

General Notes:

- The Permittee or designee shall schedule the pre-construction meeting seven (7) prior to commencing work with the Town of Pittsboro Engineering Inspector. (919) 533-5482 or mmeyer@pittsboronc.gov and froyal@pittsboronc.gov.
 - The Permittee or designee shall notify the Town of Pittsboro at least forty-eight (48) hours prior to beginning any construction work. Once the work has begun, at least forty-eight (48) notice shall be given prior to any sort of disruption to the town's services such as working in a town roadway, tapping water mains, plugging sewer, etc.
- Notification must be provided by direct communication. Voice mail or email will not be a considered notification unless adequately responded to by a Town of Pittsboro representative.
- The Permittee or designee shall be responsible for notifying all customers affected by service interruptions. The Town of Pittsboro will not approve services interruptions until proof is provided that proper customer notifications has been provided.
- Existing valves shall be operated only by Town of Pittsboro staff or encase of an emergency in the presents of Town staff.
 - Town of Pittsboro current standard specifications and details are available on line at pittsboronc.gov, under the engineering department page.
 - The contractor shall uncover all existing town utility lines being tied into to verify their type, condition, location, invert, slope, and any other information needed to determine that the utility connection will function as designed. The contractor is responsible for making any repairs necessary to the lateral or main lines of the town water, reclaimed water, sanitary sewer, and/or storm drain system necessary for the connection to function as designed. The contractor shall locate or have located all existing underground private utilities (electric, telephone, pipelines, etc.) And structures in advance of construction and shall eliminate all conflicts prior to start of construction. Blue stake telephone 811, 800-632-4949.
 - Backfilling shall not be started until lines are approved by the Town Engineer Technician, and Geotechnological firm. All backfill shall be ABC or native material unless otherwise approved on the plans as CLSM. ABC or native material shall be installed in accordance with, type 1 to 95% compaction. Backfill placement and surface replacement shall be in accordance with top STD DTL for t-top with 16" min depth ABC shelf.
 - An approved set of plans shall be maintained on the job site at all times that work is in progress. Deviation from the plans shall not be allowed without an approval plan revision.
 - The contractor shall supply town engineering technician/inspector construction material testing documentation throughout the project.
 - Town of Pittsboro water valves shall be operated by town personnel only. The town requires a 48 hour notice for system shutdowns. Contractor is required to notify affected customers 24 hours prior. Business' may require after hours' shutdowns. Residential flows after shutdown may require a pump. Contractor is responsible to install 2" taps to relieve pressure and alleviate residual flows when needed.

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

Town of Pittsboro - Plan Authorization for Construction

All construction must be in accordance with all Local, State and Federal rules and regulations

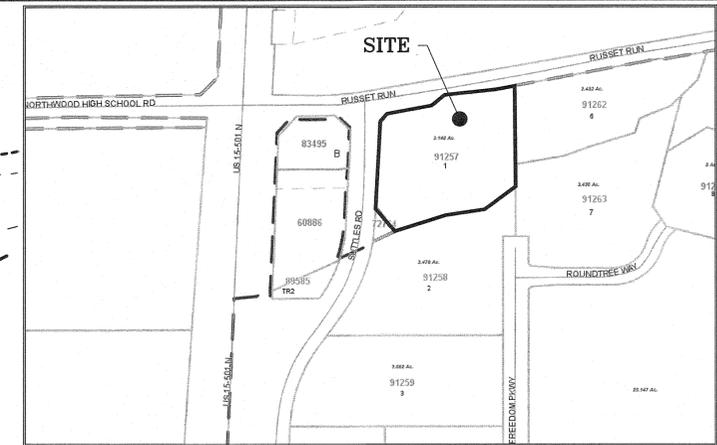
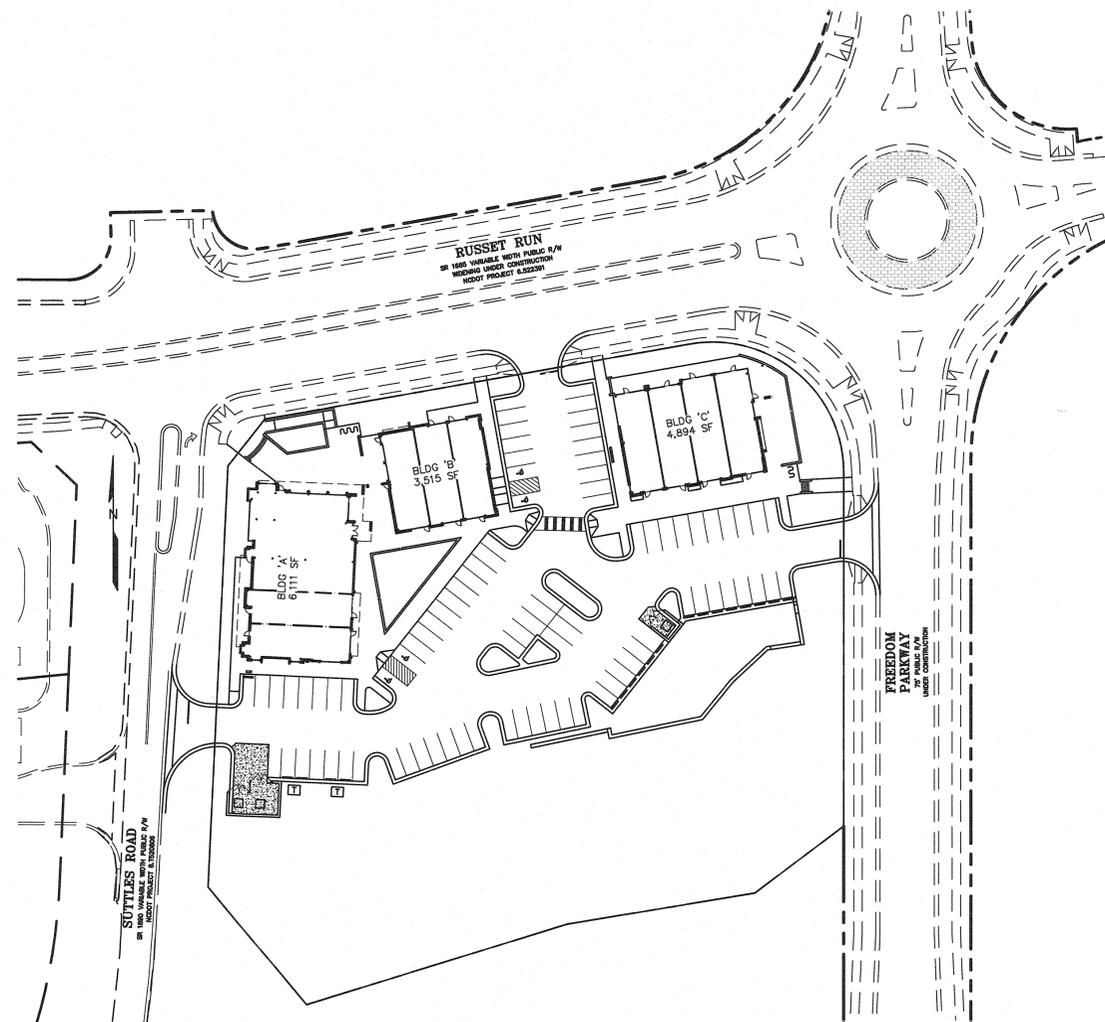
PUBLIC UTILITIES _____
 ENGINEERING _____
 PLANNING AND ZONING _____
 FIRE DEPARTMENT _____
 CHATHAM COUNTY EROSION CONTROL _____



Know what's below.
 Call before you dig.
 (Or call: 1-800-632-4949)

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____



VICINITY MAP
 NTS

PITTSBORO ROOTS

SITE PLAN

Pittsboro, North Carolina

SITE DATA:

OWNER:	CHATHAM DEVELOPMENT ONE, INC. 100 MATRIX DR BOX 8000 CARY, NC 27513 919-481-3000 TIM SMITH	MAXIMUM ALLOWABLE BUILDING HEIGHT:	8 STORIES
DEVELOPER:	PENGUIN PLACE, LLC 6801 HOMWOOD DRIVE CHAPEL HILL, NC 27514 919-489-8656 RON STROM	PROPOSED BUILDING HEIGHT:	50' MAXIMUM
PROJECT:	MIXED USE COMMERCIAL	PROPOSED BUILDING AREA:	14,520 SF±
PARCEL ACREAGE:	2.75 ACRES	EXISTING IMPERVIOUS SURFACE:	NONE
PROJECT ACREAGE:	1.9± ACRES	PROPOSED IMPERVIOUS SURFACE:	1.5 ACRES (54.5%)
CURRENT ZONING:	PDD	MAXIMUM ALLOWABLE IMPERVIOUS SURFACE:	2.75 ACRES (100%)
OVERLAY ZONING:	WS-IV, PA	*OPEN SPACE REQUIRED:	0.728 ACRES (26.4%)
RIVER BASIN:	CAPE FEAR RIVER BASIN JORDAN LAKE; HAW RIVER	OPEN SPACE PROVIDED:	0.946 ACRES (34.4%)
BUILDING SETBACKS REQUIRED:	0.0' FRONT 0.0' SIDE 0.0' REAR	*TCA REQUIRED:	NONE
BUILDING SETBACKS PROVIDED:	12.5' MIN. FRONT N/A SIDE 180± REAR	TCA PROVIDED:	0.55 ACRES (20.0%)
		REQUIRED PARKING:	87 SPACES (90 SEAT FULL SERVICE RESTAURANT WITH 9 EMPLOYEES/SHIFT @ 3,725 SF) (4,894 SF MEDICAL OFFICE WITH 6 EXAM ROOMS AND 10 EMPLOYEES INCLUDING DOCTOR) (5,901 SF SHOPPING CENTER NOT OTHERWISE SPECIFIED)
		PARKING PROVIDED:	87 SPACES
		BICYCLE PARKING REQUIRED:	10 SPACES*
		BICYCLE PARKING PROVIDED:	10 SPACES

*REQUIREMENTS CITED ARE NOT TOWN OF PITTSBORO REGULATORY REQUIREMENTS.

DRAWING INDEX:

C1	COVER SHEET
C3	EXISTING CONDITIONS SURVEY (WITHERS & RAVENEL)
C4	SITE PLAN
U1	GRADING & STORM DRAINAGE PLAN
U2	UTILITY PLAN
U3	SEWER PLAN & PROFILE
L1.0	WATER PLAN & PROFILE
L2.0	PLANTING PLAN
L2.1	PLANTING DETAILS
L2.2	PLAZA LAYOUT (WEST)
D1	PLAZA LAYOUT (EAST)
D2	SITE LIGHTING (DUKE ENERGY)
D3	GENERAL SITE DETAILS
D4	UTILITY DETAILS
D5	UTILITY DETAILS
EC1	GRADING & STORM DRAINAGE DETAILS
EC2	BIORETENTION DETAILS
EC3	EROSION CONTROL PLAN PHASE 1
EC4	EROSION CONTROL PLAN PHASE 2
	EROSION CONTROL DETAILS
	EROSION CONTROL DETAILS

LEGEND

	NEW	EXISTING
DRAINAGE STRUCTURE	■ □ △	□ ○ □ △
SANITARY SEWER MANHOLE	⊙	⊙
SANITARY SEWER CLEANOUT	⊙ c.o.	⊙ c.o.
WATER VALVE	⊙	⊙
FIRE HYDRANT	⊙	⊙
OVERHEAD UTILITY LINE	— OH —	— XH —
UNDERGROUND ELECTRIC LINE	— E —	— XE —
UNDERGROUND TELECOM/DATA LINE	— TD —	— XTD —
FIBER OPTIC CABLE	— FO —	— XFO —
GAS LINE	— G —	— XG —
STORM DRAINAGE PIPE	— SD —	— XSD —
SANITARY SEWER LINE	— SS —	— XSS —
WATER LINE	— W —	— XW —
SURFACE ELEVATION CONTOUR	— 400 —	— 400 —
SURFACE SPOT ELEVATION	⊕ 356.44	⊕ 356.44
CLEARING LIMIT/TREE LINE	— — —	— — —
LIMIT OF DISTURBANCE	— — —	— — —
ELECTRICAL TRANSFORMER PAD	⊕	⊕
TYPICAL KEYED NOTE LABEL	1	1

civil consultants
 LAND PLANNERS + CIVIL ENGINEERS
 WWW.CIVIL-CONSULTANTS.COM
 3708 LYCKAN PARKWAY • SUITE 201 • DURHAM, NC 27707
 919.480.1648 PHONE 919.403.0336 FAX
 Lic. #C-1030



PITTSBORO ROOTS
 PITTSBORO, NORTH CAROLINA
 COVER SHEET

REV.	DATE	DESCRIPTION
1	6/10/2016	BIORETENTION
2	7/12/2016	CPI SITE PLAN
3	8/15/2016	TOWN REVIEW COMMENTS
4	8/19/2016	TOWN REVIEW COMMENTS
5	8/26/2016	TOWN REVIEW COMMENTS
6	9/01/2016	BUILDING SF
7	9/13/2016	COUNTY REVIEW COMMENTS
8	9/21/2016	CPI REVIEW COMMENTS

DATE: JULY 18, 2016

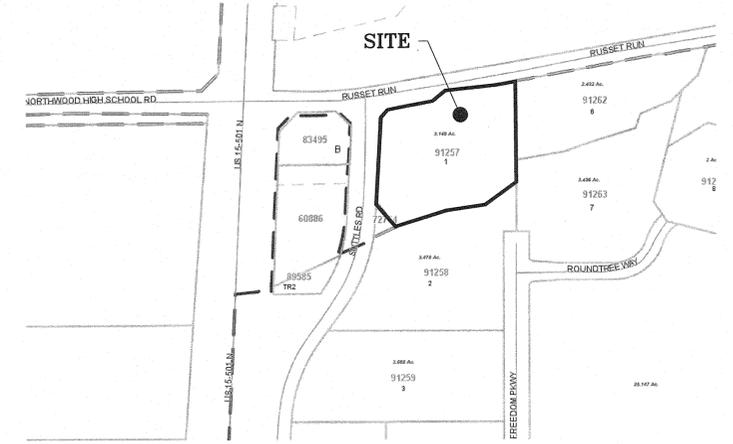
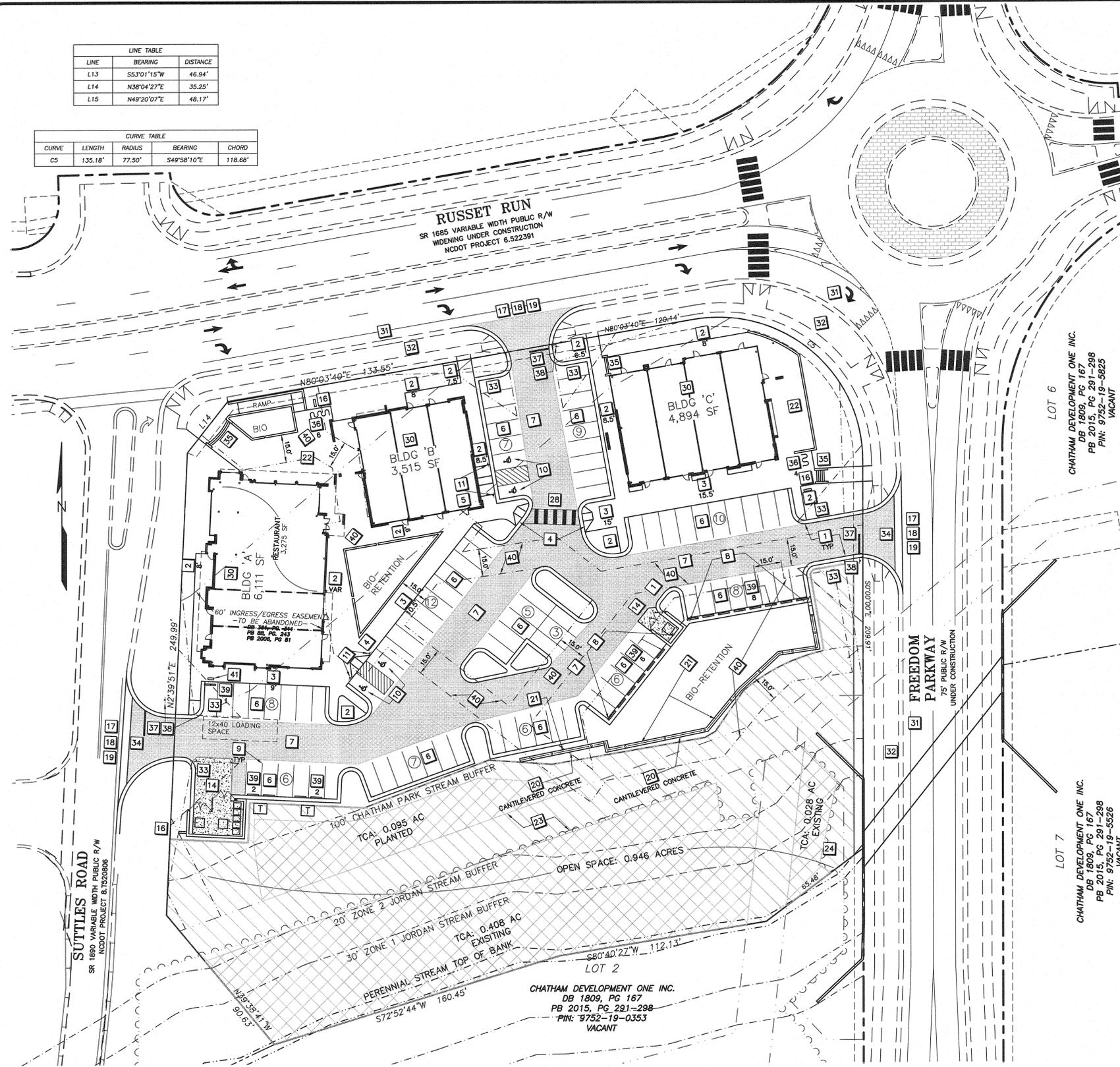
THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO.
C1

LINE	BEARING	DISTANCE
L13	S53°01'15"W	46.94'
L14	N38°04'27"E	35.25'
L15	N49°20'07"E	48.17'

CURVE	LENGTH	RADIUS	BEARING	CHORD
C5	135.18'	77.50'	S49°58'10"E	118.68'



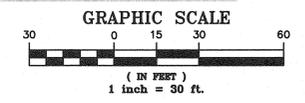
KEY KEYED NOTES - SITE PLAN

- 1 CONCRETE CURB AND GUTTER.
- 2 STANDARD CONCRETE WALK, 5' WIDE UNLESS OTHERWISE NOTED.
- 3 TURN-DOWN CONCRETE WALK, 6' WIDE UNLESS OTHERWISE NOTED.
- 4 HANDICAP RAMP TYPE A.
- 5 HANDICAP RAMP TYPE B.
- 6 STANDARD-DUTY BITUMINOUS PAVING. USE FOR ALL PARKING SPACES.
- 7 HEAVY-DUTY BITUMINOUS PAVING. USE FOR ALL DRIVE AISLES AND SERVICE LANES.
- 8 TURNDOWN CONCRETE BAND FLUSH WITH ASPHALT.
- 9 PAINTED PARKING SPACE STRIPING USING 4" WIDE WHITE STRIPES.
- 10 PAINTED UNIVERSAL HANDICAPPED SYMBOL AND HANDICAPPED ACCESS AISLE STRIPING.
- 11 HANDICAPPED PARKING SIGNS ON POST.
- 14 CONCRETE DUMPSTER PAD AND ENCLOSURE WITH GATE AND PROTECTIVE BOLLARDS. SCREEN WALL SHALL BE TAYLOR-MODULAR-WIRE CUT-#370 AUTUMN BLEND BRICK. POWDERCOATED STEEL OR ALUMINUM GATES WITH SLATTED INFILL PANELS.
- 16 MONUMENT SIGN BY OTHERS. LOCATION SHOWN IS SCHEMATIC AT THIS TIME. A SEPARATE SIGN PERMIT MUST BE SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION. PROVIDE CONDUIT AND ELECTRICAL SERVICE FROM MAIN ELECTRICAL PANEL IN BUILDING.
- 17 TIE IN TO EXISTING PAVEMENT. PAVEMENT PATCH SHALL BE IN COMPLIANCE WITH THE CURRENT NCDOT AND TOWN OF PITTSBORO SUPPLEMENTAL APPROVED STANDARD. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE NCDOT AND TOWN OF PITTSBORO TO ENSURE COMPLIANCE.
- 18 TIE IN TO EXISTING CURB AND GUTTER AND/OR SIDEWALK.
- 19 PROVIDE ADEQUATE TRAFFIC CONTROL AND SAFETY MEASURES FOR PUBLIC AND WORKER SAFETY DURING ALL PHASES OF THE WORK. CONFORM TO STANDARDS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD, AND REQUIREMENTS OF APPLICABLE ROADWAY AUTHORITIES.
- 20 RETAINING WALL. DESIGN BY OTHERS. SEE GRADING PLAN FOR REQUIRED FINISHED GRADE ELEVATIONS AT TOP AND BOTTOM OF WALL. SOUTH FACING CONCRETE WALL SHALL HAVE A RUSTICATED SURFACE AND FORMLINER PENGUINS CAST-IN-PLACE. PENGUINS SHALL BE DESIGNED BY EDWIN WHITE OF SILER CITY.
- 21 4' HIGH WELDED WIRE FENCE. 6 GAUGE GALVANIZED STEEL FENCING WITH BLACK POWDERCOAT FINISH. PRISM 3D BY BETAFENCE, TUF-GRD BY MERCHANTS METALS OR EQUIVALENT.
- 22 DINING PATIO.
- 23 EXISTING PUBLIC SANITARY SEWER EASEMENT.
- 24 EXISTING PUBLIC DRAINAGE EASEMENT.
- 28 PAINTED CROSSWALK.
- 30 APPROXIMATE BUILDING FOOTPRINT.
- 31 NEW CURB AND GUTTER BY OTHERS.
- 32 NEW SIDEWALK AND H/C RAMPS BY OTHERS.
- 33 35' X 35' SIGHT DISTANCE TRIANGLE AND 10' X 70'.
- 34 CONCRETE VALLEY GUTTER.
- 35 CONCRETE STAIRS WITH HANDRAILS.
- 36 U-SHAPED BIKE RACK.
- 37 PAINTED STOP BAR.
- 38 STOP SIGN.
- 39 CONCRETE WHEELSTOP.
- 40 BMP ACCESS EASEMENT.
- 41 ELECTRIC CAR CHARGING STATION.

VICINITY MAP

SITE NOTES

- 1. PROPERTY BOUNDARY AND EXISTING CONDITIONS INFORMATION TAKEN FROM FIELD SURVEYS BY WITHERS AND RAVENEL ENTITLED EXISTING CONDITIONS SURVEY LOT 1 CHATHAM PARK PLANNED DEVELOPMENT DISTRICT, DATED 6/9/16 AND REVISED 7/6/16. CAD FILES FOR ONGOING CONSTRUCTION AND PDF'S OF PERMITTED CONSTRUCTION DRAWINGS FOR RUSSET RUN AND FREEDOM PARKWAY ROAD IMPROVEMENTS.
- 2. WHERE NEW CURB AND GUTTER IS INSTALLED IN A PUBLIC STREET RIGHT-OF-WAY, USE 30" CURB AND GUTTER. IN OTHER LOCATIONS, USE 24" CURB AND GUTTER.
- 3. UNLESS OTHERWISE SPECIFIED, ALL STANDARD PARKING SPACES SHALL BE 8.5' WIDE X 19' LONG, ALL DRIVE AISLES SHALL BE 24' WIDE.
- 4. ALL CURB DIMENSIONS ARE MEASURED TO BACK OF CURB, AND ALL CURB RADI ARE 5 FEET UNLESS OTHERWISE INDICATED.
- 5. USE REVERSE-PITCH CURB AND GUTTER WHERE ADJACENT PAVEMENT SLOPES AWAY FROM CURB, AND STANDARD-PITCH CURB AND GUTTER ELSEWHERE, UNLESS OTHERWISE NOTED. PROVIDE POSITIVE DRAINAGE ALONG AND FROM ALL GUTTERS.
- 6. ALL SITE CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE INDICATED.
- 7. ALL AGGREGATE BASE AND PAVING WORK SHALL COMPLY WITH NCDOT STANDARDS. SPECIFIED PAVEMENT THICKNESS REFERS TO COMPACTED THICKNESS.
- 8. INSTALL ALL PAVEMENT WITH POSITIVE SURFACE DRAINAGE.
- 9. UNLESS OTHERWISE SPECIFIED, ALL PAVEMENT MARKINGS SHALL BE MADE WITH PAINT CONFORMING TO NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" LATEST EDITION, AND SHALL HAVE A MINIMUM DRY FILM THICKNESS OF 10 MILS. ALL MARKINGS SHALL BE WHITE UNLESS OTHERWISE SPECIFIED OR REQUIRED BY GOVERNING AUTHORITIES.
- 10. ALL ACCESSIBLE PARKING SPACES, AISLES, RAMPS, SIGNAGE, PAVEMENT MARKINGS, CROSSWALKS, AND ROUTES SHALL MEET APPLICABLE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE, ICC A117.1, NC GENERAL STATUTES 20-37.6 AND 136-30, AND LOCAL REGULATIONS AND POLICIES.
- 11. PROVIDE ADEQUATE TRAFFIC CONTROL MEASURES DURING THE COURSE OF PROJECT WORK IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, THE N.C. SUPPLEMENT TO THE MUTCD, ANY REGULATORY AGENCY REQUIREMENTS, AND PROJECT-SPECIFIC SAFETY CONSIDERATIONS.
- 12. TIE-INS TO EXISTING PAVEMENT, CURBS, WALKS, ETC. SHALL BE MADE WITH NEAT EDGES AND SMOOTH, GRADUAL TRANSITIONS THAT ARE SAFE, FUNCTIONAL, DURABLE, AND VISUALLY ACCEPTABLE TO THE OWNER AND REGULATORY AUTHORITIES.
- 13. BUILDING SIZE, CONFIGURATION, ARCHITECTURAL ELEMENTS, UTILITY STUBS, AND OTHER BUILDING FEATURES SHOWN ON THESE DRAWINGS ARE TAKEN FROM INFORMATION PROVIDED BY OTHERS. BUILDING LINES SHOWN GENERALLY REPRESENT THE EXTERIOR FACE OF THE BUILDING, BUT SHOULD NOT BE USED FOR BUILDING STAKING OR CONSTRUCTION. REFER TO BUILDING DESIGN DRAWINGS FOR ACTUAL BUILDING DIMENSIONS, DOOR LOCATIONS, COLUMN AND FOOTING LOCATIONS, WALL THICKNESSES, OVERHANGS, ROOF LINES, AND OTHER FEATURES. CONTRACTOR SHALL COORDINATE UTILITY AND DRAINAGE LOCATIONS, ELEVATIONS, MATERIALS, AND SIZES WITH INFORMATION SHOWN ON THE BUILDING DRAWINGS, AND SHALL VERIFY THAT BUILDING ELEMENTS WILL NOT ENCROUGH INTO REQUIRED SETBACKS.



CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____

civil consultants
 LAND PLANNERS + CIVIL ENGINEERS
 WWW.CIVIL-CONSULTANTS.COM
 3708 LYCKAN PARKWAY • SUITE 201 • DURHAM, NC 27707
 919.480.1645 PHONE 919.403.0336 FAX
 Lic. #C-1030

Real World
 NORTH CAROLINA
 STATE BOARD OF ENGINEERS
 030813
 ENGINEER
 KEITH R. GETTLE
 9/29/16

PITTSBORO ROOTS
 PITTSBORO, NORTH CAROLINA
 SITE & PAVING
 PLAN

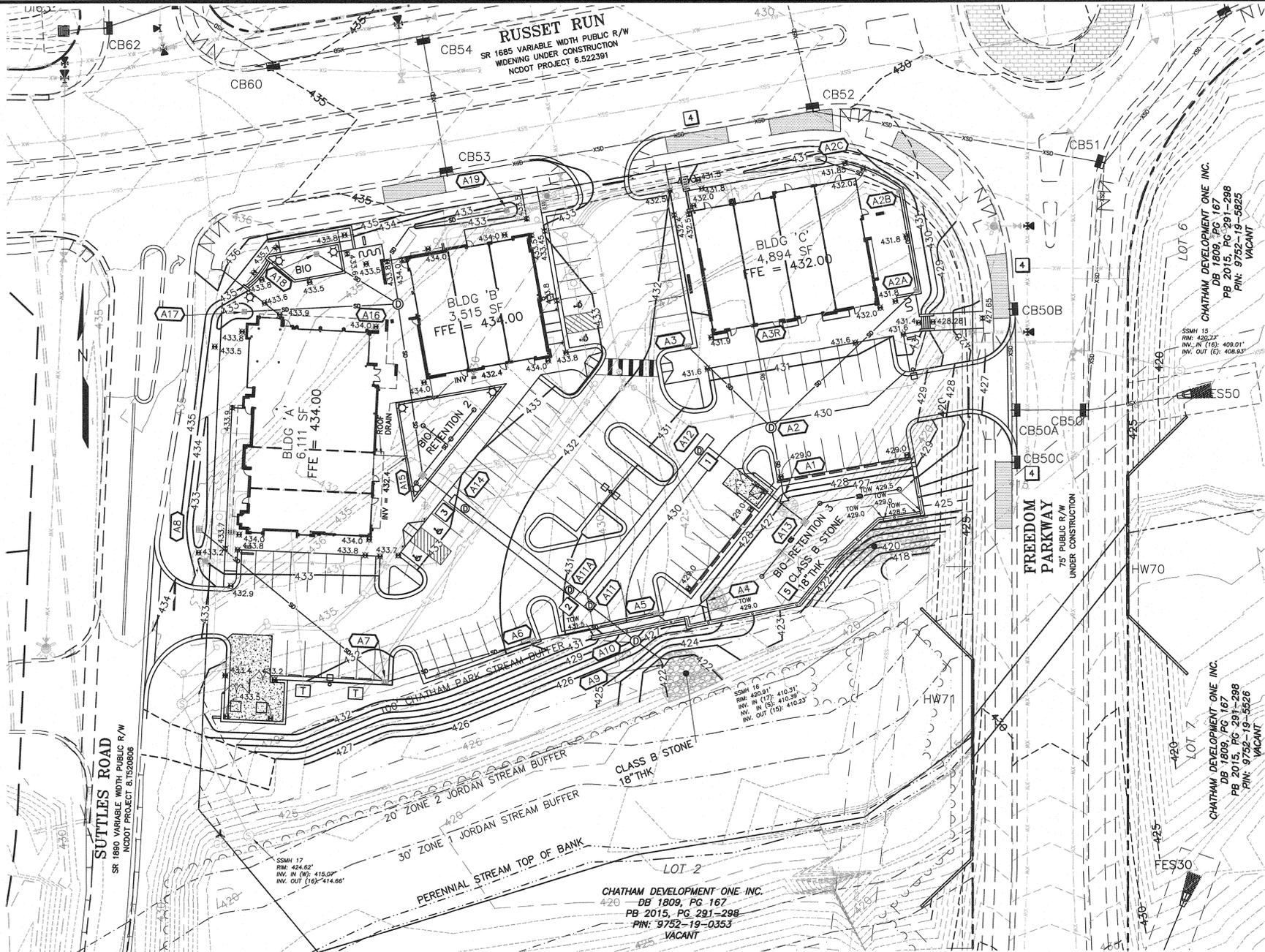
REV.	DATE	DESCRIPTION
1	6/10/2016	BIORETENTION
2	7/12/2016	CPI SITE PLAN
3	8/15/2016	TOWN REVIEW COMMENTS
4	8/19/2016	TOWN REVIEW COMMENTS
5	8/26/2016	TOWN REVIEW COMMENTS
6	9/01/2016	BUILDING SF
8	9/21/2016	CPI REVIEW COMMENTS

DATE: MAY 13, 2016

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO.
C3



GENERAL GRADING AND STORM DRAINAGE SPECIFICATIONS

EXISTING CONDITIONS

- INFORMATION ABOUT EXISTING UNDERGROUND FACILITIES AND SUBSURFACE CONDITIONS INDICATED ON THESE DRAWINGS IS NOT BASED ON AN EXHAUSTIVE INVESTIGATION OF SUCH FACILITIES OR CONDITIONS, AND THE ENGINEER MAKES NO WARRANTY TO ANY PARTY REGARDING THEM. EXISTING UTILITY LINE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE, AND ACTUAL UTILITIES AND CONDITIONS MAY DIFFER FROM THOSE INDICATED. IF DIFFERING UTILITIES OR CONDITIONS EXIST, THEY MAY BE ENCOUNTERED DURING THE COURSE OF THE PROJECT WORK, AND MAY IMPACT THE PROJECT SCOPE AND TIME REQUIREMENTS.

PROTECTION AND SAFETY

- PRIOR TO BEGINNING WORK, AND AS NEEDED DURING THE COURSE OF PROJECT WORK, CONTRACTOR SHALL NOTIFY ALL APPLICABLE UTILITY LOCATION SERVICES AND UTILITY PROVIDERS TO VERIFY THE LOCATION OF ALL KNOWN OR SUSPECTED UTILITIES. IN ACCORDANCE WITH STATE REGULATIONS, CONTRACTOR IS ADVISED THAT SOME UTILITY PROVIDERS DO NOT SUBSCRIBE TO ONE-CALL SERVICES, AND MUST BE CONTACTED SEPARATELY FOR UTILITY LOCATION.
- CONTRACTOR SHALL PROVIDE ADEQUATE MEANS AND METHODS FOR PROTECTION OF ALL EXISTING UTILITIES AND SITE FEATURES WHICH ARE INTENDED TO REMAIN IN SERVICE OR IN ACCORDANCE WITH ANY AGENCY REQUIREMENTS OR PROJECT-SPECIFIC SAFETY CONSIDERATIONS.
- CONTRACTOR SHALL PROVIDE ADEQUATE TRAFFIC CONTROL MEASURES DURING THE COURSE OF PROJECT WORK IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, THE N.C. SUPPLEMENT TO THE MUTCD, ANY REGULATORY AGENCY REQUIREMENTS, AND PROJECT-SPECIFIC SAFETY CONSIDERATIONS.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY PROGRAMS AND MEASURES ON THE PROJECT SITE OR OTHERWISE RELATING TO THE PROJECT WORK, AND SHALL COMPLY WITH ALL SAFETY CODES AND REGULATIONS APPLICABLE THERETO, FOR THE PROTECTION OF WORKERS, VISITORS, AND THE GENERAL PUBLIC.

COMPLIANCE

- IN ADDITION TO COMPLYING WITH REQUIREMENTS OF THESE DRAWINGS AND OTHER PROJECT DOCUMENTS, ALL PROJECT CLEARING, GRADING, EROSION CONTROL, AND STORM DRAINAGE WORK SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARDS AND REQUIREMENTS OF NCDOT, THE TOWN OF PITTSBORO, THE CHATHAM COUNTY SEDIMENTATION AND EROSION CONTROL OFFICE, AND THE NC BUILDING CODE.

NOTIFICATIONS

- NOTIFY THE ENGINEER AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING ANY STORM DRAINAGE OR STORMWATER WORK.
- NOTIFY ALL APPLICABLE REGULATORY AUTHORITIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO BEGINNING PROJECT WORK.
- NOTIFY THE GEOTECHNICAL ENGINEER AND TESTING SERVICE AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING ANY GRADING OR STORMWATER MANAGEMENT DEVICE WORK.

QUALITY CONTROL

- ALL EARTHWORK OPERATIONS, INCLUDING TOPSOIL STRIPPING, STOCKPILING, EXCAVATION, FILLING, COMPACTING, TRENCHING, BACKFILLING, RETAINING WALLS, AND ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION, CAPABLE OF BEING COMPACTED TO THE REQUIRED DENSITY, AND WHICH HAS BEEN APPROVED FOR USE BY THE GEOTECHNICAL ENGINEER, SHALL BE MONITORED AND OBSERVED PROPERLY, AND PROVIDE TESTING DURING THE PROGRESS OF THE WORK.
- NO SOIL SHALL BE PLACED AND COMPACTED UNLESS IT HAS BEEN APPROVED BY THE GEOTECHNICAL ENGINEER FOR THE INTENDED USE AND LOCATION.
- PRIOR TO PLACEMENT OF ANY FILL, THE SUBGRADE OR PREVIOUS LIFT OF FILL SHALL BE SUCCESSFULLY TESTED OR OTHERWISE APPROVED, AND DETERMINED TO BE READY FOR SUBSEQUENT WORK.
- PRIOR TO PLACEMENT OF ANY AGGREGATE, PAVING, SLABS, STRUCTURES, FOOTINGS, PIPING, OR OTHER WORK, SUBGRADES AND OTHER BEARING SURFACES SHALL BE SUCCESSFULLY TESTED OR OTHERWISE APPROVED, AND DETERMINED TO BE READY FOR SUBSEQUENT WORK.
- CONTRACTOR SHALL ALLOW AND PARTICIPATE IN SOIL TESTING ACTIVITIES, INCLUDING ACTIVE COORDINATION WITH THE GEOTECHNICAL ENGINEER AND FURNISHING PROOFROLLING EQUIPMENT, MATERIALS, AND MANPOWER AS NEEDED.

CLEARING & GRUBBING

- ALL VEGETATIVE MATERIAL DISLOCATED BY CLEARING AND GRUBBING ACTIVITIES SHALL BE COMPLETELY REMOVED FROM THE PROJECT SITE AND LEGALLY DISPOSED. NO ONSITE BURNING OF CLEARING WASTE SHALL OCCUR.
- ALL SOIL, PAVEMENT, CURB, PIPE, STRUCTURES AND OTHER PHYSICAL SITE FEATURES THAT ARE INDICATED OR REQUIRED TO BE REMOVED SHALL BE LEGALLY DISPOSED IN AN OFFSITE LOCATION.

GRADING

- STRUCTURAL FILL IS DEFINED AS SOIL CLASSIFIED AS SM, SC, ML, AND CL; FREE OF VEGETATIVE MATTER, DEBRIS OR OTHER UNSUITABLE MATTER, AND ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION; CAPABLE OF BEING COMPACTED TO THE REQUIRED DENSITY; AND WHICH HAS BEEN APPROVED FOR USE BY THE GEOTECHNICAL ENGINEER.
- OTHER SOIL NOT MEETING THE DEFINITION FOR STRUCTURAL FILL MAY BE APPROVED BY THE GEOTECHNICAL ENGINEER FOR USE UNDER LIMITED CONDITIONS OR IN LIMITED AREAS.
- STRUCTURAL FILL SHALL BE PLACED AND COMPACTED WHEN THE SOIL'S MOISTURE CONTENT IS WITHIN A PERCENTAGE POINTS OF THE SOIL'S OPTIMUM MOISTURE CONTENT, IN LIFTS NOT TO EXCEED 8 INCHES LOOSE THICKNESS, THE IN-PLACE COMPACTED DENSITY SHALL BE AT LEAST 90 PCF. TIGHTER SPECIFICATIONS MAY BE REQUIRED FOR SPECIFIC AREAS, MARGINAL SOIL CHARACTERISTICS, OR NON-STANDARD PLACEMENT OR COMPACTATION METHODS.
- STRUCTURAL ZONES SHALL INCLUDE ALL AREAS SUBJECT TO DIRECT BEARING PRESSURE PLUS 10 FEET HORIZONTAL PLUS THE AREA BELOW A 1:1 DOWNWARD & OUTWARD SLOPE IN ANY AREAS OF FILL.
- ALL SOIL UNDER PAVEMENTS, BUILDINGS, AND WALKWAYS, OR IN STRUCTURAL ZONES ASSOCIATED WITH THESE AREAS, SHALL BE APPROVED IN-SITU SOIL OR APPROVED STRUCTURAL FILL COMPACTED TO AT LEAST 95% OF THE SOIL'S MAXIMUM DRY DENSITY (MDD) PER ASTM D-698. TIGHTER REQUIREMENTS MAY APPLY FOR SPECIFIC AREAS.
- IN BUILDING AREAS, THE REQUIRED SOIL DENSITY IN THE TOP 12 INCHES OF SOIL SHALL BE AT LEAST 95% MDD, WHERE THE BUILDING WILL BE PLACED ON IN-SITU SOIL, THE SOIL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER AND COMPACTED TO AT LEAST 95% MDD.
- REFER TO STORMWATER SYSTEM DETAILS AND SPECIFICATIONS FOR MORE SPECIFIC REQUIREMENTS APPLICABLE TO STORMWATER MANAGEMENT AREAS.
- ALL EXCESS OR UNSUITABLE SOIL SHALL BE LEGALLY DISPOSED IN AN OFFSITE OR OWNER-APPROVED ONSITE LOCATION.
- WHERE LANDSCAPED OR YARD AREAS ADJACENT EXTERIOR BUILDING WALLS, FINISHED GROUND ELEVATIONS ADJACENT TO THE WALL SHALL BE AT LEAST 3 INCHES BELOW THE FINISHED FLOOR ELEVATION, AND SHALL SLOPE AWAY FROM THE BUILDING WITH POSITIVE DRAINAGE.

TRENCHING AND BACKFILL

- WHERE ROCK OR OTHER HARD MATERIAL OCCURS AT THE DESIGNED TRENCH BOTTOM, OVEREXCAVATE THE TRENCH DEPTH 6 INCHES AND REPLACE THE OVEREXCAVATED MATERIAL WITH #67 STONE.
- WHERE THE DESIGNED TRENCH BOTTOM CONSISTS OF UNSTABLE BEARING SOIL, UNDERCUT THE TRENCH BOTTOM AND REPLACE THE UNDERCUT MATERIAL WITH #67 STONE, TO THE LIMITS ESTABLISHED BY THE GEOTECHNICAL ENGINEER. ALTERNATE MATERIALS MAY BE USED, SUBJECT TO APPROVAL OF PLACEMENT AND COMPACTATION PROCEDURES BY THE GEOTECHNICAL ENGINEER.
- BACKFILL SOIL SHALL BE STRUCTURAL FILL PLACED AND COMPACTED IN ACCORDANCE WITH REQUIREMENTS FOR THE SPECIFIC AREA AND TYPE OF WORK, WITHOUT DAMAGING OR DISPLACING PIPE OR STRUCTURES.

STORM DRAINAGE SYSTEM

- STORM DRAINAGE STRUCTURES SHALL CONFORM TO NCDOT STANDARDS, AND MAY BE CONSTRUCTED OF EITHER SOLID MASONRY OR PRE-CAST CONCRETE. NCDOT-APPROVED "KNOCK-OUT" TYPE STRUCTURES MAY NOT BE USED UNLESS APPROVED BY THE ENGINEER FOR SPECIFIC LOCATIONS, WHERE SUCH STRUCTURES ARE APPROVED FOR USE, STRUCTURAL INTEGRITY MAY NOT BE IMPAIRED BY REMOVAL OF CORNERS OR OTHER STRUCTURAL ELEMENTS IN ORDER TO ACCOMMODATE CONNECTING PIPING AS DESIGNED.
- STORM DRAINAGE PIPE LENGTHS SHOWN ARE APPROXIMATE, AS MEASURED FROM THE CENTER OF DRAINAGE STRUCTURES, AND TO THE END OF ANY FLARED END SECTION (FES), AS APPLICABLE.
- CONTRACTOR SHALL VERIFY AND COORDINATE EXACT POSITIONING OF STORM DRAINAGE PIPING AND STRUCTURES, AND SHALL MAKE ADJUSTMENTS AS NEEDED TO PROVIDE PROPER CONNECTIONS, STRUCTURE LOCATIONS, ORIENTATIONS, DIMENSIONS, ELEVATIONS, FRAME PLACEMENT, AND SURFACE DRAINAGE. REFER TO STORM DRAINAGE STRUCTURE DETAILS FOR DIMENSIONS, OFFSETS, CLEARANCES, SETBACKS FROM CURB, AND OTHER REQUIREMENTS. MODIFY STRUCTURES AS NEEDED TO ACCOMMODATE LARGE-DIAMETER PIPING, MULTIPLE PIPE PENETRATIONS, AND PIPE CONNECTION ANGLES.
- STORM DRAINAGE PIPING SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS III, CONFORMING TO ASTM C76, UNLESS OTHERWISE NOTED. ALL JOINTS SHALL BE FULLY SEALED USING PREFORMED FLEXIBLE BUTYL RUBBER SEALING COMPOUND.
- STORM DRAINAGE PIPING NOTED WITH WATER TIGHT JOINTS SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS III, CONFORMING TO ASTM C76, WITH BELL AND SPOOT JOINTS USING RUBBER GASKETS. THE JOINT AND GASKET ASSEMBLY SHALL CONFORM TO ASTM C443. PLACE PIPE SECTIONS WITH BELL ENDS FACING UPSTREAM.
- ROOF DRAINAGE PIPE AND FITTINGS SHALL BE SOLVENT-WELDED SCHEDULE 40 PVC, OR DUAL-WALL HDPE WITH SMOOTH INTERIOR AND SLT-TIGHT CONNECTIONS. PIPE SHALL BE INSTALLED AT 2.0% MINIMUM SLOPE, WITH 18 INCHES MINIMUM COVER. PIPE SIZE SHALL BE 6" DIAMETER UNLESS OTHERWISE SHOWN.
- INSTALL STORM DRAINAGE PIPING TO MAINTAIN 18 INCHES MINIMUM VERTICAL CLEARANCE FROM ANY POTABLE WATER MAIN, AND 24 INCHES MINIMUM VERTICAL CLEARANCE FROM ANY SANITARY SEWER MAIN, AS MEASURED FROM OUTSIDE EDGES OF EACH PIPE.

SURFACE DRAINAGE

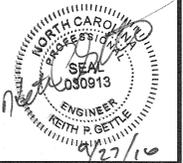
- ALL SPOT ELEVATIONS SHOWN ARE FINISHED SURFACE ELEVATIONS. SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER ELEVATION CONTOURS, ALL ELEVATIONS SHOWN ON CURB AND GUTTER REFER TO TOP OF CURB, UNLESS OTHERWISE INDICATED.
- ALL FINISHED PAVEMENT AND YARD SURFACES SHALL BE FINE-GRADED AND FINISHED TO HAVE POSITIVE SURFACE DRAINAGE TO A FREE-FLOWING DRAINAGE OUTLET, WITH NO IRREGULARITIES OR DEPRESSIONS THAT WOULD CAUSE UNINTENDED WATER PONDING.
- USE REVERSE-PITCH CURB AND GUTTER WHERE ADJACENT PAVEMENT SLOPES AWAY FROM CURB, AND STANDARD-PITCH CURB AND GUTTER ELSEWHERE, UNLESS OTHERWISE NOTED. PROVIDE POSITIVE DRAINAGE ALONG AND FROM ALL GUTTERS.
- TE-INS TO EXISTING PAVEMENT, CURBS, WALKS, ETC. SHALL BE MADE WITH NEAT EDGES AND SMOOTH, GRADUAL TRANSITIONS THAT ARE SAFE, FUNCTIONAL, DURABLE, AND VISUALLY ACCEPTABLE TO THE OWNER AND REVIEW AUTHORITIES.

