of procedures:

1. The Cabarrus County planning staff person(s) shall first present the staff report and answer questions from the Commission. There will be no time limit on this presentation.
2. The Applicant may make a presentation to the Board (optional) and will then answer questions from the Commission. There will be a 15-minute time limit on the presentation if the Applicant chooses to make a formal presentation. There will be no time limit on questions from the Board following the presentation.

Planning and Zoning Commission
Minutes
December 14, 2021

3. When the Board is ready to proceed, the proponents (those speaking generally in favor of the case) will have a total of 15 minutes to speak and/or present documents in support of their position. The 15-minute time limit does not include questions directed to the proponents by the Commission.
4. After the proponents finish, the opponents (those speaking generally against the case) will have a total of 15 minutes to speak and/or present documents in support of their position. The 15-minute time limit does not include questions directed to the opponents by the Commission.
5. Each side will then have 3 minutes for rebuttal, with the proponents going first. Again, questions directed to the speaker will not count against the time limit. This will conclude the public hearing portion of the meeting and the Commission will proceed to deliberation.
6. Each side is strongly encouraged to use a spokesperson to present the positions commonly held by each. Each side is also strongly encouraged to organize their speakers and presentations to ensure that all persons wanting to speak will have time to do so.
7. If a speaker has questions of a person on the other side, such questions shall be addressed to the Commission members to be redirected to the person to be asked. There will be no direct questioning of one speaker by another except through the Commission.
8. Public demonstrations of support for a speaker's comments should be limited to clapping. Any other type of audible support shall be out of order and subject the offender to being removed from the building. Anyone speaking out of order shall likewise be subject to removal.
9. These rules are designed to have a full and fair hearing that is orderly and expeditious and avoid unnecessarily repetitious presentations.

Mr. Jeff Corley **MOTIONED, SECONDED** by Mr. Andrew Nance to **ADOPT** the Rules of Procedures. The vote was unanimous.

The Chair asked those that will be addressing the Board or testifying to stand and be sworn in. The Chair administered the oath.

New Business –Board of Adjustment Function:

The Chair introduced Petition CUSE2021-00007 – Special Use Permit request for Public Service Facility (Well House). Applicant is Mr. Brian LaFranchi/Dewberry. Owner is Aqua North Carolina, Inc. Address is 5309 Historic Spring Drive. PIN 5559-76-1541.

Planning and Zoning Commission
Minutes
December 14, 2021

The Chair asked if any of the Board members had a conflict of interest or any information related to the case. There being none, the Chair called on Mr. Phillip Collins.

Mr. Phillip Collins, Sr. Planner, addressed the Board presenting the staff report.

He said the subject property is ± 1.12 ac in size.

The purpose of this request is to install a new filtration system for the existing community well located on the site. A new building to house and protect the system will be constructed. Additional concrete will also be added for access. The use is permitted with the issuance of a conditional use permit in the Countryside Residential (CR) zoning district.

The site currently supports an existing community well owned and operated by Aqua North Carolina. Most of the site is wooded and vacant. The site is accessed from Byfield Drive via a private access easement across 2730 Byfield Drive. The subject property is described as the original well lot for the Cold Springs subdivision recorded in 1993. According to the recorded plat, a 20-foot-wide drainage easement traverses the west side of the subject property.

The subject property is surrounded to the east, south and west by residential uses. A religious facility borders the subject property to the north.

All uses permitted within the CR zoning district are currently allowed on the subject property. However, the subject property is dedicated as the well lot for the Cold Springs Subdivision.

The subject property is currently zoned CR (Countryside Residential), and is surrounded by properties zoned CR.

The applicant has provided documentation compliant with Section 8-3 of the Cabarrus County Zoning Ordinance, petitioning for a Special Use.

The Applicant has submitted a complete application and the application states that approximately 190 SF will need to be cleared on the site for the new system. The rest of the site will remain in its current state.

A public drainage easement traverses the western side of the subject property and the applicant is providing buffering for it.

The subject property is located within the boundaries of the Eastern Area Plan and is designated as Open Space.

Should the Board of Adjustment grant approval of the Special Use Permit, Staff requests the following conditions become part of the approval and case record:

Planning and Zoning Commission
Minutes
December 14, 2021

1. Site plan review and approval is required subsequent to Board of Adjustment approval in order to ensure compliance with all applicable development requirements and conditions.
2. A granting order, stating restrictions and applicable conditions of approval, shall be recorded with the deed of the property.
3. The applicant shall procure any and all applicable federal, state, and local permits prior to commencement of the project.
4. Expansion of this project, as well as modifications or changes to the approved site plan, must receive Board of Adjustment approval in the form of an amendment to the Special Use Permit.

The Chair asked if there were any questions for the applicant. He asked Mr. LaFranchi if he wanted to make a presentation. He did not.

The Chair said he had a question and asked Mr. LaFranchi to come forward.

The Chair said your plan shows a driveway, and he understands that the Fire is requiring a 20-foot drive to meet up with code. But your driveway is outside of your easement on properties that do not seem to have an easement. He asked if that was correct.

Mr. Brian LaFranchi, 828 Hartford Avenue, Charlotte, NC, Aqua North Carolina Treatment Building Supervisor addressed the Board. His understanding from his client, is that that easement should have been recorded when the original driveway was installed.

Mr. Dagenhart said the documents that were provided, referencing Map Book 20 and Page 11, shows that it is exclusively on that one lot.

Mr. LaFranchi said we would need to work with the fire department potentially during construction to see if we can keep it on the existing property. There are some existing power poles that we would need to go around for that requirement. But again, Aqua is taking the position that they have prescriptive rights for that existing driveway.

The Chair does not know if the Board can sign off on anything without a condition that, that be resolved, because that puts us in a bind, that we approved something that is not legal.

There being no questions, and no one speaking for or against the case the Chair opened and closed the public hearing.

The Chair said at this time the Board will need to discuss the Special Use Permit. Once we have discussed thoroughly and have findings to support or deny, we will vote.

He said if we approve this, there are four things that we need to make sure that it meets.

Planning and Zoning Commission
Minutes
December 14, 2021

Mr. Charles Paxton, said can we sign off on it or wait until that has been worked out? Do we defer it until it is worked out, or do we preliminarily approve it?

The Chair thinks we can make it a condition, if we approve it tonight, to be worked out with the existing staff conditions.

Mr. Koch, County Attorney, said you can make it a condition, that they have to be able to show that they have some sort of legal right to that. As he understands it, that driveway has been there since 1993. Is that correct?

The Chair believes that is the case, but the issue is, the current drive is probably just wide enough for a vehicle. He would say probably less than ten feet. Fire is requiring 20-foot gravel road with a gate and that is what is kicking it over the property lines, off where the prescribed easement is in those documents provided.

Mr. Koch thinks the Board can make it a condition, that they have to have some sort of legal basis for having the new driveway as wide as it is. He does not think we have to necessarily get into the legal issues on that. If they show that they do have it, he thinks that is enough for this Board. He would make it a condition that they have to show it and it may be by prescription. That basically is a legal theory that says that you do have a right. It may not show up from documents, so he may be right about that, Mr. Koch does not know.

Mr. Koch thinks that subdivision was developed by Sam Davis's family, if he is not mistaken. He said Mr. Davis is easy to find around here and is a lawyer here.

It may be, that was the way it is supposed to be, he has no idea. As a County, we do not need to get involve in that kind of a legal issue if it is one. But he thinks they do need to present something to the Board as a condition that they have the right to have the driveway put in the way they need to have it for the Fire Marshal.

Ms. Morris thinks what they are talking about is that it is encroaching onto properties other than what they own, with the expansion. She thinks the expectation was that it would be expanded onto their property. It is across the property line, so those people were not necessarily a part of the application.

She asked the Chair if that is what he was asking.

The Chair said that is correct.

Mr. Koch said that is kind of what he is saying. They will have to be able to show that they have an easement from that neighboring property owner, or that they had some other right that came up when the lot was first developed, and the driveway was put in.

He said that is not something that we can decide, either this Board or even legally we can decide.

Planning and Zoning Commission
Minutes
December 14, 2021

He thinks they just need to show to the County, that they have the right to put the driveway in the way they show it on their plan.

The Chair said there are four things we need to consider, and we can do them one by one or altogether.

1. The Board must find that the uses as proposed are not detrimental to the public health and safety or general welfare.
2. The Board must find that the uses, as proposed, are approximately located with respect to the transportation facilities, water supply, fire, police protection, waste disposal, etc.
3. The Board must find that the uses as proposed will not violate neighborhood character nor adversely affect the surrounding land uses.
4. The Board must find that the uses, as proposed, will comply with the general plans for the physical development of the County or Town as embodied in the Zoning Ordinance, or in the Area Development Plans that have been adopted.

Mr. Corley feels this request is not detrimental to public health and welfare. It is quite the opposite, making public drinking water supply improvements for these customers. It appears to be reasonably located with transportation facilities, existing water supply facilities on this site, as well as police and fire protection. He does not believe it will violate neighborhood character, or adversely affect surrounding land uses. They have done a good job of minimizing the amount of tree removal that will take place. Most of the facility is very central to this property and should not really affect the surrounding property owners at all.

Mr. Paxton said it would not change the developmental plans for the County and would not impede any of the community water systems, it would only improve it.

There being no further discussion, Mr. Jeffrey Corley **MOTIONED, SECONDED** by Mr. Brent Rockett to **APPROVE CUSE2021-00007** – Special Use Permit request for Public Service Facility (Well House) with conditions recommended by Staff, and an additional condition that the Applicant provide some evidence allowing the driveway to be on the property where proposed. The vote was unanimous.

The Chair called on Ms. Susie Morris, Planning and Zoning Manager to present Text Amendments.

She said the first Text Amendment is to amend Chapter 16. The State, ISO and FEMA finally got together to figure out some language and it is right back where we started some months ago. We have decided to make a little modification of our own to that particular language which she will talk about in a minute.

The State has added a definition for map repository. We did not have a definition for that. It is saying that the official map repository for North Carolina, as a Technical Coordinating Partner

with the State, is the FRIS system that we have talked about and some of you have used to do research.

The other one, which was really the sticking point on our review with ISO, is on page 19. That is the one talking about the electrical, heating and ventilation. The mechanical must be elevated, and that is elevated to the Regulatory Flood Protection, which is BFE (Based Flood Elevation) plus two. If they cannot put it at BFE plus two, it has to be specifically designed to withstand flooding, not to the BFE, but to that Regulatory Flood Protection again, so to BFE plus two.

The ISO says, this supposedly gets us to a seven, but then they also asked if we were still doing some of the things from the last review, which is outside of the scope of our last review. We will see if we get a seven or if we stay at an eight.

Ms. Morris said those are the only changes to the Ordinance. If the Board remembers, back in the summer, we updated to 160D and to the Model Ordinance that they had at that time.

The other changes were typos that we found.

Chapter 1, Section 1-5, to correct the date from February 2, 1982 to February 1, 1982. The minutes from the meeting are specific that that is the date that we need to use.

Chapter 5, Section 5-7, Section B. Stream buffer and floodplain limitations, when we changed the flood plain ordinance from Chapter 15 to 16 that did not get captured in the update of the text.

Those are the amendments that she has. We went through and did the bulk of those changes that we needed to do with 160D. This is just some cleanup work, specifically related to us participating in the CRS Program.

Mr. Corley asked if the commercial storage facility item was allowed in the flood plain area before by definition?

Ms. Morris thinks it was not clear. We have had cases where people are storing cars in the flood plain. She thinks it is now interpreted to mean you cannot store cars, trucks, and other things in the floodplain if it is related to commercial. That it is specifically treated as a commercial use and would have to be permitted or elevated, even storage buildings related to that.

The Chair said we need to discuss the text amendments and build the record to recommend approval of the text amendments to the Board of Commissioners.

Mr. Paxton said it appears pretty cut and dry, typos are pretty common. The other is something that needs to be done and is a legal statute and we should follow in line.

Mr. Corley said important clarifications, and some inconsistencies, with some model ordinances he thinks is very important and he believes this clears it up and addresses some minor typos.

There being no further discussion, Mr. Brent Rockett **MOTIONED, SECONDED** by Mr. Andrew Nance, to recommend **Approval** of the text amendments to the Board of commissioners. The vote was unanimous.

Legal Update

Mr. David Goldberg, Deputy County Attorney, addressed the Board giving an update on the McClain RV case.

We have the Judgement against him. We have been in contact with Mr. McClain for the first time in a while. He has officially moved here to Cabarrus County. He is talking with us a little bit. Ms. Morris told Mr. Goldberg earlier today that we are not seeing any forward progress as far as him resolving the situation.

Mr. McClain says he wants to and that he gets it, but he is not showing it. We will show some level of flexibility if he works towards it but that has not happened so far. We are going to be moving towards the collection process, \$3,500 in Civil penalties he has accrued so far. Mr. Goldberg has also put in the bill of cost, so we can collect all the fees and filing costs that we have spent on that case so far, so we can minimize the cost to the County on that. There are couple of other things that we are going to try to do but eventually we may have to abate the violation ourselves and deal with that. Those are all options on the table as we go forward.

Directors Report

Ms. Susie Morris asked that the Board be sure to let Staff know 24 hours in advance if they are not going to be present for a meeting. We are working on getting a person for the Midland area, but right now we are in a bind when people are not here because we are down two positions plus then we have absences. It is important that we have a full complement of the Board for the Board of Adjustment cases because the Applicant can Table until the next meeting and that gets things backed up.

Ms. Morris is going to propose to the Board of Commissioners over the next couple of months that the Northwest position that is open becomes an at large position. Because of annexations by the City of Concord and Kannapolis, there is not a lot of unincorporated area left there. We want to try to staff up the Planning and Zoning Commission a little easier.

Ms. Morris introduced new staff member and Planner, Ms. Sandy Howell. She comes to us with ten years of direct experience in Planning and Zoning, a graduate of Appalachian State. She also has some other work experience that will be beneficial to us. She is in the role of Planner, presenting cases. One of her first priorities will be helping us get the APFO data base up to par, so that we know what is happening with development and the back side of it. Hopefully, at some

Planning and Zoning Commission
Minutes
December 14, 2021

point, the WSACC tracking, and School tracking will marry up into one database that everyone has access to.

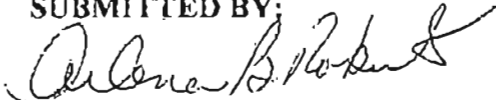
We are happy to have her here, and we are now fully staffed in Planning and Zoning.

There being no further discussion, Ms. Ingrid Nurse **MOTIONED, SECONDED** by Mr. Stephen Wise, to adjourn the meeting at 7:08 p.m. The vote was unanimous.

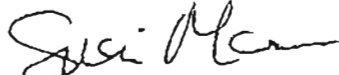
APPROVED BY:


Mr. Adam Dagenhart

SUBMITTED BY:


Arlena B. Roberts

ATTEST BY:


Susie Morris, Planning and Zoning Manager

FILED
CABARRUS COUNTY NC
WAYNE NIXON
REGISTER OF DEEDS
FILED Jan 12, 2022
AT 09:24 am
BOOK 15781
START PAGE 0274
END PAGE 0278
INSTRUMENT # 01299
EXCISE TAX \$0.00
MKL

Prepared by and Return to:
David Goldberg
Deputy Cabarrus County Attorney

SCANNED AND RETURNED

Application Number CUSE2021-00007
PIN 5559-76-1541

COUNTY OF CABARRUS
STATE OF NORTH CAROLINA

ORDER GRANTING A SPECIAL USE PERMIT

The Planning and Zoning Commission and the Board of Adjustment for the County of Cabarrus, having held a public hearing on December 14, 2021 to consider application number CUSE2021-00007, submitted by Brian LaFranchi of Dewberry Engineers Inc., acting as agent for Aqua North Carolina Inc., and having heard all of the evidence and arguments presented at the hearing, makes the following findings of fact and draws the following conclusions:

1. The Board makes and adopts the Findings of Fact contained in the attached Exhibit 1.
2. The Board concludes that the proposed use satisfies the first General Standard listed in Section 8.3 of the Cabarrus County Zoning Ordinance ("Ordinance"); namely, that the use will promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.
3. The Board concludes that the proposed use satisfies the second General Standard listed in the Ordinance; namely, that the use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not do so).
4. The Board concludes that the proposed use satisfies the third General Standard listed in the Ordinance; namely, the use does not adversely affect the adequacy of sewage disposal facilities, solid waste and water, police, fire and rescue, equal protection, schools, transportation systems

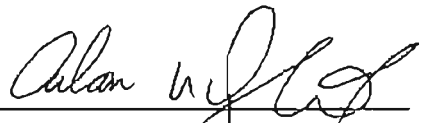
5 pgs 26-

(in and around the site) and other public facilities.

5. The Board concludes that the proposed use satisfies the fourth General Standard listed in the Ordinance; namely, the use complies with the general plans for the physical development of the County as embodied in the Ordinance or the Land Use Plans adopted by the Cabarrus County Board of County Commissioners.
6. The Board concludes that the proposed use satisfies the specific standards listed in the Ordinance for a public service facility.

Therefore, because the Board concludes that all of the general and specific conditions precedent to the issuance of a SPECIAL USE PERMIT have been satisfied, it is ORDERED that the application for the issuance of a SPECIAL USE PERMIT be GRANTED, subject to the conditions listed in Exhibit 2 and the Findings of Fact and Conclusions of Law. The applicant shall follow all the applicable specific requirements in the Ordinance and must develop the property per the site plan submitted and approved. If any of the conditions shall be held invalid, this permit shall become void and of no effect.

Ordered this 11th day of January 2022, nunc pro tunc to December 14, 2021.

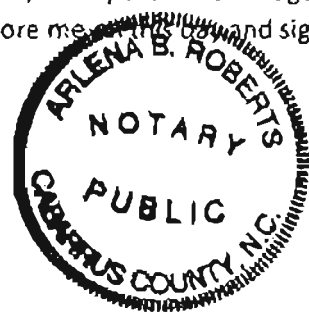

Adam Dagenhart
Chair of the Cabarrus County
Planning and Zoning Commission
Sitting as the Board of Adjustment

I Arlena B. Roberts, Notary for Cabarrus County, North Carolina, certify that Adam Dagenhart, Chair of the Cabarrus Planning and Zoning Commission, appeared before me, this day, and signed the foregoing document.



Arlena B. Roberts, Notary Public

My Commission expires March 21, 2022



NOTE: If you disagree with the decision of this Board, you may file an appeal in the Superior Court of Cabarrus County within thirty (30) days after the date of this order. See Section 12-25 of the Ordinance.

EXHIBIT 1
FINDINGS OF FACT
Special Use Permit Application
Brian LaFranchi of Dewberry Engineers Inc., acting as agent for Aqua North Carolina Inc.
CUSE2021-00007

1. The use as proposed maintains or enhances the public health, safety, and general welfare if located where proposed, developed, and operated according to the plan as submitted. This is because proposed filtration system will remove radionuclides from the existing public drinking water supply provided by an existing community well on the site. This will improve the public's health, safety, and general welfare. The Board also adopts as finding the assertions of the applicant in this section of its project narrative and statement of compliance.
2. The use as proposed is not required to maintain or enhance the value of the contiguous property because it is part of a water supply system, which is a public necessity. The Board also adopts as findings the assertions of the applicant in this section of its project narrative and statement of compliance.
3. The use as proposed does not adversely affect the adequacy of sewage disposal facilities, solid waste and water, police, fire and rescue, equal protection, schools, transportation systems (in and around the site) and other public facilities because the proposed building will be uninhabited and will support the existing water supply facility. The Board also adopts as findings the assertions of the applicant in this section of its project narrative and statement of compliance.
4. The use as proposed will follow the general plans for the physical development of the County as embodied in the Cabarrus County Development Ordinance or in the Land Use Plans adopted by the Cabarrus County Board of Commissioners because the proposed building supports the property's current use for community water supply, which provides essential public services to the County. The Board also adopts as findings the assertions of the applicant in this section of its project narrative and statement of compliance.
5. The use as proposed use satisfies the specific standards listed in the Ordinance for a public service facility for the following reasons:
 - a. The property is in a Countryside Residential (CR) zone, which is eligible for special use as a public service facility.
 - b. The applicant has submitted plans and elevations for all proposed structures and descriptions of the color and nature of all exterior materials as part of the SUP plan package and in the report produced by Dewberry Engineers Inc., report dated July 2021.
 - c. The applicant has submitted a landscape plan (same scale as site plan) showing existing and proposed trees, shrubs, ground cover and all other landscape material as part of its SUP plan package.
 - d. The applicant has submitted an emergency plan showing how possible spills, explosions, etc. would be handled as part of the SUP plan package.

- e. The use as proposed will comply with county ordinances governing noise levels because the proposed building will house water filtration equipment, which will not create any unreasonable loud, disturbing, and unnecessary noise of such character as would be a detriment to public health, comfort, safety, welfare, and prosperity of the residents of the county.
- f. The proposed building's lighting will be shielded to prevent light and glare spill-over on to any adjacent residentially used or zoned properties, if such exist, because no exterior lighting is proposed within the proposed use.
- g. The use as proposed use abuts residential property and will comply with the requirement to implement a Level Two buffer because a 30' Level 2 landscaping buffer is currently on the site. The submitted landscaping plan shows such buffer.
- h. There are no proposed storage areas associated with the proposed use. All structures and storage areas are within the existing landscaping buffer.

EXHIBIT 2
CONDITIONS
CUSE2021-00007

1. Site plan review and approval is required subsequent to Board of Adjustment approval in order to ensure compliance with all applicable development requirements and conditions.
2. A granting order, stating restrictions and applicable conditions of approval, shall be recorded with the deed of the property.
3. The applicant shall procure any and all applicable federal, state, and local permits prior to commencement of the project.
4. Expansion of this project, as well as modifications or changes to the approved site plan, must receive Board of Adjustment approval in the form of an amendment to the Conditional Use Permit.
5. Applicant must submit proof of legal right of access to the subject property, such as an easement.

PLANNING STAFF REPORT
 CABARRUS COUNTY PLANNING AND ZONING COMMISSION
 12/14/2021

Staff Use Only:
 Approved: _____
 Denied: _____
 Tabled _____

Conditional Use Permit: CUSE2021-00007

Applicant Information: Brian LaFranchi / Dewberry
 9300 Harris Corners Parkway
 Suite 200
 Charlotte, NC 28269

Owner Information: Aqua North Carolina, Inc
 202 Mackenan Drive
 Cary, NC 27511

PIN#: 5559-76-1541

Area in Acres: ± 1.12 ac

Purpose of Request: The purpose of this request is to install a new filtration system for the existing community well located on the site. A new building to house and protect the system will be constructed. Additional concrete will also be added for access. The use is permitted with the issuance of a conditional use permit in the Countryside Residential (CR) zoning district.

Site Description: The site currently supports an existing community well owned and operated by Aqua North Carolina. Most of the site is wooded and vacant. The site is accessed from Byfield Drive via a private access easement across 2730 Byfield Drive. The subject property is described as the original well lot for the Cold Springs subdivision recorded in 1993. According to the recorded plat, a 20-foot-wide drainage easement traverses the west side of the subject property.

Current Land Uses: Public Service Facility (Community Well for Cold Springs Subdivision)

Adjacent Land Uses: North – Vacant/Institutional
 East – Residential
 South – Residential
 West – Residential

Permitted Uses: All uses permitted within the CR zoning district are currently allowed on the subject property. However, the subject property is dedicated as the well lot for the Cold Springs Subdivision.

Existing Zoning: CR (Countryside Residential)

Surrounding Zoning: North: CR (Countryside Residential)
East: CR (Countryside Residential)
South: CR (Countryside Residential)
West: CR (Countryside Residential)

Signs Posted: 11/17/2021

Newspaper Notification: 12/1/2021

Newspaper Notification 2: 12/8/2021

Notification Letters: 11/22/2021

Exhibits

- A. Staff Report
- B. Special Use Permit Application
- C. Staff Maps
- D. Site Plan
- E. Surrounding Property Owner Information
- F. Deed and Plat
- G. Neighborhood Meeting Minutes

Agency Review Comments

Planning Review:

Staff Report. Phillip Collins, Senior Planner Cabarrus County

NCDOT Review:

We have no issues with the proposed; however, Byfield Drive (location of the access) is not an NCDOT maintained roadway. Aqua NC would not be required to obtain anything from us for this project. Marc Morgan, NCDOT

Fire Marshal Review:

Approved. Doug Steele, Assistant County Fire Marshal

EMS Review:

No comments. Justin Brines, Cabarrus County EMS Deputy Chief

Sheriff's Office Review:

No comments. Ray Gilleland, Cabarrus County Sheriff's Lieutenant

Soil and Water Review:

No comments. Tammi Remsburg, Cabarrus County Resource Conservation Manager

Health Review:

No comment. Chrystal Swinger, Cabarrus Health Alliance

Erosion Review: Approved

No comment. Chris Graybeal, NCDENR

History / Other Information

1. The applicant has provided documentation compliant with Section 8-3 of the Cabarrus County Zoning Ordinance, petitioning for a Conditional Use.
2. The applicant has submitted a complete application.
3. The subject property is approximately 1.12 acres in size.
4. The subject property is currently occupied by an existing community well facility. The applicant is proposing to add a filtration system with a building to house it.
5. The application states that approximately 190 SF will need to be cleared on the site for the new system. The rest of the site will remain in its current state.
6. A public drainage easement traverses the western side of the subject property and the applicant is providing buffering for it.
7. The subject property is located within the boundaries of the Eastern Area Plan and is designated as Open Space.

Conditions of Approval

Should the Board of Adjustment grant approval of the Special Use Permit, Staff requests the following conditions become part of the approval and case record:

1. Site plan review and approval is required subsequent to Board of Adjustment approval in order to ensure compliance with all applicable development requirements and conditions. (Zoning)
2. A granting order, stating restrictions and applicable conditions of approval, shall be recorded with the deed of the property. (Zoning)

3. The applicant shall procure any and all applicable federal, state, and local permits prior to commencement of the project. (Zoning)
4. Expansion of this project, as well as modifications or changes to the approved site plan, must receive Board of Adjustment approval in the form of an amendment to the Conditional Use Permit. (Zoning)



SPECIAL USE PERMIT APPLICATION

STAFF USE ONLY:

Application/Accela#: _____
Reviewed by: _____
Date: _____
Amount Paid: _____

INSTRUCTIONS/PROCEDURES:

1. Schedule a pre-application meeting with Staff to discuss the procedures and requirements for a Special Use Permit request.

Date of Pre-Application Meeting: 11/4/2021 Staff Facilitator(s): Susie Morris, Phillip Collins

2. Submit a complete application to the Planning Division. All applications must include the following:
 - Cabarrus County Land Records printout of all adjacent property owners. This includes properties located across the right-of-way and all on-site easement holders. The list must include owner name, address, and Parcel Identification Number.
 - A recent survey or legal description of the property.
 - Copies of the proposed site plan (number to be determined at pre-application meeting).
 - Any additional documents essential for the application to be considered complete. (Determined at pre-application meeting)
3. Submit cash, check, or money order made payable to Cabarrus County.
Fees: Special Use Permit \$650.00 (includes first acre) +\$15.00 *per acre*
(Plus the cost of advertising and engineering fees if applicable)
(if a 3rd submittal is required, an additional review fee will be assessed)

The deadline for submittal is always the same day as the Planning and Zoning Commission Meeting which is the second Tuesday of the month. Applications must be submitted before 2:00 PM that day for consideration on the next available agenda.

Incomplete applications will be returned to the applicant and will not be processed.

PROCESS SUMMARY:

1. Hold a pre-application meeting with Staff to discuss your Special Use Permit request and the Special Use Permit process.
2. Submit a complete application with the appropriate fees to the Cabarrus County Planning Division.

Staff and appropriate agents will review your complete application and site plan and comments will be forwarded to you. You will need to address the comments in writing, revise the site plan accordingly and resubmit a site plan showing that all comments are addressed, and errors corrected.

3. Once advised that the site plan is correct and ready to be presented to the Board of Adjustment, you will need to submit folded copies of the site plan (number determined by staff).
4. When the copies of the plan are received, Staff will begin to prepare a staff report, schedule a public meeting date, and notify adjacent property owners of the public meeting/public hearing date. A sign advertising the public hearing will also be placed on the property being considered for the Special Use Permit.

Meeting Information: Meetings are held the second Tuesday of each month at 6:30 PM in the Cabarrus County Governmental Center located in downtown Concord at 65 Church Street, SE.

Special Use Permit: Special Use Permits are considered by the Board of Adjustment during a quasi-judicial hearing. This means that anyone wishing to speak regarding the application must be sworn in. The vote requirement for the Special Use Permit to pass is a simple majority. Additional conditions may be added as part of the Special Use Permit approval process.

Questions: Any questions related to the Special Use Permit process may be directed to the Planning Division at 704-920-2141, between 8 AM and 5 PM, Monday through Friday.

TO THE BOARD OF ADJUSTMENT:

I HEREBY PETITION THE BOARD OF ADJUSTMENT TO GRANT THE ZONING ADMINISTRATOR THE AUTHORITY TO ISSUE A SPECIAL USE PERMIT FOR THE USE OF THE PROPERTY AS DESCRIBED BELOW.

| APPLICANT | PROPERTY OWNER |
|----------------------------------------|----------------------------------------|
| Brian LaFranchi | Aqua North Carolina Inc. |
| 9300 Harris Corners Parkway, Suite 220 | NAME 202 Mackenan Dr |
| ADDRESS Charlotte, NC, 28269 | ADDRESS Cary, NC 27511 |
| CITY, STATE, ZIP CODE 704-631-5206 | CITY, STATE, ZIP CODE 704-704-3315 |
| PHONE NUMBER 704-509-9937 | PHONE NUMBER |
| FAX NUMBER blafranchi@dewberry.com | FAX NUMBER mamelton@aquaamerica.com |
| E-MAIL ADDRESS | E-MAIL ADDRESS |

PARCEL INFORMATION:

| | |
|--------------------------|----------------------------------------------|
| Existing Use of Property | _ Well Lot _____ |
| Proposed Use of Property | _ Well Lot _____ |
| Existing Zoning | _ CR _____ |
| Property Location | 5309 Historic Spring Drive Concord, NC 28205 |
| Property Acreage | _ 1.12 AC _____ |
| Parcel Number (PIN) | _ 09-001-0002.10 _____ |

LAND USE OF ADJACENT PROPERTIES:

NORTH __ Church _____ SOUTH __ Residential _____
EAST __ Residential _____ WEST __ Residential _____

GENERAL REQUIREMENTS:

The Zoning Ordinance imposes the following general requirements on the use requested by the applicant. Under each requirement, the applicant should explain, with reference to the attached plans (when applicable) how the proposed use satisfies these requirements.

- 1. The Board must find that the uses(s) as proposed “are not detrimental to the public health, safety or general welfare.”

The proposed filtration system will remove radionuclides from the public drinking water supply, which will improve the public’s health, safety and general welfare.

- 2. The Board must find that the use(s) as proposed “are appropriately located with respect to transportation facilities, water supply, fire and police protection, waste disposal, etc.”

The well and filtration building is centrally located in a residential area and is located close to all of these functions.

- 3. The Board must find that the use(s) as proposed “will not violate neighborhood character nor adversely affect surrounding land uses.”

The proposed filtration building only requires the removal of 190 SF of existing trees, as seen on sheet C-02. The rest of the site will stay in the existing condition and will not adversely affect the surrounding residential area.

- 4. The Board must find that the use(s) as proposed “will comply with the general plans for the physical development of the County or Town, as embodied in the Zoning Ordinance or in the area development plans that have been adopted.”

The zoning of the parcel is not changing. The expanded filtration system building will help treat the water for the community and will not impede on the County’s physical development plans.

SPECIFIC REQUIREMENTS:

The Zoning Ordinance also imposes SPECIFIC REQUIREMENTS on the use(s) requested by the applicant. The applicant should be prepared to demonstrate that, if the land is used in a manner consistent with the plans, specifications, and other information presented to the Board, the proposed use(s) will comply with specific requirements concerning the following:

Nature of use (type, number of units, and/or area): Well lot for a water filtration system building.

Accessory uses (if any):

___ N/A _____

SETBACK PROVISIONS:

Principle Use:

Front: ___ 50' ___ Side yard Single: ___ 20' ___ Side yard Total: ___ 40' ___ Rear: ___ 30' ___

Accessory Use:

Front: _____ Side yard Single: _____ Side yard Total: _____ Rear: _____

Height provisions: Principle Use: ___ 40' ___ Accessory Use: _____

Off street parking and loading provisions: (include calculations)

___ N/A _____

Sign provisions: (include sketch drawing with dimensions)

___ N/A _____

Provisions for screening landscaping and buffering: (show on site plan)

___ N/A. Existing landscape of a hardwood forest is to remain. _____

Provisions for vehicular circulation and access to streets: (provide NCDOT permit and/or TIA)

___ There is an existing gravel driveway that connects to Byfield Drive. No NCDOT Driveway permit is required. _____

Adequate and safe design for grades, paved curbs and gutters, drainage systems, and treatment or turf to handle storm waters, prevent erosion, subdue dust:

___ The proposed building is in a relatively flat area and the grade will tie in the with existing slope. The surrounding area of woods will remain in its current condition _____

An adequate amount and safe location of play areas for children and other recreational uses according to the concentration of residential property:

___ N/A _____

Compliance with applicable overlay zones: (see Chapter 4 of Zoning Ordinance)

The parcel is in the Manufactured Home Overlay 2 (MH-2). The proposed use of the parcel does not include any residential dwellings, so the design and installation requirements for the MH-2 overlay do not apply.

Compliance with the Flood Damage Prevention Ordinance: (see Chapter 16)

The parcel is not located in a special flood zone.

Other requirements may be requested by the applicant or specified by the Board for protection of the public health, safety, welfare, and convenience:

PREDEFINED STANDARDS:

Each individual Special Use listed in the Zoning Ordinance may have specific standards imposed. Refer to Chapter 8, the Special Use section of the Zoning Ordinance for these requirements. Each standard should be addressed in the site plan submitted along with this application.

CERTIFICATION:

I hereby confirm that the information contained herein and herewith is true and correct and that this application shall not be scheduled for official consideration until all the required contents have been submitted to the Planning and Development Department.

Signature of Applicant _____ Date: _____



Signature of Owner

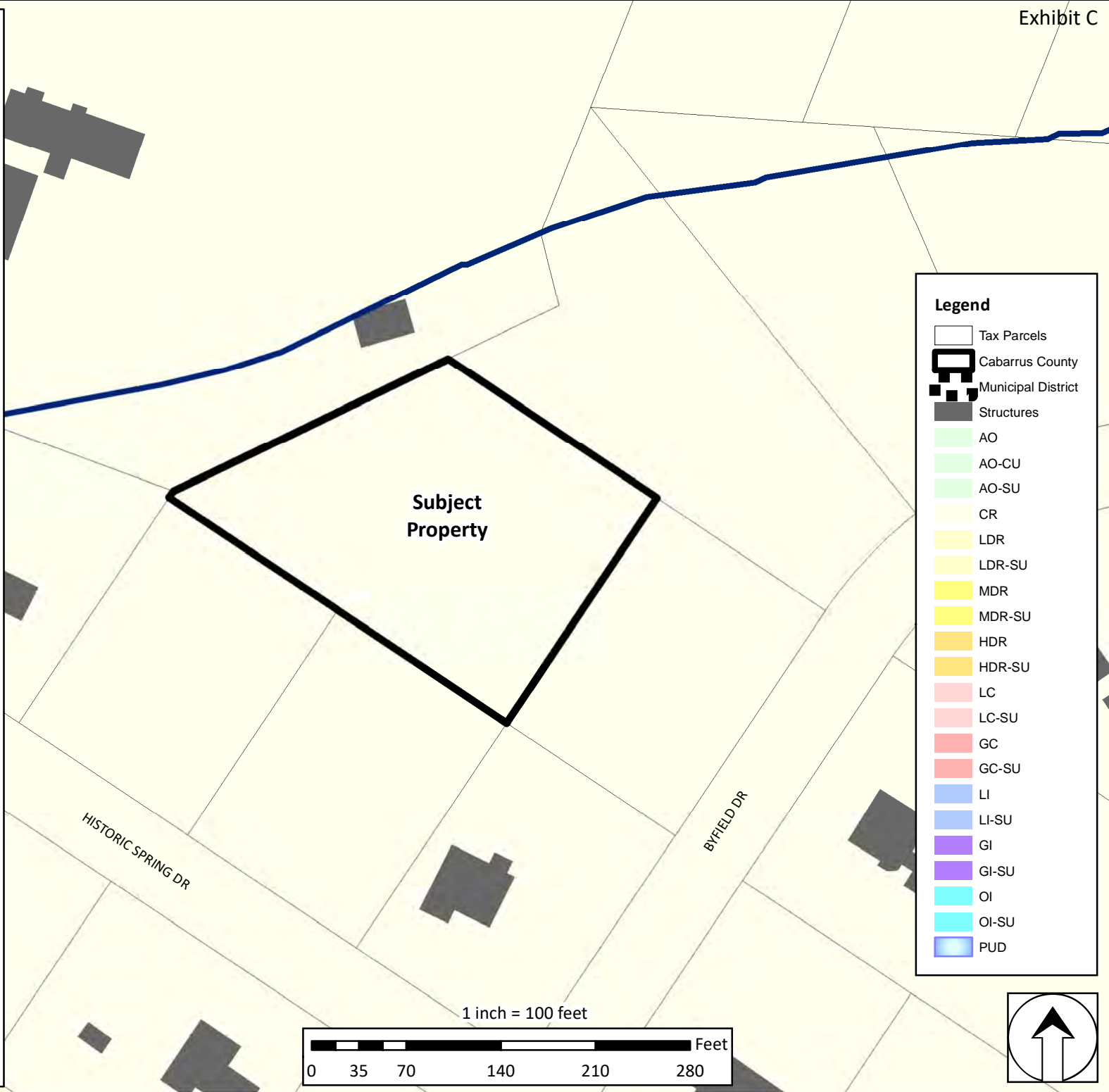
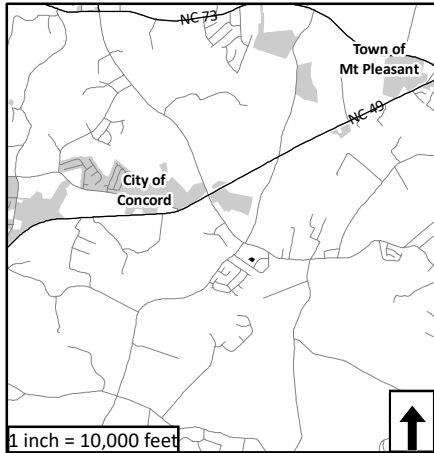
Date: 11/9/2021

LINDSAY L. MIZE, AQUA PROJECT ENG. II SIGNING FOR MICHAEL A. MELTON DUE TO MICHAEL A. MELTON BEING OUT OF THE OFFICE FOR A WORKER'S COMP INJURY.

Eastern Planning Area Existing Zoning



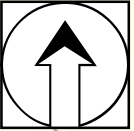
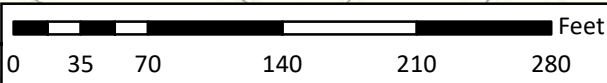
Applicant: Brian LaFranchi, Dewberry
Owner: Aqua North Carolina, Inc.
Case: CUSE2021-00007
Address: 5309 Historic Spring Dr
Purpose: Replacement of Wellhouse
PIN: 5559-76-1541



Legend

- Tax Parcels
- Cabarrus County
- Municipal District
- Structures
- AO
- AO-CU
- AO-SU
- CR
- LDR
- LDR-SU
- MDR
- MDR-SU
- HDR
- HDR-SU
- LC
- LC-SU
- GC
- GC-SU
- LI
- LI-SU
- GI
- GI-SU
- OI
- OI-SU
- PUD




Cabarrus County shall not be held liable for any errors in this data. This includes errors of omission, commission, errors concerning the content of the data, and relative and positional accuracy of the data. These data cannot be construed to be a legal document. Primary sources from which these data were compiled must be consulted for verification of information contained within the data.

