

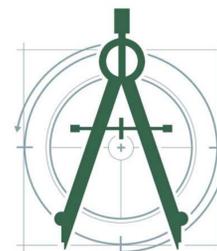
Permitting Plans

Preserve at Jones Dairy South

Town of Rolesville
Wake County, North Carolina

Preserve at Jones Dairy, LLC

10534 Arnold Palmer Drive
Raleigh, NC 27617



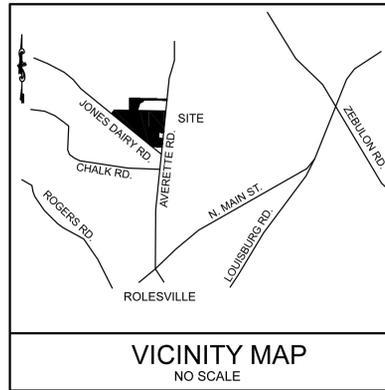
caaENGINEERS, Inc.

McIntyre, Gettle, Crowley

PROFESSIONAL ENGINEERS

1233 Heritage Links Drive, Wake Forest, North Carolina 27587
4932B Windy Hill Drive, Raleigh, North Carolina 27609
(919)625-6755

C-2151 © caaENGINEERS, Inc. All Rights Reserved



Public Improvement Quantities			
Improvement	Phase 1	Phase 2	Phase 3
Lots by Phase	123	34	59
Number of Units	123	34	59
Amenity Lots	1		
Public Water 12"	1506		
Public Water 8" LF	5746		
Public 8" Sewer (PVC) LF	7373		
Public 8" Sewer (Ductile) LF	838		
Water Service Stubs	124	34	59
Sewer Service Stubs	124	34	59

Note:

These plans are prepared for local and state permitting only. These plans are not released for Construction.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for **contacting the Public Utilities Department at (919) 996-4540** at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN

DATE _____

PERMIT NO. S- _____

Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

 ENVIRONMENTAL CONSULTANT SIGNATURE _____

SHEET	DESCRIPTION
C0	Cover Sheet
C1	Design Notes
C2	Survey
C3	Existing Conditions Plan
C4	Site Plan
C5	Water and Sewer Utility Plan
C6	Storm Sewer Utility Plan
C7	Initial Erosion Control Plan
C8	Grading Plan
C9	Erosion Control Plan
C10	Erosion Control Notes
C11	Roadway Profile
C12	Roadway Profile
C13	Roadway Profile
C14	Roadway Profile
C15	Roadway Profile
C16	Roadway Profile
C17	Roadway Profile
C18	Roadway Profile
C19	Sewer Outfall
C20	Bioretention Area Details
C21	Wet Pond Details
D1	Standard Details
D2	Standard Details
D3	Standard Details
D4	Standard Details

R&PUD PERMITTED USES

R1 53.53 ACRES
 R2 0 ACRES
 R3 0 ACRES
 RM 0 ACRES
 G 1.03 ACRES

GENERAL NOTES

- PROJECT AMENITIES TO BE REVIEWED BY THE TOWN OF ROLESVILLE DURING SITE / CONSTRUCTION PLAN SUBMITTAL.
- PROJECT LANDSCAPE BUFFERS WILL BE MAINTAINED BY THE "PRESERVE AT JONES DAIRY" HOME OWNERS ASSOCIATION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF ROLESVILLE, NCDOT AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

SITE DEVELOPMENT DATA

ZONING PROPOSED: R & PUD
 TOWNSHIP: ROLESVILLE, NC
 COUNTY: WAKE
 RIVER BASIN: NEUSE

GROSS TRACT AREA: 54.01 ACRES
 SINGLE FAMILY RESIDENTIAL: 53.53 ACRES
 JONES DAIRY ROW DEDICATION: 0.48 ACRES

PROPOSED USE: RESIDENTIAL
 EXISTING USE: VACANT

PROPOSED DEVELOPMENT:

SINGLE FAMILY DENSITY PROVIDED : 215 / 54.83 = 3.92 UNITS / AC
 PROPOSED LOTS: 215
 LOT SIZE: 6000 SF (MIN) - 19,485.1 SF (MAX)
 LOT WIDTH: 50 FT (MIN)

SETBACKS:
 FRONT: 25 FT
 REAR: 25 FT
 SIDE: 5 FT (0-10 AGGREGATE)
 SIDE (CORNER LOTS): 10 FT (SIDE FRONTING ROW)

RECREATION AND OPEN SPACE:

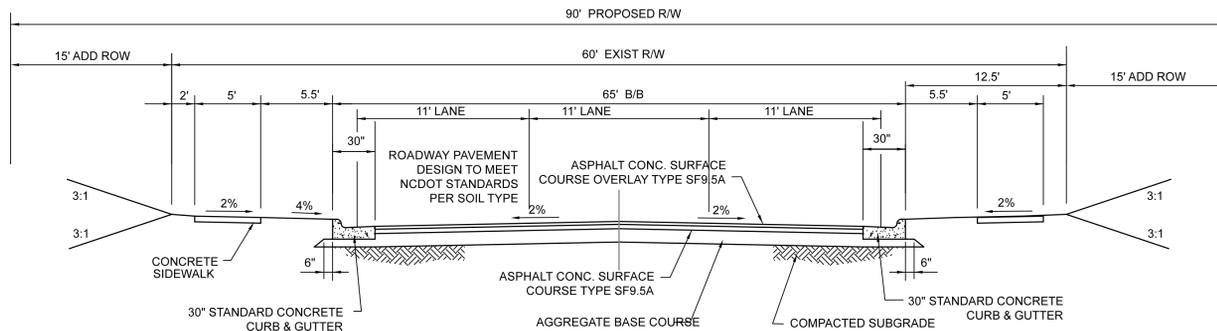
TOTAL SITE AREA REQUIRED (10%): 53.53 x .10 = 5.35 ACRES
 IMPROVED AREA REQUIRED: 5.35 x .5 = 2.67
 TOTAL AREA PROVIDED: 7.59 ACRES (14.2%)
 IMPROVED AREA PROVIDED: 4.56 ACRES
 UNIMPROVED AREA PROVIDED: 3.03 ACRES

PROJECT INFORMATION:

PROJECT: THE PRESERVE AT JONES DAIRY - SOUTH PRELIMINARY PLAT
 OWNER/DEVELOPER: PRESERVE AT JONES DAIRY, LLC
 10534 ARNOLD PALMER DRIVE
 RALEIGH, NC 27617
 PHONE: (919) 422-1847
 CONTACT: GLEN HARTMAN
 EMAIL: GLEN.HARTMAN@CAPITOLCITY-HOMES.COM
 ENGINEER: MICHAEL CROWLEY, PE
 caaENGINEERS, INC.
 1233 HERITAGE LINKS DRIVE
 WAKE FOREST, NC 27587
 PHONE: (919) 625-6755
 EMAIL: MCROWLEY@CAAENGINEERS.COM
 SURVEYOR: CMP LAND SURVEYORS (MIKE MOSS)
 333 SOUTH WHITE STREET, WAKE FOREST NC, 27587
 PHONE: (919) 556-3148
 PROJECT ADDRESS: JONES DAIRY ROAD, ROLESVILLE, NC
 PIN: 1759-88-8240, 1759.02-88-8240, 1759.02-78-6199
 ZONING: R & PUD
 EXIST USE: VACANT
 FLOOD ZONE: NONE - FEMA FIRM MAP 3720175900J

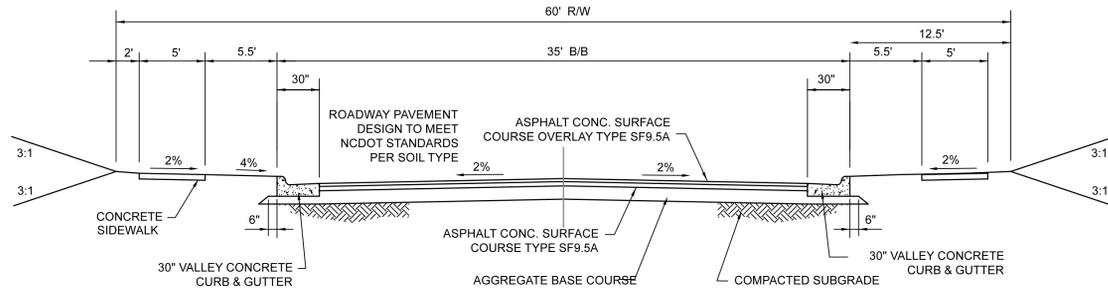
SITE NOTES

- PROPERTY BOUNDARY AND EXISTING CONDITIONS INFORMATION TAKEN FROM A FIELD SURVEY BY CAWTHORNE, MOSS AND PANCIERA, ENTITLED "SURVEY FOR JVC", DATED APRIL, 2018.
- WETLANDS AND STREAMS HAVE RECEIVED PRELIMINARY JURISDICTION DELINEATION FROM NC DIVISION OF WATER RESOURCES.
- NO FLOOD HAZARD AREAS WITHIN PROJECT BOUNDARY PER FEMA MAP 3720175900J, DATED MAY 2, 2006.



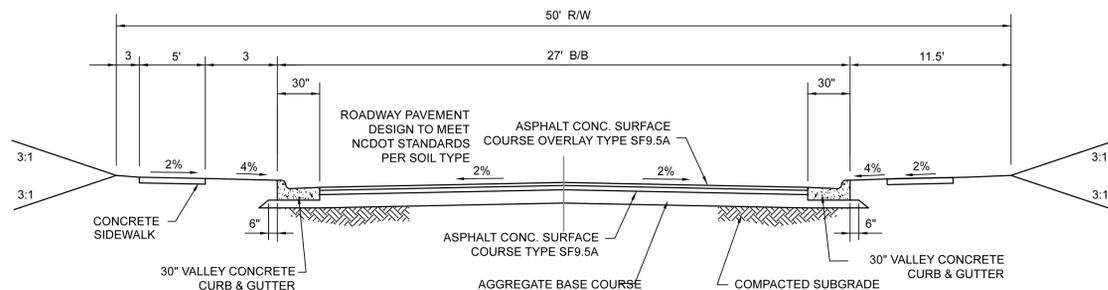
Jones Dairy Road (90' R/W)

NOT TO SCALE



Residential Collector (60' R/W)

NOT TO SCALE



Residential Street (50' R/W)

NOT TO SCALE

JONES DAIRY ROAD IMPROVEMENTS:

THE TIA REPORT RECOMMENDED LEFT TURN LANE CONSTRUCTION ON JONES DAIRY ROAD AND AVERETTE ROAD AT EACH SITE DRIVEWAY INTERSECTION. THESE LEFT TURN LANES WILL BE CONSTRUCTED AT THE TIME THE SITE DRIVEWAY INTERSECTION IS CONSTRUCTED. THE SITE DRIVEWAY INTERSECTIONS ON JONES DAIRY ROAD AND THE NEW LEFT TURN LANES ON JONES DAIRY ROAD ARE ANTICIPATED TO BE CONSTRUCTED IN THE INITIAL PHASE OF DEVELOPMENT.

THE TIA REPORT DID NOT ACCOUNT FOR THE ADDITIONAL THROUGH LANES ON JONES DAIRY ROAD TO BE CONSERVATIVE. THE ADDITIONAL THROUGH LANES ON JONES DAIRY ROAD THAT ARE REQUIRED TO MEET THE ULTIMATE CROSS SECTION WILL NOT BE UTILIZED AS THROUGH LANES SINCE JONES DAIRY ROAD HAS ONLY TWO THROUGH LANES ON EACH END OF THE PROJECT AREA. THE CONSTRUCTION OF THE ADDITIONAL PAVEMENT ON JONES DAIRY ROAD COULD OCCUR AT ANY PHASE OF THE DEVELOPMENT AND STILL MATCH THE OPERATIONS IDENTIFIED IN THE TIA REPORT.

LENGTH OF PUBLIC STREETS PROPOSED = 7830 LF



NO.	DATE	REVISION DESCRIPTION
1	05/08/2020	Preliminary Construction Plans
2		
3		
4		
5		
6		
7		
8		



Design Notes
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. C1

PRELIMINARY PLANS
 NOT FOR CONSTRUCTION



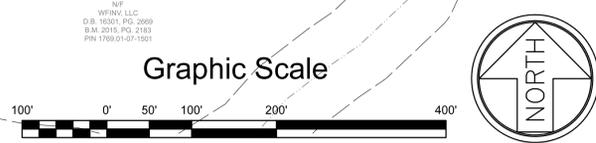
caaENGINEERS, Inc.
 McIntyre, Gettle, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27587
 4932B Windy Hill Road, Raleigh, North Carolina 27609
 (919) 825-6755
 © caaENGINEERS, Inc. All Rights Reserved
 C-2151

NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2	Date	Comment	By
3	Date	Comment	By
4	Date	Comment	By
5	Date	Comment	By
6	Date	Comment	By
7	Date	Comment	By
8	Date	Comment	By

PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

Existing Conditions
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. **C3**



NF
 JAMES M. McILWAIN
 D.B. 896, PAGE 19A
 B.M. 1887, PAGE 88
 PIN 1759.02-78-0116

SMH TOP: 389.54'
 INV. Not Surveyed

SMH TOP: 394.65'
 INV. 395.8'

SMH TOP: 388.52'
 INV. 381.5'

NF
 HERBERT S. &
 ELLEN W. HOLDING, III
 D.B. 18272, PG. 077
 B.M. 2016, PG. 306
 PIN 1759.02-87-8415

GOVERNMENT TREE PRESERVE
 45,980 SF (1.04 AC.)

NF
 HAROLD D. PERRY
 WILLIAM G. BENTON
 B.M. 1006, PG. 1105
 PIN 1759.02-94-2822

NF
 HAROLD D. PERRY
 & EMMA JEAN
 AVERETT PERRY
 D.B. 7319, PG. 133
 B.M. 2005, PG. 83
 PIN 1759.02-88-7990

NF
 PERRY FAMILY FARMS, LLC
 D.B. 11463, PG. 1567
 PIN 1759.02-88-8005

NF
 WFINV, LLC
 D.B. 18001, PG. 2999
 B.M. 2015, PG. 2183
 PIN 1769.01-07-1501

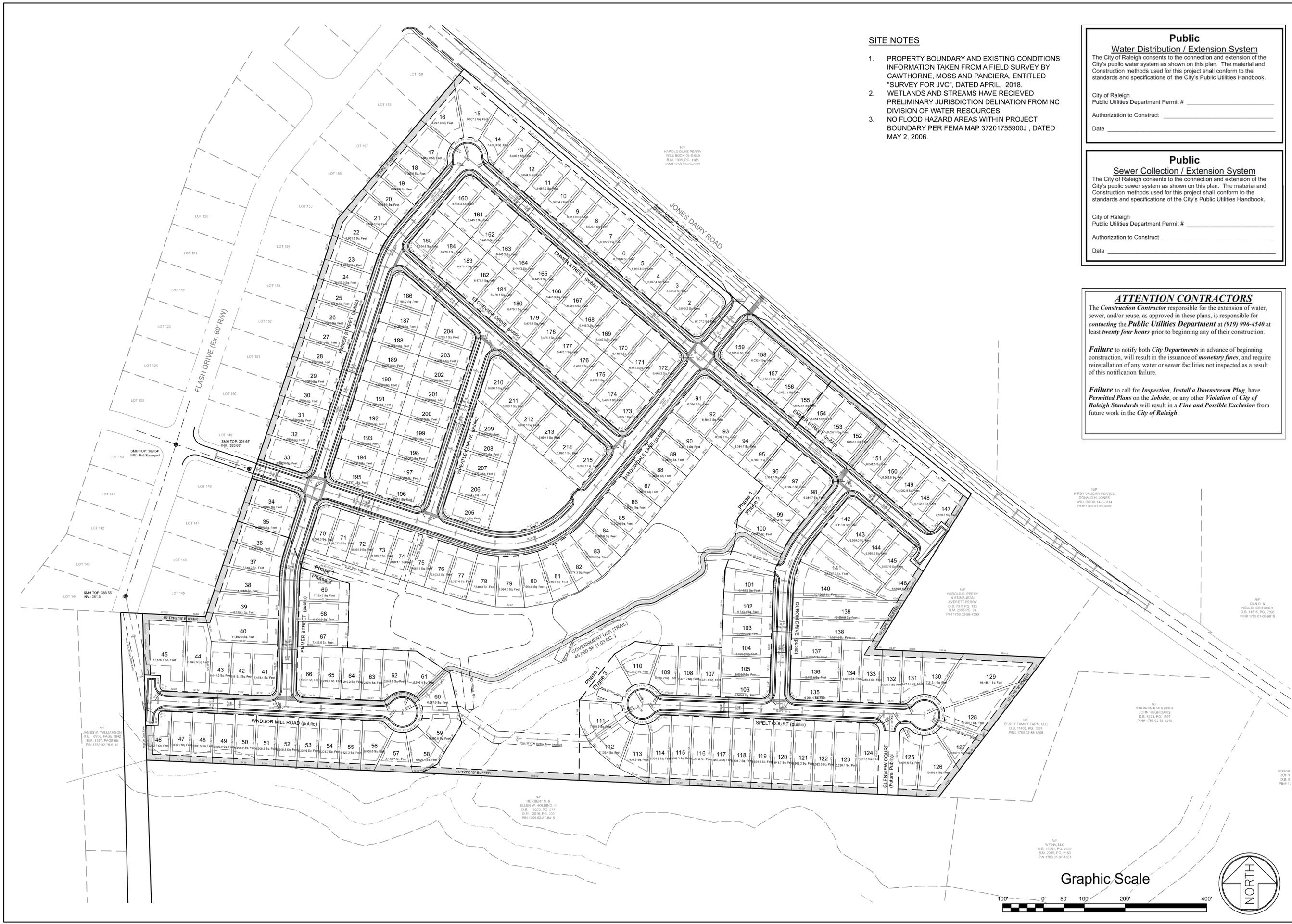
Graphic Scale



NF
 DAN R. &
 NELL D. CRITCHER
 D.B. 14516, PG. 2388
 PIN 1769.01-08-0810

NF
 STEPHEN M. ALLEN &
 JOHN HUGH DAVIS
 D.B. 5228, PG. 1097
 PIN 1759.02-88-8240

STEPH
 JOHN
 D.B. 8
 PIN 17



SITE NOTES

1. PROPERTY BOUNDARY AND EXISTING CONDITIONS INFORMATION TAKEN FROM A FIELD SURVEY BY CAWTHORNE, MOSS AND PANCIERA, ENTITLED "SURVEY FOR JVC", DATED APRIL, 2018.
2. WETLANDS AND STREAMS HAVE RECEIVED PRELIMINARY JURISDICTION DELINEATION FROM NC DIVISION OF WATER RESOURCES.
3. NO FLOOD HAZARD AREAS WITHIN PROJECT BOUNDARY PER FEMA MAP 37201755900J, DATED MAY 2, 2006.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for **contacting the Public Utilities Department at (919) 996-4540** at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection. Install a Downstream Plug**, have **Permitted Plans on the Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.