ACCESSIBILITY

- FINISHED WALKWAY ELEVATIONS ADJUTING EXTERIOR DOORWAY THRESHOLDS SHALL BE ONE-FOURTH INCH BELOW THE ADJOINING FINISHED FLOOR ELEVATION. EXTERIOR PADS AND WALKWAYS SHALL SLOPE AWAY FROM THE BUILDING AT A SLOPE NO LESS THAN 1.0% AND NO GREATER THAN 2.0%.
- SIDEWALKS, CROSSWALKS, AND OTHER WALKWAYS SHALL NOT EXCEED 2.0% CROSS-SLOPE.
- NO PORTION OF ANY HANDICAP ACCESSIBLE ROUTE SHALL EXCEED 2.0% CROSS-SLOPE OR 5.0% LONGITUDINAL SLOPE.
- NO PORTION OF ANY HANDICAP PARKING SPACE OR ADJOINING ACCESS ISLE SHALL EXCEED 2.0% SLOPE IN ANY DIRECTION.

civil consultants
LAND PLANNERS & CIVIL ENGINEERS
www.civil-consultants.com

3708 LYCKEN PARKWAY, SUITE 201, DURHAM, NC 27707
919.480.1648 PHONE 919.403.0336 FAX
LIC. #C-1030



PITTSBORO ROOTS
PITTSBORO, NORTH CAROLINA
GRADING & STORM DRAINAGE PLAN

STORM DRAINAGE STRUCTURE SCHEDULE

Structure Number	Structure Type	STRUCTURE DATA					PIPE DATA				APRON DATA			REMARKS		
		Rim/Top Elev.	Invert In North	Invert In East	Invert In South	Invert In West	Invert Out	To	Pipe Length	Pipe Slope	Design Diameter	Pipe Material	Stone Class		Thickness	Length
A1	FES	-	-	-	-	-	427.00	-	-	15	RCP	CLASS A	12.0	4.0	4.0	-
A2	NCDOT STD 840.31	429.90	427.46	427.46	-	427.46	427.36	A01	36.0	1.00%	15	RCP	-	-	-	-
A2A	NDS CATCH BASIN	431.40	428.43	-	-	-	428.43	A02	97.0	1.00%	12	HPPP	-	-	-	-
A2B	NDS CATCH BASIN	431.40	-	-	-	-	428.86	A02A	37.0	1.00%	12	HPPP	-	-	-	-
A2C	NDS CATCH BASIN	430.75	-	-	-	-	428.85	A02B	42.0	1.00%	8	HPPP	-	-	-	-
A3	NCDOT STD 840.02	431.75	-	-	-	-	428.02	A02	66.0	1.00%	15	RCP	-	-	-	-
A3R	ROOF DRAIN CONNECTION	-	-	-	-	-	427.99	A02	53.0	1.00%	8	PVC	-	-	-	-
A4	FES	-	-	-	-	-	427.00	-	-	-	18	RCP	CLASS A	12.0	4.0	4.0
A5	NCDOT STD 840.02	430.00	-	-	-	-	427.35	A04	25.0	1.00%	15	RCP	-	-	-	-
A6	NCDOT STD 840.02	432.05	-	-	-	-	428.06	A05	61.0	1.00%	15	RCP	-	-	-	-
A7	NCDOT STD 840.02	432.50	-	-	-	-	428.91	A06	75.0	1.00%	15	RCP	-	-	-	-
A8	NCDOT STD 840.14	432.50	-	-	-	-	430.07	A07	116.0	1.00%	15	RCP	-	-	-	-
A9	FES	-	-	-	-	-	422.16	-	-	-	24	RCP	-	SEE	PLAN	-
A10	NCDOT STD 840.31	428.50	-	422.44**	-	422.44	422.34	A09	18.0	1.00%	24	RCP	-	-	-	-
A11	SEE DETENTION PIPE DETAIL	430.60	-	422.70	-	422.70	422.70	A10	26.0	1.00%	24	HPPP	-	-	-	-
A11A	SEE DETENTION PIPE DETAIL	430.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A12	SEE DETENTION PIPE DETAIL	430.24	-	-	422.70	-	422.70	A11	98.0	0.00%	48	HPPP	-	-	-	-
A13	SEE BIORETENTION DETAIL	428.50	-	-	-	-	423.00	A12	60.0	0.50%	18	HPPP	-	-	-	-
A14	SEE DETENTION PIPE DETAIL	432.80	-	-	424.70	-	422.70	A11	77.0	0.00%	48	HPPP	-	-	-	-
A15	SEE BIORETENTION DETAIL	433.20	-	-	427.02	-	426.92	A14	18.0	12.33%	15	HPPP	-	-	-	-
A16	NCDOT STD 840.02	433.90	428.88	427.90*	-	428.33	427.80	A15	78.0	1.00%	15	HPPP	-	-	-	-
A17	NDS CATCH BASIN	432.50	-	-	-	-	429.00	A16	67.0	1.00%	15	HPPP	-	-	-	-
A18	SEE BIORETENTION DETAIL	433.40	-	-	-	-	428.40	A16	52.0	1.00%	12	HPPP	-	-	-	-
A19	NDS CATCH BASIN	432.50	-	-	-	-	428.92	A16	102.0	1.00%	15	HPPP	-	-	-	-

NCDOT STANDARD NUMBERS REFER TO CONCRETE STRUCTURES. MASONRY STRUCTURES MAY BE SUBSTITUTED AS NCDOT STANDARDS ALLOW. "KNOCK-OUT" TYPE PRE-CAST STRUCTURES SHALL NOT BE USED WHERE THE DESIGNED PIPE CONFIGURATION WOULD REQUIRE REMOVAL OF STRUCTURAL CORNERS OR ALTERATION OF DESIGNED PIPE ENTRY ANGLES.

MODIFY STRUCTURES AS NEEDED TO ACCOMMODATE LARGE-DIAMETER PIPING, ALTERNATE FRAMES & GRATES, MULTIPLE PENETRATIONS, AND PIPE CONNECTION ANGLES.

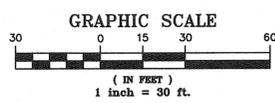
RIM ELEVATIONS, AS NOTED ABOVE, REFER TO THE HIGHEST POINT OF THE STORM DRAINAGE STRUCTURE TOP.

PIPE LENGTHS SHOWN ARE APPROXIMATE. LENGTHS ARE MEASURED FROM THE CENTER OF DRAINAGE STRUCTURES, AND WHERE APPLICABLE, INCLUDE THE TOTAL LENGTH OF THE FLARED END SECTION.

NDS CATCH BASINS:
18" CATCH BASINS BY NDS WITH 18"x18" SQUARE GRATES (TYP)
TYPE 1: BLACK PLASTIC W/7" GRATE OPENINGS IN HARDSCAPE.
TYPE 2: BLACK CAST IRON W/1" GRATE OPENINGS IN LANDSCAPE.
ALL PIPES OUT OF NDS STRUCTURES SHALL BE HDPE SMOOTH INTERIOR.

KEY KEYED NOTES -- GRADING & STORM DRAINAGE PLAN

- 48" X 15" HPPP TEE CONNECTOR.
- 48" HPPP TEE WITH INTERNAL WEIR AND 24" CAPPED END OUTLET. SEE DETAILS.
- 15" X 48" HPPP CONNECTOR.
- RELOCATED BIORETENTION CELLS FOR NEW DRIVEWAY CONNECTION
- RIP RAP SHALL BE STAINED AN EARTHSTONE COLOR OR AN ALTERNATE REINFORCEMENT MATTING WILL BE INSTALLED.



CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.
CONTRACTOR'S INITIALS:



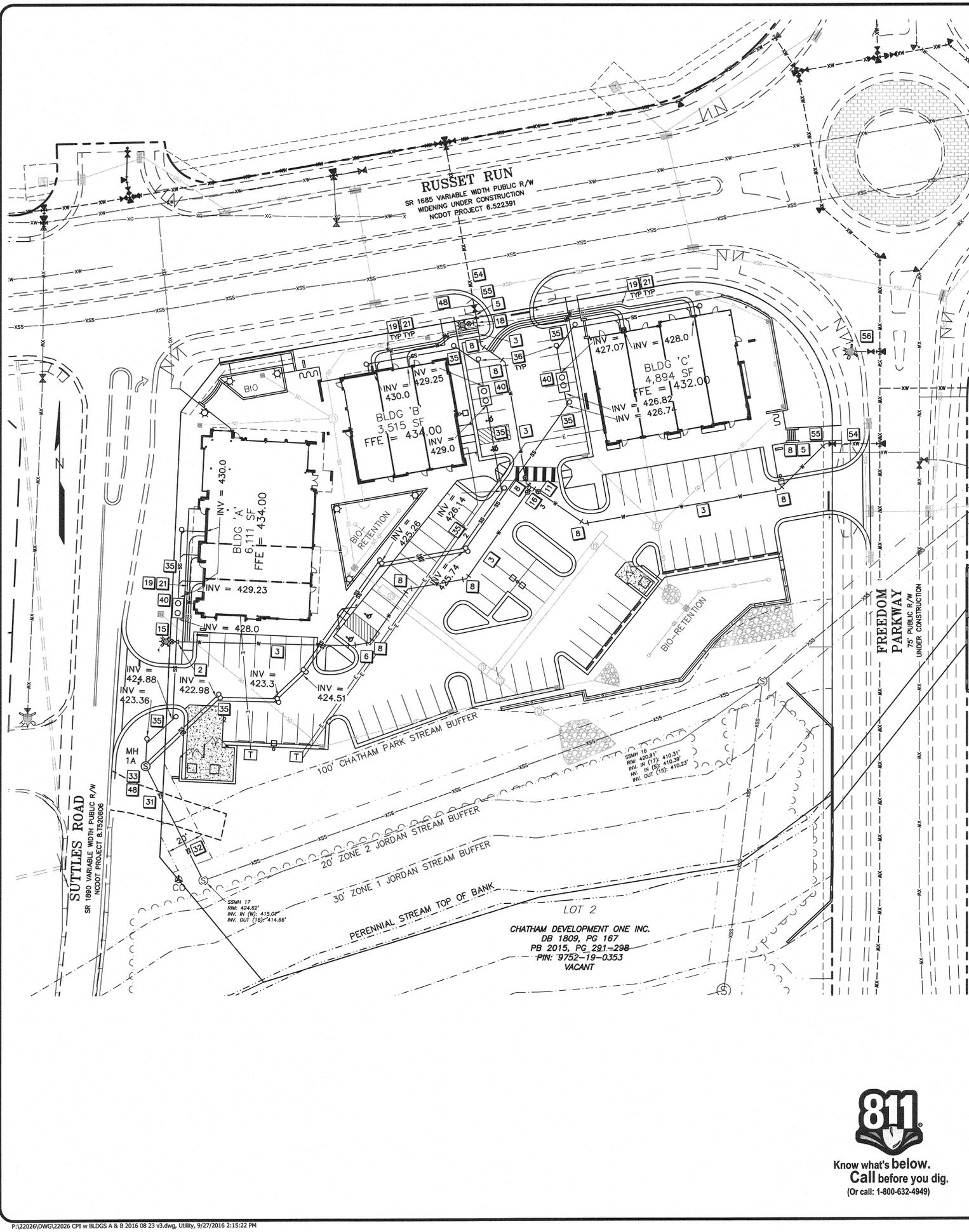
REV.	DATE	DESCRIPTION
1	6/10/2016	BIORETENTION
2	7/12/2016	CPI SITE PLAN
3	8/15/2016	TOWN REVIEW COMMENTS
4	8/26/2016	TOWN REVIEW COMMENTS
5	9/01/2016	BUILDING SF
6	9/01/2016	CPI REVIEW COMMENTS
7	9/01/2016	CPI REVIEW COMMENTS

DATE: MAY 13, 2016

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO. **C4**



UTILITY SPECIFICATIONS

EXISTING CONDITIONS

- INFORMATION ABOUT EXISTING UNDERGROUND FACILITIES AND SUBSURFACE CONDITIONS INDICATED ON THESE DRAWINGS IS NOT BASED ON AN EXHAUSTIVE INVESTIGATION OF SUCH FACILITIES OR CONDITIONS, AND THE ENGINEER MAKES NO WARRANTY TO ANY PARTY REGARDING THEM. EXISTING UTILITY LINE LOCATIONS SHOWN SHOULD BE CONSIDERED APPROXIMATE, AND ACTUAL UTILITIES AND CONDITIONS MAY DIFFER FROM THOSE INDICATED. IF DIFFERING UTILITIES OR CONDITIONS EXIST, THEY MAY BE ENCOUNTERED DURING THE COURSE OF THE PROJECT WORK, AND MAY IMPACT THE PROJECT SCOPE AND TIME REQUIREMENTS.

PROTECTION AND SAFETY

- PRIOR TO BEGINNING WORK, AND AS NEEDED DURING THE COURSE OF PROJECT WORK, CONTRACTOR SHALL NOTIFY ALL APPLICABLE UTILITY LOCATION SERVICES AND UTILITY PROVIDERS TO REASONABLY VERIFY THE LOCATION OF ALL KNOWN OR SUSPECTED UTILITIES, IN ACCORDANCE WITH STATE REGULATIONS. CONTRACTOR IS ADVISED THAT SOME UTILITY PROVIDERS DO NOT SUBSCRIBE TO ONE-CALL SERVICES, AND MUST BE CONTACTED SEPARATELY.
- CONTRACTOR SHALL PROVIDE ADEQUATE MEANS AND METHODS FOR PROTECTION OF ALL EXISTING UTILITIES AND SITE FEATURES WHICH ARE INTENDED TO REMAIN IN SERVICE OR IN PLACE.
- CONTRACTOR SHALL PROVIDE ADEQUATE TRAFFIC CONTROL MEASURES DURING THE COURSE OF PROJECT WORK IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, THE N.C. SUPPLEMENT TO THE MUTCD, ANY REGULATORY AGENCY REQUIREMENTS, AND PROJECT-SPECIFIC SAFETY CONSIDERATIONS.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY PROGRAMS AND MEASURES ON THE PROJECT SITE OR OTHERWISE RELATING TO THE PROJECT WORK, AND SHALL COMPLY WITH ALL SAFETY CODES AND REGULATIONS APPLICABLE THERETO, FOR THE PROTECTION OF WORKERS, VISITORS, AND THE GENERAL PUBLIC.

COMPLIANCE

- ALL WATER SYSTEM AND SANITARY SEWER WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
 - REQUIREMENTS OF THE TOWN OF PITTSBORO, INCLUDING THE LATEST EDITION OF CONSTRUCTION STANDARDS AND SPECIFICATIONS, CONSTRUCTION DETAILS, POLICIES AND PROCEDURES, AND FIELD DIRECTIVES BY THE UTILITY INSPECTOR.
 - REGULATIONS OF NCDENR-DIVISION OF WATER QUALITY, INCLUDING NCAC 2T REGULATIONS AND MINIMUM DESIGN CRITERIA FOR THE PERMITTING OF GRAVITY SEWERS.
 - REGULATIONS OF NCDENR-PUBLIC WATER SUPPLY, RULES GOVERNING PUBLIC WATER SYSTEMS.
 - STREET RIGHT-OF-WAY ENCROACHMENT PERMIT REQUIREMENTS, AS APPLICABLE.
 - OSHA REQUIREMENTS RELATED TO SAFETY.
 - REQUIREMENTS OF THE N.C. PLUMBING CODE.

NOTIFICATIONS

- NOTIFY THE ENGINEER AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING WATERLINE OR SANITARY SEWER WORK. THE ENGINEER MUST OBSERVE CONNECTIONS, INSTALLATION, BACKFILLING, AND TESTING WORK, IN ORDER TO PROVIDE NECESSARY PROJECT CERTIFICATIONS AND CLOSE-OUT DOCUMENTATION.
- NOTIFY THE APPLICABLE UTILITY AND ROADWAY AUTHORITIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO BEGINNING UTILITY WORK.
- NOTIFY THE SEWERING ENGINEER AND TESTING SERVICE AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING TRENCHING OR BACKFILLING WORK.

TRENCHING AND BACKFILLING

- WHERE ROCK OR OTHER HARD MATERIAL OCCURS AT THE DESIGNED TRENCH BOTTOM, OVEREXCAVATE TRENCH DEPTH 6 INCHES AND REPLACE OVEREXCAVATION MATERIAL WITH #7 STONE BEDDING.
- WHERE THE DESIGNED TRENCH BOTTOM CONSISTS OF UNSUITABLE MATERIAL, UNDERCUT TRENCH AND REPLACE UNDERCUT MATERIAL IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- BACKFILL SOIL SHALL BE SUITABLE MATERIAL AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- BACKFILL SOIL SHALL BE PLACED IN LOOSE LIFTS OF 8 INCH MAXIMUM THICKNESS AND COMPACTED TO 98% OF THE SOIL'S MAXIMUM DRY DENSITY, WITHOUT DAMAGING OR DISPLACING PIPE.
- INSTALL MARKING TAPE OR TRACER WIRE OVER UTILITY LINES AS REQUIRED BY THE LOCAL UTILITY AUTHORITY.

STORAGE AND HANDLING

- PIPING, FITTINGS, GASKETS, AND OTHER MATERIALS SHALL BE KEPT CLEAN WHILE BEING STORED AND DURING CONSTRUCTION ACTIVITIES. PIPE BUNDLES SHALL BE STORED ON FLAT SURFACES WITH UNIFORM SUPPORT, AND PROTECTED FROM PROLONGED EXPOSURE TO SUNLIGHT WITH A COVERING ALLOWING AIR FLOW UNDERNEATH. GASKETS SHALL NOT BE EXPOSED TO OIL, GREASE, OZONE, EXCESSIVE HEAT OR DIRECT SUNLIGHT. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR STORAGE AND HANDLING OF ALL MATERIALS.

CLEARANCES

- SANITARY SEWER MAINS AND POTABLE WATER MAINS SHALL BE INSTALLED WITH A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET BETWEEN THE OUTSIDE EDGES OF EACH PIPE.
- WHERE UTILITY AND/OR DRAINAGE LINES CROSS, THE FOLLOWING VERTICAL CLEARANCES SHALL BE PROVIDED FROM THE OUTSIDE EDGES OF EACH PIPE:
 - SANITARY SEWER OVER OR UNDER STORM DRAINAGE: 24 INCHES.
 - POTABLE WATER OVER SANITARY SEWER: 18 INCHES, WITH WATER MAIN JOINTS SPACED AT MAXIMUM EQUIDISTANT LOCATIONS FROM THE POINT OF CROSSING.
 - POTABLE WATER UNDER SANITARY SEWER: 18 INCHES, WITH BOTH PIPELINES CONSTRUCTED OF FERROUS MATERIAL HAVING JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR 10 FEET EACH WAY OF THE POINT OF CROSSING, AND WITH A FULL SECTION OF WATER MAIN PIPE CENTERED AT THE POINT OF CROSSING.
 - POTABLE WATER OVER OR UNDER STORM DRAINAGE: 18 INCHES.
- IF THE SPECIFIED SEPARATIONS CANNOT BE ACHIEVED, CONSULT THE ENGINEER FOR ALTERNATIVES PRIOR TO PIPELINE INSTALLATION.
- ANY CHANGES FROM THE APPROVED PLANS SHALL BE SUBMITTED TO THE TOWN OF PITTSBORO FOR RE-APPROVAL PRIOR TO START OF CONSTRUCTION.

UTILITY SPECIFICATIONS (cont.)

WATER SYSTEM

- WATER MAIN PIPING SHALL BE DUCTILE IRON PIPE PER AWWA C151, PRESSURE CLASS 350, WITH INTERIOR CEMENT MORTAR LINING AND SEAL COATING PER AWWA C104, AND EXTERIOR ASPHALTIC COATING PER AWWA C151. JOINTS SHALL BE RESTRAINED PUSH-ON TYPE USING (RESTRAINED JOINT) RUBBER GASKETS PER AWWA C111. FITTINGS SHALL BE COMPACT MECHANICAL JOINT DUCTILE IRON PER AWWA C153, PRESSURE CLASS 350.
- PROVIDE ALL WATER SYSTEM MATERIALS IN ACCORDANCE WITH LOCAL TOWN OF PITTSBORO REQUIREMENTS.
- INSTALL WATERLINES TO PROVIDE 36" COVER TO FINISHED GRADE, UNLESS OTHERWISE SHOWN OR APPROVED BY THE ENGINEER AND INSPECTOR.
- ALL WATERLINE BENDS, CROSSINGS, TEES, AND ENDS SHALL BE RESTRAINED USING CONCRETE BLOCKING OR A MECHANICAL JOINT WEDGE-ACTION RESTRAINT SYSTEM RATED FOR 350 PSI.
- EXISTING VALVES SHALL BE OPERATED ONLY BY TOWN OF PITTSBORO STAFF OR IN CASE OF AN EMERGENCY IN THE PRESENCE OF TOWN STAFF.
- TOWN OF PITTSBORO WATER VALVES SHALL BE OPERATED BY TOWN PERSONNEL ONLY. THE TOWN REQUIRES 48 HOUR NOTICE FOR SYSTEM SHUTDOWNS. CONTRACTOR IS REQUIRED TO NOTIFY AFFECTED CUSTOMERS 24 HOURS PRIOR. BUSINESS'S MAY REQUIRE AFTER HOURS SHUTDOWNS. RESIDENTIAL FLOW AFTER SHUTDOWN MAY REQUIRE A PUMP. CONTRACTOR IS RESPONSIBLE TO INSTALL 2" TAPS TO RELIEVE PRESSURE AND ALLEVIATE RESIDUAL FLOW, WHEN NEEDED.
- CONTRACTOR SHALL COORDINATE EXACT FIRE HYDRANT, WATER METER, AND BACKFLOW PREVENTER LOCATIONS WITH THE TOWN OF PITTSBORO INSPECTOR PRIOR TO INSTALLATION.

BACKFLOW PREVENTION

- BACKFLOW PREVENTER ASSEMBLIES AND ENCLOSURES SHALL CONFORM TO ALL TOWN OF PITTSBORO REQUIREMENTS, AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL PROVIDE INITIAL TESTING AND CERTIFICATIONS AS REQUIRED FOR ACCEPTANCE.

FIRE PROTECTION

- WATER MAINS SHALL BE INSTALLED AND MADE OPERATIONAL AS SOON AS PRACTICAL TO PROVIDE ACTIVE FIRE HYDRANT SERVICE DURING BUILDING CONSTRUCTION.
- COORDINATE TYPE AND LOCATION OF HYDRANTS, FIRE DEPARTMENT CONNECTIONS, AND OTHER FIRE PROTECTION SYSTEM COMPONENTS WITH LOCAL FIRE CODE OFFICIAL PRIOR TO INSTALLATION.

SANITARY SEWER

- SANITARY SEWER MAIN PIPING SHALL BE PVC PER THE SPECIFICATIONS BELOW UNLESS AN ALTERNATE IS APPROVED BY THE TOWN OF PITTSBORO PUBLIC UTILITIES DIRECTOR.
- SANITARY SEWER MAIN PIPING SHALL BE DUCTILE IRON PIPE APPROVED BY THE TOWN OF PITTSBORO PUBLIC UTILITIES DIRECTOR PER AWWA C151, PRESSURE CLASS 350, WITH INTERIOR EPOXY LINING PER AWWA C104 AND EXTERIOR ASPHALTIC COATING PER AWWA C151. JOINTS SHALL BE PUSH-ON TYPE WITH RUBBER GASKETS PER AWWA C111.
- SANITARY SEWER MAIN PIPING SHALL BE PVC PIPE PER ASTM D3034, SDR 35. JOINTS SHALL BE PUSH-ON TYPE WITH RUBBER GASKETS PER AWWA C111.
- SANITARY SEWER MAINS SHALL BE INSTALLED WITH 36 INCHES MINIMUM COVER TO FINISHED GRADE, EXCEPT AS OTHERWISE SPECIFIED.
- ALL SERVICE LINES AND CLEANOUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE N.C. PLUMBING CODE, AND HAVE 24 INCHES MINIMUM COVER TO FINISHED GRADE. SERVICE LINES SHALL MAINTAIN MAXIMUM SERVICE DEPTH USING A 2% SLOPE UNLESS OTHERWISE SPECIFIED.
- SERVICE PIPE AND FITTINGS WITHIN PUBLIC STREET RIGHTS-OF-WAY SHALL BE PVC, SDR 35 (21 WHEN SHALLOW) AND ALL CLEANOUTS SHALL BE FITTED WITH THROUGH-ROOF PLUGS.
- SERVICE LINE CLEANOUTS IN VEHICULAR AREAS SHALL BE TRAFFIC BEARING CLEANOUTS.

CONNECTIONS

- FOR CONNECTIONS TO EXISTING UTILITY AND DRAINAGE LINES, CONTRACTOR SHALL VERIFY EXISTING PIPE SIZE AND MATERIAL, AND PROVIDE APPROPRIATE CONNECTION FITTINGS.
- ANY CONNECTION TO EXISTING UTILITIES, OR ANY UTILITY SERVICE INTERRUPTION, SHALL BE FIRST COORDINATED WITH THE GOVERNING UTILITY AUTHORITY, AND PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THAT AUTHORITY.
- SITE UTILITY CONTRACTOR SHALL EXTEND WATER AND SANITARY SEWER SERVICES TO WITHIN 5 FEET OF THE POINT OF BUILDING PENETRATION FOR EACH UTILITY.
- BUILDING PLUMBER SHALL PROVIDE TRANSITION MATERIALS AND FITTINGS, AND MAKE PROPER CONNECTIONS TO SITE UTILITY STUB-OUTS FOR ALL WATER AND SANITARY SEWER SERVICES.
- SITE UTILITY CONTRACTOR SHALL EXTEND ROOF DRAINAGE PIPING TO WITHIN 5 FEET OF DOWNSPOUT LOCATIONS, FOR EXTENSION AND CONNECTION TO DOWNSPOUTS BY OTHERS.

TESTING AND ACCEPTANCE

- THE GEOTECHNICAL ENGINEER SHALL PROVIDE MATERIAL AND DENSITY TESTING DURING THE COURSE OF THE WORK. PRIOR TO PLACEMENT OF ANY BASE OR PAVEMENT, CONTRACTOR SHALL PROVIDE PROOF-ROLLING OF ALL TRENCH AREAS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
- PRIOR TO ANY SANITARY SEWER OR WATER SYSTEM IMPROVEMENTS BEING PLACED INTO SERVICE:
 - CONTRACTOR SHALL SUCCESSFULLY TEST ALL WATER MAINS FOR WATER LEAKAGE AND WATER QUALITY IN ACCORDANCE WITH PITTSBORO AND NCDENR REQUIREMENTS.
 - CONTRACTOR SHALL SUCCESSFULLY TEST ALL SANITARY SEWER MAINS FOR DEFLECTION AND LEAKAGE, IN ACCORDANCE WITH PITTSBORO AND NCDENR REQUIREMENTS.
 - CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF INSTALLED SANITARY SEWER MAINS AND STORM DRAINAGE PIPES AND PROVIDE DOCUMENTATION PER LOCAL REQUIREMENTS.
 - CONTRACTOR SHALL PROVIDE TO ENGINEER A SET OF MARKED UP DRAWINGS SHOWING UTILITY CHANGES, DIMENSIONAL ADJUSTMENTS, DISCOVERED SUBSURFACE UTILITIES, AND OTHER AS-BUILT INFORMATION.
 - CONTRACTOR SHALL PROVIDE DOCUMENTATION OF ALL TESTING RESULTS TO ENGINEER AND TOWN OF PITTSBORO.
 - ALL IMPROVEMENTS SHALL PASS FINAL INSPECTION BY ENGINEER AND THE UTILITY AUTHORITY.
 - ENGINEER SHALL SUBMIT ALL CERTIFICATIONS AND OTHER CLOSE-OUT DOCUMENTS TO APPLICABLE LOCAL AND STATE AUTHORITIES.