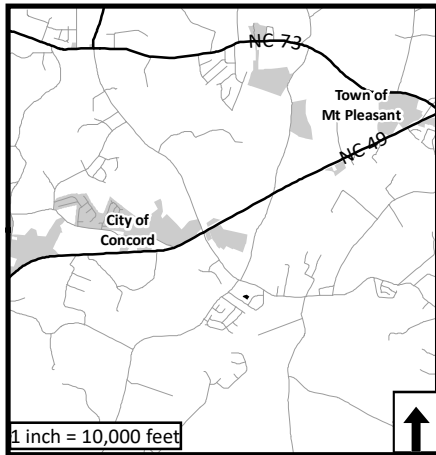


Eastern Planning Area Aerial Map



Applicant: Brian LaFranchi, Dewberry
Owner: Aqua North Carolina, Inc.
Case: CUSE2021-00007
Address: 5309 Historic Spring Dr
Purpose: Replacement of Wellhouse
PIN: 5559-76-1541

-  Cabarrus County
-  Municipal District
-  Tax Parcels



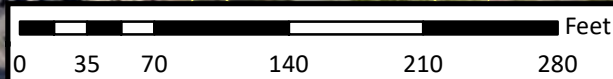
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Map Prepared by Cabarrus County Planning & Development - December 2021



**Subject
Property**

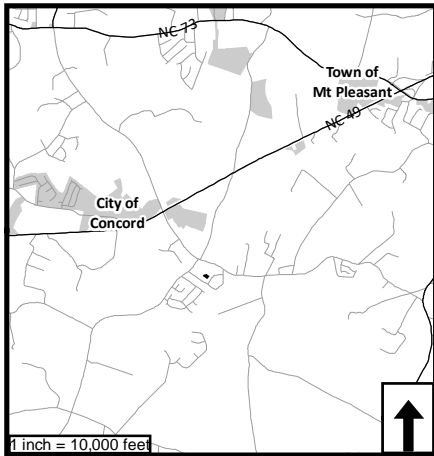
1 inch = 100 feet



**Eastern Planning Area
Future Land Use**

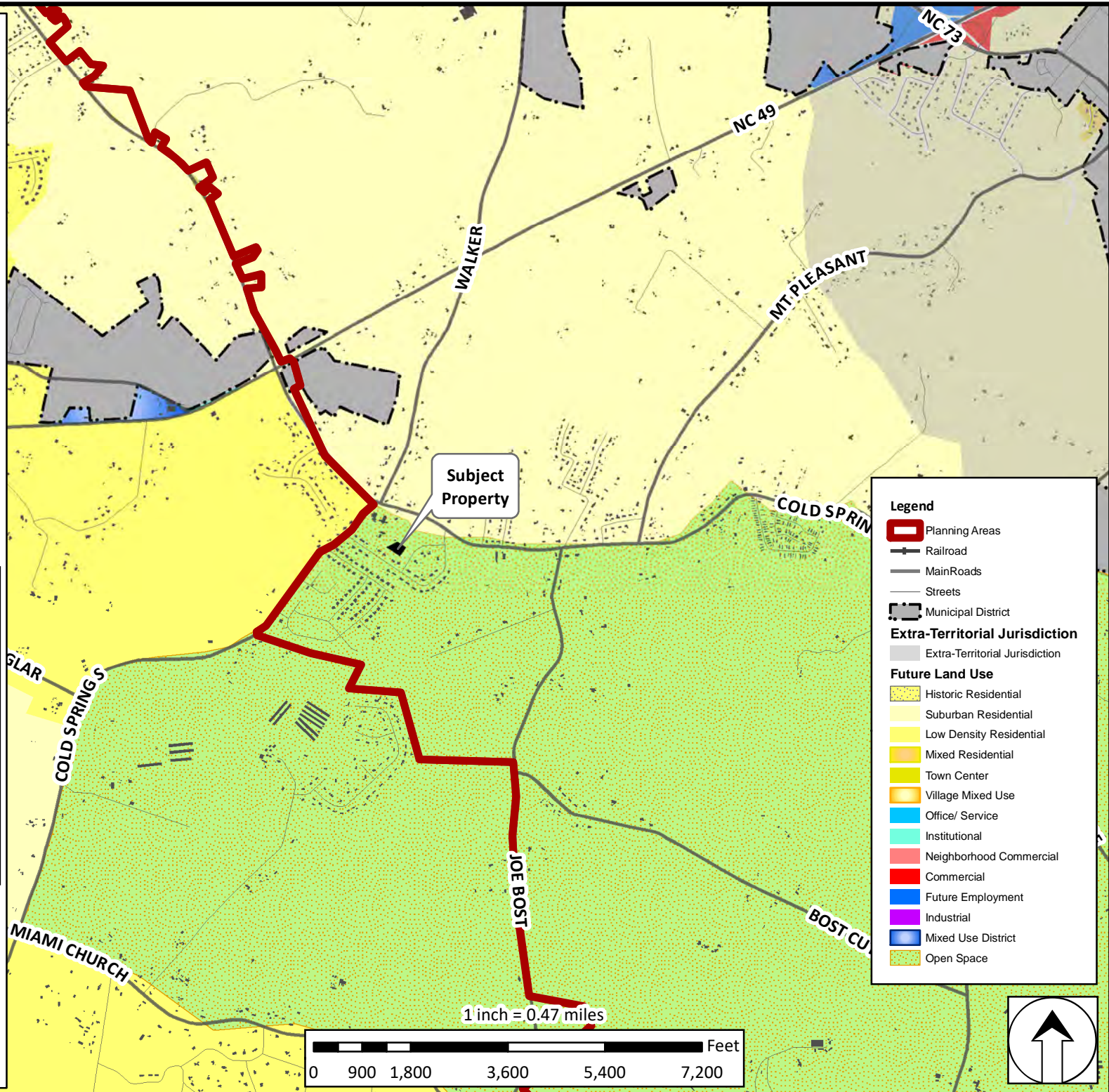


Applicant: Brian LaFranchi, Dewberry
 Owner: Aqua North Carolina, Inc.
 Case: CUSE2021-00007
 Address: 5309 Historic Spring Dr
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Map Prepared by Cabarrus County Planning & Development - December 2021





AQUA NORTH CAROLINA

RADIUM REMOVAL TREATMENT SYSTEM

FIELDSTONE WELL #1

JULY 2021

DEWBERRY PROJECT NO: 50140313

Dewberry Engineers Inc.
 9300 HARRIS CORNERS PKWY
 SUITE 220
 CHARLOTTE, NC 28269
 PHONE: 704.509.9918
 FAX: 704.509.9937
 NCBELS #F-0929

RADIUM REMOVAL
 TREATMENT SYSTEM
 FIELDSTONE WELL #1
 AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511

| PROJECT INFORMATION | |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------|
| LANDOWNER | AQUA NORTH CAROLINA 202 MACKENAN COURT CARY, NC 27511 PH: 919.653.6975 |
| ENGINEER AND SURVEYOR | DEWBERRY ENGINEERS INC. 9300 HARRIS CORNERS PKWY., SUITE 220 CHARLOTTE, NC 28269 PH: 704.509.9918 |
| EXISTING USE | WELL LOT |
| PROPOSED USE | WELL LOT |
| EXISTING BUILDING | 73 SF |
| PROPOSED BUILDING | 469 SF |
| SITE ZONING | CR |
| TOTAL ACREAGE | 1.12 AC |
| ACREAGE OF LAND TO BE DISTURBED/EXPOSED | 0.09 AC |
| IMPERVIOUS LIMIT % | 20% |
| EXISTING IMPERVIOUS AREA | 0.071 AC |
| EXISTING IMPERVIOUS AREA % | 6.34% |
| PROPOSED IMPERVIOUS AREA | 0.017 AC |
| PROPOSED IMPERVIOUS % | 1.51% |
| DEED BOOK AND PAGE NUMBER | DB 8740 PG 0338 |
| PARCEL NUMBER | 09-001-0002.10 |
| RIVER BASIN | YADKIN-PEEDEE |

FIELDSTONE/COLD SPRINGS WATER SYSTEM (NC 01-13-232)
 FIELDSTONE WELL NO. 1

ADDRESS
 2738 BYFIELD DRIVE
 CONCORD, NC 28205

INDEX OF DRAWINGS:

- T-01 TITLE SHEET
- G-01 APPENDIX B
- C-00 EXISTING FEATURES MAP
- C-01 EROSION AND SEDIMENT CONTROL PLAN
- C-02 SITE AND GRADING PLAN
- C-03 PILING PLAN AND SECTION
- C-04 EROSION AND SEDIMENT CONTROL DETAILS
- C-05 STANDARD DETAILS
- C-06 SURVEY MAP
- L-01 LANDSCAPE PLAN
- S-01 GENERAL STRUCTURAL NOTES AND DETAILS
- S-02 STRUCTURAL PLANS AND DETAILS
- E-0 ELECTRICAL LEGEND, ABBREVIATIONS & GENERAL NOTES
- E-1 ELECTRICAL PLANS
- E-2 ELECTRICAL SCHEDULES & SINGLE LINES
- E-3 ELECTRICAL CONDUIT & WIRE DIAGRAMS & DETAILS

ME SET ADEdge TREATMENT SYSTEM DRAWINGS (BY OTHERS)

CONSTRUCTION SEQUENCE:

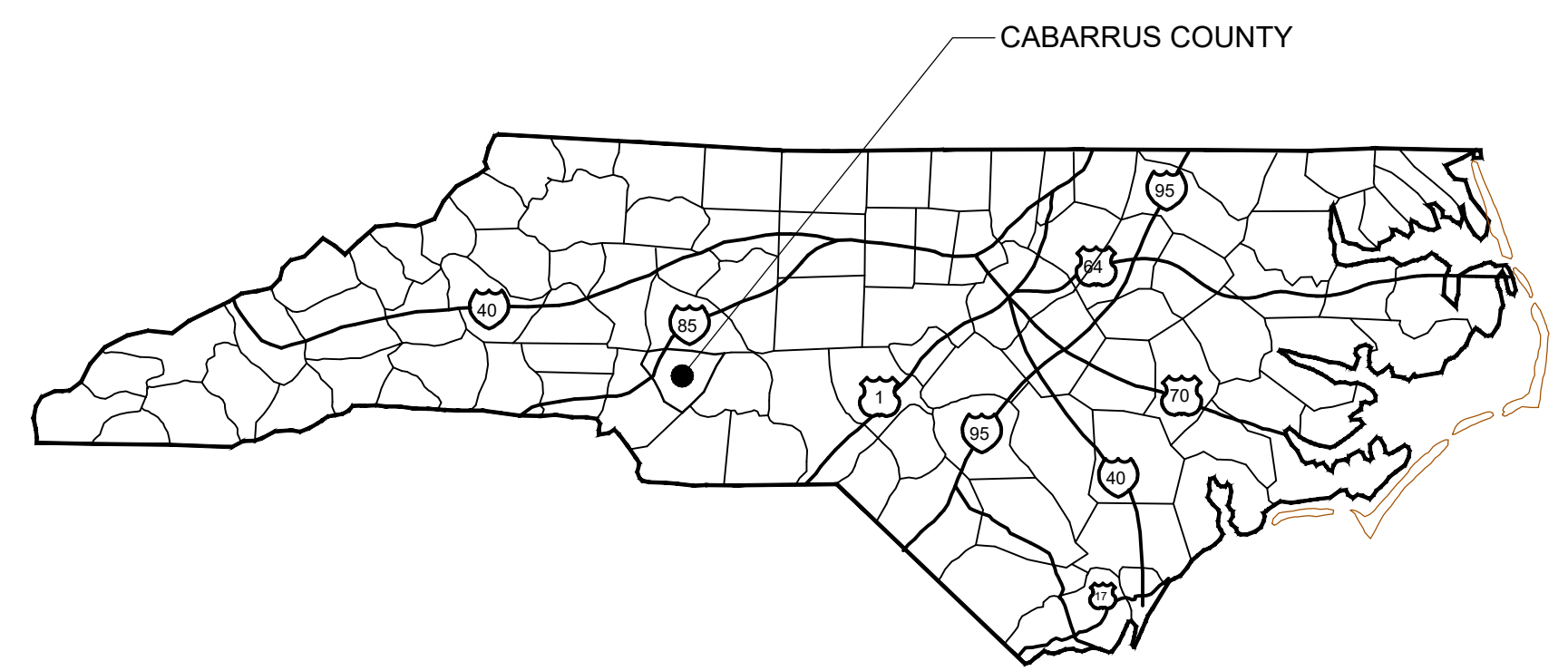
1. HOLD PRECONSTRUCTION MEETING.
2. NO WORK SHALL COMMENCE UNTIL ALL PERMITS ARE OBTAINED AND NOTICE-TO-PROCEED IS GRANTED.
3. NOTIFY NC ONE-CALL TO FIELD LOCATE UTILITIES.
4. STAKE THE PROPOSED SITE LAYOUT, MARK LIMITS OF DISTURBANCE, AND INSTALL TREE PROTECTION MEASURES AS NECESSARY.
5. PROVIDE SEDIMENT CONTROL DEVICES.
6. CONTRACTOR MAY STAGE MATERIALS WITHIN THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS.
7. WASH WHEELS AS NEEDED TO PREVENT SEDIMENT FROM ENTERING PAVED ROADS OFF-SITE.
8. WHEN CONSTRUCTION IS COMPLETE GRADE STAGING AREA BACK TO ORIGINAL CONDITION AND SEED AND STRAW.
9. REMOVE ALL EROSION CONTROL DEVICES AFTER CONSTRUCTION IS COMPLETE. VEGETATION HAS BEEN ESTABLISHED AND UPON APPROVAL FROM AQUA NORTH CAROLINA.

PRESIDENT

SHANNON BECKER

ENGINEERING MANAGER

MICHAEL MELTON

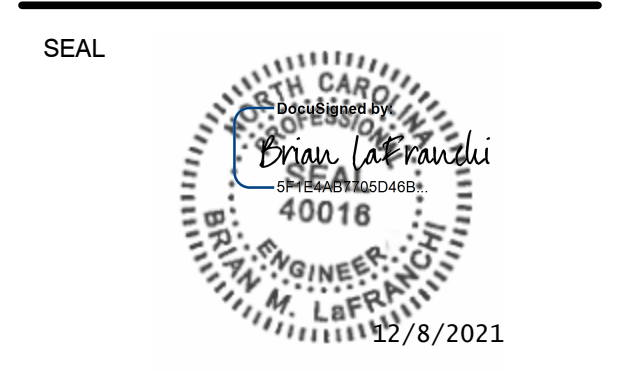


GENERAL NOTES:

1. PERFORM WORK BETWEEN THE HOURS OF 7:00 AM TO 5:00 PM.
2. PROVIDE TRAFFIC AND PEDESTRIAN CONTROL.
3. PROVIDE ALL BARRICADES, SIGNS, ETC. TO PROTECT AND SECURE CONSTRUCTION AREA, EQUIPMENT, AND MATERIALS FROM THE PUBLIC.
4. PROVIDE A COMPLETE SET OF CONTRACT DOCUMENTS AS WELL AS ALL APPROVALS AND EASEMENT PLATS ON THE JOB SITE AT ALL TIMES.
5. PROVIDE ALL LAYOUT WORK REQUIRED TO PROPERLY CONSTRUCT THE WORK.
6. PROVIDE AND TEST WATER MAINS PER AQUA NORTH CAROLINA STANDARDS.
7. ALL EXISTING UTILITIES HAVE BEEN LOCATED FROM THE INFORMATION AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY LOCATE BOTH HORIZONTALLY AND VERTICALLY ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION (ONE CALL CENTER 1-800-632-4849). COST TO REPAIR DAMAGED UTILITIES SHALL BE BORNE BY THE CONTRACTOR.
8. MAKE EVERY EFFORT TO SAVE PROPERTY IRONS, MONUMENTS, OTHER PERMANENT POINTS AND LINES OF REFERENCE AND CONSTRUCTION STAKES. PROPERTY IRONS, MONUMENTS, AND OTHER PERMANENT POINTS OF REFERENCE DAMAGED DURING WORK SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
9. REPAIR ALL DRIVEWAYS AND DRIVEWAY PIPES, PAVED OR UNPAVED CONCRETE CURB AND GUTTER AND SIDEWALKS TO EXISTING OR BETTER CONDITIONS IF DISTURBED DURING CONSTRUCTION.
10. PROVIDE MEASURES AS NECESSARY DURING CONSTRUCTION FOR SEDIMENTATION AND EROSION CONTROL.
11. PROTECT AND RELOCATE EXISTING UTILITIES (INCLUDING EXISTING WATER MAINS, PRIVATE OR PUBLIC) IF REQUIRED DURING INSTALLATION OF NEW WORK. THERE WILL BE NO ADDITIONAL OR SEPARATE PAY ITEM FOR THIS WORK.
12. RESTORE/REPLACE ALL SIGNS, MAILBOXES, LANE STRIPING, TRAFFIC CONTROL DEVICES, ETC. ENCOUNTERED.
13. RESTORE THE DISTURBED AREA TO THE EXISTING GRADE SO AS NOT TO CHANGE DRAINAGE PATTERNS OR CREATE POCKET WETLANDS OF PONDING WATER UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
14. TOTAL DISTURBED AREA IS 0.09 ACRES.

TOPOGRAPHIC SURVEY NOTES:

1. THE TOPOGRAPHIC SURVEY IS BASED ON SURVEY PERFORMED BY DEWBERRY ENGINEERS INC. ON JUNE 1, 2021.
2. NORTH ARROW IS GRID NORTH AND ALL DISTANCES ARE GROUND DISTANCES.
3. LOCATIONS OF UTILITIES SHOWN ON THIS SURVEY WERE DETERMINED BY OBSERVED EVIDENCE, LOCATION OF ABOVE GROUND UTILITY APPURTENANCES, AND UTILITY MARKINGS (PAINT, ETC.) PROVIDED BY AQUA NC AND NC 811. THESE MARKINGS WERE OBSERVED DURING THE COURSE OF THIS SURVEY, WERE FIELD LOCATED, ARE SHOWN FOR INFORMATIONAL PURPOSES, AND SHOULD BE FIELD VERIFIED IF CRITICAL. UNDERGROUND UTILITIES NOT SHOWN, MAY EXIST.



SCALE

| No. | DATE | BY | Description |
|-----|----------|-----|-----------------|
| 2 | 12/08/21 | PMW | AGENCY COMMENTS |
| 1 | 11/08/21 | PMW | SUP |

DRAWN BY ZKM

APPROVED BY BML

CHECKED BY TMM

DATE JULY 28, 2021

TITLE SHEET

PROJECT NO. 50140313

T-01

2018 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2 - FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project: RADIUM REMOVAL SYSTEM - FIELDSTONE/COLD SPRINGS WELL #1
Address: 5309 HISTORIC SPRING DRIVE, CONCORD, NC 28205
Owner/Authorized Agent: AQUA NORTH CAROLINA Phone (919) 653-6975 Email MAMELTON@AQUAAMERICA.COM

CONTACT: DESIGNER FIRM NAME LICENSE # TELEPHONE # EMAIL
Architectural DEWBERRY ENGINEERS INC. BRIAN M. LAFRANCHI 040016 (704) 690-8860 BLA@DEWBERRY.COM
Electrical DEWBERRY ENGINEERS INC. BRANDON D. WHELAN 033810 (704) 631-5207 BWHELAN@DEWBERRY.COM

2018 NC BUILDING CODE: [X] New Construction [] Addition [] Renovation
[] 1st Time Interior Completion [] Shell/Core [] Phased Construction - Shell/Core

2018 NC EXISTING BUILDING CODE: [] Prescriptive [] Repair [] Chapter 14
Alteration: [] Level 1 [] Level II [] Change of Use

CONSTRUCTED: (date) - CURRENT OCCUPANCY(S) Ch. 3: -
RENOVATED: (date) - PROPOSED OCCUPANCY(S) Ch. 3: -
RISK CATEGORY (Table 1604.5): Current: [] I [] II [] III [] IV Proposed: [] I [] II [] III [] IV

BASIC BUILDING DATA: Construction Type: [] I-A [] II-A [] III-A [] IV [] V-A
[] I-B [] II-B [] III-B [] V-B
Sprinklers: [X] No [] Partial [] Yes [] NFPA 13 [] NFPA 13R [] NFPA 13D
Standpipes: [X] No [] Yes Class [] I [] II [] III [] Wet [] Dry
Fire District: [] No [] Yes (Primary) Flood Hazard Area: [X] No [] Yes
Special Inspections Required: [X] No [] Yes

GROSS BUILDING AREA TABLE: FLOOR EXISTING (SQ. FT.) NEW (SQ. FT.) RENO/ALTER (SQ. FT.) SUB-TOTAL (SQ. FT.)
9th Floor 0 0 0 0
8th Floor 0 0 0 0
7th Floor 0 0 0 0
6th Floor 0 0 0 0
5th Floor 0 0 0 0
4th Floor 0 0 0 0
3rd Floor 0 0 0 0
2nd Floor 0 0 0 0
1st Floor 175 287 0 462
Basement 0 0 0 0
TOTAL 175 287 0 462

ALLOWABLE AREA: Primary Occupancy Classification(s):
Assembly [] A-1 [] A-2 [] A-3 [] A-4 [] A-5 []
Business []
Educational []
Factory [] F-1 Moderate [X] F-2 Low
Hazardous [] H-1 Detonate [] H-2 Deflagrate [] H-3 Combust [] H-4 Health [] H-5 HPM
Institutional [] I-1 Condition [] 1 [] 2
[] I-2 Condition [] 1 [] 2
[] I-3 Condition [] 1 [] 2 [] 3 [] 4 [] 5
[] I-4
Mercantile []
Residential [] R-1 [] R-2 [] R-3 [] R-4
Storage [] S-1 Moderate [] S-2 Low [] High-piled
[] Parking Garage [] Open [] Enclosed [] Repair Garage
Utility and Miscellaneous []

Accessory Occupancy Classification(s): -
Incidental Uses (Table 509): -
Special Uses (Chapter 4 - List Code Sections): -
Special Provisions (Chapter 5 - List Code Sections): -
Mixed Occupancy: [X] No [] Yes Separation: - HR. Exception: -

[] Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
[] Separated Use (508.4)
See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

Actual area of Occupancy A + Actual area of Occupancy B
Allowable area of Occupancy A Allowable area of Occupancy B <= 1

STORY # DESCRIPTION AND USE (A) BLDG AREA PER STORY (ACTUAL) (B) TABLE 506.4 AREA (C) AREA FOR FRONTAGE INCREASE (D) ALLOWABLE AREA PER STORY OR UNLIMITED
1 - - - -
1 - - - -

- 1. Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having a min. width = (F)
b. Total Building Perimeter = (P)
c. Ratio (F/P) = (F/P)
d. W = Minimum width of public way = (W)
e. Percent of frontage increase If = 100[F/P - 0.25] x W/30 = (%)
2. Unlimited area applicable under conditions of Sections 507.
3. Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2)
4. The maximum area of parking garages must comply with 406.5.4. The maximum area of traffic control towers must comply with 412.3.1.
5. Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT: Building Height in Feet (Table 504.3) -
Building Height in Stories (Table 504.4) -
1. Provide code reference if the "Show-off Plans" quantity is not listed in Table 504.3 or 504.4
2. The maximum height of traffic control towers must comply with 412.3.1
3. The maximum height of open parking garages must comply with Table 406.5.4

FIRE PROTECTION REQUIREMENTS: BUILDING ELEMENT FIRE SEPARATION DISTANCE (FEET) RATING REQUIRED PROVIDED (w/REDUCTION) DETAIL # AND SHEET # DESIGN # FOR RATED ASSEMBLY SHEET # FOR RATED PENETRATION SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses - - - - -
Bearing Walls - - - - -
Exterior - - - - -
North - - - - -
East - - - - -
West - - - - -
South - - - - -
Interior - - - - -
Non-Bearing Walls and Partitions - - - - -
Exterior - - - - -
North - - - - -
East - - - - -
West - - - - -
South - - - - -
Interior walls and partitions - - - - -
Floor Construction - - - - -
Including supporting beams and joists - - - - -
Floor Ceiling Assembly - - - - -
Columns Supporting Floors - - - - -
Roof Construction - - - - -
Including supporting beams and joists - - - - -
Roof Ceiling Assembly - - - - -
Columns Supporting Roof - - - - -
Shaft Enclosures - Lift - - - - -
Shaft Enclosures - Other - - - - -
Corridor Separation - - - - -
Occupancy/Vestibule Separation - - - - -
Partitions Wall Separation - - - - -
Smoke Barrier Separation - - - - -
Smoke Partition - - - - -
Tenant/Dwelling Unit/Sleeping Unit Separation - - - - -
Incidental Use Separation - - - - -
* Indicate section number permitting reduction

Percentage of Wall Opening Calculations: Fire Separation Distance (Feet) From Property Lines Degree of Openings Protection (Table 705.8) Allowable Area (%) Actual Shown on Plans (%)

LIFE SAFETY SYSTEM: Emergency Lighting: [X] NO [] YES
Exit Signs: [X] NO [] YES
Fire Alarm: [X] NO [] YES
Smoke Detection Systems: [X] NO [] YES [] PARTIAL -
Carbon Monoxide Detection: [X] NO [] YES

LIFE SAFETY PLAN REQUIREMENTS: Life Safety Plan Sheet #: -
[] Fire and/or smoke rated wall locations (Chapter 7)
[] Assumed and real property line locations (if not on the site plan)
[] Exterior wall openings area with respect to distance to assumed property lines (705.8)
[] Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.2)
[] Occupant loads for each area
[] Exit access travel distances (1017)
[] Common path of travel distances (1006.2.1 & 1006.3.2(1))
[] Dead end lengths (1020.4)
[] Clear exit widths for each exit door
[] Maximum calculated occupant load capacity for each exit door based on egress width (1005.3)
[] Actual occupant load for each exit door
[] A separate schematic plan indicating where fire rated floor, ceiling and/or roof structure is provided for purposes of occupancy separation
[] Location of doors with panic hardware (1010.1.10)
[] Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
[] Location of doors with electromagnetic egress locks (1010.1.9.9)
[] Location of doors equipped with hold-open devices
[] Location of emergency escape windows (1030)
[] The square footage of each fire area (202)
[] The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
[] Note any code exception or table notes that may have been utilized regarding the items above

Section/Tab/Note Title
- - - -
- - - -
- - - -

ACCESSIBLE DWELLING UNITS (SECTION 1107): TOTAL UNITS ACCESSIBLE UNITS REQUIRED ACCESSIBLE UNITS PROVIDED TYPE A UNITS PROVIDED TYPE B UNITS PROVIDED TYPE B UNITS REQUIRED TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING (SECTION 1106): LOT OR PARKING AREA TOTAL # OF ACCESSIBLE SPACES PROVIDED # OF ACCESSIBLE SPACES PROVIDED REQUIRED PROVIDED REGULAR WITH 8' ACCESS AISLE VAN SPACES WITH 8' ACCESS AISLE TOTAL # OF ACCESSIBLE SPACES PROVIDED

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1): USE WATERCLOSETS URINALS LAVATORIES SHOWERS/TUBS DRINKING FOUNTAINS SPACE EXISTING NEW REQUIRED MALE FEMALE UNSIX MALE FEMALE UNSIX REGULAR ACCESSIBLE

SPECIAL APPROVALS: Special approval: (Local Jurisdiction, Department of Insurance, SCO, DPI, DHHS, ICC, etc., described below)

ENERGY SUMMARY: ENERGY REQUIREMENTS: The following data shall be considered minimum and any special attribute required to meet the North Carolina Energy Conservation Code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing Building Envelope Complies with Code: [] No [X] Yes (The remainder of this section is not applicable)
Exempt Building: [] No [] Yes (Provide Code or Statutory reference)
Climate Zone: [] 3A [] 4A [] 5A
Method of Compliance: Energy Code [] Performance [] Prescriptive
ASHRAE 90.1 [] Performance [] Prescriptive
(if "Other" specify source here) -

THERMAL ENVELOPE (Prescriptive Method Only): Roof/Ceiling Assembly (each assembly) Description of assembly U-Value of total assembly R-Value of insulation Skylights in each assembly U-Value of skylight Total square footage of skylights in each assembly -
Exterior Walls (each assembly) Description of assembly U-Value of total assembly R-Value of insulation Openings (windows or doors with glazing) U-Value of assembly Solar heat gain coefficient Projection factor Door R-Values -
Walls below grade (each assembly) Description of assembly U-Value of total assembly R-Value of insulation -
Floors over unconditioned space (each assembly) Description of assembly U-Value of total assembly R-Value of insulation -
Floors slab on grade Description of assembly U-Value of total assembly R-Value of insulation Horizontal/vertical requirement Slab heated -

STRUCTURAL DESIGN (PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE): DESIGN LOADS: Importance Factors: (ASCE 7-10) Snow (ls): 1.0 Seismic (le): 1.0
Live Loads: Roof: 20 psf Mezzanine: psf Floor: 300 psf
Ground Snow Load: 15 psf
Wind Load: Ultimate wind speed 115 mph (ASCE-7) Exposure category C

SEISMIC DESIGN CATEGORY: Provide the following Seismic Design Parameters: Building Risk Category (Table 1604.5) Spectral Response Acceleration: Ss= 14.7 %g S1= 7.4 %g
Site Classification (ASCE 7): [] A [] B [] C [X] D [] E [] F
Data Source: [] Field Test [X] Presumptive [] Historical Data
Basic structural system (check one): [X] Bearing wall [] Dual with Special Moment Frame [] Building frame [] Dual with Intermediate R/C or Special Steel [] Moment frame [] Inverted Pendulum
Analysis Procedure: [] Simplified [X] Equivalent Lateral Force [] Dynamic
Architectural, Mechanical, Components Anchored? [X] Yes [] No
Lateral Design Control: Earthquake [] Wind [X]
Soil Bearing Capacities: Field Test (provide copy of test report) - psf Presumptive Bearing Capacity 2,000 psf File size, type and capacity -

MECHANICAL DESIGN (PROVIDE ON THE MECHANICAL SHEET IF APPLICABLE): MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT: Thermal Zone 4A Winter Dry Bulb 16.3F Summer Dry Bulb 93.7F
Interior Design Conditions Winter Dry Bulb 40F Summer Dry Bulb N/A NOT CONTROLLED Relative Humidity <90%
Building Heating Load 9MBH
Building Cooling Load N/A
Mechanical Spacing Conditioning System Unitary Description of Unit DEHUMIDIFIER, ENERGY FACTOR = 2 L/KWH Heating Efficiency ELECTRICAL HEAT, 100% 3.3 KW Cooling Efficiency N/A Size Category of Unit 50 PINTS/24 HR
Boiler Size category. If Oversized, State Reason N/A
Chiller Size category. If Oversized, State Reason N/A
List Equipment Efficiencies N/A

ELECTRICAL SUMMARY (PROVIDE ON THE ELECTRICAL SHEET IF APPLICABLE): ELECTRICAL SYSTEMS AND EQUIPMENT: METHOD OF COMPLIANCE: Energy Code: [X] Prescriptive [] Performance ASHRAE 90.1: [] Prescriptive [] Performance
Lighting Schedule (each fixture type) Lamp Type Required in Fixture LED Number of Lamps in Fixture N/A Ballast Type Used in Fixture N/A Number of Ballasts in Fixture N/A Total Wattage Per Fixture 31 Total Interior Wattage Specified vs. Allowed (whole building or space by space) 62 VS. 273 Total Exterior Wattage Specified vs. Allowed N/A
Additional Efficiency Package Options (When using the 2018 NEC, not required for ASHRAE 90.1) [] C406.2 More Efficient Mechanical Equipment [] C406.3 Reduced Lighting Power Density [] C406.4 Enhanced Digital Lighting Controls [] C406.5 On-site Renewable Energy [] C406.5 Dedicated Outdoor Air System [] C406.7 Reduced Energy Use in Service Water Heating



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RADIUM REMOVAL TREATMENT SYSTEM FIELDSTONE WELL #1 AQUA NORTH CAROLINA 202 MACKENAN DR CARY, NC 27511



SCALE

REVISIONS: No. DATE BY Description

DRAWN BY: ZKM
APPROVED BY: BML
CHECKED BY: TMM
DATE: JULY 28, 2021

TITLE

APPENDIX B

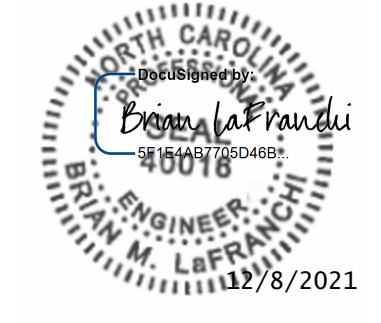
PROJECT NO. 50140313

G-01

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**RADIUM REMOVAL
TREATMENT SYSTEM
FIELDSTONE WELL #1**
AQUA NORTH CAROLINA
202 MACKENAN DR
CARY, NC 27511

SEAL



SCALE 1" = 50'



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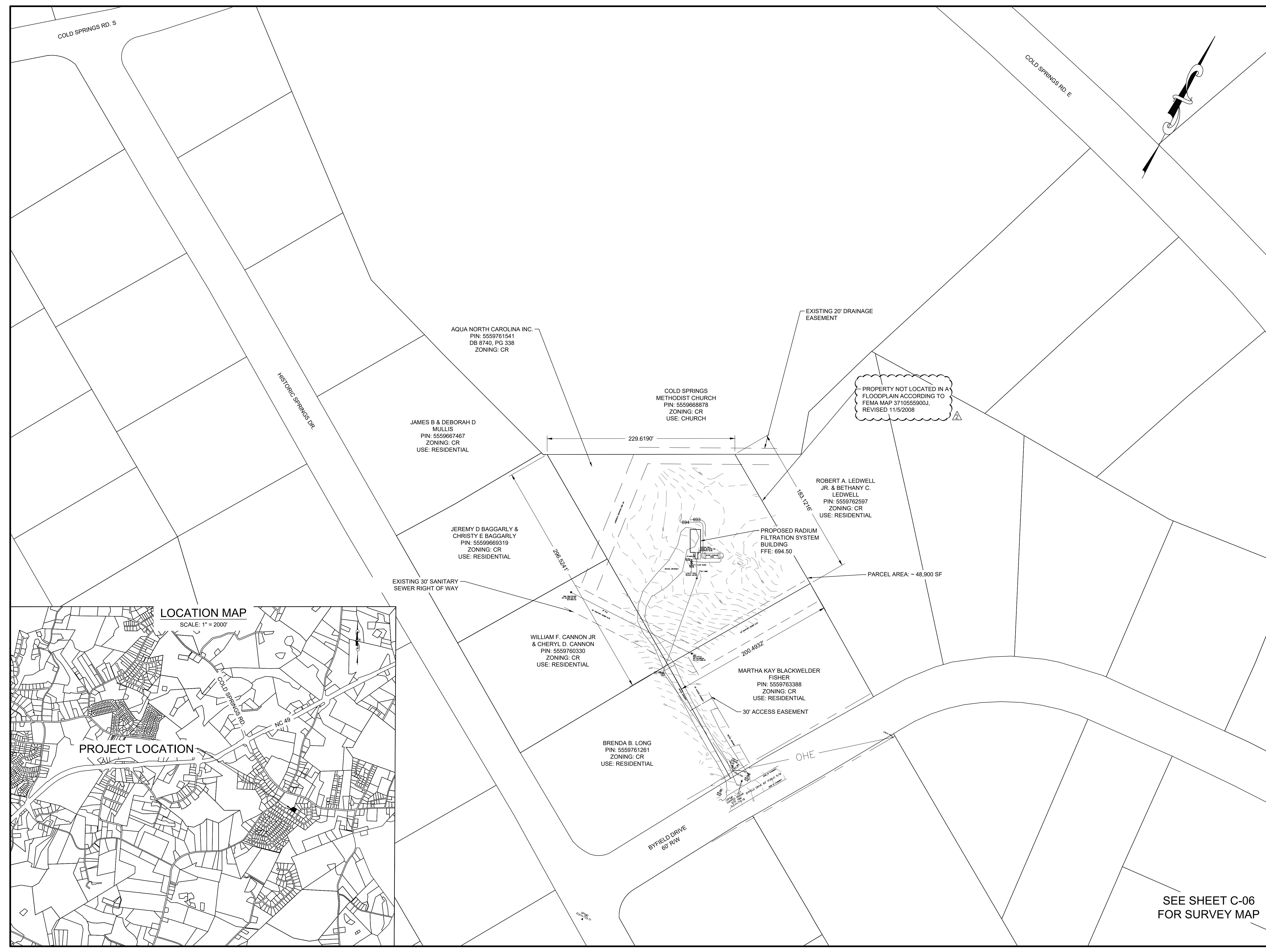
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DATE: JULY 28, 2021

TITLE

**EXISTING
FEATURES
MAP**

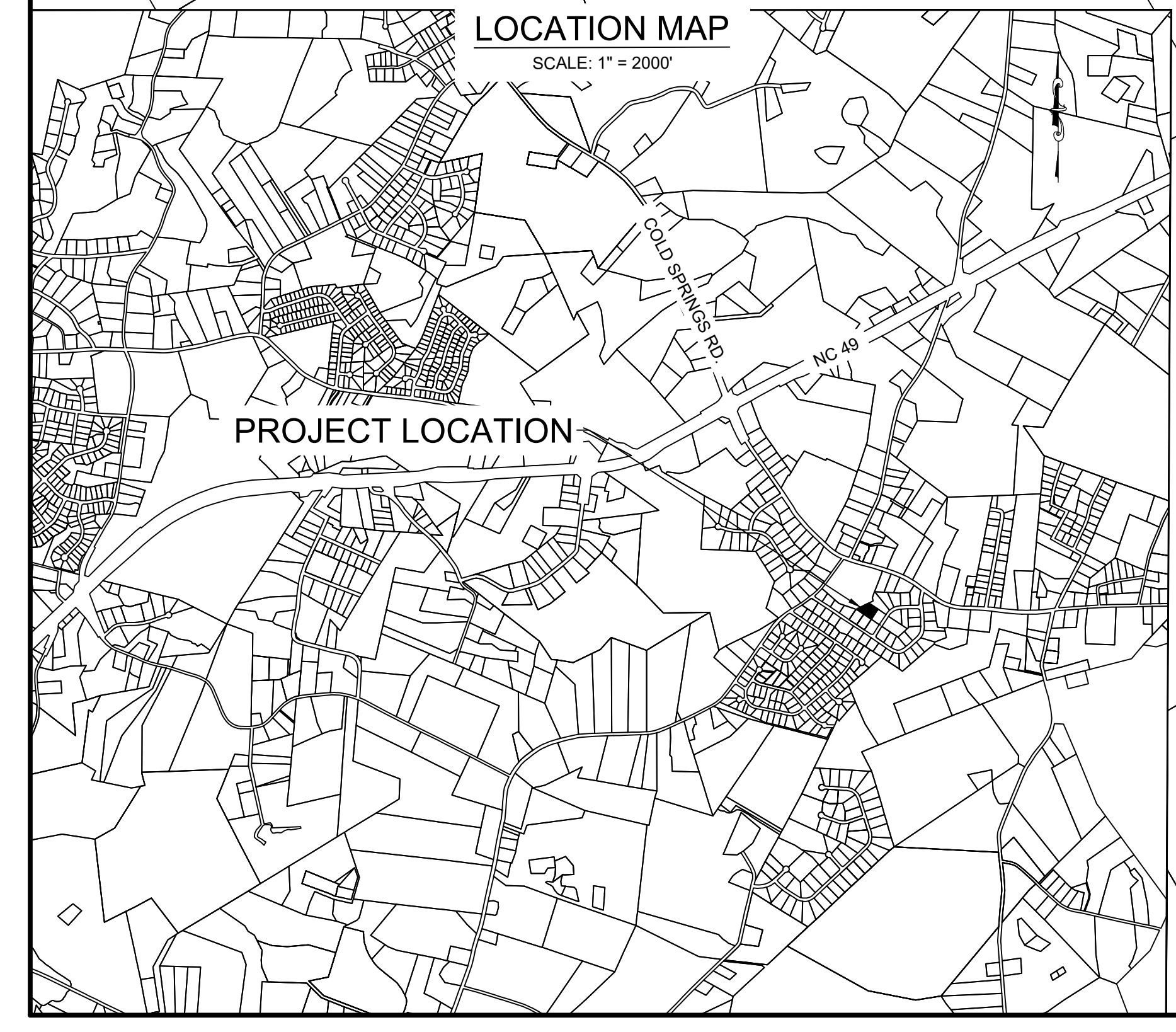
PROJECT NO. 50140313

C-00

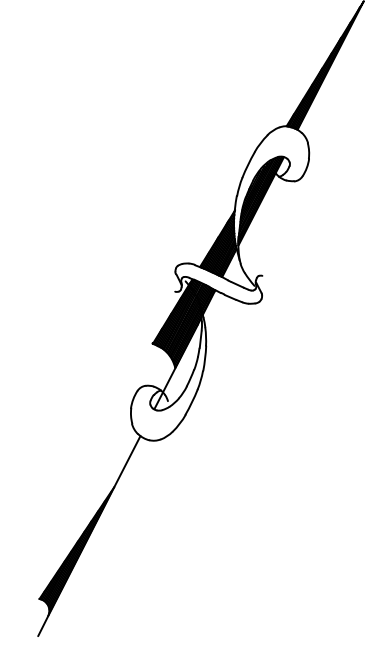


PROPERTY NOT LOCATED IN A FLOODPLAIN ACCORDING TO FEMA MAP 3710555900J, REVISED 11/5/2008

LOCATION MAP
SCALE: 1" = 2000'



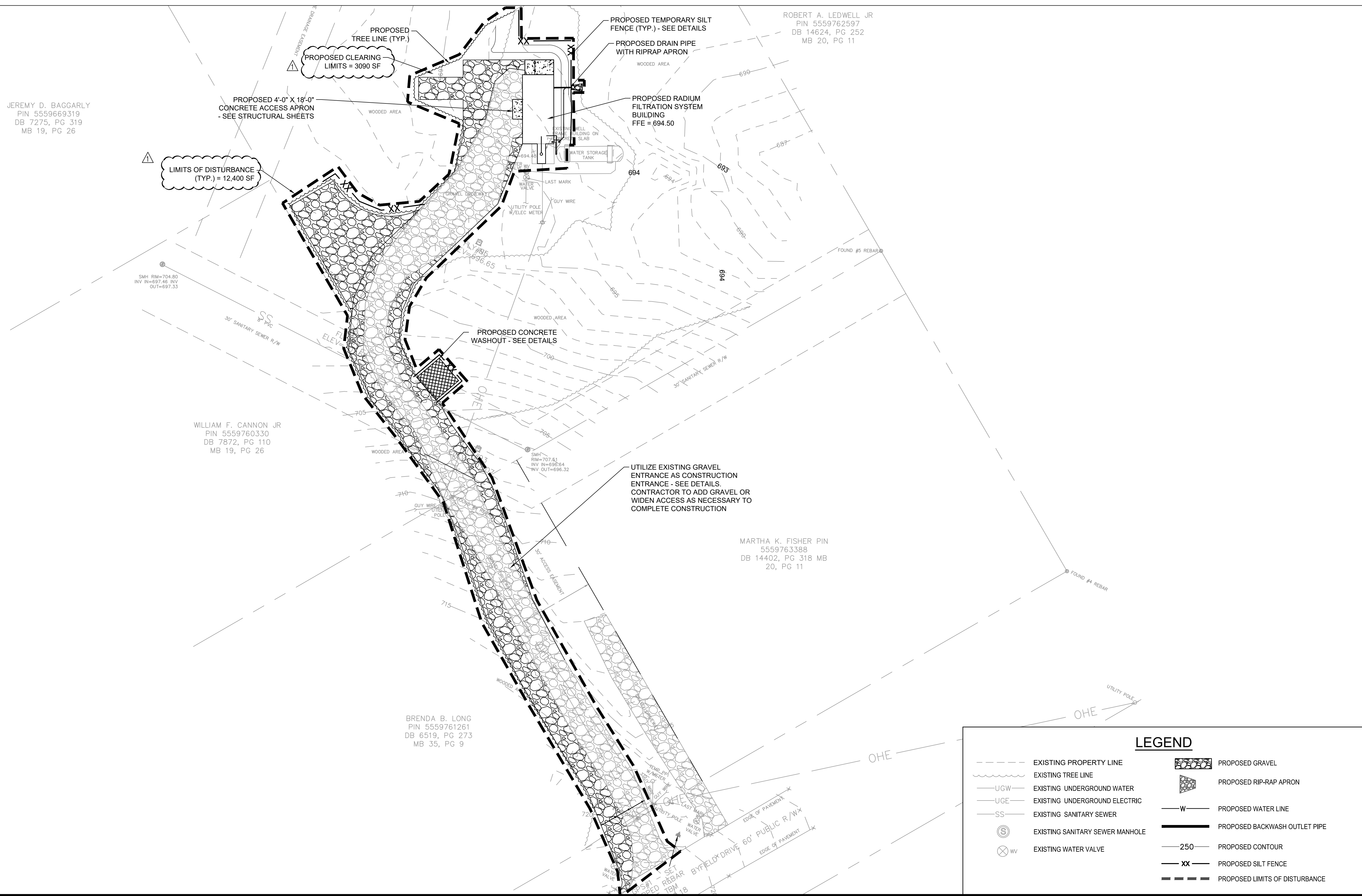
SEE SHEET C-06
FOR SURVEY MAP



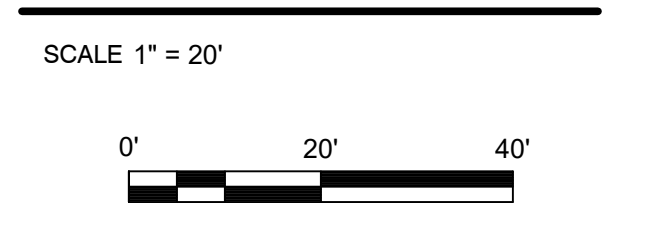
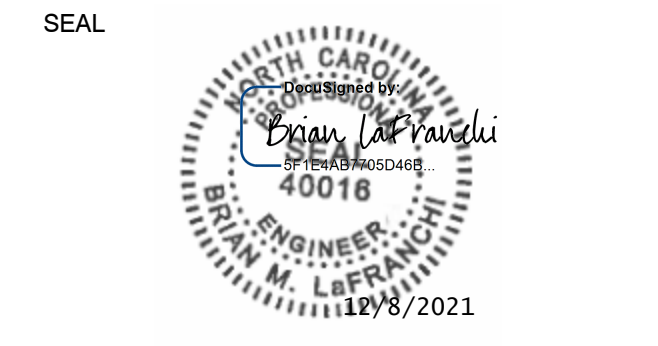
- GENERAL NOTES**
1. BASE DATA FROM SURVEY PROVIDED BY DEWBERRY ENGINEERS INC. ON JUNE 1, 2021.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL ILLUSTRATED KNOWN UNDERGROUND ELEMENTS. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXERCISING REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. THE CONTRACTOR SHALL NOTIFY THE OWNER AND DESIGNER OF RECORD IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE ILLUSTRATED DESIGN.
 3. PROTECT ALL ADJACENT PROPERTIES, THE GENERAL PUBLIC, AND ALL OF THE OWNER'S FACILITIES. SHOULD DAMAGES OCCUR, CONTRACTOR SHALL REPAIR IMMEDIATELY AS DIRECTED BY THE OWNER OR DESIGNER OF RECORD. REPAIRS SHALL BE MADE AT NO COST TO THE OWNER.
 4. CONTRACTOR SHALL HOLD HARMLESS THE OWNER AND THE DESIGNER OF RECORD FOR DAMAGES, INJURIES OR OTHER ACCIDENTS WHICH OCCUR DURING THESE CONSTRUCTION ACTIVITIES.
 5. TREES AND EXISTING LANDSCAPING NOT DESIGNATED FOR REMOVAL SHALL BE PROTECTED DURING CONSTRUCTION.
 6. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGES DURING CONSTRUCTION INCLUDING DAMAGES TO OTHER CONTRACTORS & CONSULTANTS WORK AND SHALL MAKE REPAIRS OR HAVE REPAIRS MADE BY OTHERS AT THEIR EXPENSE.
 7. UTILIZE SIGNS, BARRICADES, ETC. TO ENSURE THE SAFETY OF THE GENERAL PUBLIC.
 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LAYOUT OF ALL WORK AS ILLUSTRATED ON PLANS. IF EXISTING CONDITIONS DIFFER FROM THOSE ILLUSTRATED ON PLANS, NOTIFY DESIGNER OF RECORD AND OWNER PRIOR TO CONSTRUCTION.
 9. VERIFY ALL DIMENSIONS AND GRADES AT THE JOB SITE. IF DIFFERENCES ARE FOUND, NOTIFY DESIGNER OF RECORD SO THAT MODIFICATIONS TO THESE DRAWINGS CAN BE MADE.
 10. ANY LAND DISTURBANCE ACTIVITY >1 ACRE REQUIRES COMPLIANCE WITH ALL CONDITIONS OF THE GENERAL PERMIT TO DISCHARGE STORMWATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (PERMIT NO. NC6010000). ANY PERMIT NONCOMPLIANCE IS A VIOLATION OF THE CLEAN WATER ACT AND MAY REQUIRE ENFORCEMENT ACTION BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY. (FOR QUESTIONS CONTACT MOORESVILLE REGIONAL OFFICE WATER QUALITY STAFF AT 704-663-1699).
 11. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS PRIOR TO ANY CONSTRUCTION ACTIVITY.

- EROSION AND SEDIMENT CONTROL NOTES**
1. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE CABARRUS COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
 2. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE CABARRUS COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
 3. ALL PERIMETER AREAS AND SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITHIN 7 DAYS. GROUND STABILIZATION ON ALL OTHER AREAS MUST BE COMPLETED WITHIN 14 DAYS. REFER TO THE EROSION CONTROL ORDINANCE FOR ADDITIONAL REQUIREMENTS.
 4. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY THE CABARRUS COUNTY EROSION CONTROL INSPECTOR.
 5. DEWATERING TO BE AUTHORIZED BY THE EROSION CONTROL INSPECTOR AS RELATED TO SITE CONDITIONS. CONTRACTOR SHALL OBTAIN EROSION CONTROL INSPECTOR AUTHORIZATION PRIOR TO DEWATERING ACTIVITIES.
 6. ALL EMBANKMENTS MUST BE CONSTRUCTED PER SECTION 4.0.6 EMBANKMENT REQUIREMENTS IN THE BMP DESIGN MANUAL.
 7. ALL LAND-DISTURBING ACTIVITIES, INCLUDING THOSE THAT DISTURB LESS THAN AN ACRE, SHALL PROVIDE ADEQUATE EROSION CONTROL MEASURES, STRUCTURES, OR DEVICES IN ACCORDANCE WITH THE CABARRUS COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
 8. A GROUND COVER SUFFICIENT TO RESTRAIN ACCELERATED EROSION MUST BE PROVIDED WITHIN 7 CALENDAR DAYS OF THE DATE OF LAST LAND-DISTURBING ACTIVITY ON ANY PORTION OF THE PROJECT.

