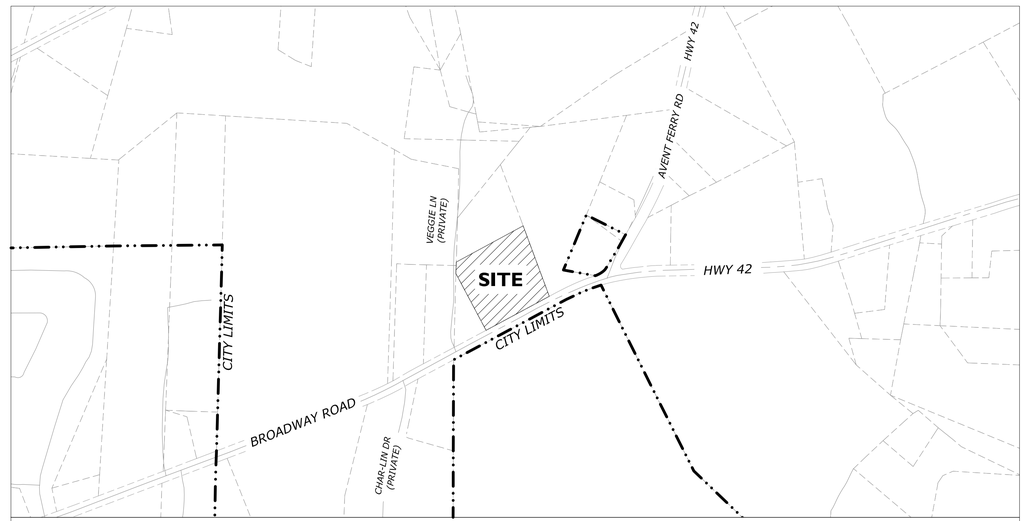
SITE CONSTRUCTION PLANS FOR:

C & G AUTOMOTIVE AND TRUCK REPAIR

NEW BUILDING

1807 BROADWAY ROAD
LEE COUNTY, NORTH CAROLINA



LOCATION MAP
SCALE: 1 INCH = 400 FT

NORTH

PROPERTY OWNER

L&K PROPERTIES OF BROADWAY LLC
731 THOMAS KELLY ROAD
SANFORD, NC 27332

CONTRACTOR

HARRINGTON PROPERTIES OF NC
PROJECT CONTACT: BRANDON HARRINGTON
2659 SAN LEE DRIVE
SANFORD, NC 27330
PHONE: 919-770-5969
EMAIL: BRANDON@HARRINGTONPROPERTIESOFNC.COM

SHEET INDEX

1 COVER SHEET
2 OVERALL PROJECT / LANDSCAPING
3 SITE LAYOUT / UTILITY
4 GRADING / STORM DRAINAGE / EROSION CONTROL
5 STANDARD DRAWINGS
6 CONSTRUCTION DETAILS

LEGEND OF ABBREVIATIONS

BC	BACK OF CURB	IPS	IRON PIN SET
CB	CATCH BASIN	LP	LIGHT POLE
CO	CLEAN OUT	N/F	NOW OR FORMERLY
C.P.	CALCULATED POINT	P.E.	PERMANENT EASEMENT
CPP	CORRUGATED PLASTIC PIPE	PVC	POLYVINYL CHLORIDE PIPE
CMP	CORRUGATED METAL PIPE	PP	POWER POLE
C & G	CURB & GUTTER	RCP	REINFORCED CONCRETE PIPE
DI	DROP INLET	RRX	RAILROAD CROSSING
DIP	DUCTILE IRON PIPE	R / W	RIGHT OF WAY
EG	EDGE OF GRAVEL	SS OR SAN	SANITARY SEWER
EP	EDGE OF PAVEMENT	SSMH	SANITARY SEWER MANHOLE
EB	ELECTRICAL BOX	T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
EV	ELECTRICAL VAULT	TMH	TELECOMMUNICATION MANHOLE
EL	ELEVATION	TF	TRANSFORMER
ECM	EXISTING CONCRETE MONUMENT	TP	TELEPHONE PEDESTAL
EIP	EXISTING IRON PIN	TS	TOP OF SIDEWALK
EPK	EXISTING PK NAIL	TSP	TRAFFIC SIGNAL POLE
FO	FIBER OPTIC	TW	TOP OF WALL
FOM	FIBER OPTIC MARKER	UC	UNDERGROUND COMMUNICATIONS
FOB	FIBER OPTIC BOX	VB	VALVE BOX
FH	FIRE HYDRANT	WM	WATER METER
GUY	GUY WIRE	WV	WATER VALVE
HP	HIGH POINT	WCR	WHEELCHAIR RAMP
INV	INVERT	YI	YARD INLET
JB	JUNCTION BOX (STORM)		

LEGEND OF SYMBOLS AND LINES

PROPERTY CORNER		RIGHT OF WAY	
UTILITY POLE		PROPERTY LINE (ADJACENT)	
LIGHT POLE		BUILDING SETBACK LINE	
TELEPHONE PEDESTAL		BUFFER	
GATE VALVE		EASEMENT	
WATER METER	WM	LIMIT OF DISTURBANCE	
FIRE HYDRANT		UNDERGROUND ELECTRIC LINE	UE
SEWER MANHOLE		OVERHEAD ELECTRIC LINE	OHE
SEWER CLEANOUT		SANITARY SEWER (GRAVITY)	SAN
CATCH BASIN		SANITARY SEWER (FORCEMAIN)	FM
YARD INLET / DROP INLET		STORM DRAIN PIPE	
STORM JUNCTION BOX / MH		WATER LINE	W
HANDICAP		GAS LINE	GAS
SPOT ELEVATION	x 100.00	COMMUNICATIONS LINE	T
SIGN		FIBER OPTIC LINE	FO
ALIGNMENT CHANGE		FENCE LINE	
PVI		TREE LINE	
DELTA		DRAINAGE FLOW	
		CURB AND GUTTER	
		CURB AND GUTTER (SPILL)	
		CONCRETE PAVEMENT	
		ASPHALT PAVEMENT	

NOTE:
EXISTING FEATURES ARE SHOWN SHADED.

FEBRUARY 28, 2020

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2/28/2020

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project no. 20-001

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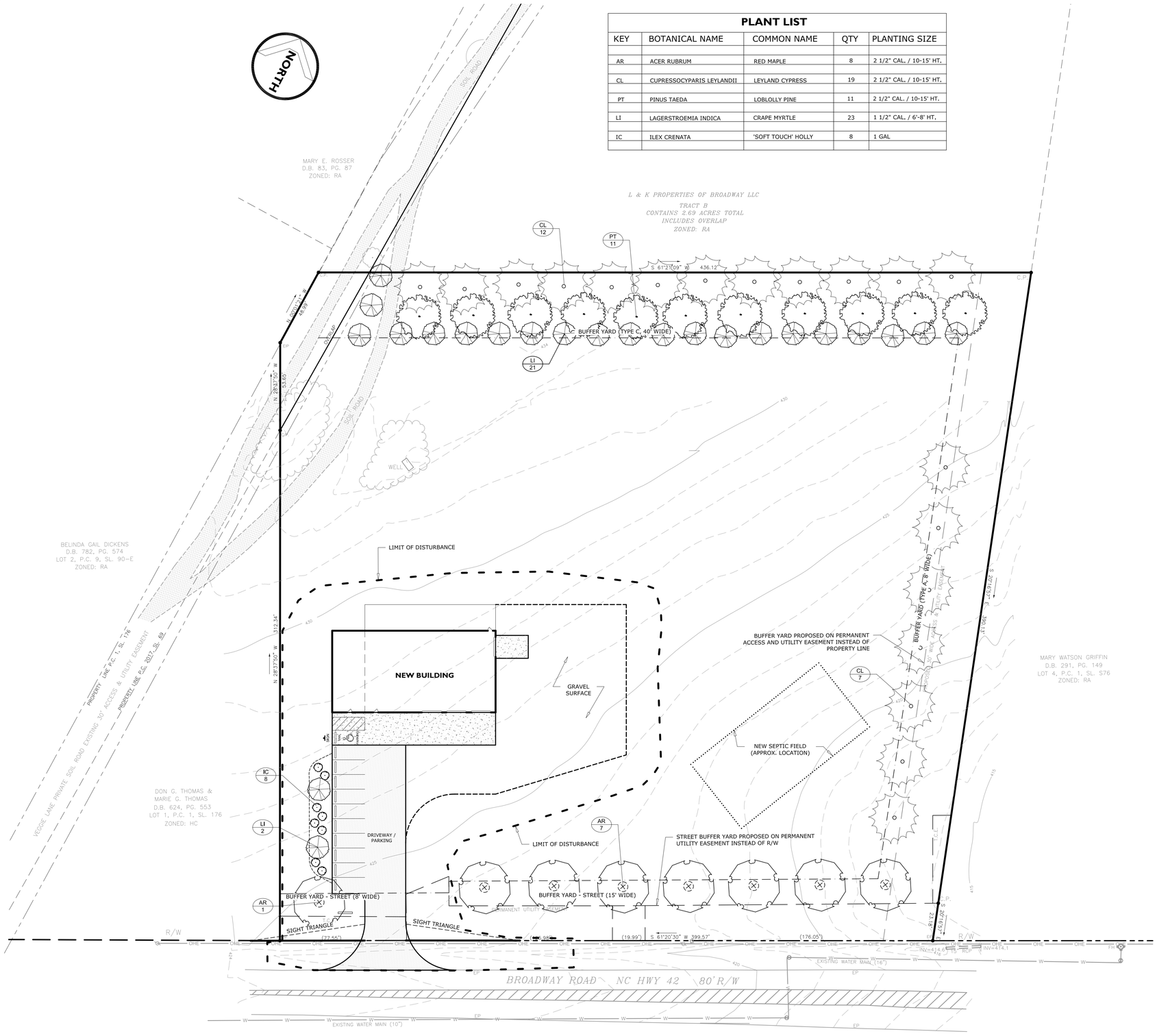
PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY	PLANTING SIZE
AR	ACER RUBRUM	RED MAPLE	8	2 1/2" CAL. / 10-15' HT.
CL	CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS	19	2 1/2" CAL. / 10-15' HT.
PT	PINUS TAEDA	LOBLOLLY PINE	11	2 1/2" CAL. / 10-15' HT.
LI	LAGERSTROEMIA INDICA	CRAPE MYRTLE	23	1 1/2" CAL. / 6'-8' HT.
IC	ILEX CRENATA	'SOFT TOUCH' HOLLY	8	1 GAL



NOTES

1. THE PROPERTY IS CURRENTLY ZONED HC - HIGHWAY COMMERCIAL.
2. PROPOSED LIMIT OF DISTURBANCE IS LESS THAN ONE ACRE. A NCDEQ EROSION CONTROL PERMIT IS NOT REQUIRED HOWEVER EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED PER THE EROSION CONTROL PLAN (SHEET 4) FOR THE DURATION OF CONSTRUCTION.
3. SURVEY PROVIDED BY OWNER. PROPERTY BOUNDARY TAKEN FROM SURVEY PLAT TITLED 'BOUNDARY TOPOGRAPHIC SURVEY FOR L&K PROPERTIES OF BROADWAY, LLC' PREPARED BY MITCHELL W. COLE, PLS AND DATED FEBRUARY 14, 2019.
4. OWNER IS RESPONSIBLE FOR IDENTIFYING ANY JURISDICTIONAL WATERS THAT MAY EXIST ON THE PROPERTY. NO HYDROLOGIC FEATURES ARE SHOWN TO BE PRESENT WITHIN THE SITE AREA AS DETERMINED BY THE USGS MAP AND NRCS SOIL SURVEY MAP. FROM A SITE VISIT, IT IS THE OPINION OF J THOMAS ENGINEERING THAT JURISDICTIONAL WATERS DO NOT APPEAR TO PRESENT WITHIN THE SITE AREA.
5. DEMOLITIONED ITEMS TO BE DISPOSED IN ACCORDANCE WITH LOCAL REQUIREMENTS.
6. CONTRACTOR SHALL NOT REMOVE EXISTING VEGETATION / LANDSCAPING OUTSIDE THE LIMIT OF DISTURBANCE UNLESS APPROVED BY THE OWNER.
7. OWNER RESPONSIBLE FOR OBTAINING TEMPORARY CONSTRUCTION EASEMENT (OR AGREEMENT) FROM ADJACENT PROPERTY OWNER(S) FOR ANY WORK THAT MAY BE REQUIRED ON PRIVATE / PUBLIC PROPERTY(S).
8. THE OWNER MUST OBTAIN APPROPRIATE APPROVALS FOR ANY OFF-SITE WORK INCLUDING WORK IN NCDOT R/W (BROADWAY ROAD).
9. UNDERGROUND UTILITIES SHOWN ON THESE PLANS SHALL BE CONSIDERED APPROXIMATE. ADDITIONAL UTILITIES MAY BE PRESENT WITHIN THE WORK AREA. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO BEGINNING WORK.
10. CONTRACTOR TO REVIEW SITE ACCESS, MATERIAL STORAGE, AND STAGING AREAS WITH OWNER PRIOR TO BEGINNING WORK.

LANDSCAPE REQUIREMENTS

SEE 'SITE DATA' ON SHEET 3 FOR EXPLANATION OF REQUIREMENTS

STREET YARD:

REQUIREMENT: 8' WIDE - 1 LARGE OR 2 SMALL TREES PER 50 L.F. FRONTAGE

PROVIDED: VARIES, 8'-15' WIDE - 8 LARGE TREES (400 LF OF FRONTAGE)

BUFFER YARD (NORTH):

REQUIREMENT: TYPE C (20' WIDE, 1 POINT / L.F.)
1 LARGE TREE PER 50 L.F. YARD
1 SMALL TREE PER 75 L.F. YARD

PROVIDED: 40' WIDE - 402 POINTS (400 L.F. YARD (EXCLUDES OVERLAP) - 400 POINTS REQD)
23 LARGE TREES (276 POINTS)
21 SMALL TREES (126 POINTS)

BUFFER YARD (EAST):

REQUIREMENT: TYPE A (8' WIDE 0.2 POINTS / L.F.)
1 LARGE TREE PER 100 L.F. YARD

PROVIDED: 8' WIDE - 84 POINTS (390 L.F. YARD - 78 POINTS REQD)
7 LARGE TREES (84 POINTS)

PARKING:

REQUIREMENT: 1 LARGE TREE OR 2 SMALL TREES AND 8 SMALL SHRUBS PER 20 SPACES

PROVIDED: 2 SMALL TREES
8 SHRUBS (11 SPACES)

LANDSCAPING NOTES

1. ALL PLANT MATERIALS TO COMPLY WITH THE LATEST EDITION OF A.N.A. STANDARDS FOR NURSERY STOCK AND BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM INSTALLATION DATE.
2. LANDSCAPE CONTRACTOR IS TO VERIFY LOCATION OF ALL UNDERGROUND UTILITIES AND RECEIVE APPROVAL FROM GENERAL CONTRACTOR OR SITE SUPERVISOR, IF NECESSARY, TO MAKE CHANGES IN PLANT LOCATIONS.
3. LANDSCAPE CONTRACTOR MUST COORDINATE WITH GENERAL CONTRACTOR AND OTHER SITE OPERATIONS.
4. MINOR ADJUSTMENTS TO THE PLANT LOCATIONS ARE TO BE MADE IN THE CASE OF ANY CONFLICTS WITH PROPOSED UTILITIES.
5. ALL PLANTING BEDS AND FREE STANDING TREES TO BE MULCHED WITH 4" GRADE "A" CYPRESS MULCH. BEDS ARE TO BE GRADED SMOOTH AND AND FREE OF SOIL CLODS AND STONES. ALL TREES TO BE STAKED AND WRAPPED WITH ASPHALTIC WRINKLE KRAFT TREE WRAP.
6. ALL PLANTS ARE TO BE REMOVED FROM CONTAINERS, CAGES AND NON-BIODEGRADABLE MATERIALS.
7. LAWN AREAS AND BEDS SHOULD BE FREE OF STONES GREATER THAN 2".
8. PLANT QUANTITIES HAVE BEEN PROVIDED FOR CONVENIENCE ONLY; THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE QUANTITIES. DRAWING PREVAILS OVER WRITTEN QUANTITIES.
9. PLANTING BEDS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE APPLIED AT PRODUCT SPECIFIED RATE UNLESS OTHERWISE NOTED.
10. PLANTING SHALL BE FERTILIZED UPON INSTALLATION. RECOMMENDED FERTILIZER BE MIXED WITH BACKFILL AT PRODUCT SPECIFIED RATE.
11. IRRIGATION PLAN BY OTHERS, IF APPLICABLE.
12. THE LANDSCAPE CONTRACTOR CAN MODIFY THE PLANT LIST, FROM WHAT IS SHOWN, HOWEVER THE CONTRACTOR MUST USE ACCEPTABLE PLANT TYPES, AND QUANTITIES, PER THE CITY OF SANFORD UNIFIED DEVELOPMENT ORDINANCE. A REVISED PLAN SHALL BE APPROVED BY THE CITY PLANNING DEPARTMENT AND THE OWNER.

30 0 15 30 60

SCALE: 1" = 30'

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PROFESSIONAL ENGINEER'S SEAL

C & G AUTOMOTIVE AND TRUCK REPAIR SHOP

1807 BROADWAY ROAD
LEE COUNTY, NORTH CAROLINA

OVERALL PROJECT / LANDSCAPING

REVISIONS

AGENCY REVIEW ONLY

Scale: SEE SCALE BAR	Drawn by: JRT
Sheet: 2 of 6	Designed by: JRT
	Reviewed by: JRT
Project Number: 20-001	Date: 28 FEB 2020

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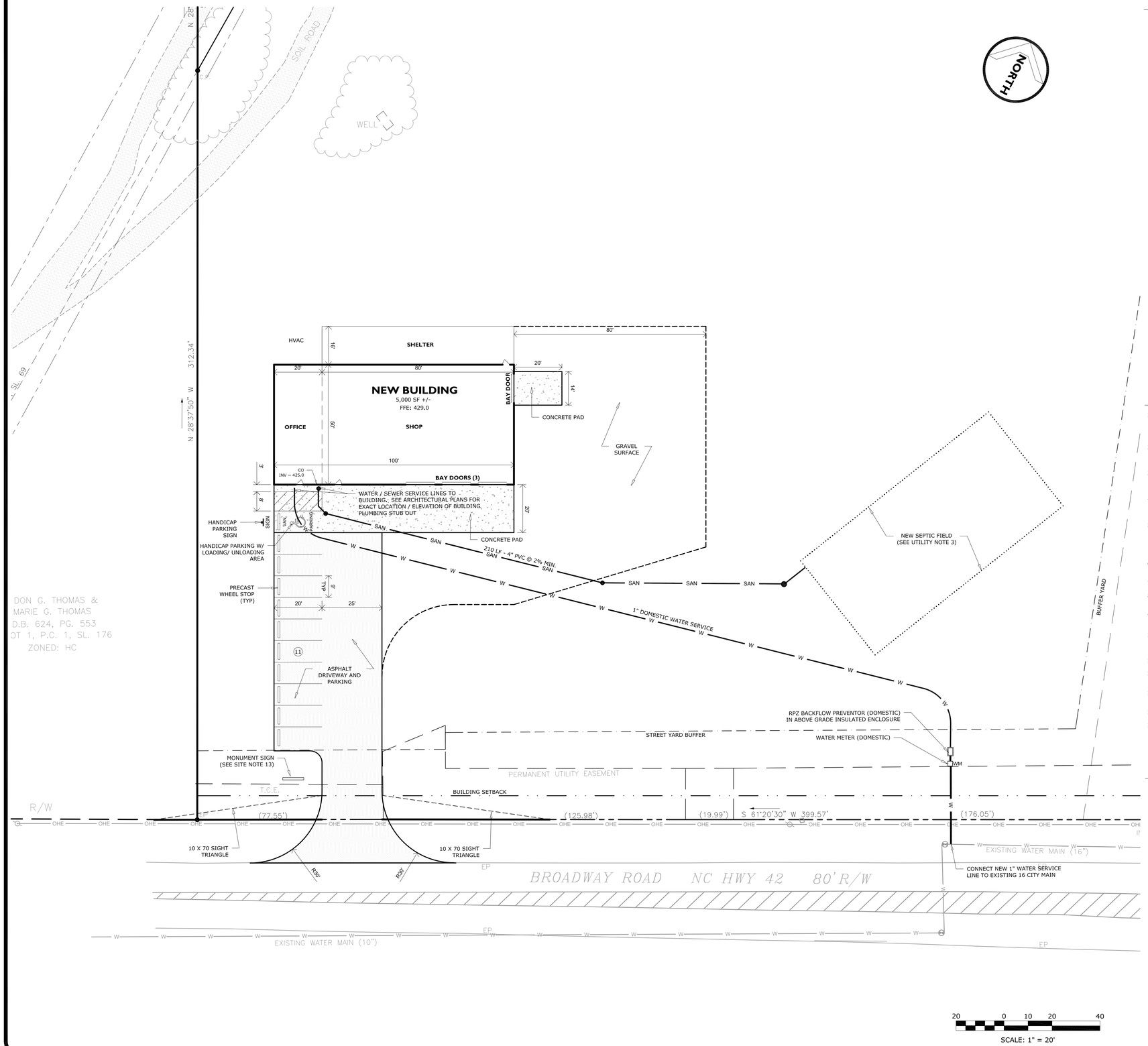

SCALE: 1" = 20'

SITE DATA

OWNER:

L & K PROPERTIES OF BROADWAY LLC
731 THOMAS KELLY ROAD
SANFORD, NORTH CAROLINA 27330

PROPERTY ID:

LEE COUNTY, NORTH CAROLINA
DEED REFERENCES: 291 / 145; 1513 / 32
LEE COUNTY PIN NO.: 9672-03-6833 (PARENT)
ADDRESS: 1807 BROADWAY ROAD

SITE INFO:

JURISDICTION:	LEE COUNTY
TOWNSHIP:	JONESBORO
ZONING CLASSIFICATION:	HC
WATER SUPPLY WATERSHED:	CAPE FEAR WSIV
PROPERTY ACREAGE:	6.02 AC (PARENT); 4.02 AC (TRACT A)
EXISTING USE:	UNDEVELOPED
INTENDED USE:	AUTOMOTIVE AND TRUCK REPAIR SHOP
BUILDING GSF EXISTING:	0 SF (UNDEVELOPED)
BUILDING GSF PROPOSED:	5,000 SF +/- (1,000 SF OFFICE, 4,000 SF SHOP)
PARKING SPACES EXISTING:	0 (UNDEVELOPED)
PARKING SPACES REQUIRED:	11 (2 SPACES PER BAY + 1 SPACE PER EMPLOYEE AT MAXIMUM SHIFT)
PARKING SPACES PROPOSED:	11 (INCLUDES 1 HANDICAP SPACE) (4 BAYS, 3 EMPLOYEES)
IMPERVIOUS AREA MAX. PERMITTED (ZONING):	80%
IMPERVIOUS AREA MAX. PERMITTED (WATER SUPPLY WATERSHED):	70% (WITH SIA)
IMPERVIOUS AREA EXISTING:	0.00 AC +/- (0%)
IMPERVIOUS AREA NEW:	0.53 AC +/- (13% OF TRACT A)
IMPERVIOUS AREA TOTAL (EX. + NEW):	0.53 AC +/- (13% OF TRACT A)
STREET YARD REQUIRED:	8 FT
BUFFER YARD REQUIRED (WEST SIDE):	NONE (ABUTS HC ZONED PROPERTY)
BUFFER YARD REQUIRED (EAST SIDE):	TYPE A (8 FT) (ABUTS EX COMMERCIAL USE)
BUFFER YARD REQUIRED (NORTH SIDE):	TYPE C (20 FT) (ABUTS VACANT RA ZONED PROPERTY)
SETBACK REQUIRED, FRONT:	10 FT
SETBACK REQUIRED, REAR/SIDES:	0 FT
WATER SUPPLY:	PUBLIC (CITY OF SANFORD)
WATERLINE PROPOSED (PUBLIC):	0 LF (NEW PRIVATE SERVICE LINE ONLY)
SANITARY SEWER:	PRIVATE (PROPOSED SEPTIC SYSTEM)
SANITARY SEWER PROPOSED (PUBLIC):	0 LF
STREETS PROPOSED (PUBLIC):	0 LF (NEW PRIVATE DRIVE ONLY)

SITE NOTES

1. REVIEW AND APPROVAL OF THE PLANS DOES NOT RELIEVE THE OWNER OR CONTRACTOR FROM MEETING ALL THE REQUIREMENTS OF THE CITY OF SANFORD / LEE COUNTY UNIFIED DEVELOPMENT ORDINANCE, AND ANY OTHER LOCAL, STATE, AND FEDERAL REGULATIONS AND APPROVALS.
2. ALL IMPROVEMENTS OR EXTENSIONS OF PUBLIC INFRASTRUCTURE UNDER THE JURISDICTION OF THE CITY OF SANFORD SHALL BE IN STRICT ACCORDANCE WITH THE ORDINANCES, REGULATIONS, POLICIES, REQUIREMENTS, AND SPECIFICATIONS OF THE CITY OF SANFORD.
3. THIS PROJECT IS TO BE LOCATED ON TRACT A AS REFERENCEDON SURVEY PLAT TITLED 'BOUNDARY TOPOGRAPHIC SURVEY FOR L&K PROPERTIES OF BROADWAY, LLC' PREPARED BY MITCHELL W. COLE, PLS AND DATED FEBRUARY 14, 2019.
4. THIS PROJECT SITE IS NOT LOCATED WITHIN THE 100-YEAR FLOOD HAZARD BOUNDARY AREAS AS DELINEATED ON THE LEE COUNTY FLOOD INSURANCE MAP (FIRM) MAP NUMBER: 3710967200J, DATED SEPTEMBER 6, 2006.
5. OWNER IS RESPONSIBLE FOR IDENTIFYING ANY JURISDICTIONAL WATERS THAT MAY EXIST ON THE PROPERTY. NO HYDROLOGIC FEATURES ARE SHOWN TO BE PRESENT WITHIN THE SITE AREA AS DETERMINED BY THE USGS MAP AND NRCS SOIL SURVEY MAP. FROM A SITE VISIT, IT IS THE OPINION OF J THOMAS ENGINEERING THAT JURISDICTIONAL WATERS DO NOT APPEAR TO PRESENT WITHIN THE SITE AREA.
6. THIS PROJECT SITE IS LOCATED IN A DESIGNATED WATER SUPPLY WATERSHED: CAPE FEAR WATERSHED, WS-IV-PA.
7. THIS PROJECT SITE IS WITHIN ONE-HALF MILE OF A VOLUNTARY AGRICULTURE DISTRICT.
8. CONTRACTOR TO VERIFY QUANTITIES SHOWN ON THESE PLANS WITH ACTUAL FIELD CONDITIONS.
9. ALL HANDICAP ACCESSIBLE AREAS ON THE SITE SHALL CONFORM TO THE REQUIREMENTS OF VOLUME 1-C OF THE NC STATE BUILDING CODE.
10. DETAILED DESIGN OF ANY RETAINING WALLS SHOWN SHALL BE BY THE OWNER/CONTRACTOR. THE FINAL LAYOUT AND LENGTH MAY NEED TO BE ADJUSTED PER THE FINAL DESIGN AND ACTUAL FIELD CONDITIONS. (NO RETAINING WALLS ANTICIPATED FOR THIS PROJECT).
11. CONTACT DUKE ENERGY WHEN WORKING WITHIN 15' OF THEIR POLES.
12. OWNER IS RESPONSIBLE FOR SECURING NECESSARY EASEMENTS FOR WORKING OFF-SITE, INCLUDING ANY WORK WITHIN THE NCDOT R/W.
13. MONUMENT SIGN BY OTHERS. A SIGN PERMIT IS REQUIRED TO BE OBTAINED PRIOR TO INSTALLATION.
14. NO TRASH DUMPSTER PROPOSED. TRASH COLLECTION WILL BE BY ROLL CARTS.
15. PERMITS REQUIRED FOR THE SITE WORK AS PROPOSED:
    - -LEE COUNTY TRC APPROVAL
    - -NCDOT ENCROACHMENT AGREEMENT
    - -NCDOT DRIVEWAY PERMIT

UTILITY NOTES

1. CONSTRUCTION OF UTILITY LINES MAY NOT BEGIN UNTIL ALL FEES ARE PAID, ALL PERMITS ARE PRESENT ON SITE, AND NOTIFICATION OF CONSTRUCTION IS MADE TO THE APPLICABLE PERMITTING AGENCIES IN ACCORDANCE WITH THEIR POLICES.
2. EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS SHOULD BE CONSIDERED APPROXIMATE - OTHER UNDERGROUND UTILITIES NOT SHOWN MAY BE PRESENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY LOCATE EXISTING UTILITIES WITHIN THE WORK AREA PRIOR TO START OF CONSTRUCTION. THE EXACT LOCATION AND SIZE OF THE EXISTING UTILITIES TO BE CONNECTED TO SHOULD BE VERIFIED PRIOR TO THE START OF CONSTRUCTION.
3. OWNER TO OBTAIN SEPTIC SYSTEM PERMIT FROM LEE COUNTY HEALTH DEPARTMENT. THIS PLAN SHOWS APPROXIMATE LOCATION AND SIZE OF SEPTIC FIELD AND SHOULD BE CONSIDERED INFORMATIONAL ONLY. THE SEWER DRAIN LINE MAY NEED TO BE ADJUSTED DEPENDING ON THE ACTUAL DESIGN.
4. WATER SERVICE SIZES SHALL BE CONSIDERED PRELIMINARY. FINAL SIZES FOR SERVICE LINES, METERS, AND BACKFLOW PREVENTION TO BE PROVIDED BY BUILDING ENGINEER / OWNER.
5. WATER AND SEWER SERVICE LINES ARE TO BE BURIED WITH A MINIMUM 3' COVER. COORDINATE SERVICE SIZE, LOCATIONS, AND DEPTHS WITH ARCHITECTURAL PLANS.
6. THE PROPOSED 4" SANITARY SEWER SERVICE LINE SHALL BE PVC (SCH 40). SEE CITY OF SANFORD STANDARD DRAWING FOR DETAIL ON SEWER SERVICE LINE.
7. MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN WATER AND SEWER SERVICES. WHERE NOT PRACTICAL, PROVIDE 18" VERTICAL SEPARATION.
8. CONTRACTOR TO NOTIFY THE CITY OF SANFORD PRIOR TO TAPPING THE EXISTING WATER MAIN.
9. SITE LIGHTING BY BUILDING WALL PAKS.
10. AN ENCROACHMENT AGREEMENT IS REQUIRED WITH NCDOT TO INSTALL THE SERVICE LINES WITHIN THEIR R/W.
11. TAPPING SLEEVE TO BE FULL BODY MECHANICAL PER CITY OF SANFORD SPECIFICATIONS. STAINLESS STEEL TAPPING SLEEVE NOT ALLOWED.

