

RESIDENTIAL SUBDIVISION

1. NET AREA IN TRACT: 1,347,871 S.F. (31.495 AC. TO CENTERLINE)
2. NUMBER OF LOTS: 22
3. PROPOSED ROAD: PUBLIC; PAVED 18' TRAVEL SURFACE; 50' R/W
4. WATER SUPPLY: CHATHAM COUNTY PUBLIC WATER.
5. SEWAGE DISPOSAL: INDIVIDUAL LOT SEPTIC SYSTEMS
6. LOT SIZE: 40,018 S.F. TO 118,950 S.F.; AVERAGE = 57,416 S.F.
7. PROPOSED SETBACKS: A) MANN'S CHAPEL: 40'; B) INTERIOR FRONT: 40'; C) REAR: 25'; D) SIDE: 25'
8. AREA IN PROPOSED PUBLIC STREET RIGHT-OF-WAY: 85,052 S.F.

OTHER INFORMATION

- A. STREAMS: INTERMITTENT AND EPHEMERAL AS SHOWN
- B. WETLANDS: ADJACENT TO STREAM AS SHOWN
- C. FLOODPLAINS: NONE
- D. ADJACENT NATURAL AREAS: NONE
- E. CULTURAL & HISTORICAL RESOURCES: NONE
- F. EXISTING LANDCOVER: HARDWOODS AND PINES EXCEPT AT EXISTING HOUSES
- G. STREAM CROSSING DISTURBANCE: ±114 LF OF EXISTING CHANNEL
- H. WATERSHED: JORDAN LAKE