- GRADING NOTES**
1. TOPOGRAPHIC INFORMATION SHOWN WITHIN PROJECT LIMITS TAKEN FROM SURVEY PROVIDED BY DEWBERRY ENGINEERS INC. ON JUNE 1, 2021.
 2. CONTRACTOR IS RESPONSIBLE AT CONTRACTOR'S EXPENSE FOR ENSURING AND OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION. THESE PERMITS MAY INCLUDE, BUT NOT LIMITED TO, GRADING, DEMOLITION, BLASTING, ZONING, BUILDING, DRIVEWAY, DETENTION, SUBDIVISION SPECIAL USE, WATER AND SEWER PERMITS AND APPROVALS.
 3. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR CONTACTING ALL APPROPRIATE UTILITIES AND ENSURING THAT UTILITIES ARE LOCATED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACCORDING TO NC STATE LAW. CONTRACTOR SHALL VERIFY LOCATION AND DEPTHS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 4. WHEN UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE CONSTRUCTION DRAWINGS/ROCK, PIPING, ETC.) ARE ENCOUNTERED, THE CONTRACTOR SHALL PROMPTLY REPORT THE CONFLICT TO THE OWNER'S REPRESENTATIVE AND ENGINEER OF RECORD. ALL CHANGES MUST BE APPROVED IN WRITING BY THE OWNER OR HIS REPRESENTATIVE BEFORE CONSTRUCTION CAN PROCEED.
 5. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF ANY UTILITIES DAMAGED DURING CONSTRUCTION.
 6. CUT AND FILL SLOPES OF ANY AREA SHALL NOT EXCEED THE RATIO OF 3:1, UNLESS NOTED OTHERWISE. FILL SLOPES GREATER THAN EIGHT (8) VERTICAL FEET SHALL HAVE PERMANENT SEED/SLOPE MATTING INSTALLED.
 7. FILL EMBANKMENTS SHALL BE FORMED OF SUITABLE MATERIAL PLACED IN SUCCESSIVE LAYERS NOT TO EXCEED MORE THAN SIX (6) INCHES IN DEPTH FOR THE FULL WIDTH OF THE CROSS-SECTION INCLUDING THE WIDTH OF THE SLOPE AREA. NO STUMPS, TREES, BRUSH, RUBBISH, OR OTHER UNSUITABLE MATERIALS OR SUBSTANCES SHALL BE PLACED IN THE EMBANKMENT. EACH SUCCESSIVE SIX (6) INCH LAYER SHALL BE THOROUGHLY COMPACTED BY THE SHEEPS-FOOT TAMPING ROLLER, 10-TON POWER ROLLER, PNEUMATIC-TIRED ROLLER, OR OTHER METHODS APPROVED BY THE ENGINEER. EMBANKMENTS OVER AND AROUND ALL PIPE CULVERT SHALL BE OF SELECT MATERIAL, PLACED AND THOROUGHLY TAMPED AND COMPACTED AS DIRECTED BY THE ENGINEER.
 8. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATIVE MATTER, WASTE, CONSTRUCTION MATERIAL, AND OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND THE MATERIAL SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
 9. ALL PROPOSED GRADES SHOWN ON THESE PLANS ARE FINAL GRADES. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SUB-GRADE ELEVATIONS.
 10. CONTRACTOR SHALL VERIFY POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
 11. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE PLANS TO THE DESIGNER OF RECORD IMMEDIATELY.
 12. THE DESIGN OF ALL ROADS, SANITARY SEWAGE, STORM DRAINAGE PIPING AND DITCHES, AND WATER QUALITY DETENTION FEATURES PRESENTED HEREIN HAS BEEN COMPLETED FROM FIELD SURVEY INFORMATION.



RADIUM REMOVAL TREATMENT SYSTEM FIELDSTONE WELL #1
AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



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DRAWN BY ZKM

APPROVED BY BML

CHECKED BY TMM

DATE JULY 28, 2021

TITLE

EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO. 50140313

C-01

LEGEND

| | | | |
|-----|---------------------------------|-----|--------------------------------|
| --- | EXISTING PROPERTY LINE | | PROPOSED GRAVEL |
| --- | EXISTING TREE LINE | | PROPOSED RIP-RAP APRON |
| --- | EXISTING UNDERGROUND WATER | --- | PROPOSED WATER LINE |
| --- | EXISTING UNDERGROUND ELECTRIC | --- | PROPOSED BACKWASH OUTLET PIPE |
| --- | EXISTING SANITARY SEWER | --- | PROPOSED CONTOUR |
| ⊙ | EXISTING SANITARY SEWER MANHOLE | --- | PROPOSED SILT FENCE |
| ⊗ | EXISTING WATER VALVE | --- | PROPOSED LIMITS OF DISTURBANCE |

AQUA PROPERTY IMPERVIOUS AREA TABULATION

EXISTING IMPERVIOUS AREA = ±3094 SF
 -STRUCTURES: 233 SF
 -GRAVEL PATH: 2861 SF

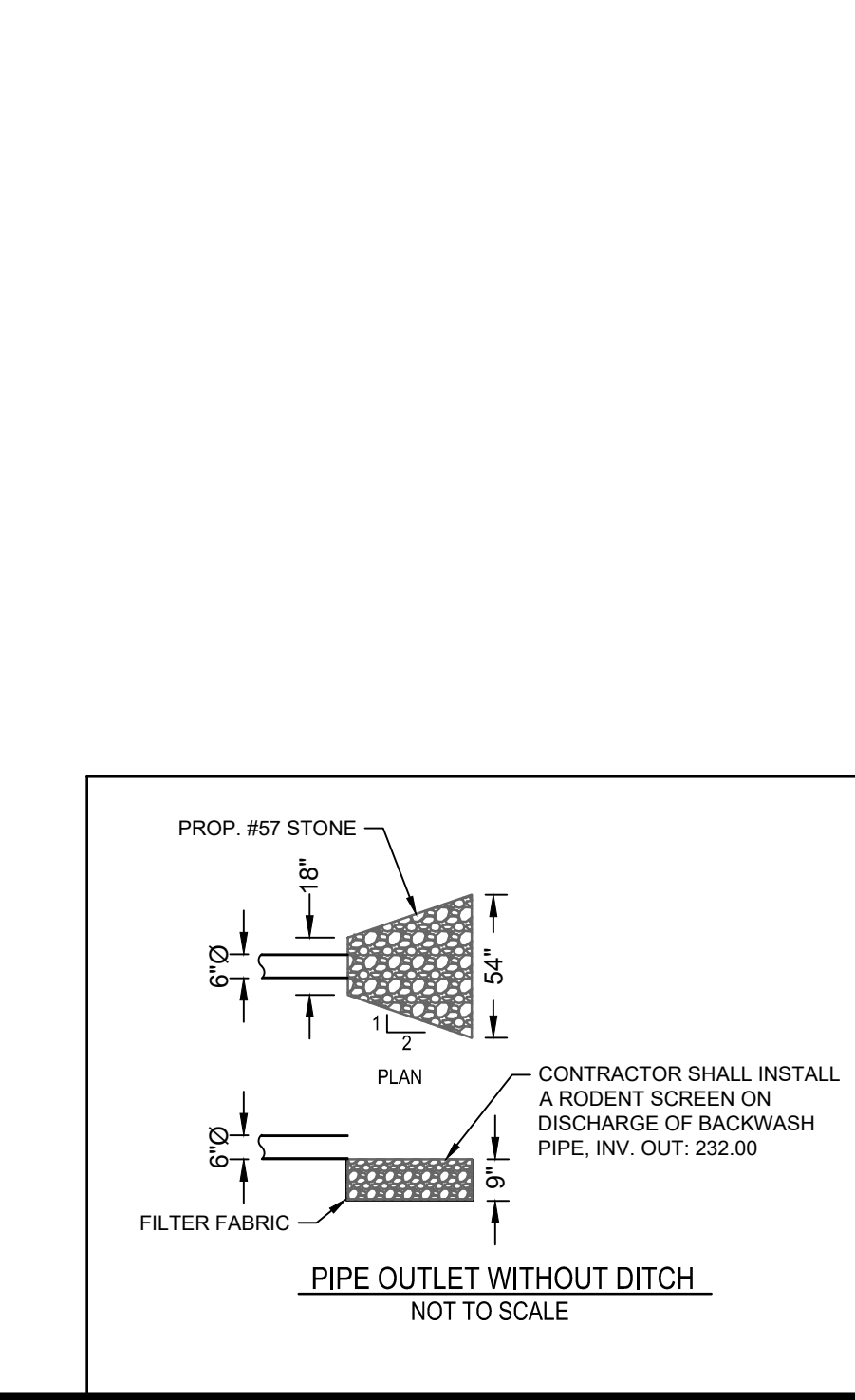
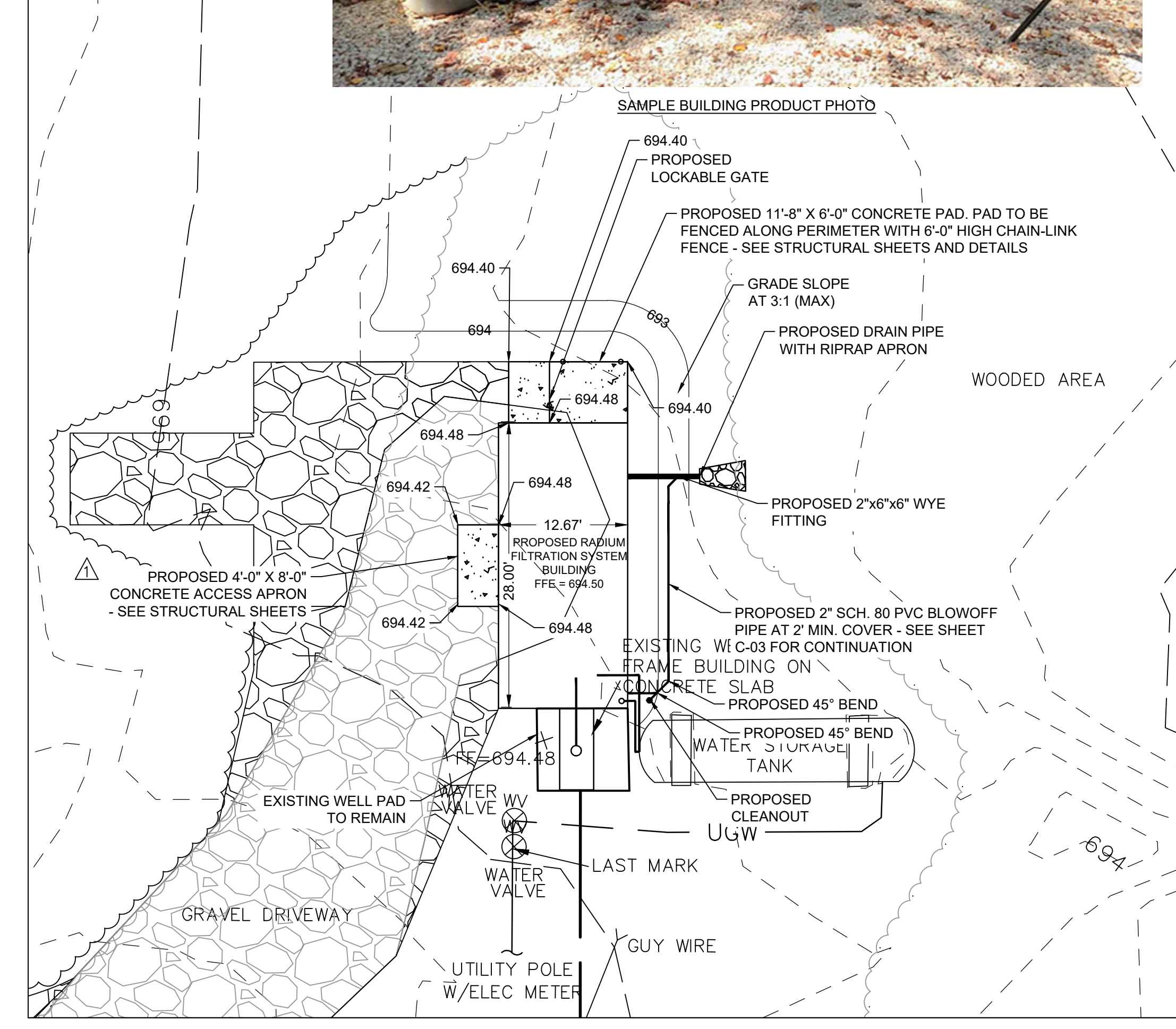
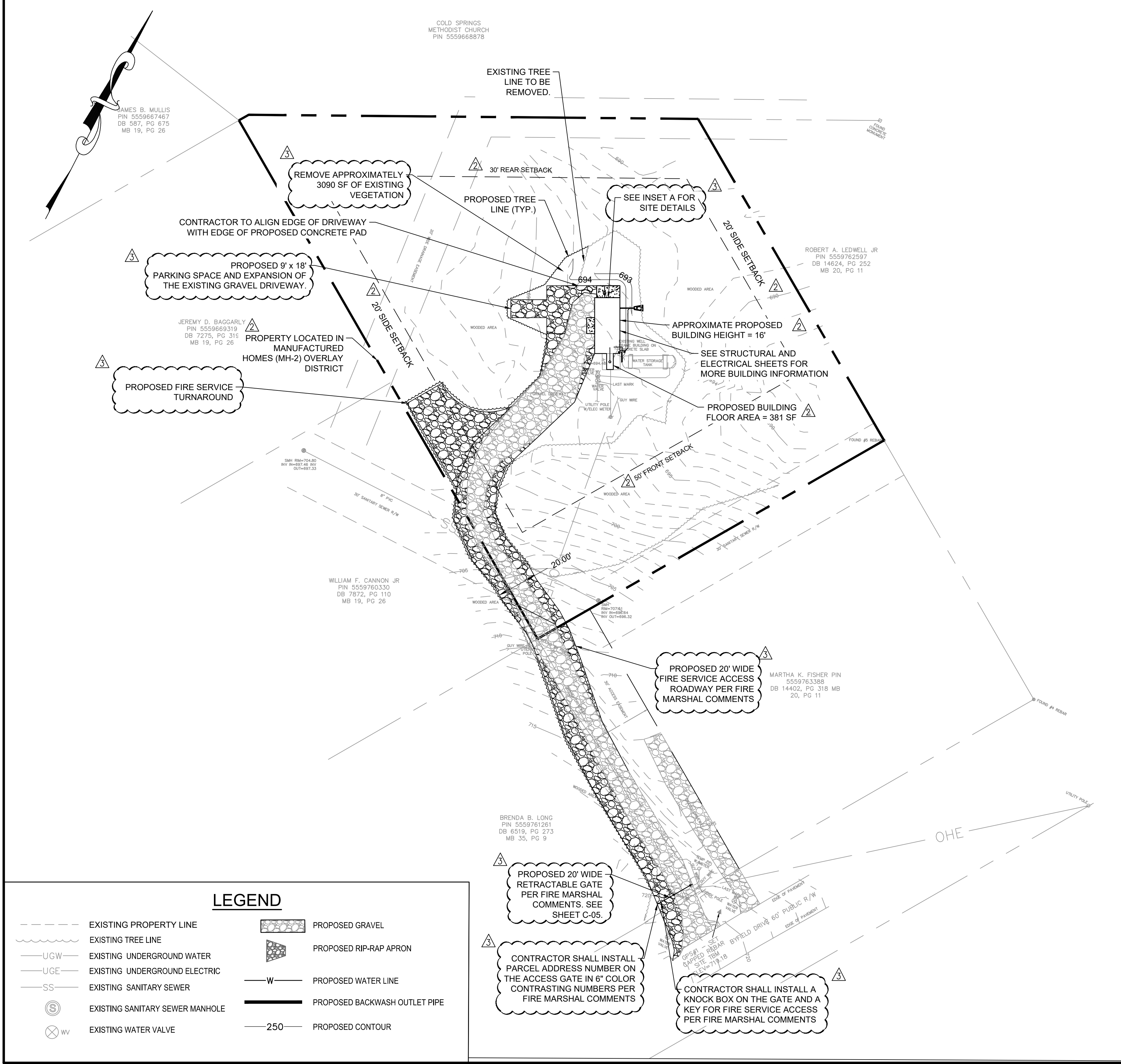
PROPOSED IMPERVIOUS AREA = ±4657 SF
 -STRUCTURE: 355 SF
 -CONCRETE PADS: 102 SF
 -GRAVEL PATH: 4200 SF
 -REPLACING 195 SF OF EXISTING GRAVEL WITH THE PROPOSED BUILDING

TOTAL IMPERVIOUS AREA = ±7751 SF

IMPERVIOUS AREA PERCENTAGE = ±15.85%

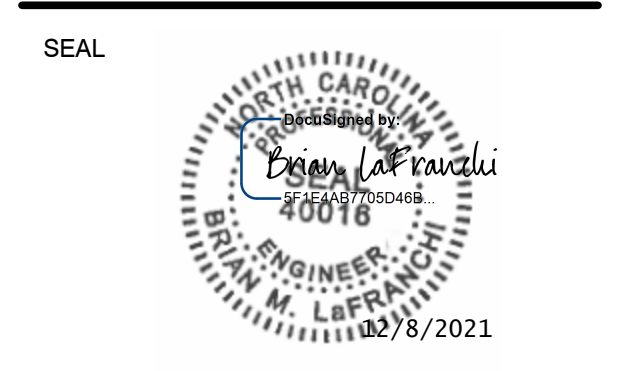
ALLOWABLE MAX. IMPERVIOUS PERCENTAGE = 20%

- MAINTENANCE PLAN:**
- ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
 - ALL SEEDED AREAS WILL BE REPAIRED, RESEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS UNTIL VEGETATION IS ESTABLISHED.
 - FERTILIZER WILL NOT BE ALLOWED ON WELL SITE.
- NOTES:**
- PERFORM TEST PITS TO LOCATE EXISTING PIPES. DETERMINE EXISTING PIPE MATERIAL AND SIZE BEFORE ORDERING MATERIALS TO CONFIRM CORRECT PIPE COUPLINGS/ADAPTORS NECESSARY.
 - ALL PIPE ABOVE GRADE PIPE CONNECTION INTO AND OUT OF THE PROPOSED FILTER BUILDING SHALL BE HEAT TRACED FROM 3 FEET BELOW GRADE TO CONNECTION POINT OF BUILDING. HEAT TRACE SHALL BE THERMON TERMINATOR DP SYSTEM. BSX CABLE FOR 5 WATTS PER FOOT. INSULATION SHALL BE FIBERGLASS SUITABLE FOR OUTDOOR CONDITIONS. JACKET SHALL BE ALUMINUM.
 - A COPY OF ALL PERMITS, CONSTRUCTION DRAWINGS, SPECIFICATIONS, AND ADDENDA SHALL BE MAINTAINED BY THE CONTRACTOR ON-SITE AT ALL TIMES.
 - ALL MATERIALS TO BE IN CONTACT WITH POTABLE WATER SHALL BE NSF APPROVED.
- 5.** THE PROJECT IS ADDING A FILTRATION SYSTEM TO THE EXISTING PUMP SYSTEM. THE FILTRATION SYSTEM DOES NOT PRODUCE ANY NOISE; THEREFORE, THERE WILL NOT BE ANY INCREASE IN THE EXISTING DECIBEL LEVEL.
- 6.** THE LIGHT EMITTED FROM THE PROPOSED EXTERIOR LIGHT FIXTURES SHOWN ON SHEET E1.01 WILL EXTEND APPROXIMATELY 50 FT. THE CLOSEST PROPERTY LINE IS APPROXIMATELY 90 FT AWAY FROM THE LIGHT FIXTURE AND SHOULDN'T EXPERIENCE ANY LIGHT SPILLAGE. ADDITIONALLY THE LIGHT FIXTURES WILL HAVE MOTION SENSORS; THEREFORE, ONLY EMITTING LIGHT WHEN THERE IS ACTIVE WORK ON SITE. LASTLY, THE SURROUNDING AREA IS WOODED BLOCKING THE LIGHT SPILLAGE DURING A MAJORITY OF THE YEAR.
- AQUA PAINT SPEC:**
- EXTERIOR - EPOXY / POLYURETHANE
 - SURFACE PREPARATION: STEEL STRUCTURES PAINTING COUNCIL (SPCC) SP10, NEAR WHITE METAL BLAST CLEANING.
 - 1ST COAT: TNEDEC SERIES N14F-1255 BEIGE POTA-POX PRIMER AT 3.0 DRY MILS.
 - 2ND COAT: TNEDEC SERIES 1074 ENDURA-SHIELD (COLOR 84BR WEATHERED BARK) AT 4.0 DRY MILS.
 - 3RD COAT: TNEDEC SERIES 1074U ENDURA-SHIELD (COLOR 84BR WEATHERED BARK) AT 3.0 DRY MILS.
 - A MINIMUM OF SEVEN (7) DAYS CURE TIME SHALL BE ALLOWED BEFORE PLACING INTO SERVICE.
 - MANUFACTURER APPROVED THINNERS FOR SPECIFIC SERIES AND APPLICATIONS SHALL BE USED. TOTAL DRY FILM THICKNESS OF THE NEW SYSTEM SHALL BE A MINIMUM 10 DRY MILS.



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 NCBELS #F-0929

RADIUM REMOVAL
 TREATMENT SYSTEM
 FIELDSTONE WELL #1
 AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



SCALE 1" = 30'

| No. | DATE | BY | Description |
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| 3 | 12/08/21 | PMW | AGENCY COMMENTS |
| 2 | 11/08/21 | PMW | SUP |
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REVISIONS

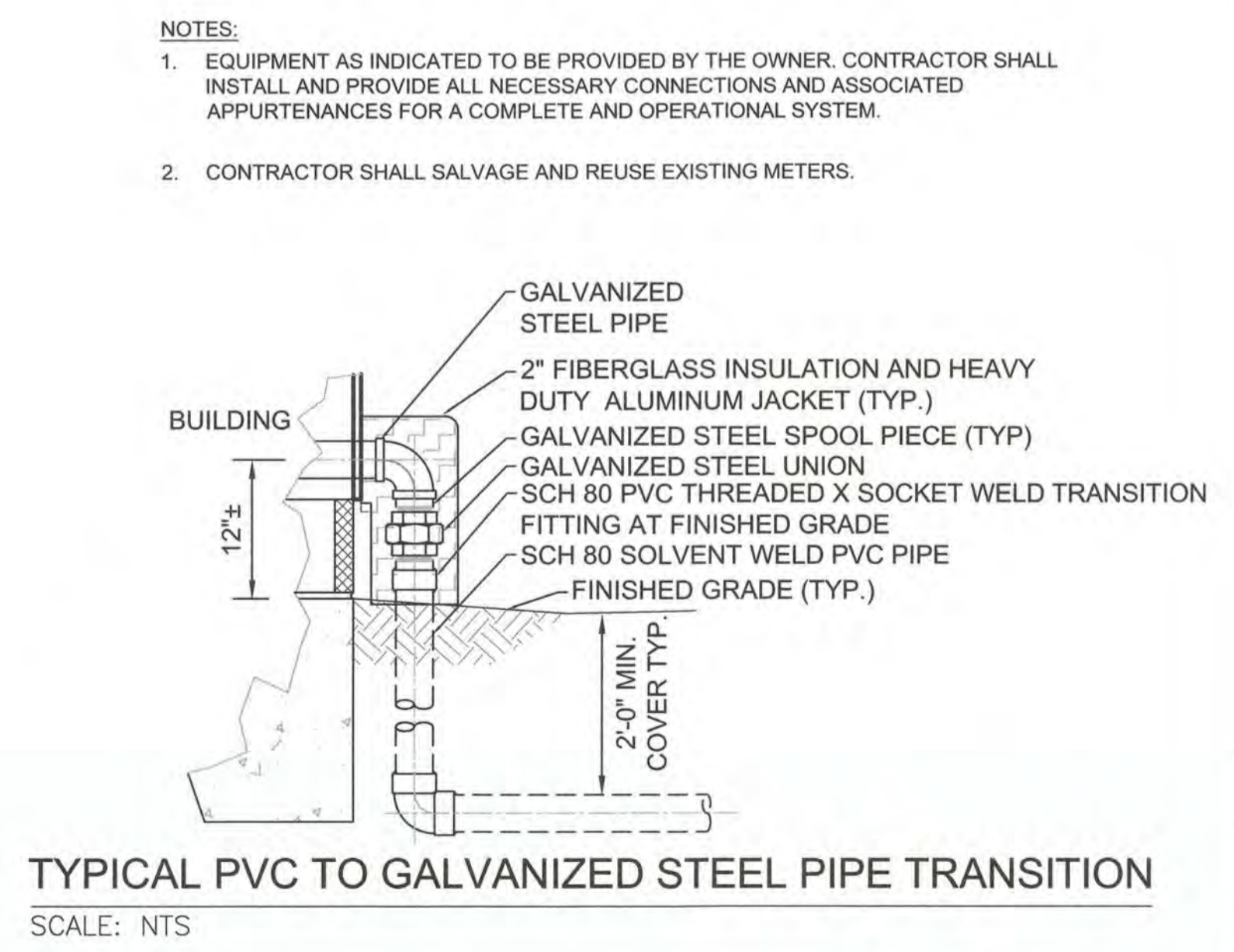
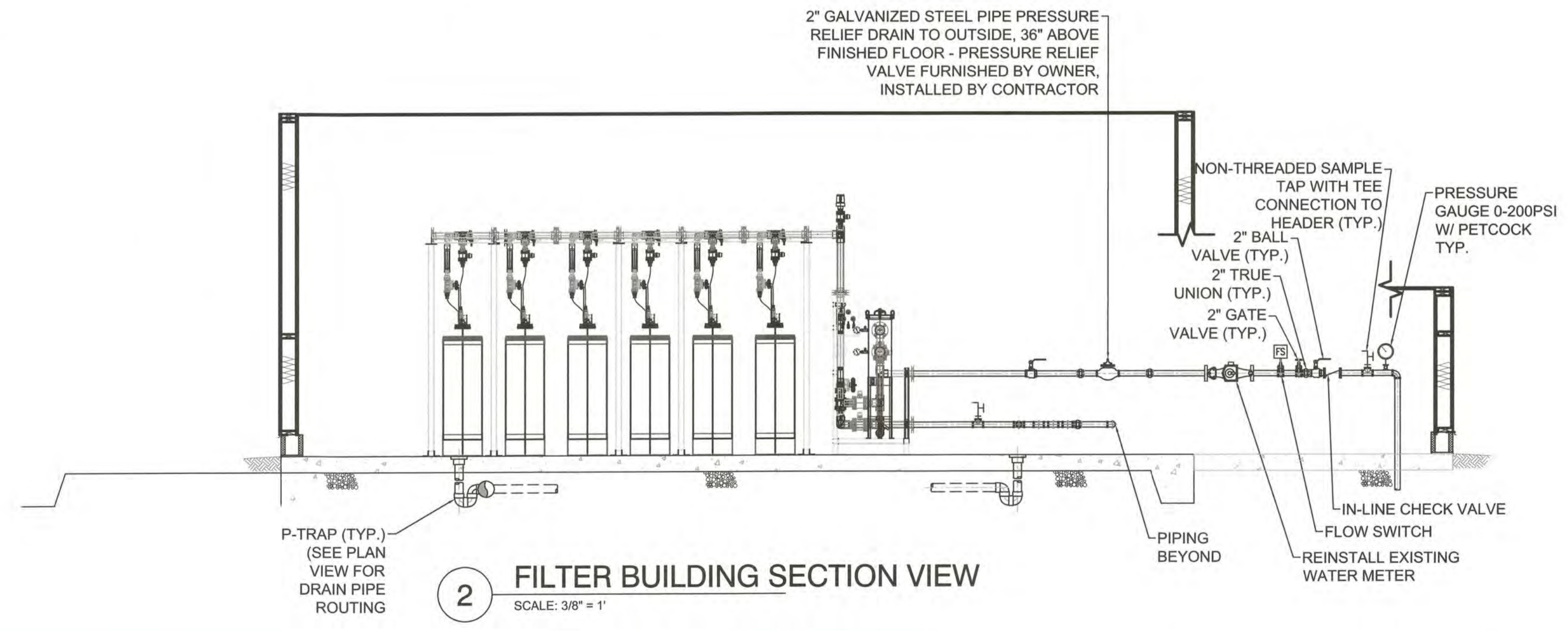
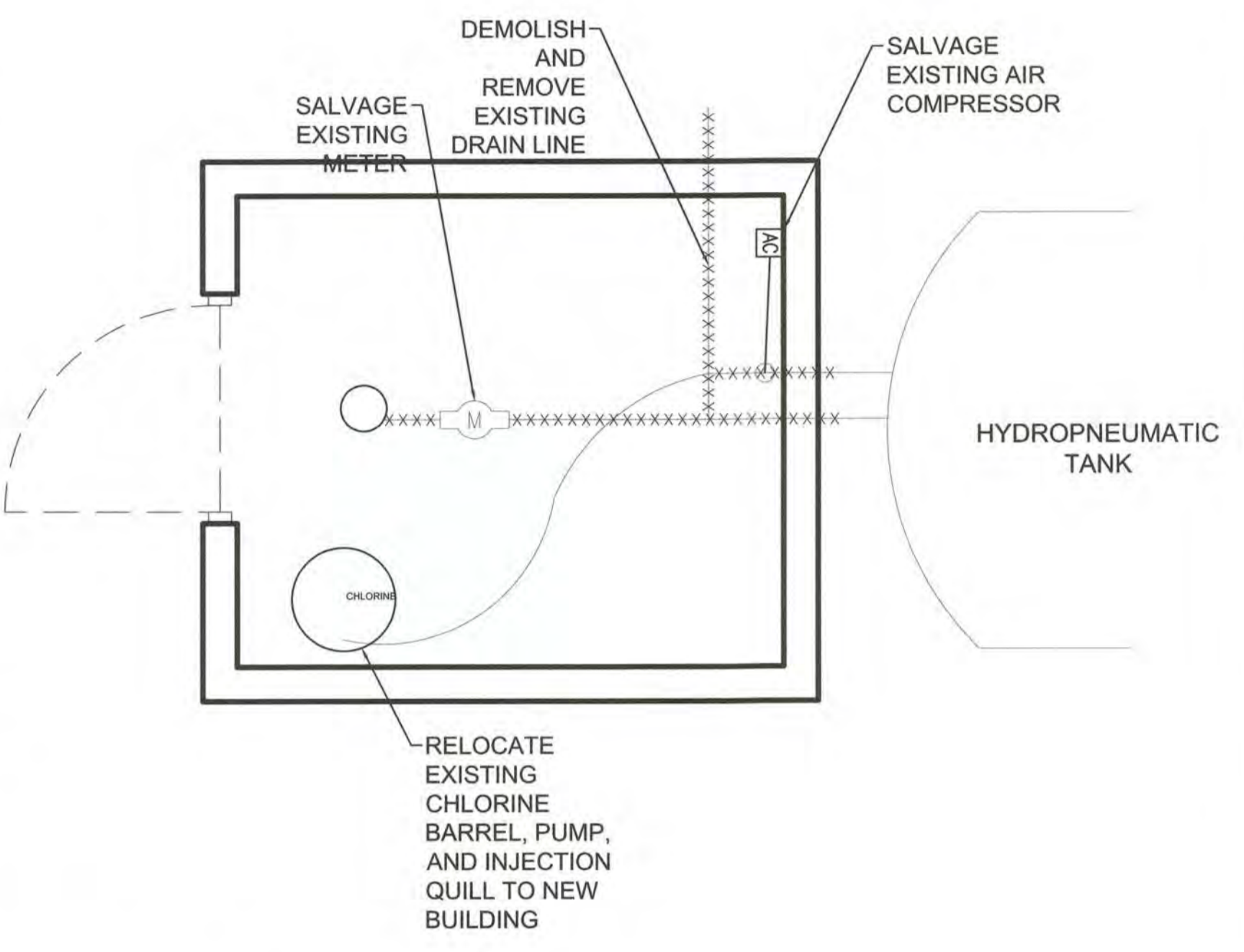
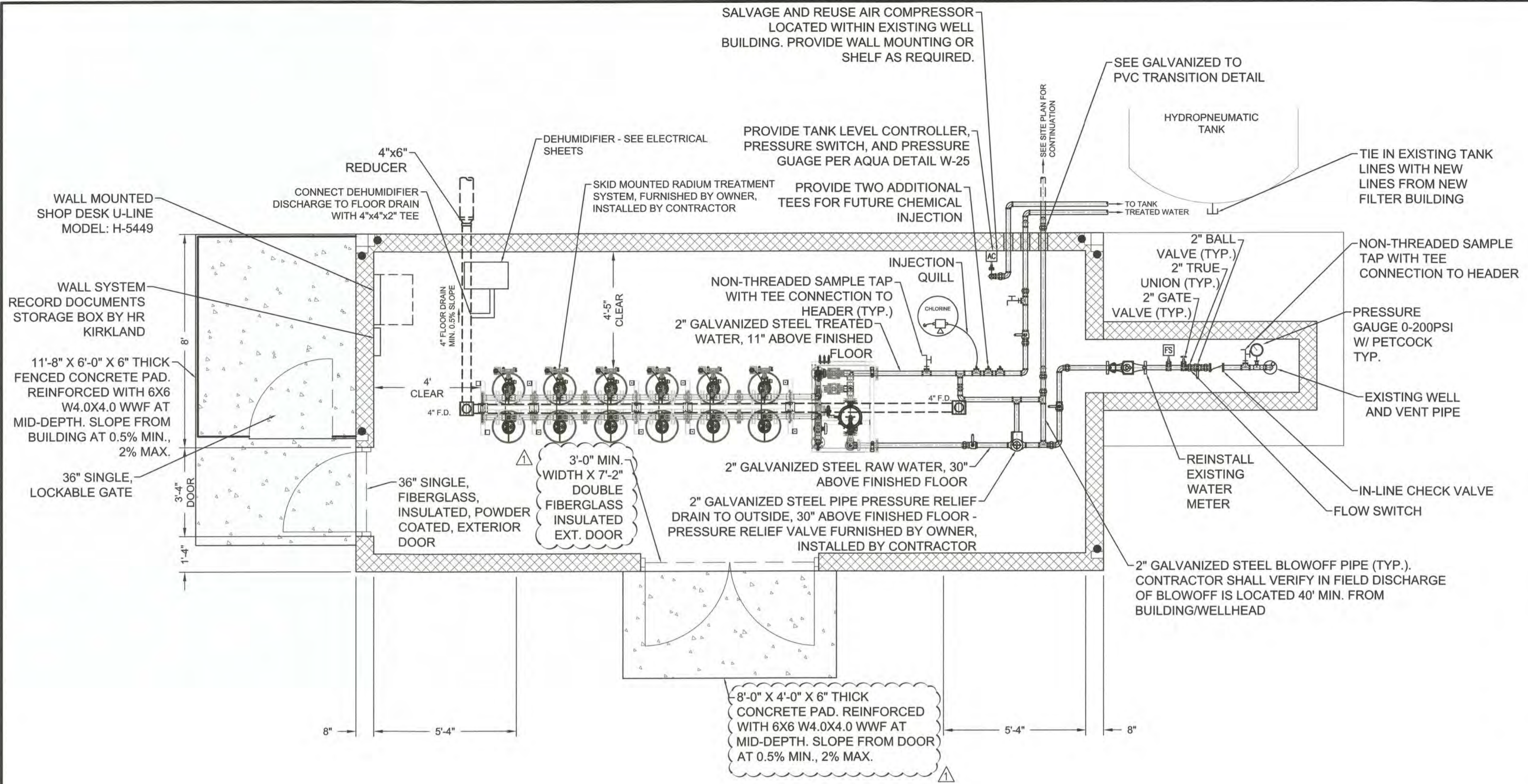
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| APPROVED BY | BML |
| CHECKED BY | TMM |
| DATE | JULY 28, 2021 |
| TITLE | |

SITE AND GRADING PLAN

PROJECT NO. 50140313

C-02

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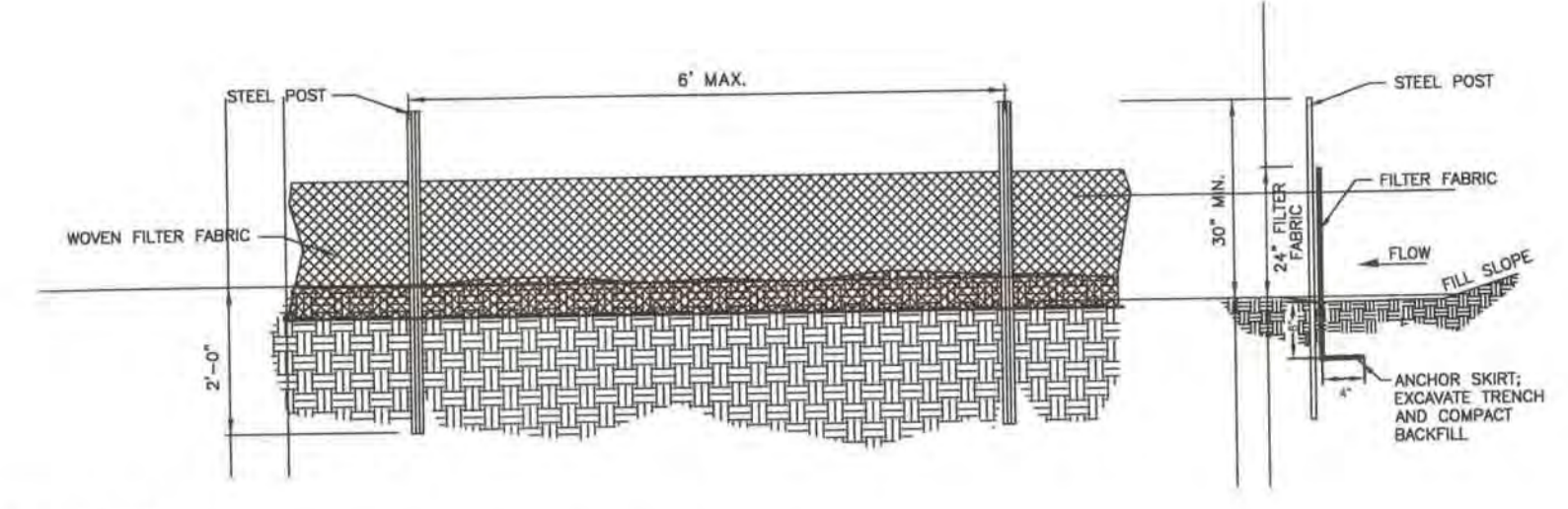
RADIUM REMOVAL TREATMENT SYSTEM FIELDSTONE WELL #1
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 202 MACKENAN DR
 CARY, NC 27511



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| REVISIONS | | | |
| DRAWN BY ZKM | | | |
| APPROVED BY BML | | | |
| CHECKED BY TMM | | | |
| DATE JULY 28, 2021 | | | |
| TITLE | | | |

PIPING PLAN AND SECTION

PROJECT NO. 50140313



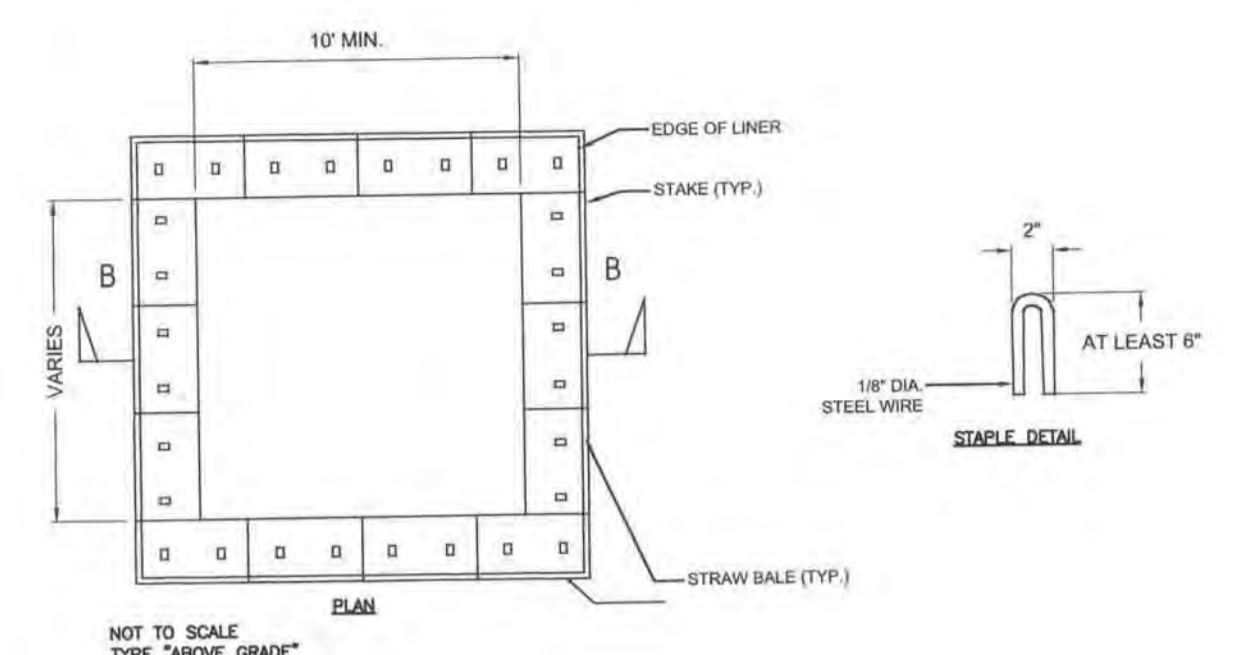
GENERAL NOTES:

1. FILTER FABRIC FENCE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR A PERIOD OF MORE THAN 30 DAYS.
3. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. TURN SILT FENCE UP SLOPE AT ENDS.
5. ORANGE SAFETY FENCE IS REQUIRED AT BACK OF SILT FENCE WHEN GRADING IS ADJACENT TO SWIM BUFFERS, STREAMS OR WETLANDS (REFER TO SWIM BUFFER GUIDELINES). THE COLOR ORANGE IS RESERVED FOR VISUAL IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS.
6. DRAINAGE AREA CAN NOT BE GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
7. SLOPE LENGTHS CAN NOT EXCEED CRITERIA SHOWN IN TABLE 6.62A NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
8. DO NOT INSTALL SEDIMENT FENCE ACROSS STREAMS, DITCHES, WATERWAYS OR OTHER AREAS OF CONCENTRATED FLOW.

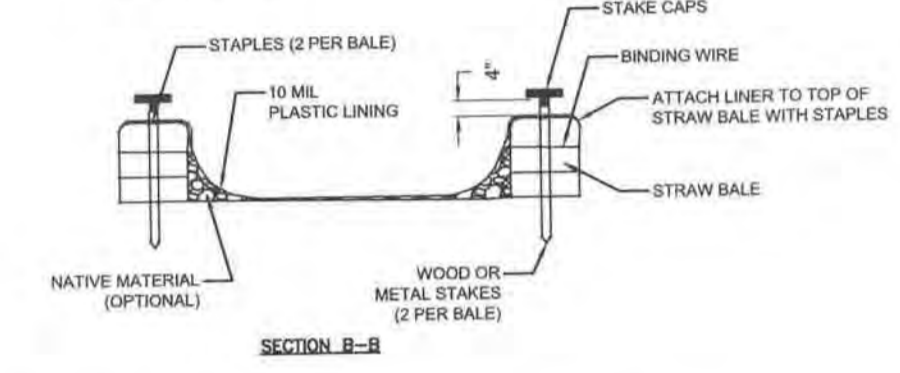
MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROX. HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

**DETAIL 1
 TEMPORARY SILT FENCE
 SCALE: NTS**



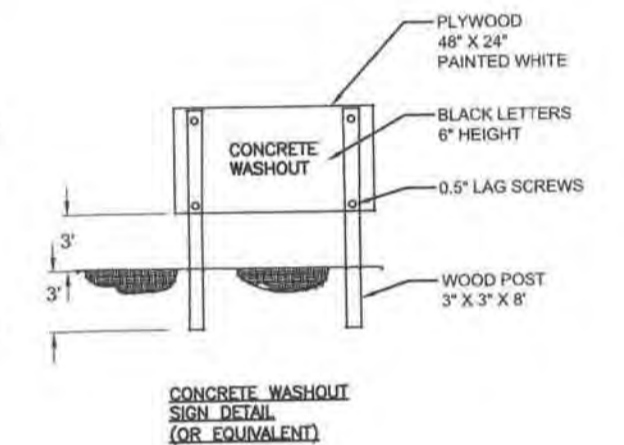
NOT TO SCALE
 TYPE "ABOVE GRADE"
 WITH STRAW BALES



SECTION B-B

NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
 2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
 3. INSTALL CONCRETE WASHOUT IN A LOCATION WHICH IS NOT SUBJECT TO SURFACE WATERS AND IS MORE THAN 50' AWAY FROM A STORM DRAIN, DITCH, WETLAND, OR SURFACE WATER.
- INSPECTION/MAINTENANCE/REMOVAL:**
1. TEMPORARY CONCRETE WASHOUT FACILITIES ARE TO BE INSPECTED BY THE DEP REPRESENTATIVE DURING HIS/HER WEEKLY EROSION AND SEDIMENT CONTROL INSPECTION. AFTER A STORM EVENT OF 3" OR GREATER, AND AT THE END OF ANY DAY WHEN CONCRETE HAS BEEN POURED ON THE CONSTRUCTION SITE, THE INSPECTOR IS TO ENSURE THAT THERE ARE NO LEAKS, NO SPILLS, AND THAT THE FACILITY'S CAPACITY HAS NOT YET BEEN COMPROMISED.
 2. ANY OVERFLOWING OF THE WASHOUT FACILITIES ONTO THE GROUND MUST BE CLEANED UP AND REMOVED WITHIN 24 HOURS OF DISCOVERY.
 3. IF A RAIN OR SNOW EVENT IS FORECASTED, A NON-COLLAPSING, NON-WATER COLLECTING COVER SHALL BE PLACED OVER THE WASHOUT FACILITY AND SECURED TO PREVENT ACCUMULATION AND OVERFLOW OF PRECIPITATION.
 4. CONTENTS OF EACH CONCRETE WASHOUT FACILITY ARE NOT TO EXCEED 75% OF ITS DESIGNED CAPACITY. IF THE CONTENTS REACH 75% CAPACITY, DISCONTINUE POURING CONCRETE INTO THE FACILITY UNTIL IT HAS BEEN CLEANED OUT.
 5. ALLOW SLURRY TO EVAPORATE OR REMOVE FROM THE SITE TO A LICENSED DISPOSAL FACILITY. ALL HARDED MATERIAL CAN THEN BE REMOVED AND DISPOSED OF PROPERLY.
 6. IF A LINED BASIN IS USED, IMMEDIATELY REPLACE THE LINER IF IT BECOMES DAMAGED.
 7. REMOVE TEMPORARY CONCRETE WASHOUT FACILITIES WHEN THEY ARE NO LONGER NEEDED AND RESTORE THE DISTURBED AREAS TO THEIR ORIGINAL CONDITION.