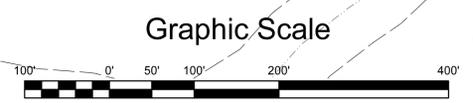
caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Road, Raleigh, North Carolina 27669
C-2151 © caaENGINEERS, Inc. All Rights Reserved

NO.	DATE	REVISION DESCRIPTION
1	05/02/2020	Preliminary Construction Plans
2		By _____
3		By _____
4		By _____
5		By _____
6		By _____
7		By _____
8		By _____



Site Plan
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C4**



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

Public
Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

ATTENTION CONTRACTORS
 The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both City Departments in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug**, have **Permitted Plans** on the **Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

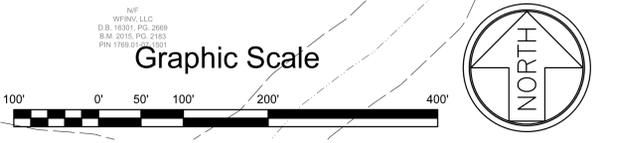
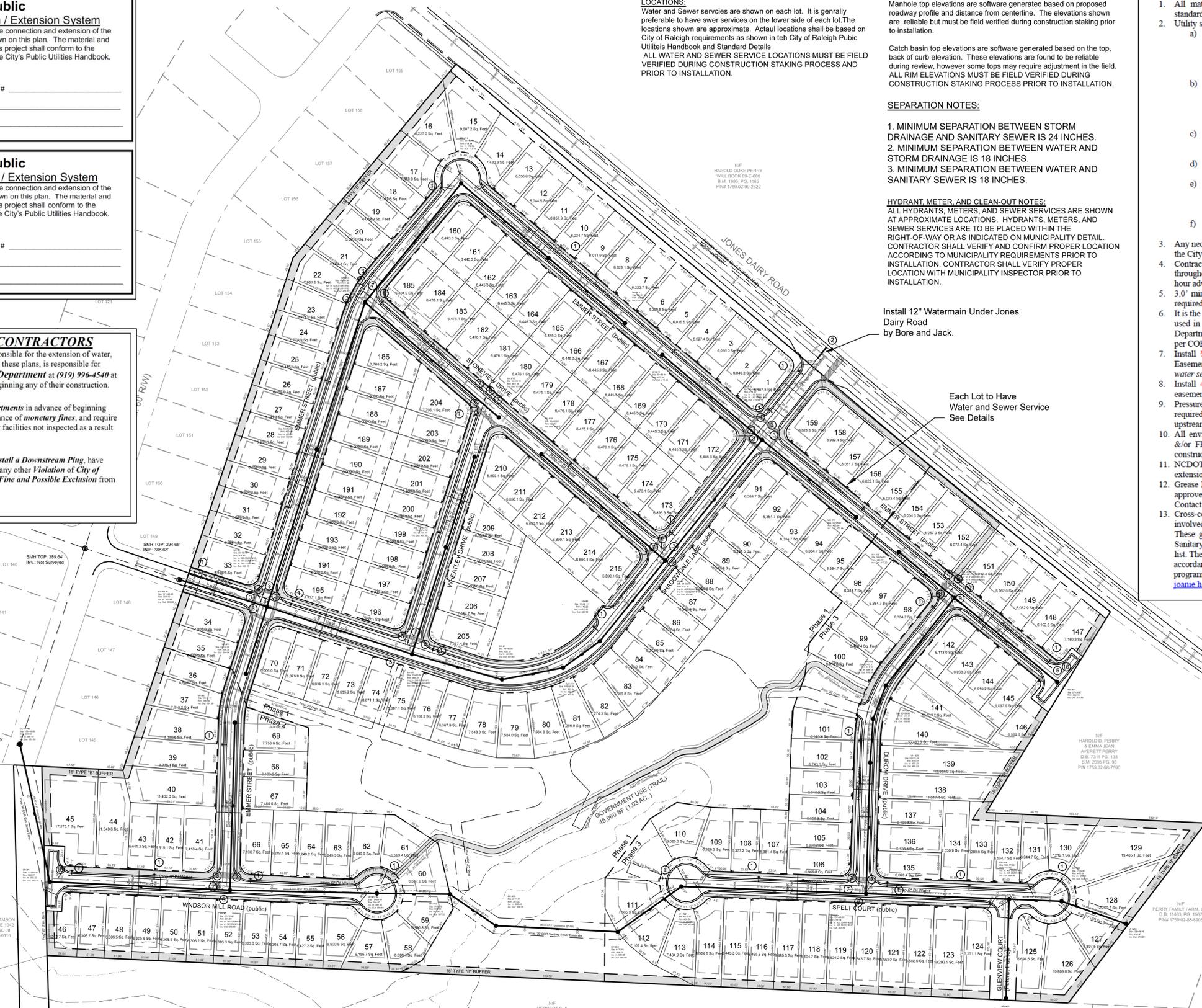
IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
 Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.
ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
 Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. **ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.**

- STANDARD UTILITY NOTES**
- All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook, current edition)
 - Utility separation requirements:
 - A distance of 10' shall be maintained between sanitary sewer & any private or public water supply source such as an impounded reservoir used as a source of drinking water. If adequate lateral separation cannot be achieved, ferrous sanitary sewer pipe shall be specified & installed to watertight specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well
 - When installing water &/or sewer mains, the horizontal separation between utilities shall be 10'. If this separation cannot be maintained due to existing conditions, the variation allowed is the water main in a separate trench with the elevation of the water main at least 18" above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
 - Where it is impossible to obtain proper separation, or anytime a sanitary sewer passes over a watermain, DIP materials or steel encasement extended 10' on each side of crossing must be specified & installed to watertight specifications
 - 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer
 - Maintain 18" min. vertical separation at all watermain & RCP storm drain crossings; maintain 24" min. vertical separation at all sanitary sewer & RCP storm drain crossings. Where adequate separations cannot be achieved, specify DIP materials & a concrete cradle having 6" min. clearance (per CORPUD details W-41 & S-49)
 - All other underground utilities shall cross water & sewer facilities with 18" min. vertical separation required
 - Any necessary field revisions are subject to review & approval of an amended plan &/or profile by the City of Raleigh Public Utilities Department prior to construction
 - Contractor shall maintain continuous water & sewer service to existing residences & businesses throughout construction of project. Any necessary service interruptions shall be preceded by a 24 hour advance notice to the City of Raleigh Public Utilities Department
 - 3.0' minimum cover is required on all water mains & sewer force mains. 4.0' minimum cover is required on all reuse mains
 - It is the developer's responsibility to abandon or remove existing water & sewer services not being used in redevelopment of a site unless otherwise directed by the City of Raleigh Public Utilities Department. This includes abandoning tap at main & removal of service from ROW or easement per CORPUD Handbook procedure
 - Install 3/8" copper* water services with meters located at ROW or within a 2'x2' Waterline Easement immediately adjacent. *NOTE: it is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure*
 - Install 4" PVC* sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
 - Pressure reducing valves are required on all water services exceeding 80 psi; backwater valves are required on all sanitary sewer services having building drains lower than 1.0' above the next upstream manhole
 - All environmental permits applicable to the project must be obtained from NCDWQ, USACE &/or FEMA for any riparian buffer, wetland &/or floodplain impacts (respectively) prior to construction.
 - NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
 - Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the CORPUD FOG Program Coordinator prior to issuance of a Building Permit. Contact Tim Beasley at (919) 996-2334 or timothy.beasley@raleighnc.gov for more information
 - Cross-connection control protection devices are required based on degree of health hazard involved as listed in Appendix-B of the Rules Governing Public Water Systems in North Carolina. These guidelines are the minimum requirements. The devices shall meet American Society of Sanitary Engineering (ASSE) standards or be on the University of Southern California approval list. The devices shall be installed and tested (both initial and periodic testing thereafter) in accordance with the manufacturer's recommendations or the local cross-connection control program, whichever is more stringent. Contact Joanie Hartley at (919) 996-5923 or joanie.hartley@raleighnc.gov for more information

- WATER SYSTEM LEGEND**
- PROP HYDRANT ASSEMBLY
 - PROP 12" x 8" TS&V
 - 8" GATE VALVE WITH VALVE BOX
 - 8" X 8" CROSS
 - 8" X 6" TEE
 - 8" X 6" TEE
 - 6" GATE VALVE WITH BOX
 - 6" X 6" TEE
 - 8" X 6" REDUCER
 - 6" PLUG AND BLOCK



caaENGINEERS, Inc.
 McIntyre, Gentile, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27587
 49326 Windy Hill Road, Raleigh, North Carolina 27669
 (919) 926-6755
 © caaENGINEERS, Inc. All Rights Reserved
 C-2151

NO.	DATE	REVISION DESCRIPTION
1	05/08/2020	Preliminary Construction Plans
2		
3		
4		
5		
6		
7		
8		
9		
10		



Water and Sewer Utility Plan
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. **C5**

PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

Public
Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

ATTENTION CONTRACTORS
 The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

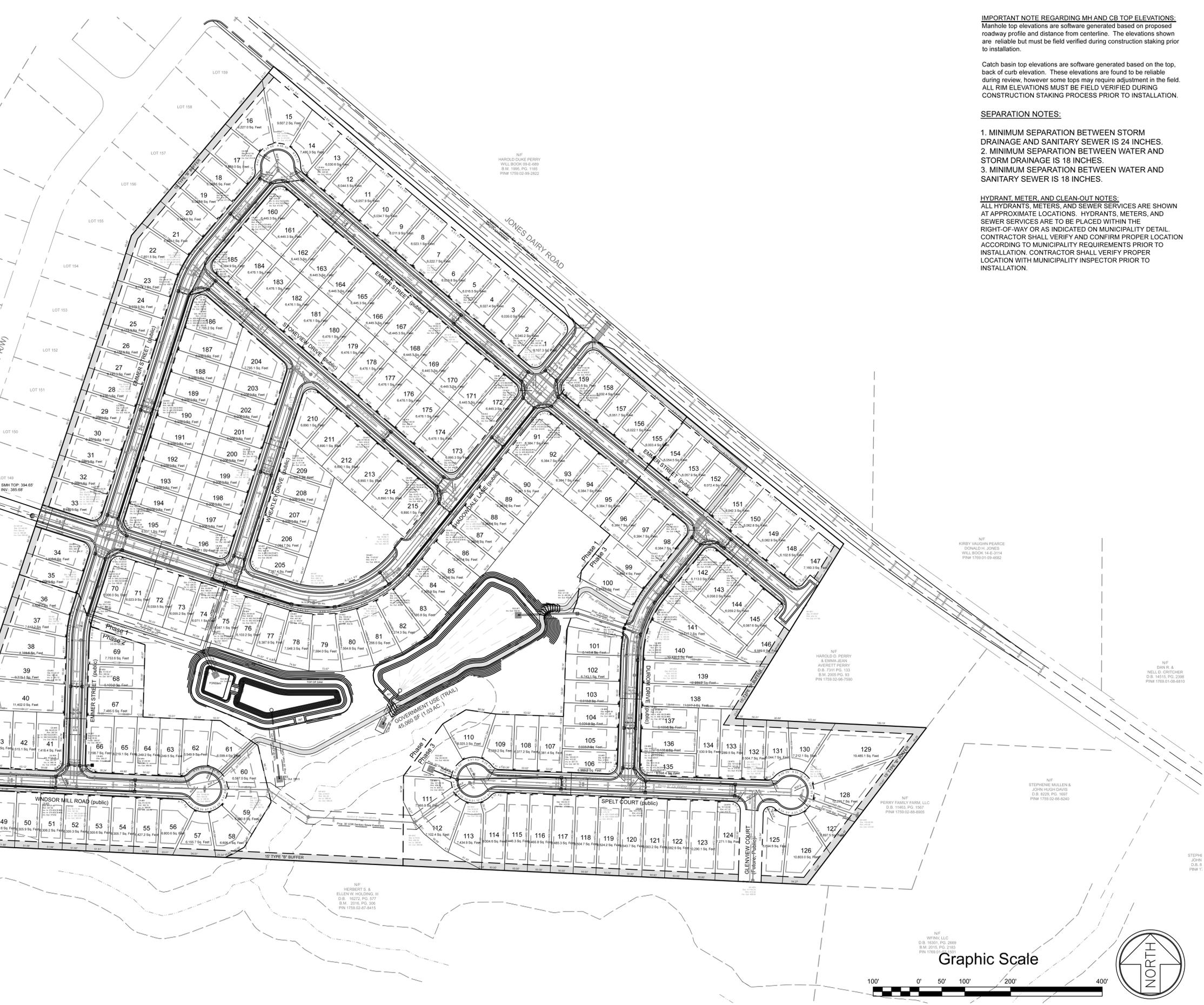
Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
 DATE _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
 Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

SEPARATION NOTES:

1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

HYDRANT, METER, AND CLEAN-OUT NOTES:
 ALL HYDRANTS, METERS, AND SEWER SERVICES ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND SEWER SERVICES ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY OR AS INDICATED ON MUNICIPALITY DETAIL. CONTRACTOR SHALL VERIFY AND CONFIRM PROPER LOCATION ACCORDING TO MUNICIPALITY REQUIREMENTS PRIOR TO INSTALLATION. CONTRACTOR SHALL VERIFY PROPER LOCATION WITH MUNICIPALITY INSPECTOR PRIOR TO INSTALLATION.



caaENGINEERS, Inc.
 Mcintyre, Gentile, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27587
 40326 Windy Hill Road, Raleigh, North Carolina 27609
 (919) 924-6745
 © caaENGINEERS, Inc. All Rights Reserved
 C-2151

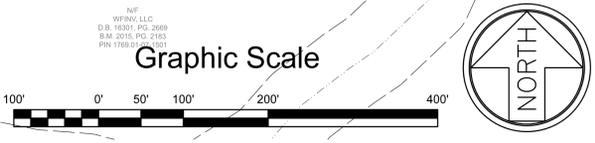
NO.	DATE	REVISION DESCRIPTION
1	05/02/2020	Preliminary Construction Plans
2		Comment
3		Comment
4		Comment
5		Comment
6		Comment
7		Comment
8		Comment



PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

Storm Drainage Utility Plan
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. **C6**



EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

SMH TOP 386.50 INV. 381.2

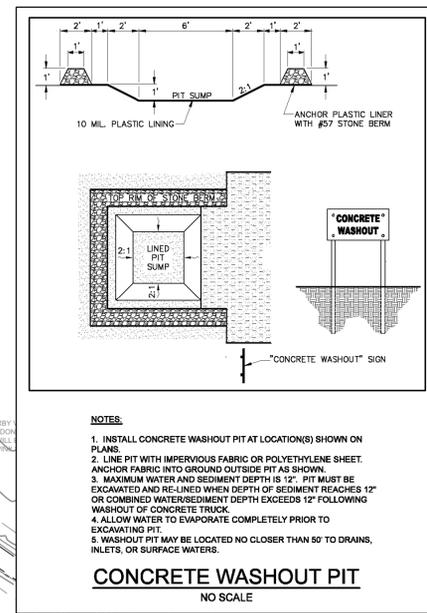
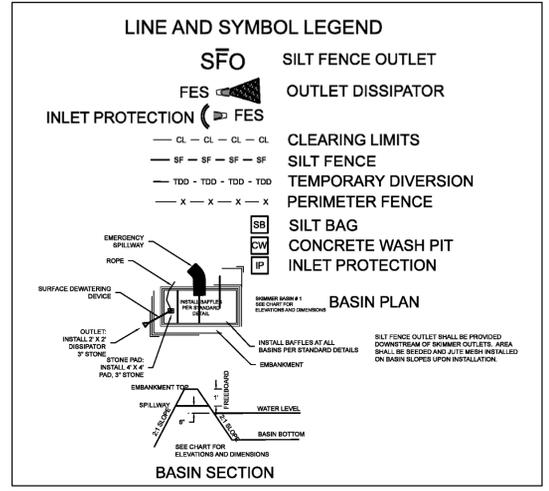
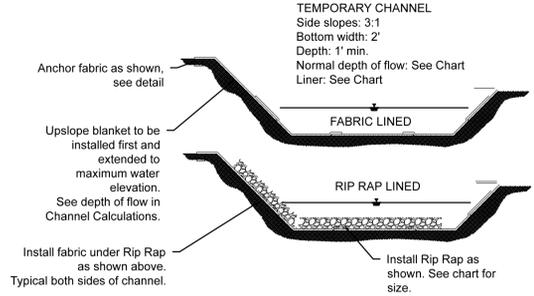
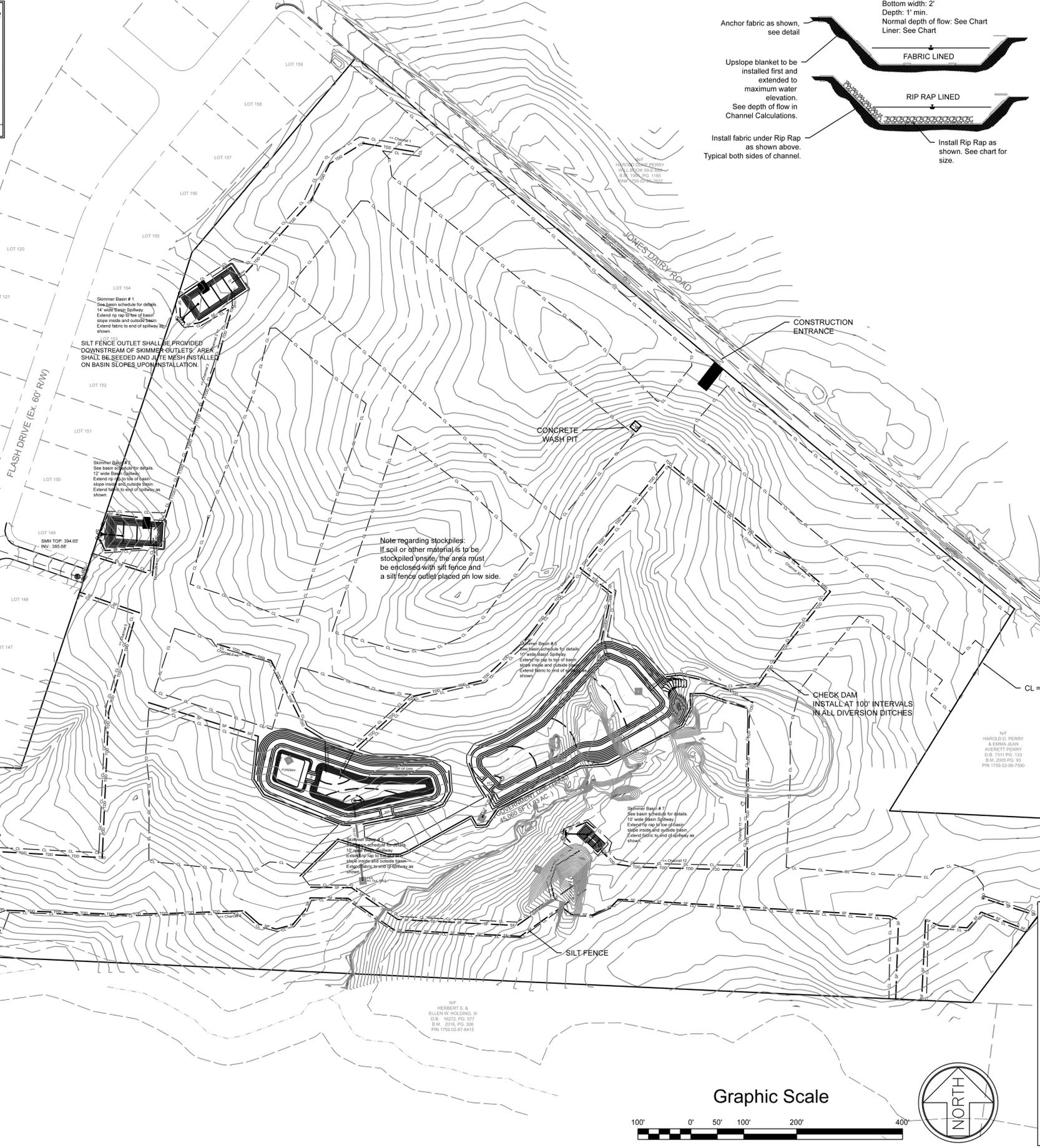
SMH TOP 388.50 INV. 381.2

SMH TOP 389.64 INV. Not Surveyed

SMH TOP 384.65 INV. 385.88

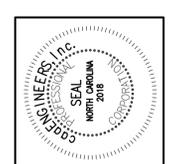
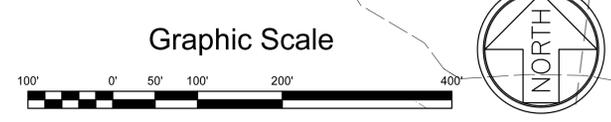
SMH TOP 386.50 INV. 381.2

SMH TOP 388.50 INV. 381.2



STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.



caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Road, Raleigh, North Carolina 27669
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2	Date	Comment	By
3	Date	Comment	By
4	Date	Comment	By
5	Date	Comment	By
6	Date	Comment	By
7	Date	Comment	By
8	Date	Comment	By



Initial Erosion Control Plan
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Job No. JDF
Dwg No. **C7**

EROSION AND SEDIMENT CONTROL

APPROVED PLAN

DATE _____

PERMIT NO. S- _____

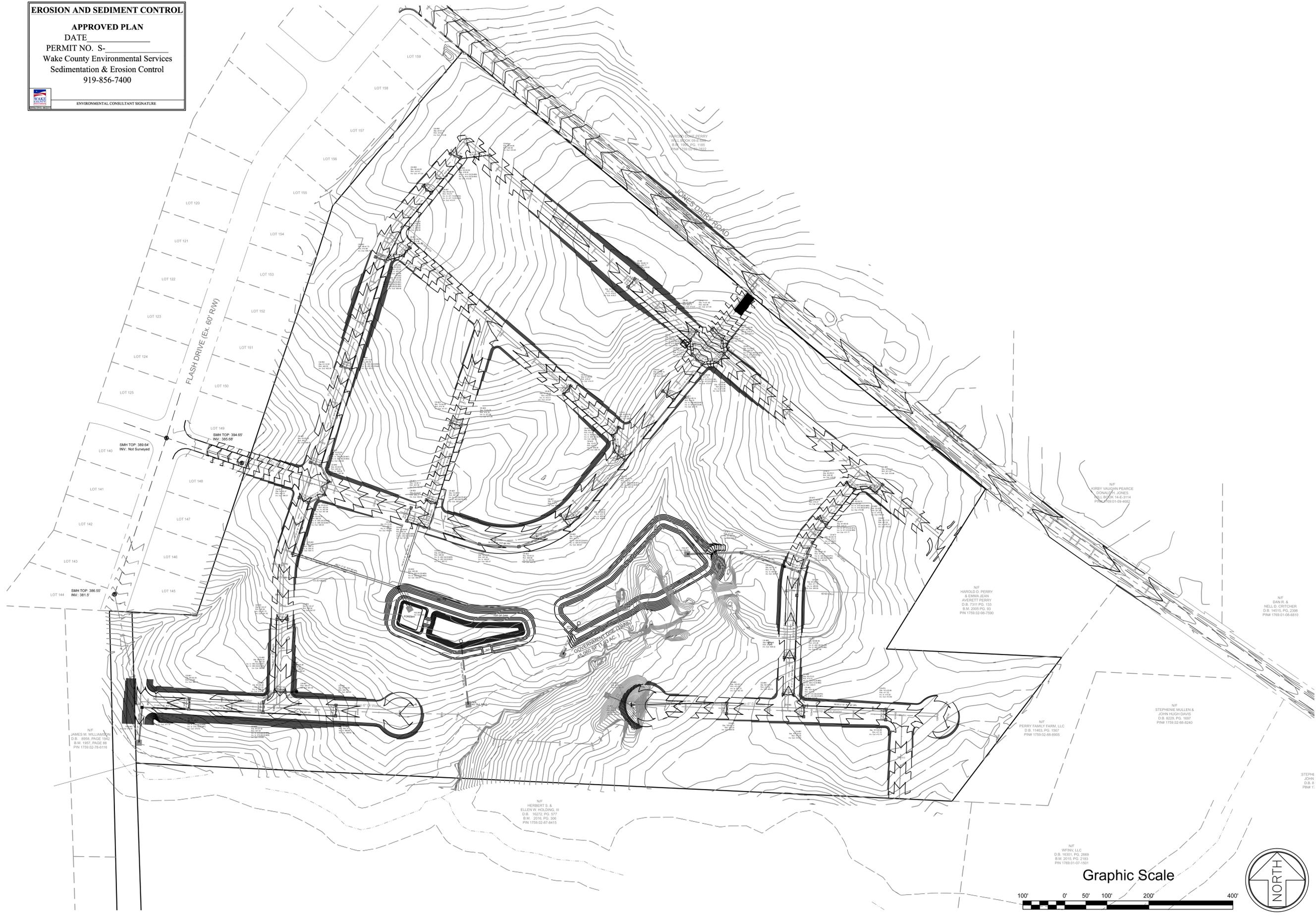
Wake County Environmental Services

Sedimentation & Erosion Control

919-856-7400



ENVIRONMENTAL CONSULTANT SIGNATURE



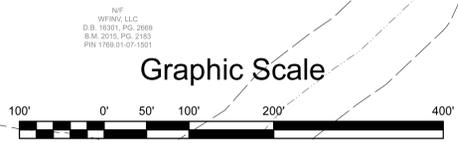
caaENGINEERS, Inc.
 McIntyre, Gettle, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27587
 4932B Windy Hill Road, Raleigh, North Carolina 27669
 (919) 825-6755
 © caaENGINEERS, Inc. All Rights Reserved
 C-2151

NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2	Date	Comment	By
3	Date	Comment	By
4	Date	Comment	By
5	Date	Comment	By
6	Date	Comment	By
7	Date	Comment	By
8	Date	Comment	By



PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

Grading Plan
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina



Job No. JDF
 Dwg No. **C8**

EROSION AND SEDIMENT CONTROL

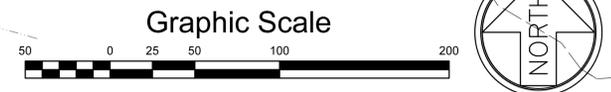
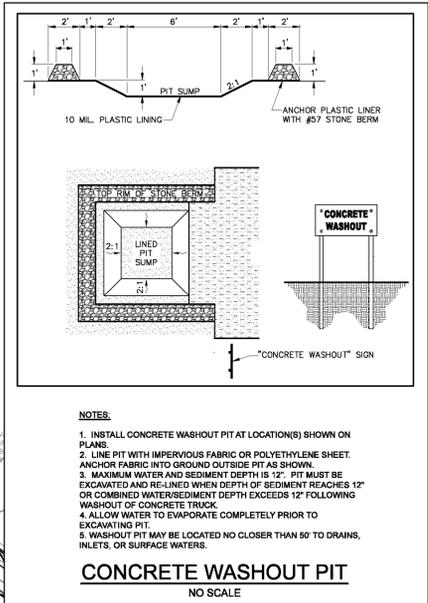
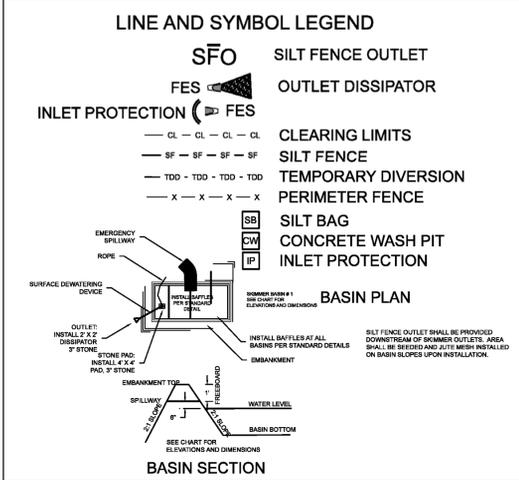
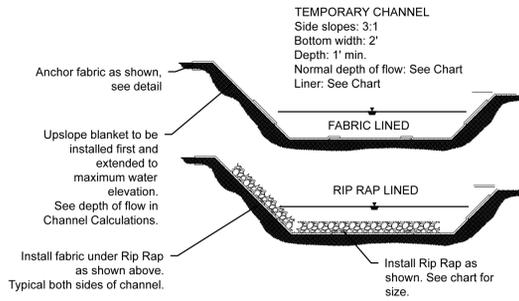
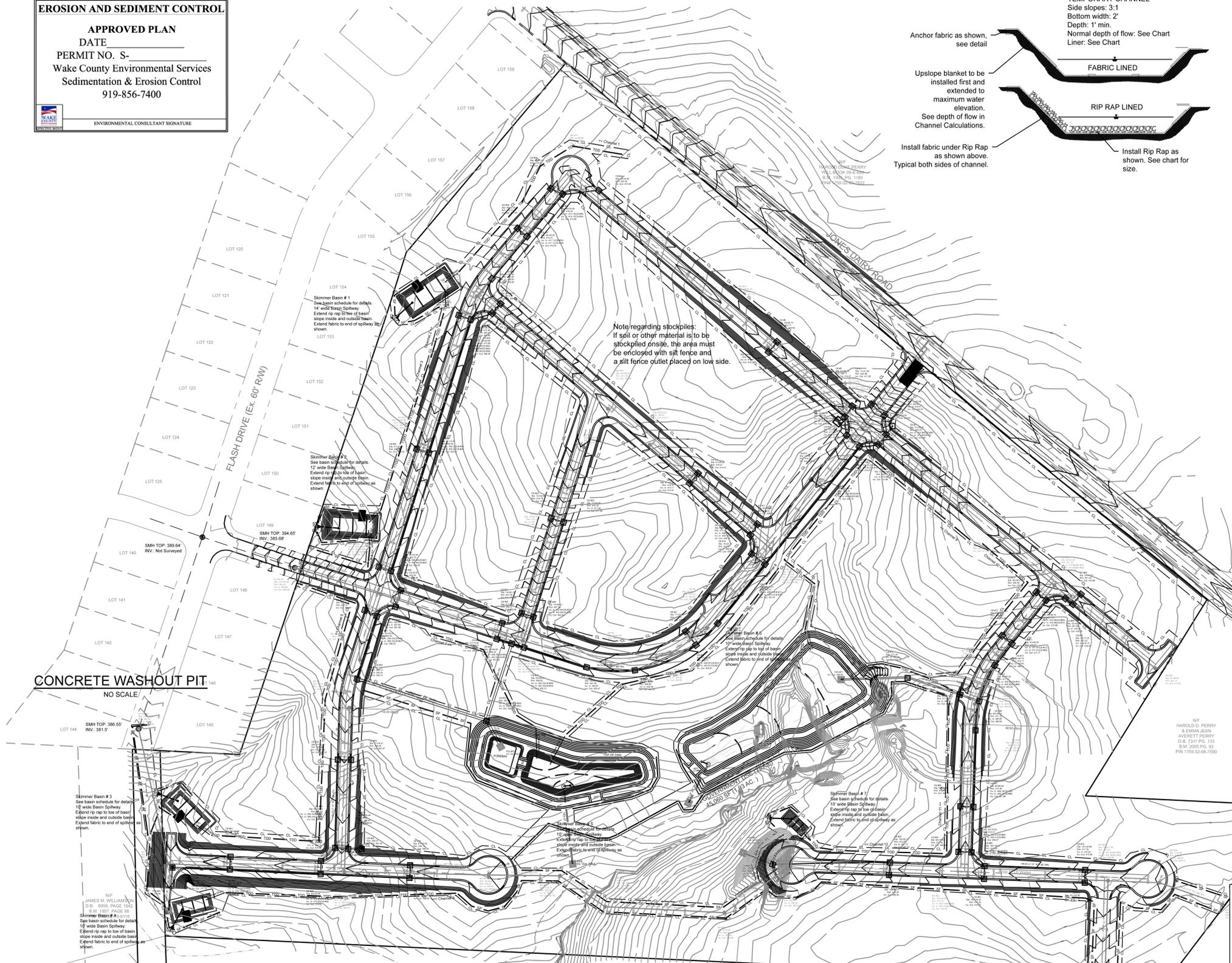
APPROVED PLAN
 DATE _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400