TRACT INFORMATION

1. PIN: 9766-62-6623; 9766-61-6728
2. AKPAR: 2532; 2533

BONTERRA SUBDIVISION MAJOR SUBDIVISION CONSTRUCTION DRAWING APPROVAL

3954 MANN'S CHAPEL ROAD
CHATHAM COUNTY, NORTH CAROLINA

5/16/2019

PREPARED FOR

OWNER DEVELOPER

MANN'S CHAPEL DEVELOPMENT

COOK RIDGE COURT

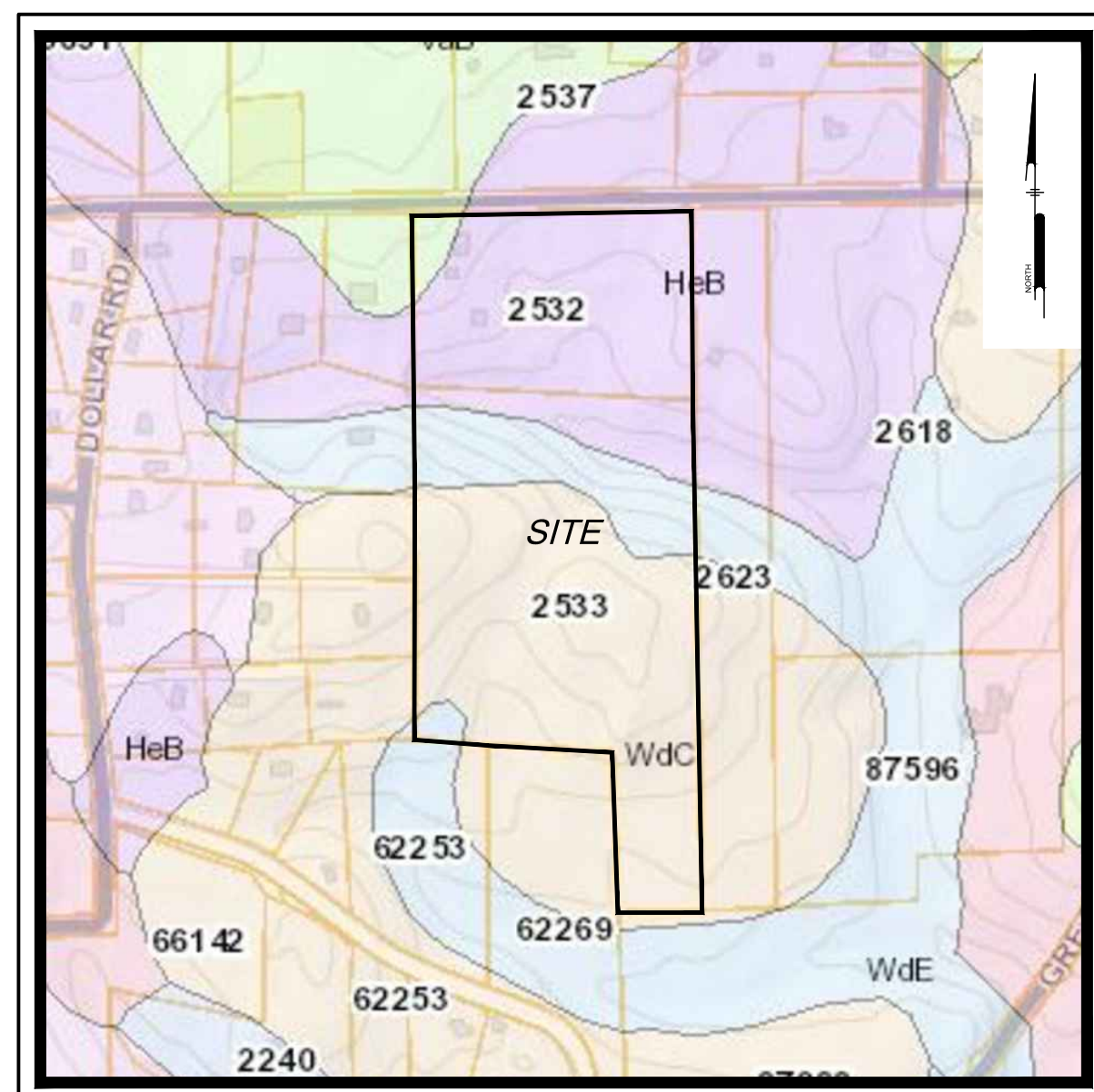
RALEIGH, NC

(919) 601-2816

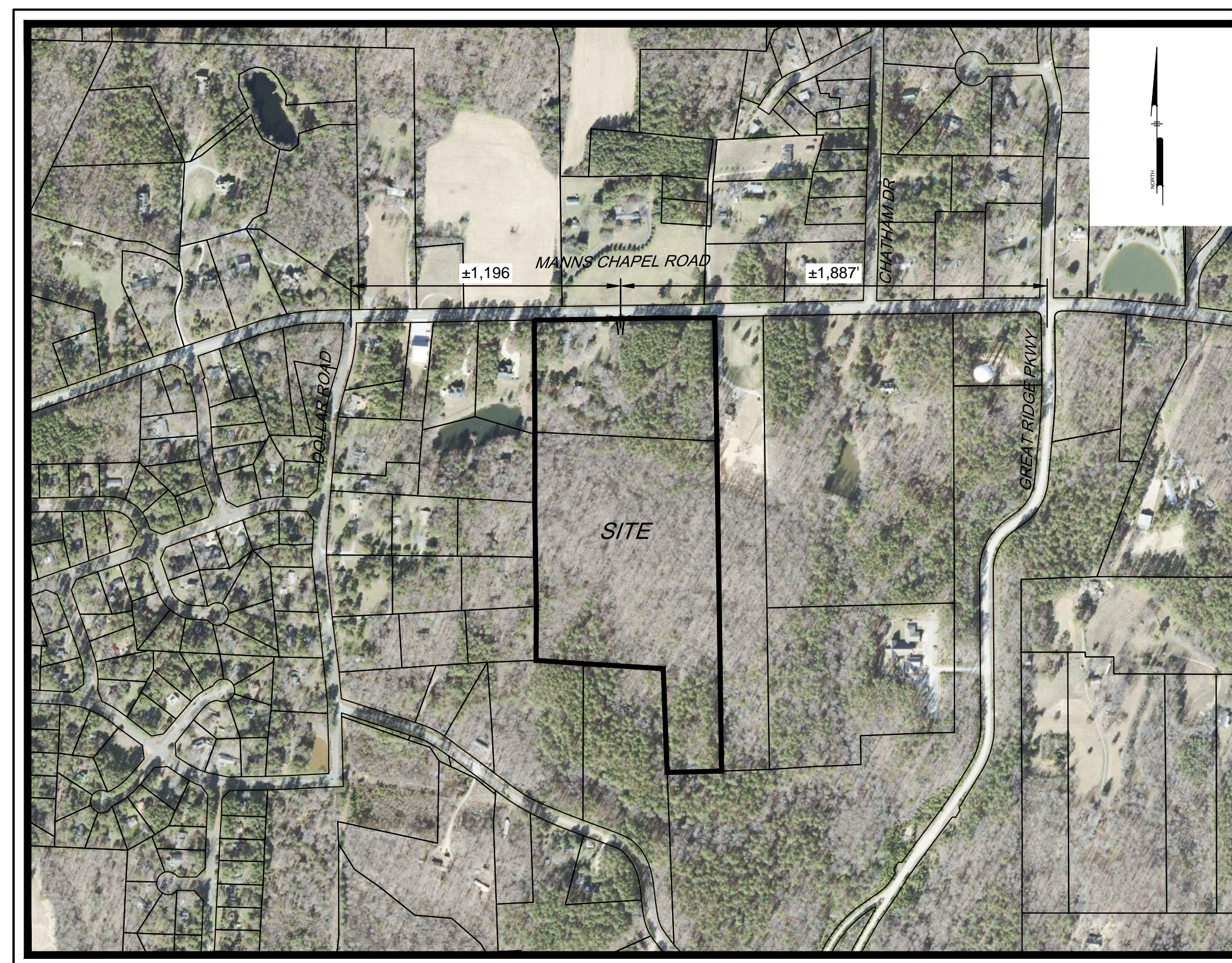
Sheet List Table		
Sheet Name	Sheet Number	Sheet Title
CS0001	1	COVER SHEET
CS0002	2	GENERAL NOTES AND LEGENDS
CS0201	3	EXISTING CONDITIONS - DEMOLITION PLAN
CS1001	4	SITE PLAN
CS1501	5	OVERALL GRADING & UTILITY PLAN (NORTH)
CS1502	6	OVERALL GRADING & UTILITY PLAN (SOUTH)
CS1503	7	DETAILED GRADING & UTILITY PLAN
CS1504	8	BONTERRA WAY PROFILE (NORTH)
CS1505	9	BONTERRA WAY PROFILE (SOUTH)
CS6001	10	SITE DETAILS
CS6041	11	WATER DETAILS
CS8001	12	EROSION CONTROL PLAN (NORTH)-PHASE I
CS8002	13	EROSION CONTROL PLAN (SOUTH)-PHASE I
CS8003	14	EROSION CONTROL PLAN (NORTH)-PHASE II
CS8004	15	EROSION CONTROL PLAN (SOUTH)-PHASE II
CS8501	16	EROSION CONTROL DETAILS
CS8502	17	EROSION CONTROL DETAILS
CS8503	18	EROSION CONTROL DETAILS
CS9001	19	DRY-DETENTION POND DETAILS



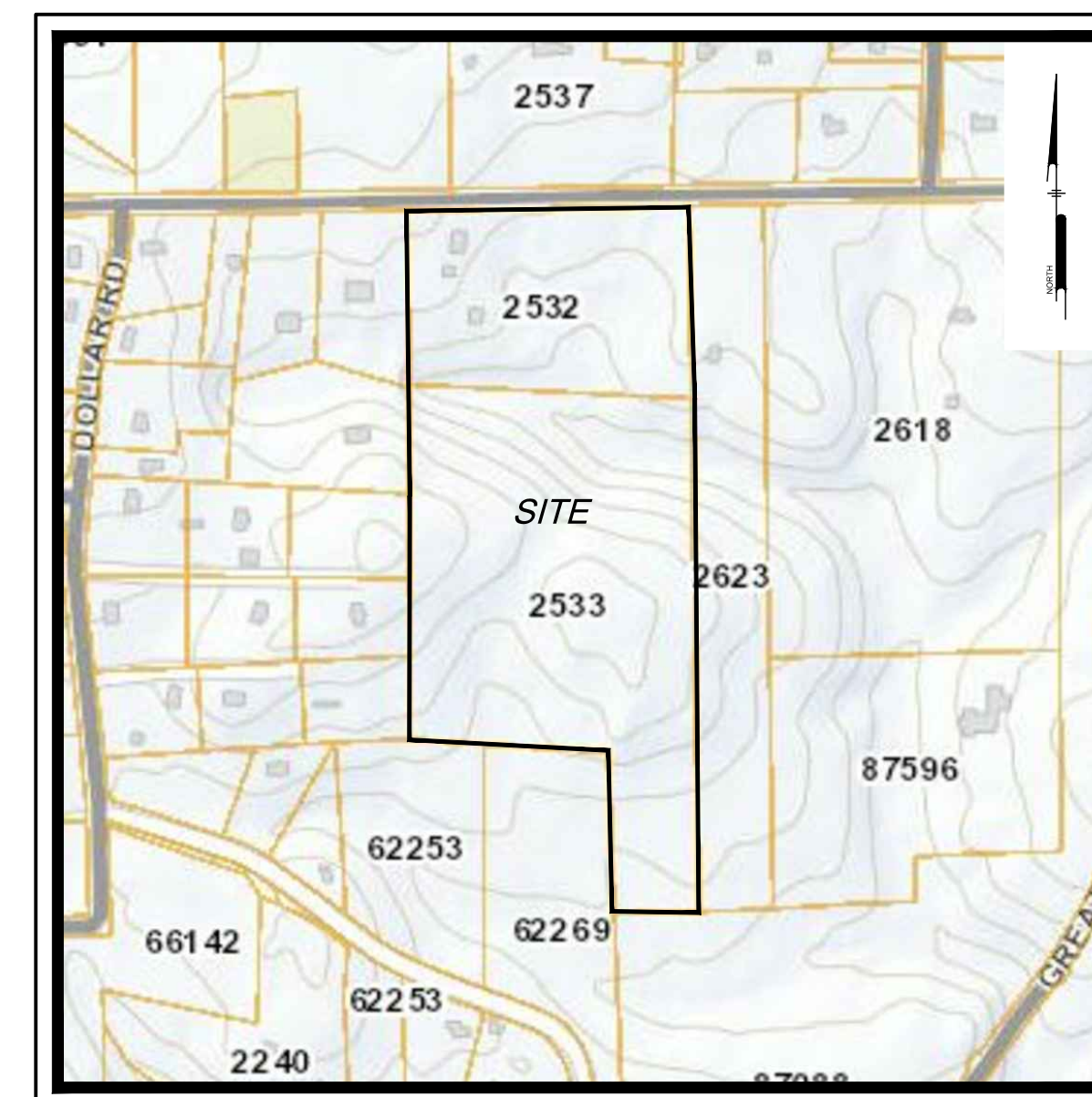
BONTERRA SUBDIVISION
3954 MANN'S CHAPEL ROAD
CHAPEL HILL, NC 27516
COVER SHEET
MANN'S CHAPEL DEVELOPMENT LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615



SOILS MAP
Scale: 1" = 500'

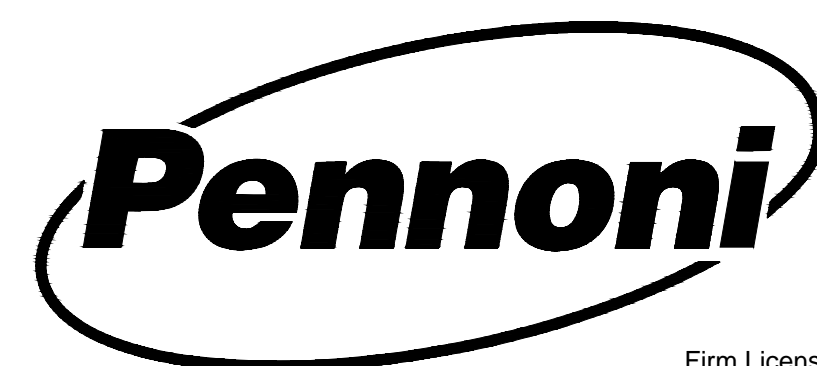


LOCATION MAP
SCALE: 1" = 500'



GIS MAP
Scale: 1" = 500'

PREPARED BY:
PENNONI ASSOCIATES INC.