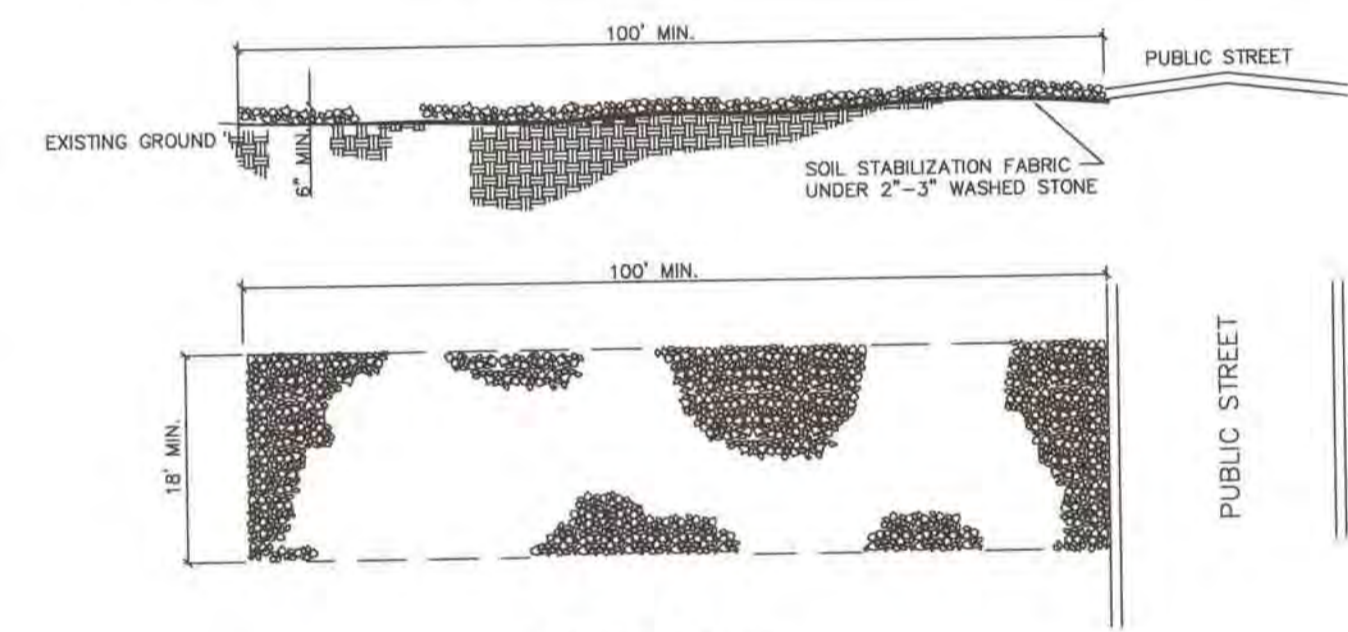
CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)

NOT TO SCALE

**DETAIL 2
 CONCRETE WASHOUT PIT
 SCALE: NTS**

NOTES:

1. A STABILIZED ENTRANCE PAD OF 2"-3" WASHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL ENTER OR LEAVE THE CONSTRUCTION SITE ONTO A PUBLIC STREET.
2. FILTER FABRIC OR COMPACTED CRUSHER RUN STONE SHALL BE USED AS A BASE FOR THE CONSTRUCTION ENTRANCE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ANY SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY.
5. WHEN APPROPRIATE, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN SEE STD. NO. 30.11B.
6. COUNTY MAY REQUIRE A STANDARD COMMERCIAL DRIVEWAY (STD. 10.24 & 10.25) TO ACCESS THE CONSTRUCTION SITE IF THE DRIVEWAY IS ON A THOROUGHFARE.



**DETAIL 3
 STABILIZED CONSTRUCTION ENTRANCE
 SCALE: NTS**

SEAL



SCALE

| | | | |
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| No. | DATE | BY | Description |
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REVISIONS

| | |
|-------------|---------------|
| DRAWN BY | ZKM |
| APPROVED BY | BML |
| CHECKED BY | TMM |
| DATE | JULY 28, 2021 |

TITLE

**EROSION AND
 SEDIMENTATION
 CONTROL DETAILS**

PROJECT NO. 50140313

UTILITY SEPARATION DETAILS

SANITARY GRAVITY, FORCE MAIN, REUSE MAIN, STORM SEWER, & POTABLE WATER MAIN SEPARATION NOTES & SOLUTIONS

1. A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET OUTSIDE TO OUTSIDE SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY GRAVITY SEWER OR STORM SEWER LINES.
2. A MINIMUM HORIZONTAL SEPARATION OF THREE (3) FEET OUTSIDE TO OUTSIDE SHALL BE MAINTAINED BETWEEN WATER MAINS AND RECLAIMED WATER LINES CARRYING UNRESTRICTED PUBLIC ACCESS REUSE WATER.
3. IN AREAS WHERE IT IS NOT PRACTICAL TO MAINTAIN THE REQUIRED SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELVE LOCATED ON ONE SIDE OF THE SANITARY GRAVITY SEWER, STORM SEWER OR RECLAIMED WATER LINE AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE OTHER LINE.
4. IF THE MINIMUM ALLOWABLE TEN (10) FOOT HORIZONTAL SEPARATION OR EIGHTEEN (18) INCH VERTICAL SEPARATION IN A SEPARATE TRENCH CANNOT BE MAINTAINED, UPGRADE THE WATER MAIN TO DUCTILE IRON. IF THE OTHER LINE IS A STORM SEWER.
5. IF THE NON-CONFORMING LINE IS A GRAVITY SANITARY SEWER, AND TEN (10) FEET OF HORIZONTAL SEPARATION OR EIGHTEEN (18) INCHES VERTICAL SEPARATION IN A SEPARATE TRENCH CANNOT BE MAINTAINED, UPGRADE THE GRAVITY SANITARY SEWER (IF BEING NEWLY INSTALLED) TO AN AWWA C-900, D.R. 18 PVC AND HYDROSTATICALLY TEST IT TO 150 PSI.
6. IF THE OTHER LINE IS A RECLAIMED WATER LINE AND THE ABOVE SEPARATION REQUIREMENTS ARE NOT MET, UPGRADE THE RECLAIMED WATER LINE MATERIAL TO DUCTILE IRON.
7. DEVIATIONS AND OTHER ALTERNATIVES SHALL BE CONSIDERED ON CASE-BY-CASE BASIS AND MUST RECEIVE SPECIFIC APPROVAL BY NCDENR PRIOR TO IMPLEMENTATION.
8. THERE SHALL BE AT LEAST A TEN (10) FOOT SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER FORCE MAINS WITHOUT EXCEPTION. FIELD PROBLEMS SHALL BE REPORTED TO NCDENR/ENGINEER. SPECIAL SOLUTIONS MUST BE ACCEPTED BY NCDENR PRIOR TO IMPLEMENTATION.

9. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SANITARY SEWER MANHOLE OR STORM SEWER STRUCTURE.

10. A MINIMUM OF VERTICAL SEPARATION OF EIGHTEEN (18) INCHES OUTSIDE TO OUTSIDE SHALL BE MAINTAINED BETWEEN WATER MAIN, SANITARY GRAVITY SEWER, STORM SEWER OR RECLAIMED WATER LINES.

11. WHEN THERE IS LESS THAN EIGHTEEN (18) INCHES VERTICAL CLEARANCE BETWEEN THE WATER MAIN AND STORM SEWER, THE WATER MAIN SHALL BE UPGRADED TO DUCTILE IRON. ONE FULL LENGTH OF PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.

12. IF THE NON-CONFORMING IS A SANITARY GRAVITY SEWER WHERE THERE IS LESS THAN EIGHTEEN (18) INCHES VERTICAL CLEARANCE FROM THE WATER MAIN, UPGRADE THE SANITARY GRAVITY SEWER TO DRP PVC AND HYDROSTATICALLY TEST IT TO WATER MAIN STANDARDS. PIPES SHALL BE LOCATED SO THAT JOINTS ARE AS FAR AS POSSIBLE FROM EACH OTHER.

13. IF THE OTHER LINE IS A RECLAIMED WATER LINE AND THE ABOVE MINIMUM SEPARATION IS NOT MET, UPGRADE THE RECLAIMED WATER LINE MATERIAL TO DUCTILE IRON.

14. SPECIAL STRUCTURAL SUPPORT OR CONCRETE SADDLES MAY BE NECESSARY AT THE CROSSING LOCATION.

15. IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE CROSSING HAZARD.

16. DEVIATIONS AND OTHER ALTERNATIVES SHALL BE CONSIDERED ON CASE-BY-CASE BASIS AND MUST RECEIVE SPECIFIC APPROVAL BY NCDENR PRIOR TO IMPLEMENTATION.

17. THERE SHALL BE AN EIGHTEEN (18) INCH VERTICAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER FORCE MAINS AT CROSSINGS WITHOUT EXCEPTION. CONFLICTS WITH EXISTING LINES, WHERE IT IS NOT POSSIBLE TO MAINTAIN THE REQUIRED SEPARATION, IT SHALL BE REPORTED TO AQUA NORTH CAROLINA, INC. ENGINEER. SPECIAL SOLUTIONS MUST BE ACCEPTED BY NCDENR PRIOR TO IMPLEMENTATION.

DATE: 12/2011
 REVISION: 14-4

TRENCH DETAIL

BACKFILL IN 6" LIFTS AND COMPACT TO 95% DENSITY AS DETERMINED BY AASHTO TEST METHOD T-99

EARLY WARNING TAPE WITH METALLIC DETECTOR STRIP

6" MIN. 12" MAX. OPEN TRENCH

6" MIN. 12" MAX. SHEETED TRENCH

18" ROCK FREE SOIL

36" MIN. COVER

#16 THHN COATED OR LARGER LOCATING WIRE, TERMINATED AT VALVE BOXES

SHAPE TRENCH TO FIT BOTTOM OF PIPE

UNDISTURBED EARTH

DETECTABLE EARLY WARNING TAPE

30 MIL HDPE COATED LOCATING WIRE

FINISHED GRADE

6" MIN. 12" MAX.

SEE NOTES

NOTES:

1. WHERE ROCK OR NON-CUSHIONING MATERIAL IS ENCOUNTERED IN TRENCH, USE #5 STONE FOR A DEPTH OF 8" UNDER PIPE.
2. WHERE UNSUITABLE SOIL OR MUCK IS ENCOUNTERED, EXCAVATE THE SOIL AND BACKFILL WITH #5 STONE TO FORM A PIPE BED.
3. PVC AND DUCTILE IRON MAINS SHALL MEET ALL STANDARDS AS CALLED OUT IN THE SPECIFICATIONS (DIVISION 5, SECTION 1.3.3).
4. ALL WATER MAINS SHALL HAVE A DETECTABLE "EARLY WARNING" PROTECTION TAPE AND HOPE LOCATING WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE AND WIRE SHALL BE INSTALLED DURING BACKFILLING 6"-12" INCHES BELOW FINISHED GRADE DIRECTLY OVER THE PIPE AND BE CONTINUOUSLY MARKED CAUTION, WATER MAIN BURIED BELOW. THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND BE GREEN IN COLOR. ALL PROTECTION TAPE SHALL BE AS TERRA-TAPE OR EQUAL.
5. ALL P.V.C. WATER MAINS SHALL BE EITHER A SOLID BLUE COLOR OR WHITE. BLUE LETTERING. ALL LETTERING SHALL APPEAR ON THREE SIDES OF THE PIPE AND SHALL RUN THE ENTIRE LENGTH OF THE PIPE AND SHALL BE A MINIMUM 3/4 INCH IN HEIGHT WITH THE APPROPRIATE WORDING APPEARING ONE OR MORE TIMES EVERY 21 INCHES ALONG THE LENGTH OF THE PIPE. THE LETTERING MUST BE PERMANENTLY STENCILED TO THE PIPE SURFACE. LETTERING SHALL READ AS IS ACCEPTABLE FOR THE INTENDED USE. ALL LETTERING SHALL BE APPLIED BY THE PIPE MANUFACTURER DURING PRODUCTION.
6. ALL DUCTILE IRON WATER MAINS SHALL BE MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE 90° OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM 2-INCHES IN WIDTH AND SHALL BE BLUE IN COLOR. BACKFILL SHALL NOT BE PLACED FOR 30 MINUTES FOLLOWING PAINT APPLICATION.
7. ALL P.V.C. PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER PIPE.

DATE: 01/2017
 REVISION: W-14

TYPICAL THRUST BLOCK

MIN. BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET (based on soil supporting value of 2000 psf @ 200 psig test pressure)

| PIPE SIZE | TEES & DEAD ENDS | 90° ELBOWS | 45° ELBOW & CROSSES | 22-1/2° ELBOWS |
|-----------|------------------|------------|---------------------|----------------|
| 6" | 4 | 6 | 3 | 2 |
| 8" | 7 | 10 | 5 | 3 |
| 12" | 15 | 21 | 11 | 6 |

ELBOW

HORIZONTAL BEND

THRUST BLOCK

TEE

CROSS

DEAD END

CONCRETE THRUST BLOCK (TYP)

M.J. PLUG

CONCRETE SHALL BE KEPT CLEAR OF PIPE JOINTS (TYP)

ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED GROUND (TYP)

UNDISTURBED SOIL

AREA OF BEARING

CONCRETE THRUST BLOCK (TYP)

NOTES:

1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 4" THRU 12" DIA. IN THE MANNER SHOWN.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
4. THRUST BLOCKS SHALL BE INSTALLED ON WATER MAIN IN THE MANNER SHOWN.
5. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER AND AN AQUA REPRESENTATIVE MUST BE PRESENT.
6. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
7. CONCRETE SHALL BE A MINIMUM 3,000 PSI AND THE TICKETS TURNED INTO THE UTILITY.
8. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY AQUA PROJECT COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
9. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
10. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

DATE: 01/2019
 REVISION: W-16

Chain Link Fence Detail

1 5/8" DIAMETER TOP RAIL

PRESSED STEEL RAIL ENDS AT EVERY POST

POST CAP ON ALL LINE AND TERMINAL POSTS

9 GAUGE CHAIN LINK FENCE FABRIC, KNUCKLED SELVAGE TOP AND BOTTOM.

6 GAUGE TENSION WIRE

2 1/2" DIAMETER LINE POSTS, 3" DIAMETER TERMINAL POSTS. LINE POSTS SPACED @ 8' O.C. MAX.

8" DIAMETER CONCRETE FOOTING

4) 42" BLACK VINYL COATED CHAIN LINK FENCE (TYP.)

4-NO. 10 X 3/16" STAINLESS STEEL SCREWS PER RAIL PER POST (TYP.)

FENCE STAPLES SPACED AT 18" O.C. MAX. TOP AND BOTTOM RAILS

SQUARE TENSION TIES (STAGGERED POSITION BEHIND RAILS)

2 7/8" MIN. POSTS, 3/8" MIN. DEPTH TERMINAL POSTS

6"

GALVANIZED ACCESS GATE

NOT TO SCALE

20'-0"

INSTALL KNOX BOX

10' LEAF LEG

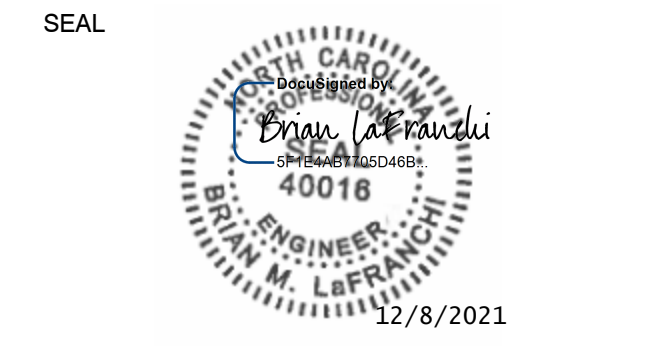
TWO HINGES (INSTALL TOP HINGE DOWN, BOTTOM HINGE UP)

6' GATE POST

(MIN 3" EMBEDMENT-EARTH)

RADIUM REMOVAL TREATMENT SYSTEM FIELDSTONE WELL #1

AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



SCALE

| No. | DATE | BY | Description |
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| 1 | 12/08/21 | PMW | AGENCY COMMENTS |

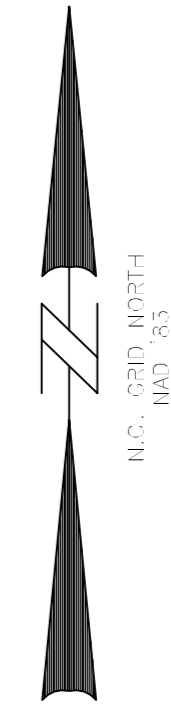
DRAWN BY: ZKM
 APPROVED BY: BML
 CHECKED BY: TMM
 DATE: JULY 28, 2021
 TITLE:

STANDARD DETAILS

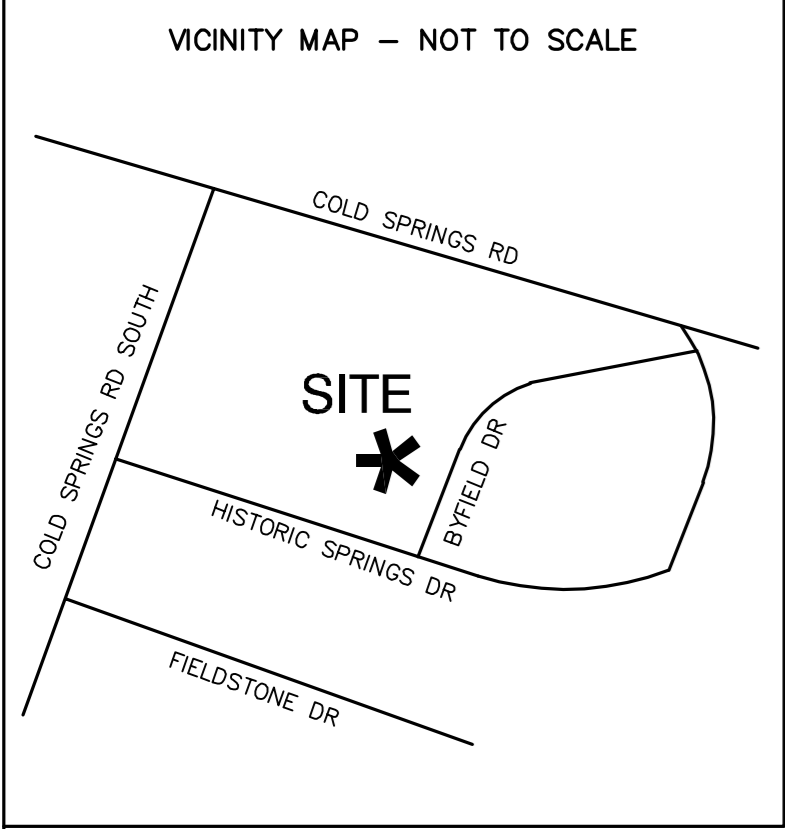
PROJECT NO. 50140313

THIS IS TO CERTIFY THAT ON THE 25TH DAY OF MAY, 2021, THIS MAP WAS PREPARED UNDER THE SUPERVISION OF TERRY M. DENNIS JR., P.S. # L-4242. NO BOUNDARY SURVEY WAS PERFORMED IN PREPARATION OF THIS SURVEY. THE PURPOSE OF THIS MAP IS TO SHOW TOPOGRAPHICAL AND PHYSICAL FEATURES ONLY, AND IS NOT INTENDED TO BE USED FOR RECORDATION, CONVEYANCES, OR SALES; THE POSITIONAL AND VERTICAL ACCURACY OF THE PHYSICAL AND TOPOGRAPHICAL FEATURES SHOWN ARE RELIABLE AND MEET THE ACCURACY STANDARDS OF A "CLASS A" SURVEY AS DETAILED IN THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA.

Terry M. Dennis



DATUM DESCRIPTION:
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON STATE PLANE COORDINATES ESTABLISHED BY DEWBERRY GPS #1 HAVING NAD 83 (2011) STATE PLANE COORDINATES OF NORTHING: 596,263.191 EASTING: 1,557,309.879 ELEVATION: 719.18. THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999845436. VERTICAL DATUM: NAVD 88. ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. DATE OF SURVEY: 5/2021.



GRAVITY UTILITY NOTE:
 SUB-GRADE CONNECTIVITY AND ROUTING OF STORM AND SANITARY SEWER PIPES ARE APPROXIMATED PER AVAILABLE INFORMATION. PIPE SIZES, INVERT ELEVATIONS, AND MATERIALS ARE CERTIFIED TO BE CORRECT WHERE PIPES ARE CLEARLY VISIBLE WITHOUT CONFINED SPACE ENTRY.

COLD SPRINGS
 METHODIST CHURCH
 PIN 5559668878

ROBERT A. LEDWELL JR
 PIN 5559762597
 DB 14624, PG 252
 MB 20, PG 11

JAMES B. MULLIS
 PIN 5559667467
 DB 587, PG 675
 MB 19, PG 26

JEREMY D. BAGGARLY
 PIN 5559669319
 DB 7275, PG 319
 MB 19, PG 26

AQUA NORTH CAROLINA INC.
 PIN 5559761541
 DB 8740, PG 338
 MB 20, PG 11
 1.1224 ACRES PER
 RECORD PLAT

MARTHA K. FISHER
 PIN 5559763388
 DB 14402, PG 318
 MB 20, PG 11

WILLIAM F. CANNON JR
 PIN 5559760330
 DB 7872, PG 110
 MB 19, PG 26

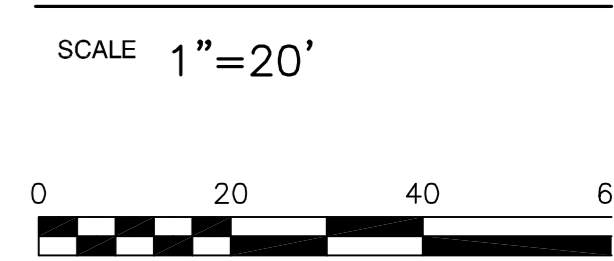
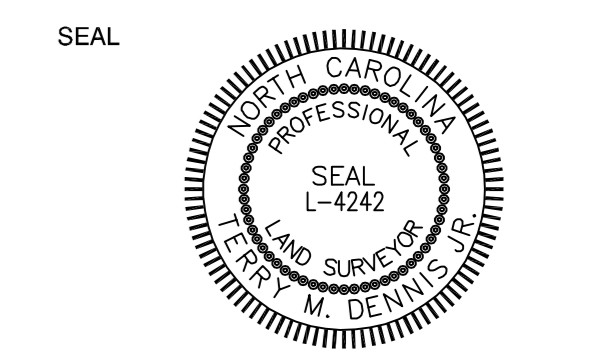
BRENDA B. LONG
 PIN 5559761261
 DB 6519, PG 273
 MB 35, PG 9

FEMA FLOOD HAZARD NOTE:
 CABARRUS COUNTY PARCEL 5559761541 IS NOT LOCATED IN A FEMA DESIGNATED FLOOD HAZARD ZONE PER FEMA FIRM MAP 3710555900A, DATED 11/5/2008.

PROPERTY NETWORK NOTE:
 PROPERTY LINES LABELED HEREON ARE REPRESENTATIVE OF A PROPERTY NETWORK DEVELOPED FROM RECORD PLATS AND FIELD LOCATED PROPERTY CORNERS. THIS PLAT DOES NOT REPRESENT A FIELD BOUNDARY SURVEY NOR DOES IT CERTIFY TO ENCROACHMENTS, GAPS, OVERLAPS OR MATTERS OF TITLE THAT MAY BE DISCOVERED DURING THE COURSE OF A FULL AND ACCURATE BOUNDARY SURVEY.

- LEGEND**
- UE --- UNDERGROUND ELECTRIC
 - PL --- PROPERTY LINE
 - R/W --- RIGHT OF WAY LINE
 - ADJ --- ADJOINING PROPERTY LINE
 - SS --- SANITARY SEWER LINE
 - OT --- OVERHEAD TELEPHONE
 - OE --- OVERHEAD ELECTRIC
 - W --- WATER LINE
 - G --- GAS LINE
 - FO --- FIBER OPTIC LINE
 - TV --- CABLE TV
 - UT --- UNDERGROUND TELEPHONE
 - UE --- UNDERGROUND ELECTRIC
 - E --- EXISTING EASEMENT (AS LABELED)
 - CL --- CONTOUR LINE
 - FF --- FINISHED FLOOR ELEVATION
 - PC --- PROPERTY CORNER
 - TRV --- TRAVERSE
 - MH --- MANHOLE
 - EXIST --- EXISTING
 - WM --- WATER METER
 - BFV --- BACK FLOW VALVE
 - CB --- CATCH BASIN
 - FL --- FLOW LINE
 - INV --- INVERT
 - LP --- LIGHT POLE
 - MB --- MAILBOX
 - EM --- ELECTRIC METER
 - GM --- GAS METER
 - PP --- POWER POLE
 - AC --- AIR CONDITIONING
 - C&G --- CURB AND GUTTER
 - DW --- DRIVEWAY
 - CONC --- CONCRETE
 - BRA --- BRADFORD PEAR
 - CHRY --- CHERRY
 - CRP --- CREPE MYRTLE
 - MB/PG --- MAP BOOK / PAGE
 - DB/PG --- DEED BOOK / PAGE
 - THH --- TELEPHONE HANDOFF

**RADIUM REMOVAL
 TREATMENT SYSTEM
 FIELDSTONE WELL #1
 AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511**



| No. | DATE | BY | Description |
|-----|----------|----|-------------------|
| 1 | 11/23/21 | MD | Reviewer Comments |

REVISIONS

DRAWN BY: M. DENNIS

APPROVED BY: _____

CHECKED BY: _____

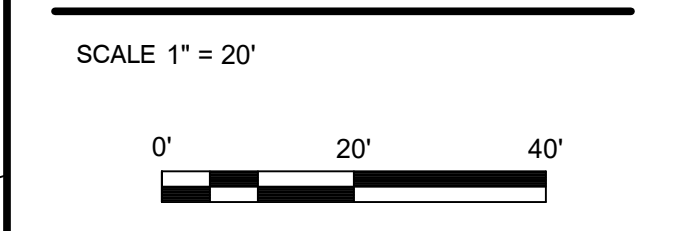
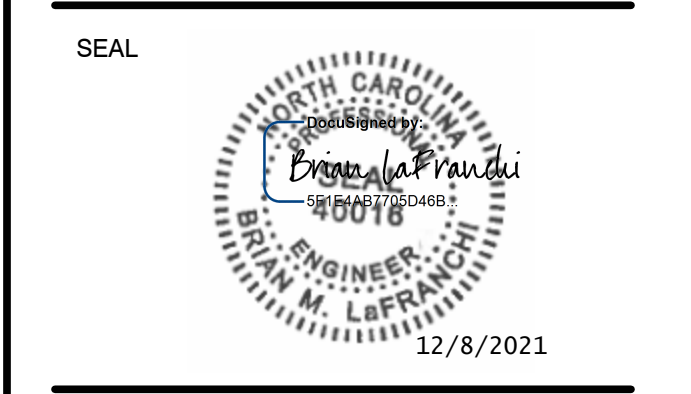
DATE: MAY 26, 2021

**EXISTING
 FEATURES &
 SURVEY
 MAP**

PROJECT NO. 50140313

Dewberry Engineers Inc.
 9300 HARRIS CORNERS PKWY
 SUITE 220
 CHARLOTTE, NC 28269
 PHONE: 704.509.9918
 FAX: 704.509.9937
 NCBELS #F-0929

**RADIUM REMOVAL
 TREATMENT SYSTEM
 FIELDSTONE WELL #1**
 AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



| No. | DATE | BY | Description |
|-----|----------|-----|-----------------|
| 2 | 12/08/21 | PMW | AGENCY COMMENTS |
| 1 | 11/08/21 | PMW | SUP |

REVISIONS

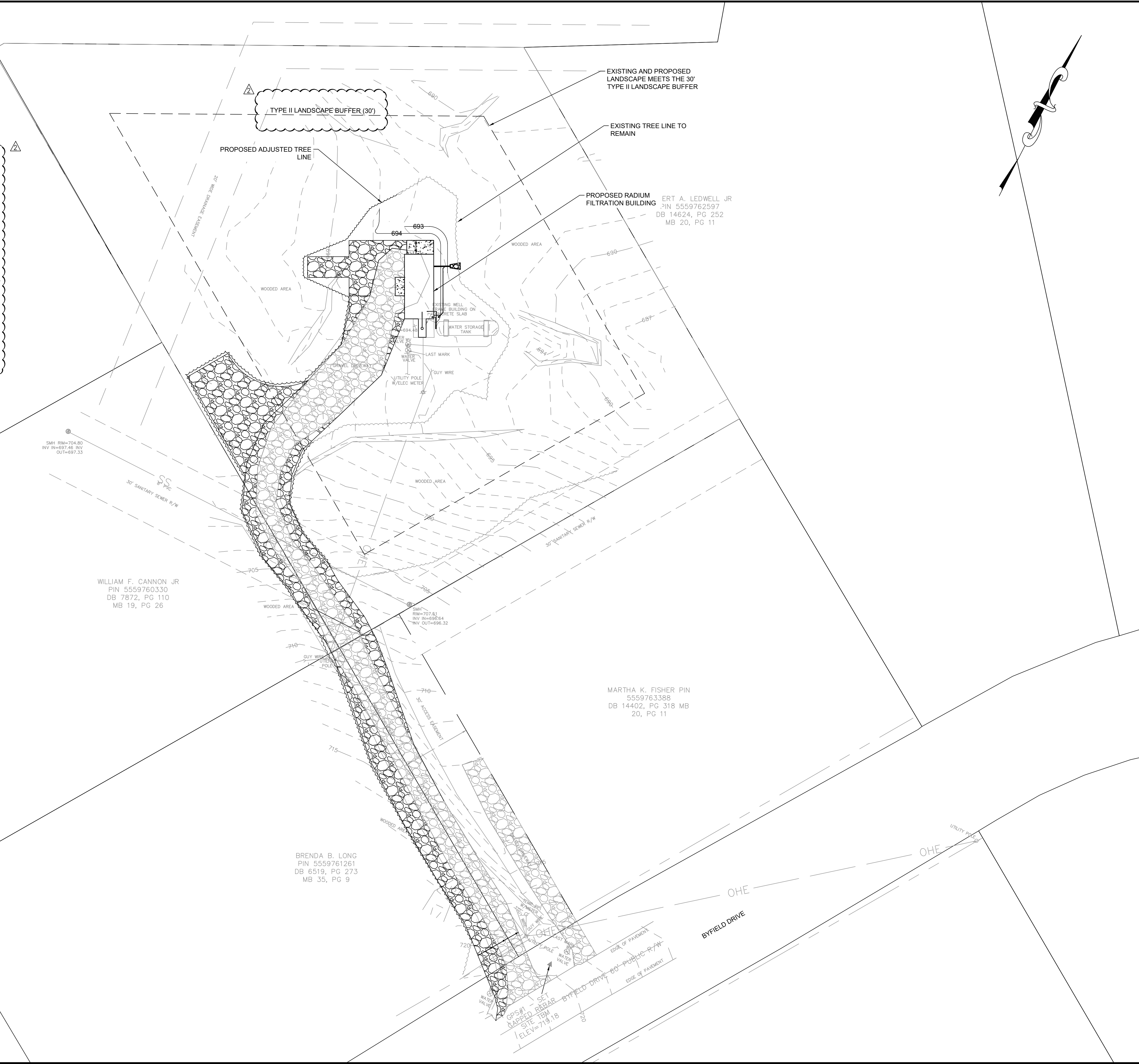
DRAWN BY: ZKM
 APPROVED BY: BML
 CHECKED BY: TMM
 DATE: JULY 28, 2021

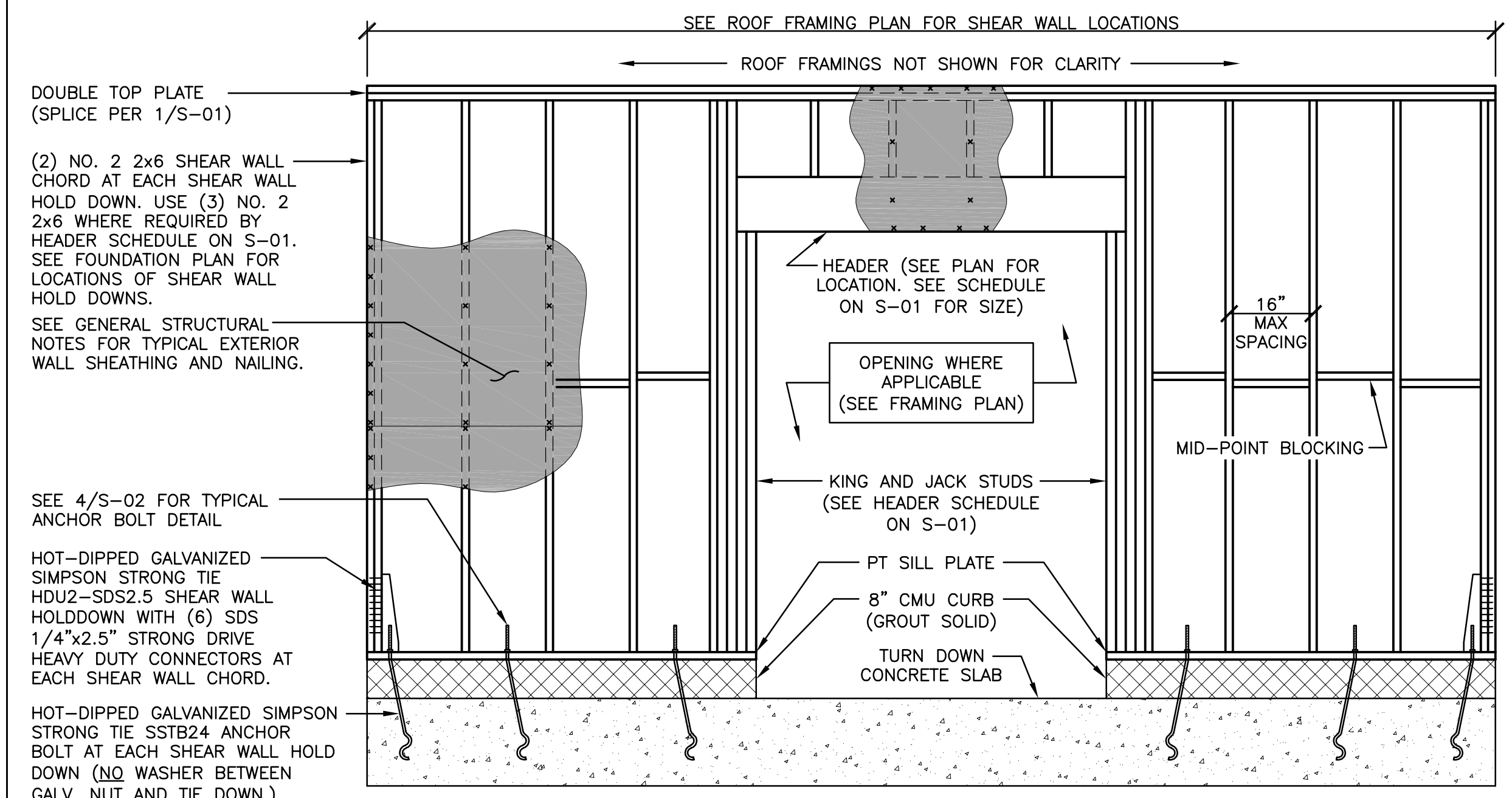
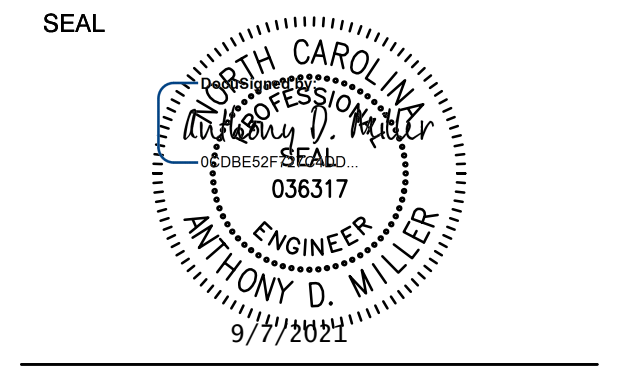
TITLE: **LANDSCAPE PLAN**
 PROJECT NO. 50140313

L-01

LANDSCAPE INFORMATION:
 PROPOSED LANDSCAPE: N/A
 EXISTING LANDSCAPE TO REMAIN IN A NATURAL STATE AND INCLUDES A MATURE HARDWOOD FOREST WITH BOTH DECIDUOUS AND EVERGREEN TREES (PINE, SUGAR GUM, POPLAR) IN GENERAL GOOD HEALTH AND VARYING EVERGREEN PINE SAPPLINGS THROUGHOUT.

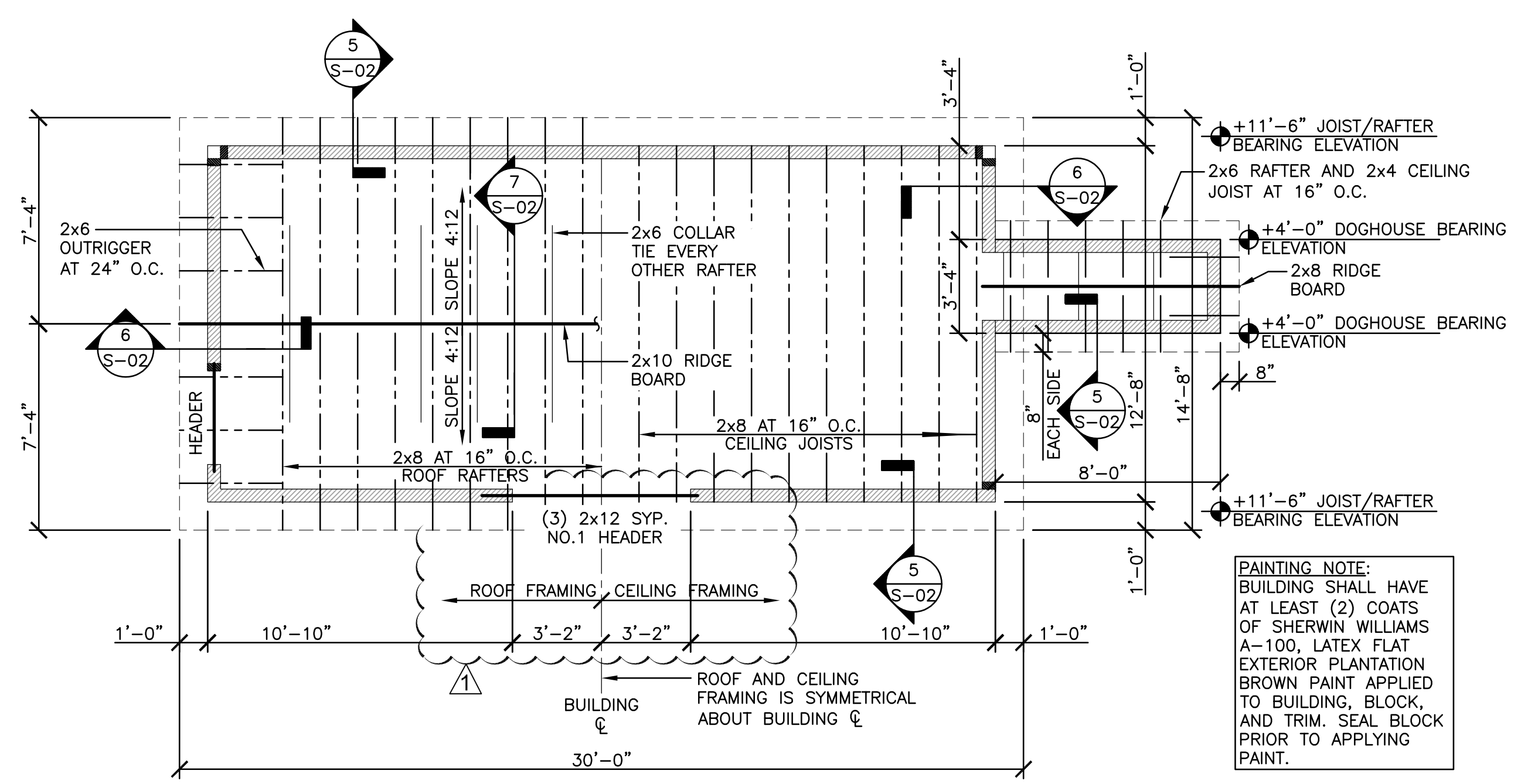
AQUA PROPERTY IMPERVIOUS AREA TABULATION
 EXISTING IMPERVIOUS AREA = ±3094 SF
 -STRUCTURES: 233 SF
 -GRAVEL PATH: 2861 SF
 PROPOSED IMPERVIOUS AREA = ±4657 SF
 -STRUCTURE: 355 SF
 -CONCRETE PADS: 102 SF
 -GRAVEL PATH: 4200 SF
 -REPLACING 195 SF OF EXISTING GRAVEL WITH THE PROPOSED BUILDING
 TOTAL IMPERVIOUS AREA = ±7751 SF
 IMPERVIOUS AREA PERCENTAGE = ±15.85%
 ALLOWABLE MAX. IMPERVIOUS PERCENTAGE = 20%



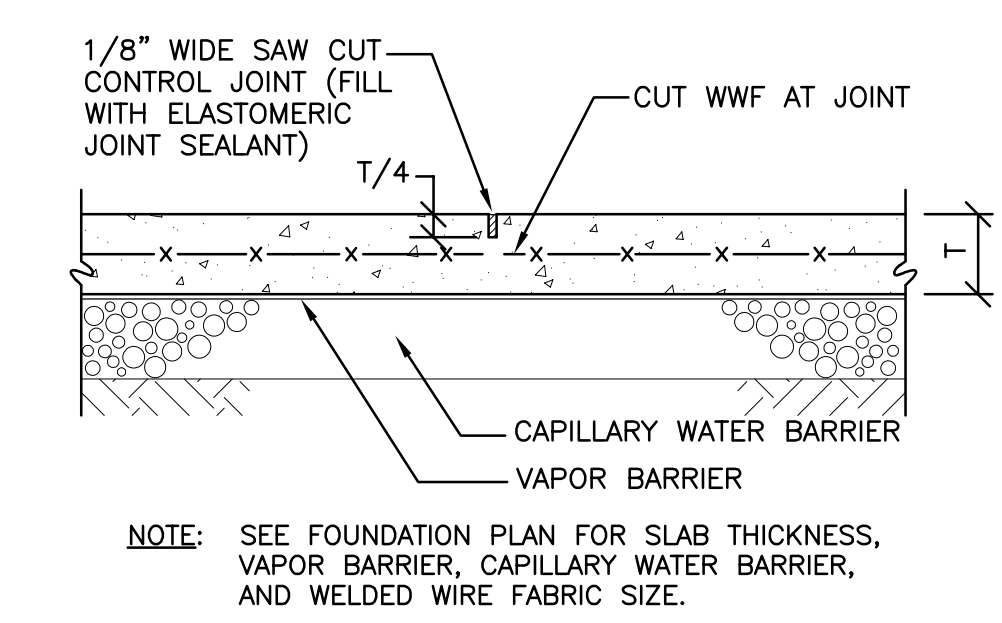


8 SCHEMATIC SHEAR WALL ELEVATION
 S-02 SCALE: NOT TO SCALE

- SHEAR WALL NOTES:**
- SEE GENERAL STRUCTURAL NOTES FOR TYPICAL WALL SHEATHING AND NAILING.
 - MINIMUM NAIL DISTANCE TO PANEL EDGE SHALL BE 3/8".
 - PANELS SHALL BE INSTALLED IN HORIZ. ORIENTATION WITH STRENGTH AXIS PERPENDICULAR TO WOOD STUDS.
 - PANELS SHALL NOT BE LESS THAN 4'-0" x 8'-0" EXCEPT AT SHEAR WALL BOUNDARIES AND CHANGES IN FRAMING (WINDOW AND DOOR OPENINGS). PANEL LENGTH SHALL NOT BE LESS THAN 2'-0".
 - UNLESS NOTED OTHERWISE, WALL STUDS SHALL BE 2x6 SOUTHERN PINE (MINIMUM GRADE NO. 2) SPACED A MAXIMUM OF 16" ON CENTER.
 - SHEAR WALLS SHALL BE CONTINUOUS FROM FOUNDATION TO RAFTER BEARING ELEVATION.
 - SHEAR WALL CHORDS SHALL BE NAILED PER 2/S-01
 - SHEAR WALL ELEVATION IS SCHEMATIC, SEE PLANS FOR SPECIFIC SHEAR WALL LAYOUT.