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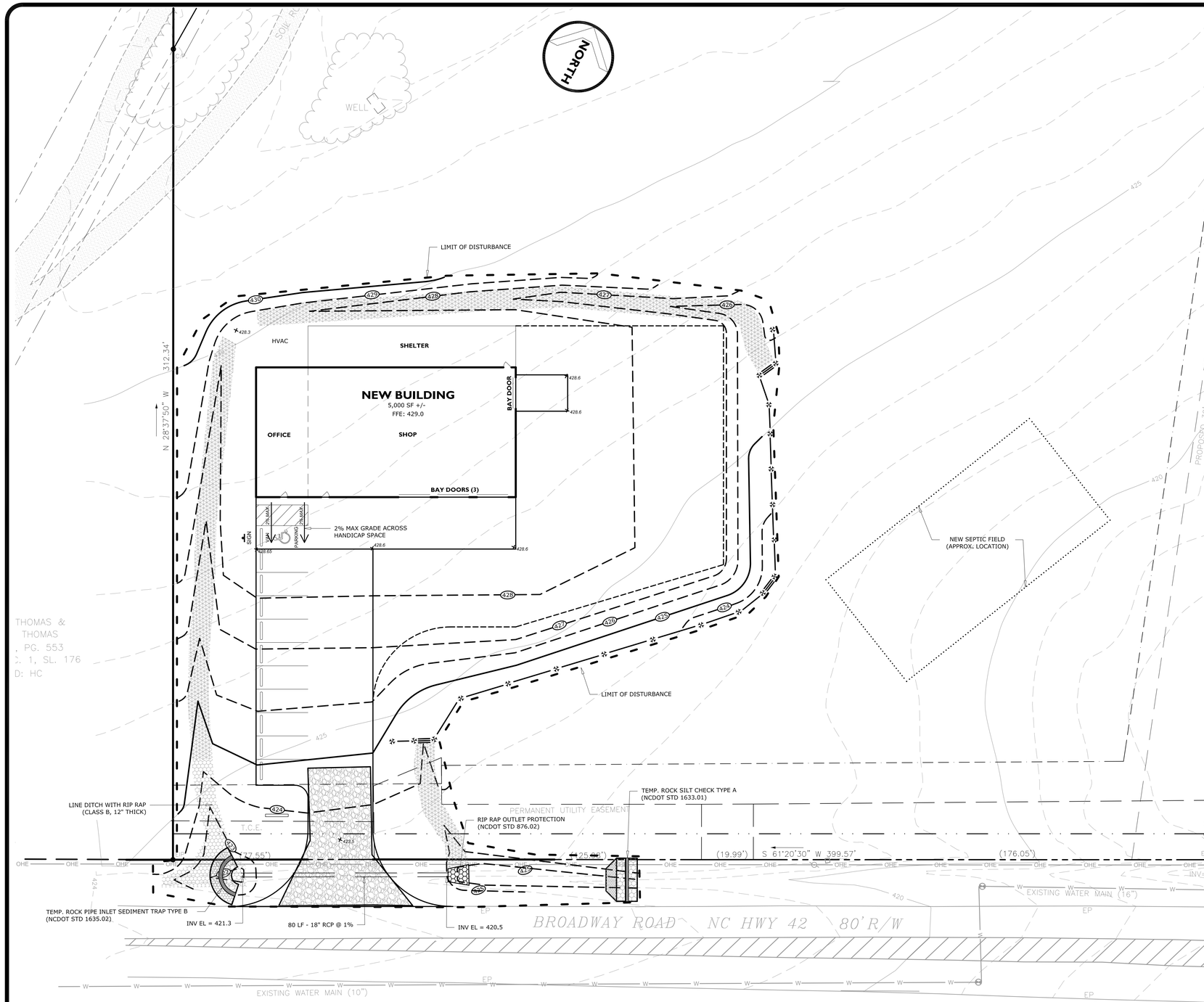


EROSION CONTROL LEGEND

- TEMP. SILT FENCE
- TEMP. SILT FENCE OUTLET
- TEMP. INLET PROTECTION
- LIMIT OF DISTURBANCE
- RECP / DITCH LINER / MATTING
- ROCK LINER / APRON
- TEMP. CONSTRUCTION ENTRANCE

NOTES

1. CONTRACTOR SHALL KEEP WORK WITHIN THE LIMITS OF DISTURBANCE. THE PROPOSED DISTURBED AREA IS LESS THAN ONE ACRE (0.98 AC), THEREFORE, NO EROSION CONTROL PERMIT REQUIRED FOR THIS PROJECT. IF THE CONTRACTOR NEEDS TO DISTURB OUTSIDE THE LIMITS SHOWN, THE EROSION CONTROL PLAN SHALL BE REVISED AND AN EROSION CONTROL PERMIT MAY BE REQUIRED.
2. PROPOSED AND EXISTING CONTOURS SHOWN AT 1' INCREMENTS.
3. BORROW / DISPOSAL SITES, IF NECESSARY, MUST COMPLY WITH NCDEQ RULES FOR LAND DISTURBANCE.
4. CONTRACTOR TO INSTALL AND MAINTAIN TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION IN ACCORDANCE WITH THIS PLAN.
5. THE CONTRACTOR SHALL NOTIFY THE OWNER IF ADDITIONAL EROSION CONTROL MEASURES ARE NEEDED TO PREVENT EXCESSIVE EROSION AND/OR SEDIMENTATION.
6. THE OWNER MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES TO BE INSTALLED BEYOND WHAT IS SHOWN ON THIS PLAN IF DETERMINED NECESSARY TO PREVENT EROSION AND/OR SEDIMENTATION.

20 0 10 20 40

SCALE: 1" = 20'

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

1. THE PROPOSED LIMIT OF DISTURBANCE IS LESS THAN ONE ACRE, THEREFORE, A GRADING PERMIT FROM NCDEQ IS NOT REQUIRED IF THE CONTRACTOR NEEDS TO DISTURB AREAS OUTSIDE THE LIMIT OF DISTURBANCE SHOWN ON THIS PLAN, AN EROSION CONTROL PERMIT WITH NCDEQ MAY BE REQUIRED.
2. CONTRACTOR TO MAINTAIN ALL EROSION CONTROL MEASURES ACCORDING TO MAINTENANCE PLAN THROUGHOUT CONSTRUCTION.
3. CONTRACTOR TO KEEP ALL OPERATIONS WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THIS PLAN, ENSURE NO IMPACT TO SEPTIC FIELD OR REPAIR AREA (REFER TO ENVIRONMENTAL HEALTH PERMIT FOR LAYOUT AND LOCATION).
4. CLEAR AND GRADE ONLY AS NECESSARY TO INSTALL THE TEMP. SILT FENCE AND TEMP. SILT FENCE OUTLETS.
5. INSTALL THE TEMP. SILT FENCE AND TEMP. SILT FENCE OUTLETS WHERE SHOWN ON PLANS AND OTHER AREAS WHERE CONCENTRATED FLOW DISCHARGES AT SILT FENCE.
6. BEGIN CLEARING OPERATION. REMOVE TREES AND VEGETATION WITHIN LIMIT OF DISTURBANCE.
7. INSTALL DRIVEWAY CULVERT AND TEMPORARY CONSTRUCTION ENTRANCE. IMMEDIATELY INSTALL PERMANENT RIP RAP PROTECTION DOWNSTREAM OF CULVERT.
8. INSTALL TEMP. ROCK SILT CHECK TYPE A AND TEMP. ROCK PIPE INLET SEDIMENT TRAP TYPE B AT CULVERT LOCATION.
9. ROUGH GRADE SITE. TOPSOIL AND BORROW MATERIAL TO BE STOCKPILED WITHIN THE LIMIT OF DISTURBANCE. PROVIDE TEMPORARY SEEDING IF STABILIZATION WILL NOT OCCUR WITHIN 14 DAYS AFTER ROUGH GRADING IS COMPLETE.
10. FINE GRADE BUILDING PAD. BEGIN BUILDING CONSTRUCTION. ENSURE POSITIVE DRAINAGE AWAY FROM THE BUILDING THROUGHOUT CONSTRUCTION.
11. INSTALL THE UTILITY SERVICES PER SHEET 3.
12. FINE GRADE AND PREPARE SUBGRADE FOR PAVEMENT AND GRAVEL AREA.
13. INSTALL CABC STONE BASE FOR PAVEMENT AND FOR GRAVEL AREA.
14. INSTALL CONCRETE PAVEMENT.
15. FINE GRADE SWALES / DITCHES AS SHOWN ON PLANS. IMMEDIATELY INSTALL LINERS AS SPECIFIED.
16. FINE GRADE REMAINING LANDSCAPE AREAS. PROVIDE PERMANENT GROUND COVER AND LANDSCAPING (AS SHOWN ON SHEET 3, AND AS SPECIFIED BY OWNER.
17. AFTER CONSTRUCTION IS COMPLETE, THE SITE IS FULLY STABILIZED, AND THE OWNER APPROVES, REMOVE TEMPORARY EROSION CONTROL MEASURES.

MAINTENANCE PLAN

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROL DEVICES THROUGHOUT THE PROJECT DURATION.

ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL OR RAINFALL > 0.5 INCHES IN 24 HOURS BUT IN NO CASE LESS THAN ONCE EVERY 7 CALENDAR DAYS. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL DEVICES AS DESIGNED. RECORDS OF INSPECTIONS FOR PREVIOUS 30 DAYS SHALL REMAIN ON SITE AND AVAILABLE FOR AGENCY INSPECTORS DURING NORMAL WORKING HOURS.

SILT FENCE:

1. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES ABOUT 0.5 FT DEEP AT THE FENCE. THE FENCE SHALL BE REPAIRED AS REQUIRED TO MAINTAIN A SUFFICIENT BARRIER.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, DECOMPOSE, TEAR, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. AFTER ALL AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT. GRADE AREA TO GRADING PLAN OR BLEND WITH ADJACENT GRADES. STABILIZE AREA.

SILT FENCE OUTLET:

1. CLEAR THE HARDWARE CLOTH OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. BE CAREFUL NOT TO DAMAGE OR UNDERCUT THE HARDWARE CLOTH.
2. REPLACE STONE AS NEEDED.

TEMP. ROCK CHECK / TRAP:

1. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE FILTER STONE.
2. REMOVE SEDIMENT ACCUMULATED BEHIND THE CHECK / TRAP AS NEEDED TO: ALLOW THE FLOW THROUGH THE FILTER STONE, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM / TRAP. ADD STONE TO THE DAM / TRAP AS NEEDED TO MAINTAIN THE DESIGN DIMENSIONS.

CONSTRUCTION ENTRANCE:

1. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE.
2. IMMEDIATELY REMOVE ALL MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

GRASS LINED DITCHES/CHANNELS/SWALES:

1. DURING GRASS ESTABLISHMENT PERIOD, INSPECT AFTER EVERY RAINFALL.
2. AFTER GRASS HAS ESTABLISHED, INSPECT PERIODICALLY AND AFTER HEAVY RAINFALL. IMMEDIATELY MAKE REPAIRS.
3. PAY CLOSE ATTENTION TO INLET AND OUTLET SECTIONS WHERE CONCENTRATED FLOW ENTERS.
4. GRASS SHOULD BE MAINTAINED IN A HEALTHY VIGOROUS CONDITION AT ALL TIMES, SINCE IT IS THE PRIMARY EROSION PROTECTION.

BUILDING WASTES HANDLING:

1. NO PAINT OR LIQUID WASTES TO BE DISCHARGED INTO STREAMS OR STORM DRAINS.
2. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION, AND OTHER WASTES SHALL BE LOCATED 50' FROM STORM DRAINS UNLESS NO REASONABLE ALTERNATIVES EXIST.
3. EARTHERN MATERIAL STOCKPILES SHALL BE LOCATED 50' FROM STREAMS UNLESS NO REASONABLE ALTERNATIVES EXIST.
4. CONCRETE MATERIALS AND WASHOUT AREAS MUST BE CONTROLLED SO THERE IS NO DISCHARGE TO SURFACE WATERS, WETLANDS, OR BUFFERS. SEE PLAN FOR LOCATION OF CONCRETE WASHOUT AREA.

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LINE, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
5. CONTINUE TILLAGE UNTIL WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON. IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH THE FOLLOWING LIME, FERTILIZER, AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

APPLICATION RATES:
AGRICULTURAL LIMESTONE - 2 TONS/ACRE
FERTILIZER - 10-10-10 ANALYSIS @ 800 LBS/ACRE
SUPERPHOSPHATE - 500 LBS/ACRE OF 20% ANALYSIS
MULCH - 2 TONS (+/- 80 BALES) STRAW/ACRE
ANCHOR - USE LIQUID ASPHALT @ 400 GALS/ACRE
OR EMULSIFIED ASPHALT @ 300 GALS/ACRE

SEEDING SCHEDULE

PERMANENT SEEDING

SPECIES:

SEE LANDSCAPING PLAN, OR IF NONE:

TALL FESCUE BLEND - 75 LB/AC
CENTIPEDE - 10 LB/AC
BERMUDAGRASS - 25 LB/AC

**ADD RYE AT A RATE OF 25 LB/ACRE IF PLANTED BETWEEN NOVEMBER 1 AND FEBRUARY 1.*

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS.

TEMPORARY SEEDING

*TEMPORARY SEEDING IS REQUIRED IF PERMANENT SEEDING CAN NOT BE DONE WITHIN 14 DAYS OF COMPLETION OF GRADING.

Winter (Oct 26 - Jan 31): Rye (grain) @ 120 lbs/acre
Summer (April 1 - Aug 19): German Millet @ 40 lbs/acre

J THOMAS ENGINEERING, INC.
CIVIL ENGINEERING & PLANNING

143 Charlotte Avenue, Suite 104
Sanford, North Carolina 27330
(919) 777-6010 phone
www.jthomasengineering.com
license no. C-3389

NORTH CAROLINA PROFESSIONAL SEAL 027472 ENGINEER JEREMY R. THOMAS 2/28/2020

PROFESSIONAL ENGINEER'S SEAL

C & G AUTOMOTIVE AND TRUCK REPAIR SHOP

1807 BROADWAY ROAD
LEE COUNTY, NORTH CAROLINA

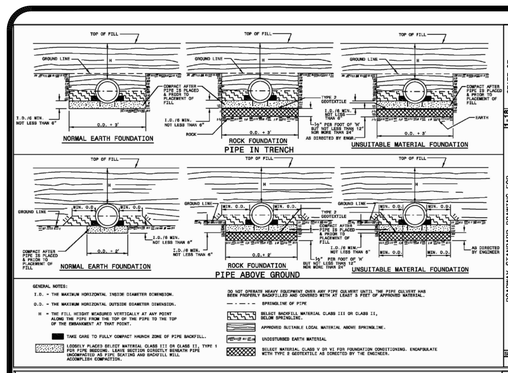
GRADING / STORM DRAINAGE / EROSION CONTROL

REVISIONS

AGENCY REVIEW ONLY

Scale: SEE SCALE BAR	Drawn by: JRT
Sheet: 4 of 6	Designed by: JRT
	Reviewed by: JRT
Project Number: 20-001	Date: 28 FEB 2020

File: C:\PROJECTS\20-001 C&G AUTOMOTIVE\DRAW\NGS\SITE - C&G AUTOMOTIVE.DWG Print Date: 2/26/2020

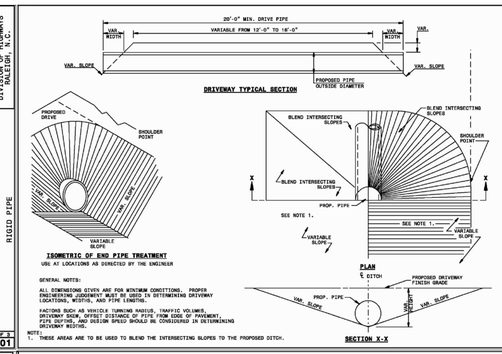


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 1 OF 1
300.01

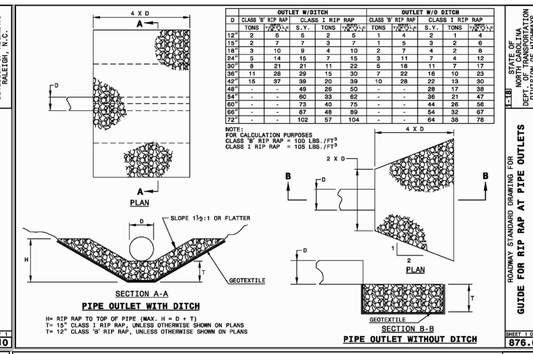


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
DRIVEWAY PIPE CONSTRUCTION
USING NO SPECIAL END SECTIONS

SHEET 1 OF 1
310.10



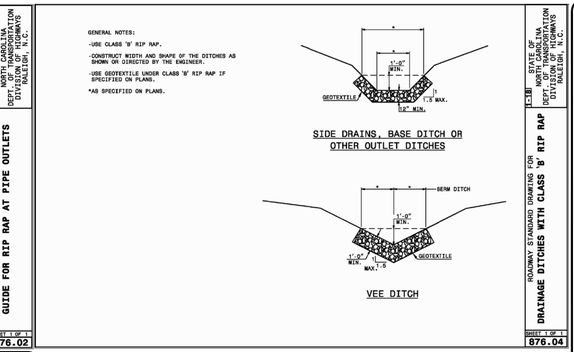
	OUTLET W/DITCH					OUTLET W/O DITCH				
	CLASS 'B' RIP RAP		CLASS I RIP RAP			CLASS 'B' RIP RAP		CLASS I RIP RAP		
D	TONS	APPROX. S.Y.	TONS	APPROX. S.Y.		TONS	APPROX. S.Y.	TONS	APPROX. S.Y.	
12"	2	5	5	2	5	1	4	2	1	4
15"	2	7	7	3	7	1	5	3	2	6
18"	3	10	9	4	10	2	7	4	2	8
24"	5	14	15	7	15	3	11	7	4	12
30"	8	21	21	11	22	5	16	11	7	17
36"	11	28	29	15	30	7	22	16	10	23
42"	15	37	39	20	39	10	28	22	13	30
48"	-	-	48	26	50	-	-	28	17	38
54"	-	-	60	33	62	-	-	36	21	47
60"	-	-	73	40	75	-	-	44	26	56
66"	-	-	87	48	89	-	-	54	32	67
72"	-	-	102	57	104	-	-	64	38	78

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
GUIDE FOR RIP RAP AT PIPE OUTLETS

SHEET 1 OF 1
876.02

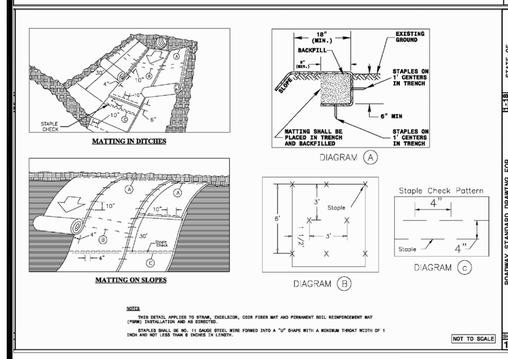


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

SHEET 1 OF 1
876.04

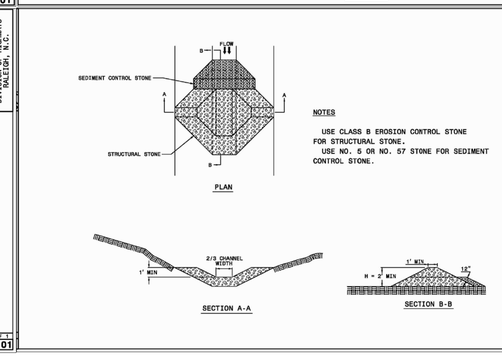


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
MATTING INSTALLATION

SHEET 1 OF 1
1631.01

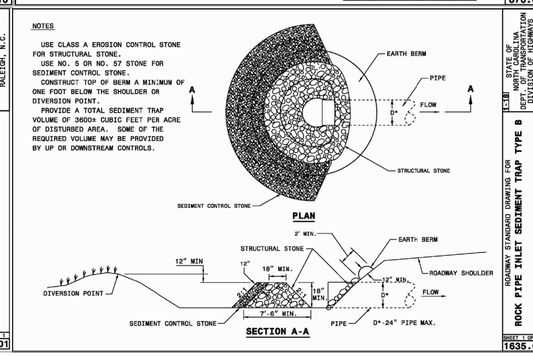


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

C-1B

ROADWAY STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE A

SHEET 1 OF 1
1633.01

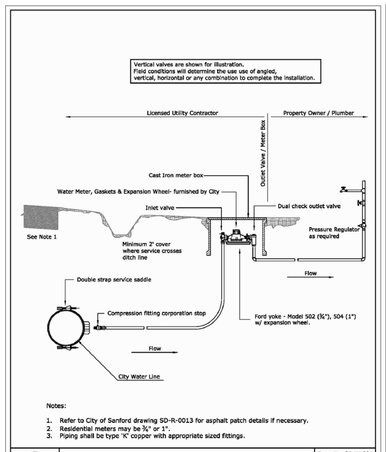


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

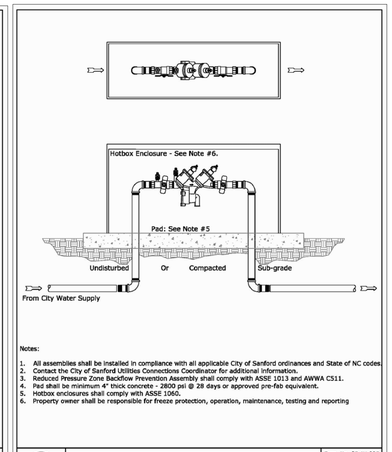
C-1B

ROADWAY STANDARD DRAWING FOR
ROCK PIPE INLET SEDIMENT TRAP TYPE B

SHEET 1 OF 1
1635.02



Residential Water Tap & Meter	Dwg. No. SD-W-001
City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331	Date: 07/10/14
	Scale: Not To Scale
	Drawn By: Staff



Reduced Pressure Zone ¾ " ~ 2 " Backflow Prevention Assembly	Dwg. No. SD-W-005
City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331	Date: 07/10/14
	Scale: Not To Scale
	Drawn By: Staff

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LEE COUNTY, NORTH CAROLINA

STANDARD DRAWINGS

REVISIONS

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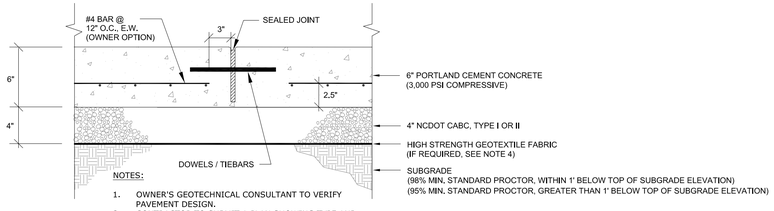
Sheet: 5 of 6	Designed by: JRT
	Reviewed by: JRT
Project Number: 20-001	Date: 28 FEB 2020

File: C:\PROJECTS\20-001 C&G AUTOMOTIVE\DRAWINGS\SITE - C&G AUTOMOTIVE.DWG Print Date: 2/26/2020

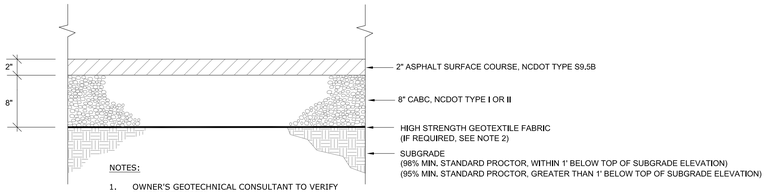


NOTES:

1. OWNER'S GEOTECHNICAL CONSULTANT TO VERIFY PAVEMENT DESIGN.
2. CONTRACTOR TO SUBMIT A PLAN SHOWING TYPE AND LOCATION OF JOINTS TO OWNER FOR APPROVAL.
3. SEAL JOINTS WITH A MONOELASTIC MATERIAL.
4. USE GEOTEXTILE FABRIC WHERE SPECIFIED IN FIELD BY OWNER'S GEOTECHNICAL CONSULTANT.

A-6 CONCRETE PAVEMENT

NTS

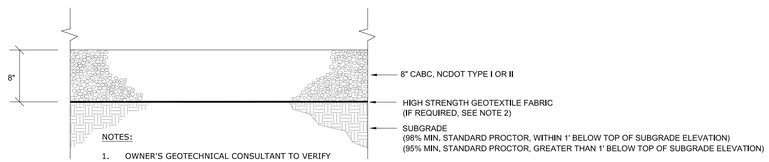


NOTES:

1. OWNER'S GEOTECHNICAL CONSULTANT TO VERIFY PAVEMENT DESIGN
2. USE GEOTEXTILE FABRIC WHERE SPECIFIED IN FIELD BY OWNER'S GEOTECHNICAL CONSULTANT.
3. SEE OWNER'S GEOTECHNICAL REPORT, IF AVAILABLE, FOR MORE INFORMATION ON CONSTRUCTION SPECIFICATIONS.

B-6 ASPHALT PAVEMENT

NTS

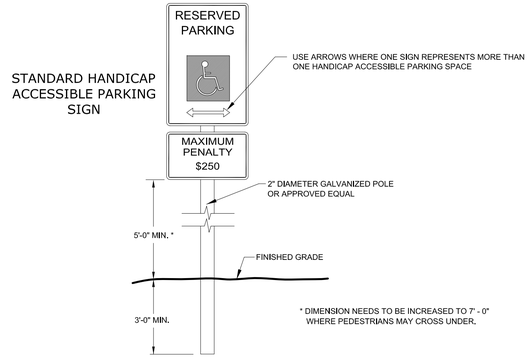


NOTES:

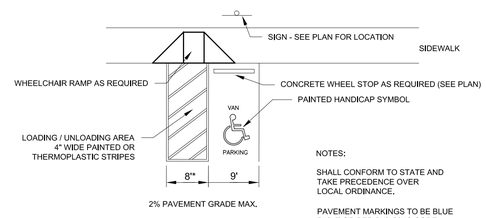
1. OWNER'S GEOTECHNICAL CONSULTANT TO VERIFY DESIGN OF GRAVEL SURFACE FOR FIRE LANE.
2. USE GEOTEXTILE FABRIC WHERE SPECIFIED IN FIELD BY OWNER'S GEOTECHNICAL CONSULTANT.
3. SEE OWNER'S GEOTECHNICAL REPORT FOR MORE INFORMATION ON CONSTRUCTION SPECIFICATIONS.