5430 Wade Park Boulevard, #106
Raleigh, NC 27607
T 919.929.1173
F 919.493.6548

Firm License
F-1267



Know what's below.
Call before you dig.

Electronic copy
received by
Division 8/District
1 office 05/23/2019

DATE	NO.	REVISIONS	BY
5/16/2019	6	PER CHATHAM COUNTY SW & EC	CJJ
4/29/2019	5	PER CHATHAM COUNTY SW & EC	CJJ
4/10/2019	4	PER CHATHAM COUNTY SW & EC	CSB
2/27/2019	3	REV PER NCDOT COMMENTS	CSB
2/05/2019	2	REV PER NCDOT COMMENTS	CSB
10/11/2018	1	NCDOT SUBMITTAL	AAA

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES. AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT: DLAZ1701
DATE: 10/11/2018
DRAWING SCALE: NTS
DRAWN BY: AAA
APPROVED BY: PCB

CS0001
SHEET 1 OF 19

LEGEND		
EXISTING	PROPOSED	DESCRIPTION
		CABLE TV, JUNCTION BOX
		CABLE TV, MANHOLE
		CABLE TV, OVERHEAD
		CABLE TV, PANEL BOX
		CABLE TV, PEDESTAL
		CABLE TV, STUB OUT
		CABLE TV, UNDERGROUND
		CABLE TV, WITNESS POST
		CHANNEL
		COMMUNICATION, HANDHOLE
		COMMUNICATION, JUNCTION BOX
		COMMUNICATION, MANHOLE
		COMMUNICATION, OVERHEAD
		COMMUNICATION, PANEL BOX
		COMMUNICATION, PEDESTAL
		COMMUNICATION, STUB OUT
		COMMUNICATION, UNDERGROUND
		COMMUNICATION, WITNESS POST
		CONTROL, BENCHMARK
		CONTROL, GPS
		CONTROL, MAPPING
		CONTROL, REFERENCE
		CONTROL, TRAVERSE
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FIBER OPTIC, HANDHOLE
		FIBER OPTIC, JUNCTION BOX
		FIBER OPTIC, MANHOLE
		FIBER OPTIC, OVERHEAD
		FIBER OPTIC, PANEL BOX
		FIBER OPTIC, PEDESTAL
		FIBER OPTIC, STUB OUT
		FIBER OPTIC, UNDERGROUND
		FIBER OPTIC, WITNESS POST
		FLOODPLAIN
		FUEL, MANHOLE
		FUEL, OVERHEAD
		FUEL, PLUG
		FUEL, PUMP
		FUEL, UNDERGROUND
		GUIDE RAIL
		LIMITS OF DISTURBANCE
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS, UNDERGROUND
		NATURAL GAS, WITNESS POST
		PHONE, HANDHOLE
		PHONE, JUNCTION BOX
		PHONE, MANHOLE
		PHONE, OVERHEAD
		PHONE, PANEL BOX
		PHONE, PEDESTAL
		PHONE, STUB OUT
		PHONE, UNDERGROUND
		PHONE, WITNESS POST
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, HANDHOLE
		POWER, JUNCTION BOX
		POWER, SINGLE HEAD LIGHT
		POWER, DOUBLE HEAD LIGHT
		POWER, THREE HEAD LIGHT
		POWER, FOUR HEAD LIGHT
		POWER, LIGHT
		POWER, SPOT LIGHT
		POWER, LIGHT POLE SINGLE
		POWER, LIGHT POLE DOUBLE
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, PEDESTAL
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		POWER, WITNESS POST
		POWER, YARD LIGHT
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		PROPERTY, CORNER FOUND
		PROPERTY, CORNER FOUND (OTHERS)
		PROPERTY, CONCRETE MONUMENT
		PROPERTY, ADJOINING LINED
		PROPERTY, LINE RESERVED
		RAIL, MILE MARKER
		RAIL, PANEL BOX
		RAIL, TRACK
		SITE, AIR COMPRESSOR
		SITE, AIR CONDITIONER
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, FLAG POLE
		SITE, HEAD STONE
		SITE, MAIL BOX
		SITE, MONITOR WELL
		SITE, PARKING METER
		SITE, POST
		SITE, SIGN POST AND BOARD
		SITE, TRAFFIC SIGN
		SOIL, BOUNDARY
		SOIL, LABEL

GENERAL NOTES:

- APPLICANT: MANN'S CHAPEL DEVELOPMENT, LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615
RESPONSIBLE OFFICER: DAVID LAZZO
- EXISTING TOPOGRAPHIC FEATURES WERE OBTAINED FROM A TOPOGRAPHIC SURVEY PREPARED BY PENNONI & ASSOCIATES ON OR ABOUT 9/21/2017
- UTILITY NOTES:
A. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
B. LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
C. ALL UTILITIES AND SERVICES INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC, ETC. WITHIN THE LIMITS OF DISTURBANCE SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION AT NO COST TO THE OWNER.
- AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR ORANGE COUNTY, NC, MAP #3108780K (PANEL 1117) THE SITE AREA PROPOSED TO BE DEVELOPED LIES WITHIN "ZONE X" DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAN.

GENERAL CONSTRUCTION AND GRADING NOTES:

- ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL AND LOCAL CODES AND OSHA STANDARDS ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER/DEVELOPER.
- THE CONTRACTOR SHALL BE REQUIRED TO REVIEW AND ABIDE BY SPECIFICATIONS OF THE PLAN AND ALL SUPPORTING DOCUMENTS, PERMITS, AND REPORTS FOR THIS SITE, INCLUDING BUT NOT LIMITED TO:
• EROSION AND SEDIMENTATION CONTROL PLAN
• STORMWATER MANAGEMENT PLAN.
- THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES OR ERROR THEY DISCOVER IN THE PLANS.
- DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER OR HIS REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE OF THE WORK TO BE UNACCEPTABLE.
- UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATIONS. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION. THE CONTRACTOR SHOULD SEEK ASSISTANCE FROM ALL UTILITY COMPANIES TO LOCATE AND PROTECT THEIR FACILITIES. IF CONFLICTS ARE FOUND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.
- ALL MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER AND APPLICANT.
- TRAFFIC CONTROL METHODS, SUCH AS BARRICADES, SUFFICIENT LIGHTS, SIGNS, ETC., MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE CONSTRUCTION IN ACCORDANCE WITH CURRENT AND NCDOT STANDARDS.
- CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES, FENCING AND OTHER APPROPRIATE SAFETY ITEMS/MEASURES NECESSARY TO PROTECT THE PUBLIC FROM THE WORK AREA CONSTRUCTION ACTIVITIES.
- HIGH INTENSITY LIGHTING FACILITIES SHALL BE SO ARRANGED THAT THE SOURCE OF ANY LIGHT IS CONCEALED FROM PUBLIC VIEW AND FROM ADJACENT RESIDENTIAL PROPERTY AND DOES NOT INTERFERE WITH TRAFFIC.
- THE CONTRACTOR SHALL MAINTAIN ACCESS FOR EMERGENCY VEHICLES AROUND AND TO ALL BUILDINGS NEAR CONSTRUCTION. IN TIME OF RAIN OR MUD, ROADS SHALL BE ABLE TO CARRY A FIRE TRUCK BY BEING PAVED OR HAVING A CRUSHED STONE BASE, ETC., WITH A MINIMUM WIDTH OF 20 FEET. ACCESS TO BUILDINGS THAT HAVE SPRINKLER OR STANDPIPE SYSTEMS SHALL BE WITHIN 40 FEET OF THE FIRE DEPARTMENT CONNECTOR. (NFPA 1141 3-1)
- BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONALLY BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.
- BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX (6) INCHES IN COMPACTED FILL THICKNESS. A REPORT FROM A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE PUBLIC WORKS INSPECTOR. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR WILL ENSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, A) REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED, OR B) REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.
- THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- SOIL TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. A GEOTECHNICAL ENGINEER IS REQUIRED TO INSPECT, TEST AND CERTIFY TO THE COMPACTION OF ALL LOAD BEARING FILLS. THE GEOTECHNICAL ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER AND TO THE OWNER'S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR, SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.
- ALL PERMITS MUST BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.
- ALL PAVEMENT MARKINGS AND REGULATORY SIGNS SHALL CONFORM TO CURRENT MUTCD STANDARDS.
- ALL ROADWAY CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND SPECIFICATIONS.