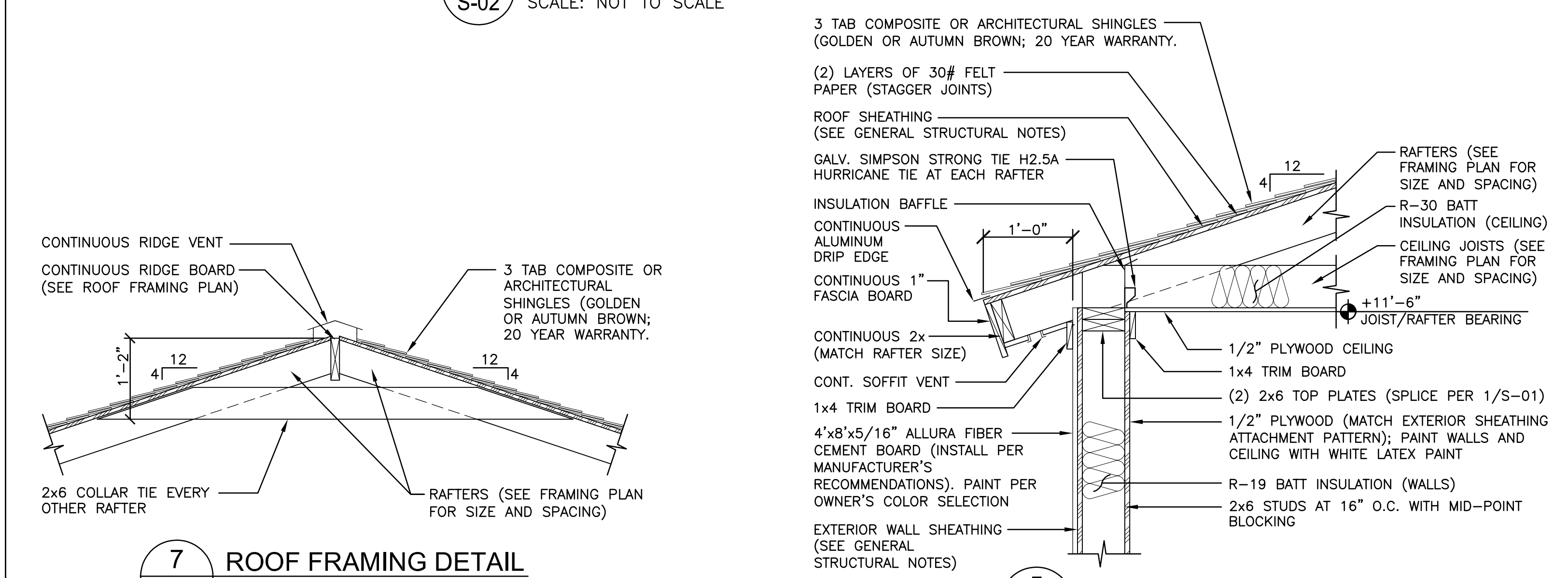


- ROOF FRAMING PLAN NOTES:**
- SEE SHEET S-01 FOR GENERAL STRUCTURAL NOTES.
 - ELEVATIONS SHOWN AS +XX'-XX" ARE REFERENCED TO THE SLAB HIGH POINT ELEVATION OF 694.48' UNLESS NOTED OTHERWISE.
 - SEE SCHEDULE ON S-01 FOR WOOD HEADERS REQUIRED OVER WALL OPENINGS.
 - SEE GENERAL STRUCTURAL NOTES FOR TYPICAL ROOF SHEATHING AND NAILING.
 - SEE 2/S-01 FOR BUILT-UP COLUMN NAILING SCHEDULE.
 - SEE 3/S-01 FOR BUILT-UP HEADER NAILING SCHEDULE.
 - AT CONTRACTOR'S OPTION, METAL PLATE CONNECTED WOOD TRUSSES SPACED AT 16" O.C. MAY BE USED INSTEAD OF THE CEILING JOISTS AND ROOF RAFTERS INDICATED ON THIS PLAN. SEE GENERAL STRUCTURAL NOTES FOR WOOD TRUSS REQUIREMENTS.
 - DENOTES WOOD SHEAR WALL. SEE 8/S-02 FOR TYPICAL SHEAR WALL CONSTRUCTION.

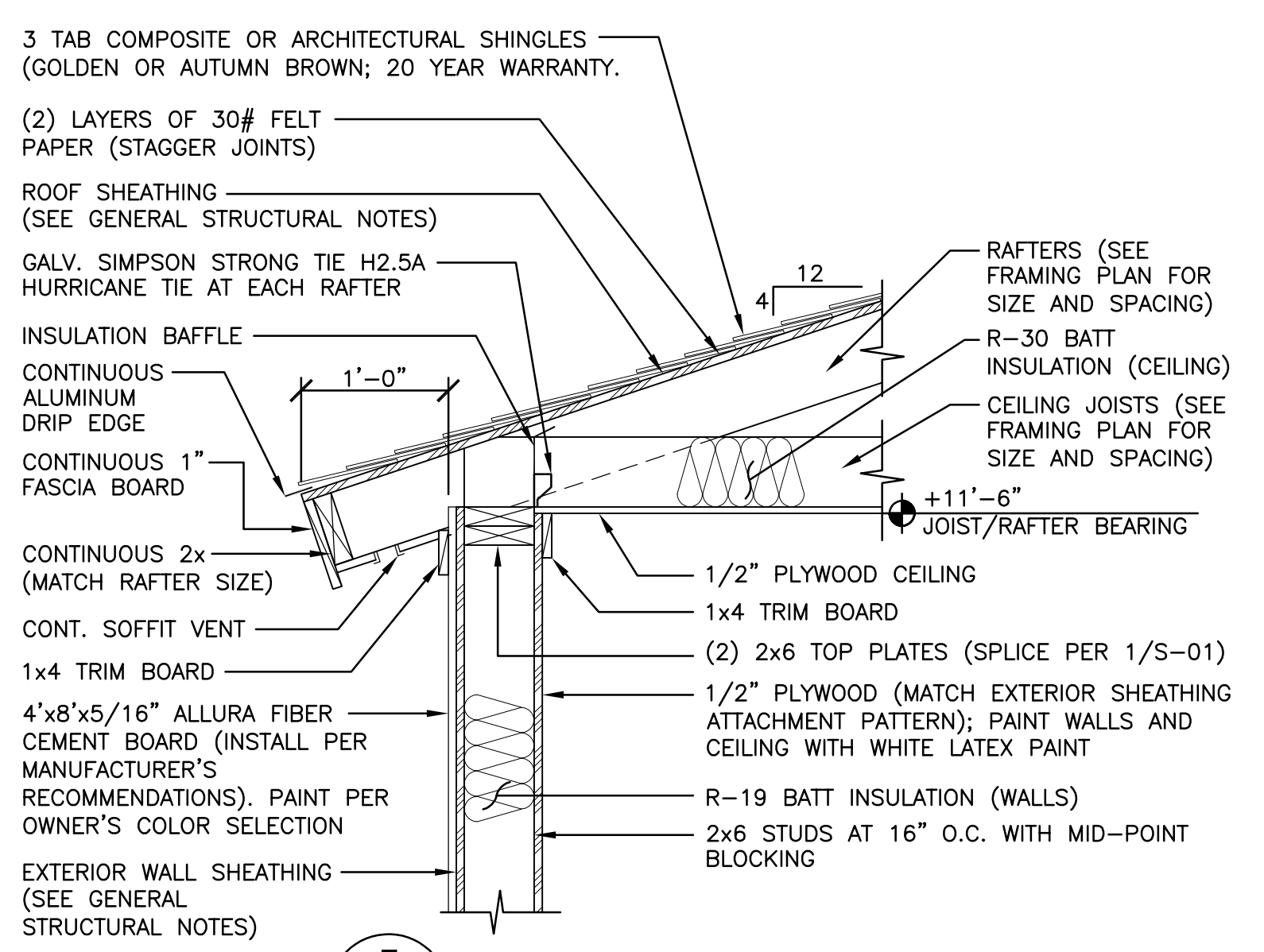


3 SLAB CONTROL JOINT DETAIL
 S-02 SCALE: NOT TO SCALE

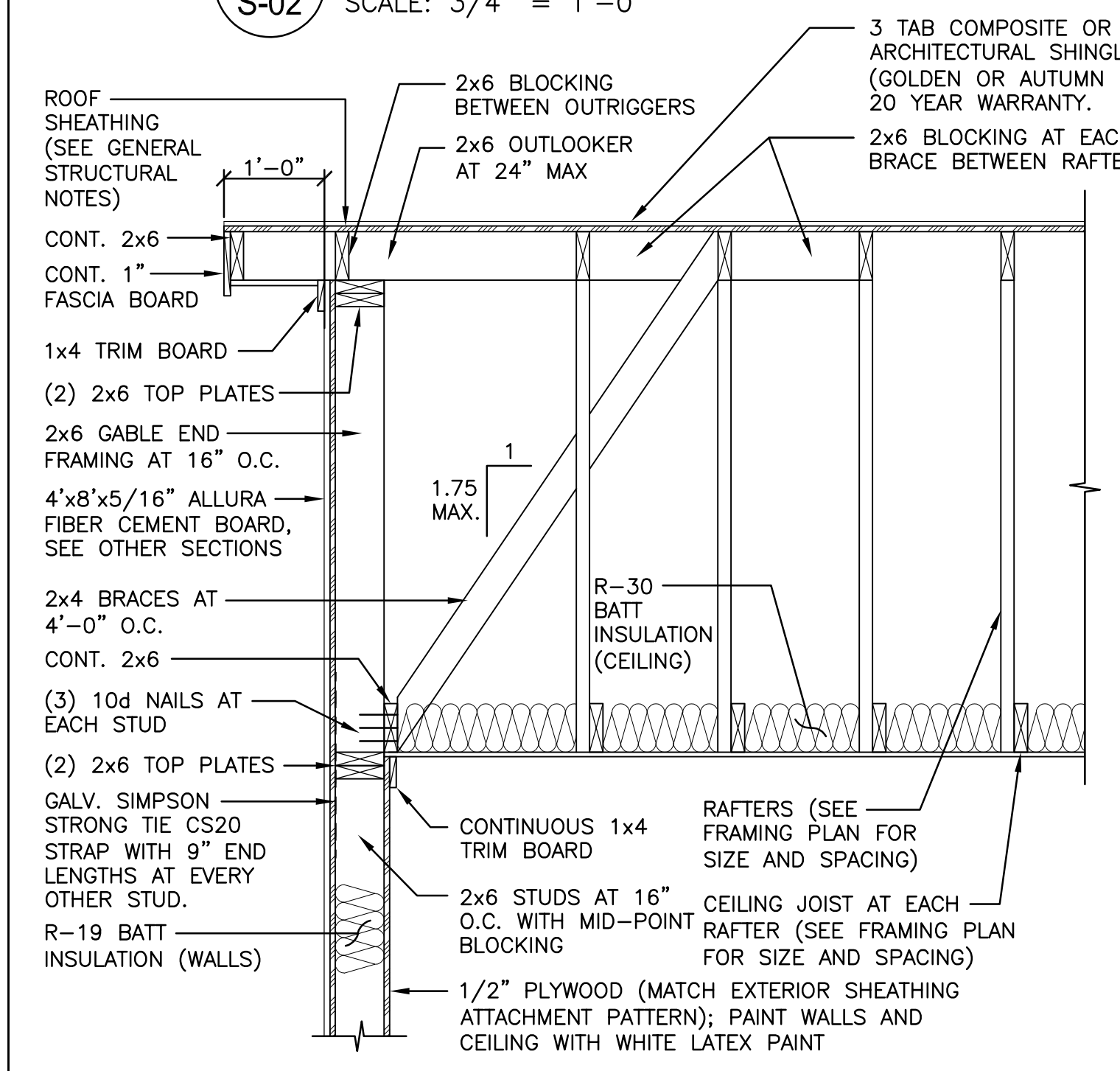
2 ROOF FRAMING PLAN
 S-02 SCALE: 1/4" = 1'-0"



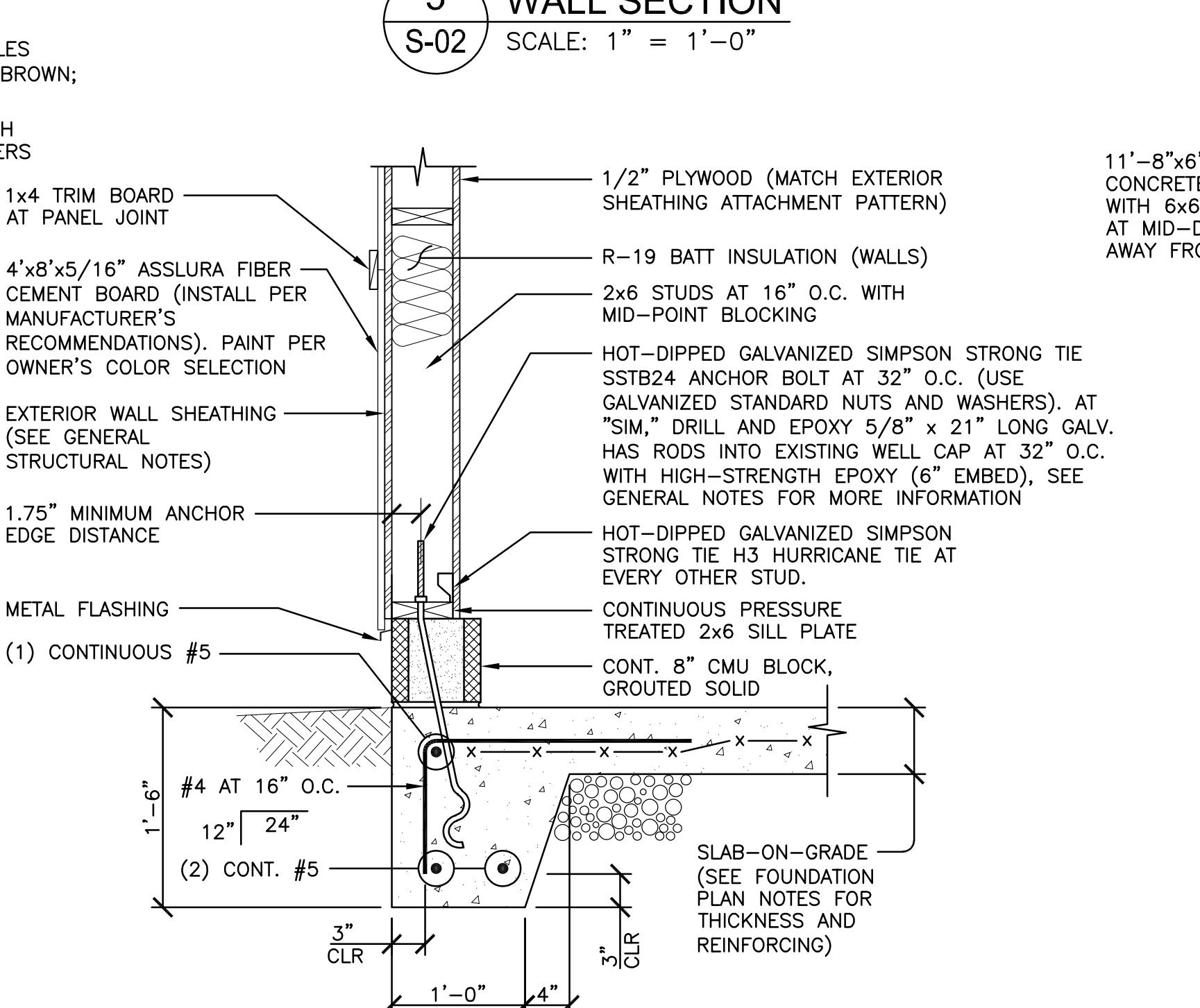
7 ROOF FRAMING DETAIL
 S-02 SCALE: 3/4" = 1'-0"



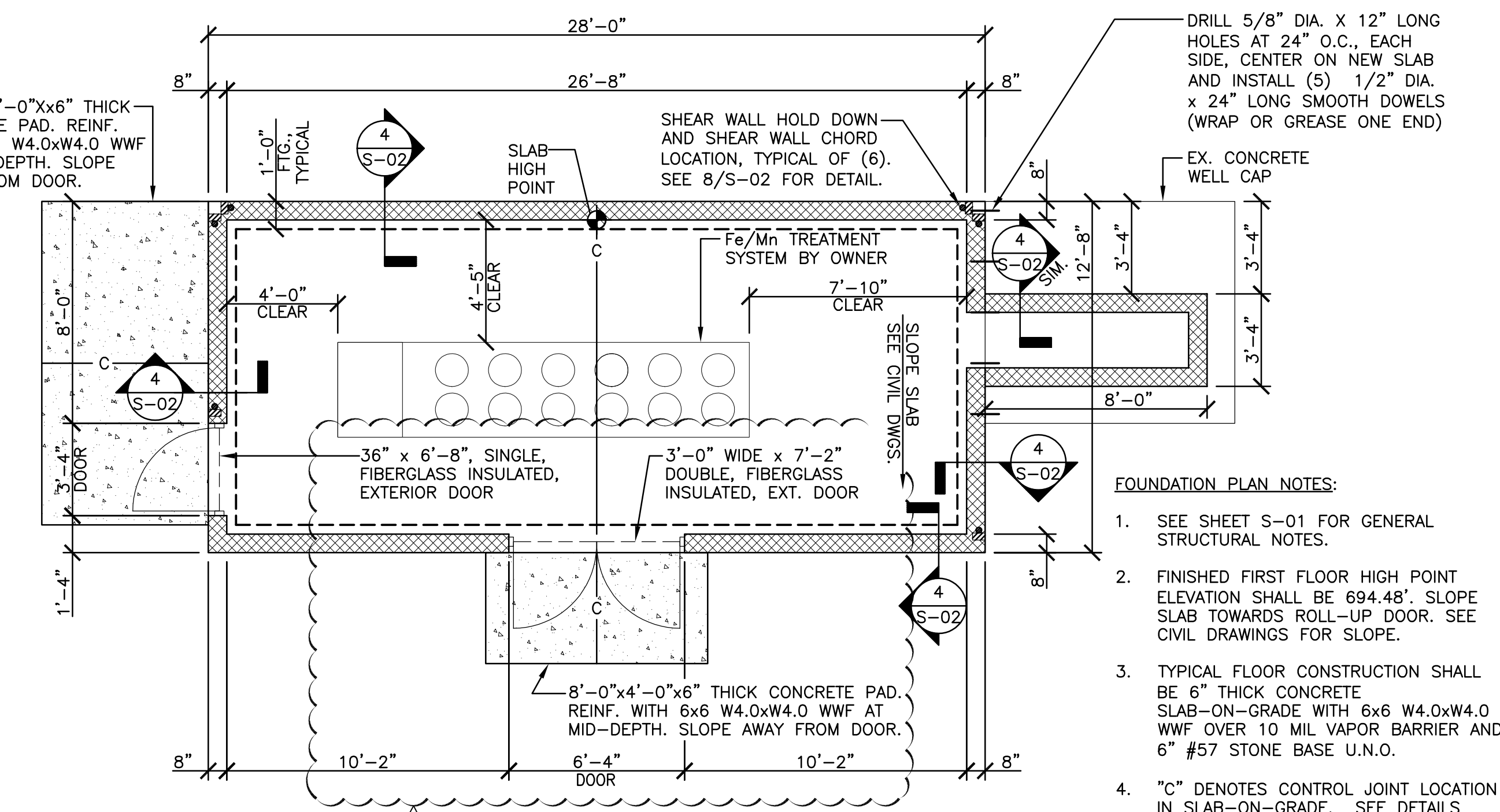
5 WALL SECTION
 S-02 SCALE: 1" = 1'-0"



6 ROOF DETAIL
 S-02 SCALE: 3/4" = 1'-0"

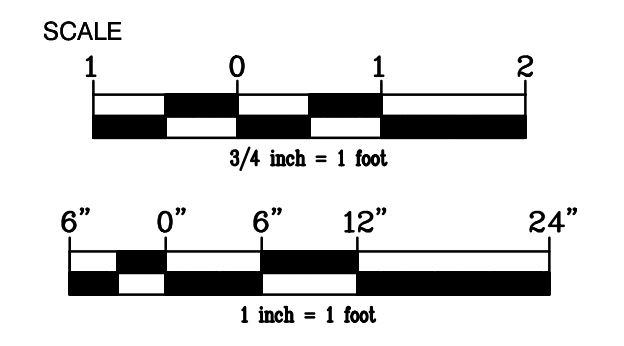


4 WALL SECTION
 S-02 SCALE: 1" = 1'-0"



1 FOUNDATION PLAN
 S-02 SCALE: 1/4" = 1'-0"

- FOUNDATION PLAN NOTES:**
- SEE SHEET S-01 FOR GENERAL STRUCTURAL NOTES.
 - FINISHED FIRST FLOOR HIGH POINT ELEVATION SHALL BE 694.48'. SLOPE SLAB TOWARDS ROLL-UP DOOR. SEE CIVIL DRAWINGS FOR SLOPE.
 - TYPICAL FLOOR CONSTRUCTION SHALL BE 6" THICK CONCRETE SLAB-ON-GRADE WITH 6x6 W4.0xW4.0 WWF OVER 10 MIL VAPOR BARRIER AND 6" #5 STONE BASE U.N.O.
 - "C" DENOTES CONTROL JOINT LOCATION IN SLAB-ON-GRADE. SEE DETAILS 3/S-02.
 - APPLY A CHEMICAL HARDENER FINISH TO ALL PERMANENTLY EXPOSED INTERIOR FLOOR SLABS.



| No. | DATE | BY | Description |
|-----|----------|-----|-------------|
| 1 | 09/01/21 | JGL | ADDENDUM #1 |

REVISIONS

DRAWN BY: ADM
 APPROVED BY: ADM
 CHECKED BY: ACH
 DATE: JULY 28, 2021

TITLE: **STRUCTURAL PLANS AND DETAILS**

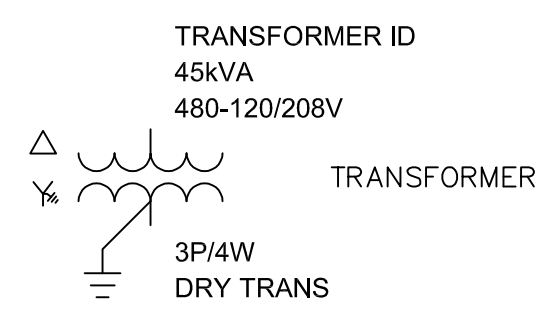
PROJECT NO. 50140313

ELECTRICAL LEGEND:

LIGHTING:

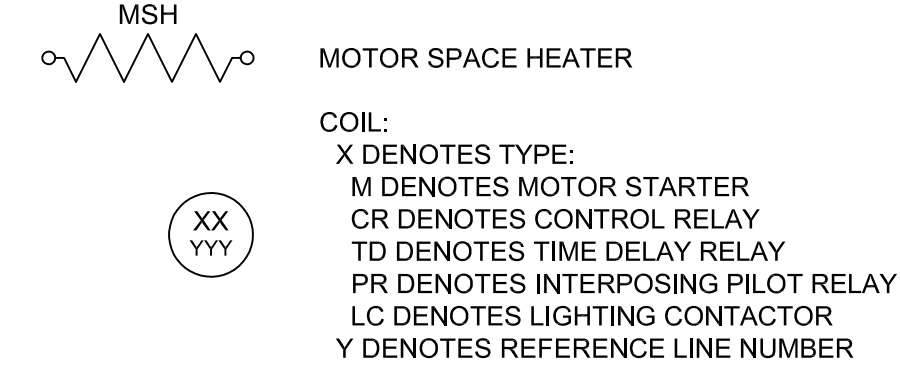
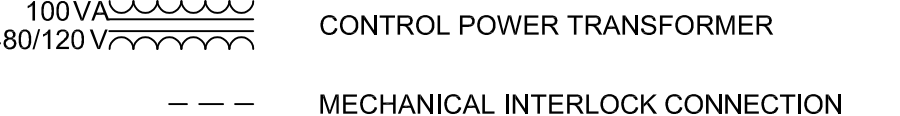
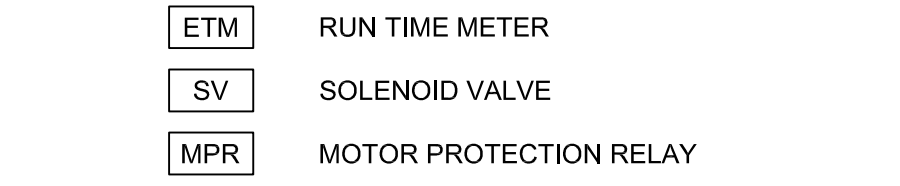
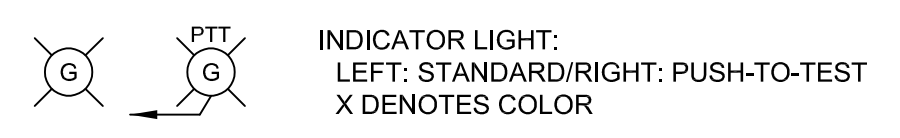
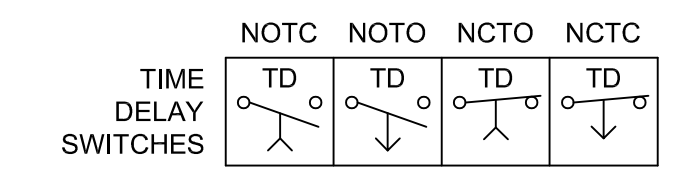
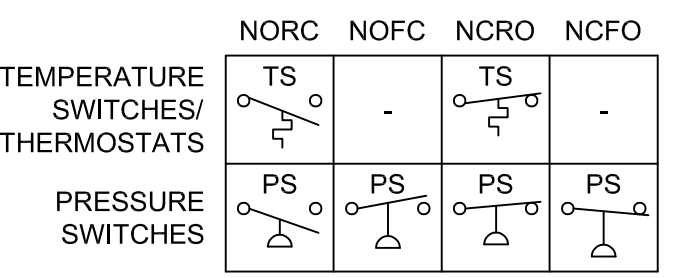
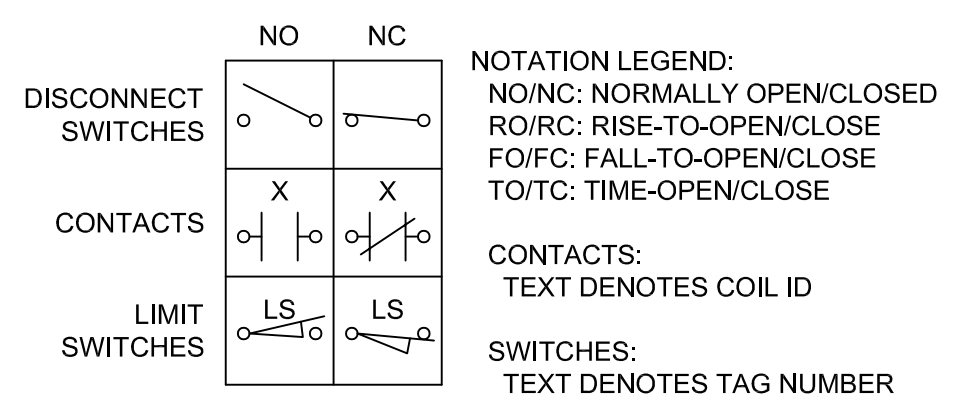
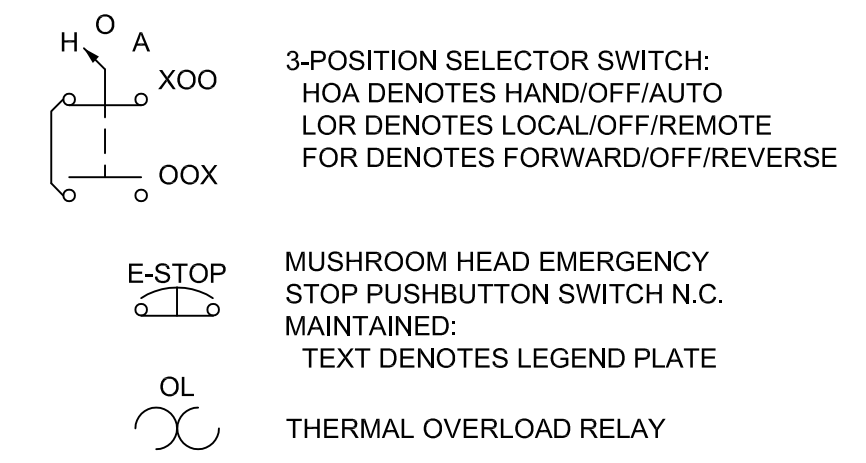
- X # DENOTES FIXTURE TYPE (TYP.)
SEE FIXTURE SCHEDULE
DENOTES CIRCUIT NUMBER (TYP.)
- RECTANGULAR FIXTURE
- CEILING-MOUNTED FIXTURE
- WALL-MOUNTED FIXTURE
- WALL-MOUNTED EXIT SIGN:
SHADED PORTION DENOTES SIGN FACE
- POLE-MOUNTED FIXTURE

SINGLE-LINE DIAGRAMS



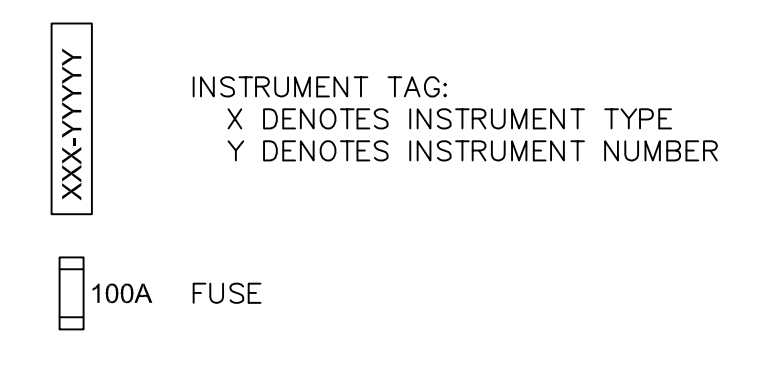
- MOTOR & TYP. ADDITIONAL DEVICES:
 TSH: TEMPERATURE SWITCH
 MSH: MOTOR SPACE HEATER
 CF: COOLING FAN
 TE: TEMPERATURE ELEMENT
 ME: MOISTURE DETECTOR

ELEMENTARY CONTROL SCHEMATICS



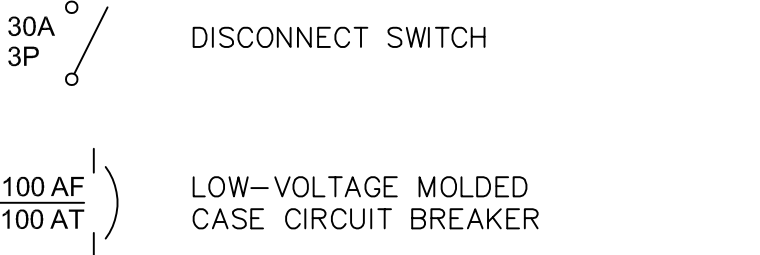
RECEPTACLES:

- X DENOTES RECEPTACLE TYPE (TYP.):
GFCI: GROUND FAULT CIRCUIT INTERRUPT
UPS: UNINTERRUPTIBLE POWER SUPPLY
WPCR: WEATHERPROOF CORROSION RESISTANT
DENOTES CIRCUIT NUMBER (TYP.)
- DUPLEX RECEPTACLE



SWITCHES

- WALL SWITCH:
X DENOTES TYPE:
NO SUBSCRIPT: SINGLE-POLE SWITCH
3: 3-WAY SWITCH
4: 4-WAY SWITCH
M: MANUAL MOTOR STARTER
DENOTES CIRCUIT NUMBER
- COMBINATION MOTOR STARTER
- DISCONNECT SWITCH
- LOCAL CONTROL STATION



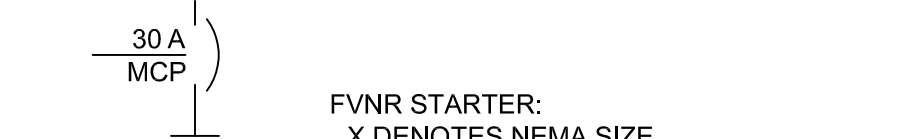
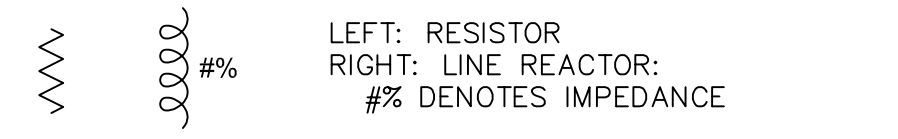
WIRING

- PROPOSED
- EXISTING
- CONDUIT EXPOSED
- CONDUIT UNDERGROUND
- CONDUIT HOMERUN



MISC PLAN VIEW SYMBOLS

- EQUIPMENT CONNECTION
- INSTRUMENT TAG:
X DENOTES INSTRUMENT TYPE
DENOTES INSTRUMENT NUMBER
- CONDUIT TAGS:
P DENOTES POWER
C DENOTES CONTROL
I DENOTES INSTRUMENTATION
XXXX DENOTES CONDUIT ID
- THERMOSTAT
- HORN/LIGHT DEVICE



EQUIPMENT/DEVICE LOCATION SYMBOLS

- * LOCATED IN MCC
- LOCATED IN STAND-ALONE MOTOR STARTER/CONTROLLER
- △ LOCATED IN FIELD
- LOCATED AT PANEL:
X DENOTES PANEL ID:
L DENOTES LCS

GROUNDING

- GROUND RODS:
LEFT: BURIED
RIGHT: IN TESTWELL
- CAD WELD TERMINATION
- #4/0 BCC

ABBREVIATIONS:

- AIC AMPERE INTERRUPTING CAPACITY
- ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
- ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
- ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS
- AF AMPERE FRAME
- AFF ABOVE FINISHED FLOOR
- AT AMPERE TRIP
- BCC BARE COPPER CONDUCTOR
- BKR BREAKER
- CJB CONTROL JUNCTION BOX
- CPT CONTROL POWER TRANSFORMER
- CT CURRENT TRANSFORMER
- CP CONTROL PANEL
- CV CHECK VALVE
- DB DUCTBANK
- DSW DISCONNECT SWITCH
- ECB ENCLOSED CIRCUIT BREAKER
- EHH ELECTRICAL HANDHOLE
- ETU ELECTRONIC TRIP UNIT
- EX EXISTING
- FE FLOW ELEMENT
- FIT FLOW INDICATING TRANSMITTER
- FVNR FULL VOLTAGE NON-REVERSING FLOW SWITCH
- GD GAS DETECTOR
- G/GND GROUND
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- IEEE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
- ISO INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
- HOA HAND-OFF-AUTO
- JBX JUNCTION BOX
- LCS LOCAL CONTROL STATION
- LP LIGHTING PANEL
- LS LEVEL SWITCH/LIMIT SWITCH
- LSL LEVEL SWITCH LOW
- LSLL LEVEL SWITCH LOW-LOW
- LSH LEVEL SWITCH HIGH
- LSHH LEVEL SWITCH HIGH-HIGH
- MANUF MANUFACTURER
- MCP MOTOR CIRCUIT PROTECTOR
- MS MOTOR STARTER
- MSH MOTOR SPACE HEATER
- MTD MOUNTED
- MTS MANUAL TRANSFER SWITCH
- MWTS MOTOR WINDING TEMPERATURE SWITCH
- N4X NEMA 4X SST
- NEC NATIONAL ELECTRICAL CODE
- NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- NFPA NATIONAL FIRE PROTECTION ASSOCIATION
- NTS NOT TO SCALE
- OL OVERLOAD
- PC PHOTOCCELL
- PIT PRESSURE INDICATING TRANSMITTER
- PLC PROGRAMMABLE LOGIC CONTROLLER
- PP POWER PANEL
- PS PRESSURE SWITCH
- PSH PRESSURE SWITCH HIGH
- PSL PRESSURE SWITCH LOW
- PT POTENTIAL TRANSFORMER/PRESSURE TRANSDUCER
- RECP RECEPTACLE
- RTU REMOTE TELEMETRY UNIT
- RVSS REDUCED VOLTAGE SOFT STARTER
- S.E. SERVICE ENTRANCE
- SP C. SPARE CONDUIT
- SPD SURGE PROTECTIVE DEVICE
- SST STAINLESS STEEL
- SV SOLENOID VALVE
- TSH TWISTED SHIELDED
- TX TRANSFORMER
- TYP TYPICAL
- VFD VARIABLE FREQUENCY DRIVE
- WPCR WEATHER PROOF CORROSION RESISTANT
- XFMR TRANSFORMER

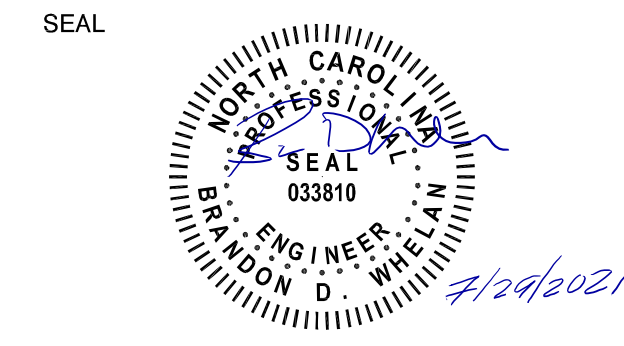
GENERAL NOTES:

- THESE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT SHOW ALL DETAILS REQUIRED FOR THE COMPLETE SYSTEM. THEY SHOULD HOWEVER BE FOLLOWED AS CLOSELY AS POSSIBLE IN THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT. ALL DIMENSIONS SHALL BE CHECKED AT THE BUILDING AND ALL STRUCTURAL AND FINISH CONDITIONS INVESTIGATED. THE CONTRACTOR SHALL ARRANGE HIS WORK TO MEET THESE CONDITIONS AND PROVIDED SUCH EQUIPMENT AND ACCESSORIES AS MAY BE REQUIRED.
- PROPERLY SUPPORT ALL WORK AND EQUIPMENT INSTALLED UNDER THIS CONTRACT PLUMB AND PARALLEL. STUDY ALL GENERAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS, SHOP DRAWINGS, AND CATALOG DATA TO DETERMINE HOW EQUIPMENT, ACCESSORIES, PIPING, FIXTURES, AND RELATED ITEMS ARE TO BE SUPPORTED, MOUNTED, OR SUSPENDED. PROVIDE ALL BOLTS, INSERTS, PIPE STANDS, BRACKETS, STRUCTURAL SUPPORTS, AND ACCESSORIES FOR PROPER SUPPORT OF EQUIPMENT FURNISHED UNDER THIS CONTRACT. COORDINATE THE ELECTRICAL WORK WITH ALL OTHER CONTRACTORS BEFORE BEGINNING WORK TO ENSURE THAT THE ELECTRICAL WORK DOES NOT INTERFERE WITH OTHER WORK.
- NOTIFY THE ENGINEER IN WRITING IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCY OR POINTS OF CONFLICT IN THE DRAWINGS OR THE SPECIFICATIONS.
- THE INSTALLATION OF ALL CONCRETE ENCASED ELECTRICAL CONDUITS SHALL COMPLY WITH ACI 318, SECTION 6.3. CONTRACTOR SHALL SUPPLY EXPANSION JOINT FITTINGS AS REQUIRED FOR THERMAL EXPANSION AND DEFLECTION.
- BOND ALL DIRECT BURIED GROUND CONDUCTORS TO EXISTING GROUND CONDUCTORS IN ALL MANHOLES, PULL BOXES, CABLE TRAYS, AND SIMILAR LOCATIONS WHERE APPLICABLE.
- UNLESS OTHERWISE SPECIFIED OR NOTED, ALL WALL MOUNTED ELECTRICAL PANELS, ENCLOSURES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED 6'-6" (MAX) FROM THE TOP OF THE PANEL TO FINISHED FLOOR OR GRADE.
- UNLESS OTHERWISE NOTED, ALL LIGHTING SWITCHES, CONTROL SWITCHES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED WITH THEIR CENTERLINE APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR, SLAB, OR GRADE. THERMOSTATS SHALL BE MOUNTED 4'-4" ABOVE FINISHED FLOOR.
- A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH CIRCUIT (SEPARATE CONDUCTOR IN THE CONDUIT). THE CONDUCTOR SHALL BE TERMINATED AT THE PROPER DEVICE, TERMINAL, OR LUG AT THE POWER SOURCE (MCC GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.
- ALL CONDUIT HOMERUNS ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL REFER TO CONDUIT AND WIRE SCHEDULE, RISER DIAGRAMS, SINGLE LINE DIAGRAMS, AND OTHER DRAWINGS FOR CONDUIT AND WIRE REQUIREMENTS.
- UNLESS OTHERWISE NOTED, DIRECT-BURIED CONDUIT SHALL BE SCHEDULE 40 PVC. WIRE TYPE SHALL BE THHN/THWN. GFCI RECEPTACLES SHALL BE RATED 20A AT 120-240V AND UL 943 LISTED.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL METERING EQUIPMENT WITH LOCAL ELECTRIC UTILITY. COORDINATION SHALL INCLUDE, BUT NOT LIMITED TO: SECONDARY CONDUIT & WIRE, METERING CABINET AND EQUIPMENT, AND SECONDARY DISCONNECTING MEANS. ALL COSTS RELATED TO UTILITY REQUIREMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE NEC AND LOCAL BUILDING CODES.



Dewberry Engineers Inc.
 9300 HARRIS CORNERS PKWY
 SUITE 220
 CHARLOTTE, NC 28269
 PHONE: 704.509.9918
 FAX: 704.509.9957
 NCBELS #F-0929

RADIUM REMOVAL
 TREATMENT SYSTEM
 FIELDSTONE WELL #1
 AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



SCALE

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DRAWN BY TK
 APPROVED BY SB
 CHECKED BY BW
 DATE JULY 28, 2021

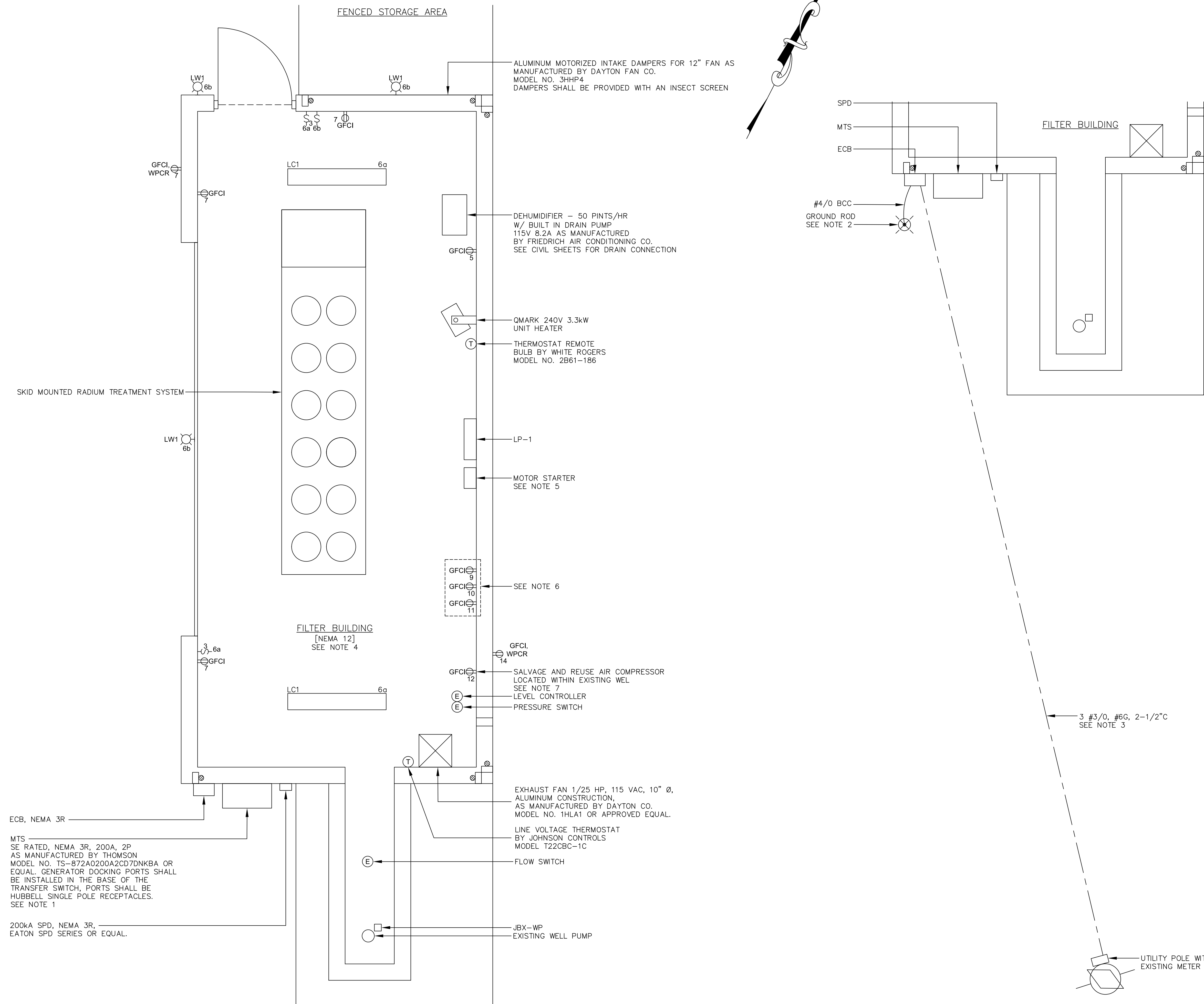
TITLE
**ELECTRICAL
 LEGEND,
 ABBREVIATIONS &
 GENERAL NOTES**

PROJECT NO. 50140313

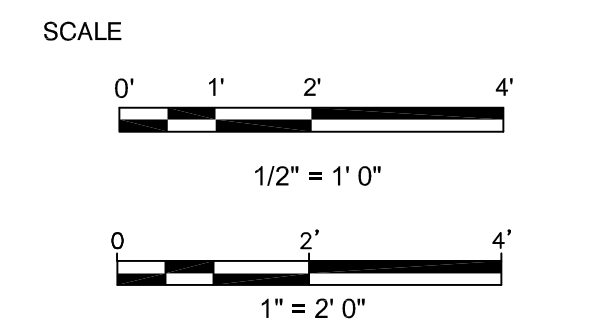
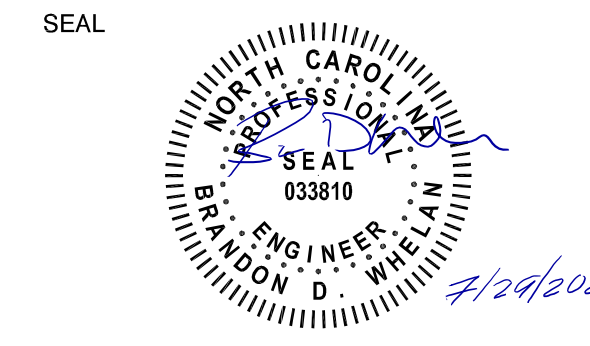
E0.01

NOTES:

1. PROVIDE MTS WITH SURGE PROTECTOR, CUTLER HAMMER CHS-A01 OR EQUAL.
2. CONNECT TO EXISTING GROUNDING RING. SEE 1/E3.01-DETAILS.
3. ALL UNDERGROUND RACEWAY SHALL BE SCHEDULE 40 PVC.
4. ALL INTERIOR CONDUIT SHALL BE PVC.
5. PROVIDE 5HP MAGNETIC MOTOR STARTER FOR WELL PUMP. MOTOR STARTER SHALL HAVE THE FOLLOWING INTEGRAL FEATURES:
 - 5.1. MANUFACTURE: ALLEN-BRADLEY, SERIES 509
 - 5.2. NEMA 3R ENCLOSURE
 - 5.3. 120VAC COIL
 - 5.4. THERMAL OVERLOADS: J-SERIES
 - 5.5. HAND/OFF/AUTO SWITCH, WITH RUNNING INDICATION LIGHT
 - 5.6. TIMER SWITCH: INTERMATIC MODEL FF5M, WIRED TO CONTROL THE AUTO CIRCUIT.
 - 5.7. TWO (2) NORMALLY OPEN AUXILIARY CONTACTS
 - 5.8. ELAPSED TIME METER: VENDER-ROOT 7795
 - 5.9. IMPULSE COUNTER: DURANT 6-Y-41345
6. RECEPTACLES DEDICATED TO CHEMICAL PUMPS.
7. RECEPTACLE DEDICATED TO AIR COMPRESSOR.