C-6 GRAVEL SURFACE

NTS



SIGN DETAIL



NOTES:

SHALL CONFORM TO STATE AND TAKE PRECEDENCE OVER LOCAL ORDINANCE.

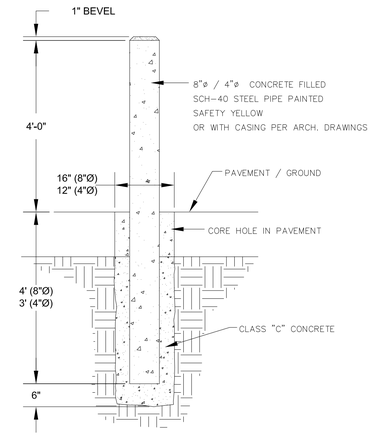
PAVEMENT MARKINGS TO BE BLUE PAINT OR PER BUILDING CODE.

*LOADING / UNLOADING AREA MAY BE 5' WIDE FOR NON-VAN SPACES

PARKING DETAIL

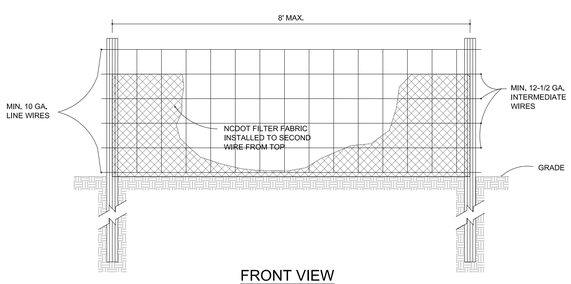
D-6 ADA COMPLIANT PARKING SPACE

NTS



E-6 BOLLARD

NTS

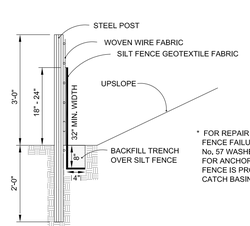


FRONT VIEW

NOTE:

-USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW

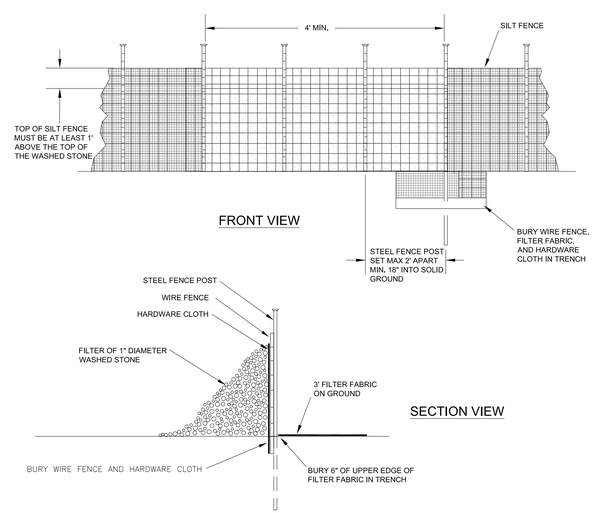
-END OF SILT FENCE NEEDS TO BE TURNED UPHILL.



SECTION VIEW

F-6 TEMPORARY SILT FENCE

NTS

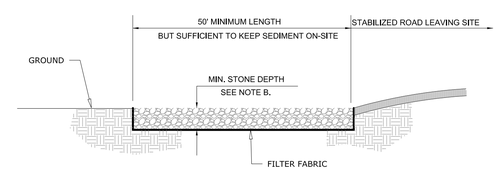


FRONT VIEW

SECTION VIEW

G-6 TEMPORARY SILT FENCE OUTLET

NTS



PROFILE

NOTES:

A) MINIMUM WIDTH OF CONSTRUCTION ENTRANCE PAD SHALL BE 20 FT.

B) STONE SHALL BE NCDOT CLASS A STONE AND 12" THICK.

C) THE ENTRANCE SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

D) INSTALL PADS WHERE SHOWN ON PLANS OR OTHERWISE DIRECTED BY ENGINEER.

H-6 TEMPORARY CONSTRUCTION ENTRANCE

NTS

J THOMAS ENGINEERING, INC.

CIVIL ENGINEERING & PLANNING

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(919) 777-6010 phone
www.jthomasengineering.com
license no. C-3389

NORTH CAROLINA PROFESSIONAL SEAL 027472 ENGINEER JEREMY R. TROXLER

2/28/2020

PROFESSIONAL ENGINEER'S SEAL

C & G AUTOMOTIVE AND TRUCK REPAIR SHOP

1807 BROADWAY ROAD
LEE COUNTY, NORTH CAROLINA

CONSTRUCTION DETAILS

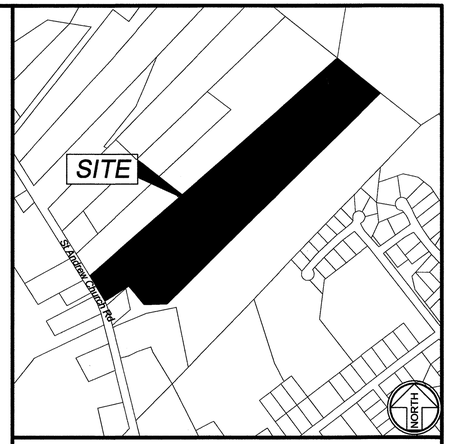
REVISIONS

AGENCY REVIEW ONLY

Scale: NTS	Drawn by: JRT
Sheet: 6 of 6	Designed by: JRT
	Reviewed by: JRT
Project Number: 20-001	Date: 28 FEB 2020

File: C:\PROJECTS\20-001 C&G AUTOMOTIVE\DRAWINGS\SITE - C&G AUTOMOTIVE.DWG Print Date: 2/26/2020

Site Development Plans
for
ST. ANDREWS
Sanford, NC



LOCATION MAP

GENERAL INFORMATION
PROJECT ADDRESS: ST ANDREWS CHURCH ROAD
SANFORD, NORTH CAROLINA

PROPERTY OWNER
MARGIE S. BYERLY

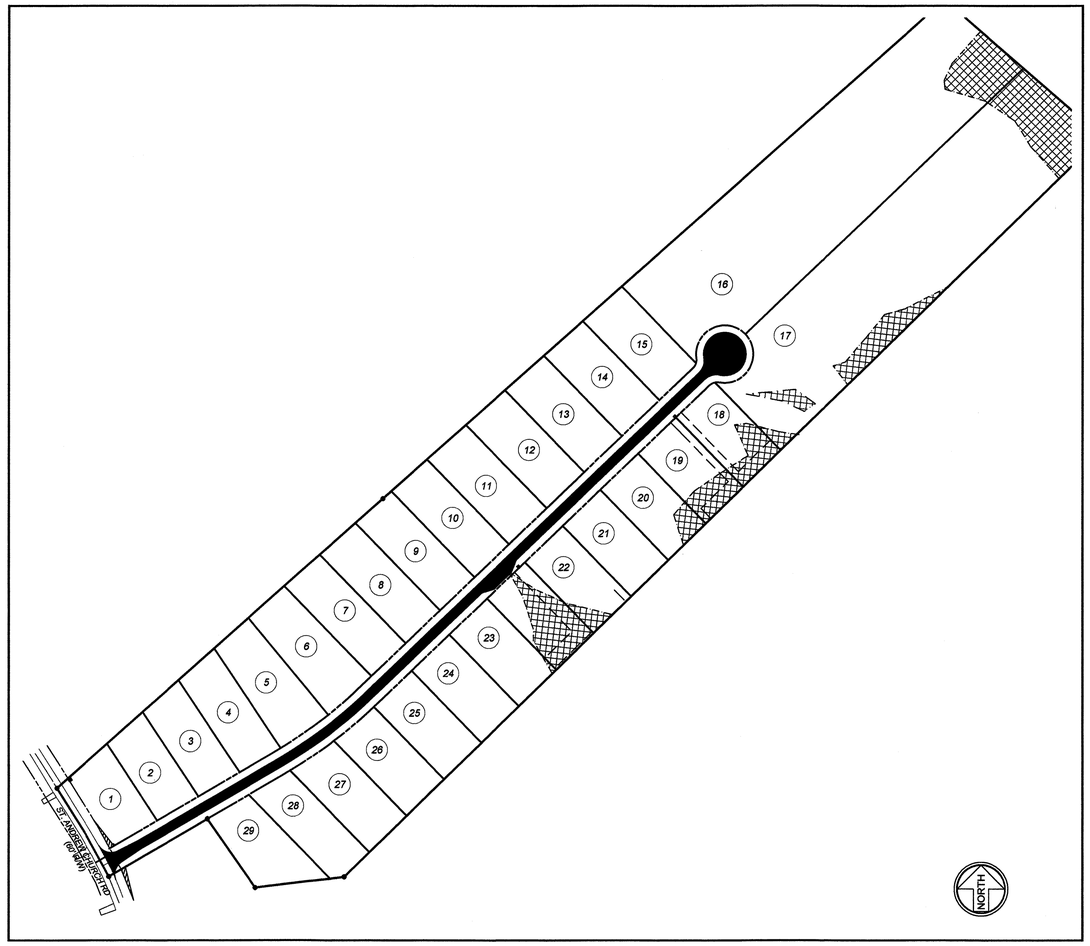
ZONING
ZONING: R20
PROPOSE USAGE: RESIDENTIAL SINGLE-FAMILY
MINIMUM LOT SIZE: 20,000 SQ. FT.

PROPERTY TAX ID NUMBERS
9650-59-9227-00
9650-58-5534-00

GENERAL NOTES:

1. DEVELOPMENT SHALL COMPLY WITH THE CITY OF SANFORD AND NCDOT STANDARDS AND SPECIFICATIONS.
2. THIS PROJECT WILL BE SERVED BY PUBLIC WATER OWNED, MAINTAINED AND OPERATED BY THE CITY OF SANFORD.
3. SIGNAGE, LANDSCAPING AND OTHER MONUMENTATION SHALL BE PERMITTED IN CONFORMANCE WITH THE CITY OF SANFORD ZONING ORDINANCE REQUIREMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES AND REPAIRING ANY DAMAGE TO SAME. UTILITY LOCATIONS AS SHOWN ON PLANS ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
5. PROVISIONS SHALL BE MADE TO ENSURE POSITIVE DRAINAGE ON THE SITE AT ALL TIMES. NATURAL DRAINAGE FEATURES DISTURBED BY CONSTRUCTION MUST BE RE-ESTABLISHED. NO PONDING DUE TO SPOILS STOCKPILING OR OTHER ACTIVITIES SHALL BE PERMITTED.
6. WORK IN PUBLIC RIGHT-OF-WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH DOCUMENTS WERE ISSUED IN THE CONTRACTOR NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITES AT ALL TIMES.
7. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
8. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER CONCERNED PARTIES WHEN CONSTRUCTION IS TO COMMENCE. PRIOR TO ANY CONSTRUCTION A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE MUNICIPALITY / AUTHORITY, THE CONTRACTOR, THE ENGINEER AND ANY OTHER INTERESTED PARTY.
9. DATA REQUIRED FOR PREPARATION OF RECORD DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME FOR INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD AND EVIDENCE PROVIDED TO THE ENGINEER AS PART OF THE MONTHLY PAY REQUEST. PAY REQUESTS WILL NOT BE APPROVED BY THE ENGINEER IF DATA IS NOT SUBMITTED WITH THE PAY REQUEST. CONTRACTOR IS TO PROVIDE NEAT AND LEGIBLE COMPLETED RECORD DRAWINGS TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.
10. INSPECTIONS SHALL BE CONDUCTED IN ACCORDANCE WITH THE CITY OF SANFORD STANDARDS. A MINIMUM OF TWO WORKING DAYS NOTICE SHALL BE GIVEN FOR ANY REQUESTED INSPECTION.
11. ALL EXCAVATED EXCESS OR WASTE SOILS AND MATERIAL SHALL BE REMOVED FROM THE SITE BY CONTRACTOR EXCEPT AS SPECIFICALLY APPROVED IN WRITING BY BOTH THE ENGINEER AND OWNER.
12. WHEN CONCRETE SIDEWALKS, CURB AND GUTTER SECTIONS OR ASPHALT PAVEMENT ARE DAMAGED DUE TO CONSTRUCTION ACTIVITIES, THEY SHALL BE REPLACED IN A TIMELY MANNER BY THE CONTRACTOR TO ASSURE THE CONTINUED USE OF THESE FACILITIES BY ALL CONCERNED.
13. ON SITE BOUNDARY AND TOPOGRAPHY INFORMATION TAKEN FROM SURVEY FROM

    BENNETT SURVEYS, INC.
    1662 CLARK ROAD, LILLINGTON, NC 27546.
    N.C. LICENSE No. 1514.
14. CONTRACTOR IS TO COMPLY WITH ALL PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES WHEN WORKING ADJACENT TO AN EXISTING PUBLIC HIGHWAY RIGHT OF WAY.
15. THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED ZONE "X" DEFINED BY FEMA FIRM COMMUNITY - MAP NUMBER 3710965000J, EFFECTIVE SEPTEMBER 6, 2006.
16. THE CONTRACTOR WILL MAINTAIN ALL EXISTING ROADS IN A NEAT AND CLEAN CONDITION THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION.
17. NO WETLANDS EXISTING ON THE PROPERTY.



OVERALL PLAN

SHEET SCHEDULE			
SHEET TITLE	SHEET NO:	ORIGINAL DATE	LATEST REVISION DATE
COVER SHEET	1	2/20/2020	-
EXISTING CONDITIONS	2	2/20/2020	-
OVERALL SITE LAYOUT PLAN	3	2/20/2020	-
INITIAL EROSION & SEDIMENTATION CONTROL PLAN	4	2/20/2020	-
INTERMEDIATE ERO. & SED. CONTROL PLAN	5	2/20/2020	-
FINAL EROSION & SEDIMENTATION CONTROL PLAN	6	2/20/2020	-
SEDIMENT AND EROSION CONTROL NARRATIVE	7.0	2/20/2020	-
NCGOT GROUND STABILIZATION AND MATERIALS HANDLING PLAN SHEET	7.1	2/20/2020	-
NCGOT SELF-INSPECTION, RECORDKEEPING AND REPORTING PLAN SHEET	7.2	2/20/2020	-
SEDIMENT AND EROSION CONTROL DETAILS	8.0	2/20/2020	-
SEDIMENT AND EROSION CONTROL DETAILS	8.1	2/20/2020	-
SEDIMENT AND EROSION CONTROL DETAILS	8.2	2/20/2020	-
WATERMAIN PLAN AND PROFILE	9	2/20/2020	-
WATERMAIN DETAIL	10	2/20/2020	-
ROADWAY PLAN & PROFILE & STORM DRAINAGE	11	2/20/2020	-
ROADWAY PLAN & PROFILE & STORM DRAINAGE	12	2/20/2020	-
ROADWAY PLAN & PROFILE & STORM DRAINAGE	13	2/20/2020	-
SITE DETAIL	14	2/20/2020	-

REVISION OCCURRENCE LIST

REVISION NO.	DATE	REVISION DESCRIPTION	BY

THIS SET IS CURRENT THROUGH SHEET DATED: FEBRUARY 20, 2020

OWNER /DEVELOPER

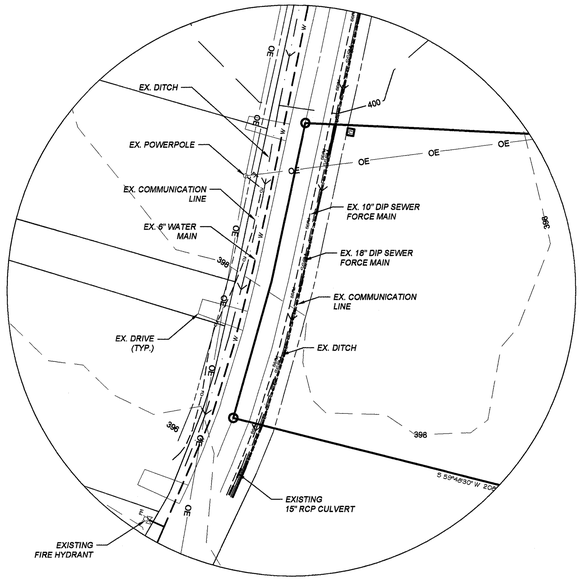
SARC Development, LLC
P.O. BOX 427
MAMERS, NC 27552
cdb1971@gmail.com
919-606-4696

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER HAROLD E. HILLIARD
2/12/20

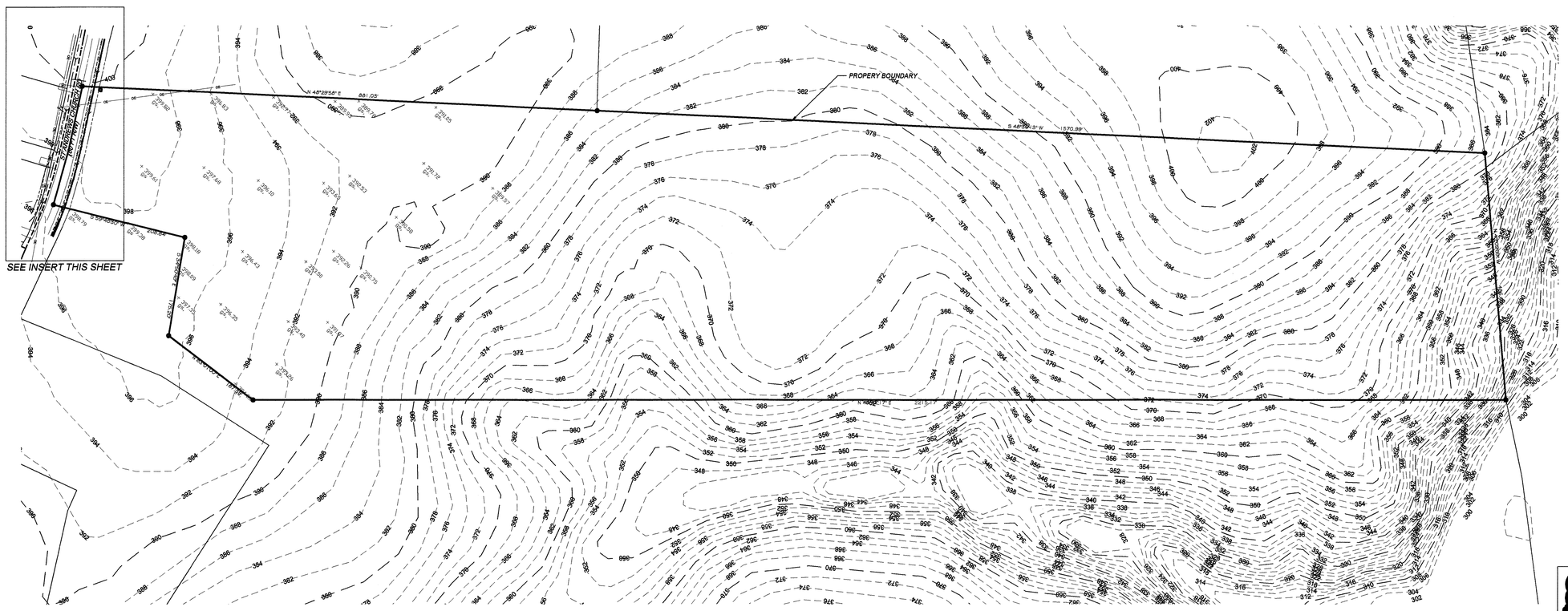
HILLIARD ENGINEERING, PLLC
749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

NAME: ST. ANDREWS

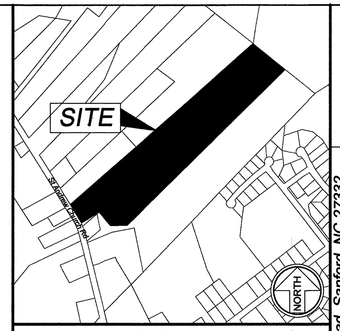
24 x 36 COVER, 2/20/2020 8:07:53 PM, ARCH expand D (36.00 x 24.00 Inches)



INSERT: EXISTING ROAD & UTILITIES
SCALE: 1" = 50'



OVERALL PLAN VIEW
SCALE: 1" = 100'



LOCATION MAP

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
7/24/20

749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH ALL CITY OF SANFORD AND NCDOT STANDARDS.

2. THIS PROPERTY IS ZONED R20, THE MINIMUM BUILDING SETBACKS ARE FRONT 30 FEET FROM THE R/W, SIDE 15 FEET & REAR 30 FEET.

4. CONTRACTOR IS TO VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED ZONE "X" DEFINED BY FEMA FIRM COMMUNITY-MAP NO. 3710965OJ , EFFECTIVE DATE SEPTEMBER 6, 2006.

6. CONTRACTOR SHALL LOCATE AND VERIFY DEPTHS OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.

7. CONTRACTOR IS REQUIRED TO MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AND ASSUMES FULL RESPONSIBILITY FOR COMPLIANCE.

8. ALL DEBRIS FROM DEMOLITION OPERATIONS SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

9. ALL EXISTING PAVEMENT EDGES SHALL BE SAW CUT TO A STRAIGHT EDGE.

10. UTILITIES TO REMAIN IN PLACE SHALL BE PROTECTED FROM DAMAGE. CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES.

11. CONTRACTOR SHALL COORDINATE ALL DEMOLITION OPERATIONS WITH GOVERNING AGENCIES AND UTILITY COMPANIES.

SURVEY NOTES:

BOUNDARY SURVEY AND EXISTING FEATURES PROVIDED BY :

BENNETT SURVEYS, INC
1662 CLARK ROAD
LILLINGTON, NORTH CAROLINA.
ROBBIE BENNET
NC. LICENSE NO. 1514

PARCEL LINES AND EXISTING TOPOGRAPHY FROM LEE COUNTY GIS.

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OVERALL EXISTING CONDITION AND BOUNDARY TOPO

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	2
	CIVIL

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GENERAL INFORMATION
PROJECT ADDRESS: ST ANDREWS CHURCH ROAD
SANFORD, NORTH CAROLINA

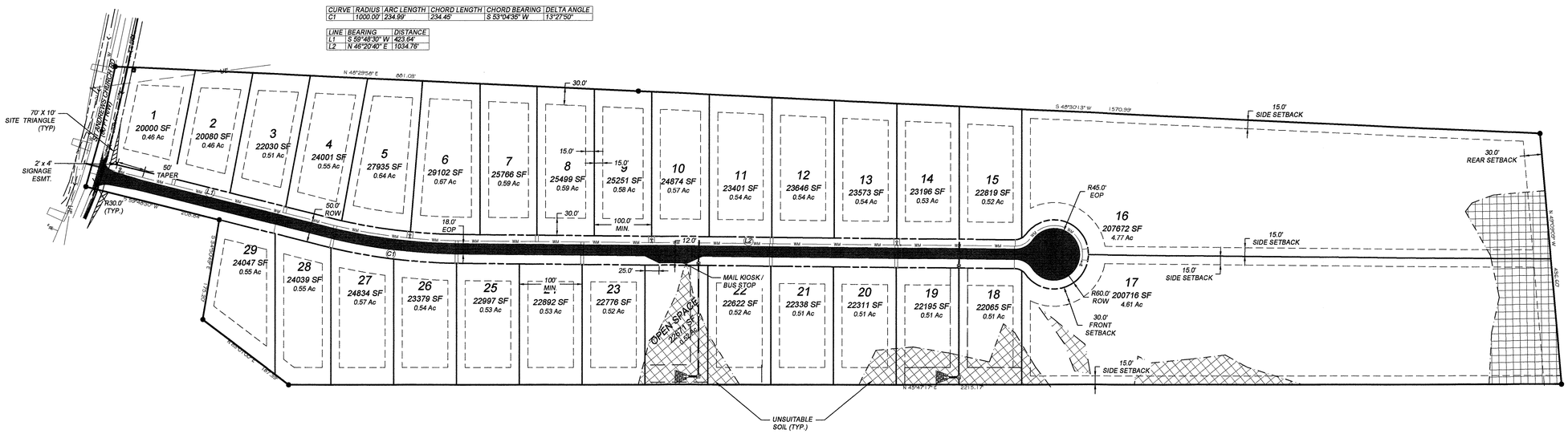
PROPERTY OWNER
MARGIE S. BYERLY

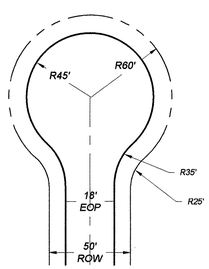
ZONING
ZONING: R20
PROPOSE USAGE: RESIDENTIAL SINGLE-FAMILY
MINIMUM LOT SIZE: 20,000 SQ. FT.

PROPERTY TAX ID NUMBERS
9650-59-9227-00
9650-58-5534-00

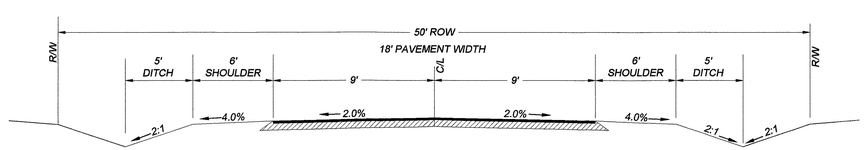
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1000.00'	234.99'	234.45'	S 53°04'35" W	13°27'50"

LINE	BEARING	DISTANCE
L1	S 59°48'30" W	423.64'
L2	N 46°20'40" E	1034.76'

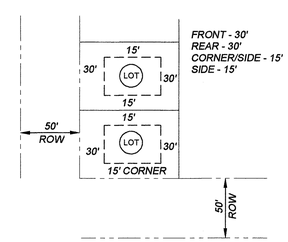




SYMMETRICAL CUL-DE-SAC
N.T.S.



TYPICAL LOCAL RESIDENTIAL ROAD CROSS SECTION
NOT TO SCALE



BUILDING SETBACKS
N.T.S.

NOTES:

1. ALL ROADWAY FOLLOWS NCDOT SUBDIVISION ROAD STANDARDS UNLESS OTHERWISE NOTED.
2. DEVELOPMENT SHALL COMPLY WITH THE CITY OF SANFORD UDO LATEST EDITIONS.
3. THE PROPOSED PROJECT IS IN LEE COUNTY JURISDICTION.

NORTH

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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD 09/23/19

749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

OVERALL SITE LAYOUT PLAN

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	3
	CIVIL

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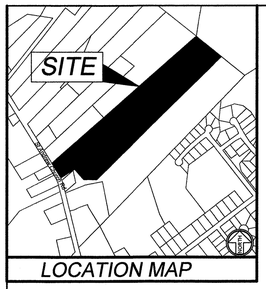


SELF INSPECTION NOTE:

THE LANDOWNER, THE FINANCIALLY RESPONSIBLE PARTY, OR THE LANDOWNER'S OR THE FINANCIALLY RESPONSIBLE PARTY'S AGENT SHALL PERFORM AN INSPECTION OF THE AREA COVERED BY THE PLAN AFTER EACH PHASE OF THE PLAN HAS BEEN COMPLETED AND AFTER ESTABLISHMENT OF TEMPORARY GROUND COVER IN ACCORDANCE WITH G.S. 113A-57(2). THE PERSON WHO PERFORMS THE INSPECTION SHALL MAINTAIN AND MAKE AVAILABLE A RECORD OF THE INSPECTION AT THE SITE OF THE LAND-DISTURBING ACTIVITY. THE RECORD SHALL SET OUT ANY SIGNIFICANT DEVIATION FROM THE APPROVED EROSION CONTROL PLAN, IDENTIFY ANY MEASURES THAT MAY BE REQUIRED TO CORRECT THE DEVIATION, AND DOCUMENT THE COMPLETION OF THOSE MEASURES. THE RECORD SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER HAS BEEN ESTABLISHED AS REQUIRED BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THE INSPECTIONS REQUIRED BY THIS SUBSECTION SHALL BE IN ADDITION TO INSPECTIONS REQUIRE BY G.S. 113A-61.1. SEE NCG01 INSPECTION, RECORDKEEPING AND REPORTING PLAN SHEET.