OTHER

- CONTRACTOR SHALL PROVIDE PRIMARY COORDINATION WITH UTILITY SERVICE PROVIDERS FOR BUILDING UTILITY SERVICES. THIS WORK SHALL INCLUDE MAKING APPLICATIONS FOR SERVICE, COORDINATING AND SCHEDULING WORK BY OTHERS, VERIFYING ROUTINGS AND EQUIPMENT LOCATIONS, FURNISHING AND INSTALLING CONDUIT AND PADS, AND RELATED WORK AS NEEDED.
- CONTRACTOR SHALL PROVIDE PROPER RESTORATION AND CLEAN-UP OF ALL AREAS DISTURBED BY UTILITY CONSTRUCTION.

KEY KEYED NOTES -- UTILITY PLAN

- 8" x 6" MJ REDUCER. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 8" DIAMETER DUCTILE IRON RESTRAINED JOINT WATERLINE.
- REMOVE THE EXISTING BLOWOFF AND CONNECT TO EXISTING 8" DI WATER LINE.
- 11.25 DEGREE MJ BEND MATCHING PIPE SIZE. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 22.5 DEGREE MJ BEND MATCHING PIPE SIZE. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 45 DEGREE MJ BEND MATCHING PIPE SIZE. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 90 DEGREE MJ BEND MATCHING PIPE SIZE. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 8" x 8" MJ TEE. PROVIDE THRUST RESTRAINT AS REQUIRED.
- 6" GATE VALVE WITH VALVE BOX AND CONCRETE COLLAR, AND FIRE HYDRANT ASSEMBLY.
- 8" GATE VALVE WITH VALVE BOX AND CONCRETE COLLAR.
- 3/4" WATER SERVICE TAP, 3/4" SERVICE LINE TO METER, AND 5/8" METER ASSEMBLY IN METER BOX, FOR DOMESTIC WATER SERVICE. STUB 3/4" SERVICE LINE FROM METER TO BUILDING. PLUMBER TO MAKE CONNECTION TO STUB. PROVIDE ALL COMPONENTS WITH LEAD-FREE RATINGS.
- BACKFLOW PREVENTER DEVICE FOR DOMESTIC WATER SERVICE INSTALLED INSIDE BUILDING. DEVICE SHALL BE A LEAD-FREE ASSEMBLY. COORDINATE WITH BUILDING DESIGN DOCUMENTS TO VERIFY LOCATION, SIZE, CONFIGURATION, MODEL, AND REQUIREMENTS FOR INSTALLATION, CLEARANCES, & DRAINAGE.
- 8" DIAMETER PVC SANITARY SEWER MAIN.
- NEW PUBLIC SANITARY SEWER EASEMENT.
- NEW SANITARY SEWER MANHOLE.
- 6" PVC SANITARY SEWER SERVICE LINE.
- 6" PVC SANITARY SEWER CLEANOUT ASSEMBLY (TYP). PROVIDE SPACING AND LOCATIONS AS SHOWN.
- 1,500 GALLON GREASE INTERCEPTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING SHOP DRAWINGS TO THE TOWN OF PITTSBORO PUBLIC UTILITIES DIRECTOR, JOHN POTEAT, FOR APPROVAL PRIOR TO INSTALLATION OF THE GREASE TRAP(S).
- PROVIDE ADEQUATE TRAFFIC CONTROL AND SAFETY MEASURES FOR PUBLICS AND WORKER SAFETY DURING ALL PHASES OF THE WORK, CONFORM TO STANDARDS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD, AND REQUIREMENTS OF APPLICABLE ROADWAY AUTHORITIES.
- COORDINATE WITH UTILITY PROVIDERS FOR REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES, LINES, AND DEVICES AS NEEDED. ACCOUNT FOR REASONABLE LEAD TIMES FOR WORK BY OTHERS.
- APPROXIMATE LOCATION OF 8" WATER MAIN UNDER CONSTRUCTION BY OTHERS.
- APPROXIMATE LOCATION OF GATE VALVE UNDER CONSTRUCTION BY OTHERS.
- APPROXIMATE LOCATION OF FIRE HYDRANT UNDER CONSTRUCTION BY OTHERS.
- PRIOR TO UTILITY INSTALLATION, FIELD DETERMINE LOCATIONS AND ELEVATIONS OF BURIED UTILITIES OR OTHER FEATURES THAT WILL BE CROSSED BY THE NEW UTILITY. VERIFY THAT ADEQUATE CLEARANCES (AND SLOPES, IF APPLICABLE) WILL BE MAINTAINED. CONSULT ENGINEER AS NEEDED TO RESOLVE ANY NON-CONFORMING CONDITIONS.

REFERENCES:

- SEE COVER SHEET FOR TOWN OF PITTSBORO GENERAL UTILITY NOTES.

GRAPHIC SCALE

30 0 15 30 60
 (IN FEET)
 1 inch = 30 ft.

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____

civil consultants
 LAND PLANNERS + CIVIL ENGINEERS
 WWW.CIVIL-CONSULTANTS.COM
 3700 LYCOKAN PARKWAY, SUITE 201, DURHAM, NC 27707
 919.480.1648 PHONE 919.403.0336 FAX
 LIC. #C-103

PITTSBORO ROOTS
 PITTSBORO, NORTH CAROLINA
 UTILITY PLAN

REV. DATE DESCRIPTION

1	6/10/2016	BIORETENTION
2	7/12/2016	CPI SITE PLAN
3	8/15/2016	TOWN REVIEW COMMENTS
4	8/26/2016	TOWN REVIEW COMMENTS
5	9/07/2016	BUILDING SF
6	9/21/2016	CPI REVIEW COMMENTS

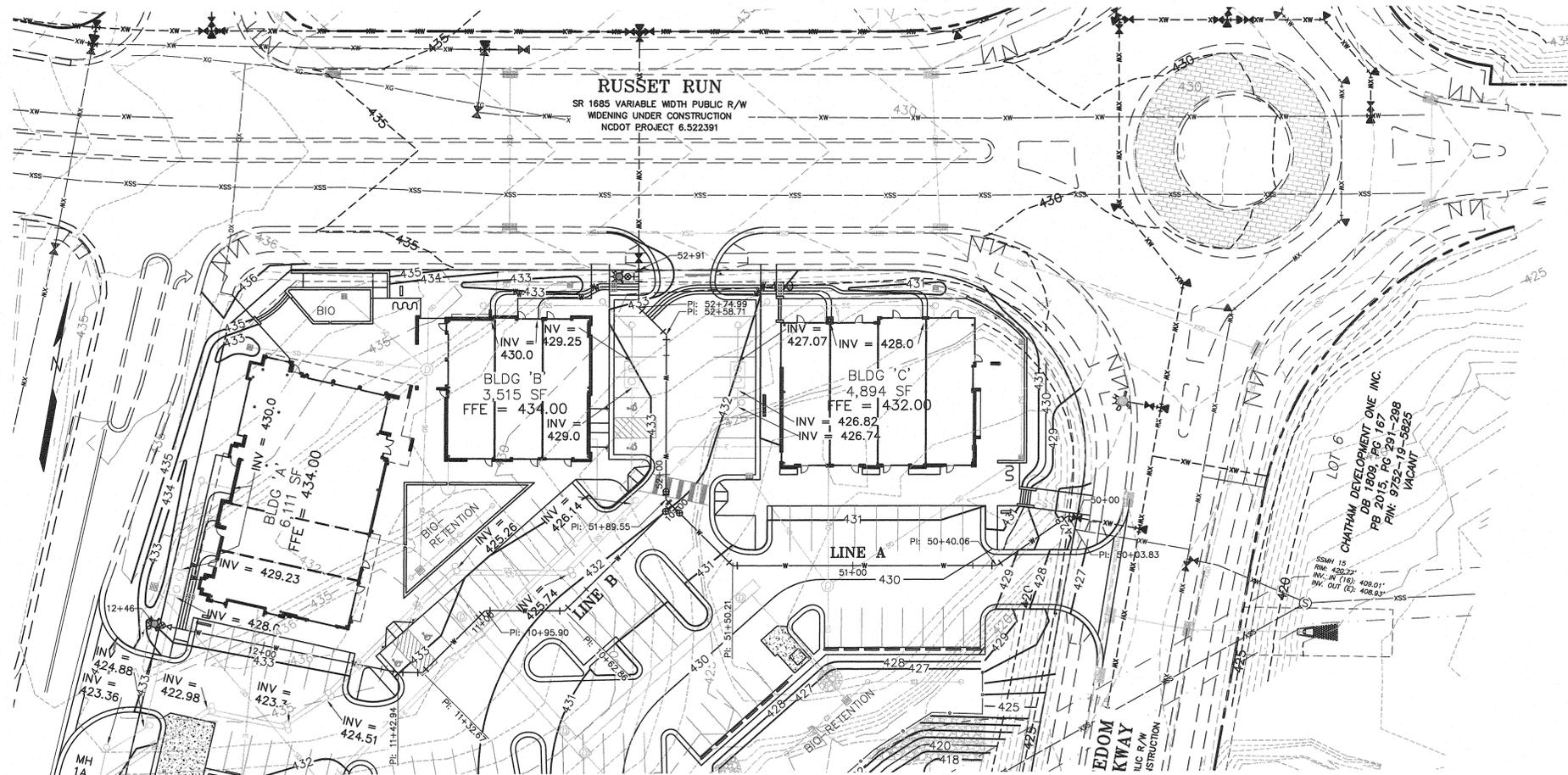
DATE: MAY 13, 2018

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

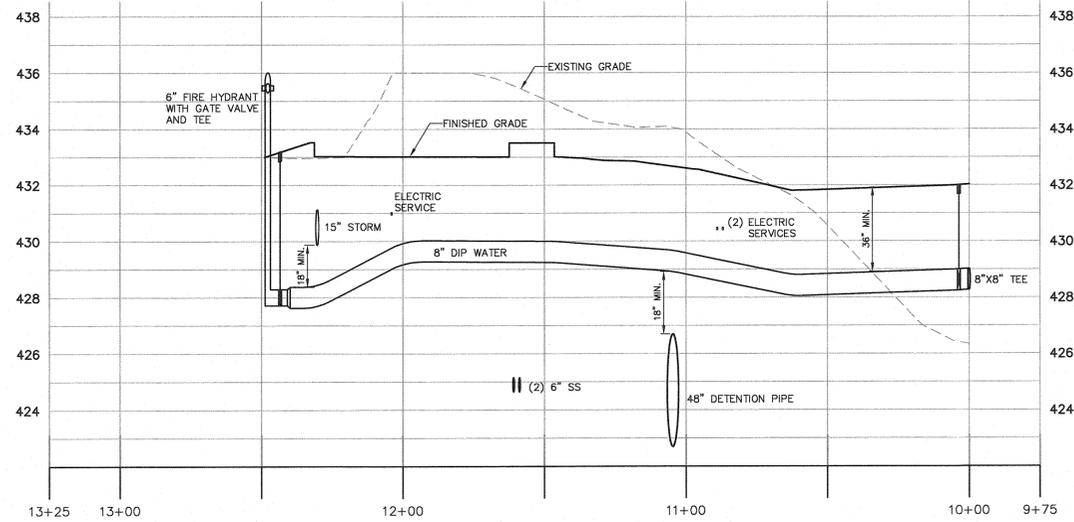
COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO. **U1**

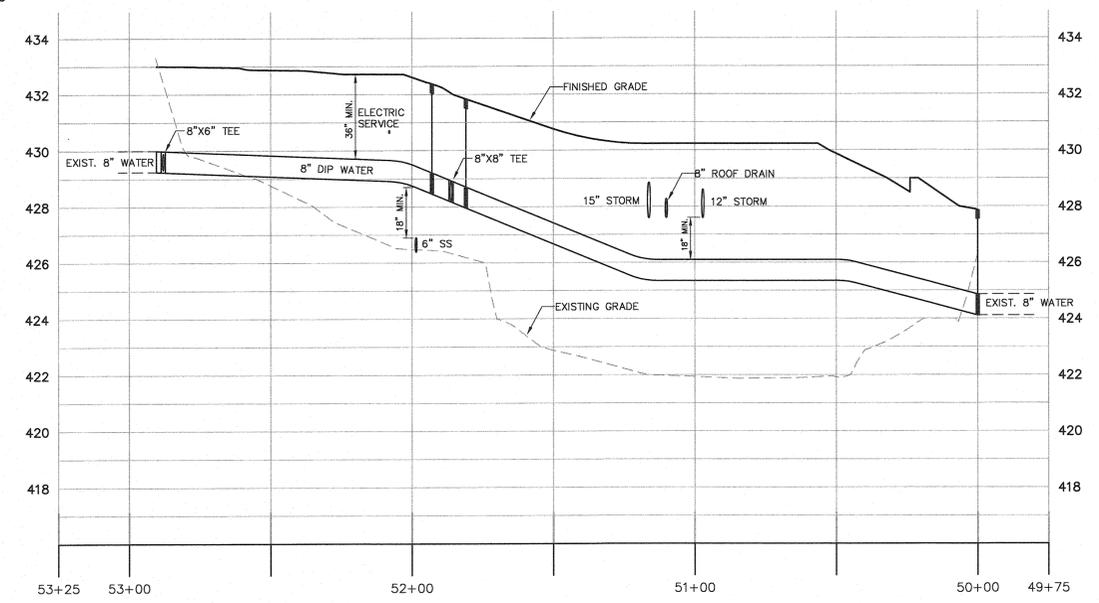




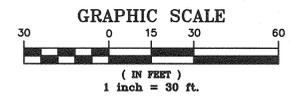
PLAN VIEW
1"=30'



LINE B PROFILE VIEW
1"=30' (H) AND 1"=3' (V)



LINE A PROFILE VIEW
1"=30' (H) AND 1"=3' (V)

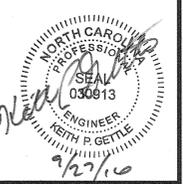


REFERENCES:
1. SEE COVER SHEET FOR TOWN OF PITTSBORO GENERAL UTILITY NOTES.

811
Know what's below.
Call before you dig.
(Or call: 1-800-632-4949)

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.
CONTRACTOR'S INITIALS: _____

civil consultants
LAND PLANNERS + CIVIL ENGINEERS
WWW.CIVIL-CONSULTANTS.COM
3708 LYCKAN PARKWAY, SUITE 201, DURHAM, NC 27707
919.480.1648 PHONE 919.483.0338 FAX
Lic. #C-1030



PITTSBORO ROOTS
PITTSBORO, NORTH CAROLINA
WATER PLAN & PROFILE

REV.	DATE	DESCRIPTION
8	9/21/2016	CPI REVIEW COMMENTS AND DUKE ENERGY COORD

DATE: AUGUST 28, 2016

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO.

U3

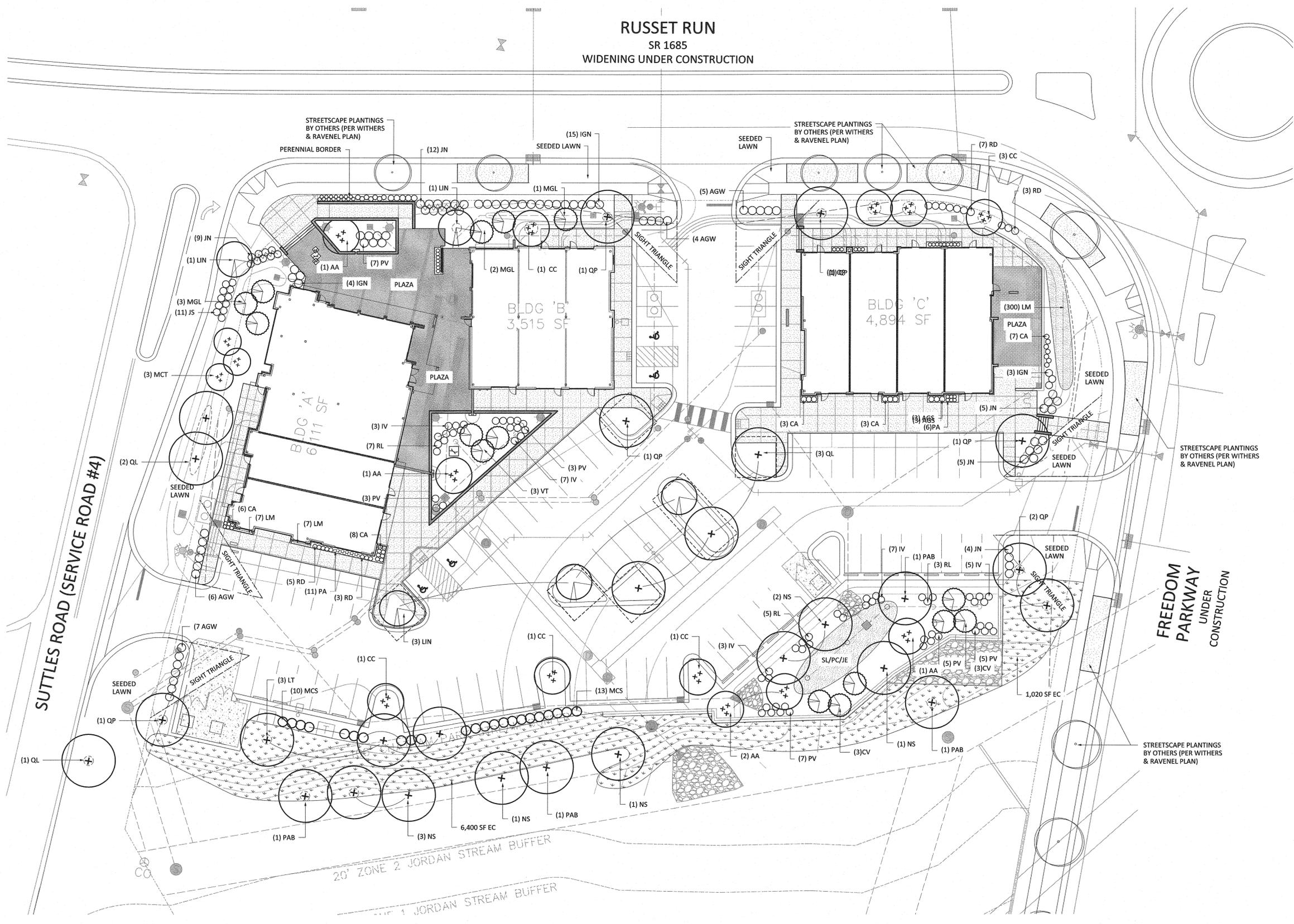
Site Plan Submittal
Pittsboro Roots
Chatham Park
Pittsboro, North Carolina

PLANNING DOCUMENTS - NOT FOR CONSTRUCTION

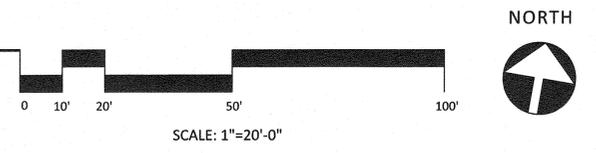


08/09/16	REVIEW COMMENTS
08/26/16	REVIEW COMMENTS
09/21/16	REVIEW COMMENTS
09/28/16	REVIEW COMMENTS

**PLANTING
PLAN
L1.0**

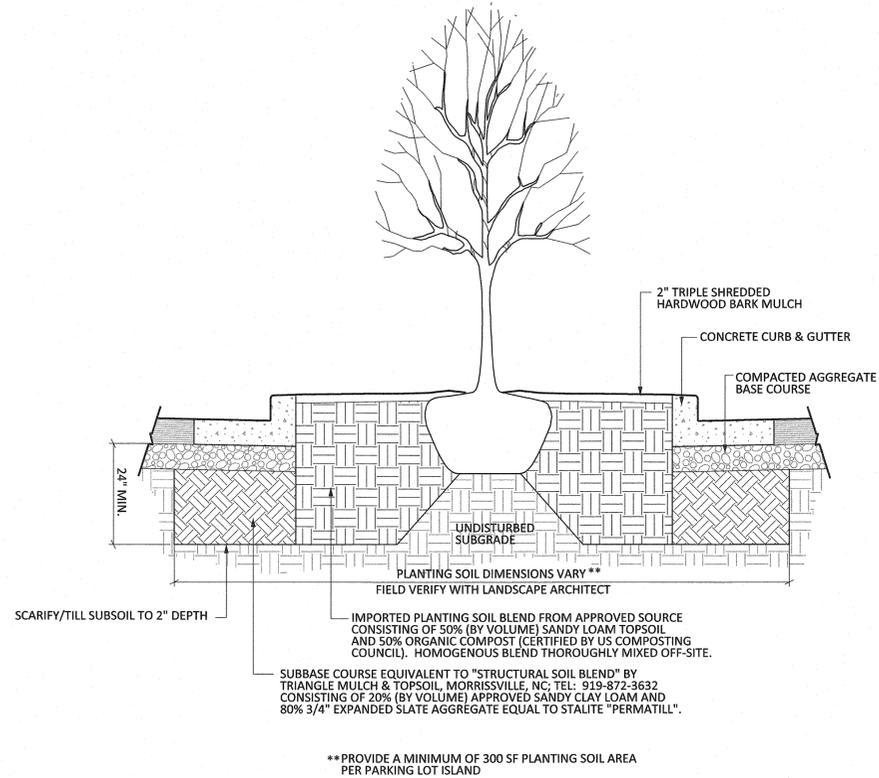


PLANTING PLAN

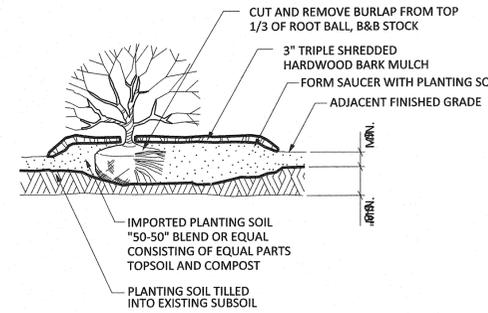




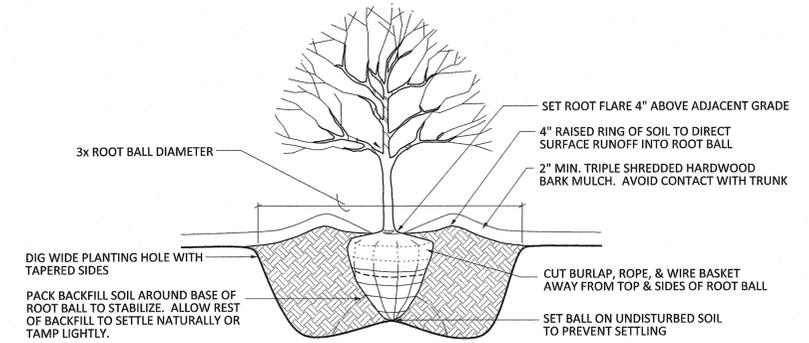
- 08/09/16 REVIEW COMMENTS
- 08/26/16 REVIEW COMMENTS
- 09/21/16 REVIEW COMMENTS
- 09/28/16 REVIEW COMMENTS