**RADIUM REMOVAL
TREATMENT SYSTEM
FIELDSTONE WELL #1**
AQUA NORTH CAROLINA
202 MACKENAN DR
CARY, NC 27511



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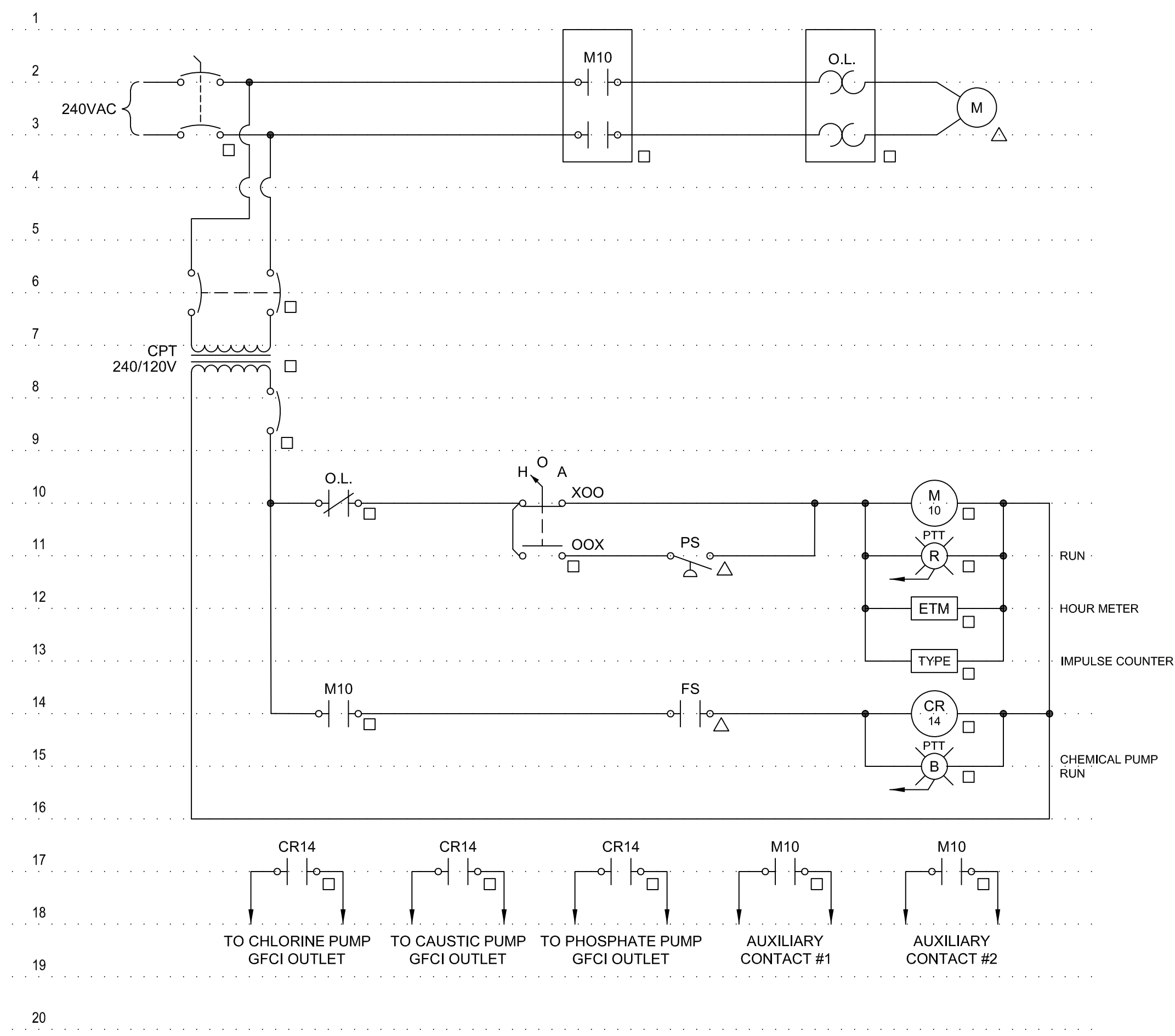
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DRAWN BY: TK
APPROVED BY: SB
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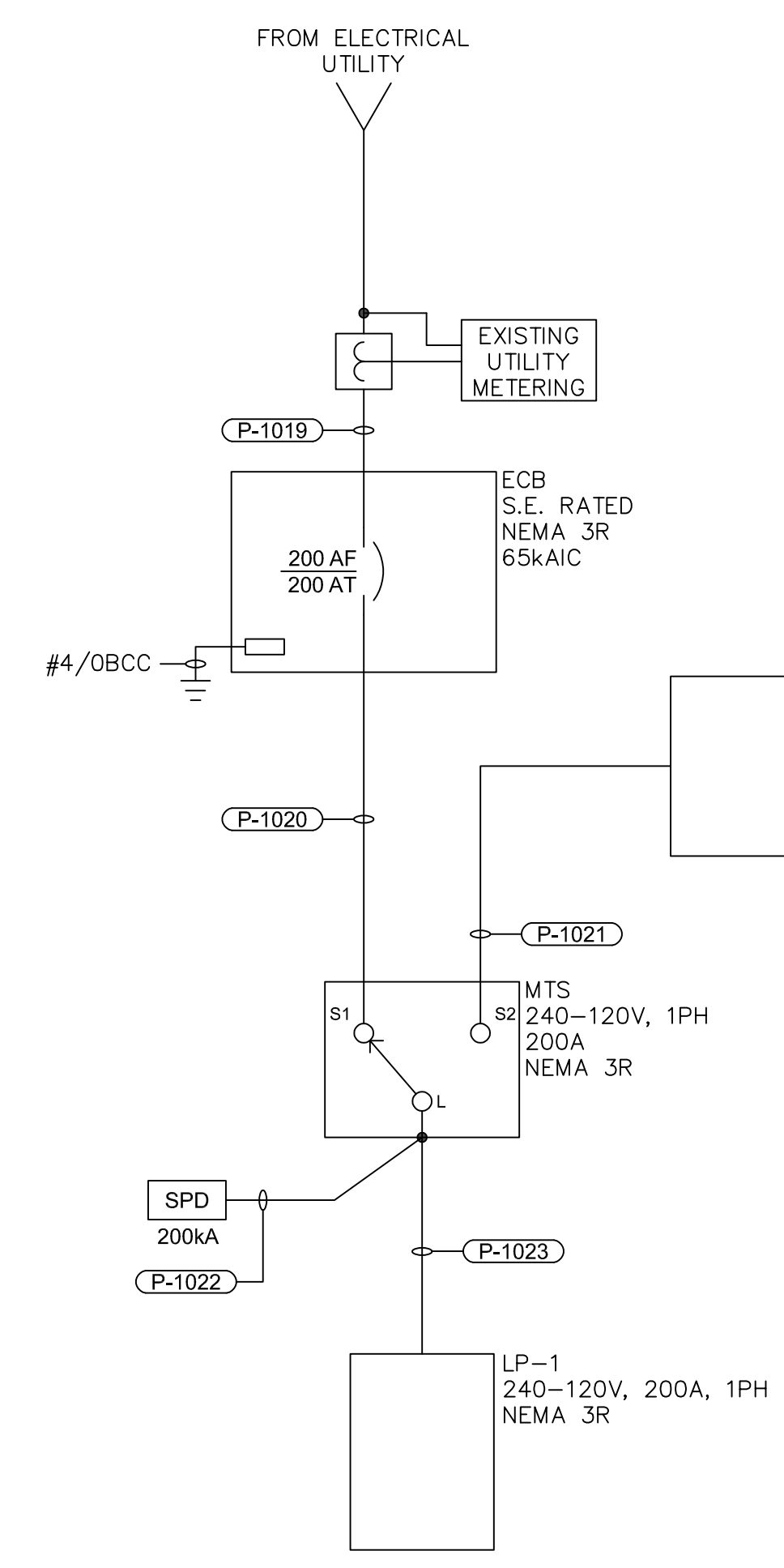
TITLE: **ELECTRICAL PLANS**

PROJECT NO. 50140313

E1.01



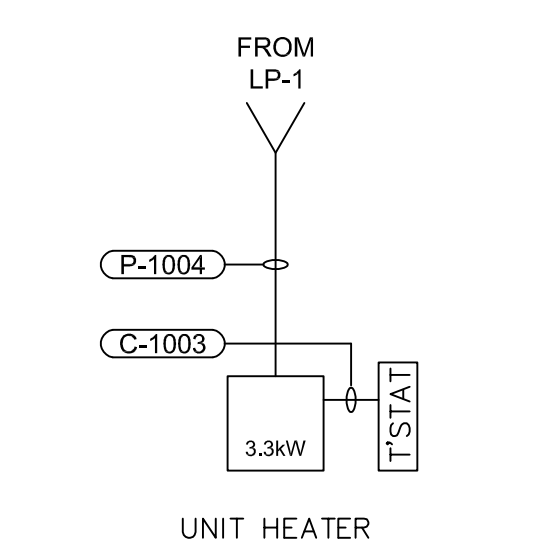
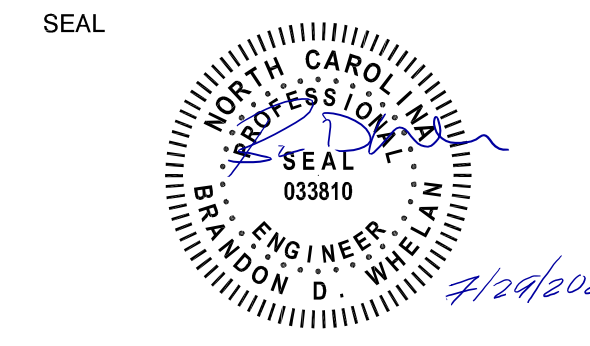
1 WELL PUMP
ELEMENTARY CONTROL SCHEMATIC



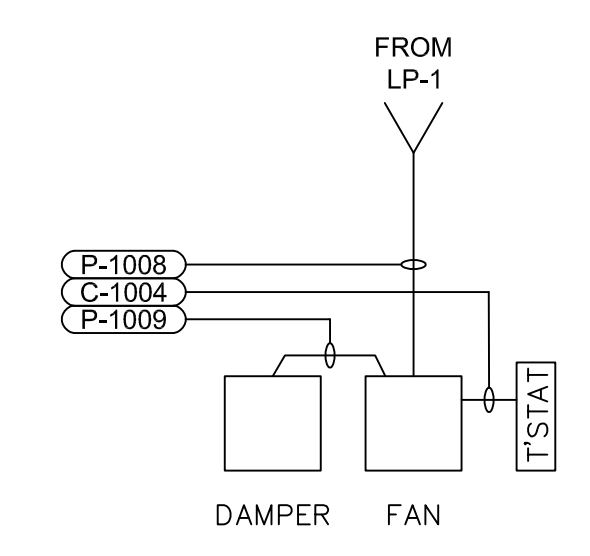
2 FIELDSTONE WELL #1
SINGLE LINE DIAGRAM

- NOTES:
1. MOUNTED TO BASE OF MTS.
 2. VERIFY POSITIONING AND WIRING OF EXISTING PROCESS SWITCHES WHEN THEY ARE UNWIRED FROM EXISTING WELL HOUSE AND TIED INTO NEW PIPING.

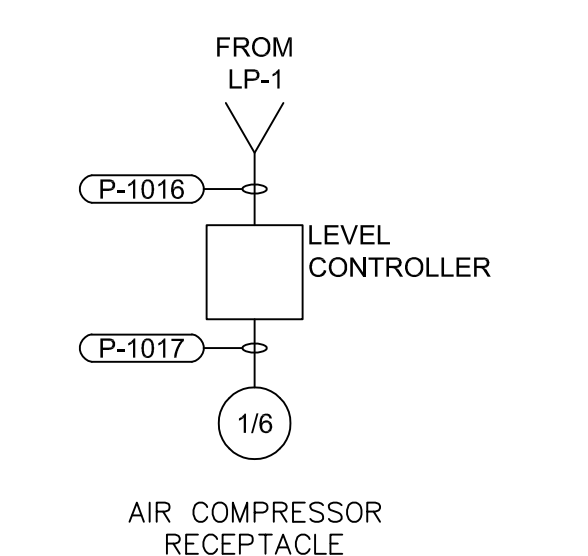
RADIUM REMOVAL TREATMENT SYSTEM
FIELDSTONE WELL #1
AQUA NORTH CAROLINA
 202 MACKENAN DR
 CARY, NC 27511



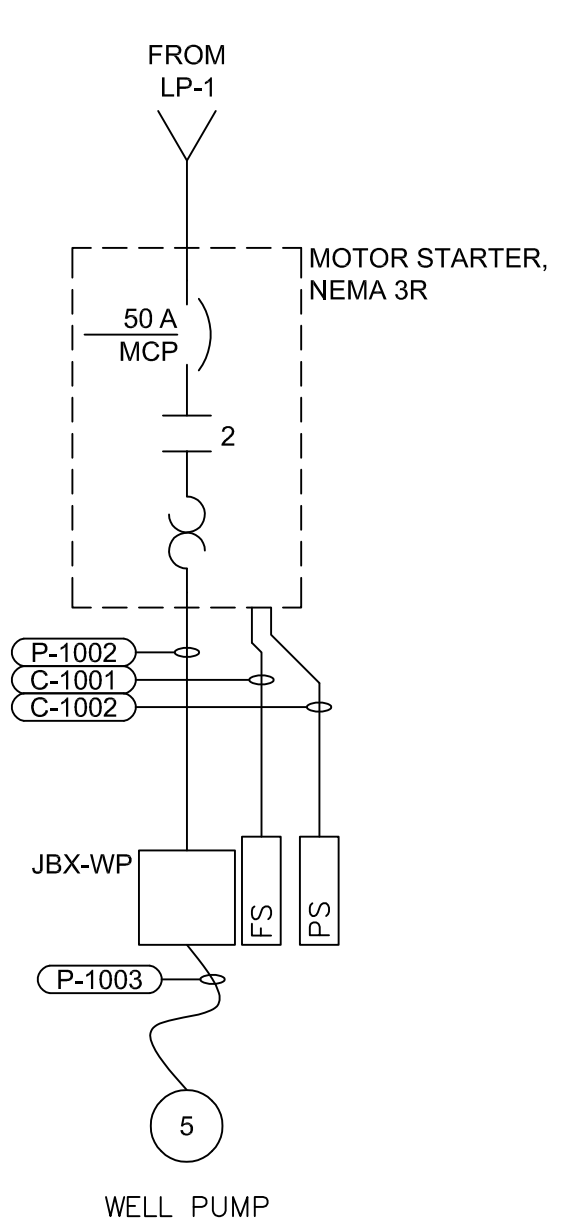
3 UNIT HEATER
RISER DIAGRAM



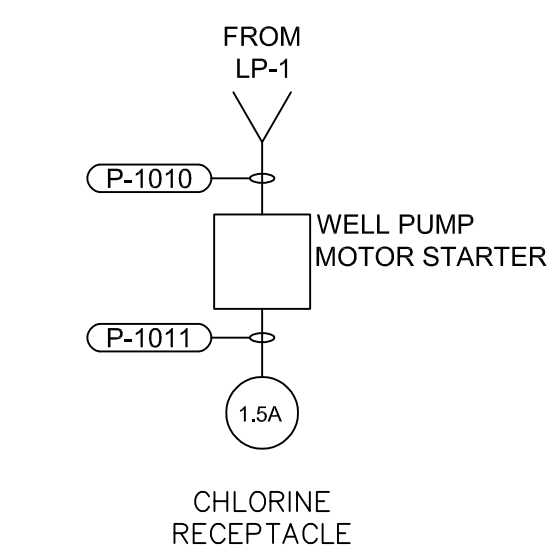
4 EXHAUST FAN
RISER DIAGRAM



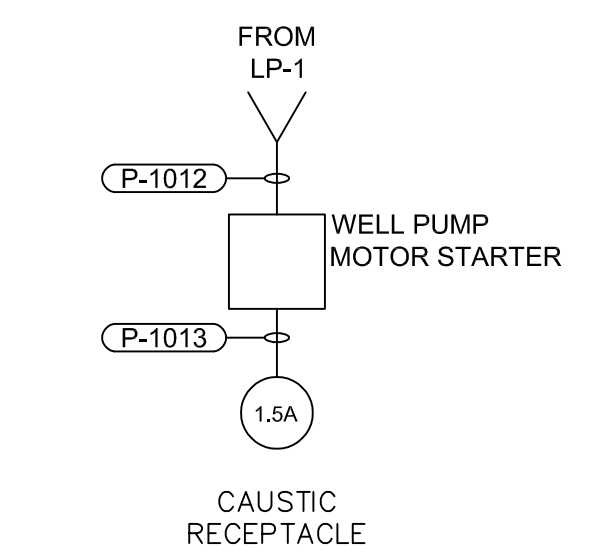
5 AIR COMPRESSOR
RISER DIAGRAM



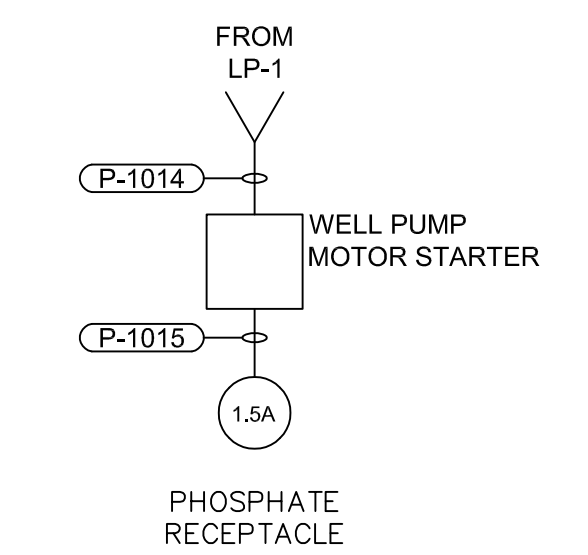
9 WELL PUMP
RISER DIAGRAM



6 CHLORINE PUMP
RISER DIAGRAM



7 CAUSTIC PUMP
RISER DIAGRAM



8 PHOSPHATE PUMP
RISER DIAGRAM

SCALE

| | | | |
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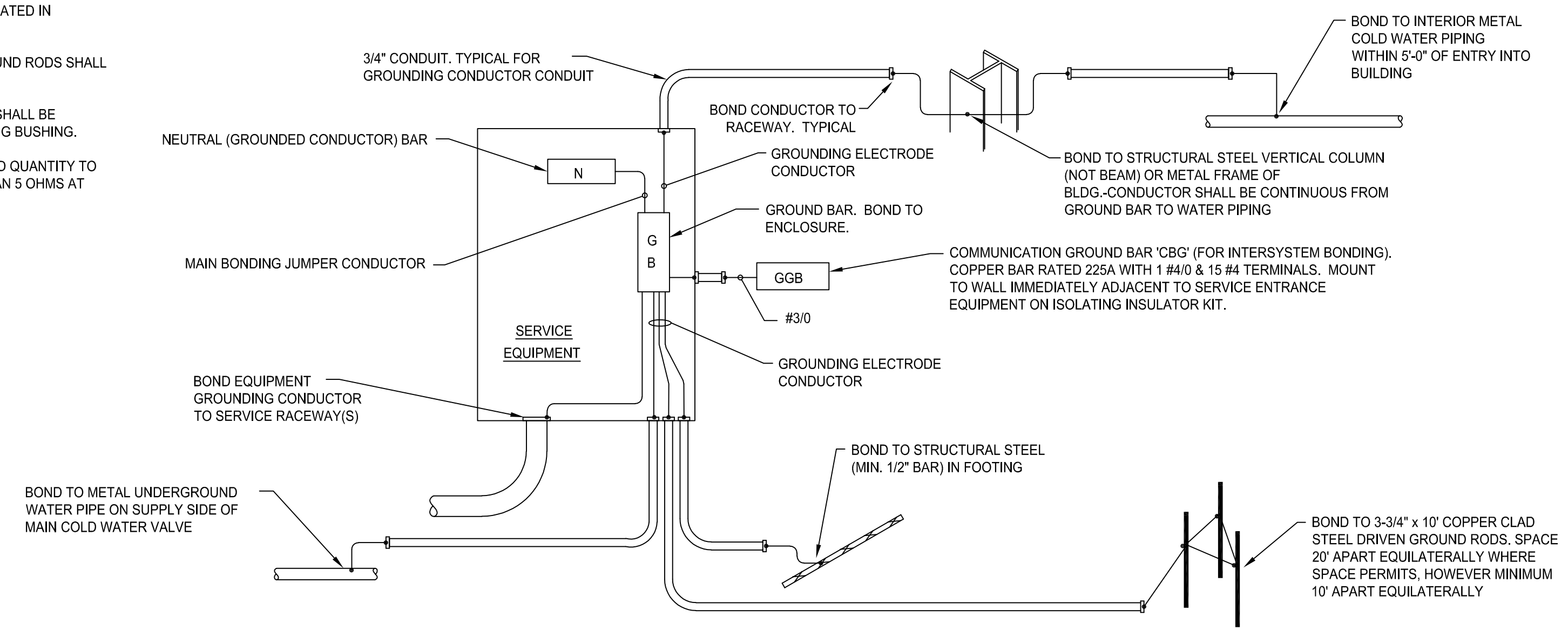
| No. | DATE | BY | Description |
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TITLE
ELECTRICAL SCHEDULES & SINGLE LINES

PROJECT NO. 50140313

NOTES:

- GROUNDING CONDUCTORS AND MAIN BONDING JUMPER SHALL BE BARE COPPER UNO AND SHALL BE SIZED AS INDICATED IN ELECTRICAL RISER AND THIS DETAIL.
- CONNECTIONS TO STRUCTURAL STEEL AND GROUND RODS SHALL BE EXOTHERMICALLY WELDED.
- GROUNDING ELECTRODE CONDUCTOR CONDUIT SHALL BE BONDED AT EACH END BY MEANS OF A GROUNDING BUSHING.
- PROVIDE GROUND ROD LENGTH (MINIMUM 10') AND QUANTITY TO ACHIEVE GROUND ROD RESISTANCE OF LESS THAN 5 OHMS AT SERVICE EQUIPMENT.



1 GROUNDING / BONDING SCALE: NTS

| 240/120 VOLTS 1 PHASE, 3 WIRE | | LP-1 MAIN BREAKER 200A 2P | | | | TYPE: NEMA 3R MOUNT: SURFACE | |
|-------------------------------------|--------|---------------------------------|------|-----|--------------|---------------------------------|-------------------------------------|
| DESCRIPTION | WIRE | TRIP | POLE | No. | VOLT-AMPERES | | DESCRIPTION |
| | | | | | A | B | |
| PUMP | P-1001 | 40 | 2 | 1 | 3,360 | 3,360 | UNIT HEATER |
| DEHUMIDIFIER (GFCI) | P-1005 | 20 | 1 | 5 | 994 | | LIGHTING |
| RECEPTACLES - UTILITY (GFCI) | P-1007 | 20 | 1 | 7 | | 720 | EXHAUST FAN AND LOUVERS |
| RECEPTACLES - CHLORINE PUMP (GFCI) | P-1010 | 20 | 1 | 9 | 180 | | RECEPTACLES - CAUSTIC PUMP (GFCI) |
| RECEPTACLES - PHOSPHATE PUMP (GFCI) | P-1014 | 20 | 1 | 11 | | 180 | RECEPTACLES - AIR COMPRESSOR (GFCI) |
| SPARE | | 20 | 1 | 13 | --- | --- | RECEPTACLES - HEAT TRACE (GFCI) |
| SPACE | | | | 15 | | | SPARE |
| TOTAL | | | | | 4,524 | 4,260 | TOTAL LOAD (AMPS) |
| PHASE TOTAL | | | | | 6,684 | 6,156 | 35.6 |
| TOTAL LOAD | | | | | 2,160 | 1,896 | 17.8% |
| TOTAL | | | | | 12,840 | | |

NOTES:
*65kAIC
*SERVICE ENTRANCE RATED

| CONDUIT NO. | SIZE | FROM | TO | CONDUCTORS | REMARKS |
|-------------|--------|------------------------|------------------------------|-----------------|---------|
| P-1000 | - | | | NOT USED | |
| P-1001 | 3/4" | LP-1 | MOTOR STARTER | 2#8, #8G | |
| P-1002 | 3/4" | MOTOR STARTER | JBX-WP | 2#8, #8G | |
| P-1003 | 1" | JBX-WP | WELL PUMP | CABLE BY MANUF. | |
| P-1004 | 3/4" | LP-1 | UNIT HEATER | 2#12, #12G | |
| P-1005 | 3/4" | LP-1 | DEHUMIDIFIER | 2#12, #12G | |
| P-1006 | 3/4" | LP-1 | LIGHTING | 2#12, #12G | |
| P-1007 | 3/4" | LP-1 | RECEPTACLES - UTILITY | 2#12, #12G | |
| P-1008 | 3/4" | LP-1 | EXHAUST FAN | 2#12, #12G | |
| P-1009 | 3/4" | EXHAUST FAN | DAMPERS | 2#12, #12G | |
| P-1010 | 3/4" | LP-1 | MOTOR STARTER | 2#12, #12G | |
| P-1011 | 3/4" | MOTOR STARTER | RECEPTACLES - CHLORINE PUMP | 2#12, #12G | |
| P-1012 | 3/4" | LP-1 | MOTOR STARTER | 2#12, #12G | |
| P-1013 | 3/4" | MOTOR STARTER | RECEPTACLES - CAUSTIC PUMP | 2#12, #12G | |
| P-1014 | 3/4" | LP-1 | MOTOR STARTER | 2#12, #12G | |
| P-1015 | 3/4" | MOTOR STARTER | RECEPTACLES - PHOSPHATE PUMP | 2#12, #12G | |
| P-1016 | 3/4" | LP-1 | LEVEL CONTROLLER | 2#12, #12G | |
| P-1017 | 3/4" | LEVEL CONTROLLER | RECEPTACLES - AIR COMPRESSOR | 2#12, #12G | |
| P-1018 | 3/4" | LP-1 | RECEPTACLES - HEAT TRACE | 2#12, #12G | |
| P-1019 | 2-1/2" | UTILITY | ECB | 3#3/0, #6G | |
| P-1020 | 2-1/2" | ECB | MTS | 3#3/0, #6G | |
| P-1021 | 2-1/2" | GENERATOR DOCKING PORT | MTS | 3#3/0, #6G | |
| P-1022 | 1" | MTS | SPD | 3#6, #6G | |
| P-1023 | 2-1/2" | MTS | LP-1 | 3#3/0, #6G | |
| P-1024 | | | | NOT USED | |

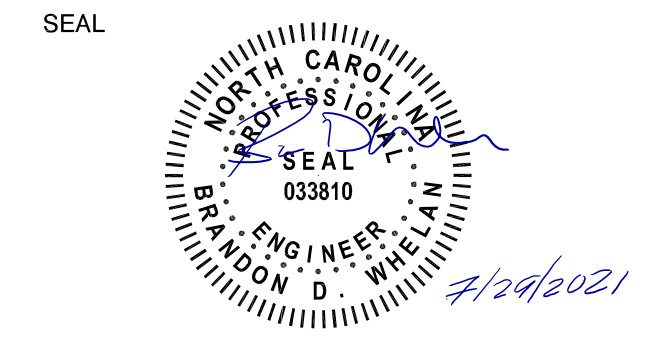
| CONDUIT NO. | SIZE | FROM | TO | CONDUCTORS | REMARKS |
|-------------|------|-----------------|--------------------|--------------|---------|
| C-1000 | - | | | NOT USED | |
| C-1001 | 3/4" | FLOW SWITCH | MOTOR STARTER | 4#14, #14GND | |
| C-1002 | 3/4" | PRESSURE SWITCH | MOTOR STARTER | 4#14, #14GND | |
| C-1003 | 3/4" | UNIT HEATER | UNIT HEATER T'STAT | 4#14, #14GND | |
| C-1004 | 3/4" | EXHAUST FAN | EXHAUST FAN T'STAT | 4#14, #14GND | |
| C-1005 | | | | NOT USED | |

| FIXTURE SCHEDULE | | | |
|------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| FIXTURE TYPE | FIXTURE WATTAGE | DESCRIPTION | MANUFACTURER AND MODEL |
| LC1 | 31W (max) | CEILING-MOUNTED, 120-277Vac, LED LIGHT FIXTURE, COLOR TEMPERATURE OF 4100K, LINEAL RIBBED FROSTED ACRYLIC LENS, SPREAD DISTRIBUTION, GASKETED FIBERGLASS HOUSING, STAINLESS STEEL LATCHES, 4FT, 4,000 LUMEN MINIMUM, AND WET LOCATION LISTED. | HOLOPHANE EMS LED SERIES, COOPER VAPORTITE LED SERIES, OR LITHONIA FEM LED SERIES. |
| LW1 | 28W (max) | WALL-MOUNTED, 120-277Vac, LED LIGHT FIXTURE, COLOR TEMPERATURE OF 4000K, IESNA TYPE III MEDIUM DISTRIBUTION, BLACK DIE-CAST ALUMINUM HOUSING, FULL CUT-OFF OPTICS, 3,000 LUMEN MINIMUM, INTEGRAL PHOTOCCELL, EMERGENCY BATTERY BACKUP. | HOLOPHANE WALLPACK FULL CUTOFF LED, HUBBELL LMC SERIES, OR APPROVED EQUAL |



Dewberry Engineers Inc.
9300 HARRIS CORNERS PKWY
SUITE 220
CHARLOTTE, NC 28269
PHONE: 704.509.9918
FAX: 704.509.9937
NCBELS #F-0929

RADIUM REMOVAL
TREATMENT SYSTEM
FIELDSTONE WELL #1
AQUA NORTH CAROLINA
202 MACKENAN DR
CARY, NC 27511



SCALE

| No. | DATE | BY | Description |
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DRAWN BY TK
 APPROVED BY SB
 CHECKED BY BW
 DATE JULY 28, 2021

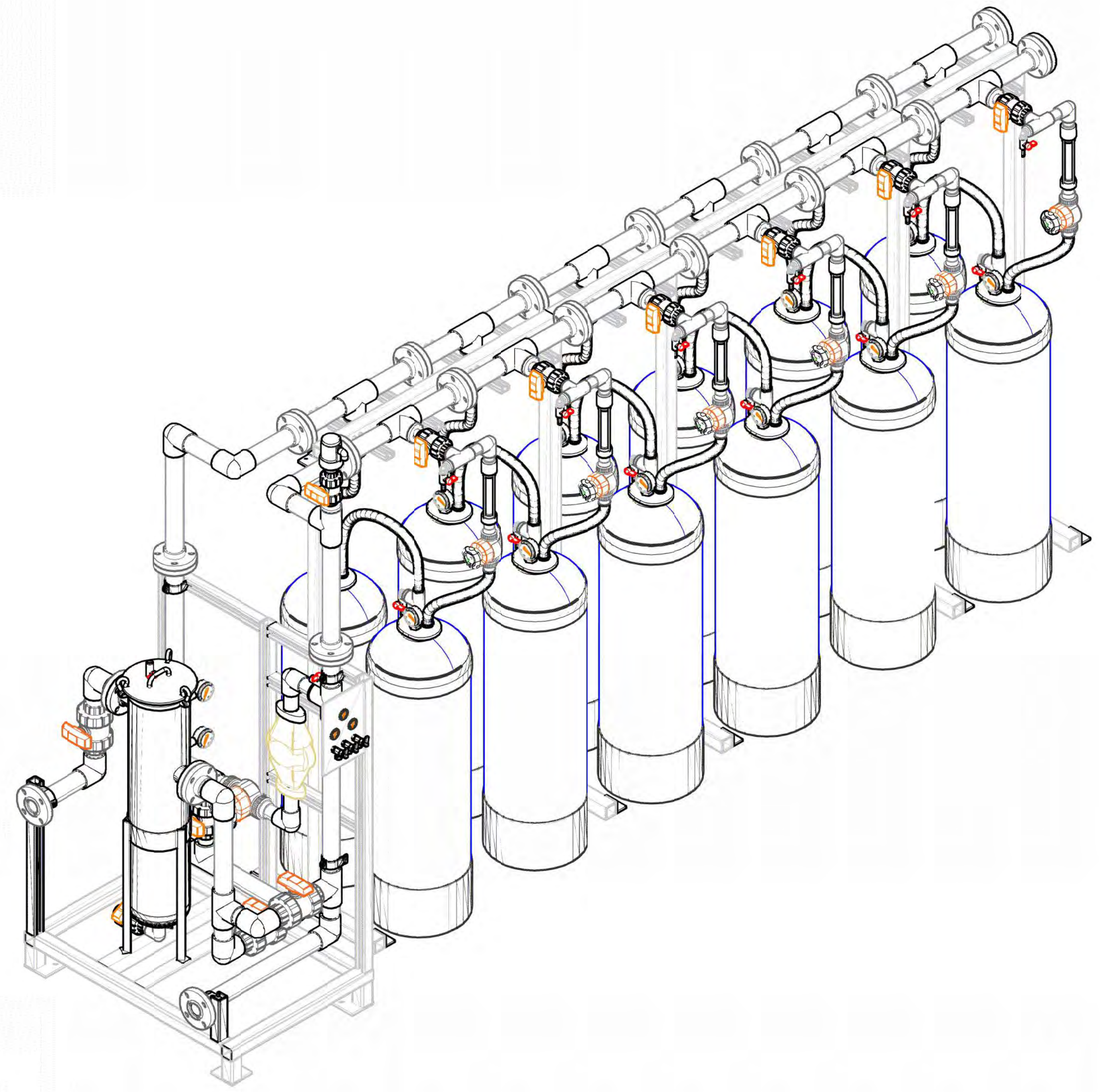
TITLE
**ELECTRICAL
CONDUIT & WIRE
DIAGRAMS &
DETAILS**

PROJECT NO. 50140313

E3.01

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FIELDSTONE WELL #1 AQUA NORTH CAROLINA AEDGE TREATMENT SYSTEM



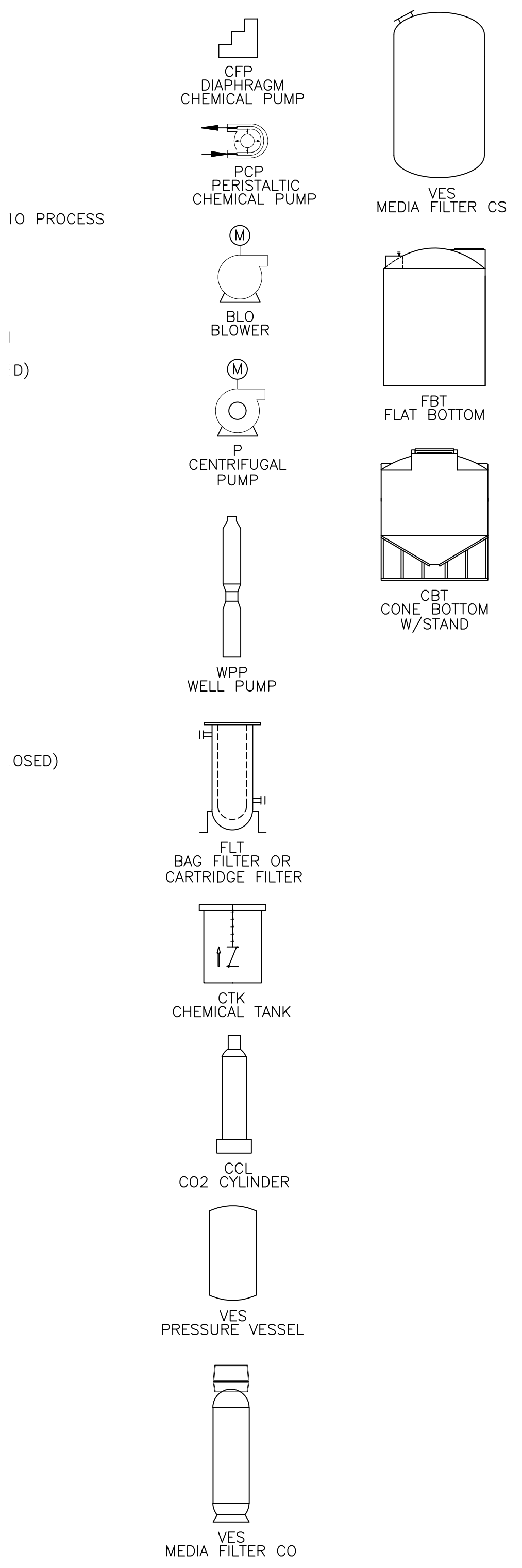
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C
B
A

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| CONTRACTOR/CONTRATISTA | | SHEET INDEX | | | REV. # | DATE: | BY: | APPROVED BY: | REVISION DESCRIPTION: |
|------------------------|-------|-------------|--|--|--------|-------|-----|--------------|-----------------------|
| DRAWING NO. | TITLE | SHEET NO. | | | | | | | |
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| DRAWN BY: | CHECKED BY: | APPROVED BY: | PROJECT #: | DATE: | SCALE: |
| TJ | JB | BM | FWNC-0521 | 5/14/21 | NTS |
| MODEL: | | | CUSTOMER: | | |
| AEDGE TREATMENT SYSTEM | | | FIELDSTONE WELL #1 | | |
| MOD88-IX-1447EX-12-MVH-LL | | | AQUA NORTH CAROLINA | | |
| TITLE: | | | FOR APPROVAL | | |
| COVER | | | | | |

7 | 6 | 5 | 4 | 3 | 2 | 1



| TYPICAL NOMENCLATURE | |
|----------------------|-----------------------------------------|
| TAG | DESCRIPTION |
| ARV | AIR RELEASE VALVE |
| AS | AIR STRIPPER |
| AE | ANALYTICAL SENSOR |
| AIT | ANALYTICAL TRANSMITTER |
| BFV | BUTTERFLY VALVE |
| BHF | BULKHEAD FITTING |
| BL | BLOWER |
| BLV | BALL VALVE |
| CBV | CIRCUIT BALANCING VALVE |
| TK | CONE BOTTOM TANK |
| CCL | CO/2 CYLINDER |
| CFP | CHEMICAL FEED PUMP |
| CKV | CHECK VALVE |
| CT | CONTACTOR |
| CST | CORPORATION STOP |
| TK | CHEMICAL STORAGE TANK |
| DBL | DEBUBBLER |
| DMV | DIAPHRAGM VALVE |
| TK | CHEMICAL DAY TANK |
| EDC | EDUCATOR/EJECTOR (CHEMICAL DRAW) |
| TK | FLAT BOTTOM TANK |
| FCP | FILTER CONTROL PANEL |
| FCV | FLOW CONTROL VALVE |
| FG | SIGHT GLASS (PVC/STAINLESS) |
| FKV | FLECK VALVE |
| FE | FLOW ELEMENT |
| FI | FLOW INSTRUMENT |
| FIT | FLOW TRANSMITTER |
| FLT | BAG OR CARTRIDGE FILTER HOUSING |
| FM | FLOW METER |
| FQT | FLOW TOTALIZING TRANSMITTER |
| GAV | GATE VALVE |
| GLV | GLOBE VALVE |
| HET | HEATING ELEMENT |
| INJ | INJECTION ASSEMBLY |
| JP | JUNCTION PANEL |
| LCP | LOCAL CONTROL PANEL |
| LG | LEVEL VIEWING GAUGE |
| LIT | LEVEL INDICATION TRANSMITTER |
| LSH | LEVEL SWITCH HIGH |
| LSHH | LEVEL SWITCH HIGH HIGH |
| LSL | LEVEL SWITCH LOW |
| LSLL | LEVEL SWITCH LOW LOL |
| LT | LEVEL TRANSMITTER |
| MCP | MASTER CONTROL PANEL |
| MEL | MEMBRANE ELEMENT |
| VES | MEDIA FILTER COMPOSITE VESSEL |
| VES | MEDIA FILTER CARBON STEEL VESSEL |
| MIX | STATIC MIXER |
| CP | PERISTALTIC CHEMICAL PUMP |
| PDIS | PRESSURE DIFFERENTIAL INDICATING SWITCH |
| PI | PRESSURE INDICATION (LOCAL READING) |
| PIT | PRESSURE INDICATING SENSOR |
| P | PUMP |
| PDV | PRESSURE REDUCING VALVE |
| PRV | PRESSURE RELIEF VALVE |
| PSV | PRESSURE SUSTAINING VALVE |
| PT | PRESSURE TRANSDUCER |
| PVL | PRESSURE VESSEL |
| PSL | PRESSURE SWITCH LOW |
| RP | RELAY PANEL |
| SLV | SOLENOID VALVE |
| SPV | SAMPLE VALVE |

| LOCATION / ACCESSIBILITY | DISCRETE SYMBOL | SHARED DISPLAY & CONTROL (DCS) | PROGRAMMABLE LOGIC CONTROLLER | DISCRETE HARDWARE INTERLOCK |
|------------------------------------------------------|-----------------|--------------------------------|-------------------------------|-----------------------------|
| FIELD MOUNTED | | | | |
| 1) FIELD OR LOCALLY MOUNTED | ○ | ◻ | ◻ | ◻ |
| 2) ACCESSIBLE TO AN OPERATOR AT THE DEVICE | | | | |
| PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR | | | | |
| 1) CENTRAL OR MAIN CONTROL ROOM | ◐ | ◐ | ◐ | |
| 2) FRONT OF MAIN PANEL OR CONSOLE MOUNTED | | | | |
| 3) VISIBLE ON VIDEO DISPLAY | | | | |
| 4) ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE | | | | |
| PRIMARY LOCATION NORMALLY INACCESSIBLE TO OPERATOR | | | | |
| 1) CENTRAL OR MAIN CONTROL ROOM | ◑ | ◑ | ◑ | |
| 2) REAR OF PANEL OR CABINET MOUNTED | | | | |
| 3) NOT VISIBLE ON VIDEO DISPLAY | | | | |
| 4) INACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE | | | | |
| AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR | | | | |
| 1) SECONDARY OR LOCAL CONTROL ROOM | ◒ | ◒ | ◒ | |
| 2) FIELD OR LOCAL CONTROL PANEL | | | | |
| 3) FRONT OF SECONDARY OR LOCAL PANEL MOUNTED | | | | |
| 4) VISIBLE ON VIDEO DISPLAY | | | | |
| 5) ACCESSIBLE TO OPERATOR AT DEVICE OR CONSOLE | | | | |
| AUXILIARY LOCATION NORMALLY INACCESSIBLE TO OPERATOR | | | | |
| 1) SECONDARY OR LOCAL CONTROL ROOM | ◓ | ◓ | ◓ | |
| 2) FIELD OR LOCAL CONTROL PANEL | | | | |
| 3) REAR OF SECONDARY/LOCAL OR CABINET PANEL MOUNTED | | | | |
| 4) NOT VISIBLE ON VIDEO DISPLAY | | | | |
| 5) NOT ACCESSIBLE TO OPERATOR AT DEVICE OR CONSOLE | | | | |

TYPICAL TRANSMITTER NOMENCLATURE AND TRANSMITTER LOCATION ARE AS FOLLOWS:

IF THE TRANSMITTER IS CONTROL PANEL MOUNTED THE PANEL TAG NUMBER WILL BE PROVIDED (E.G. MCP-291); IF THE TRANSMITTER IS LOCALLY MOUNTED ON THE SENSOR, THE DESIGNATION "LOCAL" WILL BE PROVIDED. IF THE TRANSMITTER IS MOUNTED ON A LOW FLOW PANEL THEN THE TAG WILL BE PROVIDED (E.G. LFP-375).