GENERAL NOTES:

PURSUANT TO G.S. 133-A57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.
IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUNDCOVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 CALENDAR DAYS OR 60 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

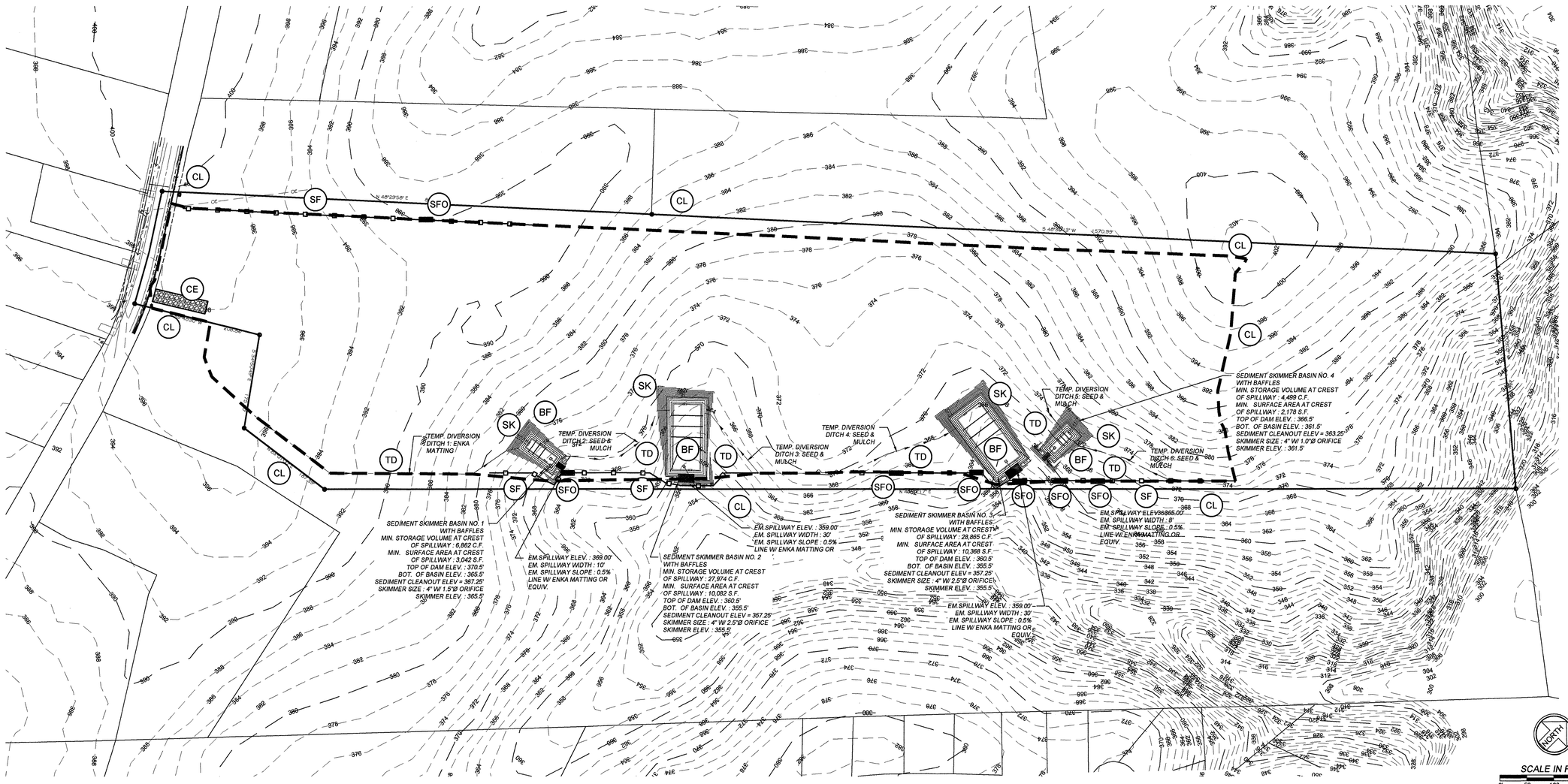
ANY BORROW MATERIAL BROUGHT ONTO THIS SITE MUST BE FROM A LEGALLY PERMITTED MINE SITE OR OTHER APPROVED SOURCE. A SINGLE-USE BORROW OR WASTE AREA SITE IS ONLY PERMISSIBLE IF IT IS OPERATED UNDER CONTROL OF THE FINANCIALLY RESPONSIBLE PERSON OR FIRM THAT IS DEVELOPING THIS SITE. AN APPROVED EROSION AND SEDIMENT CONTROL PLAN IS REQUIRED FOR ALL SINGLE USE BORROW AND WASTE SITES.

EROSION CONTROL DESIGN, DETAILS AND MAINTENANCE SPECIFICATIONS SHALL COMPLY WITH CURRENT NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

EROSION CONTROL MEASURE - INITIAL PHASE:

1. ENSURE ALL APPROVALS HAVE BEEN OBTAINED PRIOR TO ANY LAND DISTURBANCE.
2. CONDUCT ON-SITE PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR, OWNER, ENGINEER AND CONSTRUCTION MANAGER TO REVIEW THE PROJECT AND EROSION CONTROL SEQUENCES.
3. CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE PROJECT AREA.
4. INSTALL CONSTRUCTION ENTRANCE AT LOCATION SHOWN ON THE PLAN - OFF OF EDGE OF EXISTING PAVEMENT ON AT ANDREW CHURCH ROAD.
5. FLAG LIMITS OF ALL DISTURBED AREA AS SHOWN ON THE PLANS FOR INSTALLATION OF PERIMETER EROSION CONTROL DEVICES - SILT FENCE AND SILT FENCE OUTLET WHERE SHOWN.
6. INSTALL SILT FENCE OUTLET AS SHOWN ON THE PLANS.
7. CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS AS SHOWN ON THE PLANS.
8. CLEAR AND GRUB SITE (WHERE REQUIRED) AND LEGALLY DISPOSE OF ALL DEBRIS OFF SITE.
9. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER).
10. **TOTAL SITE DISTURBED AREA = 19.6AC.**

SYMBOL	PRACTICE	DESCRIPTION
CE	CONSTRUCTION ENTRANCE	A STONE STABILIZED PAD LOCATED AT ANY POINT THAT TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING PLOT WHICH WILL REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE CONSTRUCTION SITE.
SF	SILT FENCE	A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF, CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.
SFO	SILT FENCE OUTLET PROTECTION	A TEMPORARY STRUCTURE AS A REINFORCED OUTLET AT LOW POINTS OF THE SILT FENCE. INSTALL #57 WASHED STONE AT UPSTREAM FLOW WITH HARDWARE CLOTH. (SEE DETAIL)
TD	TEMPORARY DIVERSION	A TEMPORARY RIDGE OR EXCAVATED CHANNEL OR COMBINATION RIDGE AND CHANNEL CONSTRUCTED ACROSS SLOPING LAND ON A PREDETERMINED GRADE.
CL	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
SK	SKIMMER SEDIMENT BASIN	AN EARTHEN EMBANKMENT SUITABLY LOCATED TO CAPTURE RUNOFF, WITH A TRAPEZOIDAL SPILLWAY LINED WITH AN IMPERABLE GEOTEXTILE OR LAMINATED PLASTIC MEMBRANE, AND EQUIPPED WITH A FLOATING SKIMMER FOR DEWATERING.
BF	POROUS BAFFLE	POROUS BARRIERS INSTALLED INSIDE A TEMPORARY SEDIMENT TRAP, SKIMMER BASIN, OR SEDIMENT BASIN TO REDUCE THE VELOCITY AND TURBULENCE OF THE WATER FLOWING THROUGH THE MEASURE, AND TO FACILITATE THE SETTLING OF SEDIMENT FROM THE WATER BEFORE DISCHARGE.



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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
7/20/2020

749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

INITIAL PHASE EROSION AND SEDIMENTATION CONTROL PLAN

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	4
	CIVIL

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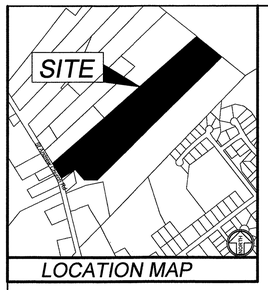
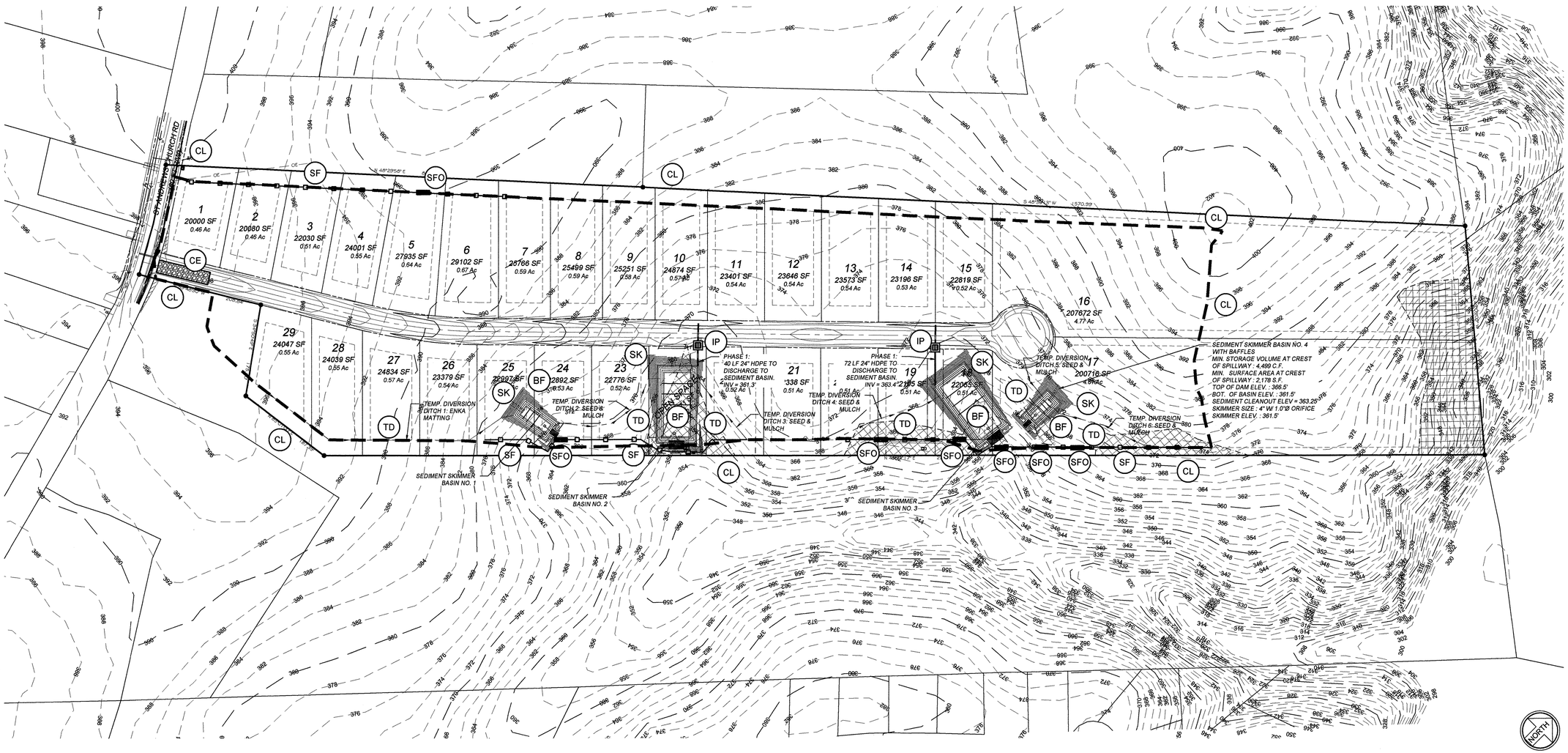


CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - INTERMEDIATE PHASE:

1. CHECK ALL SILT FENCE AND REPAIR AS NECESSARY. ASSURE ANY ERODED AREA ARE STABILIZED WITH TEMPORARY SEEDING AND MULCH.
2. ROUGH GRADE ROADWAY RIGHT OF WAY AREA.
3. INSTALL THE WATER SYSTEM AS SHOWN ON THE PLANS.
4. INSTALL STORM DRAINAGE SYSTEM. EXTEND STORM DRAINAGE PIPE TO SEDIMENT BASIN AS SHOWN ON THE PLANS.
5. INSTALL INLET / OUTLET BMP'S WHERE REQUIRED.
6. CONSTRUCT PERMANENT DRAINAGE SWALES. IMMEDIATELY STABILIZE WITH SEED AND MULCH.
7. INSTALL PERMANENT SWALE CHECK DAM.
8. GRADE AND PREPARE SUBGRADE FOR PAVEMENT AREA.
9. PLACE COMPACTED G.A.B.C FOR ASPHALT CONSTRUCTION.
10. FINISH FINE GRADING THE ROAD RIGHT OF WAYS AND COMMON AREAS.
11. COMPLETE ALL REMAINING SITE IMPROVEMENTS.
12. PLACE ASPHALT, PAVEMENT MARKINGS, AND SIGNAGE.

SYMBOL	PRACTICE	DESCRIPTION
IP	INLET PROTECTION	A TEMPORARY SEDIMENT BARRIER LAID AROUND A STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
OP	OUTLET PROTECTION	RIP RAP CHANNEL / BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION, AND STABILIZE GRADES DOWNSTREAM OF OUTLET STRUCTURES.
CE	CONSTRUCTION ENTRANCE	A STONE STABILIZED PAD LOCATED AT ANY POINT THAT TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING PLOT WHICH WILL REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE CONSTRUCTION SITE.
SF	SILT FENCE	A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF. CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.
CL	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
SFO	SILT FENCE OUTLET PROTECTION	A TEMPORARY STRUCTURE AS A REINFORCED OUTLET AT LOW POINTS OF THE SILT FENCE. INSTALL #57 WASHED STONE AT UPSTREAM FLOW WITH HARDWARE CLOTH. (SEE DETAIL)



749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD 2/28/20

INTERMEDIALTE PHASE EROSION AND SEDIMENTATION CONTROL PLAN

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

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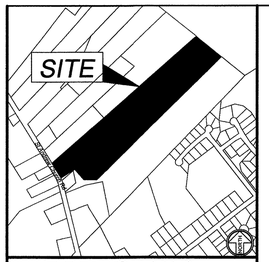


LOCATION MAP

CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - FINAL PHASE:

1. ONCE SITE HAS BEEN VEGETATED AND STABILIZED, COMPLETE THE INSTALLATION OF THE STORM DRAINAGE PIPES. INSTALL EROSION CONTROL DEVICES AS SHOWN ON THE PLANS.

2. UPON COMPLETING ALL SITE IMPROVEMENTS AND FINAL GRADING, STABILIZE ALL DISTURBED AREAS PER LANDSCAPE PLAN. WATER AND MAINTAIN ALL LANDSCAPED AREAS TO ENSURE PROPER GROUND COVERAGE PRIOR TO FINAL APPROVAL.

3. SEE SEEDING SCHEDULE PROVIDED IN EROSION CONTROL DETAIL

4. UPON APPROVAL BY DEMLAR, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES AND CALL FOR FINAL INSPECTION.

5. ONCE ALL UPSTREAM AREAS ARE COMPLETELY STABILIZED, REMOVE SEDIMENT SKIMMER BASIN AND PERMANENTLY STABILIZED THE DISTURBED AREAS WHERE THEY WERE CONSTRUCTED.

SYMBOL	PRACTICE	DESCRIPTION
CL	CONSTRUCTION LIMITS SEDIMENT TRAPS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
CL	CONSTRUCTION LIMITS (FULL BUILD OUT)	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING FULL BUILD OUT CONSTRUCTION (RESIDENTIAL LOTS)
OP	OUTLET PROTECTION	RIP RAP CHANNEL / BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION, AND STABILIZE GRADES DOWNSTREAM OF OUTLET STRUCTURES.

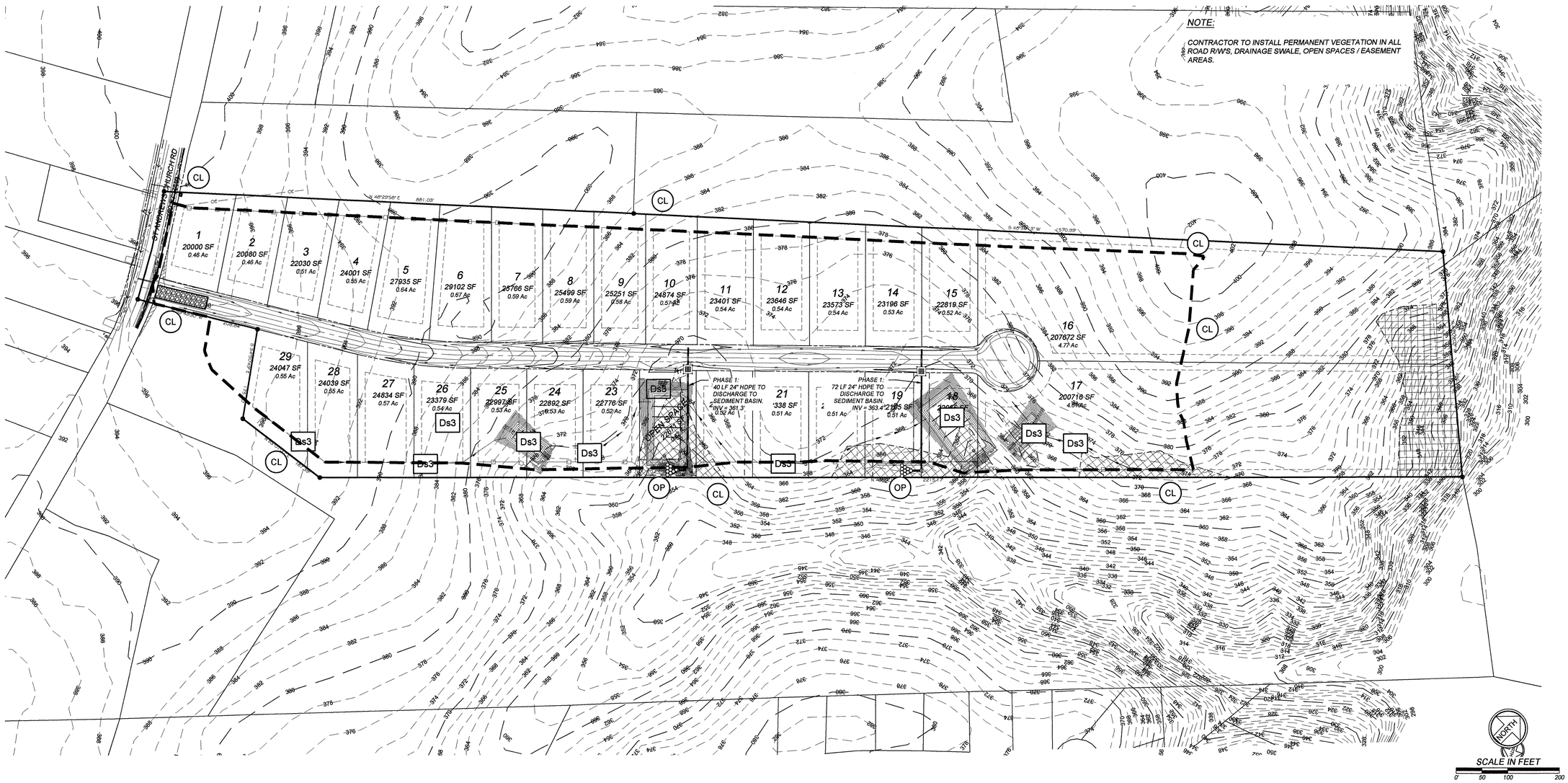
SEEDING SCHEDULE FOR PERMANENT VEGETATION — Ds3

SCHEDULE NO.	COMMON NAME OF SEED	RATE PER ACRE (LBS.)	PLANTING DATES
1	COMMON BERMUDA (HULLED)	210	MARCH 16 TO AUG. 31
	TALL FESCUE	140	
2	COMMON BERMUDA (UNHULLED)	175	SEPT. 1 TO MARCH 15

NOTES:

GIANT BERMUDA SEED, INCLUDING NK-37, SHALL NOT BE USED.

THE CONTRACTOR SHALL OBTAIN A SATISFACTORY STAND OF PERENNIAL VEGETATION WHOSE ROOT SYSTEM SHALL BE DEVELOPED SUFFICIENTLY TO SURVIVE DRY PERIODS AND WINTER WEATHER, AND BE CAPABLE OF RE-ESTABLISHMENT IN THE SPRING. THE PERENNIAL VEGETATIVE COVER SHALL HAVE A MINIMUM COVERAGE DENSITY OF 70% FOR THE SEEDED AREAS. CONTRACTOR SHALL DETERMINE ALL RATES OF APPLICATION NECESSARY TO PRODUCE THE REQUIRED STAND OF GRASS, AND SHALL FOLLOW THE APPLICATION PROCEDURES AS SPECIFIED HEREIN.



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HILLIARD ENGINEERING, PLLC

FINAL EROSION AND SEDIMENTATION CONTROL PLAN

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	6
	CIVIL

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NATURE AND PURPOSE OF CONSTRUCTION

THE PURPOSE OF THIS PROJECT IS TO PROVIDE ROAD ACCESS FOR RESIDENTIAL DEVELOPMENT SITE. THE PROJECT WILL INVOLVE CONSTRUCTION OF CONVEYANCE SWALE FOR STORMWATER DISCHARGE AND WATER SUPPLY CONNECTION. THE SITE WILL BE PREPARED FOR INDIVIDUAL RESIDENTIAL HOME CONSTRUCTION ON EACH LOTS.

THE TOTAL DISTURBED AREA IS 19.6 ACRES (FULL-BUILD SITE WORK)

PERMANENT VEGETATION SHALL BE ESTABLISHED QUICKLY UPON COMPLETION OF THE ROADWAY GRADING AND INFRASTRUCTURES IN ORDER TO REDUCE THE AMOUNT OF SEDIMENT RUNOFF FROM THE SITE.

SITE IS NOT IN FLOOD PLAN.

NOTE:

PURSUANT TO G.S. 133-A57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.
IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUNDCOVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 CALENDAR DAYS OR 60 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

NOTE:

EFFECTIVE OCTOBER1, 2010, PERSONS CONDUCTING LAND-DISTURBING ACTIVITIES LARGER THAN ONE ACRE MUST INSPECT THEIR PROJECT AFTER EACH PHASE OF THE PROJECT AND DOCUMENT THE INSPECTION IN WRITING. KEEP WRITTEN INSPECTION REPORTS ON CONSTRUCTION SITE IN WHICH IT SHOULD BE READILY AVAILABLE FOR EROSION CONTROL INSPECTOR'S REVIEW WHEN VISITING SITE.

SELF-INSPECTION REPORT FORMS ARE AVAILABLE AS AN EXCEL SPREADSHEET FROM LAND QUALITY WEB SITE: www.dlr.enr.state.nc.us/pages/sedimentation_new.html

SEEDING SCHEDULE

NOTE

TEMPORARY SEED MIX SHALL BE USED FOR ALL AREAS EXPOSED GREATER THAN 21 CALENDAR DAYS AND SUBJECT TO FURTHER DISTURBANCE. PERMANENT SEED MIX SHALL BE CHECKED FOR ADEQUACY ON JULY 15. AN ADEQUATE COVER SHALL HAVE 50 SPRIGS OF BERMUDA OR SERICEA LESPEDEZA PER ONE SQUARE FOOT.

TEMPORARY SUMMER SEED MIX (TO BE FOLLOWED BY PERMANENT FALL SEED MIX)

	SPECIES	RATE (LB./ACRE)
MARCH 1 - SEPT. 1	GERMAN MILLET	120

TEMPORARY WINTER SEED MIX (TO BE FOLLOWED BY PERMANENT SPRING SEED MIX)

	SPECIES	RATE (LB./ACRE)
SEPT. 1 - MARCH 1	WINTER RYE (GRAIN)	200
	KOBE LESPEDEZA	120

PERMANENT SPRING SEED MIX

	SPECIES	RATE (LB./ACRE)
MARCH 1 - JULY 1	PENSICOLA BAHIAGRASS	60
	COMMON BERMUDA	25
	SERICEA LESPEDEZA	30

PERMANENT FALL SEED MIX

	SPECIES	RATE (LB./ACRE)
SEPT. 1 - NOV. 1	COMMON BERMUDA	30
	SERICEA LESPEDEZA (UNSCARIFIED)	30
	KOBE LESPEDEZA	10

SOIL AMENDMENTS

TO BE INCORPORATED INTO THE TOP 3 INCHES OF SOIL IN AREAS WITH SLOPES 2:1 OR FLATTER
APPLY FERTILIZER (10-10-10) AT A RATE OF 1000 LB/ACRE
APPLY LIME (GROUND AGRICULTURAL LIMESTONE) AT A RATE OF 4000 LB/ACRE
APPLY SUPERPHOSPHATE (0-49-0) AT A RATE OF 200 LB/ACRE

* REQUIRED FOR PERMANENT SEED MIX ONLY

MULCH

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR MULCH WITH ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL./ACRE

MAINTENANCE

MINIMUM OF 1" OF RAINFALL A WEEK (IF NOT SUPPLIED NATURALLY, CONTRACTOR SHALL SUPPLY THE REMAINING AMOUNT UNTIL GROUND COVER HAS BEEN ESTABLISHED).

WATER

REFERTILIZE IN THE SECOND YEAR UNLESS THE GROWTH IS FULLY ADEQUATE.
MOW WHEN THE AVERAGE PLANT HEIGHT EXCEEDS 8 INCHES.
RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

EROSION CONTROL CONSTRUCTION SEQUENCES

PHASE 1 - INITIAL

1. ENSURE ALL APPROVALS HAVE BEEN OBTAINED PRIOR TO ANY LAND DISTURBANCE.
2. CONDUCT ON-SITE PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR, OWNER, ENGINEER AND CONSTRUCTION MANAGER TO REVIEW THE PROJECT AND EROSION CONTROL SEQUENCES.
3. CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE PROJECT AREA.
4. INSTALL CONSTRUCTION ENTRANCE AT LOCATION SHOWN ON THE PLAN - OFF OF EDGE OF EXISTING PAVEMENT ON PITTMAN GROVE CHURCH DRIVE.
5. FLAG LIMITS OF ALL DISTURBED AREA AS SHOWN ON THE PLANS FOR INSTALLATION OF PERIMETER EROSION CONTROL DEVICES - SILT FENCE AND SILT FENCE OUTLET WHERE SHOWN.
6. INSTALL SILT FENCE OUTLET AS SHOWN ON THE PLANS.
7. CLEAR AND GRUB SITE (WHERE REQUIRED) AND LEGALLY DISPOSE OF ALL DEBRIS OFF SITE.
8. WITHIN 14 CALENDER DAYS OF COMPLETION OF ANY PHASE OF GRADING, GROUND COVER SHALL BE PROVIDED ON EXPOSED SLOPES AND PERMANENT GROUND COVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 14 CALENDER DAYS OR 60 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

PHASE 2- INTERMEDIATE

1. CHECK ALL SILT FENCE AND REPAIR AS NECESSARY. ASSURE ANY ERODED AREA ARE STABILIZED WITH TEMPORARY SEEDING AND MULCH.
2. ROUGH GRADE ROADWAY RIGHT OF WAY AREA.
3. INSTALL THE WATER SYSTEM AS SHOWN ON THE PLANS.
4. INSTALL STORM DRAINAGE SYSTEM.
5. INSTALL INLET / OUTLET BMP'S WHERE REQUIRED.
6. CONSTRUCT PERMANENT DRAINAGE SWALES. IMMEDIATELY STABILIZE WITH SEED AND MULCH.
7. INSTALL PERMANENT SWALE CHECK DAM.
8. GRADE AND PREPARE SUBGRADE FOR PAVEMENT AREA.
9. PLACE COMPACTED G.A.B.C FOR ASPHALT CONSTRUCTION.
10. FINISH FINE GRADING THE ROAD RIGHT OF WAYS AND COMMON AREAS.
11. COMPLETE ALL REMAINING SITE IMPROVEMENTS.
12. PLACE ASPHALT, PAVEMENT MARKINGS, AND SIGNAGE.