ENVIRONMENTAL CONSULTANT SIGNATURE

CONCRETE WASHOUT PIT
 NO SCALE

- WAKE COUNTY BASIN REMOVAL SEQUENCE**
- Schedule a site meeting with the Environmental Engineer/Consultant to determine if a basin can be removed. Install silt fencing or other temporary erosion control measures as needed prior to removal of the basin.
 - Remove Basin(s) and associated temporary diversion ditches. If culvert pipes need to be extended, perform this operation at this time. Fine grade area in preparation for seeding.
 - Perform seedbed preparation, seed, mulch and asphalt tack any resulting bare areas immediately.
 - Install velocity dissipators and/or level spreaders as required on the Erosion Control Plan.
 - When site is fully stabilized, call Environmental Engineer/Consultant for approval of removing remaining temporary erosion control measures and advice on when site can be issued a Certificate of Completion.
 - Schedule meeting with the Environmental Engineer/Consultant and Municipality to determine when basins may be converted for stormwater use.



STABILIZATION TIMEFRAMES
 (Effective Aug. 3, 2011)

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.



caaENGINEERS, Inc.
 Mcintyre, Gentile, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27567
 40226 Windy Hill Road, Raleigh, North Carolina 27609
 (919) 826-6755
 C-2151 © caaENGINEERS, Inc. All Rights Reserved

NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2	Date	Comment	By
3	Date	Comment	By
4	Date	Comment	By
5	Date	Comment	By
6	Date	Comment	By
7	Date	Comment	By
8	Date	Comment	By



Erosion Control Plan
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. **C9**

PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

EROSION AND SEDIMENT CONTROL

APPROVED PLAN

DATE _____

PERMIT NO. S- _____

Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400



ENVIRONMENTAL CONSULTANT SIGNATURE



caaENGINEERS, Inc.
McIntyre, Gattie, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Road, Raleigh, North Carolina 27669
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

Channel Design Calculations															
Channel	Drain Area, ac	Channel Length, ft	Channel Drop, ft	C	I, in/hr	Flow Q, cfs	Channel Slope, ft/ft	n	Side Slope:1	Bottom Width, ft	Depth of Flow, ft	Velocity, fps	Shear Stress PSF	Allowable Shear Stress PSF	
1	2.7	431	9	0.3	7.22	5.9	0.0209	0.020	3.00	2.0	0.40	4.61	0.52	Jute Mesh	3
2	1.35	136	3	0.3	7.22	2.9	0.0220	0.020	3.00	2.0	0.27	3.83	0.37	Jute Mesh	3
3	2.535	328	13	0.3	7.22	5.5	0.0396	0.020	3.00	2.0	0.32	5.88	0.80	Jute Mesh	3
4	0.845	136	6	0.3	7.22	1.8	0.0441	0.020	3.00	2.0	0.17	4.22	0.47	Jute Mesh	3
5	2.92	691	18	0.3	7.22	6.3	0.0260	0.020	3.00	2.0	0.39	14.57	0.64	6 in. Rip Rap	2.3
6	2.26	493	11	0.3	7.22	4.9	0.0223	0.020	3.00	2.0	0.36	4.48	0.50	Jute Mesh	3
7	2.09	338	2	0.3	7.22	4.5	0.0059	0.020	3.00	2.0	0.48	2.72	0.18	Jute Mesh	3
8	4.18	597	9	0.3	7.22	9.1	0.0151	0.020	3.00	2.0	0.54	4.63	0.51	Jute Mesh	3
9	8.39	752	19	0.75	7.22	45.4	0.0253	0.020	3.00	2.0	1.04	8.58	1.63	NAG C350 Blanket	5
10	4.195	499	13	0.75	7.22	22.7	0.0261	0.020	3.00	2.0	0.74	7.24	1.21	NAG C350 Blanket	5
11	4.195	463	6	0.75	7.22	22.7	0.0130	0.020	3.00	2.0	0.88	5.60	0.71	Jute Mesh	3
12	0.98	300	11	0.75	7.22	5.3	0.0367	0.020	3.00	2.0	0.33	5.48	0.74	Jute Mesh	3

Plunge Pool Schedule						
Location	A	B	C	D	E	F
Wet Pond Outlet	7.6'	1.4'	9.1'	9.55'	1.6'	9.55'
Bioretention Outlet	7.6'	1.4'	6.7'	9.55'	1.6'	9.55'
FES # 63	13.25'	2.1'	9.85'	7.85'	2.5'	7.85'
FES #91	4.2'	1.0'	4.8'	10.35'	1.3'	10.35'

Impervious Summary - Jones Dairy Preserve South			
	Square Feet	Acres	
Overall Site	2,356,596.00	54.10	
Impervious Summary			
Lots (3600 SF)	216	756,000.00	17.36
Walking Trail		27,660.00	0.63
Roadway (27' width)		161,082.00	3.70
Roadway (35' width)		76,927.00	1.77
Sidewalk (both sides)		93,960.00	2.16
Total Impervious			25.61

Sediment Basin Design																										
TRAP: For drainage areas < 1 acre Min. volume = 3,600 cf per acre disturbed Min. area = 435 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1					SKIMMER: For drainage areas < 10 acres Min. volume = 1,800 cf per acre disturbed Min. area = 435 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1 - 6:1					RISER: For drainage areas > 10 acres Min. volume = 1,800 cf per acre disturbed Min. area = 435 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1																
Basin Number	Drainage Area	Disturbed Area	Runoff Coefficient	Rainfall Intensity	Flow Q ₁₀	Basin Type Req'd	Volume Req'd	Surface Area Req'd	Width at WL	Length at WL	L/W	Water Depth (2 ft min)	Basin Side Slope	Bottom Width	Bottom Length	Volume Provided	Surface Area Provided	Top of Embankment	Spillway Elevation	Water Level Elevation	Bottom Elevation	Basin Depth	Weir Length	Skimmer Drawdown	Skimmer Size	Orifice Diameter
1	4.05	4.05	0.5	7.22	14.62	SKIMMER	7290	6360	57	114	2	2	2	49	106	11692	6498	410	409.0	406.5	406.5	3.5	14	3	3	1.6
2	3.38	3.38	0.5	7.22	12.20	SKIMMER	6084	5308	52	104	2	2	2	44	96	9632	5408	400	399.0	398.5	398.5	3.5	12	3	3	1.5
3	2.92	2.92	0.5	7.22	10.54	SKIMMER	5256	4585	48	96	2	2	2	40	88	8128	4608	383	382.0	381.5	379.5	3.5	10	3	3	1.3
4	2.46	2.46	0.5	7.22	8.88	SKIMMER	4428	3863	44	88	2	2	2	36	80	6752	3872	377	376.0	375.5	373.5	3.5	10	3	3	1.2
7	1	1	0.5	7.22	3.61	SKIMMER	1800	1570	29	58	2	2	2	21	50	2732	1682	403	402.0	401.5	399.5	3.5	10	3	3	0.8

Sediment Basin Design																											
TRAP: For drainage areas < 1 acre Min. volume = 3,600 cf per acre disturbed Min. area = 435 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1					SKIMMER: For drainage areas < 10 acres Min. volume = 1,800 cf per acre disturbed Min. area = 325 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1 - 6:1					RISER: For drainage areas > 10 acres Min. volume = 1,800 cf per acre disturbed Min. area = 435 sf per Q10 cfs Weir Equation: L=QCH ^{3/2} L/W: 2:1																	
Basin Number	Drainage Area	Disturbed Area	Runoff Coefficient	Rainfall Intensity	Flow Q ₁₀	Basin Type Req'd	Basin Shape	Volume Req'd	Surface Area Req'd	Width at WL	Length at WL	L/W	Water Depth (2 ft min)	Basin Side Slope	Bottom Width	Bottom Length	Volume Provided	Surface Area Provided	Top of Embankment	Spillway Elevation	Water Level Elevation	Bottom Elevation	Basin Depth	Weir Length	Skimmer Drawdown	Skimmer Size	Orifice Diameter
5	6.37	1	0.5	7.22	23.00	SKIMMER	USER DEFINED	1800	7474	USER	USER	2	6	3	USER	USER	56541	12286	401	400.0	399.5	393.5	7.5	22	3	3	3.6
6	16.78	2	0.5	7.22	60.98	RISER	USER DEFINED	3600	26350	USER	USER	2	5	3	USER	USER	444220	34482	405	404.0	403.5	398.5	6.5	57	3	3	10.0

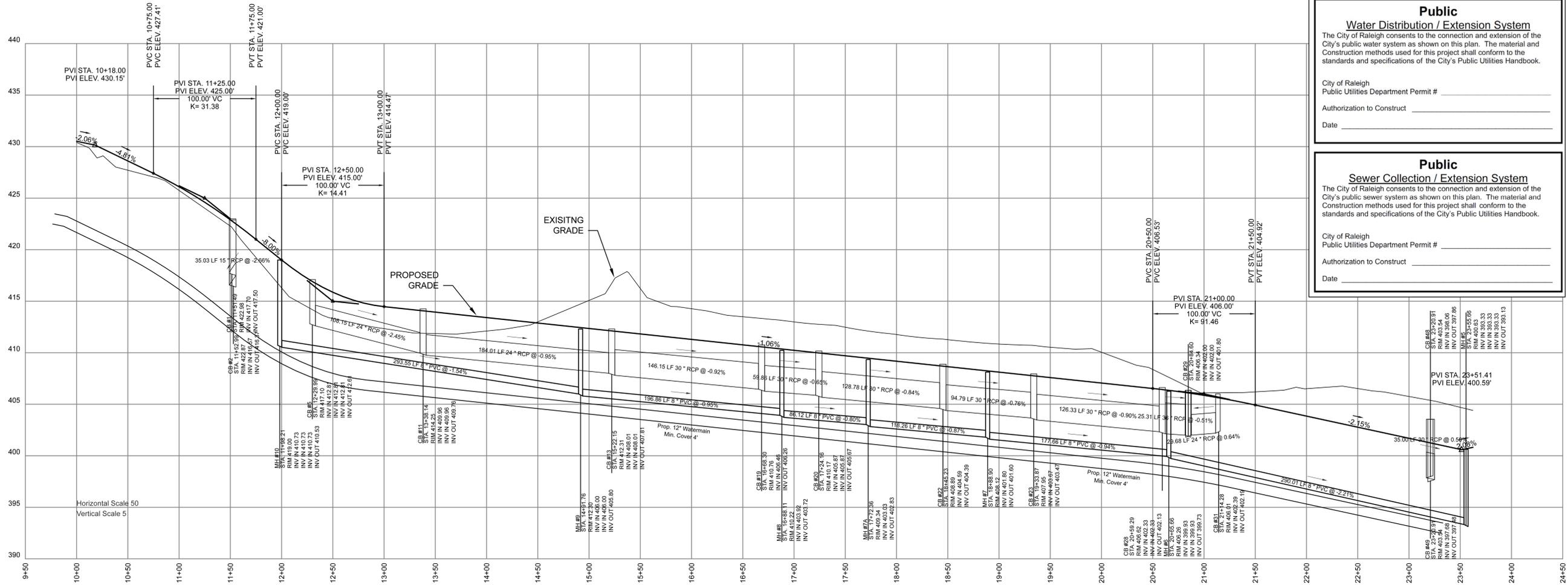
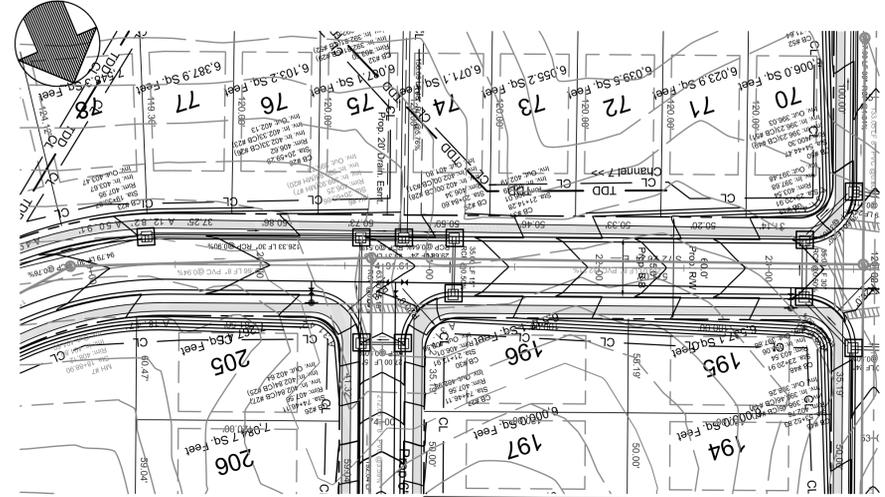
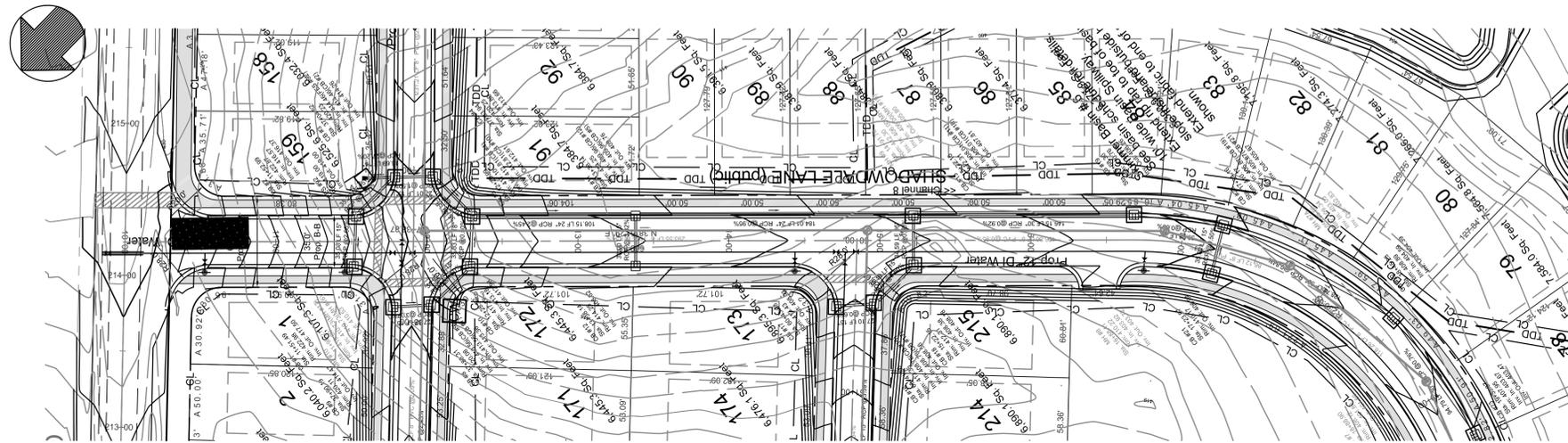
NO.	DATE	BY	REVISION DESCRIPTION
1	05/08/2020	MAC	Preliminary Construction Plans
2		By	Comment
3		By	Comment
4		By	Comment
5		By	Comment
6		By	Comment
7		By	Comment
8		By	Comment



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Erosion Control Notes
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C10**



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.
ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:
ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

- SEPARATION NOTES:**
1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
 2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
 3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

ATTENTION CONTRACTORS

The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Department at (919) 996-4540 at least twenty four hours prior to beginning any of their construction.