GENERAL UTILITY NOTES:

- ALL UTILITIES AND SERVICES INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC, ETC. WITHIN THE LIMITS OF DISTURBANCE SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION AT NO COST TO THE OWNER.
- UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATIONS. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATIONS AND DEPTHS OF ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK AND TO TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR EXACT LOCATION AND PROTECTION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR.
- CONTRACTOR MUST APPLY FOR ALL UTILITY CONNECTION APPLICATIONS. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONNECTION FEES FOR CONSTRUCTION. REFER TO COVER SHEET FOR AVAILABLE UTILITY COMPANY LIST.
- CONTRACTOR MUST OBTAIN ANY REQUIRED UTILITY DETAILS FOR RECONNECTION OF EXISTING SERVICES OR NEW SERVICE AND IS RESPONSIBLE FOR THE CONSTRUCTION OF EACH NEW SERVICE PER THE APPROPRIATE UTILITY COMPANY'S SPECIFICATIONS.
- THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBANCE TO CURBING, PAVING, AND COMPACTED SUB-GRADE.
- IF CONFLICTS ARE FOUND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.
- ALL PIPE LENGTHS AND DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE.
- THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- SOILS TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. THE SOILS ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER AND THE OWNER'S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.
- CONTRACTOR SHALL EXCAVATE ONLY ENOUGH TRENCH FOR WHICH PIPE CAN BE INSTALLED AND TRENCH BACKFILLED BY THE END OF EACH WORK DAY.
- BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.
- COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES IN COMPACTED FILL THICKNESS. A REPORT FROM A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE PUBLIC WORKS INSPECTOR. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY SEWER NOR ONTO ADJACENT PROPERTIES.
- ALL JOINTS ON THE STORM WATER CONVEYANCE SYSTEM SHALL BE WATERTIGHT.
- ALL CONSTRUCTION ASSOCIATED WITH WATER SHALL BE IN ACCORDANCE WITH CHATHAM COUNTY PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
- ALL ELECTRICAL SERVICE LINES TO OR AROUND THE PROPOSED STRUCTURE SHALL BE UNDERGROUND.

LEGEND		
EXISTING	PROPOSED	DESCRIPTION
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FORCE MAIN MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND (4" DIA TO 10" DIA)
		SANITARY SEWER, SEPTIC TANK
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		SANITARY SEWER, WITNESS POST
		STREAM
		STORM SEWER, INLET
		STORM SEWER, HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, DOWNSPOUT LOCATION
		STORM SEWER, ROOF DRAIN LINE
		STORM SEWER, STAND PIPE
		STORM SEWER, CLEAN-OUT
		STORM SEWER, WITNESS POST
		MINOR CONTOUR
		MAJOR CONTOUR
		SPOT ELEVATION
		TO BE REMOVED
		TRAFFIC, PAVEMENT MARKING, BIKE LANE
		TRAFFIC, PAVEMENT MARKING, TURN ARROWS
		TRAFFIC, PAVEMENT MARKING, HOV LANE
		TRAFFIC, HAND HOLE
		TRAFFIC, JUNCTION BOX
		TRAFFIC, MANHOLE
		TRAFFIC, PANEL BOX
		TRAFFIC, PEDESTAL
		TRAFFIC, PEDESTRIAN SIGNAL
		TRAFFIC, SIGNAL POLE
		TRAFFIC, SIGNAL POLE & LIGHT ARM
		TRAFFIC, STUB OUT
		VEGETATION, SHRUB
		VEGETATION, GRASS LINE / LANDSCAPED AREA
		VEGETATION, DECIDUOUS SHOWING CANOPY
		VEGETATION, CONIFEROUS SHOWING CANOPY
		VEGETATION, TREE LINE
		WATER, HOSE BIB
		WATER, FIRE HYDRANT
		WATER, IRRIGATION HEAD
		WATER, IRRIGATION VALVE BOX
		WATER, MANHOLE
		WATER, METER
		WATER, POST INDICATOR VALVE
		WATER, SIAMESE CONNECTION
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
		WATER, WITNESS POST

Pennonni
Firm License F-1287
PENNONI ASSOCIATES, INC.
5430 Wade Park Boulevard, #106
Raleigh, NC 27607
T 919.929.1173 F 919.493.6548

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

PROFESSIONAL ENGINEER
PETER C. BEBER
1/22/25
SEALED
033040
PROFESSIONAL ENGINEER
PETER C. BEBER

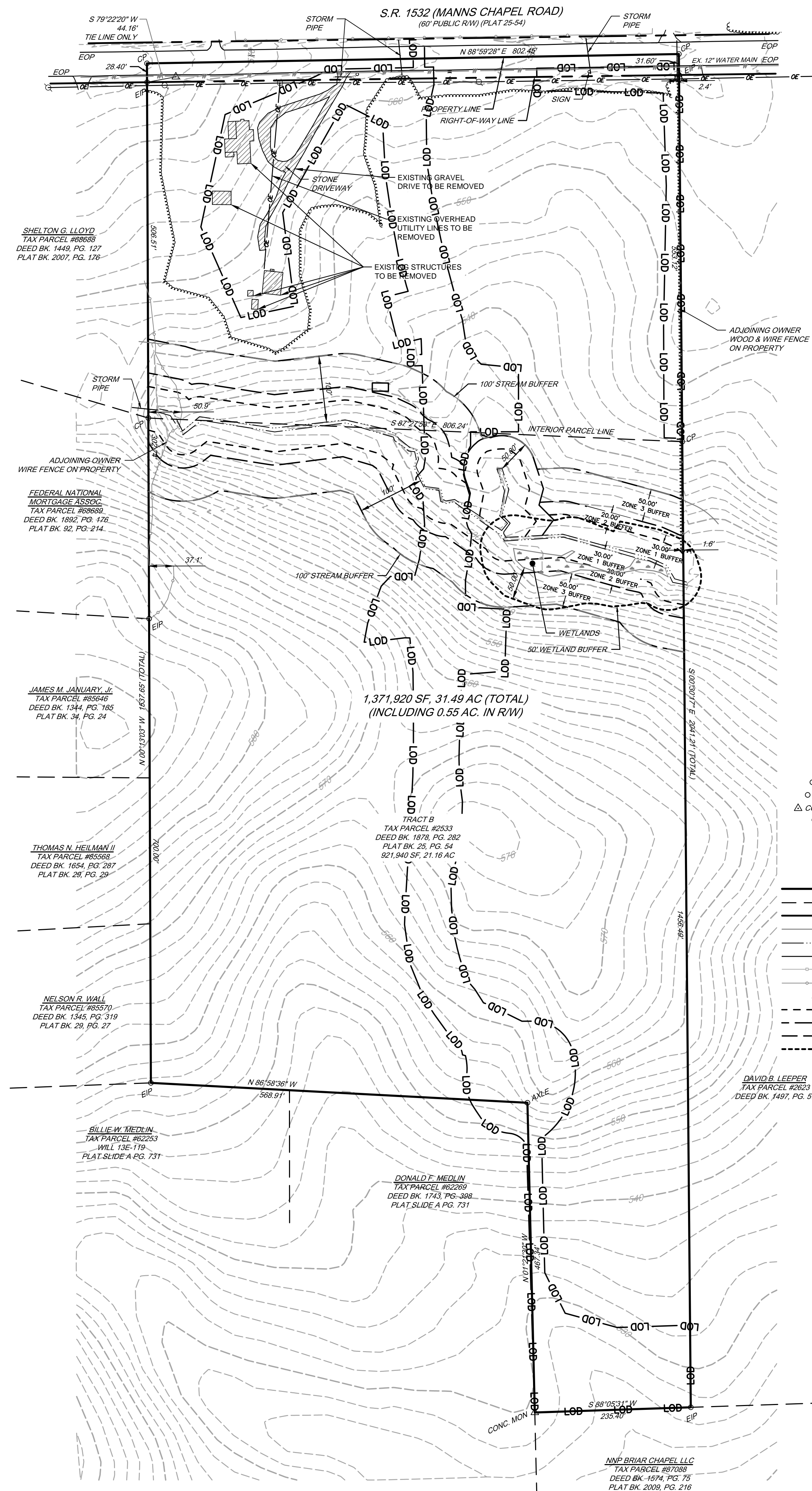
BONTERRA SUBDIVISION
3954 MANN'S CHAPEL ROAD
CHAPEL HILL, NC 27516

GENERAL NOTES AND LEGENDS

MANN'S CHAPEL DEVELOPMENT LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615