TYPICAL PANEL I/O NOMENCLATURE

AI ANALOG INPUT (E.G. mA OR mV)
 AO ANALOG OUTPUT (E.G. mA OR mV)
 DI DIGITAL INPUT (E.G. NS OR HSI)
 NS NORMAL SPEED; SINGLE CONTACT CLOSURE
 HSI HIGH SPEED INPUT; MULTIPLE CONTACT CLOSURES
 DO DIGITAL OUTPUT
 1) RELAY FOR VALVE OR PUMP ON/OFF CONTROL
 2) PULSE FOR DOSING PUMP AND FLOW CONTROL
 SI DATA OR SCADA INPUT (E.G. MODBUS OR EIP)
 SO DATA OR SCADA OUTPUT (E.G. MODBUS OR EIP)

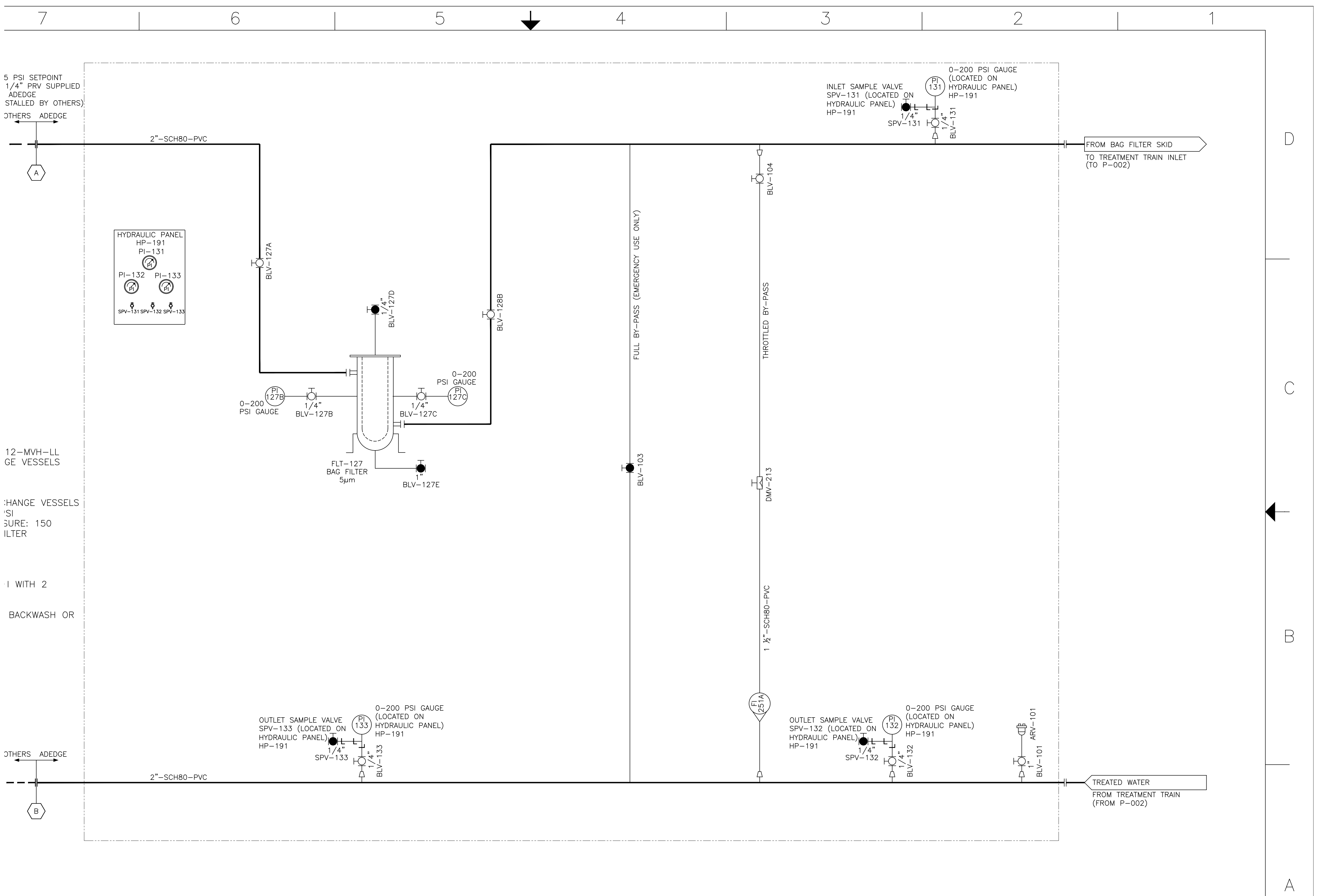
MCP-291 AI/mA PANEL WHERE THE DEVICE INPUT IS RECEIVED TYPE OF I/O
 MCP-291 PT TRANSMITTER LOCATION TYPE OF TRANSMITTER

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| TP. | SERVICE CONNECTIONS: | TYPE/MATERIAL: | TP. | SERVICE CONNECTIONS: | TYPE/MATERIAL: | DRAWN BY: | CHECKED BY: | APPROVED BY: | PROJECT #: | DATE: | SCALE: |
|-----|----------------------|----------------|-----|----------------------|----------------|-----------|-------------|--------------|------------|---------|--------|
| A | - | - | | | | TJ | JB | BM | FWNC-0521 | 5/14/21 | NTS |
| B | - | - | | | | | | | | | |
| C | - | - | | | | | | | | | |
| D | - | - | | | | | | | | | |
| E | - | - | | | | | | | | | |
| F | - | - | | | | | | | | | |
| G | - | - | | | | | | | | | |

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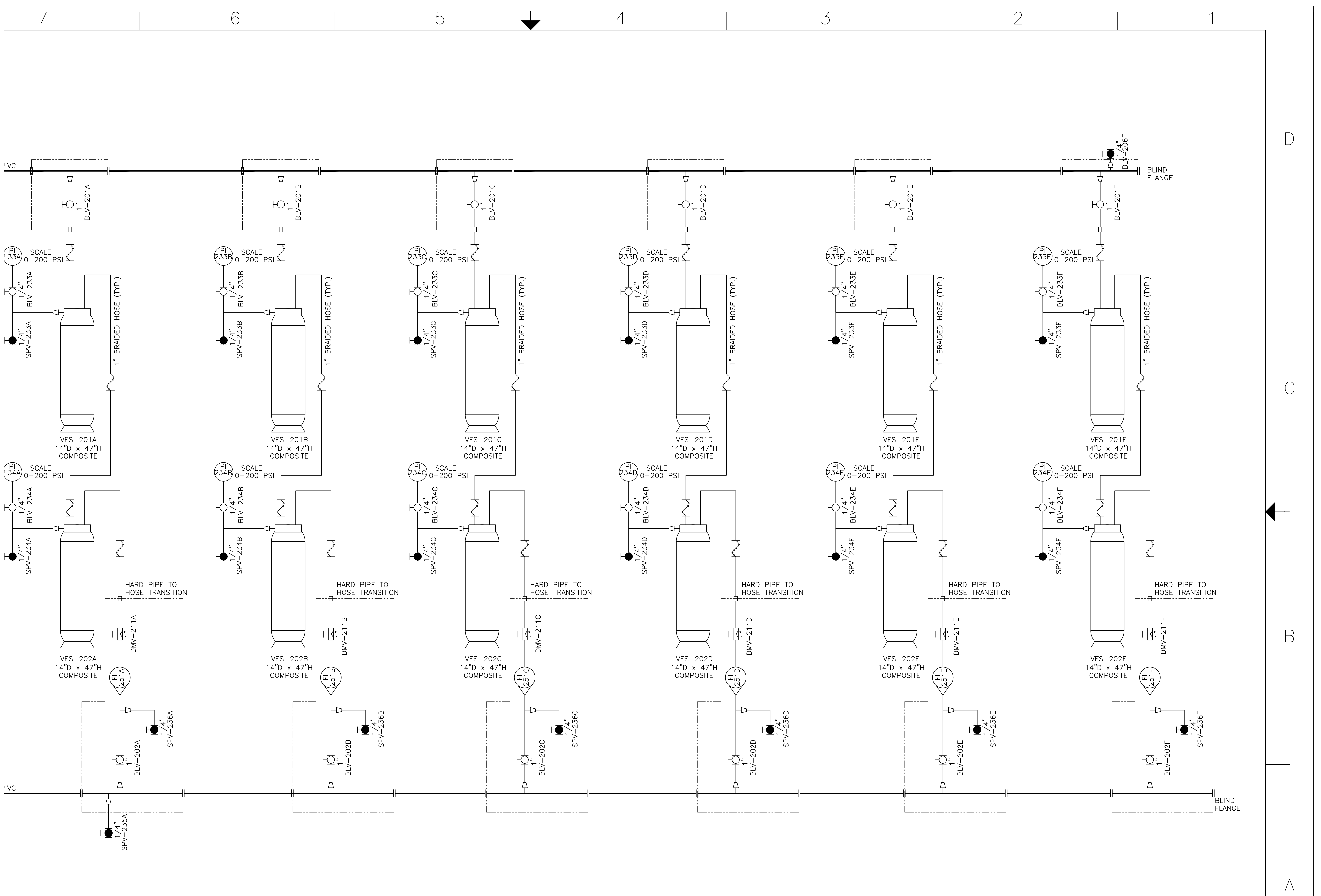
| MODEL: | CUSTOMER: | TITLE: | DRAWING NUMBER: | SHEET: |
|------------------------------------------------------|-------------------------------------------|---------------|-----------------|--------|
| ADEGDE TREATMENT SYSTEM MOD88-IX-1447EX-12-MVH-LL | FIELDSTONE WELL #1 AQUA NORTH CAROLINA | GENERAL NOTES | G-001 | 1 OF 5 |



Engineering is the exclusive property of AdEdge Water Technologies, L.L.C. Its acceptance constitutes an agreement that it shall be expressly used for subject and shall be returned upon request. Information not shown, or derived from this drawing, is not to be indicated, disclosed, used or copied without prior permission.

| TP. | SERVICE CONNECTIONS: | TYPE/MATERIAL: | TP. | SERVICE CONNECTIONS: | TYPE/MATERIAL: |
|-----|-----------------------------|--------------------------|-----|----------------------|----------------|
| A | SYSTEM RAW WATER INLET | 2" SCH80 PVC 150# FLANGE | | | |
| B | SYSTEM TREATED WATER OUTLET | 2" SCH80 PVC 150# FLANGE | | | |
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| DRAWN BY: | CHECKED BY: | APPROVED BY: | PROJECT #: | DATE: | SCALE: |
| TJ | JB | BM | FWNC-0521 | 5/14/21 | NTS |
| MODEL: | | | CUSTOMER: | | |
| ADEGE TREATMENT SYSTEM | | | FIELDSTONE WELL #1 | | |
| MOD88-IX-1447EX-12-MVH-LL | | | AQUA NORTH CAROLINA | | |
| TITLE: | | DRAWING NUMBER: | | SHEET: | |
| PRE-TREATMENT | | P-001 | | 2 OF 5 | |

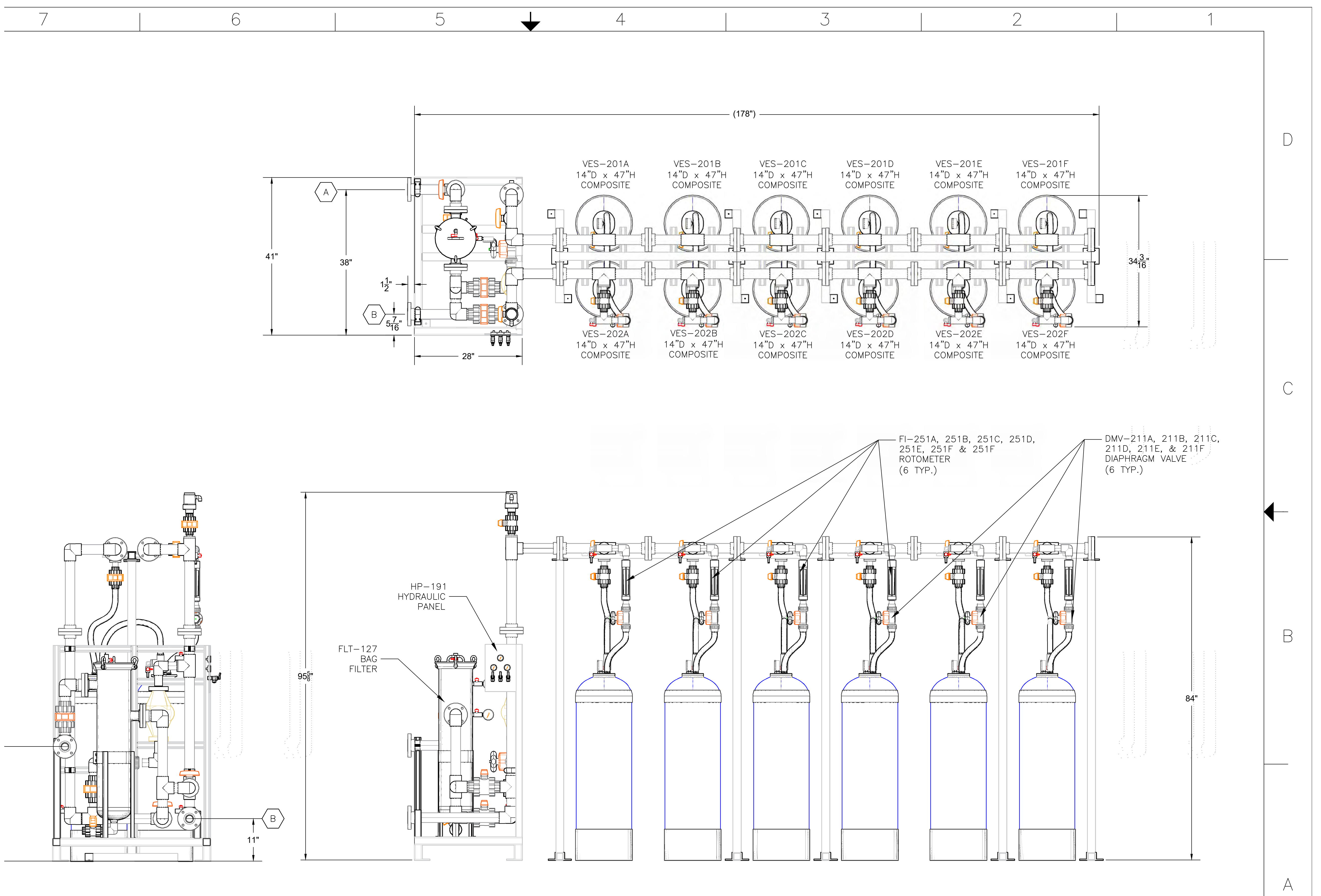


ing is the exclusive property of AdEdge Water gies, L.L.C. Its acceptance constitutes an nt that it shall be expressly used for subject and shall be returned upon request. Information d on, or derived from this drawing, is not to be icated, disclosed, used or copied without prior ation.

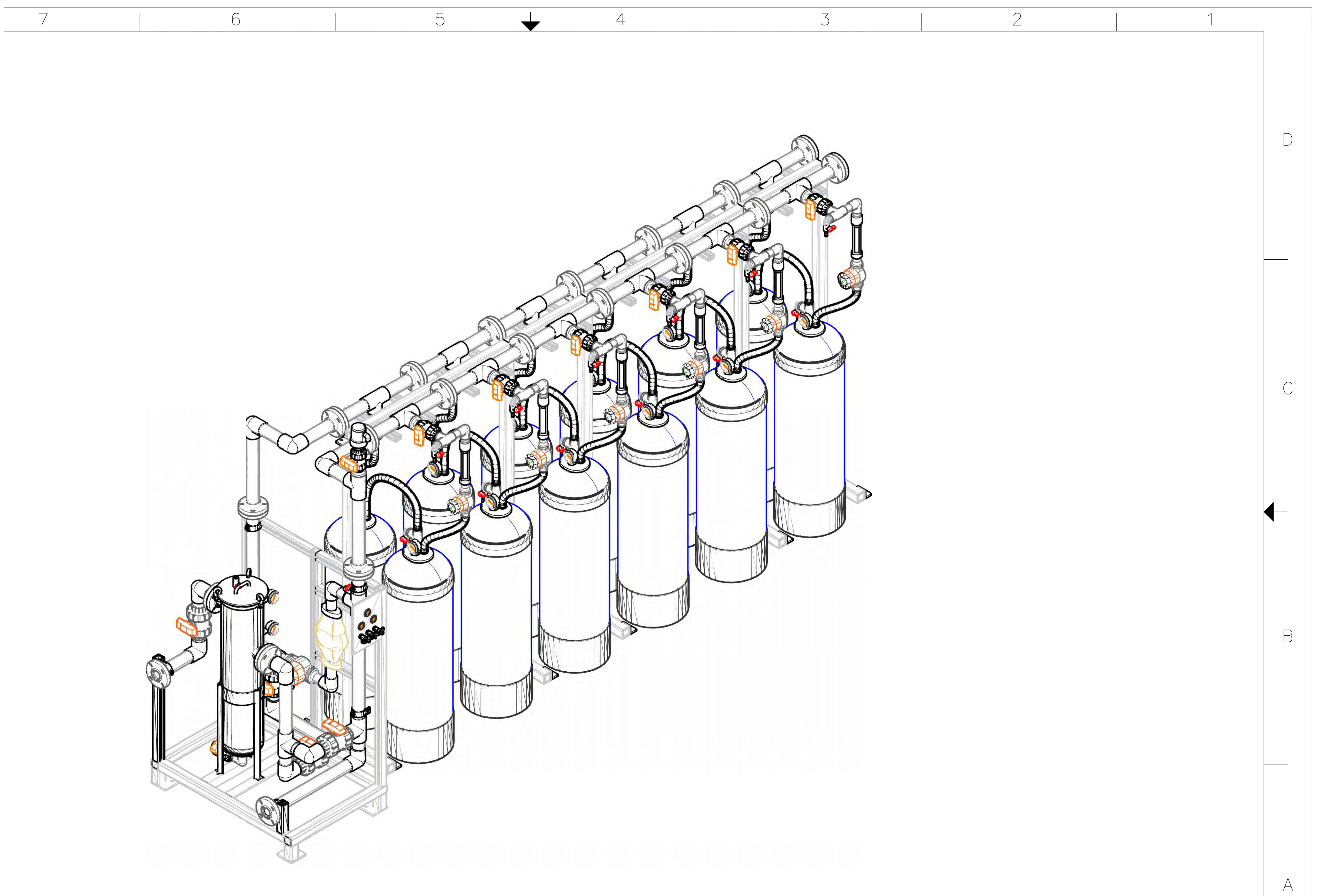
| TP. | SERVICE CONNECTIONS: | TYPE/MATERIAL: |
|-----|-----------------------------|--------------------------|
| A | SYSTEM RAW WATER INLET | 2" SCH80 PVC 150# FLANGE |
| B | SYSTEM TREATED WATER OUTLET | 2" SCH80 PVC 150# FLANGE |

| REV. # | DATE: | BY: | APPROVED BY: | REVISION DESCRIPTION: |
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| DRAWN BY: | CHECKED BY: | APPROVED BY: | PROJECT #: | DATE: | SCALE: |
| TJ | JB | BM | FWNC-0521 | 5/14/21 | NTS |
| MODEL: | | | CUSTOMER: | | |
| ADEGGE TREATMENT SYSTEM | | | FIELDSTONE WELL #1 | | |
| MOD88-IX-1447EX-12-MVH-LL | | | AQUA NORTH CAROLINA | | |
| TITLE: | | DRAWING NUMBER: | SHEET: | | |
| TREATMENT SYSTEM | | P-002 | 3 OF 5 | | |



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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------|--------------------------|--------|----------------------|----------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|------------|---------|--------|
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| | A | SYSTEM RAW WATER INLET | 2" SCH80 PVC 150# FLANGE | | | | TJ | JB | BM | FWNC-0521 | 5/14/21 | NTS |
| | B | SYSTEM TREATED WATER OUTLET | 2" SCH80 PVC 150# FLANGE | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | REV. # | DATE: | BY: | APPROVED BY: | REVISION DESCRIPTION: | | | | |
| | | | | | | | | MODEL: ADEGE TREATMENT SYSTEM MOD88-IX-1447EX-12-MVH-LL CUSTOMER: FIELDSTONE WELL #1 AQUA NORTH CAROLINA | | | | |
| | | | | | | | TITLE: GENERAL ARRANGEMENT DRAWING NUMBER: M-001 SHEET: 4 OF 5 | | | | | |



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|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-----------------------------------------|--|--------------------------------|--|---------------------------------------------------------|-----------------------------------------------------|
| TP. SERVICE CONNECTIONS: TYPE/MATERIAL: A SYSTEM RAW WATER INLET 2" SCH80 PVC 150# FLANGE B SYSTEM TREATED WATER OUTLET 2" SCH80 PVC 150# FLANGE | | | | TP. SERVICE CONNECTIONS: TYPE/MATERIAL: | | | | DRAWN BY: TJ CHECKED BY: JB APPROVED BY: BM | PROJECT #: FWNC-0521 DATE: 5/14/21 SCALE: NTS |
| | | | | | | | | MODEL: AEDGE TREATMENT SYSTEM MOD88-IX-1447EX-12-MVH-LL | |
| REV. # DATE: BY: APPROVED BY: REVISION DESCRIPTION: | | | | | | TITLE: ISO GENERAL ARRANGEMENT | | DRAWING NUMBER: M-002 | SHEET: 5 OF 5 |

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PROPERTY OWNER
 5559-76-1541
 Aqua North Carolina Inc
 202 Mackenan Dr
 Cary, NC 27511

| | | |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 5559-66-8878 Cold Springs Methodist Church 2550 Cold Springs Rd Concord, NC 28025 | 5559-76-2597 Robert & Bethany Ledwell 56 Sumner Ave, NW Concord, NC 28027 | 5559-76-2388 Martha Fisher 7387 Hoffner Dr Harrisburg, NC 28075 |
| 5559-76-1261 Brenda Long 5339 Historic Springs Dr Concord, NC 28025 | 5559-76-0330 William & Cheryl Cannon 5313 Historic Springs Dr Concord, NC 28025 | 5559-66-9319 Jeremy & Christy Baggarly 5307 Historic Springs Dr Concord, NC 28025 |
| 5559-66-7467 James & Deborah Mullis 5301 Historic Springs Dr Concord, NC 28025 | | |



Cabarrus County Government – Planning and Development Department

November 22, 2021

Dear Property Owner:

A Conditional Use Permit Application has been filed in our office for your property. The specifics of the request are listed below. The Cabarrus County Board of Adjustment will consider this petition on Tuesday December 14, 2021 at 6:30 PM in the 2nd floor Commissioner’s Chambers of the Cabarrus County Governmental Center, located at 65 Church Street S Concord, NC 28025. A Public Hearing will be conducted and public input will be allowed during that time. If you have any comments about this request, I encourage you to attend this meeting.

| | |
|--------------------------------|-------------------------------------|
| Petitioner | Aqua North Carolina Inc |
| Petition Number | CUSE2021-00007 |
| Property Location | 5309 Historic Spring Drive |
| Parcel ID Number | 5559-76-1541 |
| Existing Zoning | Countryside Residential (CR) |
| Conditional Use Request | Public Service Facility |

If you have any questions regarding this petition, or the hearing process, please contact me at Cabarrus County Planning and Development at 704.920.2181.

Sincerely,

A handwritten signature in cursive script that reads "Phillip Collins".

Phillip Collins, AICP
Senior Planner
Cabarrus County Planning and Development
704.920.2181



Cabarrus County Government – Planning and Development Department

November 22, 2021

Dear Property Owner:

A Conditional Use Permit Application has been filed in our office for property **adjacent** to yours. The specifics of the request are listed below. The Cabarrus County Board of Adjustment will consider this petition on Tuesday December 14, 2021 at 6:30 PM in the 2nd floor Commissioner’s Chambers of the Cabarrus County Governmental Center, located at 65 Church Street S Concord, NC 28025. A Public Hearing will be conducted and public input will be allowed during that time. If you have any comments about this request, I encourage you to attend this meeting.

| | |
|--------------------------------|-------------------------------------|
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| Petition Number | CUSE2021-00007 |
| Property Location | 5309 Historic Spring Drive |
| Parcel ID Number | 5559-76-1541 |
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If you have any questions regarding this petition, or the hearing process, please contact me at Cabarrus County Planning and Development at 704.920.2181.

Sincerely,

A handwritten signature in cursive script that reads "Phillip Collins".

Phillip Collins, AICP
Senior Planner
Cabarrus County Planning and Development
704.920.2181

Nov 17, 2021 at 2:30:27 PM
2701-2799 Byfield Dr
Cabarrus County

CABARRUS COUNTY
ZONING



NOTICE
CUSE2021-00007
FOR DETAILS CALL
704-920-2141

FILED Aug 11, 2020
AT 11:20:00 AM
BOOK 14402
START PAGE 0319
END PAGE 0321
INSTRUMENT # 26164
EXCISE TAX \$80.00

Excise Tax \$80.00

Tax Parcel: 5559-76-2388

Prepared by: Samuel F. Davis, Jr., Hartsell & Williams, P.A.
PO Box 368, Concord, NC 28026-0368

NO TITLE OPINION REQUESTED
OR RENDERED

Return to: Howard S. Irvin, Esq., Concord, NC

Brief description for the index: Lot 44, Sec. 4, Cold Springs Subdivision

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED made this 10th day of August 2020, by and between

| GRANTOR | GRANTEE |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Samuel F. Davis, Jr. and wife, Alice F. Davis 446 Winfield Blvd SE, Concord, NC 28025 | Martha Kay Blackwelder Fisher 7387 Hoffner Drive, Harrisburg, NC 28075 |
| Enter each party's, name, address, and the character of any entity, e.g. LLC, Inc., etc. | |

The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter, as required by context.

WITNESSETH, that: - The Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in No. 9 Township, Cabarrus County, North Carolina and more particularly described as follows:

Lot 44 in Section 4 of Cold Springs Subdivision as shown upon the map of the Revision of Cold Springs Subdivision recorded in Map Book 20, page 11 in the Office of the Register of Deeds for Cabarrus County, North Carolina.

For back reference, see instrument recorded in Book 11230, page 274.

This conveyance is made and accepted SUBJECT TO the following:

1. The Protective Covenants and Restrictions for the Subdivision of "Cold Springs" as recorded in Deed Book 562, page 404 and amended by instrument recorded in Deed Book 571, page 387 in the Office of the Register of Deeds for Cabarrus County, North Carolina, and Grantor reserves the easements and right to grant rights-of-way for utility purposes, as set forth in paragraphs 10(a), 10(b) and 10(c) of said Protective Covenants and Restrictions.
2. The 30' Wide Access Easement along the dividing line with Lot 29, as shown upon the map recorded in Map Book 20, page 11.
3. The sanitary sewer right-of-way across the rear of Lot 44 as shown on the map recorded in Map Book 35, page 9 in the Office of the Register of Deeds for Cabarrus County, North Carolina.

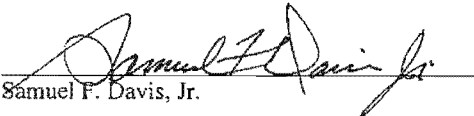
Alice F. Davis is signing this deed for the sole purpose of releasing any marital interest that she may have in said property.

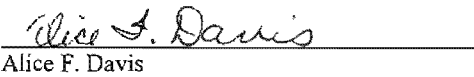
TO HAVE AND TO HOLD the aforesaid tract or parcel of land and all privileges and appurtenances thereunto belonging to the Grantee in fee simple.

Grantor does hereby covenant that Grantor has not placed or suffered to be placed any presently existing lien or encumbrance on the premises and that Grantor will warrant and defend the title to the same against the lawful claims of all persons claiming by, through, under, or on account of the Grantor, but no further. The title to the property hereinabove described is subject to the following exceptions:

1. Cabarrus County property taxes for 2020, which are not yet due or ascertainable.
2. The Protective Covenants and Restrictions for the Subdivision of "Cold Springs", the 30' Wide Access Easement, and the Sanitary Sewer Right of Way, referenced above.
3. All enforceable rights of way, easements, and restrictions without reimposing the same.

IN TESTIMONY WHEREOF, the said Grantor has executed this Special Warranty Deed, as of the day and year first above written.


Samuel F. Davis, Jr.


Alice F. Davis

NORTH CAROLINA, Cabarrus COUNTY

I, Sherril C. Williams, a Notary Public for said County and State, do hereby certify that the following person personally appeared before me this day and acknowledged the due execution of the foregoing instrument in the capacity stated: Samuel F. Davis, Jr.

WITNESS my hand and official seal, this the 10th day of August 2020.



Sherril C. Williams
Notary Public

My Commission Expires:
11-19-20

NORTH CAROLINA, Cabarrus COUNTY

I, Sherril C. Williams, a Notary Public for said County and State, do hereby certify that the following person personally appeared before me this day and acknowledged the due execution of the foregoing instrument in the capacity stated: Alice F. Davis, wife of Samuel F. Davis, Jr.

WITNESS my hand and official seal, this the 10 day of August 2020.



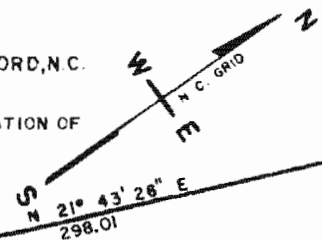
Sherril C. Williams
Notary Public

My Commission Expires:
11-19-20

SCALE: 1" = 50'

REVISION OF COLD SPRINGS SUBDIVISION

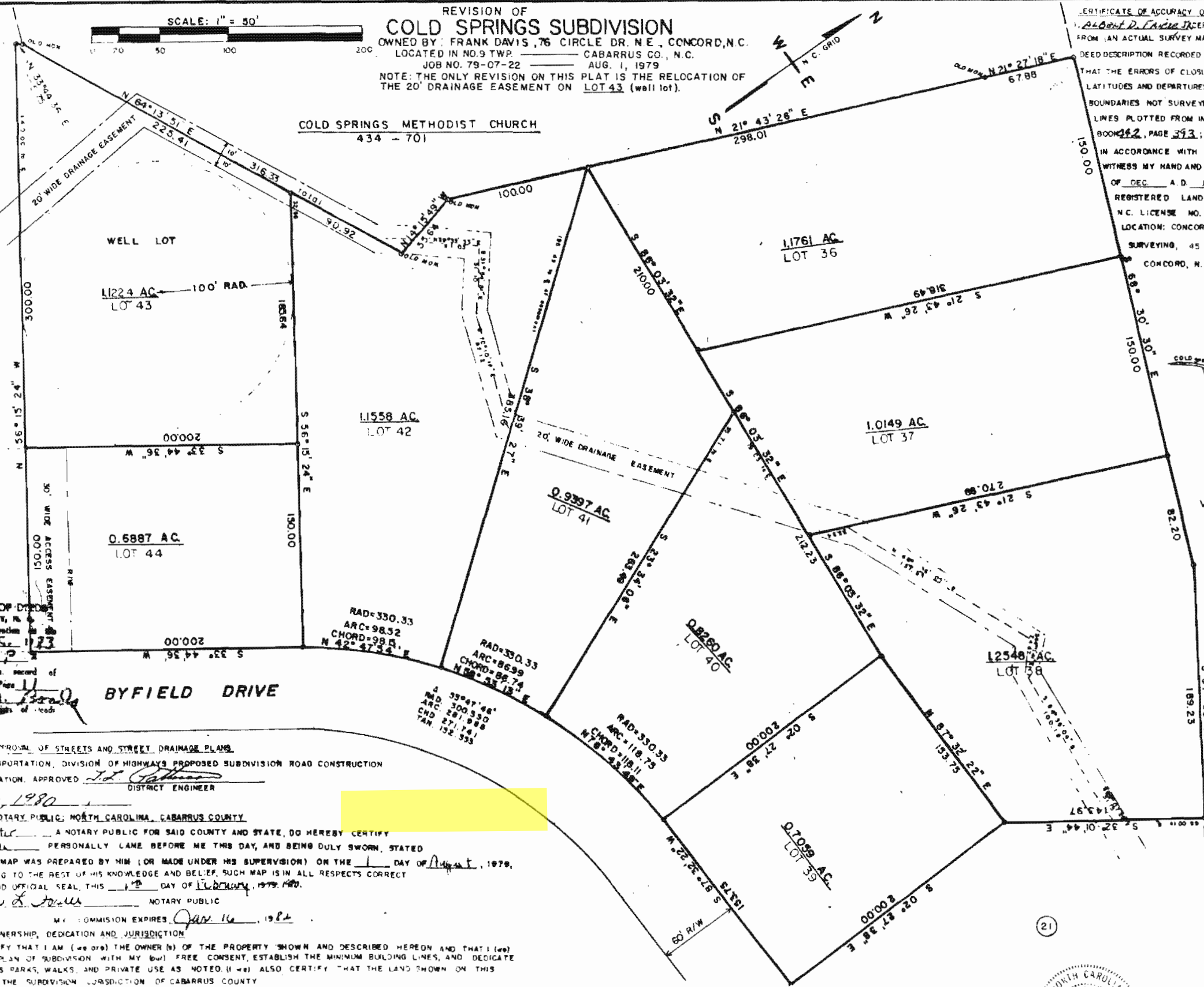
OWNED BY: FRANK DAVIS, 76 CIRCLE DR. N.E., CONCORD, N.C.
LOCATED IN NO. 9 TWP. CABARRUS CO., N.C.
JOB NO. 79-07-22 AUG. 1, 1979
NOTE: THE ONLY REVISION ON THIS PLAT IS THE RELOCATION OF THE 20' DRAINAGE EASEMENT ON LOT 43 (well lot).



CERTIFICATE OF ACCURACY OF MAPPING
I, Albert D. Davis, CERTIFY THAT THIS MAP WAS DRAWN FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION DEED DESCRIPTION RECORDED IN BOOK 442, PAGE 373 THAT THE ERRORS OF CLOSURE AS CALCULATED BY LATITUDES AND DEPARTURES IS 1:10,000+, THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN BOOK 442, PAGE 393; THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED WITNESS MY HAND AND SEAL THIS 1st DAY OF DEC. A.D. 1983
REGISTERED LAND SURVEYOR Albert D. Davis
N.C. LICENSE NO. 12837
LOCATION: CONCORD ENGINEERING AND SURVEYING, 45 SPRING ST. N.W. CONCORD, N. C. 28025

Certificate of Approval by the Board of County Commissioners
The Cabarrus County Board of County Commissioners approves this final plat, provided that this plat is recorded with the Register of Deeds within ninety (90) days of approval.

Chairman, Board of County Commissioners
Date



OFFICE REGISTER OF DEEDS
CABARRUS COUNTY, N.C.
Filed for Registration
1st day of DEC. 1983
at 3:40 o'clock P.M.
and registered in record of
MAP No. 20 Page 11
James A. Brady
Register of Deeds

CERTIFICATE OF APPROVAL OF STREETS AND STREET DRAINAGE PLANS
DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS PROPOSED SUBDIVISION ROAD CONSTRUCTION
STANDARDS CERTIFICATION APPROVED J. D. Cathey
DISTRICT ENGINEER
DATE Jan 30, 1980

CERTIFICATE OF NOTARY PUBLIC: NORTH CAROLINA, CABARRUS COUNTY
Ann L. Jones A NOTARY PUBLIC FOR SAID COUNTY AND STATE, DO HEREBY CERTIFY
K. G. SUTTON PERSONALLY CAME BEFORE ME THIS DAY, AND BEING DULY SWORN, STATED
THAT THE ANNEXED MAP WAS PREPARED BY HIM (OR MADE UNDER HIS SUPERVISION) ON THE 1 DAY OF August, 1979,
AND THAT ACCORDING TO THE BEST OF HIS KNOWLEDGE AND BELIEF, SUCH MAP IS IN ALL RESPECTS CORRECT
WITNESS MY HAND AND OFFICIAL SEAL, THIS 1st DAY OF February, 1980.
Ann L. Jones NOTARY PUBLIC
MY COMMISSION EXPIRES Jan 16, 1984

CERTIFICATE OF OWNERSHIP, DEDICATION AND JURISDICTION
I (we) HEREBY CERTIFY THAT I AM (we are) THE OWNER (S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (we)
HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (our) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING LINES, AND DEDICATE
ALL STREETS, ALLEYS, PARKS, WALKS, AND PRIVATE USE AS NOTED. I (we) ALSO CERTIFY THAT THE LAND SHOWN ON THIS
PLAT FALLS WITHIN THE SUBDIVISION JURISDICTION OF CABARRUS COUNTY

WATER/SEWER TO BE SUPPLIED BY INDIVIDUAL WELLS/SEPTIC TANKS
Certificate of Approval By The Planning Board --
Final Plat
The Cabarrus County Planning Board hereby approves/
disapproves this final plat for this subdivision.
Date _____ Chairman, Planning Board

SURVEYED BY:
CONCORD ENGINEERING/SURVEYING
45 SPRING ST. N.W.
CONCORD, N.C. 28025
DRAWN BY: P.E.R./C.E.



DEED BK. 442 PG. 393
TOTAL SUBDIVISION ACREAGE: 434765
SECTION 4



MEETING MINUTES

DATE: November 9, 2021

TIME: 5:30 p.m. – 6:00 p.m.

LOCATION: MS Teams

PURPOSE: Neighborhood Meeting to discuss Aqua Fieldstone Well #1 Project

In Attendance

| NAME | ✓ | ORGANIZATION | PHONE | EMAIL |
|-----------------|---|-----------------------------|--------------|--------------------------------------------------------------|
| Brian LaFranchi | ✓ | Dewberry | 704.631.5206 | blafranchi@dewberry.com |
| Michael Melton | ✓ | Aqua North Carolina | 704.704.3315 | MAMelton@aquaamerica.com |
| Cheryl Cannon | ✓ | 5313 Historic Springs Drive | 704.791.5133 | ccannongirl@icloud.com |
| Christy Baggary | ✓ | 5301 Historic Springs Drive | | cmbaggary@gmail.com |
| Brenda Long | ✓ | 5339 Historic Springs Drive | | |

Summary of Discussion

- Q: Ms. Baggerly - What is driving the purpose of the project? A: Mr. Melton – There are over 100 chemicals tested for. We saw elevated sets of results for radionuclides. The well is currently offline. In an abundance of caution we are getting ahead of State intervention and adding additional treatment. Going to tear down existing building and build a new building large enough to house the new filtration system.**
- Q: Ms. Cannon – What is the timeframe? A: Mr. Melton - We were hoping to finish by the end of the year. We have Kevin Tyndall Builders contracted to do the construction. End of first quarter, 2022 is likely, given the permitting, which is out of our hands.**
- Q: Ms. Long – Can you talk about what is happening with the well off of Byfield drive? A: Mr. Melton – showed a map and clarified that we were talking about well #1 off of Byfield drive. Mr. LaFranchi indicated that the confusion is probably stemming from the fact that the address for the parcel is off of Historic Springs Drive.**
- Ms. Cannon – I’m glad you kept us informed, we live directly across from the building and are glad that you are replacing the existing building and keeping the existing tree line.**
- Q: Ms. Cannon – will you keep the existing driveway gravel? A: Mr. Melton– Yes, we typically do. Concrete is expensive. As part of the project we will fix the driveway [top dress] and prevent it from washing out. Ms. Cannon – In rainy weather, I’ve seen some trucks having difficulty getting back up the drive, but I feel comfortable that you will take care of it to fit your needs.**

Action Items

| ACTION ITEM | ASSIGNED TO | DATE DUE | STATUS |
|-------------|-------------|----------|--------|
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

We believe the foregoing record to be an accurate summary of the meeting and related decisions. We would appreciate notification of exceptions or corrections to these Minutes within five (5) days of receipt. Without notification, we will consider these minutes to be a record of fact.

COPIED: Cabarrus County

Sincerely, Brian LaFranchi, Dewberry

Memo

To: Cabarrus County Planning and Zoning Commission
From: Susie Morris, Planning and Zoning Manager
cc: File
Date: 12/6/2021
Re: Proposed Text Amendments

Amend Chapter 16 (2021 NC Model Ordinance Updates)

Attached you will find proposed updates to Chapter 16, Flood Damage Prevention. The updates are to address amendments to the 2021 Non-Coastal Flood Damage Prevention Model Ordinance provided by the North Carolina Department of Emergency Management.

The proposed amendments include specific updates for Community Rating System (CRS) Communities and general updates for all National Flood Insurance Program participants in North Carolina.

Proposed updates to the Ordinance are in blue text

Correct Identified Typos

Staff has identified a list of typos that need to be corrected. Proposed corrections are as follows:

Chapter 1- Correct the date in Section 1-5 from February 2, 1982 to February 1, 1982. Per the February 1, 1982, official Board of Commissioner minutes, the effective date for the Zoning Ordinance and Atlas Maps is February 1, 1982.

Chapter 5, Section 5-7, Section B. Stream buffer and floodplain limitations - Correct the reference from Chapter 15 to Chapter 16. Chapter 16 is the correct Chapter.

Please review the proposed amendments and be prepared to discuss them. The Planning and Zoning Commission will need to consider the proposed changes and make a recommendation to the Board of Commissioners.

PART 1. STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

SECTION A. STATUTORY AUTHORIZATION

The Legislature of the State of North Carolina has in Part 6, Article 21 of Chapter 143; Article 6 of Chapter 153A; Article 8 of Chapter 160A; and Article 7, 9, and 11 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the authority to adopt regulations designed to promote the public health, safety, and general welfare.

Therefore, the Board of Commissioners of Cabarrus County, North Carolina, does ordain as follows:

SECTION B. FINDINGS OF FACT

- (1) The flood prone areas within the jurisdiction of Cabarrus County are subject to periodic inundation which results in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities and by the occupancy in flood prone areas of uses vulnerable to floods or other hazards.

SECTION C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions within flood prone areas by provisions designed to:

- (1) Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards or that result in damaging increases in erosion, flood heights or velocities;
- (2) Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
- (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- (4) Control filling, grading, dredging, and all other development that may increase erosion or flood damage; and
- (5) Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards to other lands.

SECTION D. OBJECTIVES

The objectives of this ordinance are to:

- (1) Protect human life, safety, and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business losses and interruptions;
- (5) Minimize damage to public facilities and utilities (i.e. water and gas mains, electric, telephone, cable and sewer lines, streets, and bridges) that are located in flood prone areas;

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

- (6) Minimize damage to private and public property due to flooding;
- (7) Make flood insurance available to the community through the National Flood Insurance Program;
- (8) Maintain the natural and beneficial functions of floodplains;
- (9) Help maintain a stable tax base by providing for the sound use and development of flood prone areas; and
- (10) Ensure that potential buyers are aware that property is in a Special Flood Hazard Area.

PART 2. DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance it's most reasonable application.

Accessory Structure (Appurtenant Structure) means a structure located on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Garages, carports and storage sheds are common urban accessory structures. Pole barns, hay sheds and the like qualify as accessory structures on farms, and may or may not be located on the same parcel as the farm dwelling or shop building.

Addition (to an existing building) means an extension or increase in the floor area or height of a building or structure.

Alteration of a watercourse means a dam, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area of the channel or the channel capacity, or any other form of modification which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

Appeal means a request for a review of the Floodplain Administrator's interpretation of any provision of this ordinance.

Area of Shallow Flooding means a designated Zone AO or AH on a community's Flood Insurance Rate Map (FIRM) with base flood depths determined to be from one (1) to three (3) feet. These areas are located where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

Area of Special Flood Hazard see Special Flood Hazard Area (SFHA).

Area of Future-Conditions Flood Hazard means the land area that would be inundated by the 1-percent-annual-chance (100- year) flood based on future-conditions hydrology.

Base Flood means the flood having a one (1) percent chance of being equaled or exceeded in any given year.

Base Flood Elevation (BFE) means a determination of the water surface elevations of the base flood as published in the Flood Insurance Study. When the BFE has not been provided in a Special Flood Hazard Area, it may be obtained from engineering studies available from a Federal, State, or other source using FEMA approved engineering methodologies. This elevation, when combined with the Freeboard, establishes the Regulatory Flood Protection Elevation.

Basement means any area of the building having its floor subgrade (below ground level) on all sides.

Building see Structure.

Chemical Storage Facility means a building, portion of a building, or exterior area adjacent to a building used for the storage of any chemical or chemically reactive products.

Design Flood: See Regulatory Flood Protection Elevation.

Development means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

Development Activity means any activity defined as Development which will necessitate a Floodplain Development Permit. This includes buildings, structures, and non-structural items, including (but not limited to) fill, bulkheads, piers, pools, docks, landings, ramps, and erosion control/stabilization measures.

Digital Flood Insurance Rate Map (DFIRM) means the digital official map of a community, issued by the Federal Emergency Management Agency (FEMA), on which both the Special Flood Hazard Areas and the risk premium zones applicable to the community are delineated.

Disposal means, as defined in NCGS 130A-290(a)(6), the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

Elevated Building means a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

Encroachment means the advance or infringement of uses, fill, excavation, buildings, structures or development into a special flood hazard area, which may impede or alter the flow capacity of a floodplain.

Existing building and existing structure means any building and/or structure for which the start of construction commenced before November 2, 1994.

Existing Manufactured Home Park or Manufactured Home Subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) was completed before the initial effective date of the floodplain management regulations adopted by the community.

Flood or Flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (a) The overflow of inland or tidal waters; and/or
- (b) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood Boundary and Floodway Map (FBFM) means an official map of a community, issued by the FEMA, on which the Special Flood Hazard Areas and the floodways are delineated. This official map is a supplement to and shall be used in conjunction with the Flood Insurance Rate Map (FIRM).

Flood Insurance means the insurance coverage provided under the National Flood Insurance Program.

Flood Insurance Rate Map (FIRM) means an official map of a community, issued by the FEMA, on which both the Special Flood Hazard Areas and the risk premium zones applicable to the community are delineated. (See also DFIRM)

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

Flood Insurance Study (FIS) means an examination, evaluation, and determination of flood hazards, corresponding water surface elevations (if appropriate), flood hazard risk zones, and other flood data in a community issued by the FEMA. The Flood Insurance Study report includes Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFMs), if published.

Flood Prone Area see Floodplain

Flood Zone means a geographical area shown on a Flood Hazard Boundary Map or Flood Insurance Rate Map that reflects the severity or type of flooding in the area.

Floodplain means any land area susceptible to being inundated by water from any source.

Floodplain Administrator is the individual appointed to administer and enforce the floodplain management regulations.

Floodplain Development Permit means any type of permit that is required in conformance with the provisions of this ordinance, prior to the commencement of any development activity.

Floodplain Management means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.

Floodplain Management Regulations means this ordinance and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances, and other applications of police power. This term describes federal, state or local regulations, in any combination thereof, which provide standards for preventing and reducing flood loss and damage.

Floodproofing means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitation facilities, structures, and their contents.

Flood-resistant material means any building product [material, component or system] capable of withstanding direct and prolonged contact (minimum 72 hours) with floodwaters without sustaining damage that requires more than low-cost cosmetic repair. Any material that is water-soluble or is not resistant to alkali or acid in water, including normal adhesives for above-grade use, is not flood-resistant. Pressure-treated lumber or naturally decay-resistant lumbars are acceptable flooring materials. Sheet-type flooring coverings that restrict evaporation from below and materials that are impervious, but dimensionally unstable are not acceptable. Materials that absorb or retain water excessively after submergence are not flood-resistant. Please refer to Technical Bulletin 2, *Flood Damage-Resistant Materials Requirements*, and available from the FEMA. Class 4 and 5 materials, referenced therein, are acceptable flood-resistant materials.

Floodway means the channel of a river or other watercourse, including the area above a bridge or culvert when applicable, and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.