PHASE 3 - FINAL

1. UPON SUBSTANTIAL COMPLETION OF ROADWAY, THE CONTRACTOR IS TO FINE GRADE THE RIGHT OF WAY TO ENSURE PROPER DRAINAGE FLOW PATTERNS.
2. UPON COMPLETING ALL ROADWAY CONSTRUCTION AND FINAL GRADING, INSTALL PERMANENT VEGETATION IN ALL ROAD RIGHT OF WAY AND EASEMENT AREAS.
3. UPON APPROVAL BY DEMLAR, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES

SEED BED PREPARATION

1. RIP THE ENTIRE AREA TO 6" DEPTH.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
3. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE IN ACCORDANCE WITH "SEEDING SCHEDULE" AND MIX WITH SOIL.
4. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
5. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING. SEED ACCORDING TO "SEEDING SCHEDULE."
6. MULCH IN ACCORDANCE WITH "SEEDING SCHEDULE" IMMEDIATELY AFTER SEEDING.
7. INSPECT ALL SEEDING FOR COMPLIANCE WITH THE REQUIREMENTS OF THE "SEEDING SCHEDULE". MAKE NECESSARY REPAIRS AND RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE, OR THE DAMAGED AREA SHALL BE REESTABLISHED FOLLOWING THE ORIGINAL LIME, FERTILIZER, AND SEEDING REQUIREMENTS.

GROUND STABILIZATION REQUIREMENTS

CONTRACTOR SHALL BE REQUIRED TO ESTABLISH GROUND STABILIZATION AS PER FOLLOWING CHART.

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS	APPLICABLE THIS PROJECT
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE	YES
HIGH QUALITY WATER (HQW) ZONES FLATTER THAN 4:1	7 DAYS	NONE	NO
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	NO
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH	YES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETER AND HQW ZONES)	YES
TYPICAL GROUND COVER STABILIZATION TYPES - GRASS AND OR SOD, WHEAT STRAW, MULCH, BIODEGRADABLE STRAW MATTING, SYNTHETIC MATTING, ETC.			

EROSION CONTROL MAINTENANCE SCHEDULE

LAND GRADING: PERIODICALLY CHECK ALL GRADED AREAS AND THE SUPPORTING EROSION AND SEDIMENTATION CONTROL PRACTICES, ESPECIALLY AFTER HEAVY RAINFALLS. PROMPTLY REMOVE ALL SEDIMENT FROM DIVERSIONS AND OTHER WATER-DISPOSAL PRACTICES. IF WASHOUT OR BREAKS OCCUR, REPAIR THEM IMMEDIATELY. PROMPT MAINTENANCE OF SMALL ERODED AREAS BEFORE THEY BECOME SIGNIFICANT GULLIES IS AN ESSENTIAL PART OF AN EFFECTIVE EROSION AND SEDIMENTATION CONTROL PLAN.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT: MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

OUTLET STABILIZATION STRUCTURE: INSPECT RIP RAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

DROP INLET PROTECTION (TEMPORARY): INSPECT THE FABRIC BARRIER AFTER EACH RAIN AND MAKE REPAIRS AS NEEDED. REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE FABRIC DURING SEDIMENT REMOVAL. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE ALL MATERIALS AND ANY UNSTABLE SEDIMENT AND DISPOSE OF THEM PROPERLY. BRING THE DISTURBED AREA TO THE GRADE OF THE DROP INLET AND SMOOTH AND COMPACT IT. APPROPRIATELY STABILIZE ALL BARE AREAS AROUND THE INLET.

SEDIMENT FENCE (SILT FENCE): INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

DUST CONTROL: MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.

TREE PRESERVATION AND PROTECTION: REPAIR ANY DAMAGE TO PROTECTED TREE AS FOLLOW SHOULD DAMAGE TO CROWN, TRUNK, OR ROOT SYSTEM OCCUR.

(REFERENCE NCDENR MANUAL, PAGE 6.05.3 AND 6.05.4)

REPAIR ROOTS BY CUTTING OFF THE DAMAGED AREAS AND PAINTING THEM WITH TREE PAINT. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.

REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREAS AS SHOWN IN FIGURE 6.05b, TAPER THE CUT TO PROVIDE DRAINAGE, AND PAINT WITH TREE PAINT.

CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH. USE THREE SEPARATED CUTS AS SHOWN IN FIGURE 6.05c TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.

SYM.:	REVISION DESCRIPTION:	DATE:
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6		

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
7/29/20

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL NARRATIVE

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	7.0
	CIVIL

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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 grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. 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

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. 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.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

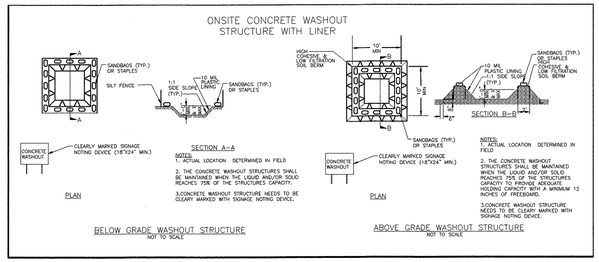
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

1. 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.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. 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

1. 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.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. 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

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. 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.
3. 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.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL STABILIZATION

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

SYM.:	REVISION DESCRIPTION:	DATE:
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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	7.1
	CIVIL

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PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

Item to Document
(a) Each E&SC measure has been install and does not significantly deviate from locations, dimensions and relative eleva shown on the approved E&SC plan.
(b) A phase of grading has been comple
(c) Ground cover is located and installe in accordance with the approved E&SC plan.
(d) The maintenance and repair requirements for all E&SC measures have been performed.
(e) Corrective actions have been taken to E&SC measures.

2. Additional Documentation to be Kept on Site

In addition to the E&SC 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:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) 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.

3. 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:

(a) Visible sediment deposition in a stream or wetland.

(b) 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).

(c) 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.

(d) Anticipated bypasses and unanticipated bypasses.

(e) 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.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
7/21/20

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL INSPECTION

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

SYM.:	REVISION DESCRIPTION:	DATE:
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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	7.2
	CIVIL

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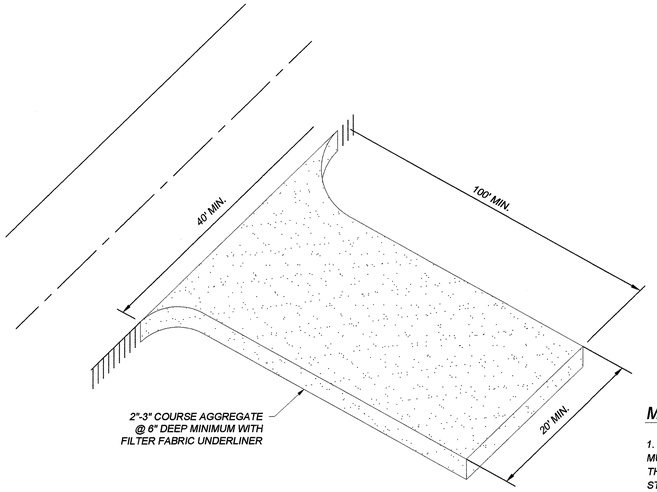


CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.

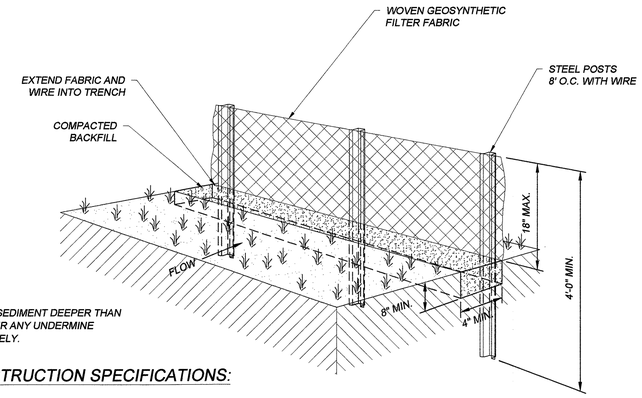
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.

3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.

4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:

1. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.



NOTE:

REMOVE SEDIMENT DEEPER THAN 12". REPAIR ANY UNDERMINE IMMEDIATELY.

CONSTRUCTION SPECIFICATIONS:

CONSTRUCTION:

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.

2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE GROUND SURFACE.

3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.

4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.

6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO THE POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.

9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MATERIAL:

1. USE SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFIN OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461.

2. ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.33 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 4 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.

3. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

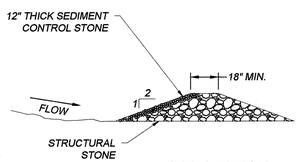
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUTS

4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SF SILT FENCE DETAIL

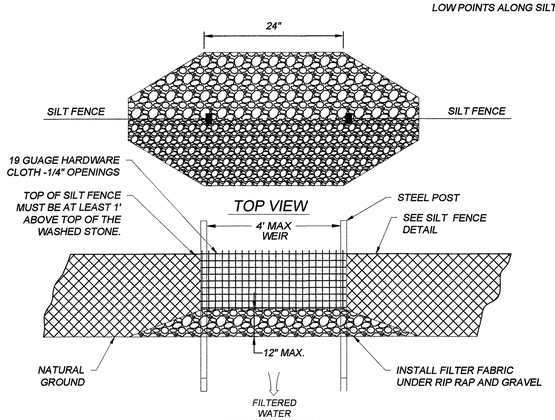
NOT TO SCALE



CROSS SECTION

NOTES:

1. STRUCTURAL STONE SHALL BE CLASS "B" STONE FOR EROSION CONTROL PURPOSES. SEDIMENT CONTROL STONE SHALL BE #5 OR #57 STONE.
2. OUTLETS TO BE PLACED AT LOW POINTS ALONG SILT FENCE.



SFO SILT FENCE OUTLET DETAIL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.

2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.

3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.

4. PROTECT THE CHANNEL AFTER THE DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.

6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.

7. ENSURE THAT OTHER AREAS OF THE CHANNEL, SUCH AS CULVERT ENTRANCES BELOW THE DAM, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

8. SEE SILT FENCE DETAIL FOR CONSTRUCTION SPECIFICATIONS.

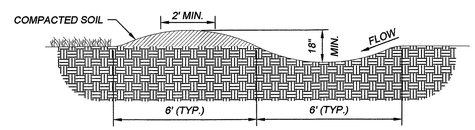
MAINTENANCE

INSPECT DAM AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS AROUND DAM, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL (PRACTICE 6.31, RIPRAP-LINE AND PAVED CHANNELS).

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM.

ADD STONES TO DAM AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.



CONSTRUCTION SPECIFICATIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.

2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.

3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.

4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.

5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

TD TEMPORARY DIVERSIONS

SCALE: N.T.S.

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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD 2/19/20

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL DETAILS

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.0
	CIVIL

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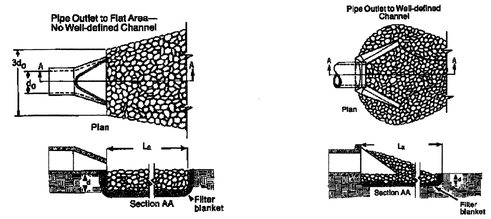


Notes

1. L_a is the length of the riprap apron.
2. d = 1.5 times the maximum stone diameter but not less than 6".
3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth or to the top of the bank, whichever is less.
4. A filter blanket or filter fabric should be installed between the riprap and soil foundation.

CONSTRUCTION SPECIFICATIONS

1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.

2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.

3. FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.

4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.

5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.

6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.

7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.

8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.

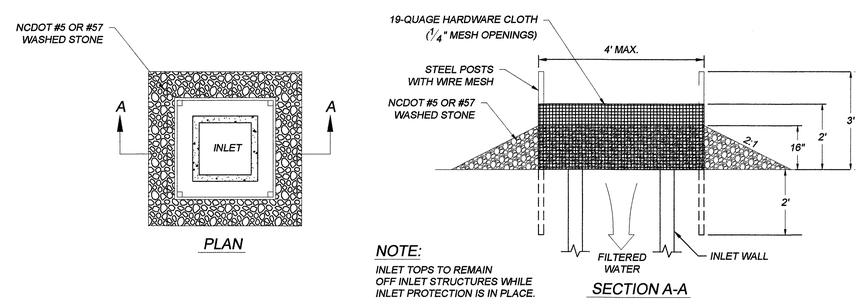
9. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION (PRACTICES 6.10, TEMPORARY SEEDING, AND 6.11, PERMANENT SEEDING).

MAINTENANCE

INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

OP **RIP RAP OUTLET PROTECTION**

NOT TO SCALE



NOTE:

INLET TOPS TO REMAIN OFF INLET STRUCTURES WHILE INLET PROTECTION IS IN PLACE.

IP **HARDWARE CLOTH & GRAVEL INLET PROTECTION DETAIL**

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5' STEEL POST 2' INTO THE GROUND SURROUNDING THE INLET SPACE POSTS EVENLY AROUND THE PERIMETER ON THE INLET, MAX. 4' APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE AND BOTTOM. PLACING A 2' FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16" AROUND THE WIRE, AND SMOOTH TO AN EVEN LEVEL.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUND COVER.

MAINTENANCE:

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT.

CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.

TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL.

REPLACE STONE AS NEEDED.

SYM.:	REVISION DESCRIPTION:	DATE:
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD 2/19/20

EROSION CONTROL DETAIL

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.1
	CIVIL

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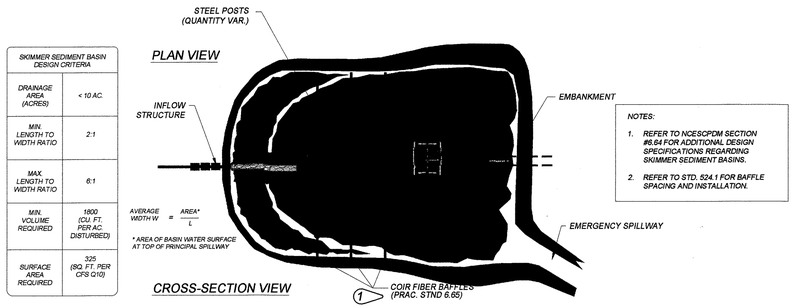
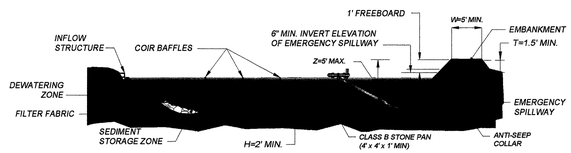
SKIMMER SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 10 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	325 (SQ. FT. PER CFS Q10)



NOTES:

1. REFER TO NCESCPDM SECTION #6.64 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SKIMMER SEDIMENT BASINS.
2. REFER TO STD. 524.1 FOR BAFFLE SPACING AND INSTALLATION.



SIDE VIEW

SK SEDIMENT SKIMMER BASIN

SCALE: N.T.S.

CONSTRUCTION SPECIFICATION

1. CLEAR, GRUB, AND STRIP AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.

2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.

3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.

4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PREVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS A BACK FILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTRACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES.

PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACK FILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT, IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURES INSTRUCTIONS, OR AS DESIGNED.

6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.

7. EARTHEN SPILLWAYS - INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH THE LAMINATED PLASTIC OR IMPERMEABLE GEO TEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTIONS SHOULD OVERLAP THE LOWER SECTIONS SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS. (ADAPTED FROM " A MANUAL FOR DESIGNING, INSTALLING AND MAINTAINING SKIMMER SEDIMENT BASINS." FEBRUARY 1999 J.W. FAIR CLOTH & SON.)

8. INLETS - DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).

9. EROSION CONTROL - CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).

10. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65

11. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND AIL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY (REFERENCES: SURFACE STABILIZATION).

MAINTENANCE

INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE BATTLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

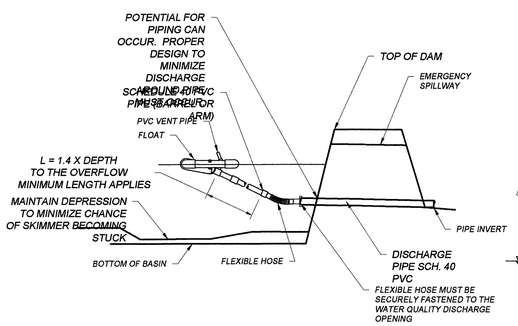
REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.

IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE AND REMOVE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER FOR DEBRIS.

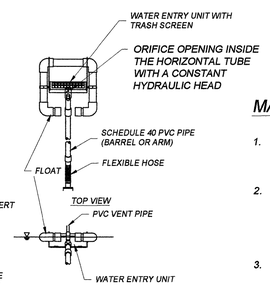
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH THE FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.



SIDE VIEW



END VIEW

MAINTENANCE

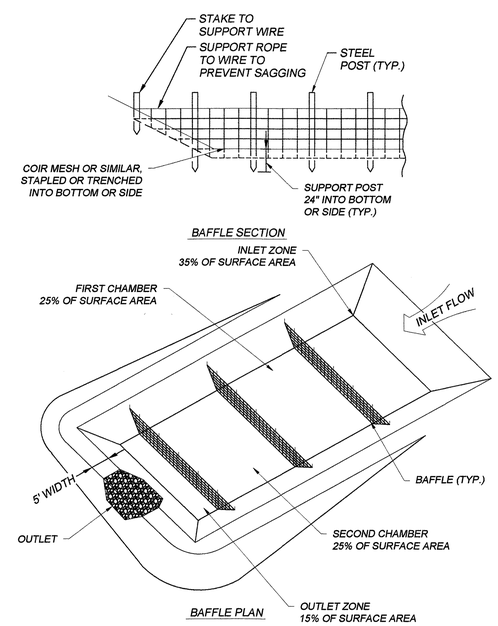
1. PULL SKIMMER OVER TO THE SIDE OF BASIN AND REMOVE DEBRIS AND EXCESS SEDIMENTS THAT HAVE ACCUMULATED FROM RAINFALL EVENTS.
2. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, JERK THE SKIMMER TO BOB UP AND DOWN TO DISLODGE THE DEBRIS AND RESTORE FLOW. CHECK ORIFICE INSIDE THE SKIMMER FOR CLOGGING AND REMOVE AS NEEDED.
3. IF SKIMMER ARM OR BARREL PIPE IS CLOGGED, REMOVE THE ORIFICE AND THE OBSTRUCTION CAN BE CLEARED WITH PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

GENERAL NOTES:

1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

SKIMMER DEWATERING DEVICE

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.

INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP.

STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24", SPACED A MAXIMUM OF 4' APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6" HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2" LOWER THAN THE TOP OF THE BERMS.

INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISHARGE POINT. BASINS LESS THAN THE TOP OF THE BERMS.

WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.

WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE OR STAPLES.

THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8" EROSION CONTROL MATTING STAPLES.

DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN

MAINTENANCE:

INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS WHEN IT REACHED HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PROESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.

AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

BF BAFFLES FOR TEMPORARY SEDIMENT TRAPS

NOT TO SCALE

SYM.:	REVISION DESCRIPTION:	DATE:
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PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

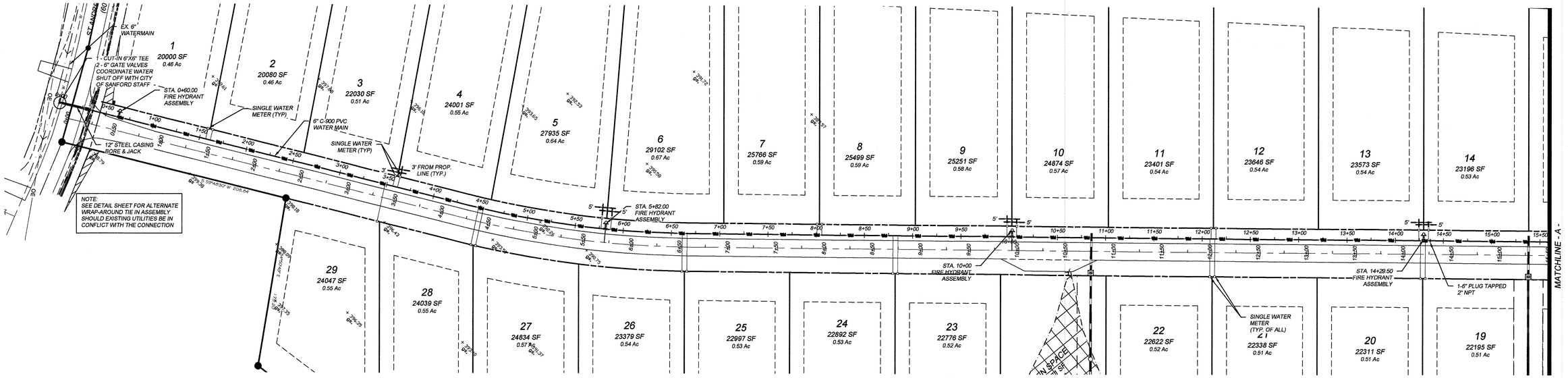
NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD

EROSION CONTROL DETAIL

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

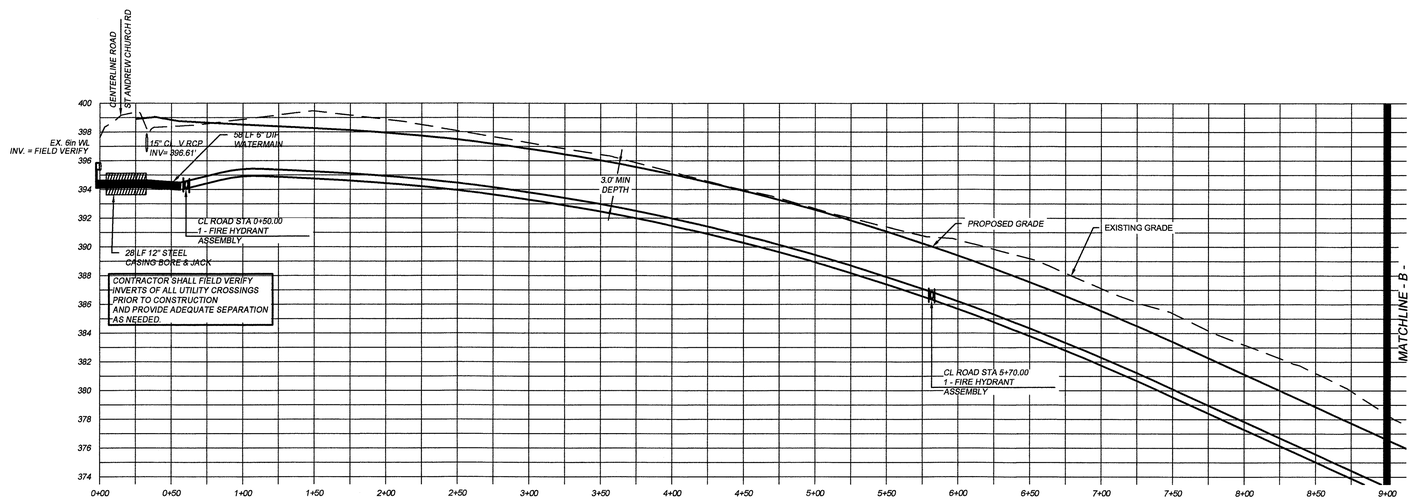
DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.2
	CIVIL

ero-detail 2, 2/19/2020 9:22:46 PM, ARCH expand D (36.00 x 24.00 Inches)



WATERMAIN PLAN VIEW

SCALE: 1"=50'



GENERAL UTILITY CONSTRUCTION NOTE:

1) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF SANFORD AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.

2) THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK. ANY DAMAGE TO EXISTING CULVERTS, WATERLINES AND OTHER UTILITIES DURING CONSTRUCTION WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

3) CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.

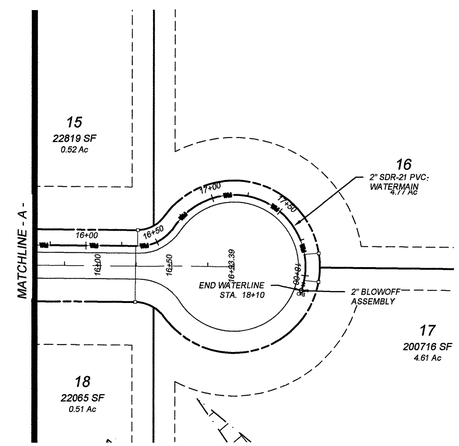
4) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED:
-24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS;
-18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF WATER MAINS AND STORM SEWERS OR SANITARY SEWERS (INCLUDING FORCE MAINS);
-10 FEET HORIZONTAL SEPARATION BETWEEN PARALLEL SANITARY SEWERS (INCLUDING FORCE MAINS) AND WATER MAINS.

IF THESE SEPARATIONS CANNOT BE MAINTAINED (BOTH HORIZONTAL AND/OR VERTICAL) OR ANYTIME THE SEWER IS OVER THE WATER MAIN, BOTH WATER AND SEWER MUST BE DUCTILE IRON PIPE COMPLYING WITH PUBLIC WATER SUPPLY DESIGN STANDARDS AND BE PRESSURED TESTED TO 150 PSI TO ASSURE WATERTIGHTNESS BEFORE BACKFILLING.

5) ALL PVC WATERMAIN SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST VERSION OF AWWA STANDARDS.

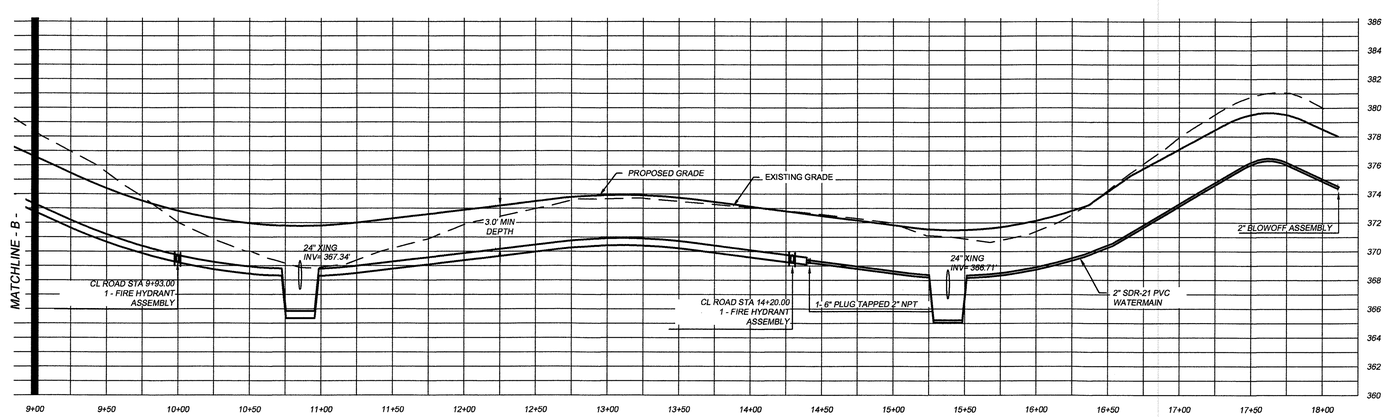
6) CONTRACTOR SHALL REFERENCE MOST CURRENT AWWA FOR DISINFECTION OF WATERMAINS.

7). SEE CITY OF SANFORD DETAILS FOR WATER SERVICES.



WATERMAIN PLAN VIEW

SCALE: 1"=50'



SCALE IN FEET
0 25 50 100

811 Know what's below. Call before you dig. Dial 811 Or Call 800-632-4949

SYM.	REVISION DESCRIPTION:	DATE:
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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	9
	CIVIL

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD

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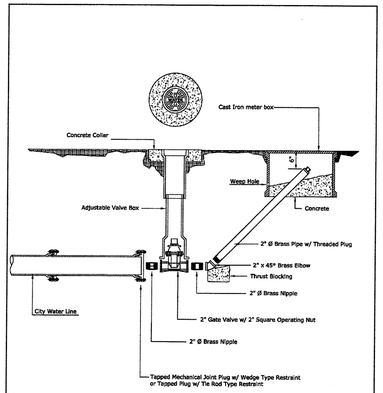
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

WATERMAIN PLAN AND PROFILE

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

WATER, JFT19/2020 9:22:55 PM, ARCH full based D (36.00 x 24.00 inches)



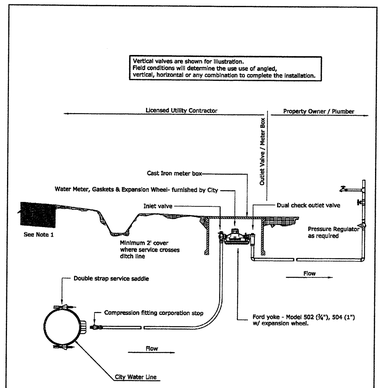
Notes:

1. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
2. Blow-Off assembly shall not be located in street pavement.