NO.	DATE	REVISIONS	BY
6	5/16/2019	PER CHATHAM COUNTY SW & EC	CJJ
5	4/29/2019	PER CHATHAM COUNTY SW & EC	CJJ
4	4/10/2019	PER CHATHAM COUNTY SW & EC	CSB
3	2/27/2019	REV. PER NCDOT COMMENTS	CSB
2	10/05/2018	REV. PER NCDOT COMMENTS	CSB
1	10/11/2018	NCDOT SUBMITTAL	AAA

L:\Projects\DLAZ1701\Main\Chapel Rd Subdivision\CS0201.dwg PLOT DATE: 5/16/2019 8:07 AM BY: Gail Jenkins PLOT STYLE: Pennon NCS.dwg PROJECT STATUS: MAJOR SUBDIVISION CONSTRUCTION DRAWING APPROVAL

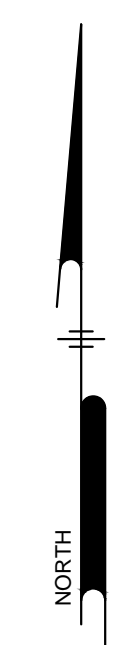
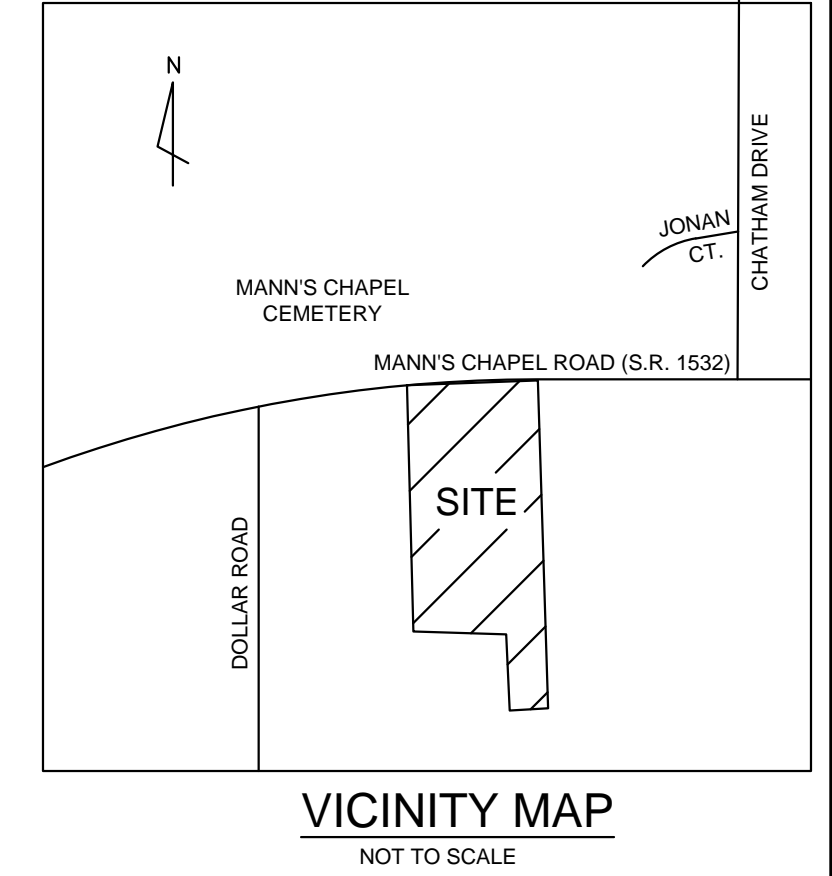


1,371,920 SF, 31.49 AC (TOTAL)
(INCLUDING 0.55 AC. IN R/W)

LEGEND

○ EIP	EXISTING IRON PIPE
○ AXLE	EXISTING AXLE
△ CONC. MON	EXISTING CONCRETE MONUMENT
○ CP	COMPUTED POINT
⊠	WATER VALVE
⊕	HYDRANT
○ U.P.	UTILITY POLE
⊙	COMMUNICATION PEDESTAL
---	PROPERTY LINE (SURVEYED)
---	ADJOINER PROPERTY LINE (NOT SURVEYED)
---	RIGHT-OF-WAY LINE
---	STREAM BUFFER LINE
---	TOP OF STREAM BANK
---	OVERHEAD WIRES
---	WOOD FENCE
---	WIRE FENCE
---	EOP
---	EDGE OF PAVEMENT
---	RIPARIAN ZONE 1
---	RIPARIAN ZONE 2
---	RIPARIAN ZONE 3
---	WETLAND BUFFER

- NOTES:**
- EXISTING TOPOGRAPHIC FEATURES WERE OBTAINED FROM A TOPOGRAPHIC SURVEY PREPARED BY PENNONI ASSOCIATES ON OR ABOUT 9/21/2017.
 - BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED: "BOUNDARY SURVEY FOR MANN CHAPEL ROAD DEVELOPMENT, LLC, OF DEED BOOK 1878, PAGE 282, 3954 MANN CHAPEL ROAD, CHATHAM COUNTY, NORTH CAROLINA", DATED 7/23/18, AS PREPARED BY PENNONI ASSOCIATES.
 - DELINEATION OF WATERS AND STREAM BUFFERS BASED UPON DOCUMENT ENTITLED, "FIGURE 3 - SKETCH MAP" DATED 10/26/17, AS PREPARED BY S&EC, PA.
 - USACOE NOTICE OF JURISDICTIONAL DETERMINATION ISSUED 4/18/18. ID SAW - 2017 - 02253.



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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