Floodway encroachment analysis means an engineering analysis of the impact that a proposed encroachment into a floodway or non-encroachment area is expected to have on the floodway boundaries and flood levels during the occurrence of the base flood discharge. The evaluation shall be prepared by a qualified North Carolina licensed

engineer using standard engineering methods and models.

Freeboard means the height added to the BFE to account for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, blockage of bridge or culvert openings, and the hydrological effect of urbanization of the watershed. The BFE plus the freeboard establishes the Regulatory Flood Protection Elevation. The freeboard for Cabarrus County is a [minimum](#) of 2 feet.

Functionally Dependent Facility means a facility which cannot be used for its intended purpose unless it is located in close proximity to water, limited to a docking or port facility necessary for the loading and unloading of cargo or passengers, shipbuilding, or ship repair. The term does not include long-term storage, manufacture, sales, or service facilities.

Hazardous Waste Management Facility means, as defined in NCGS 130A, Article 9, a facility for the collection, storage, processing, treatment, recycling, recovery, or disposal of hazardous waste.

Highest Adjacent Grade (HAG) means the highest natural elevation of the ground surface, prior to construction, immediately next to the proposed walls of the structure.

Historic Structure means any structure that is:

- (a) Listed individually in the National Register of Historic Places (a listing maintained by the US Department of Interior) or preliminarily determined by the Secretary of Interior as meeting the requirements for individual listing on the National Register;
- (b) Certified or preliminarily determined by the Secretary of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- (c) Individually listed on a local inventory of historic landmarks in communities with a Certified Local Government (CLG) Program; or
- (d) Certified as contributing to the historical significance of a historic district designated by a community with a Certified Local Government (CLG) Program.

Certified Local Government (CLG) Programs are approved by the US Department of the Interior in cooperation with the North Carolina Department of Cultural Resources through the State Historic Preservation Officer as having met the requirements of the National Historic Preservation Act of 1966 as amended in 1980.

Letter of Map Change (LOMC) means an official determination issued by FEMA that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include:

- (a) Letter of Map Amendment (LOMA): An official amendment, by letter, to an effective National Flood Insurance Program map. A LOMA is based on technical data showing that a property had been inadvertently mapped as being in the floodplain, but is actually on natural high ground above the base flood elevation. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a specific property, portion of a property, or structure is not located in a special flood hazard area.
- (b) Letter of Map Revision (LOMR): A revision based on technical data that may show changes to flood zones, flood elevations, special flood hazard area boundaries and floodway delineations, and other planimetric features.
- (c) Letter of Map Revision Based on Fill (LOMR-F): A determination that a structure or parcel of land has been elevated by fill above the BFE and is, therefore, no longer located within the special flood hazard area. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community's floodplain management regulations.
- (d) Conditional Letter of Map Revision (CLOMR): A formal review and comment as to whether a proposed project complies with the minimum NFIP requirements for such projects with respect to delineation of

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study; upon submission and approval of certified as-built documentation, a Letter of Map Revision may be issued by FEMA to revise the effective FIRM.

Light Duty Truck means any motor vehicle rated at 8,500 pounds Gross Vehicular Weight Rating or less which has a vehicular curb weight of 6,000 pounds or less and which has a basic vehicle frontal area of 45 square feet or less as defined in 40 CFR 86.082-2 and is:

- (a) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle, or
- (b) Designed primarily for transportation of persons and has a capacity of more than 12 persons; or
- (c) Available with special features enabling off-street or off-highway operation and use.

Lowest Adjacent Grade (LAG) means the elevation of the ground, sidewalk or patio slab immediately next to the building, or deck support, after completion of the building.

Lowest Floor means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or limited storage in an area other than a basement area is not considered a building's lowest floor, provided that such an enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance.

Manufactured Home means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term manufactured home does not include a recreational vehicle.

Manufactured Home Park or Subdivision means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Map Repository means the location of the official flood hazard data to be applied for floodplain management. It is a central location in which flood data is stored and managed; in North Carolina, FEMA has recognized that the application of digital flood hazard data products have the same authority as hard copy products. Therefore, the NCEM's Floodplain Mapping Program websites house current and historical flood hazard data. For effective flood hazard data the NC FRIS website (<http://FRIS.NC.GOV/FRIS>) is the map repository, and for historical flood hazard data the FloodNC website (<http://FLOODNC.GOV/NCFLOOD>) is the map repository.

Market Value means the building value, not including the land value and that of any accessory structures or other improvements on the lot. Market value may be established by independent certified appraisal; replacement cost depreciated for age of building and quality of construction (Actual Cash Value); or adjusted tax assessed values.

New Construction means structures for which the start of construction commenced on or after the effective date of the initial floodplain management regulations and includes any subsequent improvements to such structures.

Non-Conversion Agreement means a document stating that the owner will not convert or alter what has been constructed and approved. Violation of the agreement is considered a violation of the ordinance and, therefore, subject to the same enforcement procedures and penalties. The agreement must be filed with the recorded deed for the property. The agreement must show the clerk's or recorder's stamps and/or notations that the filing has been completed.

Non-Encroachment Area (NEA) means the channel of a river or other watercourse, including the area above a bridge or culvert when applicable, and the adjacent land areas that must be reserved in order to discharge the base flood

without cumulatively increasing the water surface elevation more than one (1) foot as designated in the Flood Insurance Study report.

Post-FIRM means construction or other development for which the start of construction occurred on or after November 2, 1994, the effective date of the initial Flood Insurance Rate Map.

Pre-FIRM means construction or other development for which the start of construction occurred before November 2, 1994, the effective date of the initial Flood Insurance Rate Map.

Principally Above Ground means that at least 51% of the actual cash value of the structure is above ground.

Public Safety and/or Nuisance means anything which is injurious to the safety or health of an entire community or neighborhood, or any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin.

Recreational Vehicle (RV) means a vehicle, which is:

- (a) Built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) Designed to be self-propelled or permanently towable by a light duty truck;
- (d) Designed primarily not for use as a permanent dwelling, but as temporary living quarters for recreational, camping, travel, or seasonal use, and
- (e) Is fully licensed and ready for highway use.

Tiny Houses and Park Models that do not meet the items listed above are not considered Recreational Vehicles and should meet the development and construction standards for residential structures.

Reference Level is the bottom of the lowest horizontal structural member of the lowest floor for structures within all Special Flood Hazard Areas.

Regulatory Flood Protection Elevation means the Base Flood Elevation plus the Freeboard. In Special Flood Hazard Areas where Base Flood Elevations (BFEs) have been determined, this elevation shall be the BFE plus 2 feet of freeboard. In Special Flood Hazard Areas where no BFE has been established, this elevation shall be at least 2 feet above the highest adjacent grade.

Remedy a Violation means to bring the structure or other development into compliance with state and community floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of the ordinance or otherwise deterring future similar violations, or reducing federal financial exposure with regard to the structure or other development.

Riverine means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Salvage Yard means any non-residential property used for the storage, collection, and/or recycling of any type of equipment, and including but not limited to vehicles, appliances and related machinery.

Solid Waste Disposal Facility means any facility involved in the disposal of solid waste, as defined in NCGS 130A-290(a) (35).

Solid Waste Disposal Site means, as defined in NCGS 130A-290(a) (36), any place at which solid wastes are disposed of by incineration, sanitary landfill, or any other method.

Special Flood Hazard Area (SFHA) means the land in the floodplain subject to a one percent (1%) or greater chance

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

of being flooded in any given year, as determined in Part 3, Section B of this ordinance.

Start of Construction includes substantial improvement, and means the date the building permit was issued provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the external dimensions of the building.

Structure means a walled and roofed building, a manufactured home, or a gas, liquid, or liquefied gas storage tank that is principally above ground.

Substantial Damage means damage of any origin sustained by a structure during any one-year period whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. See definition of substantial improvement. Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

Substantial Improvement means any combination of repairs, reconstruction, rehabilitation, addition, or other improvement of a structure, taking place during any one-year period for which the cost equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either:

- (a) Any correction of existing violations of state or community health, sanitary, or safety code specifications which have been identified by the community code enforcement official and which are the minimum necessary to assure safe living conditions; or
- (b) Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure and the alteration is approved by variance issued pursuant to Part 4 Section E of this ordinance.

Technical Bulletin and Technical Fact Sheet means a FEMA publication that provides guidance concerning the building performance standards of the NFIP, which are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins and fact sheets are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically as needed. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations.

It should be noted that Technical Bulletins and Technical Fact Sheets provide guidance on the minimum requirements of the NFIP regulations. State or community requirements that exceed those of the NFIP take precedence. Design professionals should contact the community officials to determine whether more restrictive State or local regulations apply to the building or site in question. All applicable standards of the State or local

building code must also be met for any building in a flood hazard area.

Temperature Controlled means having the temperature regulated by a heating and/or cooling system, built-in or appliance.

Variance is a grant of relief from the requirements of this ordinance.

Violation means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Parts 4 and 5 is presumed to be in violation until such time as that documentation is provided.

Water Surface Elevation (WSE) means the height, in relation to NAVD 1988, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercourse means a lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

PART 3. GENERAL PROVISIONS

SECTION A. LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all Special Flood Hazard Areas within the unincorporated areas of Cabarrus County.

SECTION B. BASIS FOR ESTABLISHING THE SPECIAL FLOOD HAZARD AREAS

The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its FIS dated November 5, 2008 for Cabarrus County and associated DFIRM panels dated November 5, 2008, March 2, 2009, June 16, 2009, February 19, 2014 and November 16, 2018, including any digital data developed as part of the FIS, which are adopted by reference and declared a part of this ordinance. Future revisions to the FIS and DFIRM panels that do not change flood hazard data within the jurisdictional authority of Cabarrus County are also adopted by reference and declared a part of this ordinance.

SECTION C. ESTABLISHMENT OF FLOODPLAIN DEVELOPMENT PERMIT

A Floodplain Development Permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities within Special Flood Hazard Areas determined in accordance with the provisions of Part 3, Section B of this ordinance.

SECTION D. COMPLIANCE

No structure or land shall hereafter be located, extended, converted, altered, or developed in any way without full compliance with the terms of this ordinance and other applicable regulations.

SECTION E. ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

SECTION F. INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be:

- (a) Considered as minimum requirements;
- (b) Liberally construed in favor of the Board of Commissioners; and
- (c) Deemed neither to limit nor repeal any other powers granted under State statutes.

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

SECTION G. WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur. Actual flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the Special Flood Hazard Areas or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of Cabarrus County or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

SECTION H. PENALTIES FOR VIOLATION

Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a Class 1 misdemeanor pursuant to NC G.S. § 143-215.58. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$100.00 or imprisoned for not more than thirty (30) days, or both. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent Cabarrus County from taking such other lawful action as is necessary to prevent or remedy any violation.

PART 4. ADMINISTRATION

SECTION A. DESIGNATION OF FLOODPLAIN ADMINISTRATOR

The Zoning Administrator or his/her designee, hereinafter referred to as the Floodplain Administrator, is hereby appointed to administer and implement the provisions of this ordinance. In instances where the Floodplain Administrator receives assistance from others to complete tasks to administer and implement this ordinance, the Floodplain Administrator shall be responsible for the coordination and community's overall compliance with the National Flood Insurance Program and the provisions of this ordinance.

SECTION B. FLOODPLAIN DEVELOPMENT APPLICATION, PERMIT AND CERTIFICATION REQUIREMENTS

- (1) **Application Requirements**-Application for a Floodplain Development Permit shall be made to the Floodplain Administrator prior to any development activities located within Special Flood Hazard Areas. The following items shall be presented to the Floodplain Administrator to apply for a floodplain development permit:
 - (a) A plot plan drawn to scale which shall include, but shall not be limited to, the following specific details of the proposed floodplain development:
 - (i) The nature, location, dimensions, and elevations of the area of development/disturbance; existing and proposed structures, utility systems, grading/pavement areas, fill materials, storage areas, drainage facilities, and other development;
 - (ii) The boundary of the Special Flood Hazard Area as delineated on the FIRM or other flood map as determined in Part 3, Section B, or a statement that the entire lot is within the Special Flood Hazard Area;
 - (iii) Flood zone(s) designation of the proposed development area as determined on the FIRM or other flood map as determined in Part 3, Section B;
 - (iv) The boundary of the floodway(s) or non-encroachment area(s) as determined in Part 3, Section B;

- (v) The Base Flood Elevation (BFE) where provided as set forth in Part 3, Section B; Part 4, Section C; or Part 5, Section D;
- (vi) The old and new location of any watercourse that will be altered or relocated as a result of proposed development; and
- (vii) The certification of the plot plan by a registered land surveyor or professional engineer.
- (b) Proposed elevation, and method thereof, of all development within a Special Flood Hazard Area including but not limited to:
- (i) Elevation in relation to NAVD 1988 of the proposed reference level (including basement) of all structures;
- (ii) Elevation in relation to NAVD 1988 to which any non-residential structure in Zones A, AE, AH, AO, A99 will be floodproofed; and
- (iii) Elevation in relation to NAVD 1988 to which any proposed utility systems will be elevated or floodproofed.
- (c) If floodproofing, a Floodproofing Certificate (FEMA Form 086-0-34) with supporting data, an operational plan, and an inspection and maintenance plan that include, but are not limited to, installation, exercise, and maintenance of floodproofing measures.
- (d) A Foundation Plan, drawn to scale, which shall include details of the proposed foundation system to ensure all provisions of this ordinance are met. These details include but are not limited to:
- (i) The proposed method of elevation, if applicable (i.e., fill, solid foundation perimeter wall, solid backfilled foundation, open foundation on columns/posts/piers/piles/shear walls); and
- (ii) Openings to facilitate automatic equalization of hydrostatic flood forces on walls in accordance with Part 5, Section B(4)(d) when solid foundation perimeter walls are used in Zones A, AE, AH, AO, A99.
- (e) Usage details of any enclosed areas below the lowest floor.
- (f) Plans and/or details for the protection of public utilities and facilities such as sewer, gas, electrical, and water systems to be located and constructed to minimize flood damage.
- (g) Certification that all other Local, State and Federal permits required prior to floodplain development permit issuance have been received.
- (h) Documentation for placement of Recreational Vehicles and/or Temporary Structures, when applicable, to ensure that the provisions of Part 5, Section B, subsections (6) and (7) of this ordinance are met.
- (i) A description of proposed watercourse alteration or relocation, when applicable, including an engineering report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map (if not shown on plot plan) showing the location of the proposed watercourse alteration or relocation.
- (2) **Permit Requirements**-The Floodplain Development Permit shall include, but not be limited to:

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

- (a) A complete description of all the development to be permitted under the floodplain development permit (e.g. house, garage, pool, septic, bulkhead, cabana, pier, bridge, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials, etc.).
- (b) The Special Flood Hazard Area determination for the proposed development in accordance with available data specified in Part 3, Section B.
- (c) The Regulatory Flood Protection Elevation required for the reference level and all attendant utilities.
- (d) The Regulatory Flood Protection Elevation required for the protection of all public utilities.
- (e) All certification submittal requirements with timelines.
- (f) A statement that no fill material or other development shall encroach into the floodway or non-encroachment area of any watercourse unless the requirements of Part 5, Section F have been met.
- (g) The flood openings requirements, if in Zone AE.
- (h) Limitations of below BFE enclosure uses (if applicable). (i.e., parking, building access and limited storage only).
- (i) A statement, that all materials below BFE/RFPE must be flood resistant materials.

(3) Certification Requirements

- (a) Elevation Certificates
 - (i) An Elevation Certificate (FEMA Form 086-0-33) is required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to NAVD 1988. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder prior to the beginning of construction. Failure to submit the certification or failure to make required corrections shall be cause to deny a floodplain development permit.
 - (ii) An Elevation Certificate (FEMA Form 086-0-33) is required after the reference level is established. Within seven (7) calendar days of establishment of the reference level elevation, it shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to NAVD 1988. Any work done within the seven (7) day calendar period and prior to submission of the certification shall be at the permit holder's risk. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further work being permitted to proceed. Failure to submit the certification or failure to make required corrections shall be cause to issue a stop-work order for the project.
 - (iii) A final Finished Construction Elevation Certificate (FEMA Form 086-0-33) is required after construction is completed and prior to Certificate of Compliance/Occupancy issuance. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities. The

Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to Certificate of Compliance/Occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy. The Finished Construction Elevation Certificate certifier shall provide at least 2 photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least 2 additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3 × 3. Digital photographs are acceptable.

(b) Floodproofing Certificate

- (i) If non-residential floodproofing is used to meet the Regulatory Flood Protection Elevation requirements, a Floodproofing Certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan are required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD 1988. Floodproofing certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to permit approval. Failure to submit the certification or failure to make required corrections shall be cause to deny a Floodplain Development Permit. Failure to construct in accordance with the certified design shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy.
- (ii) A final Finished Construction Floodproofing Certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan are required prior to the issuance of a Certificate of Compliance/Occupancy. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD 1988. Floodproofing certificate shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to Certificate of Occupancy. Failure to submit the certification or failure to make required corrections shall be cause to deny a Floodplain Development Permit. Failure to construct in accordance with the certified design shall be cause to deny a Certificate of Compliance/Occupancy.

(c) If a manufactured home is placed within Zone AE and the elevation of the chassis is more than 36 inches in height above grade, an engineered foundation certification is required in accordance with the provisions of Part 5, Section B(3)(b).

(d) If a watercourse is to be altered or relocated, a description of the extent of watercourse alteration or relocation; a professional engineer's certified report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map showing the location of the proposed watercourse alteration or relocation

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

shall all be submitted by the permit applicant prior to issuance of a floodplain development permit.

- (e) Certification Exemptions. The following structures, if located within Zone AE, are exempt from the elevation/floodproofing certification requirements specified in items (a) and (b) of this subsection:
 - (i) Recreational Vehicles meeting requirements of Part 5, Section B (6) (a);
 - (ii) Temporary Structures meeting requirements of Part 5, Section B (7); and
 - (iii) Accessory Structures that are 150 square feet or less meeting requirements of Part 5, Section B(8).

(4) **Determinations for existing buildings and structures**

For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Building and Tax Officials, shall:

- (a) Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made;
- (b) Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;
- (c) Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; and
- (d) Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the NC Building Code and this ordinance is required.

SECTION C. DUTIES AND RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR

The Floodplain Administrator shall perform, but not be limited to, the following duties:

- (1) Review all floodplain development applications and issue permits for all proposed development within Special Flood Hazard Areas to assure that the requirements of this ordinance have been satisfied.
- (2) Review all proposed development within Special Flood Hazard Areas to assure that all necessary local, state and federal permits have been received, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.
- (3) Notify adjacent communities and the North Carolina Department of Public Safety, Division of Emergency Management, State Coordinator for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency

(FEMA).

- (4) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is maintained.
- (5) Prevent encroachments into floodways and non-encroachment areas unless the certification and flood hazard reduction provisions of Part 5, Section F are met.
- (6) Obtain actual elevation (in relation to NAVD 1988) of the reference level (including basement) and all attendant utilities of all new and substantially improved structures, in accordance with the provisions of Part 4, Section B(3).
- (7) Obtain actual elevation (in relation to NAVD 1988) to which all new and substantially improved structures and utilities have been floodproofed, in accordance with the provisions of Part 4, Section B(3).
- (8) Obtain actual elevation (in relation to NAVD 1988) of all public utilities in accordance with the provisions of Part 4, Section B (3).
- (9) When floodproofing is utilized for a particular structure, obtain certifications from a registered professional engineer or architect in accordance with the provisions of Part 4, Section B(3) and Part 5, Section B(2).
- (10) Where interpretation is needed as to the exact location of boundaries of the Special Flood Hazard Areas, floodways, or non-encroachment areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in in Part 4, Section D.
- (11) When BFE data has not been provided in accordance with the provisions of Part 3, Section B, obtain, review, and reasonably utilize any BFE data, along with floodway data or non-encroachment area data available from a federal, state, or other source, including data developed pursuant to Part 5, Section D (2) (c), in order to administer the provisions of this ordinance.
- (12) When BFE data is provided but no floodway or non-encroachment area data has been provided in accordance with the provisions of Part 3, Section B, obtain, review, and reasonably utilize any floodway data or non-encroachment area data available from a federal, state, or other source in order to administer the provisions of this ordinance.
- (13) When the lowest floor and the lowest adjacent grade of a structure or the lowest ground elevation of a parcel in a Special Flood Hazard Area is above the BFE, advise the property owner of the option to apply for a Letter of Map Amendment (LOMA) from FEMA. Maintain a copy of the LOMA issued by FEMA in the floodplain development permit file.
- (14) Permanently maintain all records that pertain to the administration of this ordinance and make these records available for public inspection, recognizing that such information may be subject to the Privacy Act of 1974, as amended.
- (15) Make on-site inspections of work in progress. As the work pursuant to a floodplain development permit progresses, the Floodplain Administrator shall make as many inspections of the work as may be necessary to ensure that the work is being done according to the provisions of the local ordinance and the terms of the permit. In exercising this power, the Floodplain Administrator has a right, upon presentation of proper credentials, to enter on any premises within the jurisdiction of the community at any reasonable hour for the purposes of inspection or other enforcement action.

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

- (16) Issue stop-work orders as required. Whenever a building or part thereof is being constructed, reconstructed, altered, or repaired in violation of this ordinance, the Floodplain Administrator may order the work to be immediately stopped. The stop-work order shall be in writing and directed to the person doing or in charge of the work. The stop-work order shall state the specific work to be stopped, the specific reason(s) for the stoppage, and the condition(s) under which the work may be resumed. Violation of a stop-work order constitutes a misdemeanor.
- (17) Revoke floodplain development permits as required. The Floodplain Administrator may revoke and require the return of the floodplain development permit by notifying the permit holder in writing stating the reason(s) for the revocation. Permits shall be revoked for any substantial departure from the approved application, plans, and specifications; for refusal or failure to comply with the requirements of State or local laws; or for false statements or misrepresentations made in securing the permit. Any floodplain development permit mistakenly issued in violation of an applicable State or local law may also be revoked.
- (18) Make periodic inspections throughout the Special Flood Hazard Areas within the jurisdiction of the community. The Floodplain Administrator and each member of his or her inspections department shall have a right, upon presentation of proper credentials, to enter on any premises within the territorial jurisdiction of the department at any reasonable hour for the purposes of inspection or other enforcement action.
- (19) Follow through with corrective procedures of Part 4, Section D.
- (20) Review, provide input, and make recommendations for variance requests.
- (21) Maintain a current map repository to include, but not limited to, historical and effective FIS Report, historical and effective FIRM and other official flood maps and studies adopted in accordance with the provisions of Part 3, Section B of this ordinance, including any revisions thereto including Letters of Map Change, issued by FEMA. Notify State and FEMA of mapping needs.
- (22) Coordinate revisions to FIS reports and FIRMs, including Letters of Map Revision Based on Fill (LOMR-Fs) and Letters of Map Revision (LOMRs).

SECTION D. CORRECTIVE PROCEDURES

- (1) Violations to be corrected: When the Floodplain Administrator finds violations of applicable state and local laws; it shall be his or her duty to notify the owner or occupant of the building of the violation. The owner or occupant shall immediately remedy each of the violations of law cited in such notification.
- (2) Actions in Event of Failure to Take Corrective Action: If the owner of a building or property shall fail to take prompt corrective action, the Floodplain Administrator shall give the owner written notice, by certified or registered mail to the owner's last known address or by personal service, stating:
 - (a) That the building or property is in violation of the floodplain management regulations;
 - (b) That a hearing will be held before the Floodplain Administrator at a designated place and time, not later than ten (10) days after the date of the notice, at which time the owner shall be entitled to be heard in person or by counsel and to present arguments and evidence pertaining to the matter; and
 - (c) That following the hearing, the Floodplain Administrator may issue an order to alter, vacate, or demolish the building; or to remove fill as applicable.

- (3) Order to Take Corrective Action: If, upon a hearing held pursuant to the notice prescribed above, the Floodplain Administrator shall find that the building or development is in violation of the Flood Damage Prevention Ordinance, he or she shall issue an order in writing to the owner, requiring the owner to remedy the violation within a specified time period, not less than sixty (60) calendar days, nor more than ninety (90) calendar days. Where the Floodplain Administrator finds that there is imminent danger to life or other property, he or she may order that corrective action be taken in such lesser period as may be feasible.
- (4) Appeal: Any owner who has received an order to take corrective action may appeal the order to the Board of Adjustment by giving notice of appeal in writing to the Floodplain Administrator and the Planning and Zoning Commission Clerk within ten (10) days following issuance of the final order. In the absence of an appeal, the order of the Floodplain Administrator shall be final. The Board of Adjustment shall hear an appeal within a reasonable time and may affirm, modify and affirm, or revoke the order.
- (5) Failure to Comply with Order: If the owner of a building or property fails to comply with an order to take corrective action for which no appeal has been made or fails to comply with an order of the Board of Adjustment following an appeal, the owner shall be guilty of a Class 1 misdemeanor pursuant to NC G.S. § 143-215.58 and shall be punished at the discretion of the court.

SECTION E. VARIANCE PROCEDURES

- (1) The Board of Adjustment as established by Cabarrus County, hereinafter referred to as the "appeal board," shall hear and decide requests for variances from the requirements of this ordinance.
- (2) Any person aggrieved by the decision of the appeal board may appeal such decision to the Court, as provided in Chapter 7A of the North Carolina General Statutes.
- (3) Variances may be issued for:
 - (a) The repair or rehabilitation of historic structures upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and that the variance is the minimum necessary to preserve the historic character and design of the structure;
 - (b) Functionally dependent facilities if determined to meet the definition as stated in Part 2 of this ordinance, provided provisions of Part 4, Section E(9)(b), (c), and (e) have been satisfied, and such facilities are protected by methods that minimize flood damages during the base flood and create no additional threats to public safety; or
 - (c) Any other type of development provided it meets the requirements of this Section.
- (4) In passing upon variances, the appeal board shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:
 - (a) The danger that materials may be swept onto other lands to the injury of others;
 - (b) The danger to life and property due to flooding or erosion damage;
 - (c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (d) The importance of the services provided by the proposed facility to the community;
 - (e) The necessity to the facility of a waterfront location as defined under Part 2 of this ordinance as a functionally dependent facility, where applicable;

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

- (f) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
 - (g) The compatibility of the proposed use with existing and anticipated development;
 - (h) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
 - (i) The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - (j) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and
 - (k) The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges.
- (5) A written report addressing each of the above factors shall be submitted with the application for a variance.
- (6) Upon consideration of the factors listed above and the purposes of this ordinance, the appeal board may attach such conditions to the granting of variances as it deems necessary to further the purposes and objectives of this ordinance.
- (7) Any applicant to whom a variance is granted shall be given written notice specifying the difference between the BFE and the elevation to which the structure is to be built and that such construction below the BFE increases risks to life and property, and that the issuance of a variance to construct a structure below the BFE may result in increased premium rates for flood insurance up to \$25 per \$100 of insurance coverage. Such notification shall be maintained with a record of all variance actions, including justification for their issuance.
- (8) The Floodplain Administrator shall maintain the records of all appeal actions and report any variances to the FEMA and the State of North Carolina upon request.
- (9) Conditions for Variances:
- (a) Variances shall not be issued when the variance will make the structure in violation of other federal, state, or local laws, regulations, or ordinances.
 - (b) Variances shall not be issued within any designated floodway or non-encroachment area if the variance would result in any increase in flood levels during the base flood discharge.
 - (c) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 - (d) Variances shall only be issued prior to development permit approval.
 - (e) Variances shall only be issued upon:
 - (i) A showing of good and sufficient cause;

- (ii) A determination that failure to grant the variance would result in exceptional hardship; and
- (iii) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

PART 5. PROVISIONS FOR FLOOD HAZARD REDUCTION

SECTION A. GENERAL STANDARDS

In all Special Flood Hazard Areas the following provisions are required:

- (1) All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, and lateral movement of the structure.
- (2) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage in accordance with the FEMA Technical Bulletin 2, *Flood Damage-Resistant Materials Requirements*.
- (3) All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damages.
- (4) All new electrical, heating, ventilation, air-conditioning, plumbing, duct systems, and other building utility systems, equipment, and service facilities must be located at or above the Regulatory Flood Protection Elevation or specially designed to prevent water from entering or accumulating within the components and installed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the Regulatory Flood Protection Elevation. Utility systems, equipment, and service facilities include, but are not limited to, HVAC equipment, water softener units, bath/kitchen plumbing fixtures, ductwork, electric/gas meter panels/boxes, utility/cable boxes, water heaters, fuel tanks, and electric outlets/switches.
 - (a) Replacements part of a substantial improvement, electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall also meet the above provisions.
 - (b) Replacements that are for maintenance and not part of a substantial improvement, may be installed at the original location provided the addition and/or improvements only comply with the standards for new construction consistent with the code and requirements for the original structure.
- (5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
- (6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into flood waters.
- (7) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
- (8) Nothing in this ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of this ordinance and located totally or partially within the floodway, non-encroachment area, or stream setback, provided there is no additional encroachment below the Regulatory Flood Protection Elevation in the floodway, non-encroachment area, or stream setback, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this ordinance.

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

- (9) A structure or tank for chemical or fuel storage incidental to an allowed use or to the operation of a water treatment plant or wastewater treatment facility may be located in a Special Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the Regulatory Flood Protection Elevation and certified in accordance with the provisions of Part 4, Section B (3).
- (10) All subdivision proposals and other development proposals shall be consistent with the need to minimize flood damage.
- (11) All subdivision proposals and other development proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
- (12) All subdivision proposals and other development proposals shall have adequate drainage provided to reduce exposure to flood hazards.
- (13) All subdivision proposals and other development proposals shall have received all necessary permits from those governmental agencies for which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.
- (14) When a structure is partially located in a Special Flood Hazard Area, the entire structure shall meet the requirements for new construction and substantial improvements.
- (15) When a structure is located in multiple flood hazard zones or in a flood hazard risk zone with multiple base flood elevations, the provisions for the more restrictive flood hazard risk zone and the highest BFE shall apply.

SECTION B. SPECIFIC STANDARDS

In all Special Flood Hazard Areas where BFE data has been provided, as set forth in Part 3, Section B, or Part 5, Section D, the following provisions, in addition to the provisions of Part 5, Section A, are required:

- (1) Residential Construction. New construction and substantial improvement of any residential structure (including manufactured homes) shall have the reference level, including basement, elevated no lower than the Regulatory Flood Protection Elevation, as defined in Part 2 of this ordinance. [See Section A\(4\) for development standards related to utility systems, equipment, and service facilities.](#)
- (2) Non-Residential Construction. New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the Regulatory Flood Protection Elevation, as defined in Part 2 of this ordinance. Structures located in Zone AE, may be floodproofed to the Regulatory Flood Protection Elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the Regulatory Flood Protection Elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the floodproofing standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Part 4, Section B (3), along with the operational plan and the inspection and maintenance plan.
- (3) Manufactured Homes
 - (a) New and replacement manufactured homes shall be elevated so that the reference level of the manufactured home is no lower than the Regulatory Flood Protection Elevation, as defined in Part 2 of this ordinance. [See](#)

Section A(4) for development standards related to utility systems, equipment, and service facilities.

- (b) Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement, either by certified engineered foundation system, or in accordance with the most current edition of the State of North Carolina Regulations for Manufactured Homes adopted by the Commissioner of Insurance pursuant to NCGS 143-143.15. Additionally, when the elevation would be met by an elevation of the chassis thirty-six (36) inches or less above the grade at the site, the chassis shall be supported by reinforced piers or engineered foundation. When the elevation of the chassis is above thirty-six (36) inches in height, an engineering certification is required.
 - (c) All enclosures or skirting below the lowest floor shall meet the requirements of Part 5, Section B (4).
 - (d) An evacuation plan must be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home parks or subdivisions located within flood prone areas. This plan shall be filed with and approved by the Floodplain Administrator and the local Emergency Management Coordinator.
- (4) Elevated Buildings. Fully enclosed area, of new construction and substantially improved structures, which is below the lowest floor:
- (a) Shall not be designed or used for human habitation, but shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator). The interior portion of such enclosed area shall not be finished or partitioned into separate rooms, except to enclose storage areas;
 - (b) Shall not be temperature-controlled or conditioned;
 - (c) Shall be constructed entirely of flood resistant materials
 - (d) Shall include, in Zone, AE flood openings to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet or exceed the following minimum design criteria:
 - (i) A minimum of two flood openings on different sides of each enclosed area subject to flooding;
 - (ii) The total net area of all flood openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding;
 - (iii) If a building has more than one enclosed area, each enclosed area must have flood openings to allow floodwaters to automatically enter and exit;
 - (iv) The bottom of all required flood openings shall be no higher than one (1) foot above the higher of the interior or exterior adjacent grade;
 - (v) Flood openings may be equipped with screens, louvers, or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions; and
 - (vi) Enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require flood openings. Masonry or wood underpinning, regardless of

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

structural status, is considered an enclosure and requires flood openings as outlined above.

- (e) Property owners shall be required to execute and record a non-conversion agreement prior to issuance of a building permit declaring that the area below the lowest floor shall not be improved, finished or otherwise converted to habitable space ; Cabarrus County will have the right to inspect the enclosed area . Cabarrus County will conduct annual inspections. This agreement shall be recorded with the Cabarrus County Register of Deeds and shall transfer with the property in perpetuity.

(5) Additions/Improvements.

- (a) Additions and/or improvements to pre-FIRM structures when the addition and/or improvements in combination with any interior modifications to the existing structure are:
 - (i) Not a substantial improvement, the addition and/or improvements must be designed to minimize flood damages.
 - (ii) A substantial improvement, with modifications/rehabilitations/improvements to the existing structure or the common wall is structurally modified more than installing a doorway, both the existing structure and the addition must comply with the standards for new construction.
- (b) Additions to pre-FIRM or post-FIRM structures that are a substantial improvement with no modifications/rehabilitations/improvements to the existing structure other than a standard door in the common wall, shall require only the addition to comply with the standards for new construction.
- (c) Additions and/or improvements to post-FIRM structures when the addition and/or improvements in combination with any interior modifications to the existing structure are:
 - (i) Not a substantial improvement, the addition and/or improvements only must comply with the standards for new construction consistent with the code and requirements for the original structure.
 - (ii) A substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
- (d) Any combination of repair, reconstruction, rehabilitation, addition or improvement of a building or structure taking place during a 1 year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started must comply with the standards for new construction. For each building or structure, the 2 year period begins on the date of the first improvement or repair of that building or structure subsequent to the effective date of this ordinance. Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The requirement does not, however, include either:
 - (i) Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assume safe living conditions.

- (ii) Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.
- (6) Recreational Vehicles. Recreational vehicles shall either:
- (a) Temporary Placement
 - (i) Be on site for fewer than 180 consecutive days; or
 - (ii) Be fully licensed and ready for highway use. (A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities, and has no permanently attached additions.)
 - (b) Permanent Placement. Recreational vehicles that do not meet the limitations of Temporary Placement shall meet all the requirements for new construction.
- (7) Temporary Non-Residential Structures. Prior to the issuance of a floodplain development permit for a temporary structure, the applicant must submit to the Floodplain Administrator a plan for the removal of such structure(s) in the event of a hurricane, flash flood or other type of flood warning notification. The following information shall be submitted in writing to the Floodplain Administrator for review and written approval:
- (a) A specified time period for which the temporary use will be permitted. Time specified may not exceed three (3) months, renewable up to one (1) year;
 - (b) The name, address, and phone number of the individual responsible for the removal of the temporary structure;
 - (c) The time frame prior to the event at which a structure will be removed (i.e., minimum of 72 hours before landfall of a hurricane or immediately upon flood warning notification);
 - (d) A copy of the contract or other suitable instrument with the entity responsible for physical removal of the structure; and
 - (e) Designation, accompanied by documentation, of a location outside the Special Flood Hazard Area, to which the temporary structure will be moved.
- (8) Accessory Structures. When accessory structures (sheds, detached garages, etc.) are to be placed within a Special Flood Hazard Area, the following criteria shall be met:
- (a) Accessory structures shall not be used for human habitation (including working, sleeping, living, cooking or restroom areas);
 - (b) Accessory structures shall not be temperature-controlled;
 - (c) Accessory structures shall be designed to have low flood damage potential;
 - (d) Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
 - (e) Accessory structures shall be firmly anchored in accordance with the provisions of Part 5, Section A(1);
 - (f) All service facilities such as electrical shall be installed in accordance with the provisions of Part 5,

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

Section A(4); and

- (g) Flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below Regulatory Flood Protection Elevation in conformance with the provisions of Part 5, Section B(4)(d).

An accessory structure with a footprint less than 150 square feet or that is a minimal investment of \$3,000 or less and satisfies the criteria outlined above is not required to meet the elevation or floodproofing standards of Part 5, Section B (2). Elevation or floodproofing certifications are required for all other accessory structures in accordance with Part 4, Section B(3).

- (9) Tanks. When gas and liquid storage tanks are to be placed within a Special Flood Hazard Area, the following criteria shall be met:
 - (a) Underground tanks. Underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads during conditions of the design flood, including the effects of buoyancy assuming the tank is empty;
 - (b) Above-ground tanks, elevated. Above-ground tanks in flood hazard areas shall be elevated to or above the Regulatory Flood Protection Elevation on a supporting structure that is designed to prevent flotation, collapse or lateral movement during conditions of the design flood. Tank-supporting structures shall meet the foundation requirements of the applicable flood hazard area;
 - (c) Above-ground tanks, not elevated. Above-ground tanks that do not meet the elevation requirements of Section B (2) of this ordinance shall be permitted in flood hazard areas provided the tanks are designed, constructed, installed, and anchored to resist all flood-related and other loads, including the effects of buoyancy, during conditions of the design flood and without release of contents in the floodwaters or infiltration by floodwaters into the tanks. Tanks shall be designed, constructed, installed, and anchored to resist the potential buoyant and other flood forces acting on an empty tank during design flood conditions.
 - (d) Tank inlets and vents. Tank inlets, fill openings, outlets and vents shall be:
 - (i) At or above the Regulatory Flood Protection Elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood; and
 - (ii) Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.
- (10) Other Development. Prior to the issuance of a floodplain development permit for a temporary structure, the applicant must submit to the Floodplain Administrator a plan for the removal of such structure(s) in the event of a hurricane, flash flood, or other type of flood warning notification. The following information shall be submitted in writing to the Floodplain Administrator for review and written approval:
 - (a) Fences in regulated floodways and NEAs that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of Part 5, Section F of this ordinance.
 - (b) Retaining walls, sidewalks and driveways in regulated floodways and NEAs. Retaining walls and

sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of Part 5, Section F of this ordinance.

- (c) Roads and watercourse crossings in regulated floodways and NEAs. Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of Part 5, Section F of this ordinance.
- (d) Commercial storage facilities are not considered “limited storage” as noted in this ordinance and shall be protected to the Regulatory Flood Protection Elevation as required for commercial structures.

SECTION C. RESERVED

SECTION D. STANDARDS FOR FLOODPLAINS WITHOUT ESTABLISHED BASE FLOOD ELEVATIONS

Within the Special Flood Hazard Areas designated as Approximate Zone A and established in Part 3, Section B, where no BFE data has been provided by FEMA, the following provisions, in addition to the provisions of Part 5, Section A, shall apply:

- (1) No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of twenty (20) feet each side from top of bank or five times the width of the stream, whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
 - (a) When BFE data is available from other sources, all new construction and substantial improvements within such areas shall also comply with all applicable provisions of this ordinance and shall be elevated or floodproofed in accordance with standards in Part 5, Sections A and B.
 - (b) When floodway or non-encroachment data is available from a Federal, State, or other source, all new construction and substantial improvements within floodway and non-encroachment areas shall also comply with the requirements of Part 5, Sections B and F.
 - (c) All subdivision, manufactured home park and other development proposals shall provide BFE data if development is greater than five (5) acres or has more than fifty (50) lots/manufactured home sites. Such BFE data shall be adopted by reference in accordance with Part 3, Section B and utilized in implementing this ordinance.
 - (d) When BFE data is not available from a Federal, State, or other source as outlined above, the reference level shall be elevated or floodproofed (nonresidential) to or above the Regulatory Flood Protection Elevation, as defined in Part 2. All other applicable provisions of Part 5, Section B shall also apply.

SECTION E. STANDARDS FOR RIVERINE FLOODPLAINS WITH BASE FLOOD ELEVATIONS BUT WITHOUT ESTABLISHED FLOODWAYS OR NON-ENCROACHMENT AREAS

Along rivers and streams where BFE data is provided by FEMA or is available from another source but neither floodway nor non-encroachment areas are identified for a Special Flood Hazard Area on the FIRM or in the FIS report, the following requirements shall apply to all development within such areas:

- (1) Standards of Part 5, Sections A and B; and
- (2) Until a regulatory floodway or non-encroachment area is designated, no encroachments, including fill, new construction, substantial improvements, or other development, shall be permitted unless certification with

CABARRUS COUNTY DEVELOPMENT ORDINANCE

CHAPTER 16-FLOOD DAMAGE PREVENTION

supporting technical data by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the community.

SECTION F. FLOODWAYS AND NON-ENCROACHMENT AREAS

Areas designated as floodways or non-encroachment areas are located within the Special Flood Hazard Areas established in Part 3, Section B. The floodways and non-encroachment areas are extremely hazardous areas due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles. The following provisions, in addition to standards outlined in Part 5, Sections A and B, shall apply to all development within such areas:

- (1) No encroachments, including fill, new construction, substantial improvements and other developments shall be permitted unless:
 - (a) It is demonstrated that the proposed encroachment would not result in any increase in the flood levels during the occurrence of the base flood discharge, based on hydrologic and hydraulic analyses performed in accordance with standard engineering practice and presented to the Floodplain Administrator prior to issuance of floodplain development permit; or
 - (b) A Conditional Letter of Map Revision (CLOMR) has been approved by FEMA. A Letter of Map Revision (LOMR) must also be obtained within six months of completion of the proposed encroachment.
 - (c) In addition to subsection (a) and (b), the following standards apply to all fill activities in special flood hazard areas:
 - a. Fill material must be graded to drain, provide such is protected against erosion. When expected velocities during the occurrence of the base flood are greater than five feet per second armoring with stone or rock protection shall be provided. When expected velocities during the base flood are five feet per second or less protection shall be provided by covering them with vegetative cover.
 - b. Any fill material on which a structure is to be located shall be extended at grade 10 feet beyond the limits of the structure foundation and shall have a side slope no steeper than one foot vertical to two feet horizontal.
 - c. Fill shall be composed of clean granular or earthen material.
- (2) If Part 5, Section F(1) is satisfied, all development shall comply with all applicable flood hazard reduction provisions of this ordinance.
- (3) No manufactured homes shall be permitted, except replacement manufactured homes in an existing manufactured home park or subdivision, provided following provisions are met:
 - (a) The anchoring and the elevation standards of Part 5, Section B(3); and
 - (b) The encroachment standards of Part 5, Section F(1).

SECTION G. STANDARDS FOR AREAS OF SHALLOW FLOODING (ZONE AO)

Located within the Special Flood Hazard Areas established in Part 3, Section B, are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to Part 5, Sections A and B, all new construction and substantial improvements shall meet the following requirements:

- (1) The reference level shall be elevated at least as high as the depth number specified on the Flood Insurance Rate Map (FIRM), in feet, plus a freeboard of 2 feet, above the highest adjacent grade; or at least 4 feet where a depth is not provided above the highest adjacent grade if no depth number is specified.
- (2) Non-residential structures may, in lieu of elevation, be floodproofed to the same level as required in Part 5, Section I(1) so that the structure, together with attendant utility and sanitary facilities, below that level shall be watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required in accordance with Part 4, Section B(3) and Part 5, Section B(2).
- (3) Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

PART 6. LEGAL STATUS PROVISIONS

SECTION A. EFFECT ON RIGHTS AND LIABILITIES UNDER THE EXISTING FLOOD DAMAGE PREVENTION ORDINANCE

This ordinance in part comes forward by re-enactment of some of the provisions of the Flood Damage Prevention Ordinance enacted November 2, 1994 as amended, and it is not the intention to repeal but rather to re-enact and continue to enforce without interruption of such existing provisions, so that all rights and liabilities that have accrued thereunder are reserved and may be enforced. The enactment of this ordinance shall not affect any action, suit or proceeding instituted or pending. All provisions of the Flood Damage Prevention Ordinance of Cabarrus County enacted on November 2, 1994, as amended, which are not reenacted herein are repealed.

The date of the initial Flood Damage Prevention Ordinance for each municipal jurisdiction within Cabarrus County is as follows:

Mount Pleasant: November 2, 1994
Town of Harrisburg: October 13, 2008
Town of Midland: November 10, 2008

City of Locust: September 3, 2008
City of Kannapolis: December 17, 1990
City of Concord: February 14, 1983

SECTION B. EFFECT UPON OUTSTANDING FLOODPLAIN DEVELOPMENT PERMITS.

Nothing herein contained shall require any change in the plans, construction, size, or designated use of any development or any part thereof for which a floodplain development permit has been granted by the Floodplain Administrator or his or her authorized agents before the time of passage of this ordinance; provided, however, that when construction is not begun under such outstanding permit within a period of six (6) months subsequent to the date of issuance of the outstanding permit, construction or use shall be in conformity with the provisions of this ordinance.

SECTION C. SEVERABILITY

If any section, clause, sentence, or phrase of the Ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way effect the validity of the remaining portions of this Ordinance.

CABARRUS COUNTY DEVELOPMENT ORDINANCE
CHAPTER 16-FLOOD DAMAGE PREVENTION

SECTION D. EFFECTIVE DATE

This ordinance shall become effective upon the adoption by the Cabarrus County Board of Commissioners.

SECTION E. ADOPTION CERTIFICATION

I hereby certify that this is a true and correct copy of the Flood Damage Prevention Ordinance as adopted by the Board of Commissioners of Cabarrus County, North Carolina, on the 15th day of October, 2018.

WITNESS my hand and the official seal of Cabarrus County this the 15th day of October, 2018.

Stephen M. Morris

Stephen M. Morris, Chairman
Cabarrus County Board of Commissioners

P&Z Draft Model Ordinance Updates Dec 2021