Two Inch Blow-Off Assembly

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

Dwg. No.	SD-W-008
Date:	07/10/14
Scale:	Not To Scale
Drawn By:	Staff



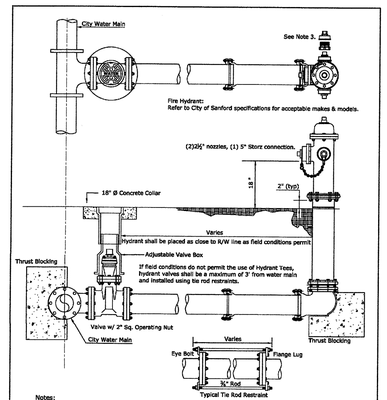
Notes:

1. Refer to City of Sanford drawing SD-R-0013 for asphalt patch details if necessary.
2. Residential meters may be ¾" or 1".
3. Piping shall be type 'K' copper with appropriate sized fittings.

Residential Water Tap & Meter

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

Dwg. No.	SD-W-001
Date:	07/10/14
Scale:	Not To Scale
Drawn By:	Staff



Notes:

1. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
2. Entire hydrant leg shall have minimum of 2'-0" cover. Ductile Iron Cl 50 shall otherwise be used.
3. Within the city limits of Sanford or within the Northview Fire District, the 2½" nozzles shall have City of Sanford threads (3.112" x 6 threads per inch). All other locations shall be National Standard Thread.
4. Restrained Joints required throughout fire hydrant assembly.

Fire Hydrant Assembly

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

Dwg. No.	SD-W-009
Date:	07/10/14
Scale:	Not To Scale
Drawn By:	Staff

WATER UTILITY GENERAL NOTES

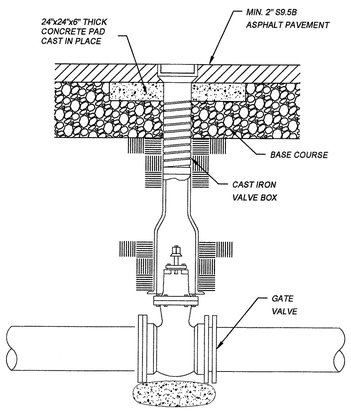
1. *CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE PROJECT COORDINATOR.*
2. *THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.*
3. *ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE..*
4. *ALL WORK ON "LOCAL GOVERNING AUTHORITY" WATER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR.*
9. *SEPARATION REQUIREMENTS:*

   PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED:
   -24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS;

   -18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF WATER MAINS AND STORM SEWERS OR SANITARY SEWERS (INCLUDING FORCE MAINS);

   -10 FEET HORIZONTAL SEPARATION BETWEEN PARALLEL SANITARY SEWERS (INCLUDING FORCE MAINS) AND WATER MAINS.

IF THESE SEPARATIONS CANNOT BE MAINTAINED (BOTH HORIZONTAL AND/OR VERTICAL) OR ANYTIME THE SEWER IS OVER THE WATER MAIN, BOTH WATER AND SEWER MUST BE DUCTILE IRON PIPE COMPLYING WITH PUBLIC WATER SUPPLY DESIGN STANDARDS AND BE PRESSURE TESTED TO 150 PSI TO ASSURE WATERTIGHTNESS BEFORE BACKFILLING.

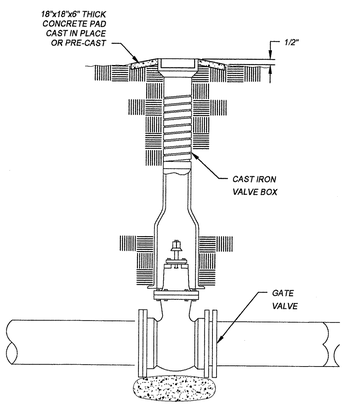


NOTE:

ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.

VALVE BOX IN PAVEMENT DETAIL

NOT TO SCALE

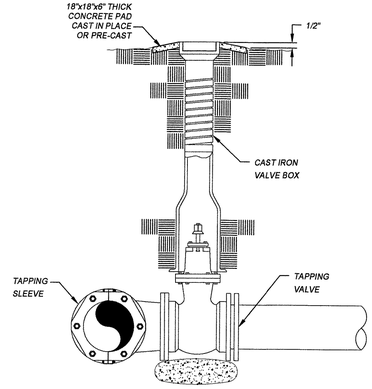


NOTE:

ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.

VALVE BOX IN GRASS DETAIL

NOT TO SCALE

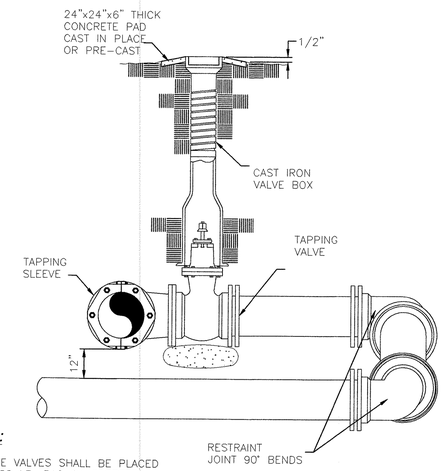


NOTE:

ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.

TAPPING SLEEVE AND VALVE DETAIL

NOT TO SCALE

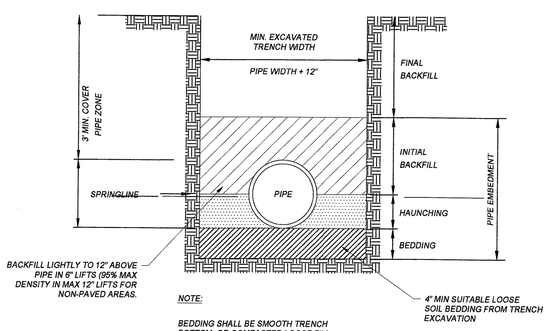


NOTE:

ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.

ALTERNATE TAPPING SLEEVE AND VALVE DETAIL

NOT TO SCALE



NOTE:

BEDDING SHALL BE SMOOTH TRENCH BOTTOM, OR COMPACTED LOOSE FILL MATERIAL AS REQUIRED TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.

NOTES:

1. ALL EXCAVATION SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA " SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XVII OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. SEE PLANS FOR MINIMUM COVER.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS " NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
6. WHERE NATIVE SOIL IS DETERMINED TO BE ADEQUATE BY THE ENGINEER, NO EXCAVATION BELOW THE BOTTOM OF PIPES IS REQUIRED.
7. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
8. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

WATER MAIN BEDDING DETAIL

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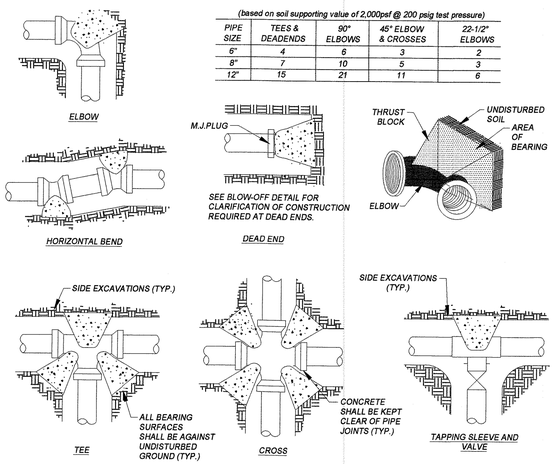

(based on soil supporting value of 2,000psf @ 200 psig test pressure)

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

NOTES:

1. THRUST BLOCKS SHALL BE INSTALLED ON ALL WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. JOINT RESTRAINING FLANGES AND GASKETS THAT MEET "LOCAL GOVERNING AUTHORITY" SPECIFICATIONS ARE AN ACCEPTABLE ALTERNATE FOR RETRAINT.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING OR ALTERNATE JOINT RESTRAINT.
4. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
5. CONCRETE SHALL BE A MINIMUM 3,000 PSI.
6. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL.
7. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
8. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE FOR THE REQUIRED DISTANCE BASED UPON THE PIPE DIAMETER.

CONCRETE THRUST BLOCK DETAIL

NOT TO SCALE

SYM..	REVISION DESCRIPTION:	DATE:
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JAMES E. HILLIARD

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PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
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NC License #: P-0836

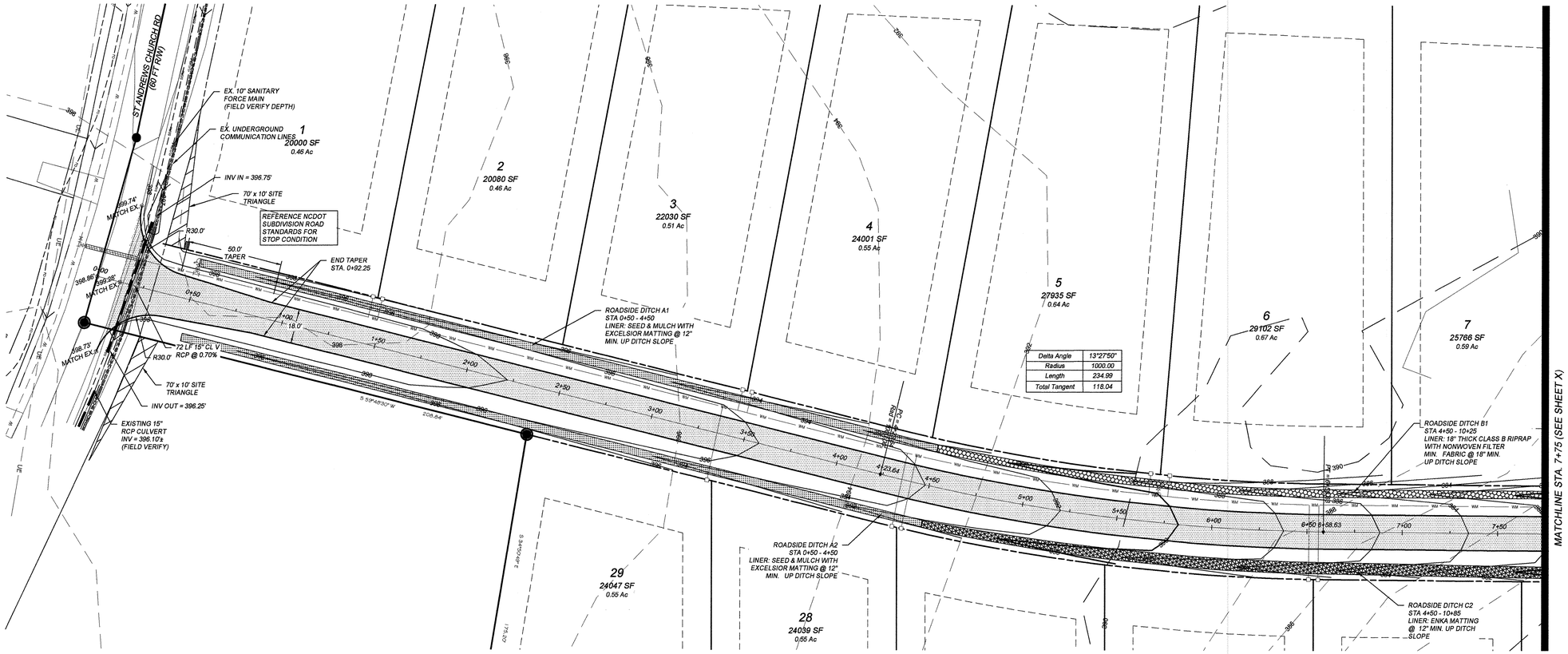
HILLIARD ENGINEERING, PLLC

WATERMAIN DETAILS

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JLF
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	10
	CIVIL

WATER DET.-1, 2/19/2020 9:23:01 PM, ARCH expand D (36.00 x 24.00 Inches)



Delta Angle	13°27'50"
Radius	1000.00
Length	234.99
Total Tangent	118.04

ROAD 'A' PLAN VIEW

SCALE: 1"=30'

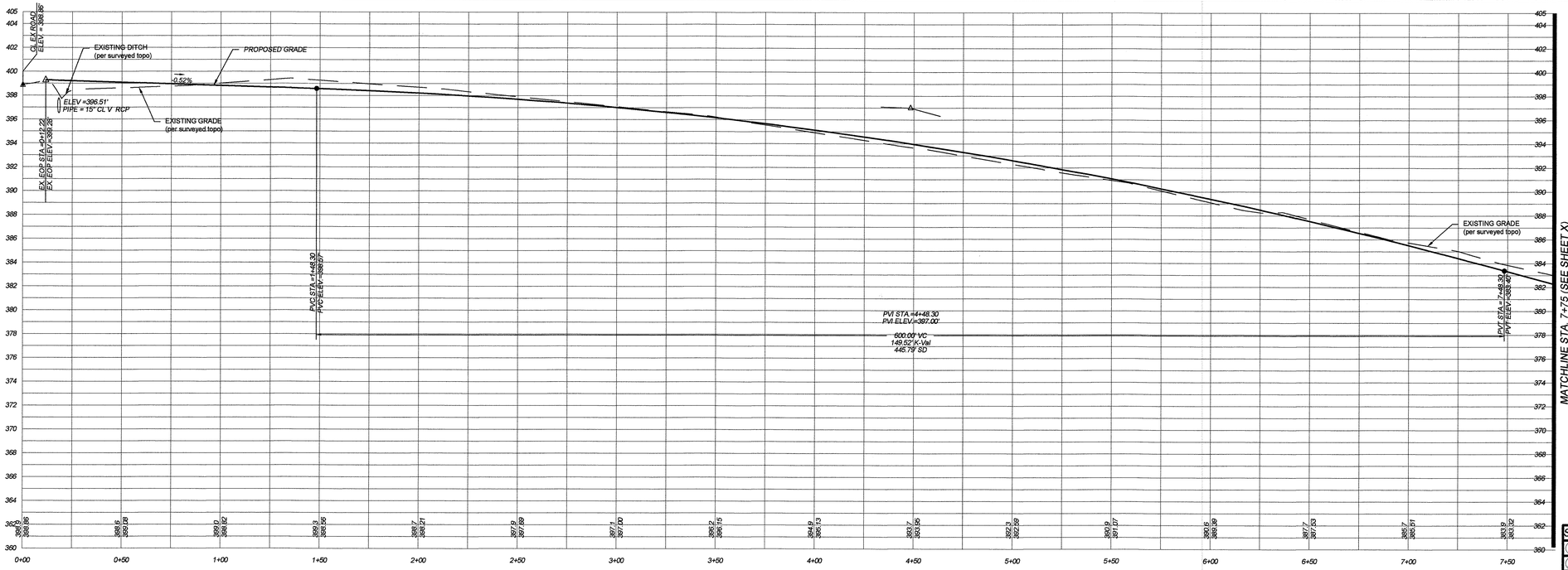
SCALE IN FEET 0' 15 30 60

NCDOT STANDARD NOTES:

1. ALL UTILITY STRUCTURES SHALL BE LOAD RATED FOR THE APPROPRIATE DEAD LOAD PLUS HL-93 LIVE LOAD. SUCH STRUCTURES SHALL BE DESIGNATED AND CERTIFIED BY A LICENSED PE OR DESIGNATED AS MEETING NCDOT STANDARD SPECIFICATIONS AND DRAWINGS. (ADD THIS NOTE IN UTILITY NOTES SECTION OF THE PLANS).

2. ELECTRICAL POWER AND COMMUNICATIONS FACILITIES SHOULD CONFORM TO THE CURRENTLY APPLICABLE NATIONAL ELECTRICAL SAFETY CODE EXCEPT VERTICAL CLEARANCES SHALL BE NO LESS THAN 18 FEET IN ANY CASE. (ADD THIS NOTE IN UTILITY NOTES SECTION OF THE PLANS).

3. ALL NON-FERROUS PIPELINES SHALL BE INSTALLED WITH A LOCATING TAPE. (ADD THIS NOTE IN UTILITY NOTES SECTION OF THE PLANS).



ROAD 'A' PROFILE

SCALE: HORIZ. 1"=30' VERT. 1"=5'

Know what's below Call before you dig. Dial 811 Or Call 800-632-4949

SYM.:	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		
5		
6		

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD

749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

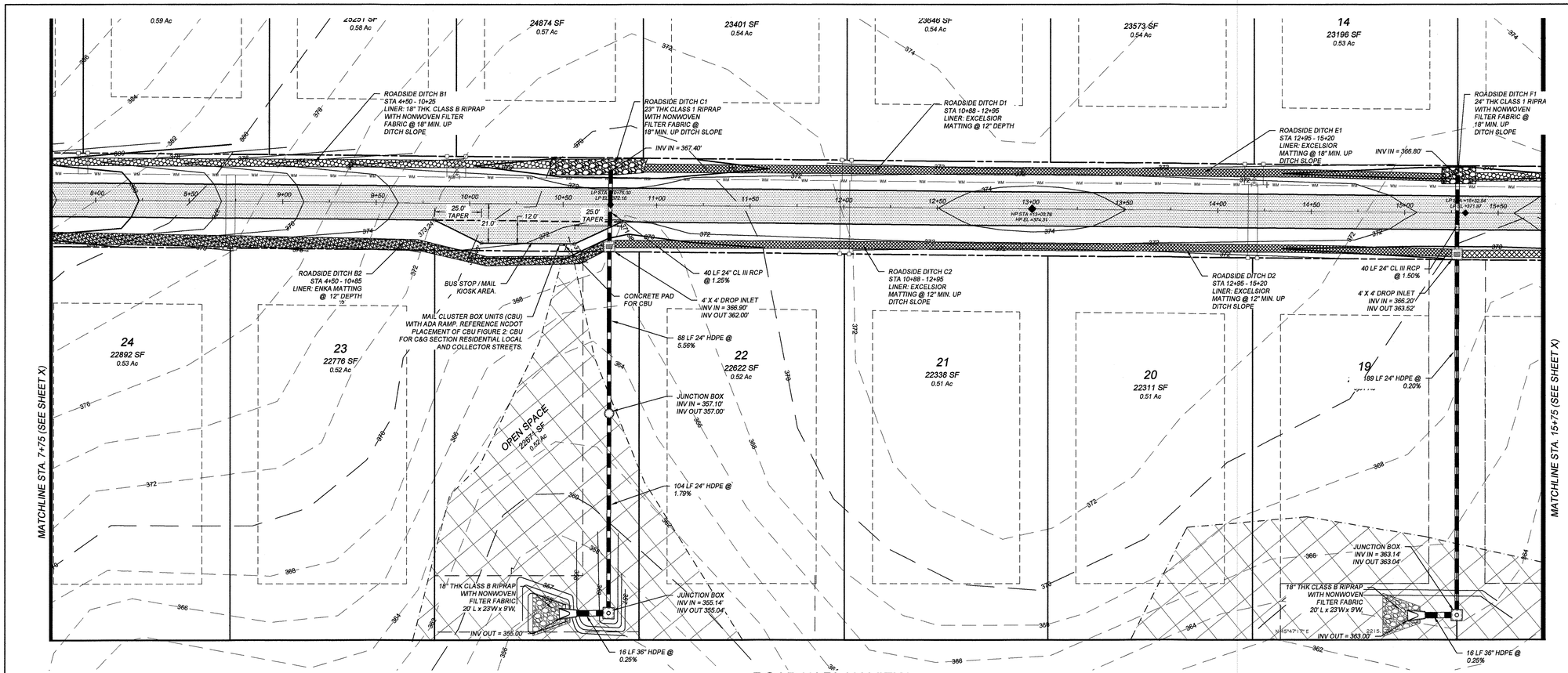
HILLIARD ENGINEERING, PLLC

ROADWAY PLAN & PROFILE AND STORM DRAINAGE

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	11
	CIVIL

RD-1 2/19/2020 9:23:12 PM, ARCH expand D (36.00 x 24.00 inches)



ROAD 'A' PLAN VIEW

SCALE: 1"=30'

NCDOT STANDARD NOTES:

1. ALL UTILITY STRUCTURES SHALL BE LOAD RATED FOR THE APPROPRIATE DEAD LOAD PLUS HL-93 LIVE LOAD. SUCH STRUCTURES SHALL BE DESIGNATED AND CERTIFIED BY A LICENSED PE OR DESIGNATED AS MEETING NCDOT STANDARD SPECIFICATIONS AND DRAWINGS. (ADD THIS NOTE IN UTILITY NOTES SECTION OF THE PLANS).

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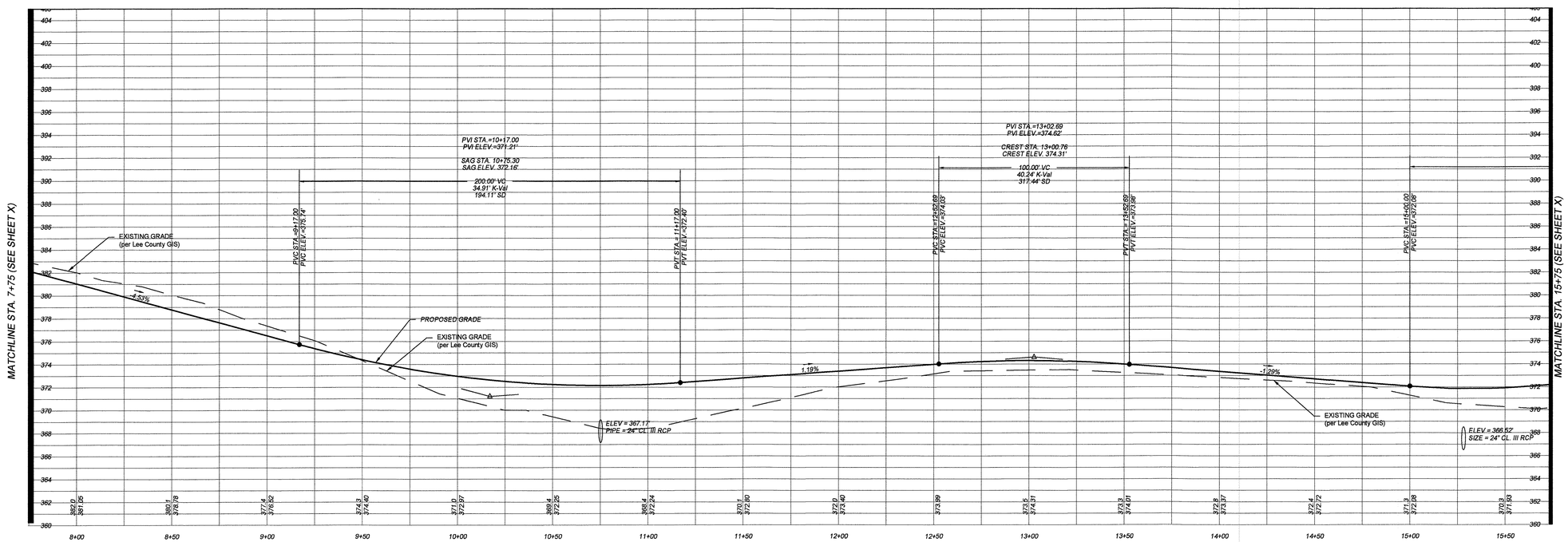
SCALE IN FEET

0' 15 30 60



ROAD 'A' PROFILE

SCALE: HORIZ. 1"=30' VERT. 1"=5'

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APPROVED BY:	JEH
SHEET:	12
	CIVIL

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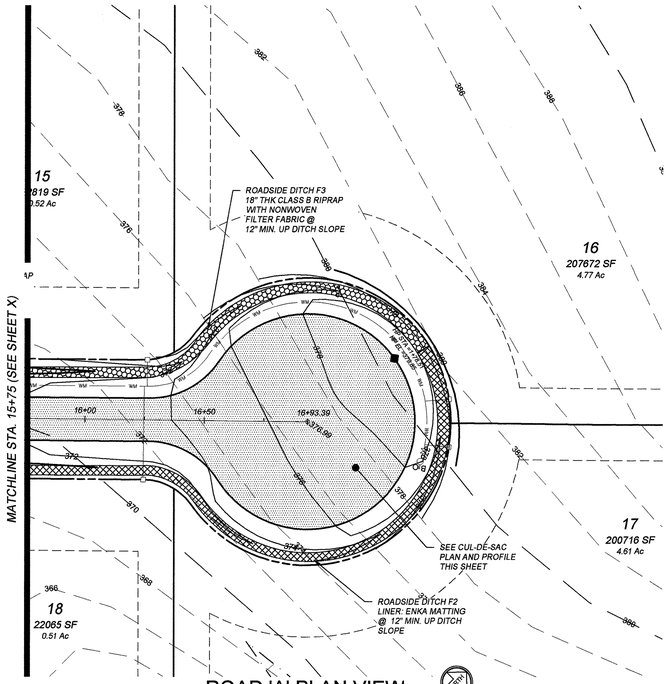
HILLIARD ENGINEERING, PLLC

ROADWAY PLAN & PROFILE AND STORM DRAINAGE

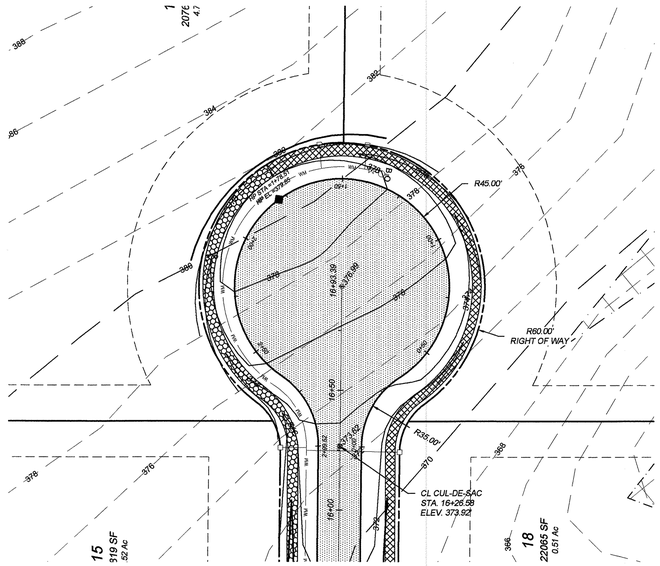
ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

RD-2, 2/19/2020 9:22:18 PM, ARCH expand D (36.00 x 24.00 inches)



ROAD 'A' PLAN VIEW

SCALE: 1"=30'



CUL-DE-SAC PLAN VIEW

SCALE: 1"=30'

NCDOT STANDARD NOTES:

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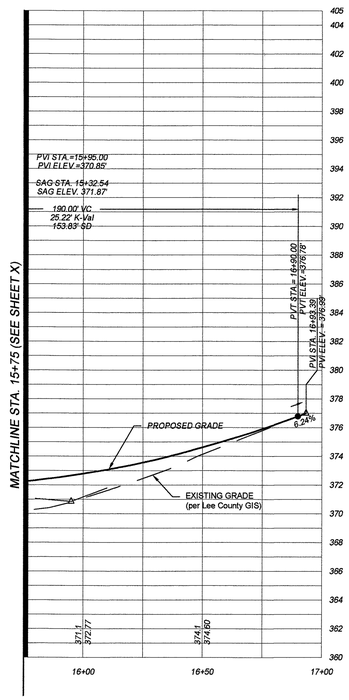
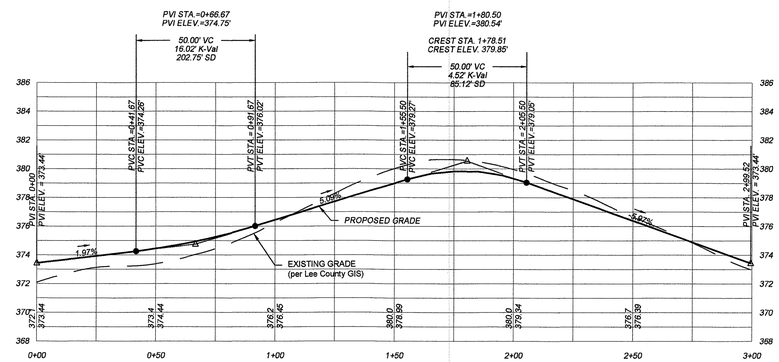
SCALE IN FEET
0' 15 30 60



ROAD 'A' PROFILE

SCALE: HORIZ. 1"=30' VERT. 1"=5'



EDGE OF PAVEMENT PROFILE

SCALE: HORIZ. 1"=30' VERT. 1"=5'

Know what's below
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7/21/20

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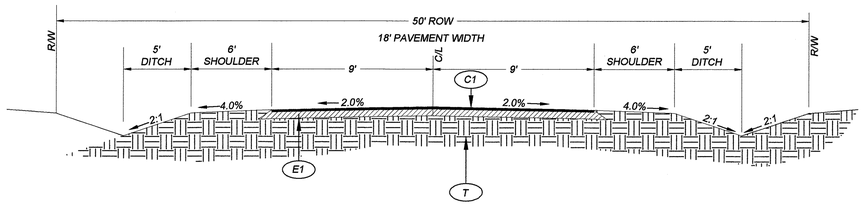
ROADWAY PLAN & PROFILE AND STORM DRAINAGE

ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	13
	CIVIL

RD-3, 2/19/2020 9:22:24 PM, ARCH expand D (36.00 x 24.00 inches)



PAVEMENT SCHEDULE

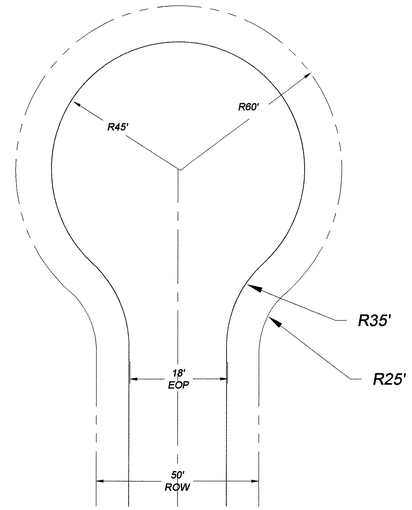
SYMBOL	DESCRIPTION
C1	PROPOSED 2" ASPHALT SURFACE COURSE TYPE S9.5B
E1	PROPOSED 6" ABC COMPACTED TO 100 PERCENT.
T	PREPARED SUBGRADE: COMPACTED TO A MINIMUM OF 98% OF THE SOIL'S MODIFIED PROCTOR DENSITY (ASTM 698) PLACE IN 6: LIFTS. - SEE NOTE 3 PROVIDE TEST RESULTS FOR SUBGRADE COMPACTION.