BONTERRA SUBDIVISION
3954 MANN CHAPEL ROAD
CHAPEL HILL, NC 27516

EXISTING CONDITIONS - DEMOLITION PLAN

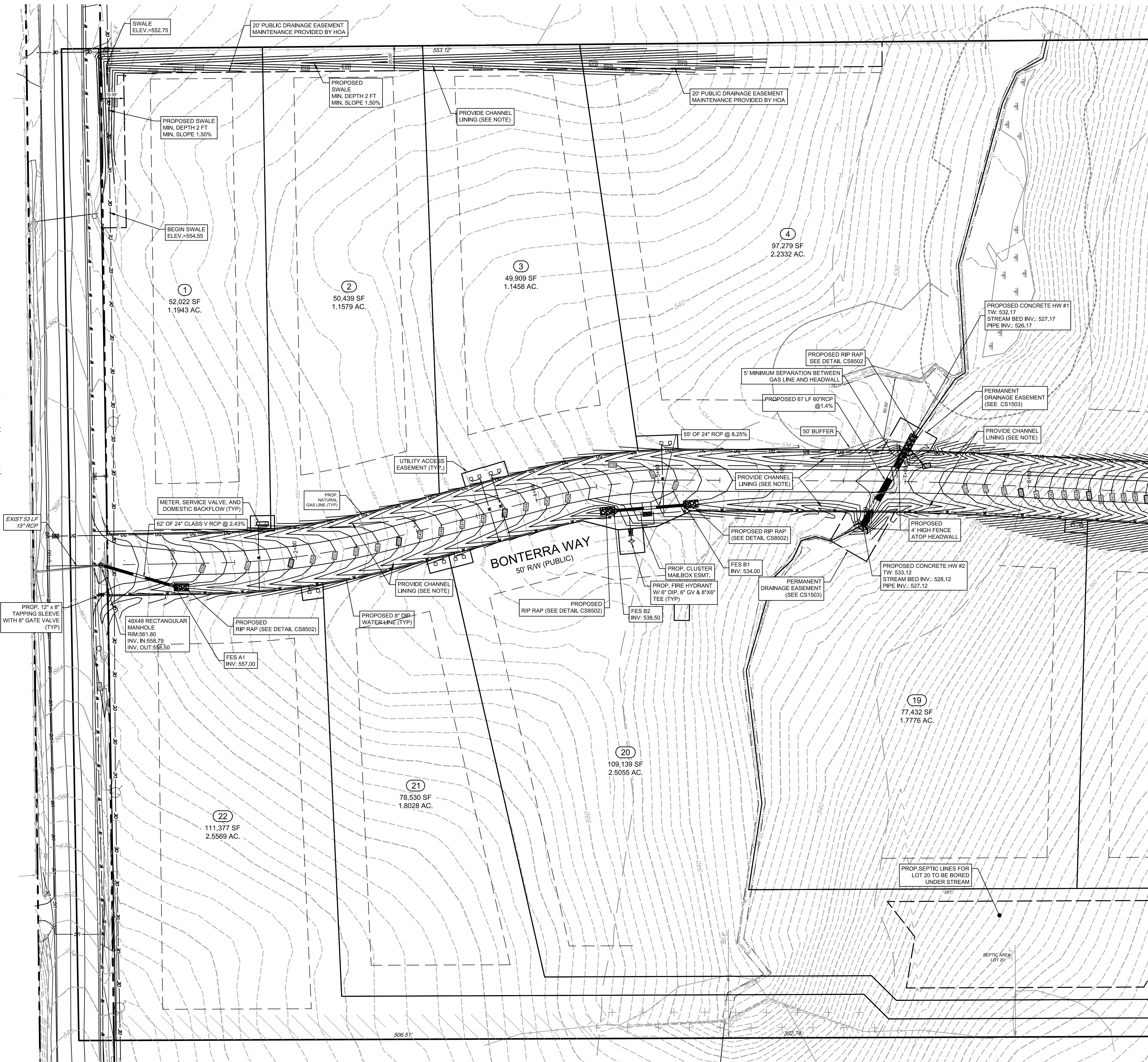
MANN CHAPEL DEVELOPMENT LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615

NO.	DATE	REVISIONS	BY
1	10/11/2018	NCDOT SUBMITTAL	AAA
2	2/05/2019	REV. PER NCDOT COMMENTS	CSB
3	2/27/2019	REV. PER NCDOT COMMENTS	CSB
4	4/10/2019	REV. PER NCDOT COMMENTS	CSB
5	4/29/2019	PER CHATHAM COUNTY SW & EC	CJJ
6	5/16/2019	PER CHATHAM COUNTY SW & EC	CJJ

PROJECT: **DLAZ1701**
DATE: 10/11/2018
DRAWING SCALE: 1" = 100'
DRAWN BY: AAA
APPROVED BY: PCB

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S.R. 1532 (MANN'S CHAPEL ROAD)
(60' PUBLIC R/W) (PLAT 28-54)



MATCH LINE (SOUTH) STA: 9+00

NC DOT NOTE:
ALL BLOW-OFF VALVES, VAULTS, MANHOLES, AND OTHER APPURTENANCES WITHIN THE NC DOT RIGHT OF WAY SHALL BE LOCATED BEHIND THE DITCH AND AT THE RIGHT OF WAY LINE. MANHOLES AND/OR VAULTS SHALL NOT BE PLACED IN THE DITCH LINE, SIDE SLOPES OF DITCHES OR IN THE PAVEMENT.

CHANNEL LINER AND POND SPILLWAY NOTE:
ALL SWALES, DRAINAGE DITCHES, AND EMERGENCY SPILLWAYS NOTED ON PLAN SHALL BE LINED AND REINFORCED WITH NAG P300 MATTING (USING STAPLE PATTERN 'E'), OR APPROVED EQUIVALENT. PLEASE SEE PLAN FOR LINER LOCATION.

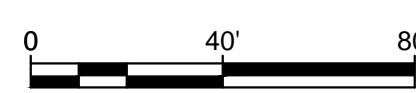
STORM DRAINAGE NOTE:
ALL STORM DRAINAGE PIPE USED WITHIN NC DOT RIGHT-OF-WAY SHALL BE CLASS-IV REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.

SINGLE FAMILY RESIDENTIAL LOTS
AT LEAST ONE OF THE FOLLOWING DESIGN STANDARDS SHALL BE UTILIZED IN THE DEVELOPMENT OR REDEVELOPMENT OF AN INDIVIDUAL LOT FOR A SINGLE FAMILY RESIDENCE.

- I. ALL ROOF DOWNSPOUTS SHALL DISCHARGE ONTO THE SURFACE OF THE NATURAL GROUND AT LEAST 25 FEET FROM THE PROPERTY BOUNDARY AND IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES;
- II. COLLECT THE FIRST 1/2" EQUIVALENT RUNOFF VOLUME FROM AT LEAST 1/3 OF THE TOTAL ROOF AREA BY CONNECTING DOWNSPOUTS TO OPERATING RAIN BARRELS OR CISTERNS;
- III. DRIVEWAYS, WALKWAYS AND PATIOS SHALL DRAIN INTO WELL-MAINTAINED LANDSCAPED BEDS USING NATIVE VEGETATION AND AMENDED SOILS.

THESE RESIDENTIAL STORMWATER PRACTICES SHALL BE RECORDED ON THE PLAT FOR THIS DEVELOPMENT.

WITHIN THIS LOW-DENSITY DEVELOPMENT, THERE IS NO IMPERVIOUS COVER RESTRICTION FOR SINGLE-FAMILY LOTS. ALL CHANGES MADE TO PROPERTIES SHOULD NOT SIGNIFICANTLY ALTER THE STORMWATER MANAGEMENT PLAN FOR THE DEVELOPMENT.



BONTERRA SUBDIVISION
3954 MANN'S CHAPEL ROAD
CHAPEL HILL, NC 27516

OVERALL GRADING & UTILITY PLAN (NORTH)

MANN'S CHAPEL DEVELOPMENT LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615

NO.	DATE	REVISIONS	BY
1	10/11/2018	NC DOT SUBMITTAL	AAA
2	2/05/2019	REV. PER NC DOT COMMENTS	CSB
3	2/27/2019	REV. PER NC DOT COMMENTS	CSB
4	4/10/2019	PER CHATHAM COUNTY SW & EC	CSB
5	4/29/2019	PER CHATHAM COUNTY SW & EC	CJL
6	5/16/2019	PER CHATHAM COUNTY SW & EC	CJL

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PROJECT	DLAZ1701
DATE	10/11/2018
DRAWING SCALE	1" = 40'
DRAWN BY	AAA
APPROVED BY	PCB