2
L2.0
SHRUB PLANTING DETAIL

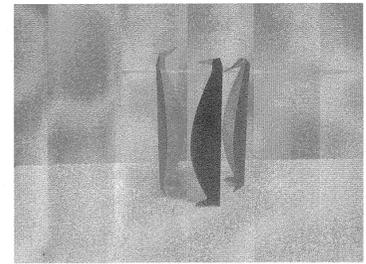
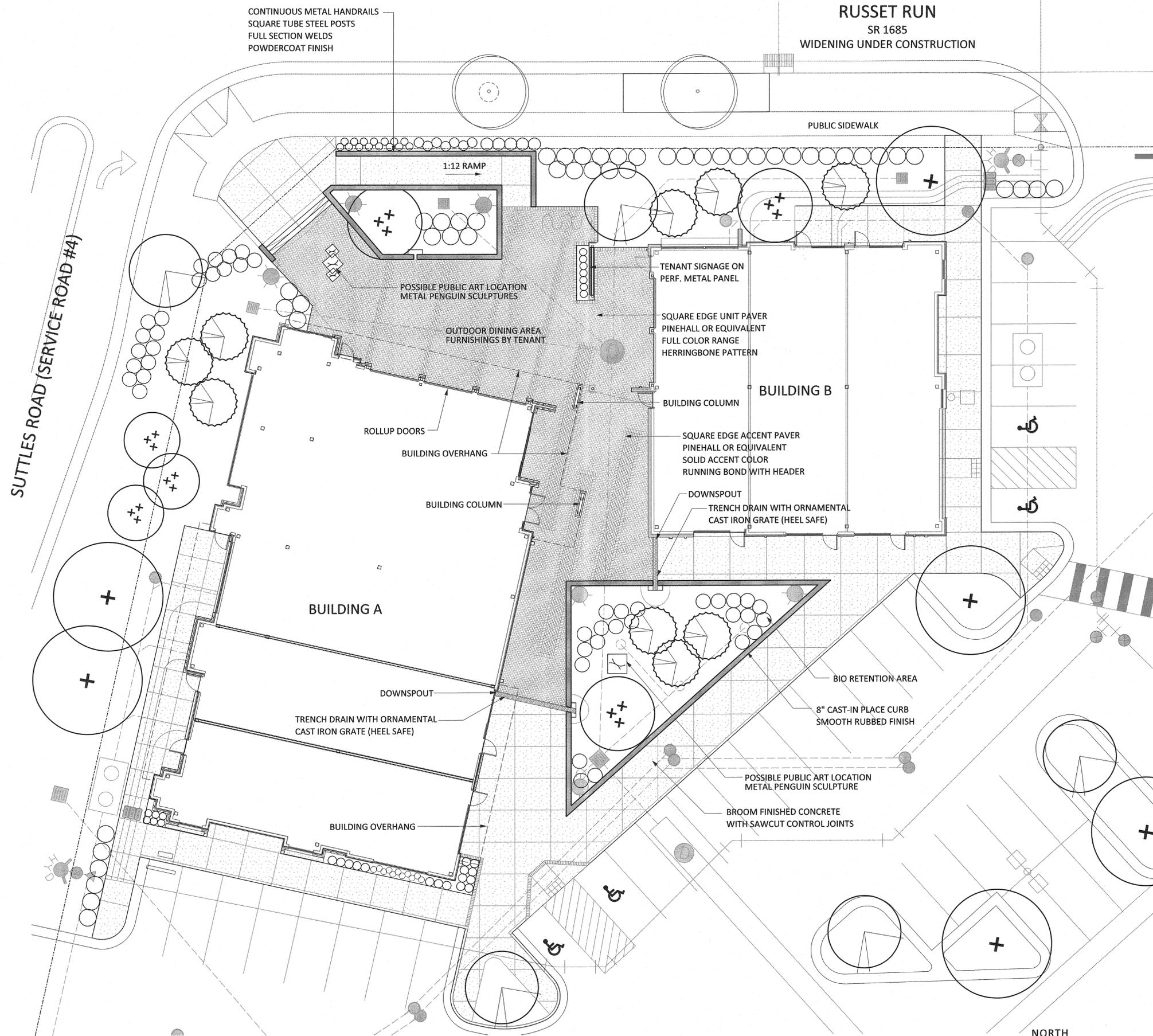


3
L2.0
TYPICAL TREE PLANTING DETAIL



PLANTING SCHEDULE							
KEY	QTY	COMMON NAME	BOTANICAL NAME	CAL/RT	MIN HT.	MIN SPR	NOTES
TREES							
AA		SERVICEBERRY	Amelanchier x grandiflora 'Autumn Brilliance'	B&B	8'		MULTI-STEM (MIN. 3 CANES)
CC		EASTERN REDBUD	Cercis canadensis	CONTAINER	5'		MULTI-STEM (MIN. 3 CANES)
CV		WHITE FRINGETREE	Chionanthus virginicus	CONTAINER	5'		TREE FORM
LIN		NATCHEZ CRAPE MYRTLE	Lagerstroemia x indica 'Natchez'	2" B&B			SINGLE STEM
LT		TULIP POPLAR	Liriodendron tulipifera	2" B&B			
MCT		TREE FORM WAX MYRTLE	Myrica cerifera	CONTAINER	6'		TREE FORM
MGL		LITTLE GEM MAGNOLIA	Magnolia grandiflora 'Little Gem'	CONTAINER	6'		
NS		BLACK GUM	Nyssa sylvatica	2" B&B			
PAB		LONDON PLANETREE	Platanus x acerifolia 'Bloodgood' or 'Columbia'	2" B&B			
QL		OVERCUP OAK	Quercus lyrata	2" B&B			
QP		WILLOW OAK	Quercus phellos	2" B&B			
SHRUBS							
AGW		GUMPO WHITE AZALEA	Azalea x Satsuki 'Gumpo White'	3 GAL	15"		
AGS		SHERWOOD ABELIA	Abelia x grandiflora 'Sherwoodii'	3 GAL	18"		
IEB		EMILY BRUNER HOLLY	Ilex x 'Emily Bruner'	B&B	60"		
IGN		INKBERRY	Ilex glabra 'Nigra'	5 GAL	24"		HEDGE, 30" ON CENTER
JN		WINTER JASMINE	Jasminum nudiflorum	3 GAL	15"		42" ON CENTER
JS		SARGENTS JUNIPER	Juniperus chinensis 'Sargentii'	3 GAL	15"		42" ON CENTER
MCS		SOUTHERN WAX MYRTLE	Myrica Cerifera	7 GAL	30"		DENSE SHRUB
RD		GEORGIA PETITE HAWTHORN	Rhaphiolepis x delacourii 'Georgia Petite'	5 GAL	18"		30" ON CENTER
VT		ROUND LEAF LAURUSTINUS	Viburnum tinus	5 GAL	18"		42" ON CENTER
HIGH WATER TABLE PLANTINGS (3"-6" STANDING WATER TYPICAL, PERIODS OF DEEPER INUNDATION AND DROUGHT)							
SL		BROADLEAF ARROWHEAD	Sagittaria latifolia	4-1/2 " POTS			30" ON CENTER NATURALIZED MIXTURE
PC		PICKERELWEED	Pontederia cordata	4-1/2 " POTS			
JE		SOFT RUSH	Juncus effusus	4-1/2 " POTS			
PV		SWITCH GRASS	Panicum virgatum	QUART POTS			36" ON CENTER
RL		GREEN HEADED CONEFLOWER	Rudbeckia laciniata	QUART POTS			30" ON CENTER
IV		BLUE FLAG	Iris virginica	QUART POTS			30" ON CENTER
GRASSES & PERENNIALS							
CA		Feather Reed Grass	Calamagrostis acutifolia 'Karl Foerster'	1 gallon			HYDROSEED @ 5 LBS. PER ACRE
EC		Weeping Lovegrass	Eriogonum curvula				
EP		Purple Coneflower	Echinacea purpurea	QUART POTS			
LM		Liriope	Liriope muscari 'Big Blue'	QUART POTS			
PA		Dwarf Fountain Grass	Pennisetum alepecurioides 'Cassian'	1 gallon			
SS		Salvia	Salvia sylvestris 'May Night'	QUART POTS			

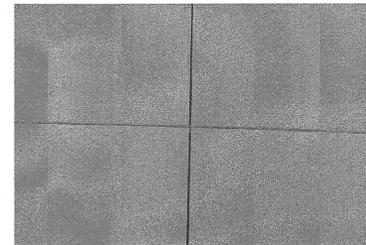
RUSSET RUN
SR 1685
WIDENING UNDER CONSTRUCTION



Public art - metal penguin sculptures



Dry-set clay pavers with full color range field & solid accents



Concrete pavement with textured finish and sawcut jointwork



Decorative trench drain roof drainage conveyance to Bio-Basin

EMERSON
LAND PLANNING
1202 North Gregson Street
Durham, North Carolina 27701
919.943.7587
remerson@nc.rr.com

Site Plan Submittal
Pittsboro Roots
Chatham Park
Pittsboro, North Carolina

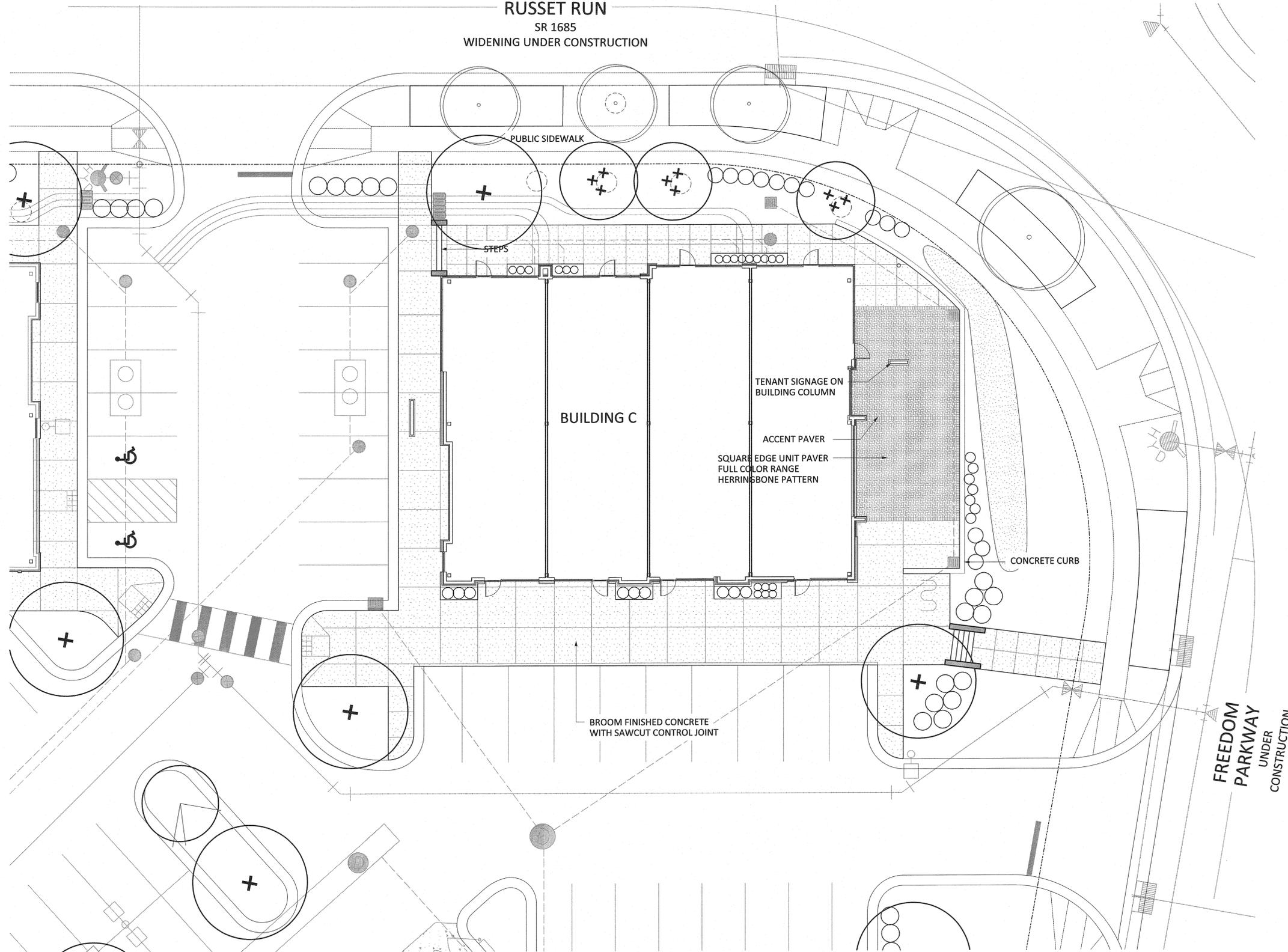
PLANNING DOCUMENTS - NOT FOR CONSTRUCTION



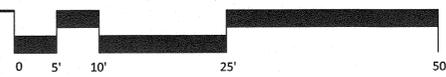
08/09/16	REVIEW COMMENTS
08/26/16	REVIEW COMMENTS
09/21/16	REVIEW COMMENTS
09/28/16	REVIEW COMMENTS

PLAZA LAYOUT
(WEST)
L2.1

RUSSET RUN
SR 1685
WIDENING UNDER CONSTRUCTION



EAST RETAIL PLAZA CONCEPT PLAN



SCALE: 1"=10'-0"



**EMERSON
LAND PLANNING**
1202 North Gregson Street
Durham, North Carolina 27701
919.943.7687
remerson@nc.rr.com

Site Plan Submittal
Pittsboro Roots
Chatham Park
Pittsboro, North Carolina

PLANNING DOCUMENTS - NOT FOR CONSTRUCTION



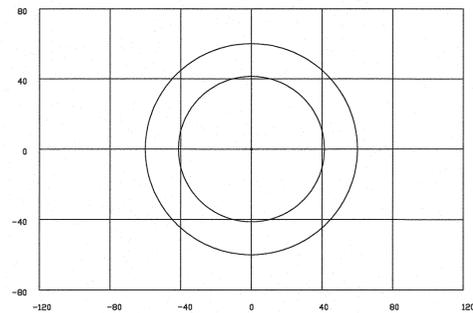
08/09/16	REVIEW COMMENTS
08/26/16	REVIEW COMMENTS
09/21/16	REVIEW COMMENTS
09/28/16	REVIEW COMMENTS

PLAZA LAYOUT
(EAST)
L2.2

ISOFOOTCANDLE CURVES

FIXTURE: MITCHELL LED w/TOP HAT
 MOUNTING HEIGHT: 16 FT
 LIGHT SOURCE: 50W LED'S, 4000K
 PATTERN: TYPE V, B3-U3-G3
 ASSY # L48LED05MTBLMC

NOTE: THE FOOTCANDLE READINGS BELOW ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LAMP LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION. FOR INITIAL FOOTCANDLES, DIVIDE THE READINGS BELOW BY .85.

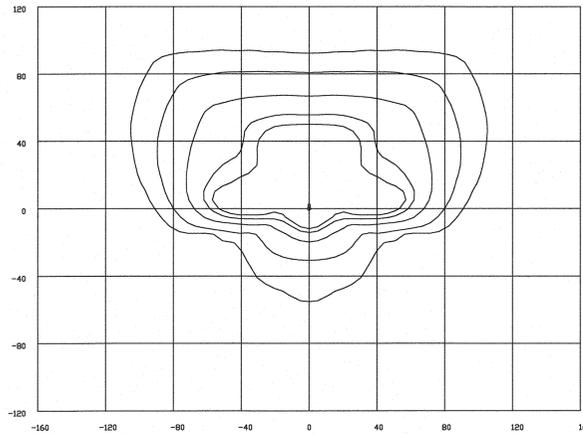


LEGEND (OUTER to INNER): 0.100 , 0.200 , 0.300

ISOFOOTCANDLE CURVES

FIXTURE: LED205, GALLEON
 MOUNTING HEIGHT: 30, 32 FT
 LIGHT SOURCE: LED'S, 4000K, 70 CRI
 PATTERN: TYPE IV, B3-U0-G4 (zero light at or above 90 degrees)
 ASSY# L21KLED21S4BLMC (BLACK)
 POLE ASSY# PLS30ABDS0BLC (BLACK)
 BRACKET ASSY# LBKTSBUBLC (BLACK)

NOTE: THE FOOTCANDLE READINGS BELOW ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LED LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION. FOR INITIAL FOOTCANDLES, DIVIDE THE READINGS BELOW BY .85.



LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.60 , 1.00 , 1.25

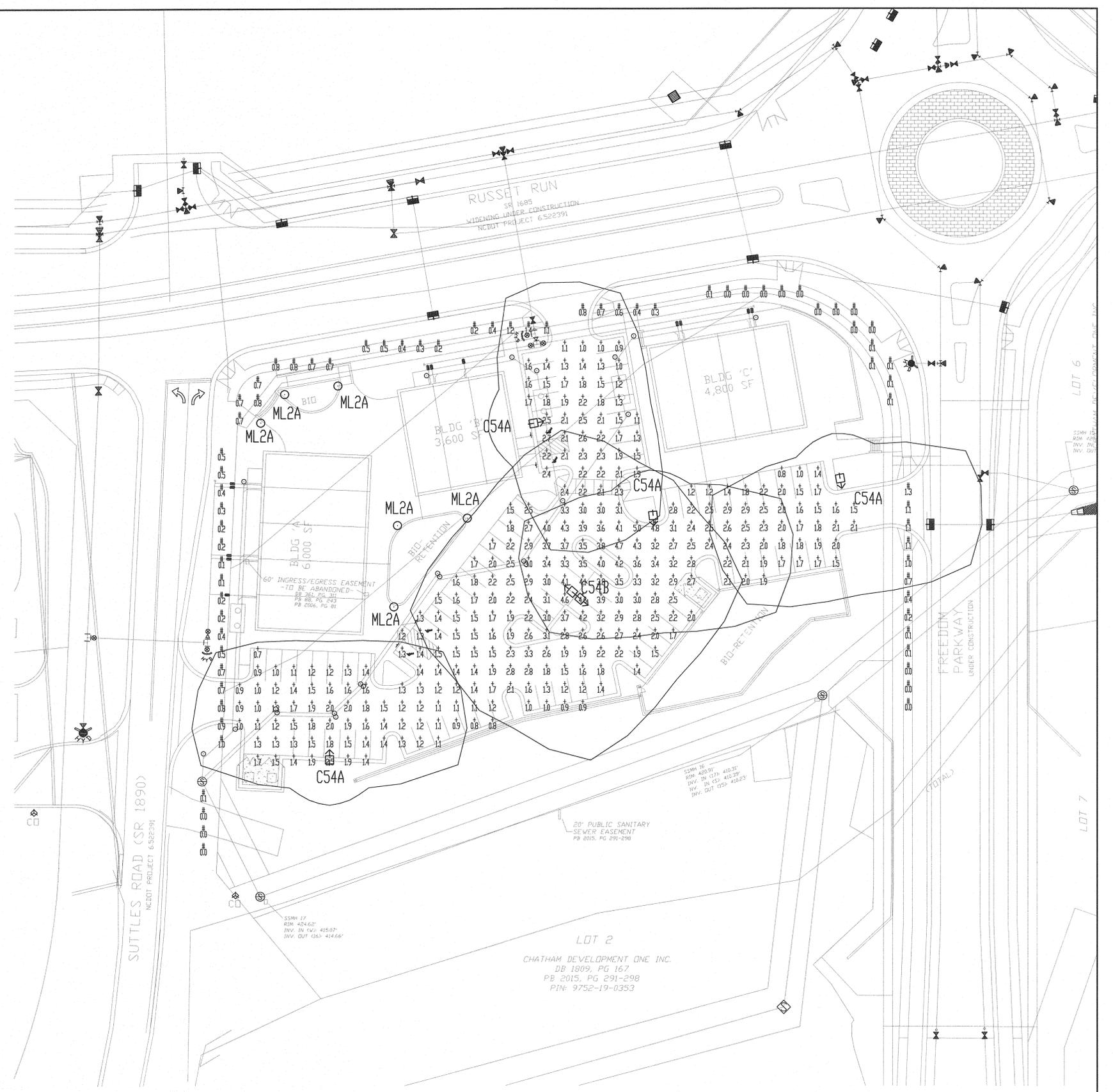
CALCULATION SUMMARY										
AREA NAME	DIMENSIONS	GRID / TYPE	# PTS	SPAC	GROUP	AVE	MAX	MIN	MAX/MIN	AVE/MIN
Parking	584.63x476.50ft	PARKING TRESPASS	307 73	10.00 10.00	<+> <#>	2.05 0.42	5.02 1.38	0.67 0.02	7.51 60.52	3.06 18.41

PBD Roots LUMINAIRE SCHEDULE							
TYP	SYMBOL	DESCRIPTION	LAMP	LUMENS	MOUNTING/BALLAST	LLF	QTY
C54A	⊕	COOPER LIGHTING CP205_4_1/POLE (1) *C054* CP205_4_1-4/POLE	(64) LED 4000K	20555	30' MT HT Cooper SB	0.85	4
C54B	⊕	COOPER LIGHTING CP205_4_2@180 (2) *C054* CP205_4_1-4/POLE	(128) LED 4000K	20555	32' MT HT Cooper SB	0.85	1
ML2A	○	Holophone MCHLED_T_1/POST (1) *ML02* MCHLED_T_1/POST	(1) LED ARRAY	4773	16' ALUM POST SCREW IN	0.87	6

LIGHTING DESIGN TOLERANCE

The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy Progress. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (olioge or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.

Customer approval _____ Date _____



PROPRIETARY & CONFIDENTIAL

This document together with the concepts and designs presented herein, presented as an instrument of service, is the sole property of Duke Energy Progress, and is intended only for the specific purpose and prospective client as stated in the title block of this drawing. Any use, copying, reproduction or disclosure of the drawing, design or any information contained herein by the prospective customer or other entities, including without limitation, architects, engineers, or equipment manufacturers is hereby expressly prohibited and shall not be permitted absent prior written consent from, and payment of compensation to Duke Energy Progress. Duke Energy Progress disclaims any liability or responsibility for any unauthorized use of or reliance on this document.

PBD ROOTS PITTSBORO NC	
SITE LIGHTING PLAN	
Designed by	DEP LIGHTING SOLUTIONS
Reviewed by	C. BRENCO Scale 1" = 30'
Date	09/28/2016 Size "Arch D"
Description	LED205 SHOEBOX & MITCHELL LED FIXTURES
Drawing No.	16-0159C Sht. 1 OF 1



REV.	DATE	DESCRIPTION
4	8/19/2016	TOWN REVIEW COMMENTS
5	9/27/2016	STD DUTY PAVEMENT SECTION

DATE: JULY 18, 2016
 THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.
 COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SPECIFICATIONS FOR ALL CAST-IN-PLACE PORTLAND CEMENT CONCRETE

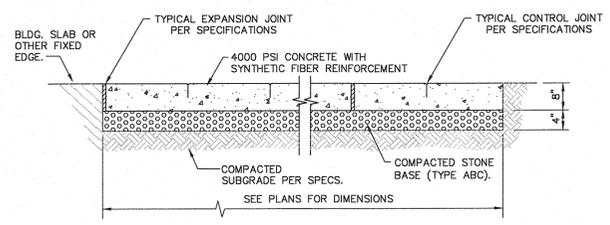
- NOTIFY THE ENGINEER AND ANY AGENCY HAVING JURISDICTION OVER THE CONCRETE AT LEAST TWO BUSINESS DAYS PRIOR TO PLACEMENT OF ANY CONCRETE.
- ENSURE THAT SUBGRADES COMPLY WITH PROJECT REQUIREMENTS FOR ELEVATION, SLOPE, SOIL CHARACTERISTICS, AND DENSITY PRIOR TO PLACING ANY FORMS, BASE MATERIAL, OR CONCRETE.
- VERIFY THAT CURRENT AND FORECASTED WEATHER CONDITIONS ARE APPROPRIATE FOR CONCRETE PLACEMENT.
- CONCRETE MATERIALS AND WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS, AS APPLICABLE:

DESCRIPTION	STANDARD	COMMENT
READY-MIX CONCRETE	ASTM C94	TYPE 1 OR IA ONLY
PORTLAND CEMENT	ASTM C150	
COARSE AND FINE AGGREGATE	ASTM C33	
MIXING WATER	ASTM C1602	GRADE 60
REINFORCING WIRE AND STEEL	ASTM A82/A185/A615	
REINFORCING STEEL PLACEMENT	ACI 318	
AIR-ENTRAINING ADMIXTURES	ASTM C260	TYPE 1 ONLY
CHEMICAL ADMIXTURES	ASTM C494	
CURING COMPOUND	ASTM C309	
SHEET COVERINGS / CURING	ASTM C171 / ACI 308	NORMAL-WEIGHT
FIBER-REINFORCED CONCRETE	ASTM C1116	
PROPORTIONING OF MIXES	ACI 211.1	
MIXING, TRANSPORT, & PLACEMENT	ACI 304	SLUMP TESTING
SAMPLING / TEST SPECIMENS	ASTM C143	
HOT WEATHER / COLD WEATHER	ASTM C 172 / C31 ACI 305 / 306	

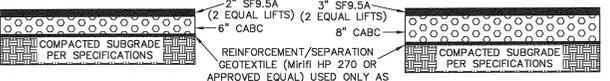
- PROVIDE ALL CONCRETE MATERIALS AND WORK IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GOVERNING AUTHORITY REQUIREMENTS, AS APPLICABLE. IN CASE OF CONFLICTING REQUIREMENTS, THE MORE STRINGENT SHALL APPLY.
- FOR CONCRETE WORK IN EXISTING OR ANTICIPATED FUTURE NCDOT RIGHTS OF WAY, COMPLY WITH REQUIREMENTS OF THE LATEST EDITION OF NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, AND AASHTO STANDARDS SPECIFIED THEREIN.
- UNLESS OTHERWISE SPECIFIED OR REQUIRED, PROVIDE NORMAL-WEIGHT CONCRETE HAVING A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI, WITH A MAXIMUM WATER/CEMENT RATIO OF 0.58, AND A SLUMP RANGE BETWEEN 1.5 AND 3.0 INCHES.
- WHERE EXTERIOR CONCRETE WILL BE FULLY OR PARTIALLY ABOVE THE FROST LINE, PROVIDE AIR-ENTRAINED CONCRETE WITH AN AIR CONTENT OF 5% BY VOLUME, PLUS OR MINUS 1.5% UNLESS OTHERWISE SPECIFIED. SYNTHETIC FIBER REINFORCEMENT SHALL BE FIBERMESH 300 BY PROPEX, AT A MINIMUM RATE OF 1.5 LBS. PER CUBIC YARD OF CONCRETE, OR APPROVED EQUAL.
- UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE CONTROL JOINTS AND EXPANSION JOINTS WITH MAXIMUM SPACING AND PHYSICAL CHARACTERISTICS AS FOLLOWS:

JOINT TYPE	WALKS	SPACING BY THICKNESS			CURB & GUTTER	SPECIFICATION
		4"	6"	8"		
CONTROL	5'	6'	10'	12'	10'	SAW-CUT OR TOoled TO A MINIMUM DEPTH OF 1/3 OF THE CONCRETE THICKNESS
	EXPANSION	30'	24'	24'	50'	1/2" INCH WIDE X FULL DEPTH, FILLED WITH PRE-MOULDED BITUMINOUS-IMPREGNATED COMPRESSIBLE FIBER BOARD

- PROVIDE EXPANSION JOINTS AGAINST ALL METAL FRAMES, CASTINGS, BOLLARDS, STRUCTURES, FOOTINGS, SLABS, APRONS, OR OTHER FIXED OBJECTS.
- INSTALL CONSTRUCTION JOINTS, CONFORMING TO EXPANSION JOINT REQUIREMENTS, AT ANY EDGE WHERE PLACEMENT OPERATIONS ARE DISCONTINUED FOR LONGER THAN 30 MINUTES.
- COMPLY WITH MATERIAL SAMPLING AND TESTING REQUIREMENTS AS SPECIFIED FOR THE PROJECT.
- PROVIDE ADEQUATE CONCRETE FINISHING, PROTECTION, AND CURING MEASURES. UNLESS OTHERWISE NOTED, PROVIDE A LIGHT-BROOM FINISH ON ALL SURFACES THAT WILL EXPERIENCE FOOT TRAFFIC.
- EXPOSED CONCRETE SURFACES SHALL HAVE A UNIFORM APPEARANCE WITHOUT UNINTENDED CRACKS, AND WITH PROPER DIMENSIONS, ELEVATIONS, AND SLOPES. JOINTS SHALL BE STRAIGHT, NEAT, AND PROPERLY SPACED, WITH LEVEL SURFACE CONDITIONS ACROSS THE WIDTH OF EACH JOINT.
- WASH OUT CONCRETE TRUCKS AND DRUMS IN APPROVED LOCATIONS ONLY.