Failure to notify both City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.



caaENGINEERS, Inc.
McIntyre, Gattile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Road, Raleigh, North Carolina 27609
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

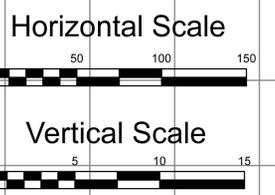
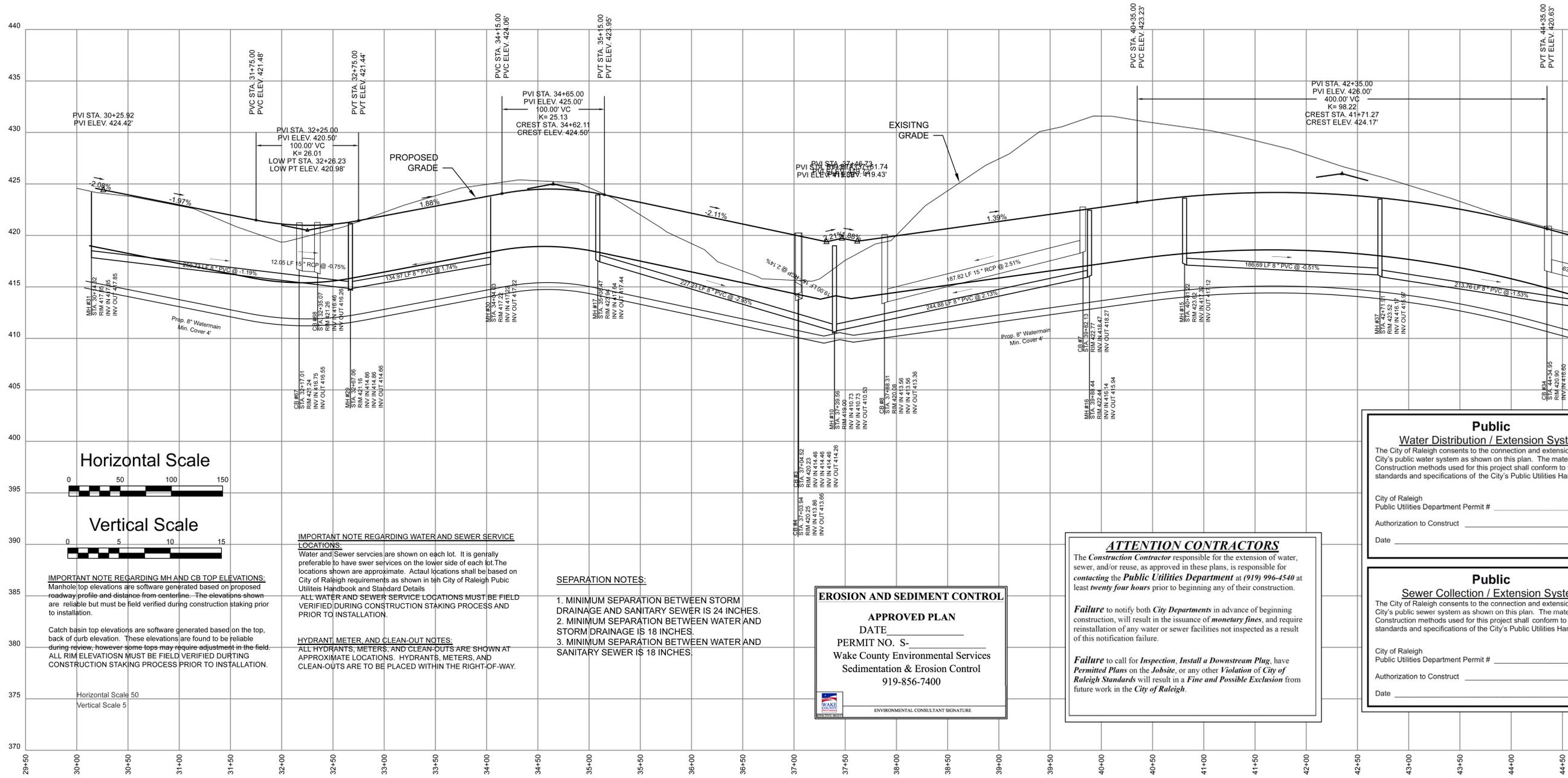
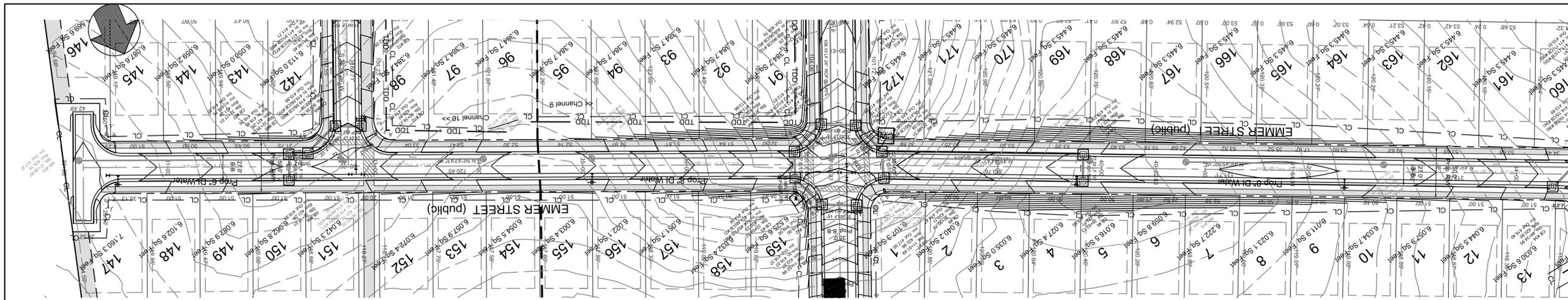
NO.	DATE	REVISION DESCRIPTION
1	05/08/2020	Preliminary Construction Plans
2		MAC
3		By
4		By
5		By
6		By
7		By
8		By



Shadowdale Lane
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C11**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.

ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:
ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

SEPARATION NOTES:

1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____

ATTENTION CONTRACTORS

The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Department at (919) 996-4540 at least twenty four hours prior to beginning any of their construction.

Failure to notify both City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____



caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
4932B Windy Hill Road, Raleigh, North Carolina 27609
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

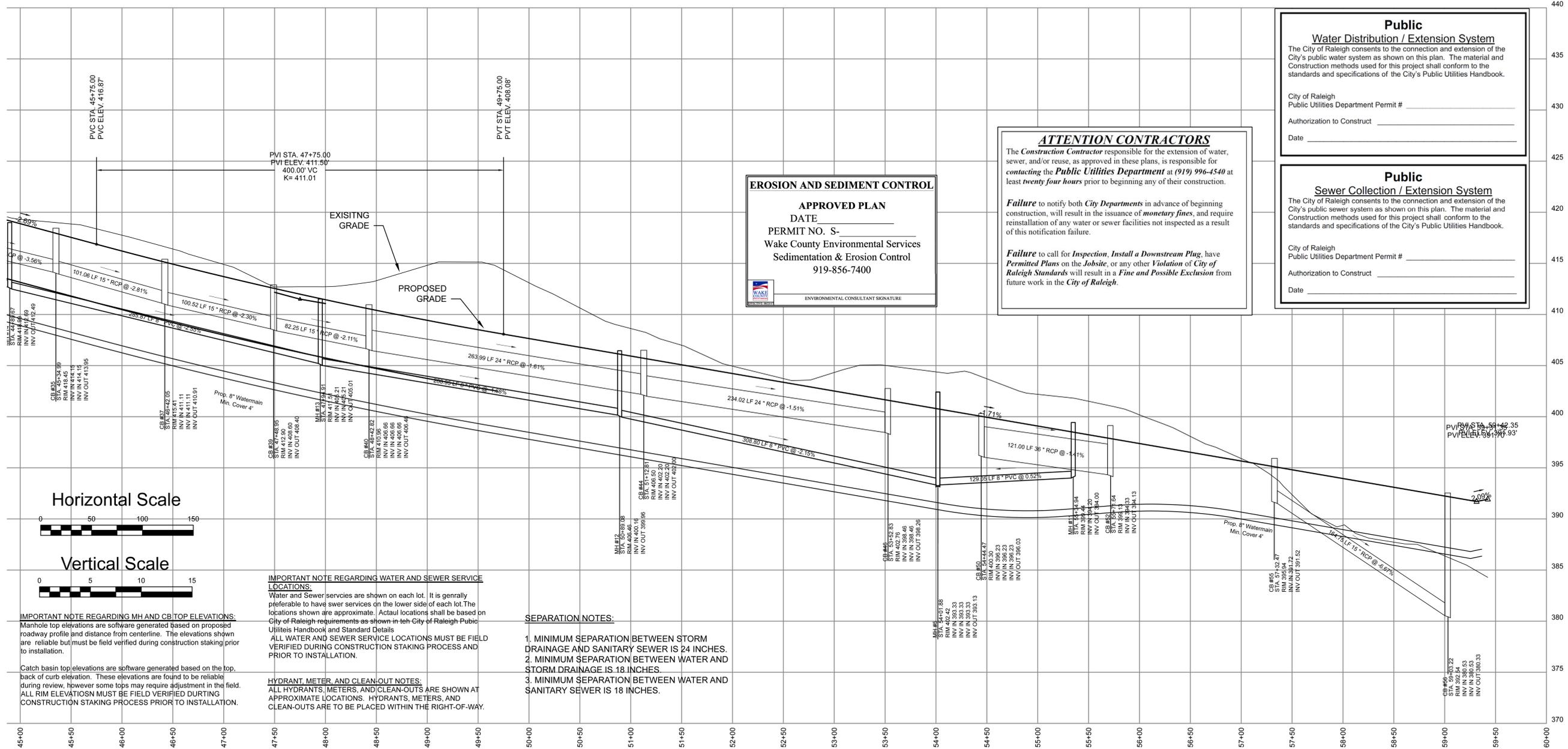
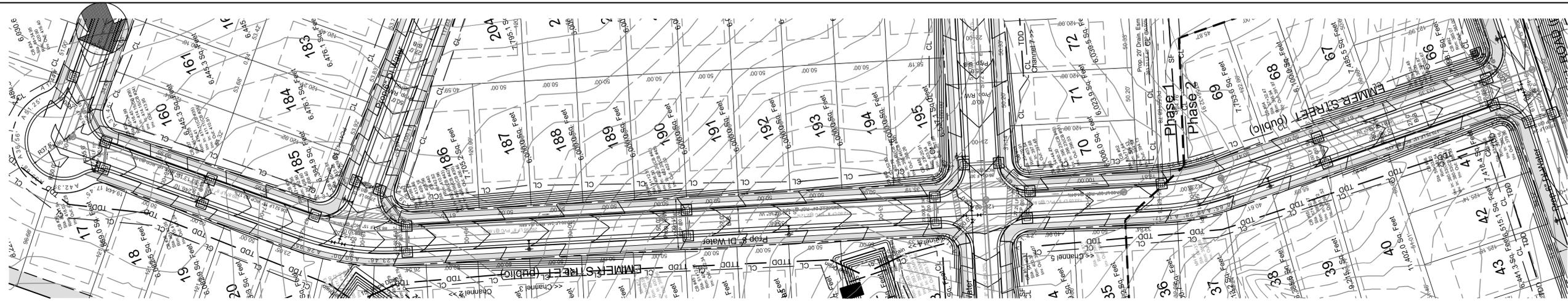
NO.	DATE	REVISION DESCRIPTION	BY
1	05/05/2020	Preliminary Construction Plans	MAC
2			
3			
4			
5			
6			
7			
8			



Emmer Street
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C13**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



EROSION AND SEDIMENT CONTROL

APPROVED PLAN
 DATE _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for **contacting the Public Utilities Department at (919) 996-4540** at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug**, have **Permitted Plans** on the **Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

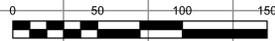
City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

Horizontal Scale



Vertical Scale



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
 Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
 Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.
ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:
 ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

- SEPARATION NOTES:**
1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
 2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
 3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.



caaENGINEERS, Inc.
 Mcintyre, Gentile, Crowley
 PROFESSIONAL ENGINEERS
 1233 Heritage Links Drive, Wake Forest, North Carolina 27587
 4032B Windy Hill Road, Raleigh, North Carolina 27609
 (919) 926-6755
 © caaENGINEERS, Inc. All Rights Reserved
 C-2151

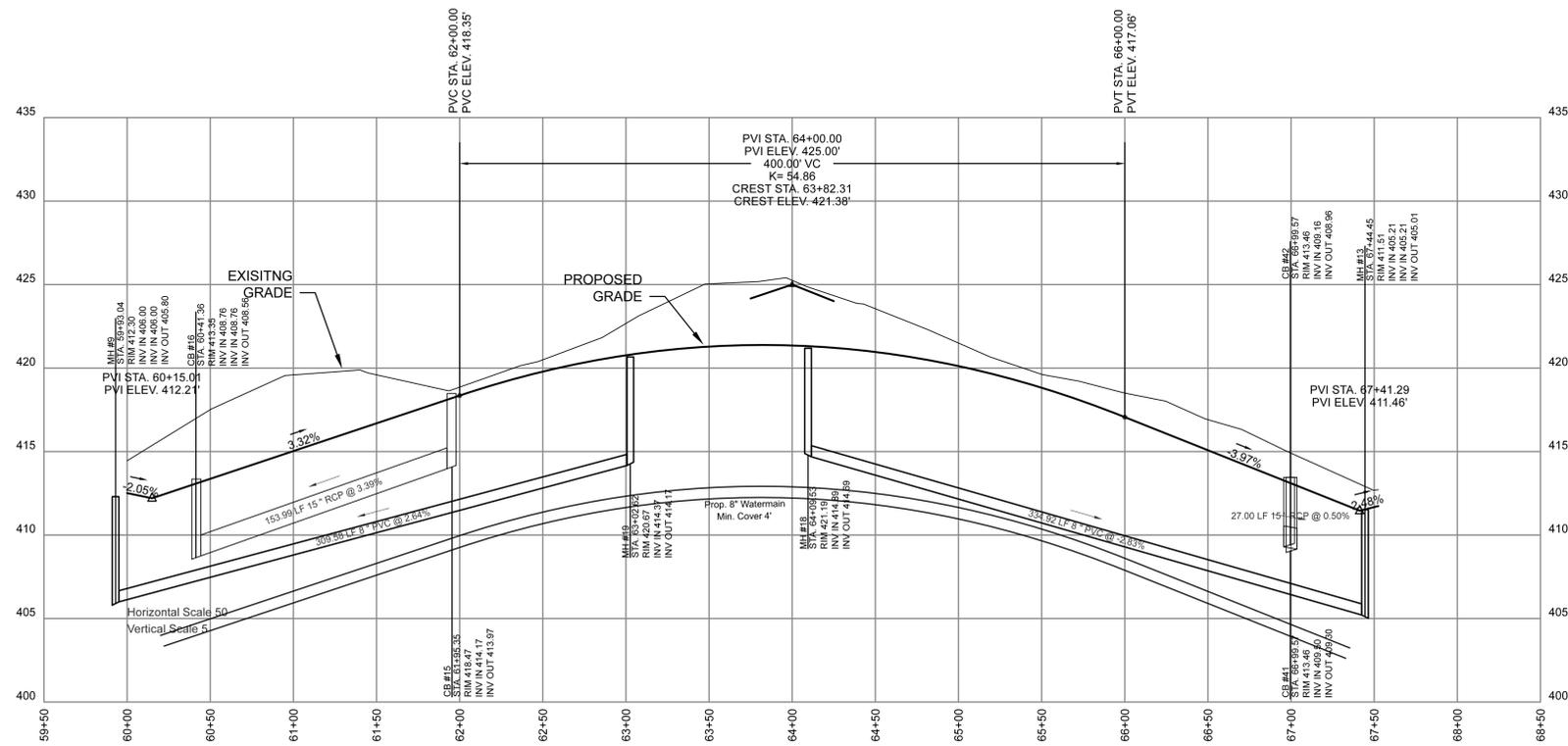
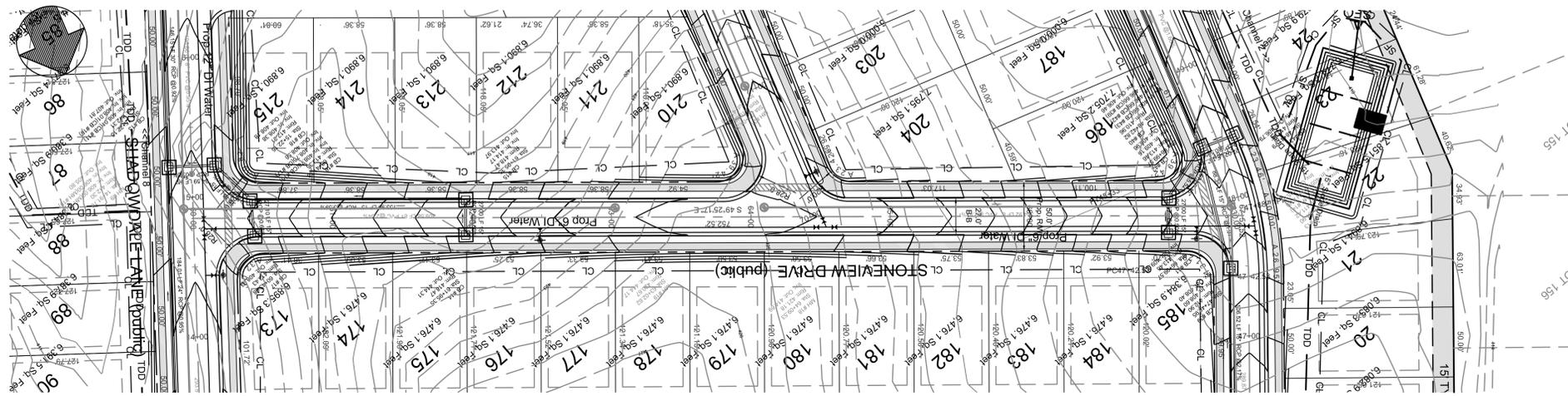
NO.	DATE	REVISION DESCRIPTION	BY
1	05/02/2020	Preliminary Construction Plans	MAC
2			
3			
4			
5			
6			
7			
8			



Emmer Street
 Preserve at Jones Dairy, South
 Preserve at Jones Dairy, LLC
 Rolesville, Wake County, North Carolina

Job No. JDF
 Dwg No. **C14**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



Horizontal Scale



Vertical Scale



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:

Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details. ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:

ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

SEPARATION NOTES:

1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Job No. JDF
Dwg No.