CS1501
SHEET 5 OF 19

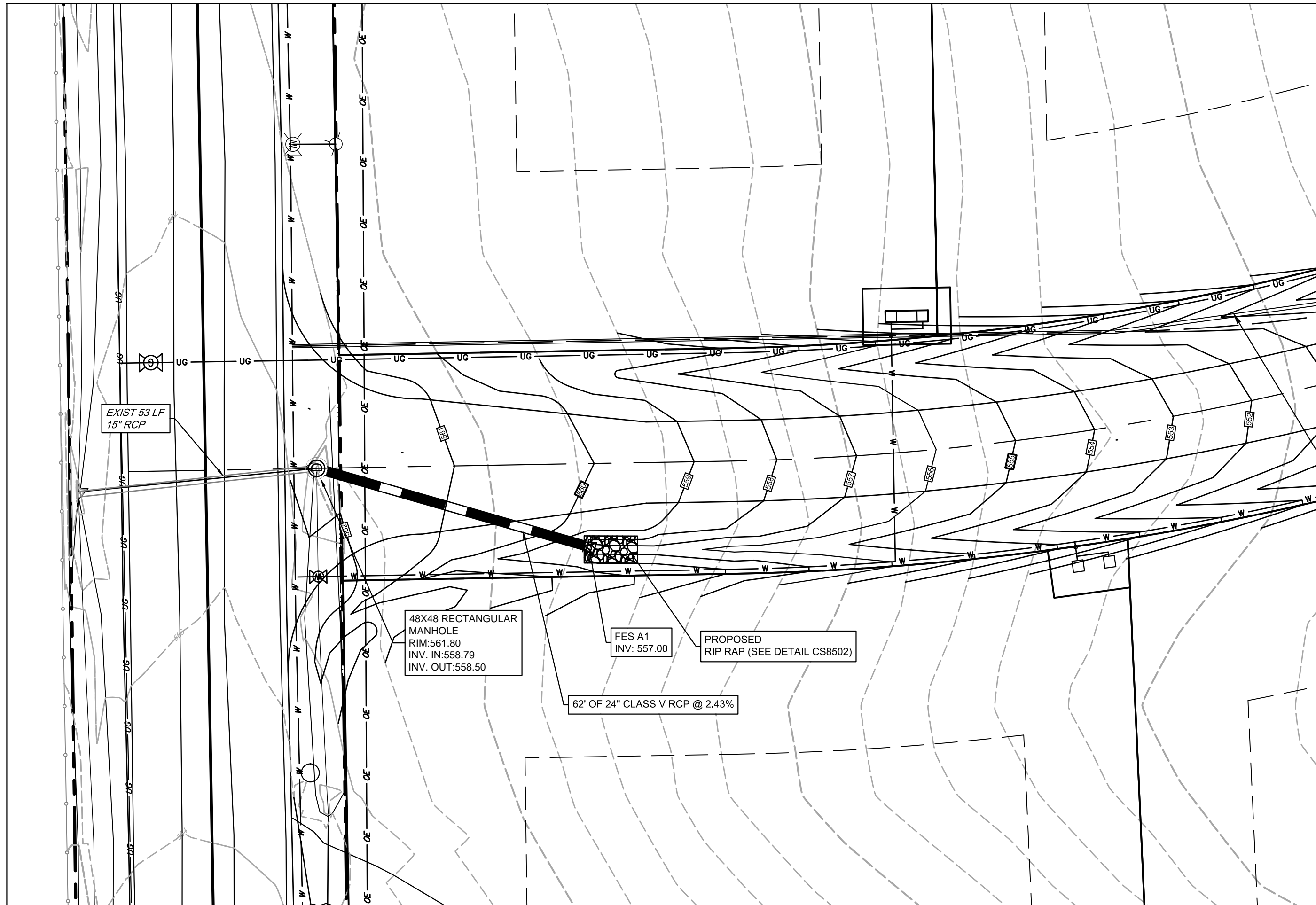
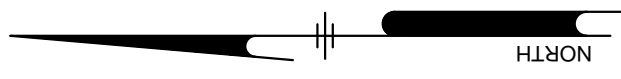
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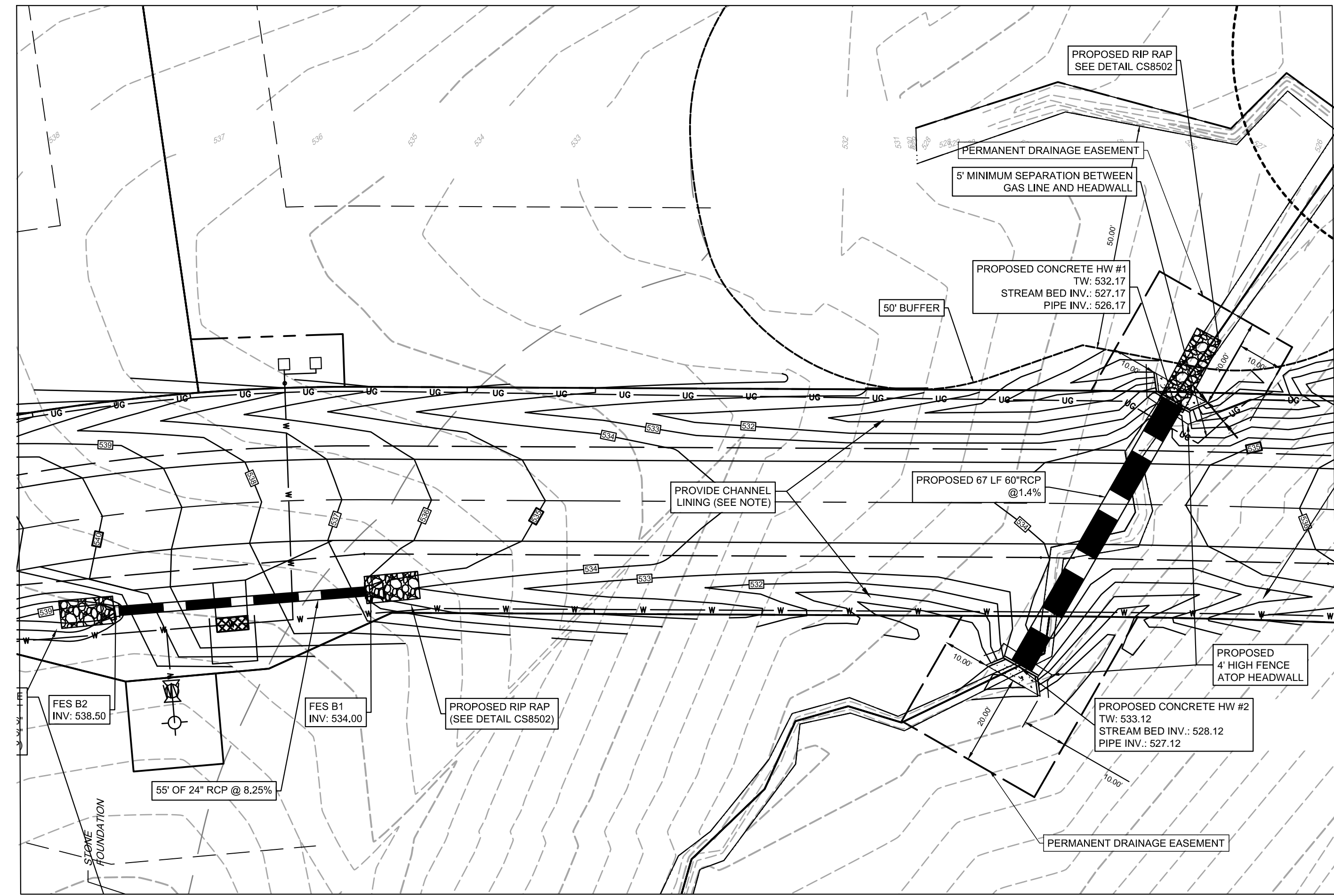
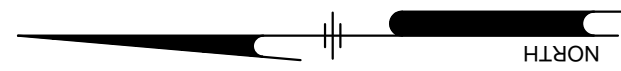
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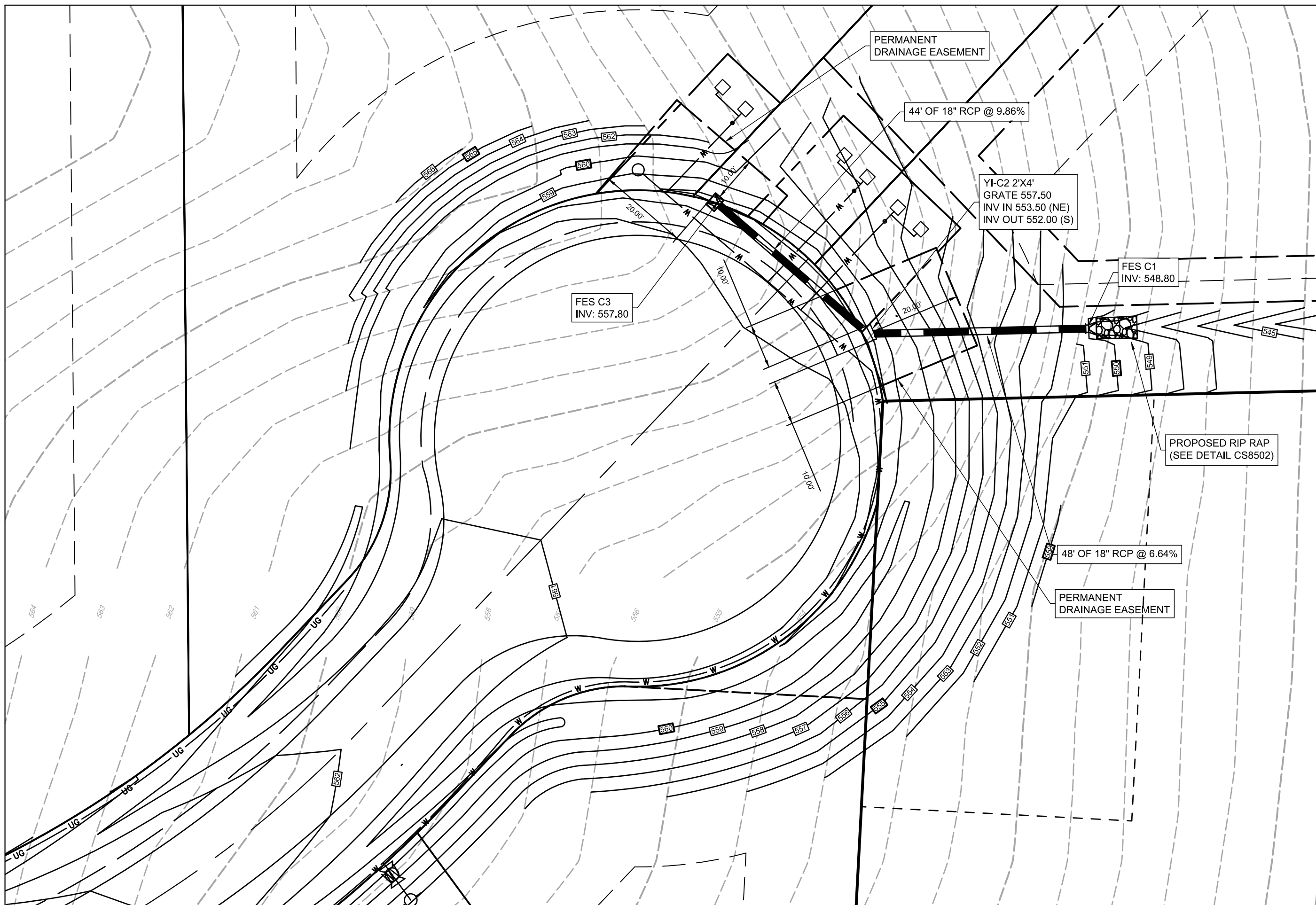
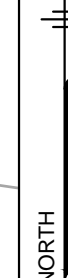
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 PROJECT STATUS: MAJOR SUBDIVISION CONSTRUCTION DRAWING APPROVAL