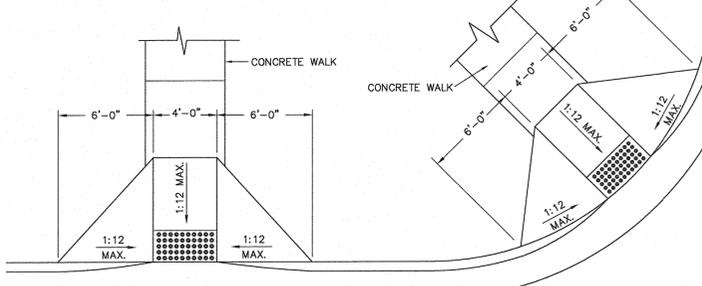
CONCRETE PAVING DETAIL-TYPE 3
 NTS



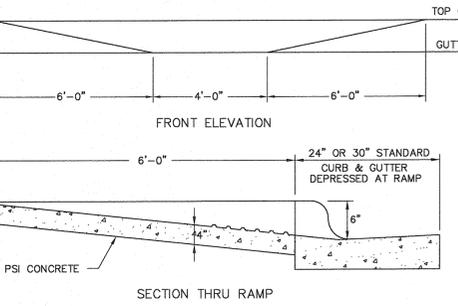
STANDARD DUTY PAVEMENT **HEAVY DUTY PAVEMENT**

- NOTES:**
- CONSTRUCTION PROCEDURES, MIX RATIOS, AGGREGATE SIZES, AND COMPACTED DENSITIES SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, LATEST EDITION.
 - INDICATED THICKNESS REFLECTS COMPACTED THICKNESS, WITH TOLERANCES AS ALLOWED BY NCDOT STANDARDS.

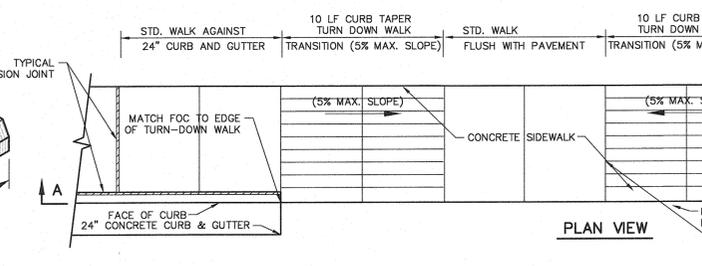
- NOTES:**
- DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.



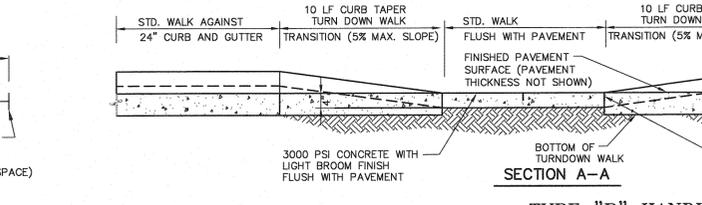
TYPICAL PLAN
 N.T.S.



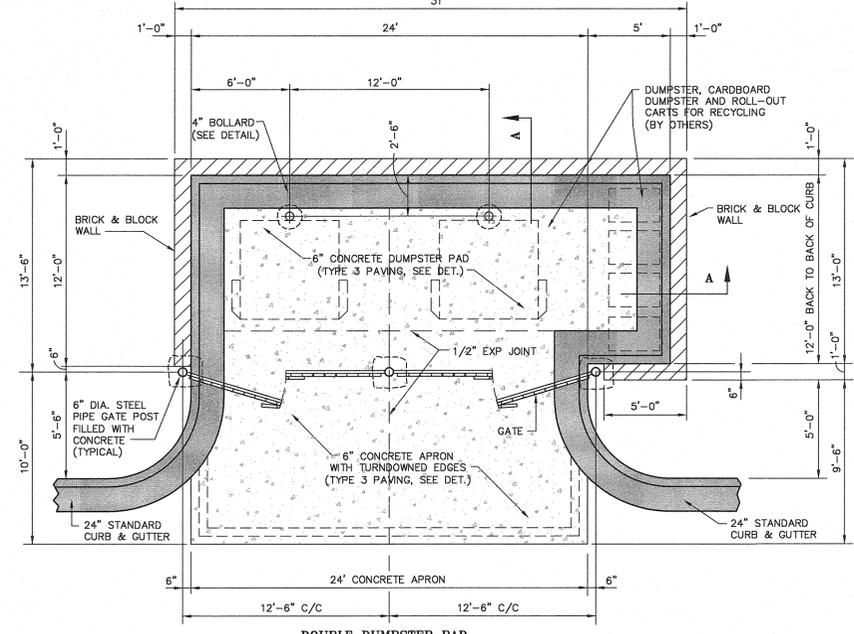
TYPE 'A' HANDICAP RAMP
 N.T.S.



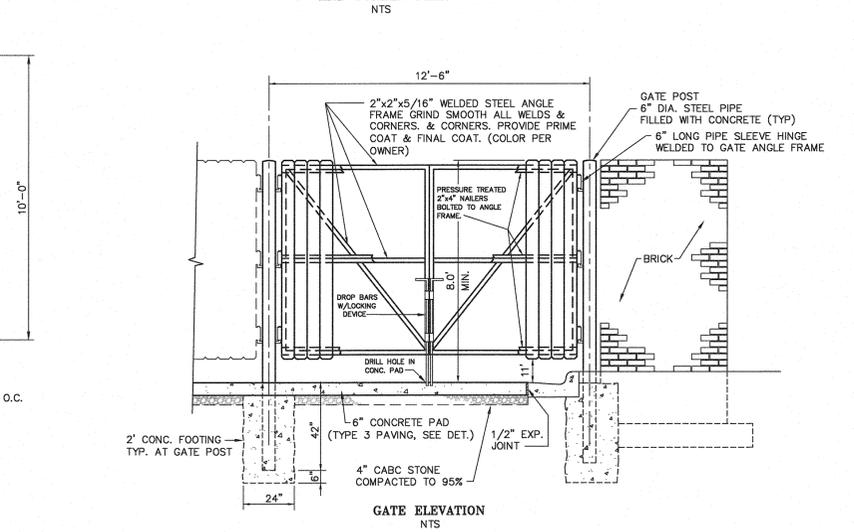
STANDARD CONCRETE WALK
 N.T.S.



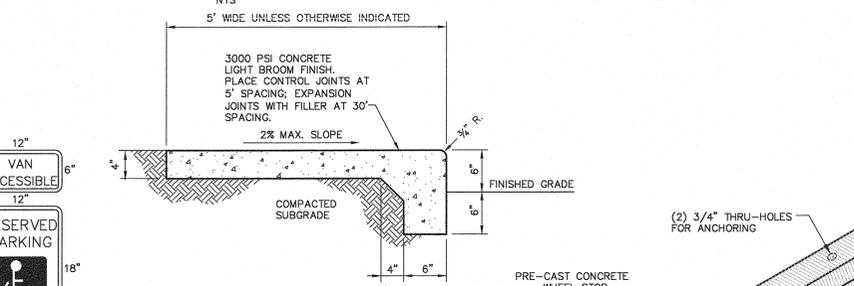
TYPE "B" HANDICAP RAMP
 N.T.S.



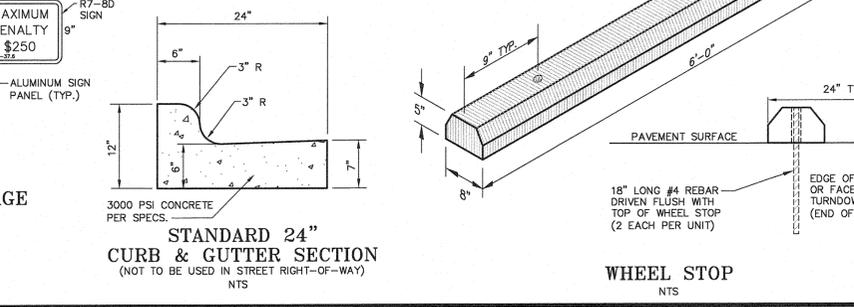
DOUBLE DUMPSTER PAD AND SCREEN PLAN
 N.T.S.



GATE ELEVATION
 N.T.S.

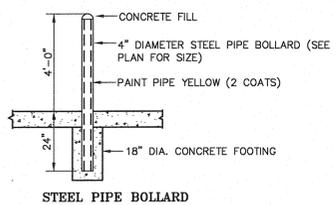


TURNDOWN CONCRETE WALK
 N.T.S.

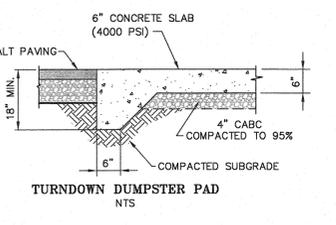


STANDARD 24" CURB & GUTTER SECTION
 (NOT TO BE USED IN STREET RIGHT-OF-WAY)
 N.T.S.

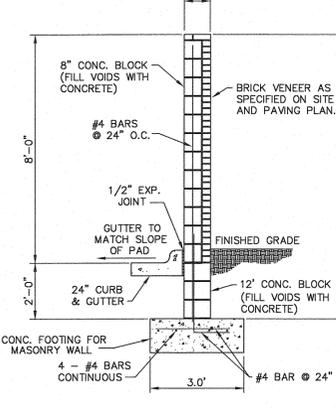
WHEEL STOP
 N.T.S.



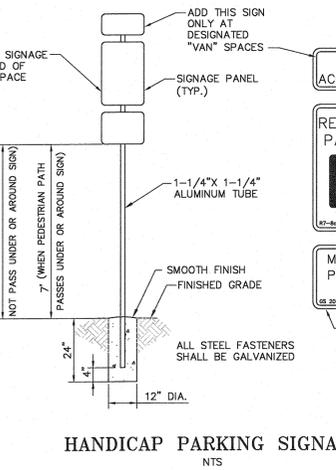
STEEL PIPE BOLLARD
 N.T.S.



TURNDOWN DUMPSTER PAD
 N.T.S.



DUMPSTER SCREEN WALL SECTION A-A



HANDICAP PARKING SIGNAGE
 N.T.S.

NOTES:
 1. INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
 2. STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS

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

SHEET 1 OF 1 840.66

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

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

SHEET 1 OF 2 840.03

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

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

SHEET 2 OF 2 840.03

GENERAL NOTES:
 1. USE CLASS "B" CONCRETE THROUGHOUT.
 2. PROVIDE ALL DROP TABLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 3. OPTIONAL CONSTRUCTION - MONOLITHIC FORM, 2" KEYWAY, OR #4 BAR DOMES AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 4. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 5. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 6. CONSTRUCT WITH PIPE CHAINS MATCHING.
 7. INSTALL 2" REINFORCES AS DIRECTED BY THE ENGINEER.
 8. INSTALL STIFF BRACES, OF A RICHNESS OF 1 CUBIC FOOT OF NO. 7M STONE IN A POUND FABRIC BAG OR "MWP", AT EACH REEF HOLE OR AS DIRECTED BY THE ENGINEER.
 9. CHAMFER ALL EXPOSED CORNERS 1".
 10. DRAWING NOT TO SCALE.

ENGLISH STANDARD DRAWING FOR CONCRETE DROP INLET 12" THRU 30" PIPE

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

SHEET 1 OF 1 840.14

GENERAL NOTES:
 1. PROVIDE ALL CATCH BASINS OVER 6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 2. OPTIONAL CONSTRUCTION - MONOLITHIC FORM, 2" KEYWAY, OR #4 BAR DOMES AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 3. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 4. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 5. USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 6. FOR 8" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8" TO 10" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST CHAMFER ALL EXPOSED CORNERS 1".
 7. DRAWING NOT TO SCALE.

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

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

SHEET 1 OF 2 840.02

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

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

SHEET 2 OF 2 840.02

DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)											
PIPE DIA.	SPAN	WIDTH	HEIGHT	OVERALL DIMENSION				DIMENSION			
				A	B	C	D	E	F	G	H
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
15"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
18"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
24"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
30"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
36"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
42"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
48"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167
54"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.222	0.222	0.167	0.167	0.167	0.167

When the area below the outlet is not a defined channel, build a flat apron to disperse runoff.

ENGLISH STANDARD DRAWING FOR RIP RAP APRON

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

SHEET 1 OF 1 840.31

INSTRUCTIONS FOR STONE APRON OUTLET PROTECTION

- REFER TO THE PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT OR METHOD OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OR PROPERLY INSTALLED APRONS AS A AID TO INSTALLATION.
- IF THE STONE APRON IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.
- DETERMINE THE LOCATION ON THE GROUND TAKING INTO CONSIDERATION:
 - DECIDE HOW EQUIPMENT AND MATERIAL WILL REACH THE LOCATION TO CONSTRUCT THE APRON. DO NOT "PAINT YOURSELF INTO A CORNER" AND PLACE FILL STRUCTURES, ETC. THAT COULD BLOCK
- THE LOCATION OF THE APRON MUST BE SOLID GROUND. IT MAY BE NECESSARY TO EXCAVATE THE LOCATION TO REMOVE MUD AND THEN BACKFILL WITH GOOD MATERIAL. THIS IS NECESSARY SO THE STONE DOES NOT DISAPPEAR INTO THE MUD, WHICH WOULD REQUIRE MUCH MORE STONE TO COMPELETE THE APRON AND MAKE INSTALLATION DIFFICULT.
- CLEAR THE LOCATION OF THE APRON. LEAVE AS MUCH OF THE EXISTING VEGETATION AS POSSIBLE AROUND THE LOCATION TO HOLD THE SOIL IN PLACE AND REDUCE THE AREA THAT WILL HAVE TO BE STABILIZED AFTERWARD.
- EXCAVATE THE BOTTOM TO THE REQUIRED DEPTH TO ACCEPT THE STONE AND THE FILTER BLANKET. WHEN FINISHED, THE BOTTOM OF THE APRON MUST BE LEVEL WITH THE BOTTOM OF THE CHANNEL; THERE CANNOT BE AN OVERFALL AT THE END OF THE APRON.
- PLACE THE FILTER BLANKET, AS SPECIFIED IN THE PLAN, OVER THE LOCATION AND UNDER THE LIP OF THE FLARED END SECTION.
- PLACE THE SPECIFIED STONE TO THE REQUIRED DIMENSIONS AND SHAPE IT TO THE CONFIGURATION SHOWN IN THE PLAN.

GENERAL NOTES:
 1. CHAMFER ALL EXPOSED CORNERS 1".
 2. USE CLASS "B" CONCRETE THROUGHOUT.
 3. OPTIONAL CONSTRUCTION - MONOLITHIC FORM, 2" KEYWAY, OR #4 BAR DOMES AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 4. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 5. PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER IN ACCORDANCE WITH STD. NO. 840.66.
 6. ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHOWN AROUND OPENING IN TOP SLAB. ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)
 7. MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

ENGLISH STANDARD DRAWING FOR CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

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

SHEET 1 OF 1 840.31

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES											
PIPE DIA.	SPAN	WIDTH	HEIGHT	REINFORCEMENT "A"				TOTAL QUANTITIES			
				A	B	C	D	NO.	WT. (LBS.)	NO.	WT. (LBS.)
12"	2'-0"	2'-0"	2'-0"	12	2'-3"	3'-3"	3'-3"	0.167	0.167	0.167	0.167
15"	2'-0"	2'-0"	2'-0"	12	2'-3"	3'-3"	3'-3"	0.167	0.167	0.167	0.167
18"	2'-0"	2'-0"	2'-0"	14	3'-3"	3'-3"	3'-3"	0.222	0.222	0.222	0.222
24"	3'-0"	3'-0"	3'-0"	16	3'-3"	4'-0"	4'-0"	0.286	0.286	0.286	0.286
30"	3'-0"	3'-0"	3'-0"	18	4'-3"	4'-0"	4'-0"	0.351	0.351	0.351	0.351
36"	4'-0"	4'-0"	4'-0"	20	4'-3"	5'-0"	5'-0"	0.465	0.465	0.465	0.465
42"	4'-0"	4'-0"	4'-0"	22	5'-3"	5'-0"	5'-0"	0.580	0.580	0.580	0.580
48"	5'-4"	5'-4"	5'-0"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.743	0.743
54"	5'-10"	5'-10"	5'-0"	28	6'-7"	6'-10"	6'-10"	0.860	0.860	0.860	0.860
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	1.042	1.042
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	1.210	1.210

ENGLISH STANDARD DRAWING FOR DROP INLET FRAME AND GRATE FOR USE WITH STD. DWG. S 840.14 AND 840.15

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

SHEET 1 OF 1 840.15

811 Know what's below. Call before you dig. (Or call: 1-800-632-4949)

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____

DATE: JULY 18, 2016

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

REV. DATE DESCRIPTION

BY: _____

DATE: _____

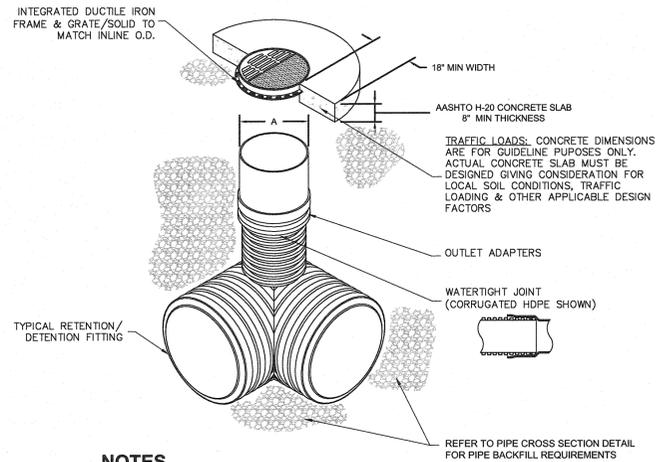
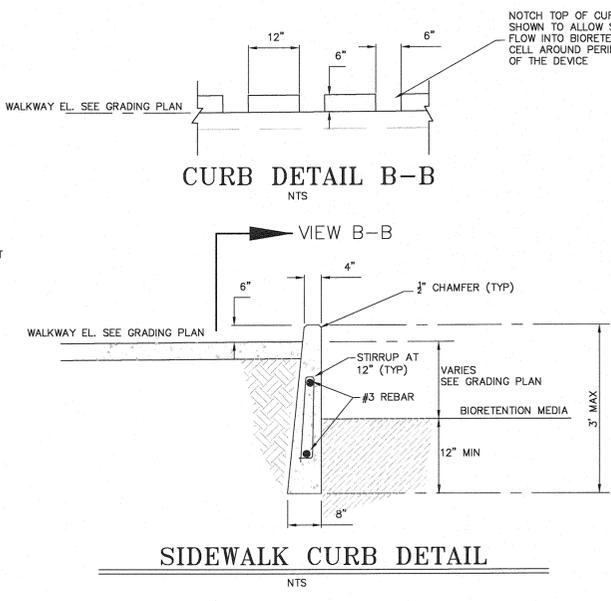
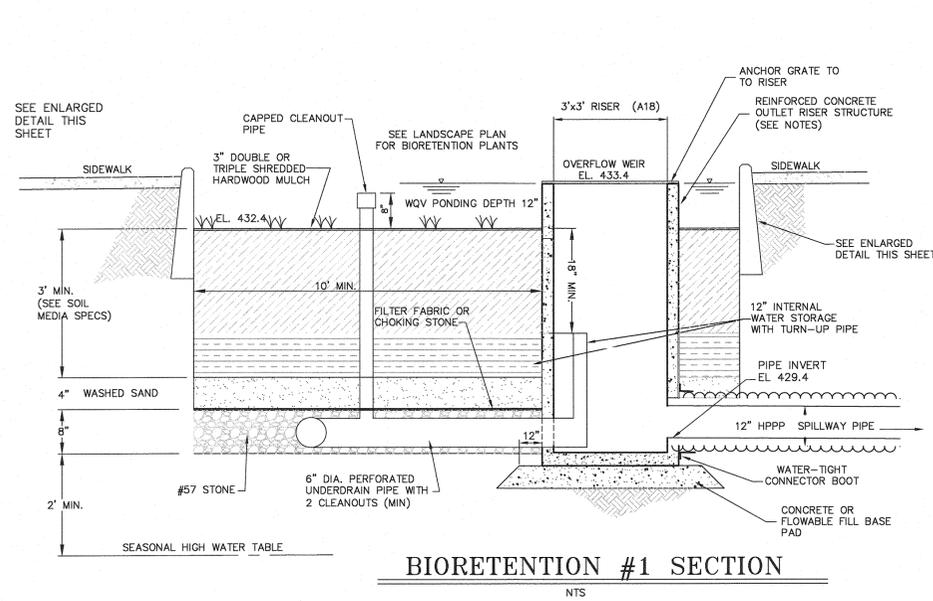
DESCRIPTION: _____

SHEET NO. D4

civil consultants LAND PLANNERS & CIVIL ENGINEERS www.civilconsultants.com

3705 LYCKAN PARKWAY • SUITE 201 • DURHAM, NC 27707 919.460.1648 PHONE Lic. #C-1030

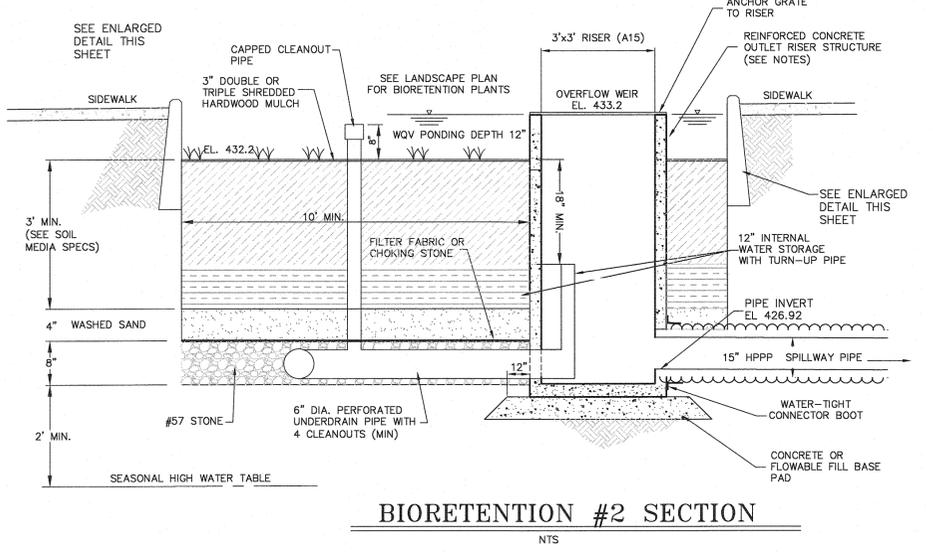
PITTSBORO ROOTS PITTSBORO, NORTH CAROLINA GRADING & STORM DRAINAGE DETAILS



NOTES

- GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
- DRAINAGE CONNECTION SUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC

A	PART #	GRATE/SOLID COVER OPTIONS
24"	2724AG	PEDESTRIAN AASHTO H-10 STANDARD AASHTO H-20 SOLID AASHTO H-20



**CONSTRUCTION SPECIFICATIONS
STORMWATER MANAGEMENT IMPOUNDMENT**

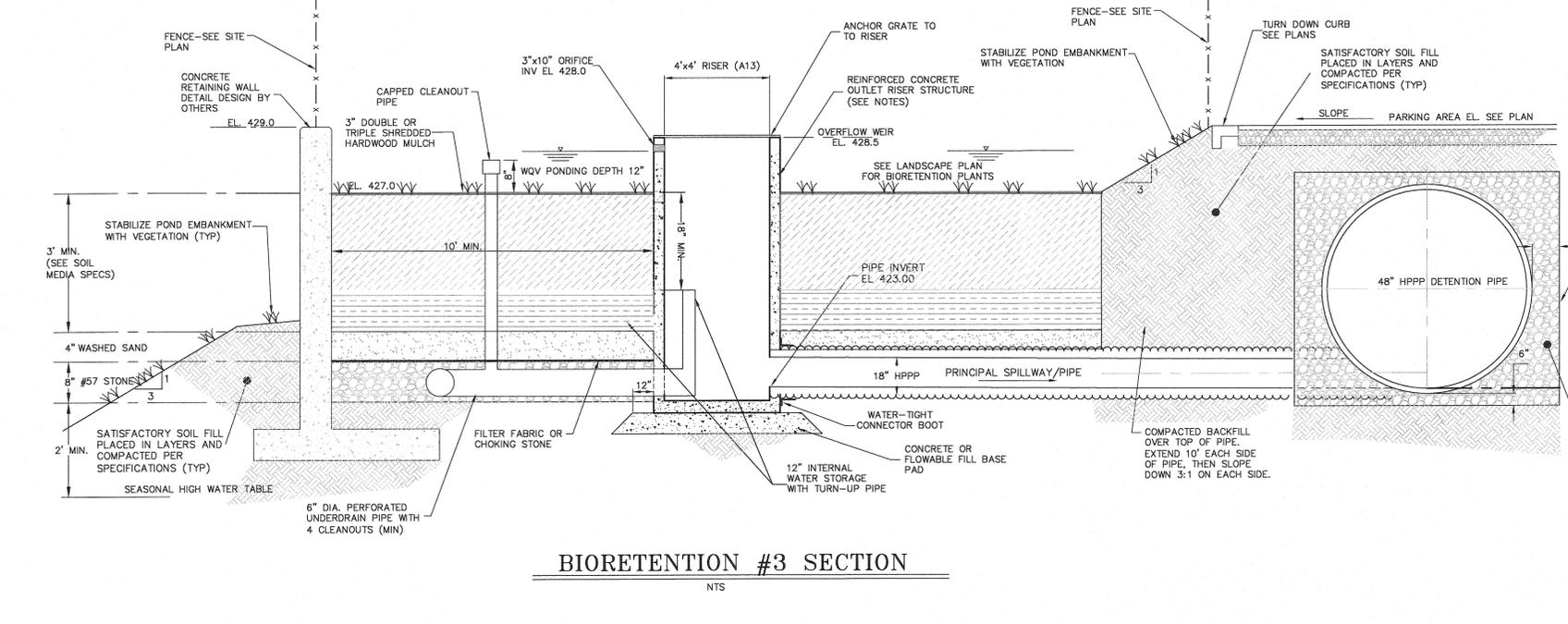
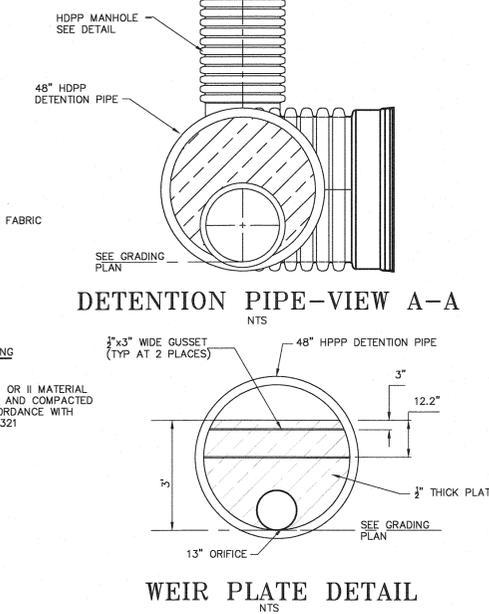
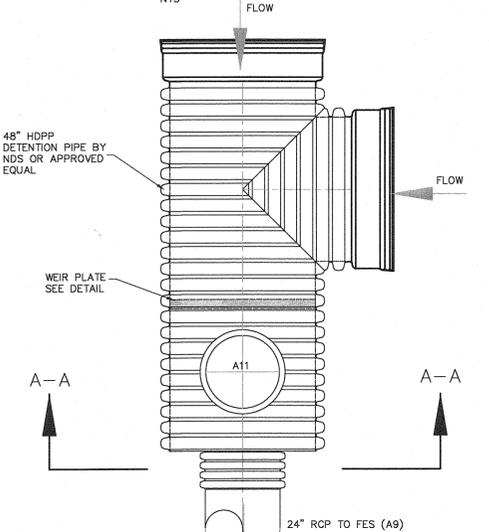
APPLICABILITY:
THIS SECTION OF SPECIFICATIONS APPLIES TO ALL WORK FOR THE STORMWATER MANAGEMENT IMPOUNDMENT (BIORETENTION CELLS) AND ASSOCIATED FEATURES, UNLESS MORE SPECIFIC REQUIREMENTS ARE SHOWN FOR CERTAIN ELEMENTS, IN WHICH CASE THE MORE SPECIFIC REQUIREMENTS SHALL APPLY.

PRE-CONSTRUCTION COORDINATION:
MEETING: SCHEDULE AND HOLD A PRE-CONSTRUCTION MEETING WITH THE ENGINEER AND OTHERS, SPECIFICALLY FOR THE STORMWATER IMPOUNDMENT WORK, PRIOR TO BEGINNING ANY WORK IN THE IMPOUNDMENT AREA.

SUBMITTALS: SUBMIT THE FOLLOWING TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION:
1. PROPOSED CONSTRUCTION PLAN (SEE SEQUENCING REQUIREMENTS)
2. SPECS AND LITERATURE FOR ALL MANUFACTURED PRODUCTS
3. GRADATION ANALYSIS FOR MEDIA MIXTURE IN BIORETENTION CELLS
4. CONCRETE AND FLOWABLE FILL MIX ANALYSIS
5. NAME AND QUALIFICATIONS FOR DETENTION PIPE INSTALLER

APPROVAL OF SEQUENCE: SUBMIT A PROPOSED PLAN OF CONSTRUCTION TO THE ENGINEER FOR APPROVAL PRIOR TO THE PRE-CONSTRUCTION MEETING, OUTLINING THE SEQUENCE AND METHODS OF INSTALLATION, TEMPORARY SUPPORT, FORMING, PLACEMENT, COMPACTING, ETC. FOR THE VARIOUS IMPOUNDMENT ELEMENTS. IDENTIFY ANY PROPOSED VARIATIONS FROM THE GENERAL SEQUENCE.

DETENTION PIPE (HDPP) MANHOLE DETAIL



GENERAL NOTES:

OUTLET STRUCTURE AND PIPING

- THE RISER STRUCTURE SHALL CONSIST OF PRECAST CONCRETE BASE AND RISER SECTIONS OF THE TYPE AND DIMENSIONS SHOWN. SQUARE OR RECTANGULAR SECTIONS SHALL BE SOLID-WALL CATCH BASIN TYPE STRUCTURES, AND APPROVED FOR USE BY NCDOT. ALL RISER JOINTS SHALL BE SEALED WATERTIGHT USING FLEXIBLE BUTYL RUBBER JOINT MATERIAL, RUBBER GASKETS, OR OTHER SUITABLE MATERIAL. ALL PIPE CONNECTIONS TO THE RISER SHALL BE MADE WITH A WATER TIGHT FLEXIBLE CONNECTOR BOOT PER ASTM C923.

CONCRETE

- CONCRETE WORK SHALL CONFORM TO PROJECT CONCRETE SPECIFICATIONS.

FLOWABLE FILL

- FLOWABLE FILL SHALL CONSIST OF A MIXTURE OF PORTLAND CEMENT, AGGREGATE NOT GREATER THAN 3/8 INCH DIAMETER, WATER, AND OTHER APPROVED COMPONENTS, WITH A MINIMUM PH OF 4.0, AND A 28-DAY COMPRESSIVE STRENGTH OF AT LEAST 150 PSI. THE MIXTURE SHALL BE SUFFICIENTLY FLOWABLE TO BE SELF-LEVELING, FILLING ALL VOIDS UNDER THE PIPE AND PIPE HAUNCHES WITHOUT REQUIRING VIBRATION.

PLANTINGS

- PROVIDE, INSTALL, AND MAINTAIN PLANTS, SHRUBS, AND TREES AS SHOWN OR SPECIFIED ON THE LANDSCAPE DRAWINGS.

FINAL SURFACE STABILIZATION

- STABILIZE ALL SURFACES OF THE EMBANKMENT, SPILLWAY, SLOPES, SPOIL AND BORROW AREAS THAT ARE NOT COVERED BY OTHER SPECIFIED MATERIALS WITH GRASS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

BIORETENTION NOTES:

- ALL DRAINAGE AREAS TO A BIORETENTION FACILITY ARE TO BE STABILIZED PRIOR TO INSTALLATION OF AMENDED SOILS, MULCH OR PLANTINGS.

BIORETENTION PLANTING SOIL MEDIA SPECIFICATIONS:

- THE PLANTING SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN ONE-HALF INCH IN DIAMETER. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, JOHNSON GRASS, QUACK GRASS, MUGWORT, NUTSEDGE, POISON IVY, CANADA THISTLE, OR OTHER NOXIOUS WEEDS.
- PLANTING MIX FOR BIORETENTION CELL - UNIFORM SOIL MIXTURE FREE OF STUMPS, STONES, OR LARGE ROOTS, CONTAINING THE FOLLOWING TYPES AND RATIOS (BY WEIGHT) OF COMPONENTS:
85-88% SAND (ASTM C-33)
8%-10% FINE SOIL MATERIAL (INCLUDES BOTH SILT OR CLAY)
3%-5% ORGANICS / PINE BARK MULCH
- SOIL SHALL HAVE A HYDRAULIC CONDUCTIVITY OF BETWEEN 1 IN/HR AND 6 IN/HR, WITH A 2 IN/HR RATE BEING OPTIMAL. PHOSPHOROUS INDEX SHALL BE BETWEEN 10 AND 30
- GRADING - CLEARING, STRIPPING, EXCAVATION, FILLING, TRENCHING, BACKFILLING, COMPACTION, AND FINISHING WORK SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF PROJECT SPECIFICATIONS.
- UNDERDRAIN GRAVEL - CLEAN, HARD, ANGULAR GRAVEL CONFORMING TO NCDOT DESIGNATION # 57 OR # 8 AS APPROPRIATE.
- GEOTEXTILE FABRIC - NON-WOVEN, NEEDLE-PUNCHED GEOTEXTILE WITH 135 LBS. PUNCTURE STRENGTH (ASTM D-4833); 220 LBS. TENSILE STRENGTH (ASTM D-4632); AND APPARENT OPENING SIZE OF U.S. STD. #80 SIEVE (ASTM D-4751).
- UNDERDRAIN PIPING - NOMINAL 6" DIAMETER SCHEDULE 40 PVC, WITH 3/8" DIAMETER PERFORATIONS SPACED EQUALLY AROUND THE FULL PIPE PERIMETER. CLEANOUT PIPE AND FITTINGS SHALL BE SOLVENT-WELDED SCHEDULE 40 PVC PER THE DETAIL SHOWN AND EXTEND AT LEAST 8" ABOVE THE MULCH LAYER. MINIMUM 1 CLEANOUT PER 1000 SQUARE FEET OF SURFACE AREA OF THE DEVICE.

DETENTION PIPE (HDPP) NOTES:

- ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
- ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
- MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED, SEE ASTM D2321.
- FILTER FABRIC: A GEOTEXTILE FABRIC MAY BE USED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II, THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 6".
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS IS 12" FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" UP TO 36" DIAMETER PIPE AND 24" OF COVER FOR 42"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MAXIMUM FILL HEIGHT LIMITED TO 8 FT OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT A PRODUCT REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8 FT FOR INSTALLATION CONSIDERATIONS.

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____

civil consultants
LAND PLANNERS & CIVIL ENGINEERS
www.civil-consultants.com

3708 LYCKAN PARKWAY • SUITE 201 • DURHAM, NC 27707
919.480.1645 PHONE
LIC. 6C-1030

PITTSBORO ROOTS
PITTSBORO, NORTH CAROLINA
BIORETENTION CELL
DETAILS

DATE: JULY 18, 2016

BY: KPG

REV. 1: 8-29-16 TOWN REVIEW COMMENTS

DESCRIPTION

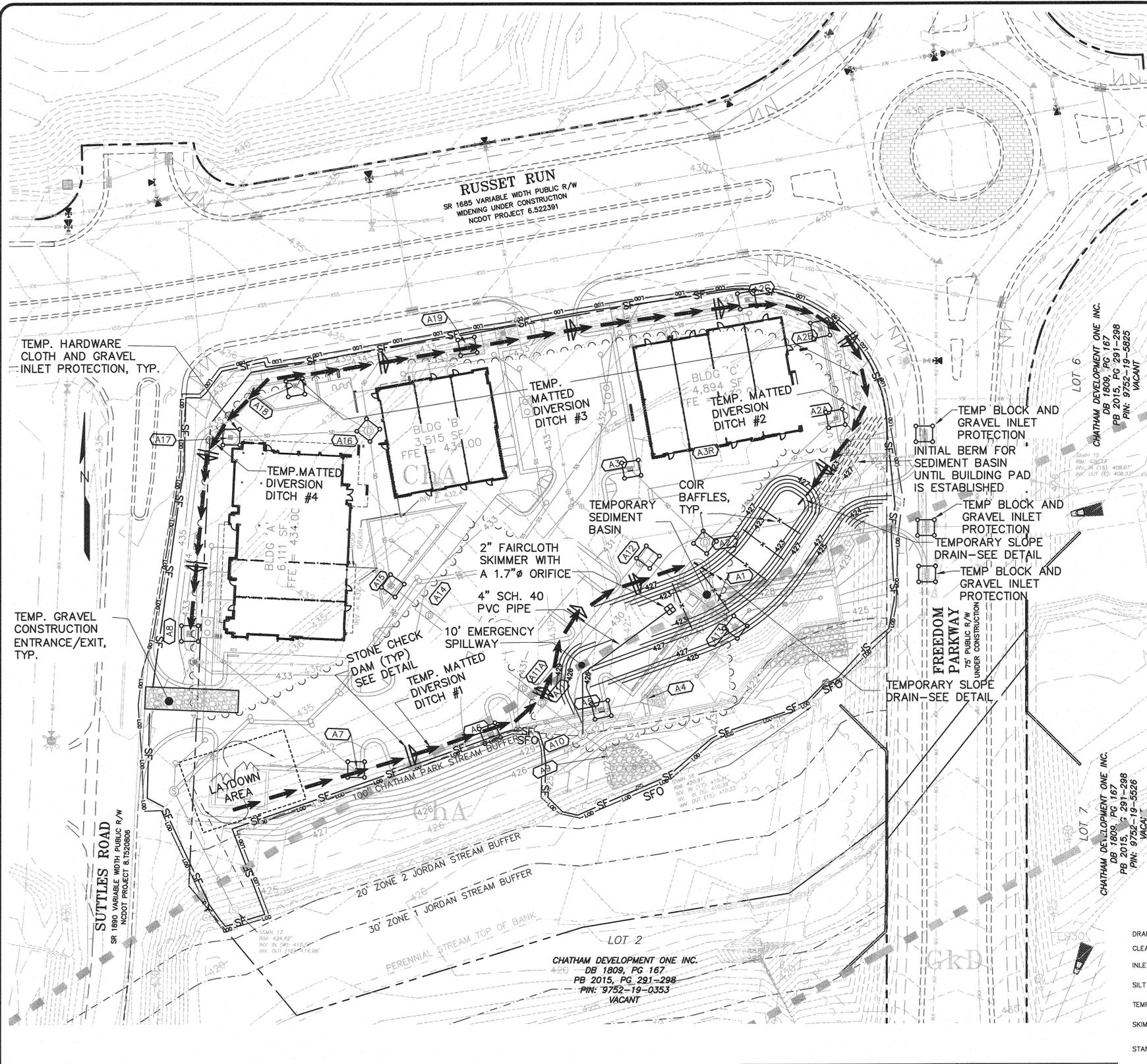
DATE

DATE: JULY 18, 2016

THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT TO BE USED ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO. **D5**



PROJECT NARRATIVE

THE SUBJECT PROPERTY IS A 2.75 ACRE PARCEL LOCATED AT RUSSET RUN AND SUTTLES ROADS IN PITTSBORO, NC. THE PROJECT INTENT IS TO DEVELOP APPROXIMATELY 14,400 SQUARE FEET OF MIXED RETAIL, RESTAURANT AND OFFICE SPACE IN THREE BUILDINGS, WITH ASSOCIATED PARKING AND APPURTENANCES.

THE PROPERTY IS VACANT, ZONED PDD MASTER PLAN AND THERE ARE NO STORMWATER DEVICES ON SITE. THE PARCEL IS PARTIALLY WOODED WITH EVERGREENS AND HARDWOODS, ALSO WITH GRASSY VEGETATION. ACCORDING TO PUBLISHED SOIL SURVEY DATA, PRE-DEVELOPMENT SOILS ARE CLASSIFIED AS CHEWAULA AND MEHADKEE (CHA) WITH A 'C' CLASSIFICATION. THE PROPERTY LIES WITHIN THE TOWN OF PITTSBORO'S ETJ.

THE PARCEL CONTAINS AN UNNAMED STREAM AND BUFFER. THE DRAINAGE AREA IS ALSO A TRIBUTARY TO THE HAW RIVER WITH A SURFACE WATER CLASSIFICATION OF WS-IV PA, AND SUBJECT TO THE JORDAN RULES. THE STREAM BUFFERS INCLUDE A 50-FT JORDAN AND A 100-FT CHATHAM PARK STREAM BUFFER.

PLANNED EROSION AND SEDIMENTATION CONTROL PRACTICES:

- GRAVEL CONSTRUCTION ENTRANCE/EXIT:**
A GRAVEL CONSTRUCTION EXIT WILL BE CONSTRUCTED TO KEEP VEHICLES FROM CARRYING SEDIMENT FROM THE SITE.
- SEDIMENT BASIN:**
SEDIMENT-LADEN RUNOFF IS DIRECTED TO THE SEDIMENT BASIN FOR FILTRATION PRIOR TO EXITING THE PROJECT.
- TEMPORARY DIVERSIONS:**
TEMPORARY DIVERSION DITCHES WILL BE CONSTRUCTED TO DIRECT RUNOFF TO THE TEMPORARY SEDIMENT BASIN.
- SILT FENCE:**
SILT FENCE WILL BE PLACED AROUND THE DISTURBED AREA TO PROTECT ADJACENT PROPERTIES FROM SEDIMENT RUNOFF.
- INLET PROTECTION:**
SEDIMENT-LADEN RUNOFF WILL BE FILTERED PRIOR TO ENTERING THE STORM DRAINAGE SYSTEM.

TEMPORARY SEDIMENT BASIN

TOP OF BERM ELEV. = 420.00 FT
 TOP OF RISER = 419.00 FT
 BOTTOM OF BASIN ELEV. = 416.00 FT
 SURFACE AREA REQUIRED = 3,676 SF
 SURFACE AREA PROVIDED = 3,712 SF
 STORAGE VOLUME REQUIRED = 7,920 CU. FT.
 STORAGE VOLUME PROVIDED = 8,382 CU. FT.

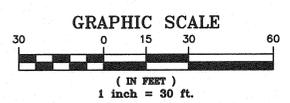
BIORETENTION CELL

SURFACE AREA ELEVATION AT PLANT MEDIA = 427.00 FT
 SURFACE AREA PROVIDED = 5,191 SF
 STORAGE VOLUME (WATER QUALITY) PROVIDED = 5,191 CU. FT
 STORAGE VOLUME (FOR PLANT MEDIA) PROVIDED = 10,382 CU. FT.
 TOTAL VOLUME PROVIDED (MEDIA AND WATER QUALITY) = 15,573 CU.FT.

EROSION CONTROL LEGEND

	NEW	EXISTING
DRAINAGE STRUCTURE	■ □ △	□ □ □ △
CLEARING LIMIT/TREE LINE	~ ~ ~ ~ ~	~ ~ ~ ~ ~
INLET PROTECTION	□	□
SILT FENCE OUTLET (SFO)	⊗	⊗
TEMPORARY DIVERSION (TD)	→	→
SKIMMER	⊞	⊞
STANDARD SILT FENCE	—Sf—Sf—	—Sf—Sf—
LIMIT OF DISTURBANCE	—LOD—LOD—	—LOD—LOD—
COIR BAFFLES	—X—X—	—X—X—
STRAW WATTLE	—	—
SOIL LIMIT AND SOIL DESIGNATION	—	—
STONE CHECK DAM	⊞	⊞

DENUDED AREA = 96,232 SF (2.21 ACRES)



VICINITY MAP

EROSION CONTROL CONSTRUCTION SEQUENCE

PHASE 1:

- OBTAIN PLAN APPROVAL, LAND DISTURBANCE PERMIT AND OTHER APPLICABLE PERMITS.
- SCHEDULE AND HOLD A PRE-CONSTRUCTION CONFERENCE PRIOR TO BEGINNING ANY LAND DISTURBANCE ACTIVITIES. THIS CONFERENCE SHOULD BE ATTENDED BY A REPRESENTATIVE OF THE FINANCIALLY RESPONSIBLE PARTY, THE GENERAL CONTRACTOR, GRADING SUB-CONTRACTOR, EROSION CONTROL SUB-CONTRACTOR, AND A REPRESENTATIVE FROM THE CHATHAM COUNTY SUE OFFICE. THE MEETING SHOULD BE HELD AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
- CLEAR ONLY AS NECESSARY TO INSTALL TEMPORARY EROSION CONTROL MEASURES AS SHOWN INCLUDING SILT FENCE, THE GRAVEL CONSTRUCTION ENTRANCE/EXIT, DIVERSION DITCHES #1 AND #2, SEDIMENT BASIN AND THE STORM DRAINAGE SYSTEM INCLUDING PIPE AND STRUCTURES FROM A10 TO A09 AND THE STONE DISSIPATER AND INSTALL THESE ITEMS. (TEMPORARILY PLUG THE OPENING IN A10 FOR THE 24" RCP FROM STRUCTURE A11 AND ENSURE TEMP. DIVERSION DITCH #1 IS DEEP ENOUGH TO CONVEY DISCHARGE FROM THE PIPE END AT A07. SEE SEQUENCE ITEM 6 BELOW.)
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTENANCE PERFORMED, IF NEEDED, AT LEAST ONCE PER WEEK AND AFTER EVERY RAINFALL EVENT. STABILIZATION IS REQUIRED WITHIN THE NUMBER OF CALENDAR DAYS OF COMPLETION OF ANY LAND DISTURBING ACTIVITY OR INACTIVITY ON THE PROJECT SITE AS SPECIFIED IN THE SEEDING SCHEDULE ON SHT. EC-2.