C15

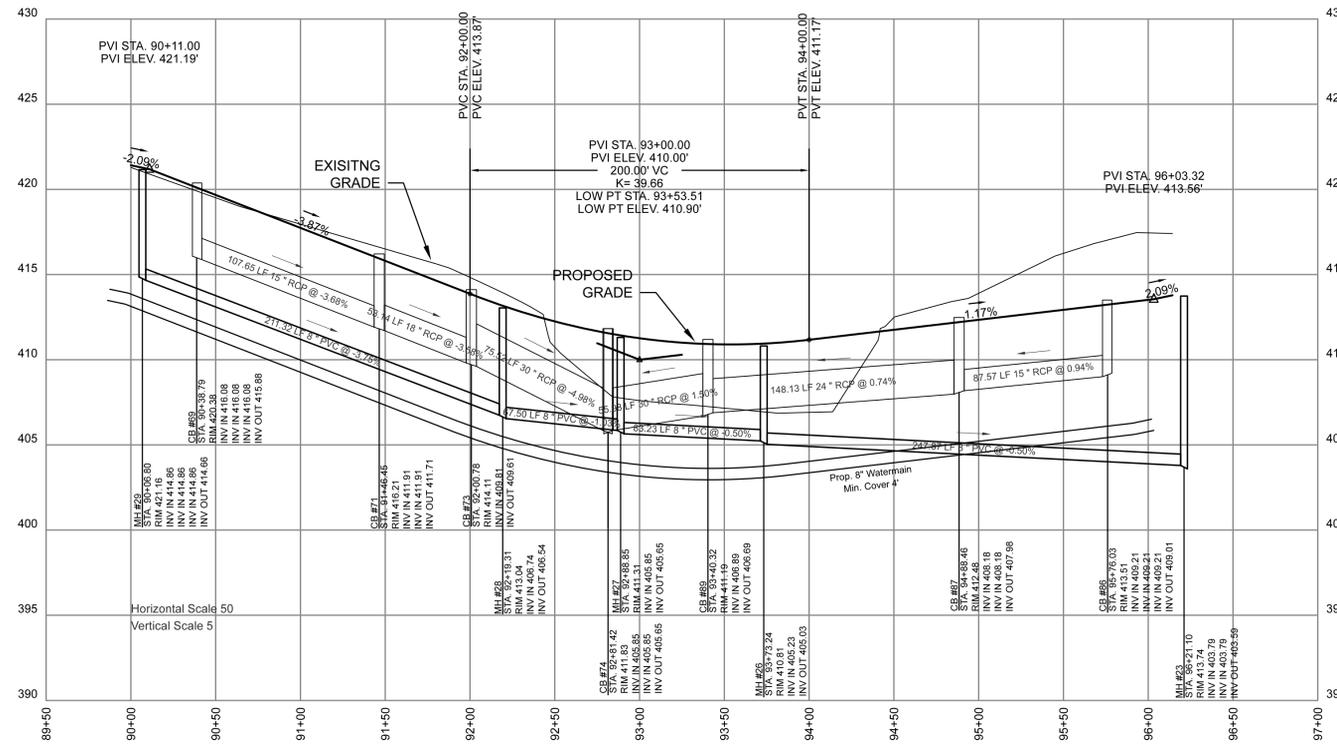
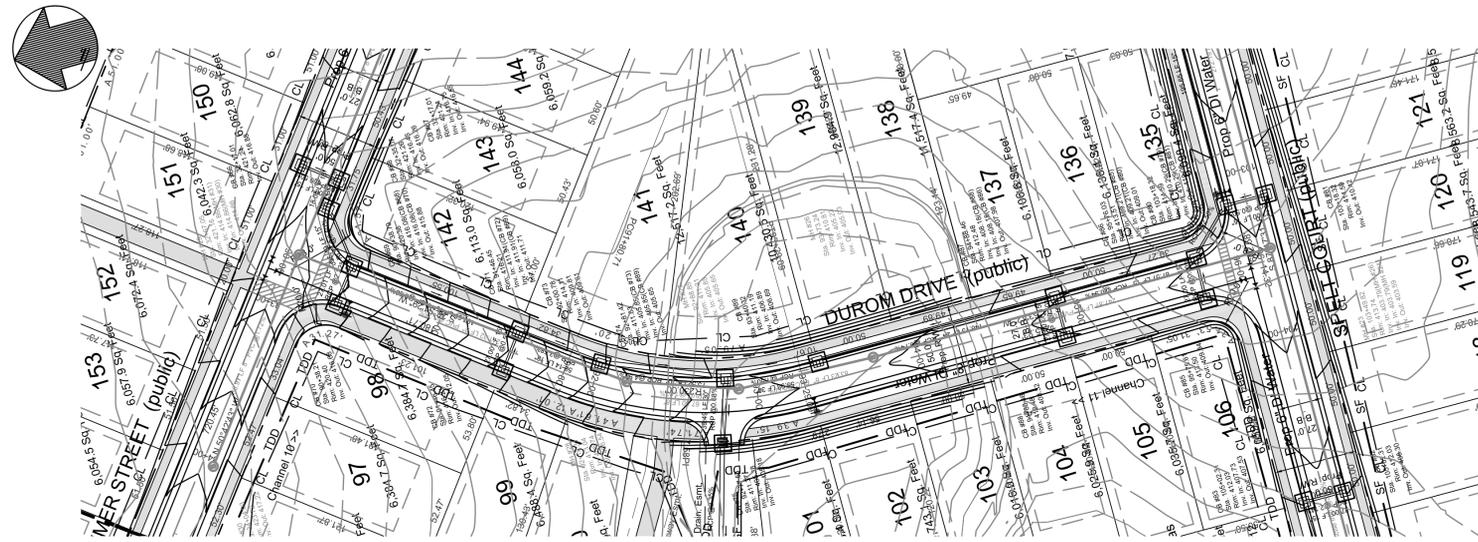


PRELIMINARY PLANS
NOT FOR CONSTRUCTION

NO.	DATE	REVISION DESCRIPTION	BY
1	05/02/2020	Preliminary Construction Plans	MAC
2			
3			
4			
5			
6			
7			
8			

caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
4932B Windy Hill Road, Raleigh, North Carolina 27609
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved





Horizontal Scale



Vertical Scale



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:

Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details
ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:

ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

SEPARATION NOTES:

1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug**, have **Permitted Plans** on the **Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____



caaENGINEERS, Inc.
McIntyre, Gattie, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Lane, Raleigh, North Carolina 27669
(919) 825-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

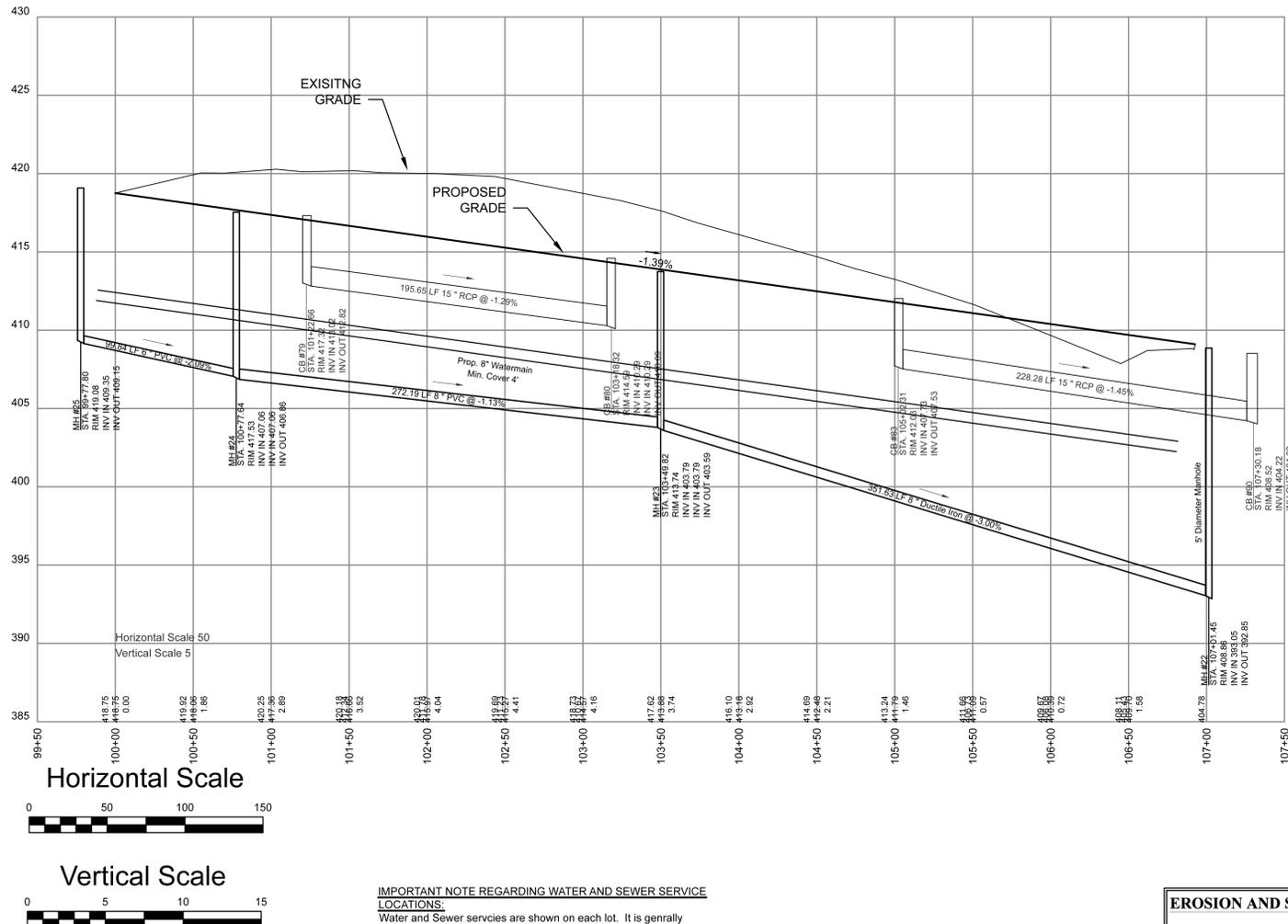
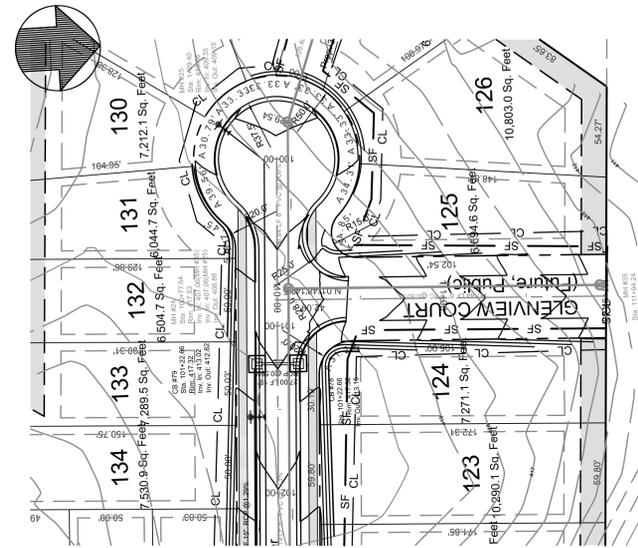
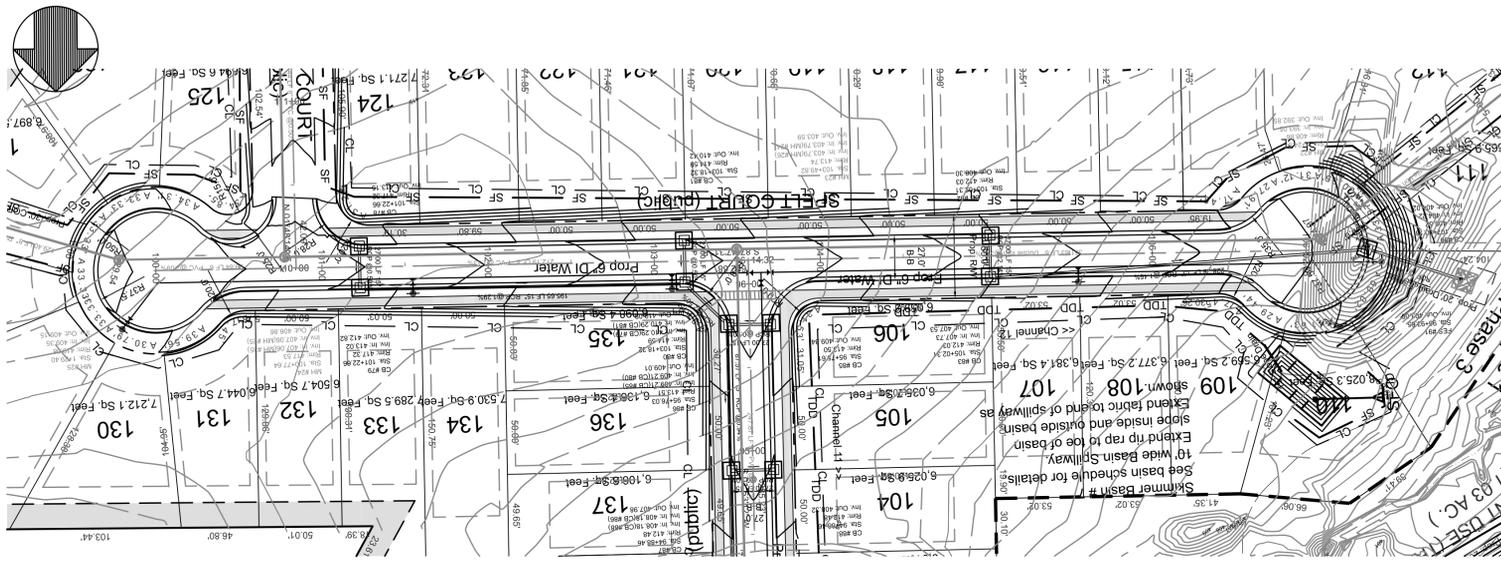
NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2		Comment	By
3		Comment	By
4		Comment	By
5		Comment	By
6		Comment	By
7		Comment	By
8		Comment	By



Durom Drive
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C17**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.