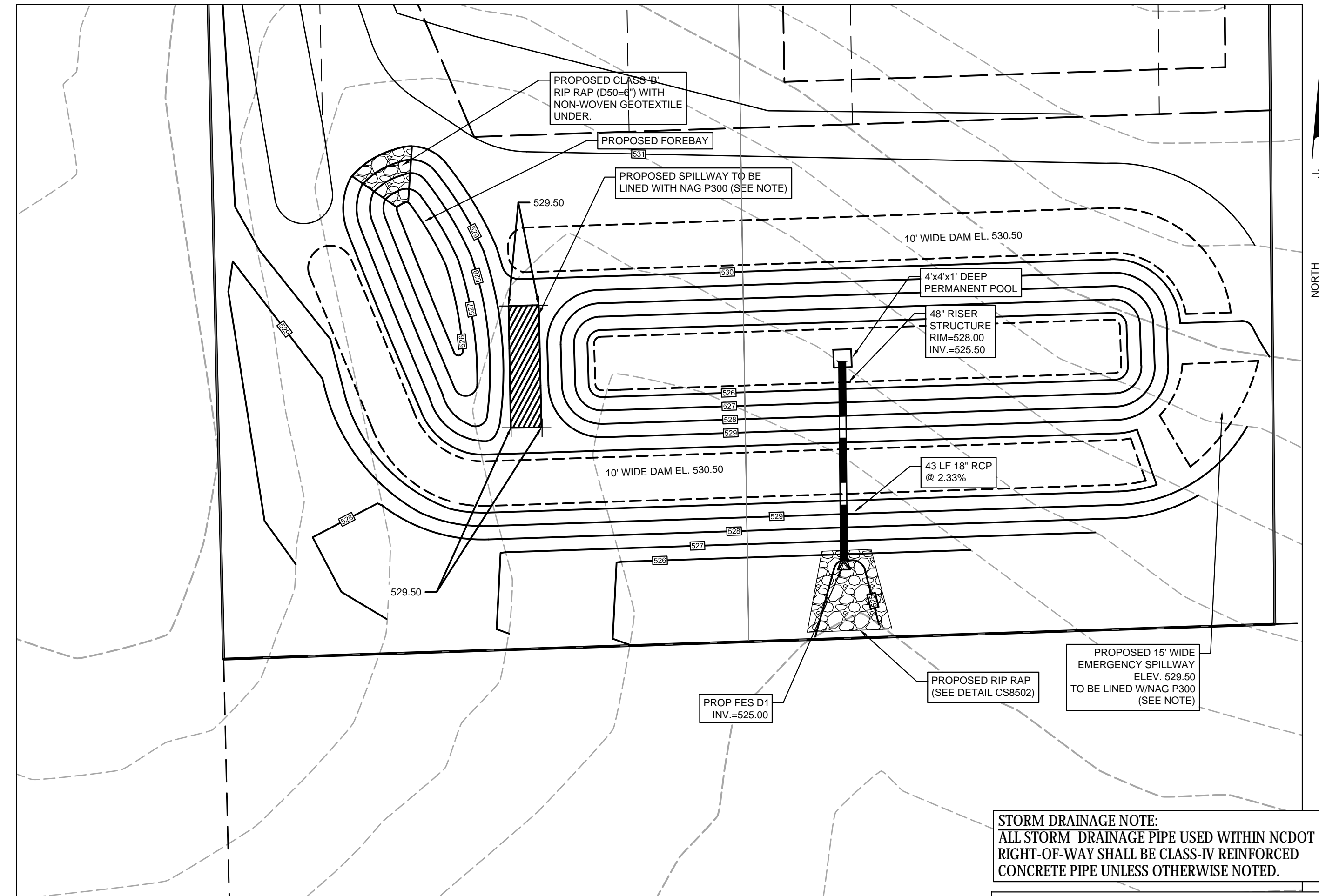
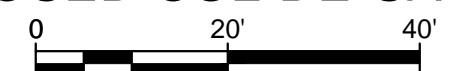
MAIN ENTRANCE ENLARGEMENT



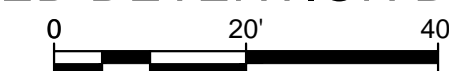
PROPOSED STREAM CROSSING



PROPOSED CUL-DE-SAC AREA



PROPOSED DETENTION BASIN AREA

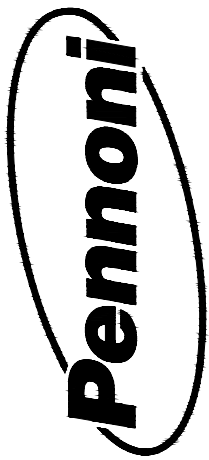


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PLEASE SEE PLAN FOR LINER LOCATION.

L:\Projects\2018\2018-01-27\Main\Chapel Hill\Subdivision\CONSTRUCTION DRAWING APPROVAL

PLOTTED: 6/20/2019 11:41 AM BY: Carol Jenkins PLOTSTYLE: Pennon VCE.dwg



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BONTERRA SUBDIVISION
3954 MANN'S CHAPEL ROAD
CHAPEL HILL, NC 27516

DETAILED GRADING & UTILITY PLAN

MANN'S CHAPEL DEVELOPMENT LLC
2100 COOK RIDGE COURT
RALEIGH, NC 27615

DATE	NO.	REVISIONS	BY
5/16/2019	6	PER CHATHAM COUNTY SW & EC	CJJ
4/29/2019	5	PER CHATHAM COUNTY SW & EC	CJJ
4/10/2019	4	PER CHATHAM COUNTY SW & EC	CSB
2/27/2019	3	REV. PER NCDOT COMMENTS	CSB
2/05/2019	2	REV. PER NCDOT COMMENTS	CSB
10/11/2018	1	NCDOT SUBMITTAL	AAA

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PROJECT	DLAZ1701
DATE	10/11/2018
DRAWING SCALE	1" = 20'
DRAWN BY	AAA
APPROVED BY	PCB
SHEET	7 OF 19