PHASE 2:

- COMPLETE SITE CLEARING AND GRUBBING.
- ROUGH GRADE THE SITE, AND ESTABLISH THE BUILDING PADS. INSTALL THE PIPE FROM A08 TO A07 ONLY (DO NOT INSTALL STRUCTURES A07 OR A08 AT THIS TIME) AND INSTALL TEMPORARY DIVERSION DITCHES #3 AND #4.
- BEGIN CONSTRUCTION OF THE BUILDINGS.
- INSTALL THE WATER AND SEWER SYSTEMS. COORDINATE WITH THE UTILITY SERVICE PROVIDERS TO HAVE THEIR FORCES INSTALL THEIR SERVICE LINES AND APPURTENANCES AS POSSIBLE.
- CONSTRUCT THE RETAINING WALL. ADJUST THE LOCATION OF TEMP. DIVERSION DITCH #1 AS NEEDED TO MAINTAIN FLOW TO THE SEDIMENT BASIN AS THE WALL IS CONSTRUCTED/BACKFILLED. BACKFILL THE WALL TO THE BIORETENTION SUBGRADE ELEVATION AFTER THE CURING PERIOD AS SPECIFIED BY THE WALL DESIGN DOCUMENTS.
- INSTALL THE STORM DRAINAGE SYSTEM FROM A13 TO A15 AND INSTALL THE STORM DRAINAGE PIPE FROM A11 TO A10. REMOVE THE TEMPORARY 4" PVC PIPE CONNECTION TO A10 AND PLUG AND SEAL THE OPENING.
- RELOCATE AND ATTACH THE SKIMMER TO ONE OF THE UNDER DRAIN PENETRATIONS IN A13. THE UNFINISHED BIORETENTION CELL WILL SERVE AS A TEMP. SEDIMENT BASIN UNTIL THE SITE CAN BE STABILIZED.
- RELOCATE AND MAINTAIN TEMP DIVERSION DITCH #2 FLOW TO THE UNFINISHED BIORETENTION CELL UNTIL STORM DRAINAGE STRUCTURES A01 TO A2C ARE CONSTRUCTED AND RUNOFF IS DIRECTED TO THIS SYSTEM.
- COMPLETE FINAL SITE GRADING AND INSTALLATION OF THE STORM DRAINAGE SYSTEM INSTALLING THE INLET PROTECTION CONCURRENTLY.
- COORDINATE WITH THE UTILITY SERVICE PROVIDERS TO HAVE THEIR FORCES COMPLETE INSTALLATION OF THEIR SERVICE LINES AND APPURTENANCES.
- INSTALL CURB & GUTTER, SIDEWALKS, DUMPSTER PADS AND STONE BASE FOR PAVING.
- COMPLETE BUILDING CONSTRUCTION.
- DEWATER AND MUCK OUT THE BIORETENTION CELLS, INSTALL THE UNDER DRAINS AND BACKFILL WITH THE SPECIAL SOIL MIX.
- TOUCH UP THE STONE BASE AS REQUIRED AND PAVE.
- INSTALL PERMANENT LANDSCAPING, SEED AND MULCH THE SITE.
- INSTALL STRIPING AND SIGNAGE.
- AFTER SITE IS STABILIZED, CALL FOR A FINAL INSPECTION TO CLOSE OUT THE LAND DISTURBANCE PERMIT AND REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES AND SEDIMENT FENCING.

MAINTENANCE PLAN

- CHECK ALL EROSION AND SEDIMENT CONTROL PRACTICES FOR STABILITY AND PROPER OPERATION FOLLOWING EVERY STORM THAT PRODUCES RUNOFF, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. MAKE ANY NEEDED REPAIRS IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
- REMOVE SEDIMENT FROM BEHIND OUTLETS AND STONE FILTERS WHEN STORAGE CAPACITY HAS BEEN APPROXIMATELY 50% FILLED. CLEAN OR REPLACE GRAVEL AT OUTLETS WHEN THE WATER POOLS AND IS NO LONGER DRAINING PROPERLY.
- FERTILIZE ALL SEEDED AREAS, RESEED AS NECESSARY, AND MULCH ACCORDING TO THE SEEDING SCHEDULE TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

civil consultants
 LAND PLANNERS & CIVIL ENGINEERS
 www.civil-consultants.com
 3709 LYCOKAN PARKWAY - SUITE 201 - DURHAM, NC 27707
 919.486.1645 PHONE 919.486.6536
 Lic. #C-1030



PITTSBORO ROOTS
 PITTSBORO, NORTH CAROLINA
EROSION CONTROL PLAN
PROPOSED CONDITIONS

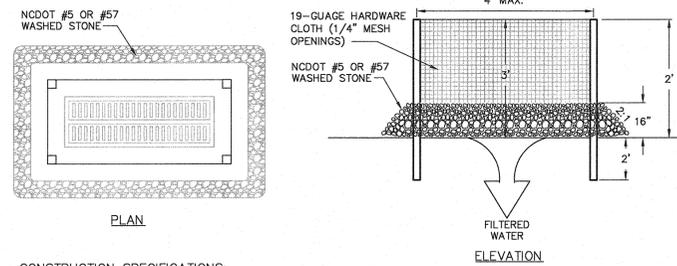
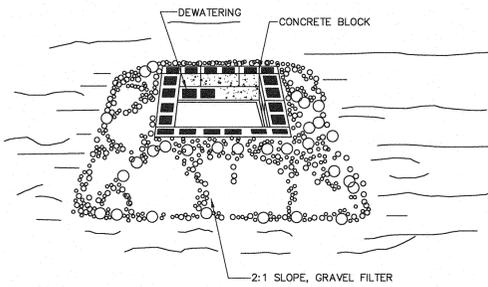
REV.	DATE	DESCRIPTION
7	9/13/2016	COUNTY REVIEW COMMENTS

DATE: AUGUST 3, 2016

THIS DRAWING AND THE DESIGN HEREOF ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.

Copyright 2016 CIVIL CONSULTANTS, INC.

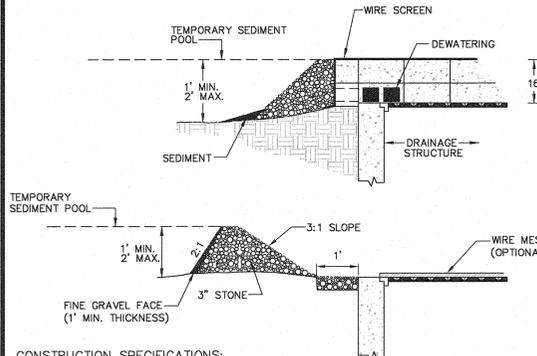
SHEET NO.
EC2



- CONSTRUCTION SPECIFICATIONS:**
- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
 - DRIVE 5 FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
 - 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 FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
 - PLACE CLEAN GRAVEL (NO DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
 - ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
 - COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUND COVER.

MAINTENANCE:
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH 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.

HARDWARE CLOTH AND GRAVEL INLET PROTECTION
NTS



- CONSTRUCTION SPECIFICATIONS:**
- LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2 X 4 WOOD STUDS THROUGH BLOCK OPENINGS.
 - CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
 - USE CLEAN GRAVEL, 3/4- TO 1 1/2-INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.
 - IF ONLY STONE AND GRAVEL ARE USED, KEEP THE SLOPE TOWARD THE INLET NO STEEPER THAN 3:1. LEAVE A MINIMUM 1-FT WIDE LEVEL STONE AREA BETWEEN THE STRUCTURE AND AROUND THE INLET TO PREVENT GRAVEL FROM ENTERING INLET. ON THE SLOPE TOWARD THE INLET, USE STONE 3 INCHES IN DIAMETER OR LARGER. ON THE SLOPE AWAY FROM THE INLET USE 1/2 - 3/4-INCH GRAVEL (NC DOT #57 WASHED STONE) AT A MINIMUM THICKNESS OF 1 FT.

MAINTENANCE:
INSPECT THE BARRIER AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL AND MAKE REPAIRS AS NEEDED.
REMOVE SEDIMENT AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR SUBSEQUENT RAINS.

WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE ALL MATERIALS AND ANY UNSTABLE SOIL, AND EITHER SALVAGE OR DISPOSE OF IT PROPERLY. BRING THE DISTURBED AREA TO PROPER GRADE, THEN SMOOTH AND COMPACT IT. APPROPRIATELY STABILIZE ALL BARE AREAS AROUND THE INLET.

BLOCK AND GRAVEL INLET PROTECTION
(TEMPORARY)
NTS

PERMANENT VEGETATION
INSTRUCTIONS FOR PERMANENT STABILIZATION USING VEGETATION

- INSTALLATION**
- REFER TO PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS, WITH THE LOCATION, EXTENT, OR METHODS OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY BE ABLE TO OFFER ASSISTANCE.
IF THE DISTURBANCE IS NOT PROPERLY STABILIZED THE FIRST TIME SO THAT EROSION IS RESTRAINED, THE SEEDING WILL HAVE TO BE REPEATED UNTIL IT IS SUCCESSFUL.
 - USE THE APPLICATION RATES FOR LIME, FERTILIZER, SEED, MULCH, ETC. SPECIFIED IN THE PLAN, OR USE THE RATES BELOW FOR THE APPROPRIATE SEASON. IF SEEDING IS TO BE DONE IN A SEASON NOT LISTED BELOW, USE VEGETATION COMPATIBLE WITH THAT SEASON OR ANOTHER METHOD OF PERMANENT STABILIZATION.
 - SEEDING
- | | |
|--------------------------------------------|-------------------------|
| FALL & WINTER PERMANENT SEEDING | AUGUST 16 - FEBRUARY 28 |
| LIME | 3 TONS/AC |
| 10-10-10 FERTILIZER | 1000 LBS/AC |
| TALL FESCUE MIX | 250 LBS/AC |
| RYE GRASS | 120 LBS/AC |
| STRAW MULCH | 2 TONS/AC |
| SPRING PERMANENT SEEDING | MARCH 1 - MAY 31 |
| LIME | 3 TONS/AC |
| 10-10-10 FERTILIZER | 1000 LBS/AC |
| TALL FESCUE MIX | 250 LBS/AC |
| BROWN TOP MILLET | 40 LBS/AC |
| STRAW MULCH | 2 TONS/AC |
| SUMMER PERMANENT SEEDING | JUNE 1 - AUGUST 15 |
| LIME | 3 TONS/AC |
| 10-10-10 FERTILIZER | 700 LBS/AC |
| BROWN TOP MILLET | 40 LBS/AC |
| STRAW MULCH | 2 TONS/AC |
- SEEDBED PREPARATION:** REMOVE ROCKS, STUMPS, ROOTS, ETC., SINCE THEY WILL INTERFERE WITH SEEDING AND MAINTENANCE. THE SMOOTH, COMPACTED SURFACE OF CUT AND FILL SLOPES IS NOT A GOOD SEEDBED. APPLY LIME AND FERTILIZER, THEN RIP THE SOIL 4 TO 6 INCHES TO MIX THE NUTRIENTS INTO THE SOIL AND TO LOOSEN AND ROUGHEN IT TO RECEIVE THE SEED.
 - SEEDING:** APPLY SEED AT THE RECOMMENDED RATE, AND GO OVER THE SURFACE WITH A CULTIPACKER WHERE POSSIBLE TO BRING THE SEED INTO CONTACT WITH THE SOIL.
 - MULCHING:** THE AREA SEEDED MUST BE MULCHED TO PROTECT THE BARE SOIL UNTIL THE VEGETATION IS ESTABLISHED AND TO RETAIN MOISTURE TO PROMOTE SEED GERMINATION AND PLANT GROWTH. APPLY ENOUGH MULCH TO COVER THE SURFACE. TO KEEP IT IN PLACE AND PREVENT WIND OR WATER FROM DISLOCATING IT, THE MULCH SHOULD BE HELD IN PLACE BY TACKLING IT WITH ASPHALT, CUTTING IT WITH A STRAIGHT-SET DISK, OR COVERING IT WITH NETTING.
- MAINTENANCE**
ANY PLACES WHERE THE VEGETATION FAILS TO ESTABLISH ITSELF OR IS DAMAGED BY RUNOFF OR CONSTRUCTION ACTIVITY MUST BE RESEEDED. WHERE THE VEGETATION FAILS TO RESTRAIN EROSION, OTHER EROSION CONTROL MEASURES MUST BE INSTALLED.

TEMPORARY SEEDING:

SPECIES	RATE (LB/AC)
TALL FESCUE	80
SERICEA LESPEDEZA	20
KOBE LESPEDEZA	10

- SEEDING NOTES:**
- AFTER AUGUST 15, USE UNSCARIFIED SERICEA SEED.
 - WHERE PERIODIC MOWING IS PLANNED OR A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND INCREASE KOBE LESPEDEZA TO 40 LB/ACRE.
 - TO EXTEND SPRING SEEDING DATES INTO JUNE, ADD 15 LB/ACRE HULLED BERMUDAGRASS. HOWEVER, AFTER MID-APRIL IT IS PREFERABLE TO SEED TEMPORARY COVER.

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OF 15 LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15 ADD 40 LB/ACRE RYE (GRAIN).

SEEDING DATES	BEST	POSSIBLE
FALL:	AUG. 25 - SEPT. 15	AUG. 20 - OCT. 25
LATE WINTER:	FEB. 15 - MAR. 21	FEB. 1 - APR. 15

FALL IS BEST FOR TALL FESCUE AND LATE WINTER FOR LESPEDEZAS.

SOIL ADJUSTMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 4,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER, EXCEPT, APPLY NO FERTILIZER TO AREAS WITHIN THE NEUSE RIVER RIPARIAN BUFFERS.

MULCH
APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKLING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

NPDES PERMIT REQUIREMENTS AND SELF-INSPECTION

This project is subject to the requirements of NPDES Permit for construction activities (Permit No. NC001000). The items noted are some of the obligations associated with the NPDES permit process.

CONTROLS FOR STORMWATER DISCHARGES

- The Permittee shall implement the Soil and Erosion Control plan, which has been approved by the approval authority. The approved plan is considered a requirement or condition of NPDES permit. Deviation from the approved plan, or approved amendment to the plan, shall constitute a violation of the terms and conditions of this permit unless the Permittee has first notified the approval authority in writing of the deviation and the approval authority has approved the deviation. Such a deviation from the approved plan shall be noted on the approved plan maintained at the job site. A signed copy of the approved plan shall be maintained on the site at all times.
- Equipment utilized during the construction activity on a site must be operated and maintained in such a manner as to prevent the potential or actual pollution of the surface or ground waters of the state. Fuels, lubricants, coolants, and hydraulic fluids, or any other petroleum products, shall not be discharged onto the ground or into surface waters. Spent fluids shall be disposed of in a manner so as not to enter the waters, surface or ground, of the state and in accordance with applicable state and federal disposal regulations. Any spilled fluids shall be cleaned up to the extent practicable and disposed of in a manner so as not to allow their entry into the waters, surface or ground, of the state.
- Herbicide, pesticide, and fertilizer usage during the construction activity shall be restricted to those materials approved by EPA and shall be in accordance with label restrictions.
- All wastes composed of building materials shall be disposed of in accordance with North Carolina General Statutes.
- The permittee shall report to the central office or the appropriate regional office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission also shall be provided within 5 days of the time the permittee becomes aware of the circumstances.

The written submission shall contain a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to eliminate and prevent recurrence of the noncompliance (See specific permit requirements for reporting information).

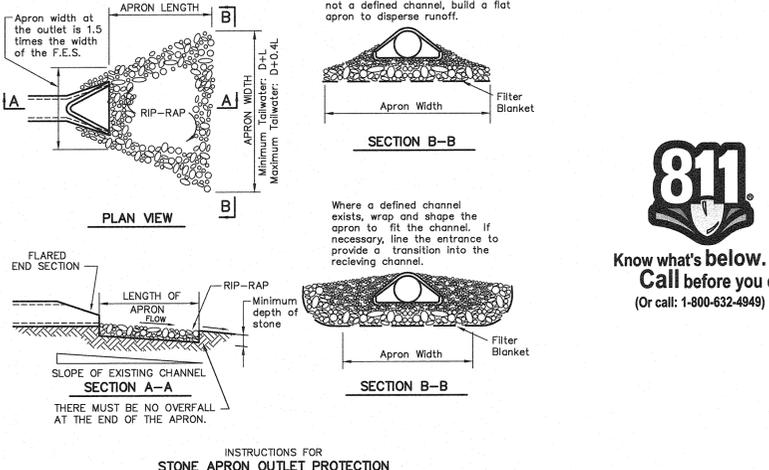
MINIMUM MONITORING AND REPORTING REQUIREMENTS

- Minimum monitoring and reporting requirements are as follows unless otherwise approved in writing by the Director of the Division of Environmental Management.
- All sedimentation and erosion control facilities shall be inspected by or under the direction of the permittee at least once every seven calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period.
 - Stormwater runoff discharges shall be inspected by observation for stormwater discharge characteristics as defined below at the above frequency to evaluate the effectiveness of the pollution control facilities or practices. If any visible off-site sedimentation is leaving the site, corrective action shall be taken to reduce the discharge of sediments.

SITE AREA DESCRIPTION	STABILIZATION TIMEFRAME*	TIMEFRAME EXCEPTIONS	
		PERIMETER DIKES, SWALES, DITCHES, SLOPES	HIGH QUALITY WATER (HQW) ZONES
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE	NONE
SLOPES STEEPER THAN 3:1 (H:V)	7 DAYS	IF SLOPES ARE 10 FEET OR LESS IN LENGTH AND NOT STEEPER THAN 2:1, 14 DAYS ALLOWED.	
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH	
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES	

*TIMEFRAME BEGINS ON THE DATE THAT LAND-DISTURBING ACTIVITY FOR THE INDICATED AREA OF THE SITE CEASES, WHETHER TEMPORARILY OR PERMANENTLY.

811
Know what's below.
Call before you dig.
(Or call: 1-800-632-4949)



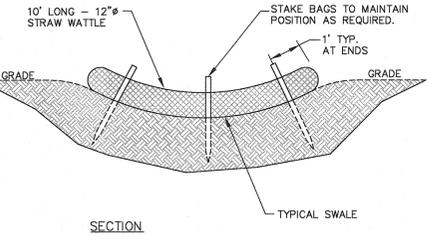
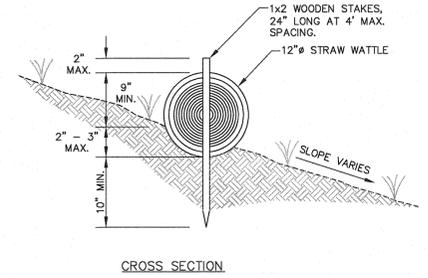
- INSTALLATION**
- REFER TO THE PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OR PROPERLY INSTALLED APRONS AS A AID TO INSTALLATION.
 - IF THE STONE APRON IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.
 - DETERMINE THE LOCATION ON THE GROUND TAKING INTO CONSIDERATION:
 - DECIDE HOW EQUIPMENT AND MATERIAL WILL REACH THE LOCATION TO CONSTRUCT THE APRON. DO NOT "PAINT YOURSELF INTO A CORNER" AND PLACE FILL, STRUCTURES, ETC. THAT COULD BLOCK THE LOCATION OF THE APRON.
 - THE LOCATION OF THE APRON MUST BE SOLID GROUND. IT MAY BE NECESSARY TO EXCAVATE THE LOCATION TO REMOVE MUD AND THEN BACKFILL WITH GOOD MATERIAL. THIS IS NECESSARY SO THE STONE DOES NOT DISAPPEAR INTO THE MUD, WHICH WOULD REQUIRE MUCH MORE STONE TO REBUILD THE APRON AND MAKE INSTALLATION DIFFICULT.
 - CLEAR THE LOCATION OF THE APRON. LEAVE AS MUCH OF THE EXISTING VEGETATION AS POSSIBLE AROUND THE LOCATION TO HOLD THE SOIL IN PLACE AND REDUCE THE AREA THAT WILL HAVE TO BE STABILIZED AFTERWARD.
 - EXCAVATE THE BOTTOM TO THE REQUIRED DEPTH TO ACCEPT THE STONE AND THE FILTER BLANKET. WHEN FINISHED, THE BOTTOM OF THE APRON MUST BE LEVEL WITH THE BOTTOM OF THE CHANNEL; THERE CANNOT BE AN OVERFALL AT THE END OF THE APRON.
 - PLACE THE FILTER BLANKET, AS SPECIFIED IN THE PLAN, OVER THE LOCATION AND UNDER THE LIP OF THE FLARED END SECTION.
 - PLACE THE SPECIFIED STONE TO THE REQUIRED DIMENSIONS AND SHAPE IT TO THE CONFIGURATION.
 - STABILIZE THE AREA AROUND THE APRON THAT WAS DISTURBED DURING CONSTRUCTION. USE ADDITIONAL STONE OR VEGETATION, WHICHEVER IS APPROPRIATE FOR THE SITUATION.

INSTALLATION OF NETTING AND MATING

- PRODUCTS DESIGNED TO CONTROL EROSION SHOULD BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ANY MAT OR BLANKET-TYPE PRODUCT USED AS A PROTECTIVE MULCH SHOULD PROVIDE COVER OF AT LEAST 30% OF THE SURFACE WHERE IT IS APPLIED.
- APPLY LIME, FERTILIZER AND SEED BEFORE LAYING THE NET OR MAT.
 - START LAYING THE NET FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL IT DOWN THE GRADE. ALLOW NETTING TO LAY LOOSELY ON THE SOIL BUT WITHOUT WRINKLES - DO NOT STRETCH.
 - TO SECURE THE NET, BURY THE UPSLOPE END IN A SLOT OR TRENCH NO LESS THAN 6 INCHES DEEP, COVER WITH SOIL, AND TAMP FIRMLY. STAPLE THE NET EVERY 12 INCHES ACROSS THE TOP END AND EVERY 3 FEET AROUND THE EDGES AND BOTTOM. WHERE 2 STRIPS OF NET ARE LAID SIDE BY SIDE, THE ADJACENT EDGES SHOULD BE OVERLAPPED 3 INCHES AND STAPLED TOGETHER. EACH STRIP OF NETTING SHOULD ALSO BE STAPLED DOWN THE CENTER, EVERY 3 FEET. DO NOT STRETCH THE NET WHEN APPLYING STAPLES.
 - TO JOIN TWO STRIPS, CUT A TRENCH TO ANCHOR THE END OF THE NEW NET, OVERLAP THE END OF THE PREVIOUS ROLL 18 INCHES AND STAPLE EVERY 12 INCHES JUST BELOW THE ANCHOR SLOT.

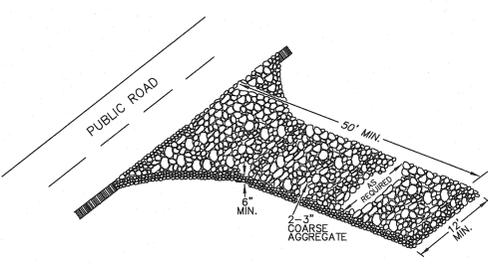
MAINTENANCE
INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION, OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. WASHOUTS OCCUR, REPAIR THE SLOPE GRADE, RESEED, AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.

RIP RAP APRON
NTS



- NOTES:**
- NO DAYLIGHT SHOULD BE SEEN UNDER THE WATTLE. PACK SOIL AGAINST THE WATTLE ON THE UPHILL SIDE.
 - STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE, LEAVING 2 TO 3 INCHES OF THE STAKE PROTRUDING ABOVE THE WATTLE. A HEAVY SEDIMENT LOAD WILL TEND TO PICK UP THE WATTLE AND COULD PULL IT OFF THE STAKES IF THEY ARE DRIVEN TO LOW.
 - WHEN INSTALLING THE WATTLES ON SLOPES, DRIVE THE STAKES IN PERPENDICULAR TO THE SLOPE.
 - STAKE THE WATTLES AT EACH END AND 4 FEET ON CENTER, WITH 3 - 1"x2" WOOD STAKES OR APPROVED EQUAL PER BAG.

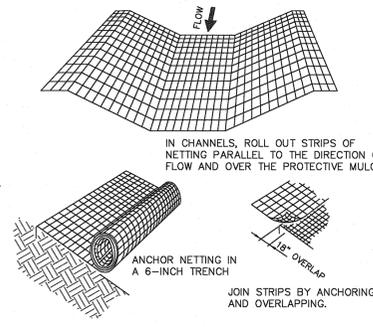
STRAW WATTLE DETAIL
NTS



CONSTRUCTION ENTRANCE/EXIT
NTS

- CONSTRUCTION SPECIFICATIONS:**
- CLEAR THE ENTRANCE AND EXIT OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
 - PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
 - PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
 - USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE THE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING 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.



NETS AND MATS
NTS

civil consultants
LAND PLANNERS + CIVIL ENGINEERS
WWW.CIVIL-CONSULTANTS.COM

3708 LYCRAIN PARKWAY • SUITE 201 • DURHAM, NC 27707
919-486-1600 • 919-486-1605 • FAX
LIC. #C-1030

NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
SEAL
030913
KEITH P. GENTILE
2/15/16

PITTSBORO ROOTS
PITTSBORO, NORTH CAROLINA
EROSION CONTROL
DETAILS

REV.	DATE	DESCRIPTION
1	9-13-16	REV PER COUNTY COMMENT

DATE: JULY 18, 2016
THIS DRAWING AND THE DESIGN HEREON ARE THE PROPERTY OF CIVIL CONSULTANTS, INC. THE INFORMATION ON THIS DRAWING IS NOT FOR USE ON ANY OTHER SITE OR PROJECT. THE REPRODUCTION OR OTHER USE OF THIS DRAWING IN WHOLE OR IN PART, WITHOUT WRITTEN CONSENT OF CIVIL CONSULTANTS, INC. IS PROHIBITED.
COPYRIGHT 2016 CIVIL CONSULTANTS, INC.

SHEET NO.
EC3