NOTE:

1. PROVIDE A SMOOTH TRANSITION TO EXISTING PAVEMENT.
2. ALL MATERIAL AND CONSTRUCTION METHODS SHOULD CONFORM TO THE 2018 EDITION OF THE NCDOT STANDARD SPECIFICATIONS. ALL SUBGRADE SHALL MEET NCDOT STANDARD MODIFIED PROCTOR DENSITY
3. IF WET SOIL CONDITIONS ARE ENCOUNTERED, CONTRACTOR SHALL UNDERCUT AND REPLACE WITH STRUCTURAL FILL AND / OR USE OF STRUCTURAL FABRIC WHERE REQUIRED BY GEOTECHNICAL ENGINEER.

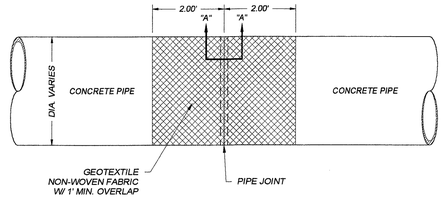
TYPICAL LOCAL RESIDENTIAL ROAD CROSS SECTION

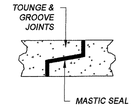
NOT TO SCALE



TYPICAL CUL-DE-SAC DETAILS

NOT TO SCALE

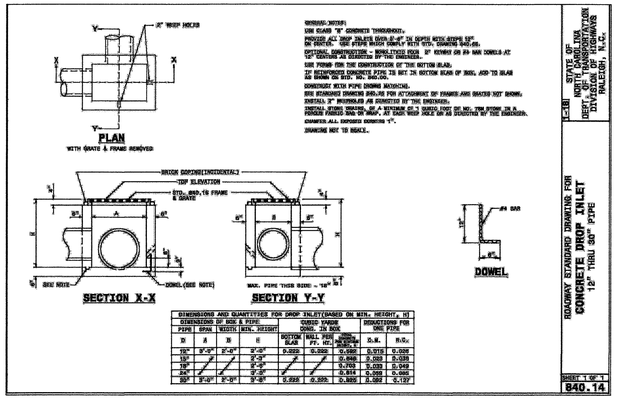




SECTION "A"-"A"

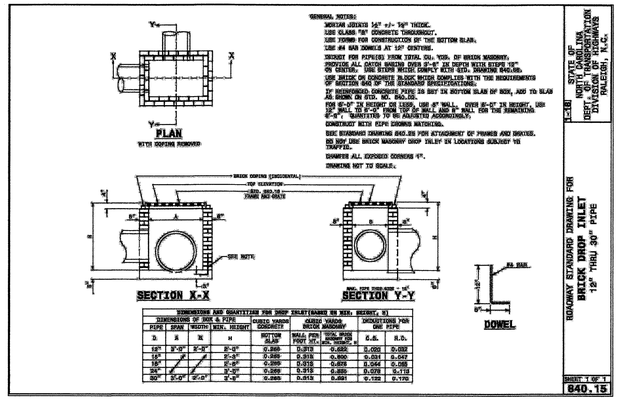
PIPE JOINT

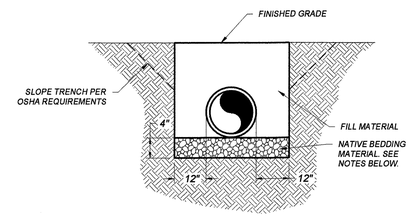
SCALE: N.T.S.



NCDOT DROP INLET DETAIL

NOT TO SCALE



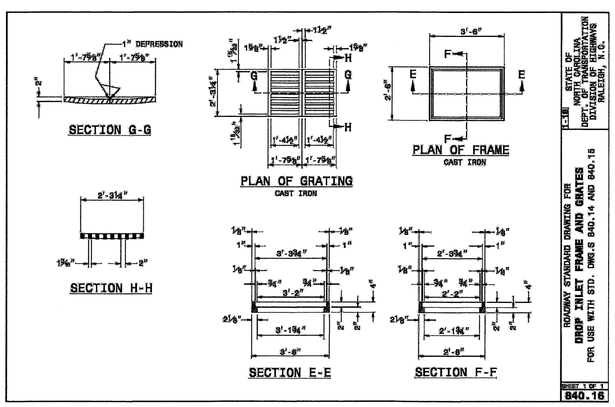


NOTES:

1. MIN. 6" #57 STONE BEDDING SHALL BE REQUIRED IF TRENCH BOTTOM IS BELOW THE GROUND WATER TABLE.
2. FILL SHALL BE NATIVE MATERIAL FREE OF LARGE ROCKS, DEBRIS OR ORGANICS PLACED IN 6" LIFTS AND COMPACTED TO 95% OF THE SOIL'S MODIFIED PROCTOR.

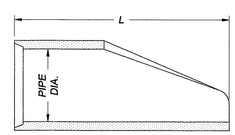
REINFORCED CONCRETE PIPE BEDDING

SCALE: N.T.S.



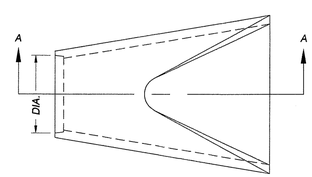
NCDOT FRAME AND GRATE DETAIL

NOT TO SCALE



DIMENSIONS	
DIA.	L
15"	6'-1"
18"	6'-1"
24"	6'-1"
30"	6'-1 3/4"
36"	8'-2"

SECTION A-A



TOP VIEW

FLARED END SECTION

SCALE: N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD

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e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

SYM.:	REVISION DESCRIPTION:	DATE:
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SITE DETAILS

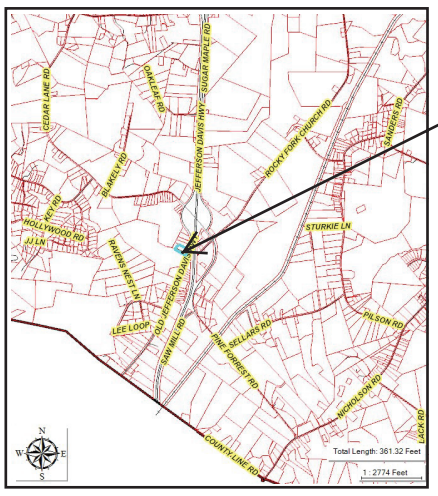
ST ANDREWS
CITY OF SANFORD, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	14
	CIVIL

SITE DET 1, 2/19/2020 9:23:30 PM, ARCH expand D (36.00 x 24.00 Inches)

AZALEA LANE MASTER PLAN

LEE COUNTY, NC



VICINITY MAP (NTS)

PROJECT LOCATION

TWO (2)-9'X18' OFF-STREET PARKING SPACES PROVIDED FOR EACH MH (TYP.)

CLEAR AND GRUB AS NECESSARY

EXTEND EXISTING GRAVEL ROAD AS NECESSARY

MIN. 25' FROM ADJACENT PROPERTY LINE (TYP. OF ALL)

APPROX. 200'X75' AREA FOR EACH NEW MH SPACE (TYP.)

RR

RA

RA

RA

LI-CU

664' +/-

AZALEA LN

300' +/-

OLD JEFFERSON DAVIS HWY

JEFFERSON DAVIS HWY

N
W
E
S

1 : 254 Feet

Parcels

Streets

- Owner: Sandhills Partnership
PO Box 1, Sanford, NC 27331
(919) 775-3828
- Property Address: 65 Azalea Lane, Sanford, NC
- PIN(S): 9528-93-8685-00
9528-93-6769-00
- Property Area: 4.86 acres
- Ex. Zoning: RA
- Requesting Re-zoning To: Azalea Lane Conditional Zoning District
- Proposed Manufactured Homes: 6

Building Footprints

Residence

Proposed Manufactured Home

Zoning

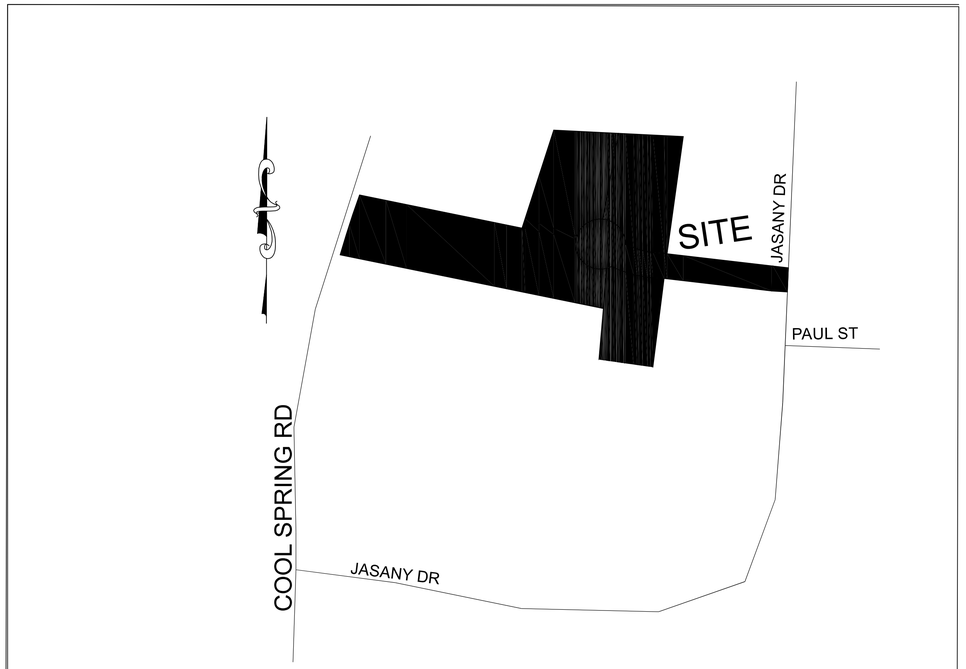
AA

Approx. Property Line Length

000' +/-

Ex. 8' Wide Type 'A' Buffer Yard

EAGLE CREST PLACE SUBDIVISION



VICINITY MAP – NTS

PERMITS

AGENCY	PERMIT NUMBER	CERTIFICATIONS/RECORD DRAWING
DEQ SEWER	WQ 0034843 (JUNE 29, 2010)	ENGINEER CERTIFICATION MAY 31, 2011
PUBLIC WATER SUPPLY	10-00593 JULY 9, 2010	APPLICANT & ENGINEER CERTIFICATION JUNE 2, 2011

811
Know what's **below.**
Call before you dig.

INDEX

C0 COVER
C1 EXISTING CONDITIONS
C2 PRELIMINARY PLAT
C3 PRELIMINARY PLAT WITH TOPO

PRELIMINARY
FOR TRC REVIEW 2-27-20

REVISIONS:

KEN BRIGHT ASSOCIATES PLLC
P-0781
CONSULTING ENGINEERS
P.O. BOX 553 2305 CARTHAGE ST.
SANFORD, NC 27331
PHONE: (919) 776-3444
e-mail: kwbright@kenbrightengineering.com
www.kenbrightengineering.com

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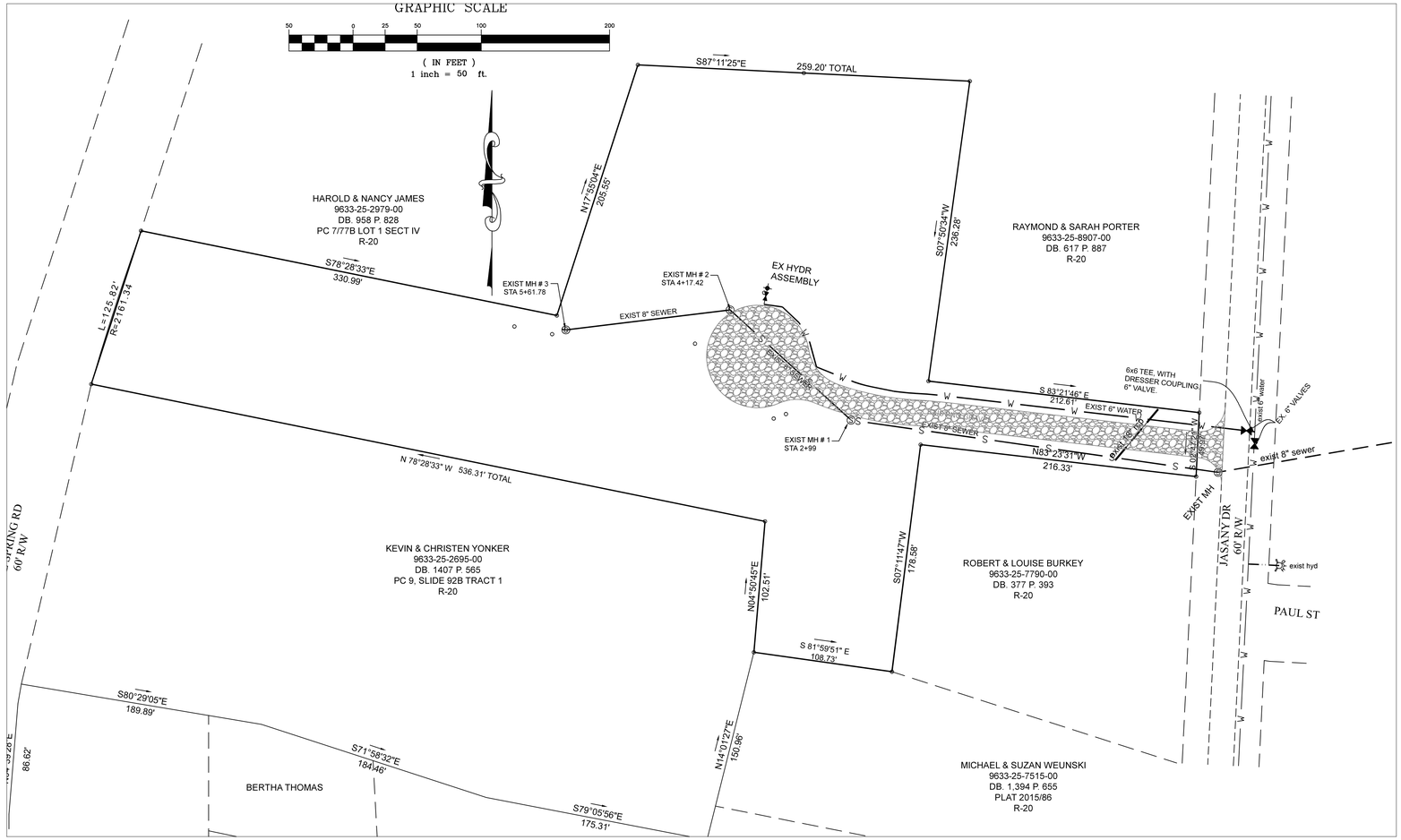
CONTACT:
DAVID LIND
PO BOX 994
SANFORD, NC 27331
(919) 776-4923

DATE: 2-27-2020
SCALE: AS SHOWN

COVER
EAGLE CREST PLACE
SANFORD, NC

C0

FILE:
PP-202013-EAGLE



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(919) 776-4923

SCALE: AS SHOWN

DATE: 2-26-2020

EXISTING CONDITIONS
EAGLE CREST PLACE
SANFORD, NC

C1

FILE:
PP-202013-EAGLE

PRELIMINARY PLAT

EAGLE CREST PLACE SUBDIVISION

WEST SANFORD TOWNSHIP
LEE COUNTY NORTH CAROLINA
FEBRUARY 24, 2020

OWNER	BUYER
BERTHA THOMAS 515 APPLE LN SANFORD, NC 27330	DEL DEVELOPMENT LLC - DAVID LIND P.O. BOX 994 SANFORD, NC 27331

SITE DATA:
SITE SIZE: 3.73± Acres
NUMBER OF LOTS: 5
UNITS/ACRE = 1.34 (MAX ALLOWED 2.0)
SMALLEST LOT SIZE: 20,199.1 sq.ft.
AVERAGE LOT SIZE: 27,966.6 sq.ft.
LINEAR FEET OF STREET: 425 LF±
RIGHT OF WAY: 50 FT

ZONING: R-20

PIN #: 9633-25-4897-00

MIN. BUILDING SETBACK LINES
FRONT = 30'
BACK = 30'
SIDE = 15'

MIN. LOT WIDTH: 100'

MIN. LOT WIDTH CUL DE SAC: 100' AT 30' SETBACK

SEWAGE EXISTING CITY OF SANFORD
WATER EXISTING CITY OF SANFORD

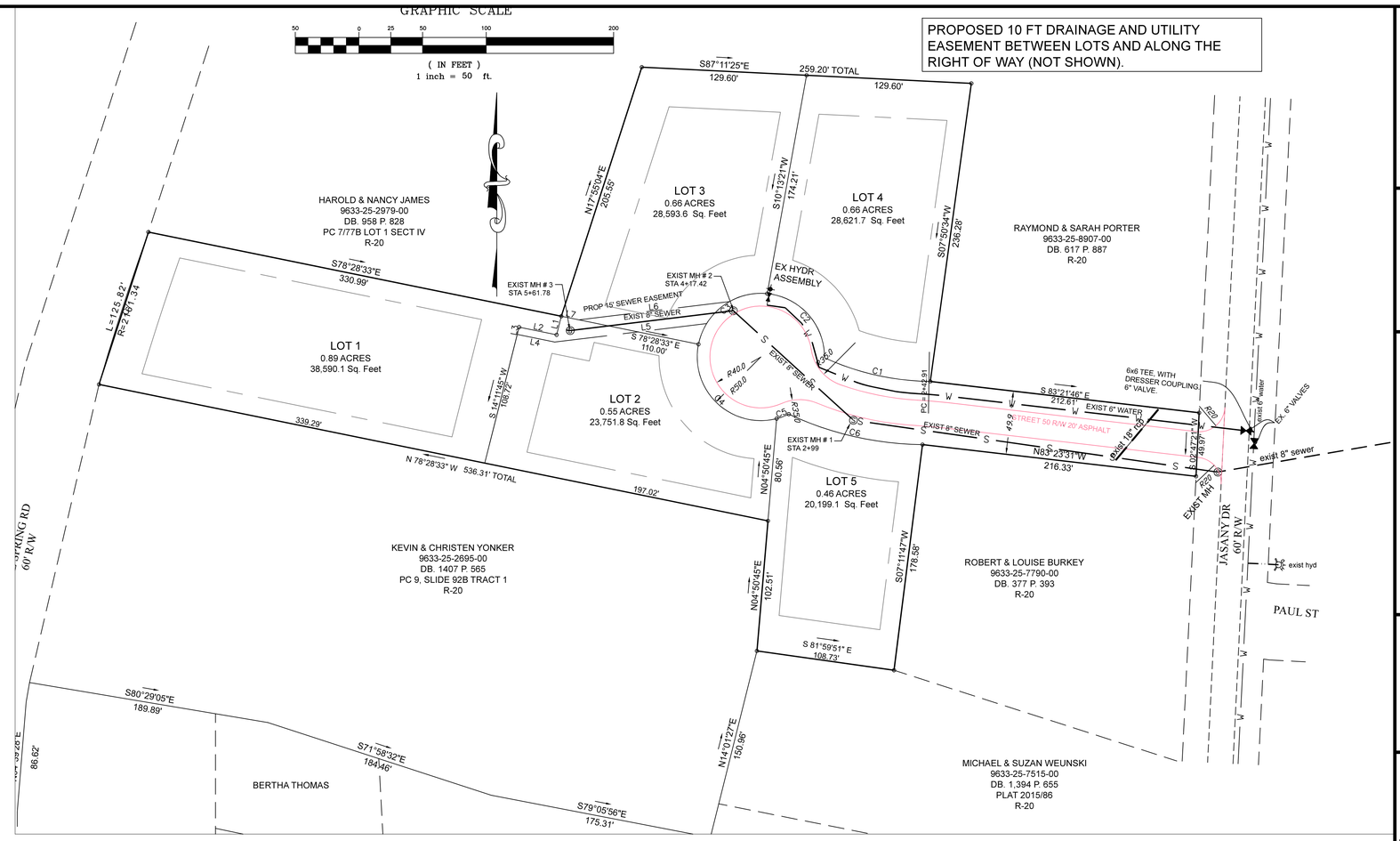
DRAINAGE AND UTILITY EASEMENTS:
- 10' TOTAL ALL INTERIOR LOT LINES
- 10' ALONG R/W
- 15' ALONG EXISTING DRAINAGE WAYS.

REFERENCES:
DB. 1349, P. 220, PC9, SLIDE 92B

NOTES:
1) CONTOURS AND SITE FEATURES FROM FROM CITY OF SANFORD GIS

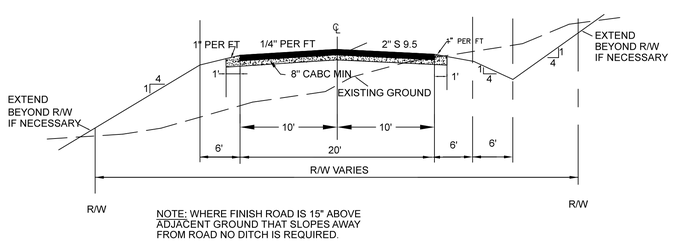
2) BOUNDARY INFORMATION FROM SURVEY FOR HARRY THOMAS BY BRACKEN AND ASSOCIATES DATED JANUARY 5, 2002.

3) FLOOD: ZONE X MINUMAL FLOOD RISK AS PER FEMA MAP 3710963300J DATED 9/06/06



CURVE TABLE				
CURVE	RADIUS	ARC	CHORD	CHORD BEARING
C1	205.00'	85.79'	85.17'	N 77°23'20" W
C2	50.00'	74.17'	67.56'	S 41°46'23" E
C3	50.00'	73.48'	67.04'	N 53°37'39" E
C4	50.00'	101.12'	84.74'	N 46°24'31" W
C5	50.00'	10.20'	10.18'	N 69°48'49" E
C6	255.00'	108.53'	107.71'	N 77°11'10" W
C7	2161.34'	125.82'	125.80'	N 17°58'35" E

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 14°11'45" W	15.02'
L2	N 78°28'33" W	30.03'
L3	S 11°31'27" W	5.88'
L4	S 78°28'33" E	29.76'
L5	N 83°01'43" E	119.93'
L6	S 83°04'13" W	119.05'
L7	N 78°28'33" W	14.21'



NOTE: WHERE FINISH ROAD IS 15" ABOVE ADJACENT GROUND THAT SLOPES AWAY FROM ROAD NO DITCH IS REQUIRED.

TYPICAL SANFORD RESIDENTIAL STREET SECTION
N.T.S.