SEPARATION NOTES:

1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

HYDRANT, METER, AND CLEAN-OUT NOTES:
ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

EROSION AND SEDIMENT CONTROL

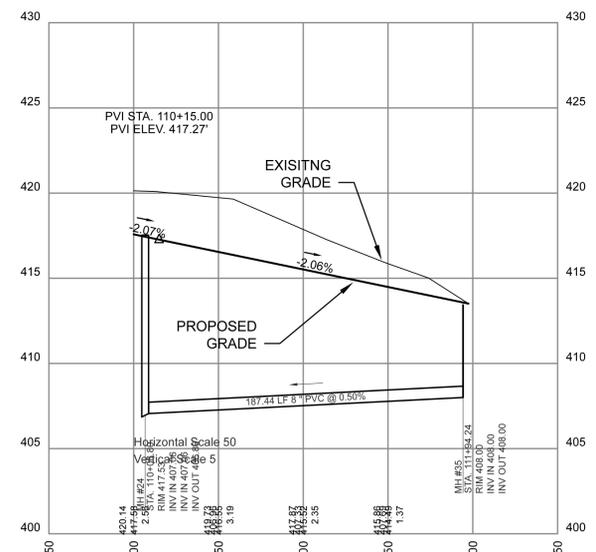
APPROVED PLAN

DATE _____

PERMIT NO. S- _____

Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____



ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug**, have **Permitted Plans** on the **Jobsite**, or any other **Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____



caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS

1233 Heritage Links Drive, Wake Forest, North Carolina 27587
49326 Windy Hill Road, Raleigh, North Carolina 27669
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved

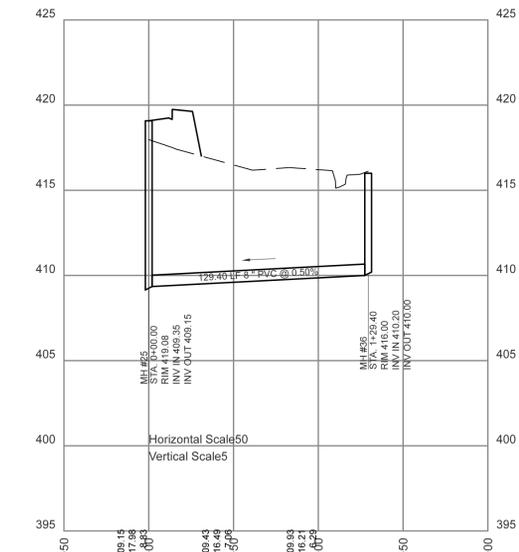
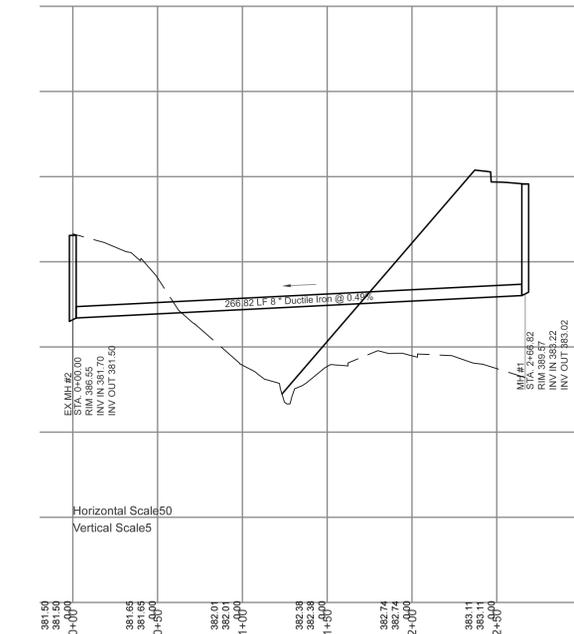
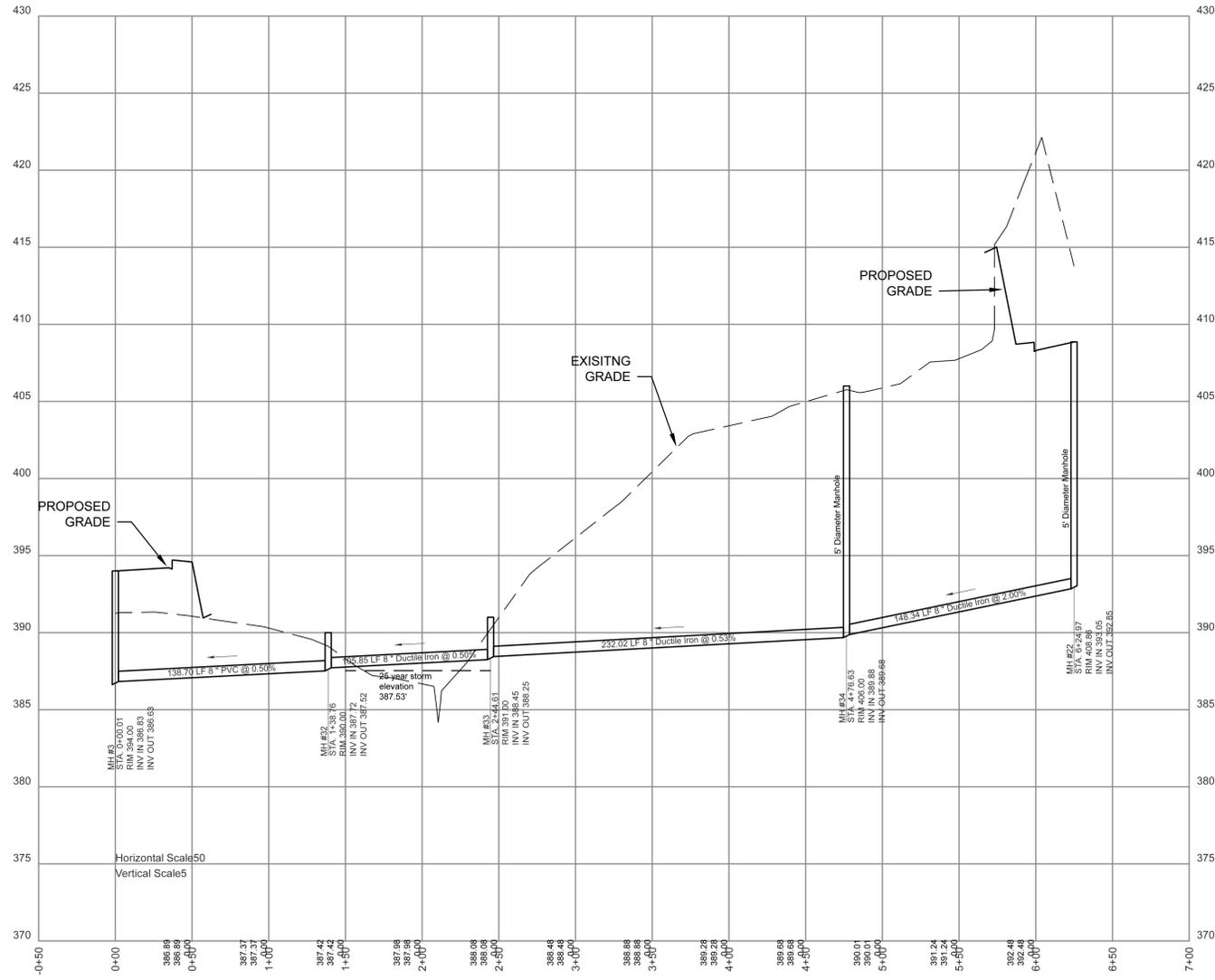
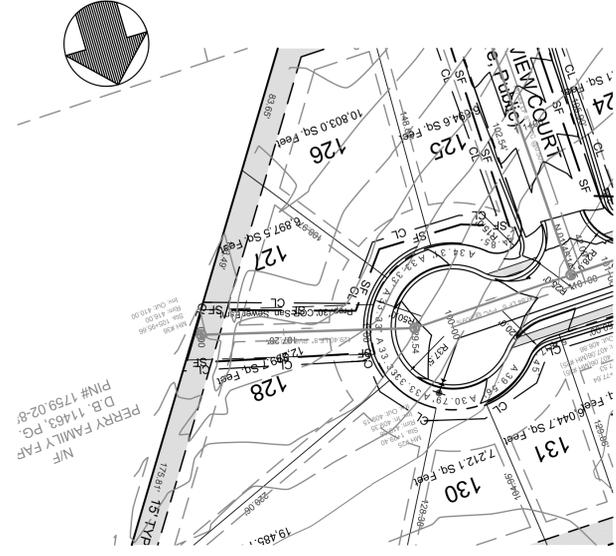
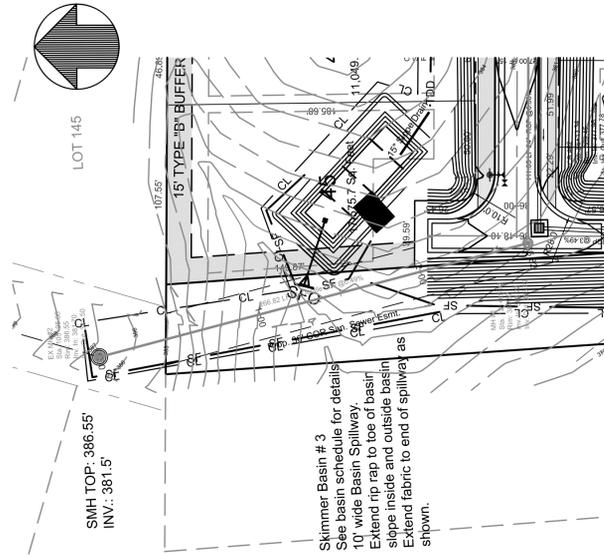
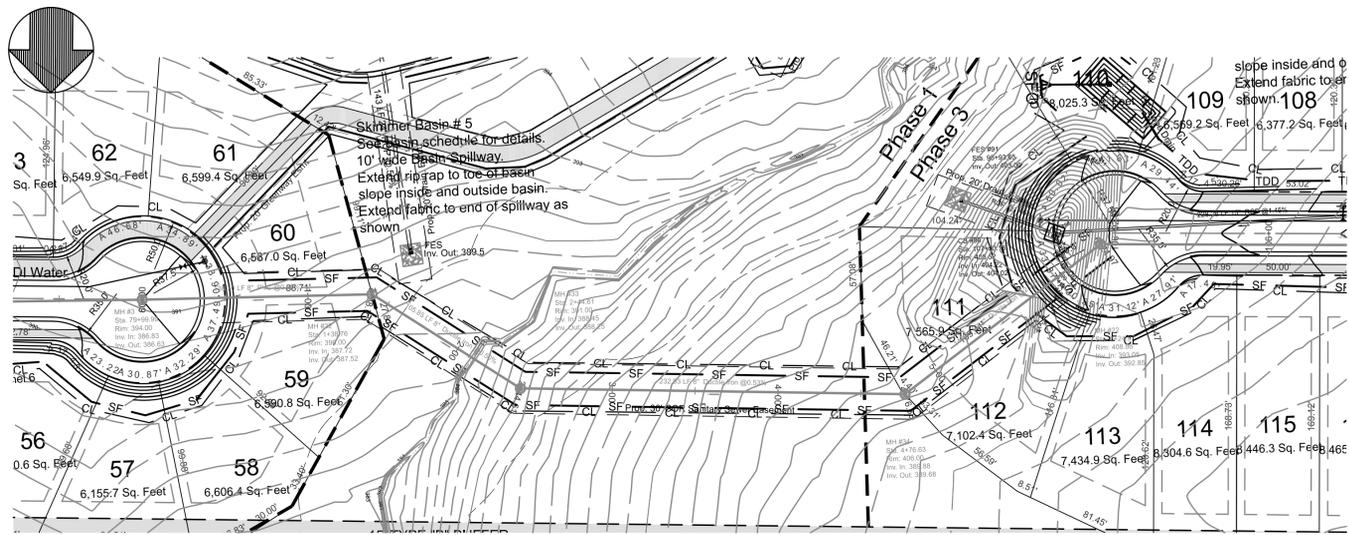
NO.	DATE	REVISION DESCRIPTION	BY	MAC
1	05/08/2020	Preliminary Construction Plans	By	MAC
2			By	
3			By	
4			By	
5			By	
6			By	
7			By	
8			By	



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Spelt, Glenview Court
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C18**



IMPORTANT NOTE REGARDING MH AND CB TOP ELEVATIONS:
Manhole top elevations are software generated based on proposed roadway profile and distance from centerline. The elevations shown are reliable but must be field verified during construction staking prior to installation.

Catch basin top elevations are software generated based on the top, back of curb elevation. These elevations are found to be reliable during review, however some tops may require adjustment in the field. ALL RIM ELEVATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS PRIOR TO INSTALLATION.

IMPORTANT NOTE REGARDING WATER AND SEWER SERVICE LOCATIONS:
Water and Sewer services are shown on each lot. It is generally preferable to have sewer services on the lower side of each lot. The locations shown are approximate. Actual locations shall be based on City of Raleigh requirements as shown in the City of Raleigh Public Utilities Handbook and Standard Details.

ALL WATER AND SEWER SERVICE LOCATIONS MUST BE FIELD VERIFIED DURING CONSTRUCTION STAKING PROCESS AND PRIOR TO INSTALLATION.

HYDRANT, METER, AND CLEAN-OUT NOTES:
ALL HYDRANTS, METERS, AND CLEAN-OUTS ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, METERS, AND CLEAN-OUTS ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY.

- SEPARATION NOTES:**
1. MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
 2. MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
 3. MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.

EROSION AND SEDIMENT CONTROL

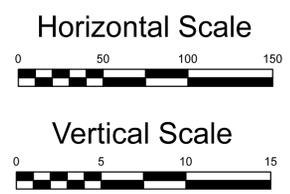
APPROVED PLAN

DATE _____

PERMIT NO. S- _____

Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE _____



ATTENTION CONTRACTORS

The *Construction Contractor* responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both *City Departments* in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for *Inspection, Install a Downstream Plug*, have *Permitted Plans on the Jobsite*, or any other *Violation of City of Raleigh Standards* will result in a **Fine and Possible Exclusion** from future work in the *City of Raleigh*.

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Authorization to Construct _____

Date _____



caaENGINEERS, Inc.
McIntyre, Gattile, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
40326 Windy Hill Road, Raleigh, North Carolina 27609
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved

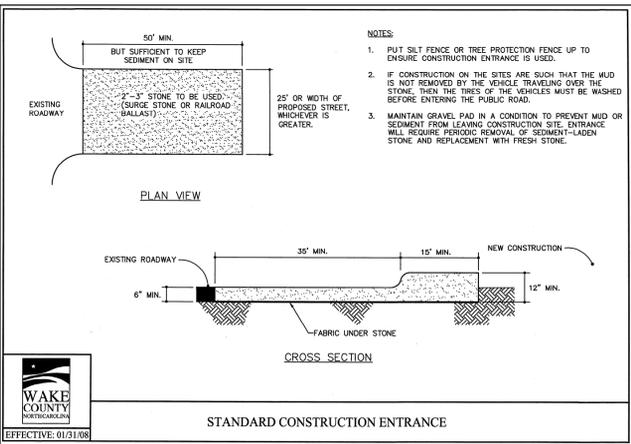
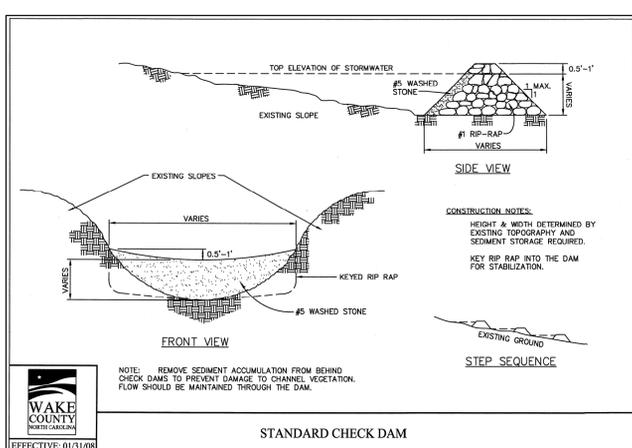
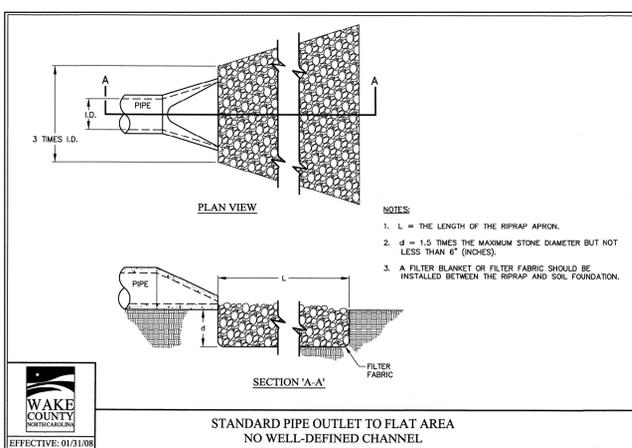
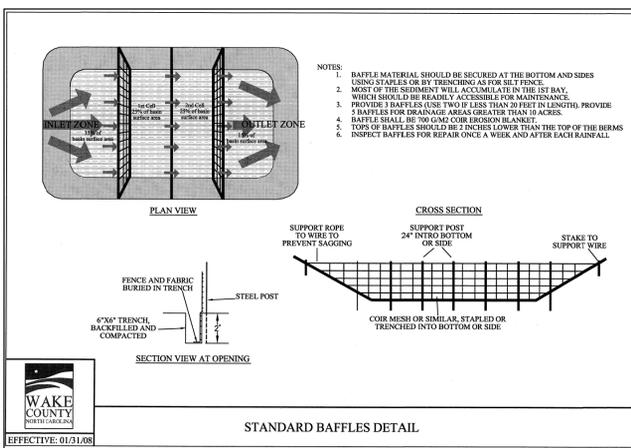
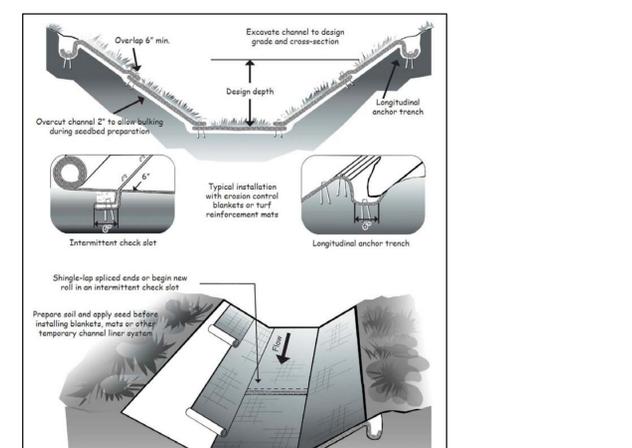
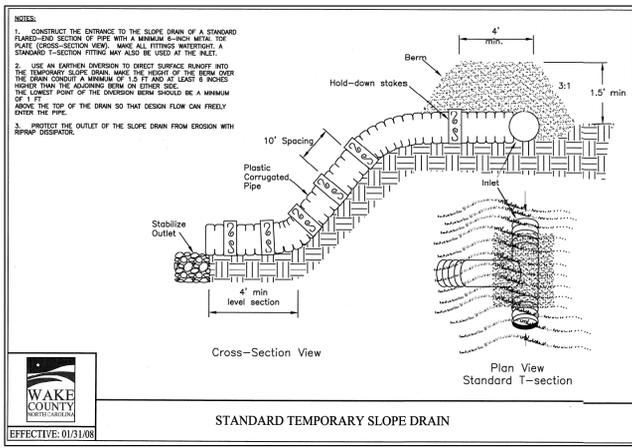
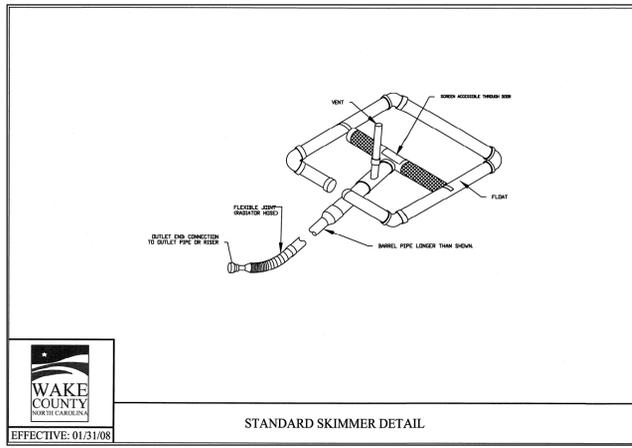
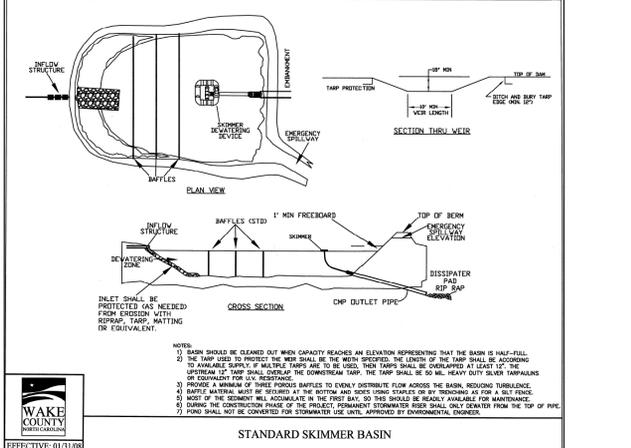
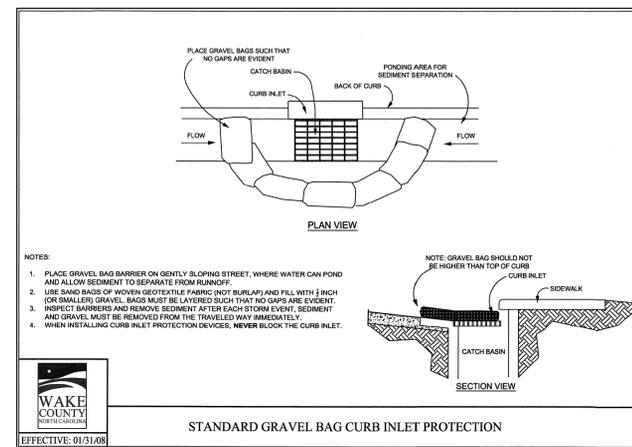
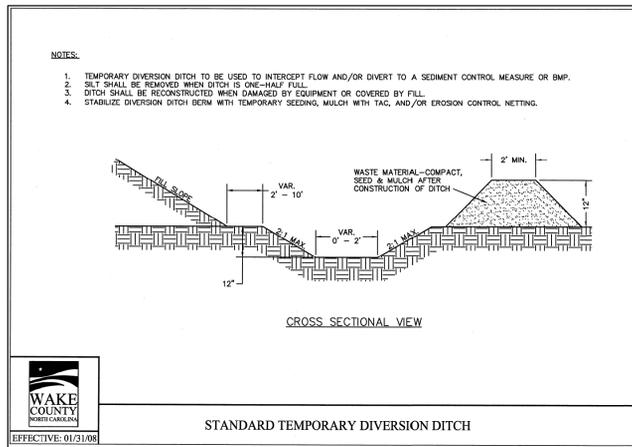
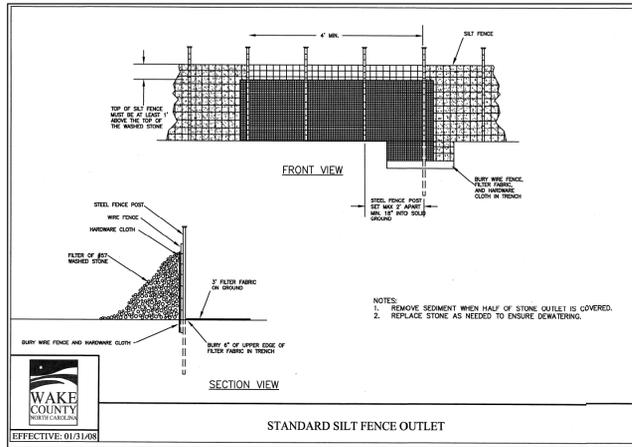
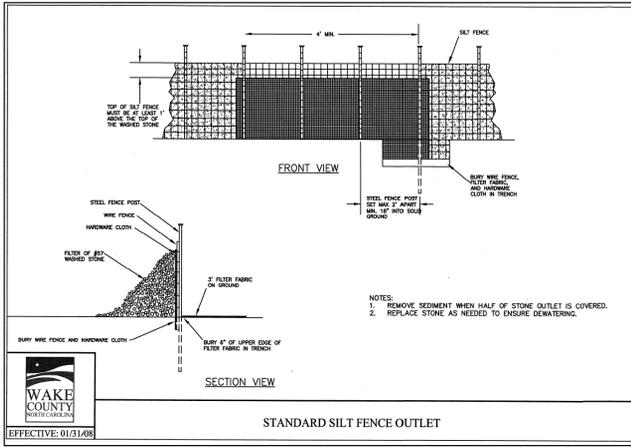
NO.	DATE	REVISION DESCRIPTION	BY
1	05/08/2020	Preliminary Construction Plans	MAC
2			
3			
4			
5			
6			
7			
8			



Sewer Outfall
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **C19**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



WAKE COUNTY CONSTRUCTION SEQUENCE

- Schedule a preconstruction conference with the Watershed Manger, Andrew Lake at (919) 594-0895. Obtain a land-disturbing permit.
- Install gravel construction pad, temporary diversions, silt fence, sediment basins or other measures as shown on the approved plan. Clear only as necessary to install these devices. Seed temporary diversions, berms and basins immediately after construction.
- Call Watershed Manager, Andrew Lake at (919) 594-0895 for an onsite inspection to obtain a Certificate of Compliance.
- Begin clearing and grubbing. Maintain devices as needed. Rough grade site.
- Install storm sewer, if shown, and protect inlets with block and gravel inlet controls, sediment traps or other approved measures as shown on the plan. Begin construction, building, etc.
- Stabilize site as areas are brought up to finish grade with vegetation, paving, ditch linings, etc. Seed and mulch denuded areas per Ground Stabilization Time Frames.
- When construction is complete and all areas are stabilized completely, call Watershed Manager, Andrew Lake at (919) 594-089 for site inspection.
- If site is approved, remove temporary diversions, silt fence, sediment basins, etc., and seed or stabilize any resulting bare areas. All remaining permanent erosion control devices, such as velocity dissipators, should now be installed.
- When vegetation has become established, call for a final site inspection by the Watershed Manager, Andrew Lake at (919) 594-0895. Obtain a Certificate of Completion.

WAKE COUNTY STOCKPILE REQUIREMENTS

- A 25-foot temporary maintenance and access easement shall be provided around all proposed stockpiles.
- Stockpiles shall be set back a minimum of 25' from adjacent property lines.
- Stockpile height shall not exceed 35 feet.
- Stockpile slopes shall be 2:1 or flatter.
- Approved BMPs shall be provided to control any potential sediment loss from stockpile.
- Stockpiling materials adjacent to a ditch, drainageway, watercourse, wetland, stream buffer, or other body of water shall be avoided unless an alternative location is demonstrated to be unavailable.
- Any concentrated flow likely to affect the stockpile shall be diverted to an approved BMP.
- Off-site spoil or borrow areas must be in compliance with Wake County and State Regulations. All spoil areas over an acre are required to have an approved sediment control plan. Developer/Contractor shall notify Wake County of any offsite disposal of soil, prior to disposal. Fill of FEMA Floodways and Non-encroachment Areas are prohibited except as otherwise provided by subsection 14-19-2 of the Wake County Unified Development Ordinance (certifications and permits required).

STOCKPILE MAINTENANCE REQUIREMENTS

- Seeding or covering stockpiles with tarps or mulch is required to reduce erosion.
- Tarps shall be keyed in at the top of the slope to keep water from running underneath the plastic.
- If a stockpile is to remain for future use after the project is complete, the financially responsible party must notify Wake County to designate a new financially responsible party for the stockpile.
- The approved plan shall provide for the use of staged seeding and mulching on a continual basis while the stockpile is in use.
- A vegetative buffer shall be established and maintained at the toe of the slope (where practical).

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
DATE _____
PERMIT NO. S-_____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400
ENVIRONMENTAL CONSULTANT SIGNATURE _____



caaENGINEERS, Inc.
McIntyre, Gattie, Crowley
PROFESSIONAL ENGINEERS
1233 Heritage Links Drive, Wake Forest, North Carolina 27587
40226 Windy Hill Road, Raleigh, North Carolina 27609
(919) 826-6755
© caaENGINEERS, Inc. All Rights Reserved
C-2151

NO.	DATE	REVISION DESCRIPTION
1	05/02/2020	Preliminary Construction Plans
2		
3		
4		
5		
6		
7		
8		



Standard Details
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. **D1**

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

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

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

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

PORTABLE TOILETS

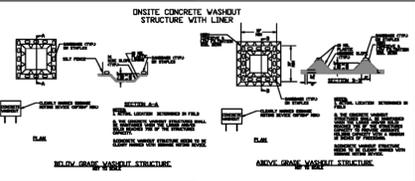
- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.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

EARTHEN STOCKPILE MANAGEMENT

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



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



CONCRETE WASHOUTS

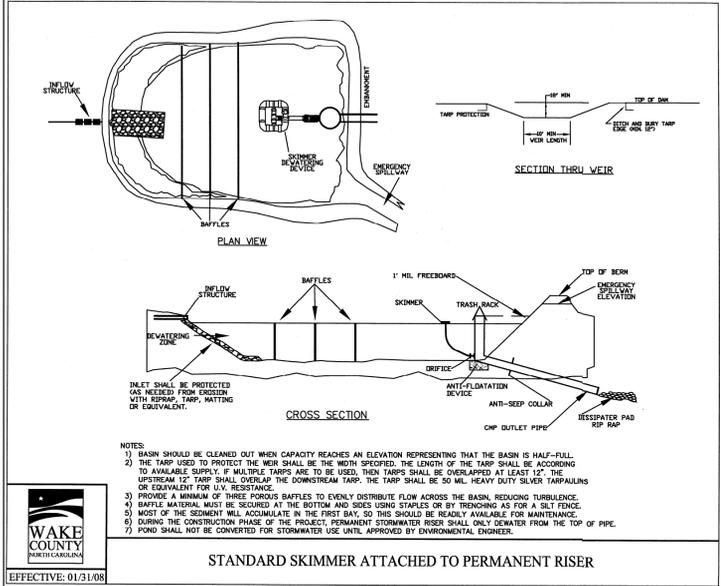
- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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



STANDARD SKIMMER ATTACHED TO PERMANENT RISER

Wake County Seeding Specifications

Seeded Preparation:

- Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available.
- Rip the entire area to six inches deep.
- Remove all loose rock, roots and other obstructions, leaving surface reasonably smooth and uniform.
- Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
- Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared four to six inches deep.
- Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or outcrop after seeding.
- Mulch immediately after seeding and anchor mulch.
- Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original time, fertilizer and seeding rates.
- Consult S&EC Environmental Engineers on maintenance treatment and fertilization after permanent cover is established.

Mixture:

Agricultural Limestone	2 tons/acre (3 tons/acre in clay soils)
Fertilizer	1,000 lbs/acre - 10-10-10
Superphosphate	500 lbs/acre - 20% analysis
Mulch	2 tons/acre - small grain straw
Anchor	Asphalt emulsion at 300 gals/acre

Seeding Schedule:

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15-Nov 1	Tall Fescue	300 lbs/acre
Nov 1-Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1-Apr 15	Tall Fescue	300 lbs/acre
Apr 15-Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1-Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue), 35 lbs/acre (Browntop Millet), 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1-Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1-Apr 15	And Tall Fescue	120 lbs/acre
Mar 1-Jun 30	Or add Weeping Love grass	10 lbs/acre
Mar 1-Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1-Sept 1	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids**	120 lbs/acre (Tall Fescue), 35 lbs/acre (Browntop Millet), 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1-Mar 1	Sericea Lespedeza (unhulled - unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza), 120 lbs/acre (Tall Fescue)
Nov 1-Mar 1	AND Abruzzi Rye	25 lbs/acre

*** TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing, otherwise, fescue may be shaded out.



caaENGINEERS, Inc.
McIntyre, Gentile, Crowley
PROFESSIONAL ENGINEERS
12303 Heritage Lakes Drive, Wake Forest, North Carolina 27567
40526 Windy Hill Road, Raleigh, North Carolina 27669
(919) 826-6755
C-2151
© caaENGINEERS, Inc. All Rights Reserved

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&S Plan Documentation
The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be kept on site and available for inspection at all times during normal business hours.

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

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

- This General Permit as well as the Certificate of Coverage, after it is received.
- Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- Documentation to be Retained for Three Years
All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

- Permittees shall report the following occurrences:
- Visible sediment deposition in a stream or wetland.
 - Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
 - Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
 - Anticipated bypasses and unanticipated bypasses.
 - Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

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



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

NCG01 Requirements
Preserve at Jones Dairy, South
Preserve at Jones Dairy, LLC
Rolesville, Wake County, North Carolina

Job No. JDF
Dwg No. C18

PRELIMINARY PLANS
NOT FOR CONSTRUCTION