PRELIMINARY
FOR TRC REVIEW 2-27-20

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(919) 776-4923

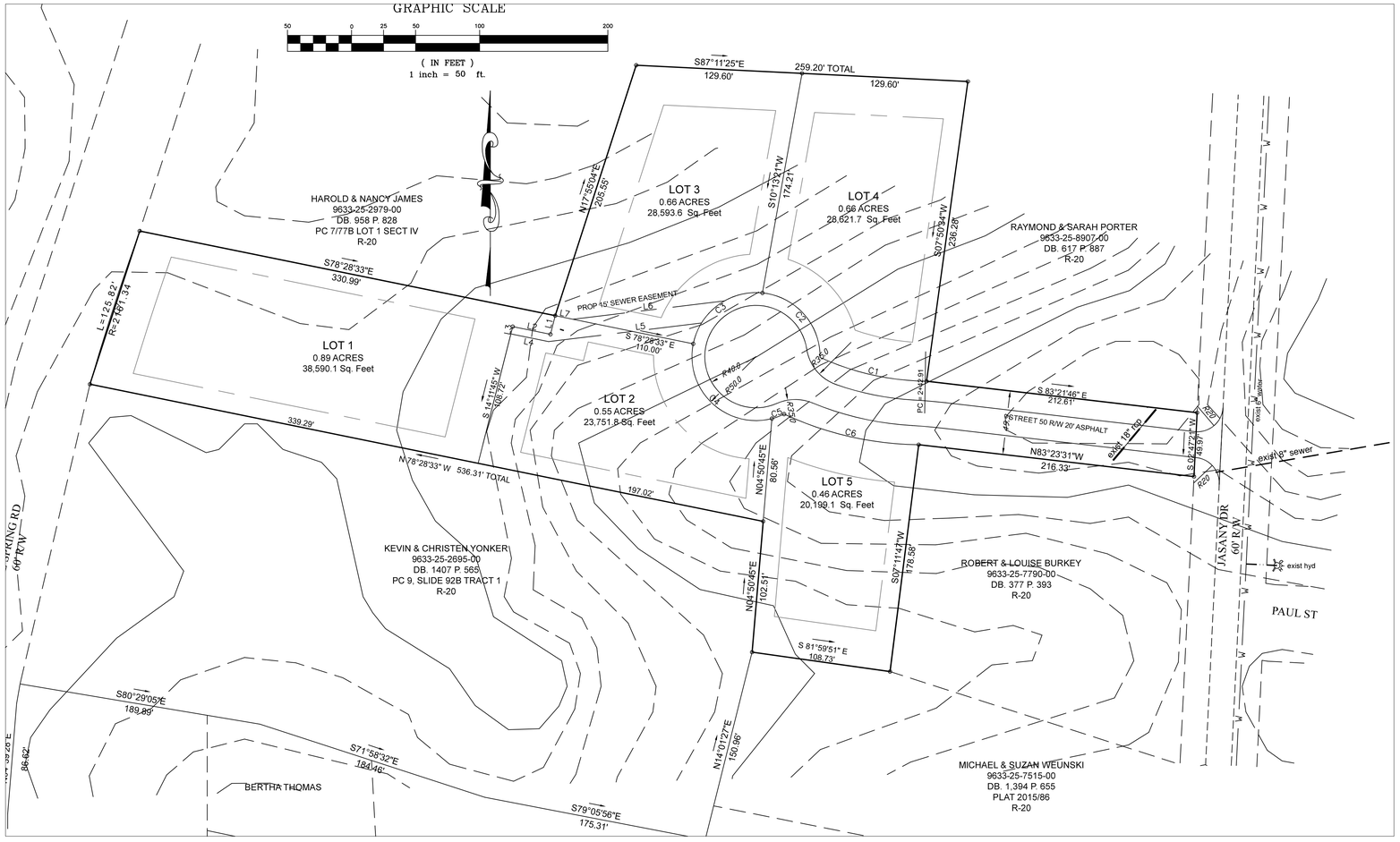
SCALE: AS SHOWN

DATE: 2-26-2020

PRELIMINARY PLAT
EAGLE CREST PLACE
SANFORD, NC

C2

FILE:
PP-202013-EAGLE



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FOR TRC REVIEW 2-27-20

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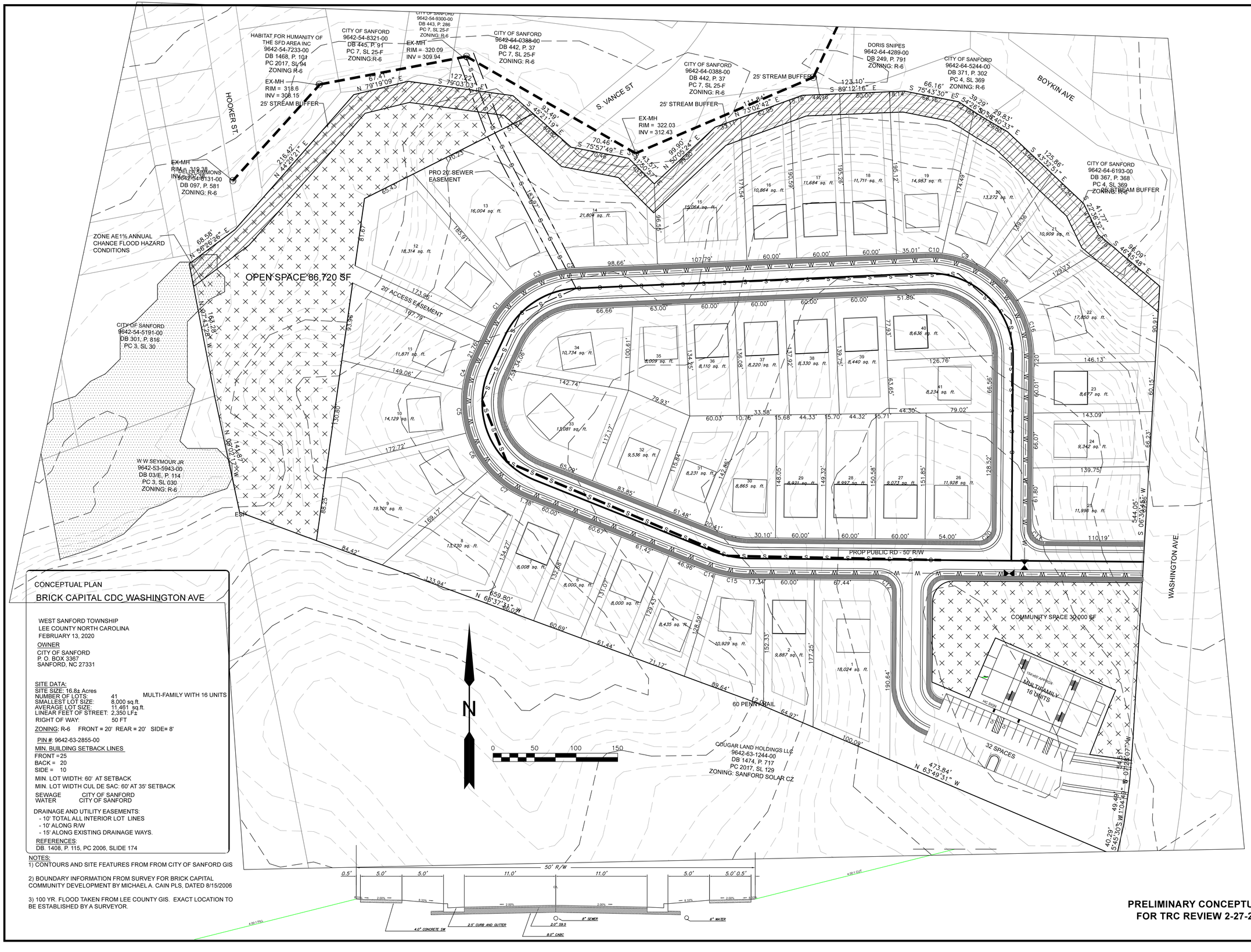
SCALE: AS SHOWN

DATE: 2-26-2020

PRELIMINARY PLAT WITH TOPO
EAGLE CREST PLACE
SANFORD, NC

C3

FILE:
PP-202013-EAGLE



CONCEPTUAL PLAN

BRICK CAPITAL CDC WASHINGTON AVE

WEST SANFORD TOWNSHIP
LEE COUNTY NORTH CAROLINA
FEBRUARY 13, 2020

OWNER
CITY OF SANFORD
P. O. BOX 3367
SANFORD, NC 27331

SITE DATA:
SITE SIZE: 16.8± Acres
NUMBER OF LOTS: 41 MULTI-FAMILY WITH 16 UNITS
SMALLEST LOT SIZE: 8,000 sq.ft.
AVERAGE LOT SIZE: 11,461 sq.ft.
LINEAR FEET OF STREET: 2,350 LF±
RIGHT OF WAY: 50 FT

ZONING: R-6 FRONT = 20' REAR = 20' SIDE= 8'

PIN #: 9642-63-2855-00

MIN. BUILDING SETBACK LINES
FRONT =25
BACK = 20
SIDE = 10

MIN. LOT WIDTH: 60' AT SETBACK
MIN. LOT WIDTH CUL DE SAC: 60' AT 35' SETBACK

SEWAGE CITY OF SANFORD
WATER CITY OF SANFORD

DRAINAGE AND UTILITY EASEMENTS:
- 10' TOTAL ALL INTERIOR LOT LINES
- 10' ALONG R/W
- 15' ALONG EXISTING DRAINAGE WAYS.

REFERENCES:
DB. 1408, P. 115, PC 2006, SLIDE 174

NOTES:
1) CONTOURS AND SITE FEATURES FROM FROM CITY OF SANFORD GIS

2) BOUNDARY INFORMATION FROM SURVEY FOR BRICK CAPITAL COMMUNITY DEVELOPMENT BY MICHAEL A. CAIN PLS, DATED 8/15/2006

3) 100 YR. FLOOD TAKEN FROM LEE COUNTY GIS. EXACT LOCATION TO BE ESTABLISHED BY A SURVEYOR.

PRELIMINARY CONCEPTUAL FOR TRC REVIEW 2-27-20

REVISIONS:

KEN BRIGHT ASSOCIATES PLLC
P-0781
CONSULTING ENGINEERS
P.O. BOX 553 2305 CARTHAGE ST.
SANFORD, NC 27331
PHONE: (919) 776-3444
e-mail: kwbright@kenbrightengineering.com
www.kenbrightengineering.com

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CONTACT:
Kerry Bashaw
Executive Director Brick Capital Community Development
403 W. Makepeace St
Sanford, NC 27330
(919) 708-7864

DATE: 2-27-2020

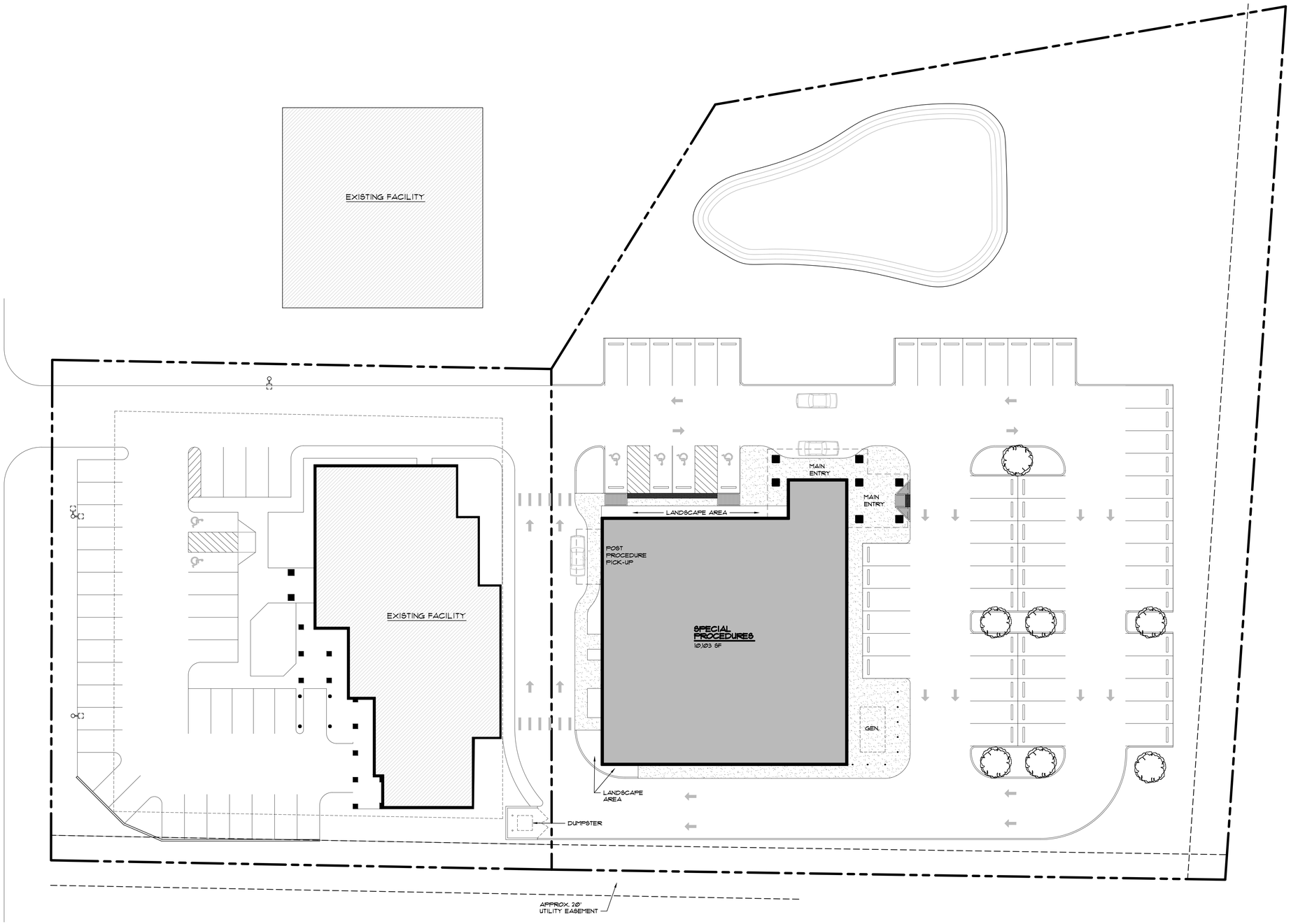
SCALE:

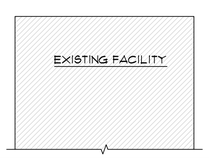
BRICK CAPITAL CDC WASHINGTON AVE SITE

CONCEPTUAL PLAN

1

FILE:
PP-2020.07-BCCD-TRC





PARKING CALCULATION:

10,103 SF AT 6 SPACES PER 1,000 SF = 61 SPACES

PROPOSED PARKING = 61 SPACES

1 PROPOSED ARCHITECTURAL SITE PLAN

SCALE: 1" = 20'-0"

REVISIONS	BY

OLIVERI ARCHITECTS

Member of the American Institute of Architects
32707 US Hwy. 19 • Palm Harbor, FL 34684
Phone 727. 781. 7525 • Fax 727. 781. 6623
• www.oliverearchitects.com •

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SCHEMATIC DESIGN
SCHEME 'R'

New Freestanding Building for:
MID CAROLINA GASTROENTEROLOGY
110 Dennis Dr.
Sanford, North Carolina 27330
Lee County

Date: 02. 25. 20

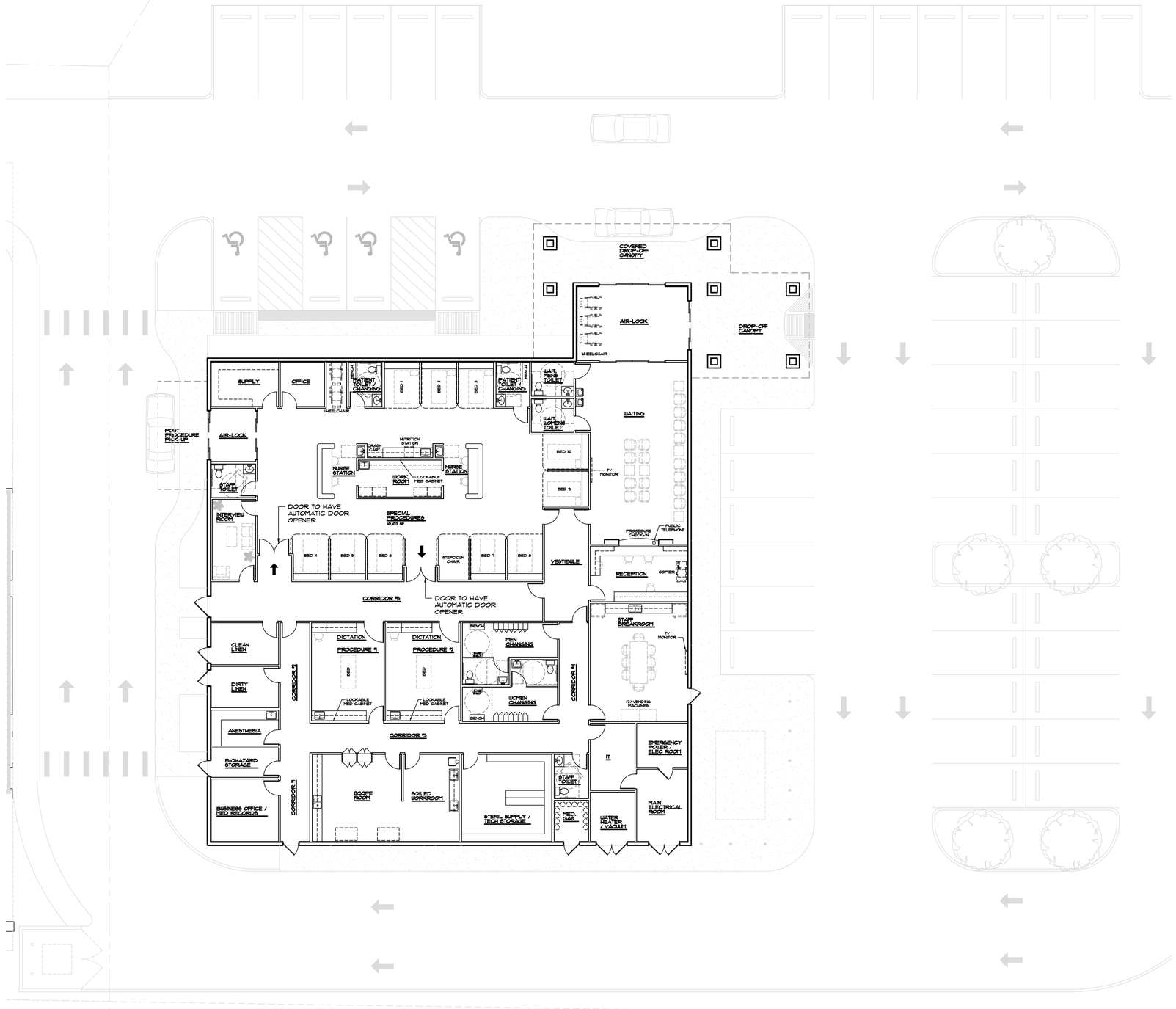
Scale: AS NOTED

Project Mgr: AC

Drawn: GNIII

Job: 19-063b

Sheet
AS1



1 SCHEMATIC FLOOR PLAN
SCALE: 3/32" = 1'-0"

SPECIAL PROCEDURES AREA: 10,103 SF

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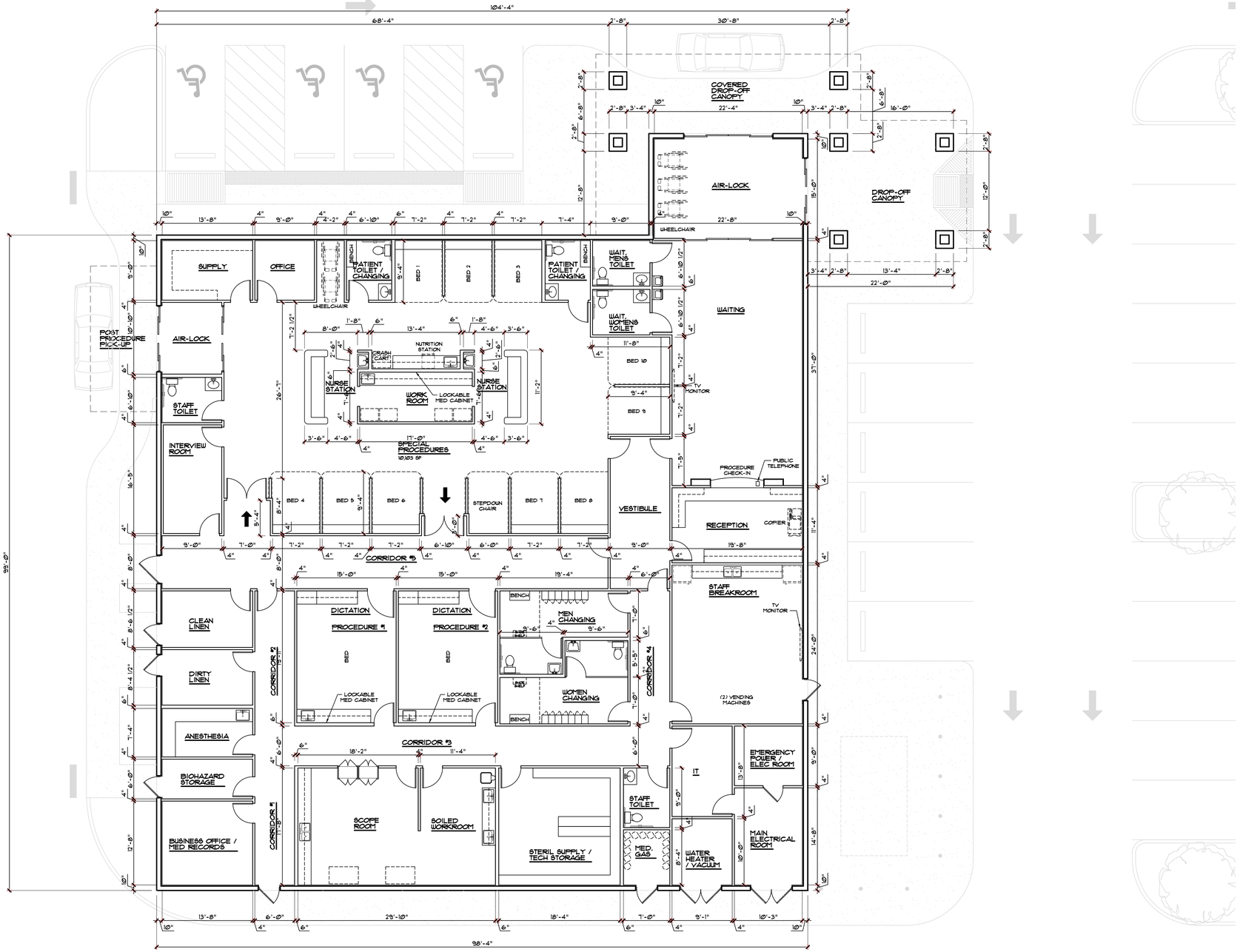
Project Mgr: AC
Drawn: GNIII
Job: 19-063b
Sheet
A1



1 SCHEMATIC DIMENSION PLAN
SCALE: 1/8" = 1'-0"

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SCHEMATIC DESIGN
SCHEME 'R'

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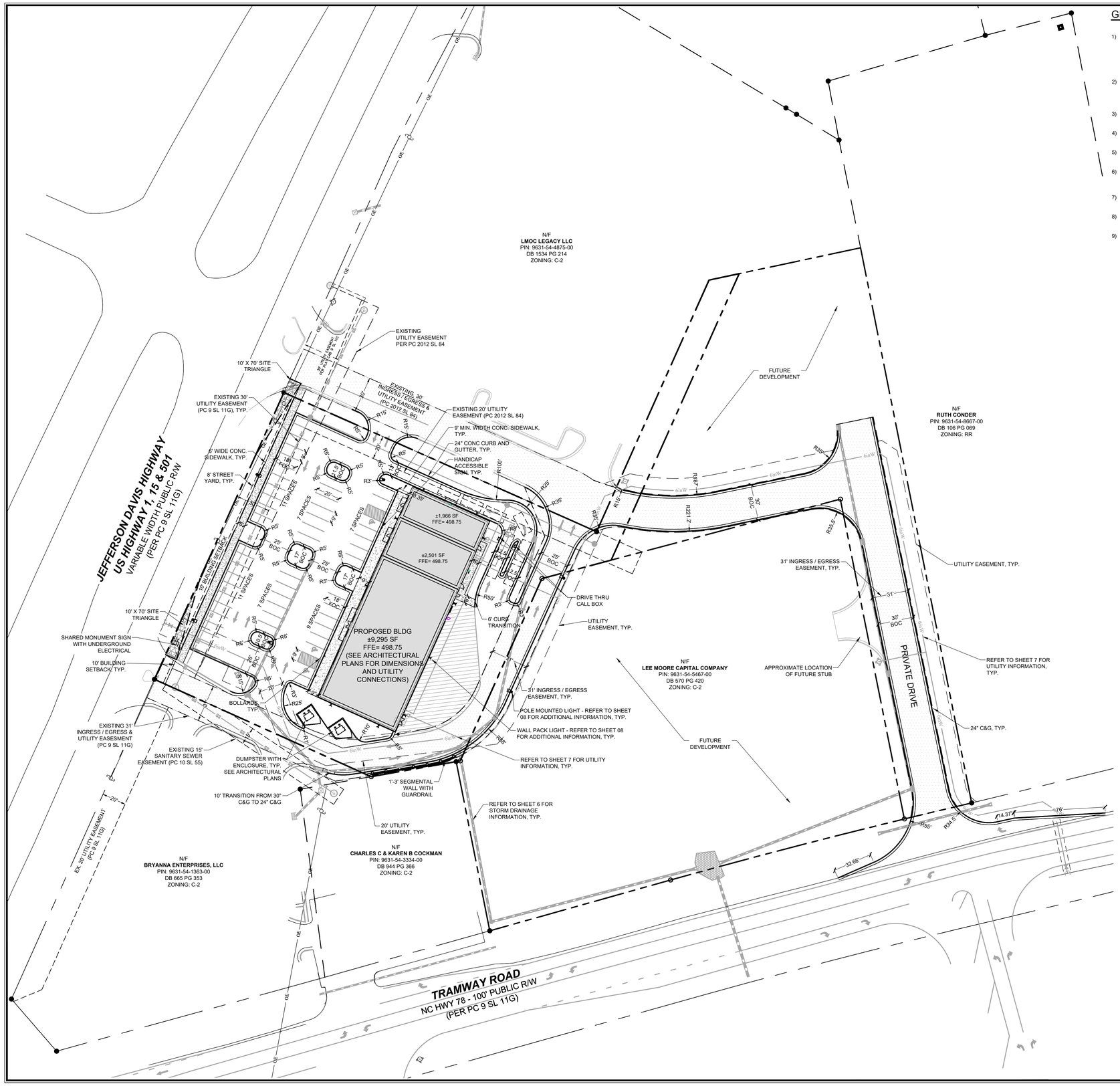
Sanford, North Carolina 27330
Lee County

Date: 02. 25. 20
Scale: AS NOTED
Project Mgr: AC
Drawn: GNIII
Job: 19-063b
Sheet
A2



GENERAL CONSTRUCTION NOTES

1) EXISTING UNDERGROUND STRUCTURES AND UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS , INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES, PRIOR TO STARTING CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

2) THE CONTRACTOR SHALL CONTACT NORTH CAROLINA ONE CALL AT 1-800-632-4949 AND THE CITY OF SANFORD FOR ASSISTANCE LOCATING EXISTING UTILITIES. THE CONTRACTOR SHALL CALL AT LEAST 48 HOURS PRIOR TO ANY DIGGING.

3) ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF SANFORD, SPECIFICATIONS AND STANDARD DETAILS, LATEST EDITION.

4) ALL UTILITIES CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF SANFORD, SPECIFICATIONS AND STANDARD DETAILS, LATEST EDITION.

5) ALL CONSTRUCTION WITHIN THE N.C.D.O.T. RIGHT-OF-WAY SHALL CONFORM TO N.C.D.O.T. STANDARDS AND SPECIFICATIONS.

6) THE SUBJECT PROPERTY IS LOCATED IN ZONE X, A MINIMAL FLOOD RISK AREA PER FEMA FIRM PANEL 9631, MAP NUMBER 3710963100J, DATED 09/06/06.

7) EXISTING BOUNDARY AND TOPOGRAPHIC SURVEY WAS PROVIDED BY CE GROUP, INC.

8) DISTURBANCE IS LIMITED TO NO MORE THAN 15 AC OF GRADUAL SLOPED LAND AT ANY ONE TIME (0 – 14.9% SLOPE).

9) DISTURBANCE IS LIMITED TO NO MORE THAN 10 AC OF MODERATELY SLOPED LAND AT ANY ONE TIME (15 – 24.9% SLOPE).

SITE DATA

PARCEL 1

CURRENT OWNER:	LEE MOORE CAPITAL COMPANY
SITE ADDRESS:	0 JEFFERSON DAVIS HWY SANFORD, NC
PIN:	9631-54-2596
DEED BOOK / PAGE:	524 / 154
SITE AREA:	± 2.97 ACRES
CURRENT USE:	VACANT
ZONING:	C-2

PARCEL 2

CURRENT OWNER:	LEE MOORE CAPITAL COMPANY
SITE ADDRESS:	0 TRAMWAY RD SANFORD, NC
PIN:	9631-54-5467
DEED BOOK / PAGE:	570 / 420
SITE AREA:	± 2.08 ACRES
CURRENT USE:	VACANT
ZONING:	C-2

PROPOSED CONDITION:

PROPSED SITE AREA:	± 1.70 AC
PROPOSED USE:	RETAIL
RESIDUAL ACREAGE:	± 3.35 AC

MIN. REQUIRED BUILDING SETBACKS (C-2):

FRONT	10'
CORNER	0'
REAR	0'
SIDE	0'

PROPOSED BUILDING AREA

RETAIL	1,966 SF
RETAIL	2,501 SF
RETAIL	9,295 SF
TOTAL	**13,762 SF**

PARKING STATISTICS
RETAIL - 1 SPACE PER 300 SF OF GFA
13,762 S F / 300 SF = 45.87

TOTAL PARKING REQUIRED: *46 SPACES REQUIRED*
PARKING PROVIDED: **52 SPACES PROVIDED (INCLUDES 3 H.C. SPACES)**

MAX IMPERVIOUS AREA: *± 58,900 SF (80% OF SITE)*

BUILDING AREA:	± 13,762 SF
PAVING AREA:	± 37,186 SF
SIDEWALK AREA:	± 3,970 SF

EX IMPERVIOUS AREA TO REMAIN:	**± 3,847 SF (5.2% OF SITE)**
PROPOSED IMPERVIOUS AREA:	**± 54,918 SF (74.2% OF SITE)**
TOTAL SITE IMPERVIOUS AREA:	**± 58,765 SF (79.4% OF SITE)**

LEGEND

- SS — SANITARY SEWER MAIN
- W — WATER MAIN
- G — GAS MAIN
- FO — FIBER OPTIC
- # — # — OVERHEAD ELECTRIC
- UE — UNDERGROUND ELECTRIC
- POWER POLE
- POWER POLE W/ LIGHT
- EXISTING IRON PIPE
- FIRE HYDRANT
- GATE VALVE
- EXISTING WATER METER
- COMPUTED POINT
- PROPERTY CORNER FOUND
- CONCRETE MONUMENT FOUND
- PROPERTY CORNER SET
- UTILITY POLE
- DROP INLET
- STORM DRAINAGE MANHOLE
- CURB INLET
- SANITARY SEWER MANHOLE
- FIRE HYDRANT
- ACCESS EASEMENT

CALL OR CLICK 811 BEFORE YOU DIG
811 SAFE DIGGING PARTNER

FINAL DESIGN
NOT RELEASED FOR CONSTRUCTION

NO.	REVISIONS	DATE
0	TRC SUBMISSION	03/02/2020

CE GROUP
301 GLENWOOD AVE. 220
RALEIGH,NC 27603
PHONE: 919-367-8790
FAX: 919-322-0032
www.cegroupinc.com
License # C-1739

3/2/20
SEAL 18894

CONSTRUCTION PLANS FOR TRAMWAY COMMERCIAL

SITE PLAN
SANFORD, NC

Date:	MARCH 2, 2020
Scale:	1" = 40'
Drawn:	JPD
Checked:	MPA
Project No.	200-123
Computer Dwg. Name	200-123 sht03_site plan

Sheet No:
SHT03
Of 17