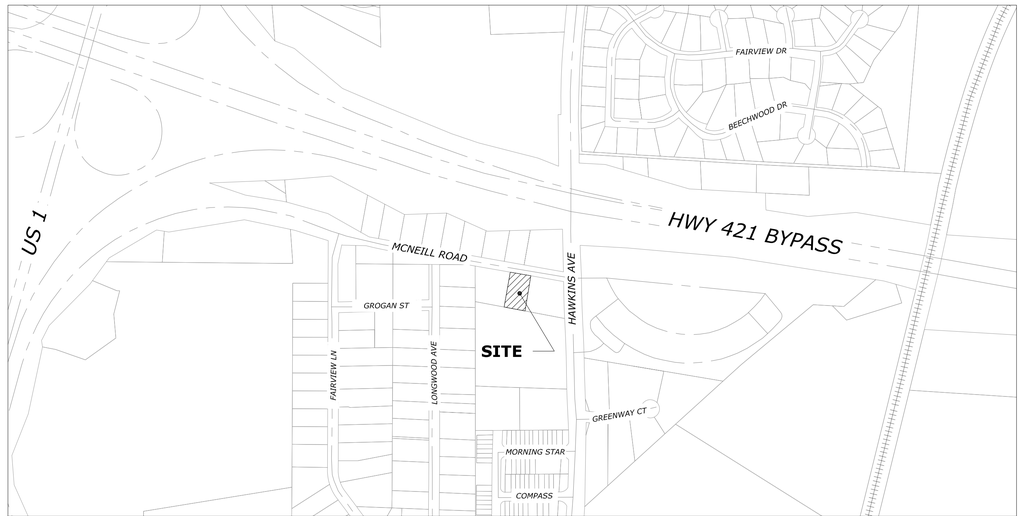
SITE CONSTRUCTION PLANS FOR:

VOGEL COMMERCIAL BUILDING

MCNEILL ROAD
SANFORD, NORTH CAROLINA



LOCATION MAP
SCALE: 1 INCH = 400 FT

NORTH

OWNER INFORMATION

VEDA PROPERTIES, INC.
202 THORNHOLLOW DRIVE
APEX, NC 27523
CONTACT: LUKE VOGEL
LUKEVOGEL1580@GMAIL.COM

SHEET INDEX

1 COVER SHEET
2 EXISTING CONDITIONS AND DEMOLITION
3 SITE LAYOUT
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LEGEND OF ABBREVIATIONS

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

LEGEND OF SYMBOLS AND LINES

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

NOTE:
EXISTING FEATURES ARE SHOWN SHADED.

CONCRETE PAVEMENT	
ASPHALT PAVEMENT	
GRAVEL SURFACE	

JULY 31, 2020

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CIVIL ENGINEERING & PLANNING

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NORTH CAROLINA PROFESSIONAL SEAL 027472 ENGINEER JEFFREY R. THOMAS
7/31/2020

AGENCY REVIEW ONLY

JTE Project No. 20-011

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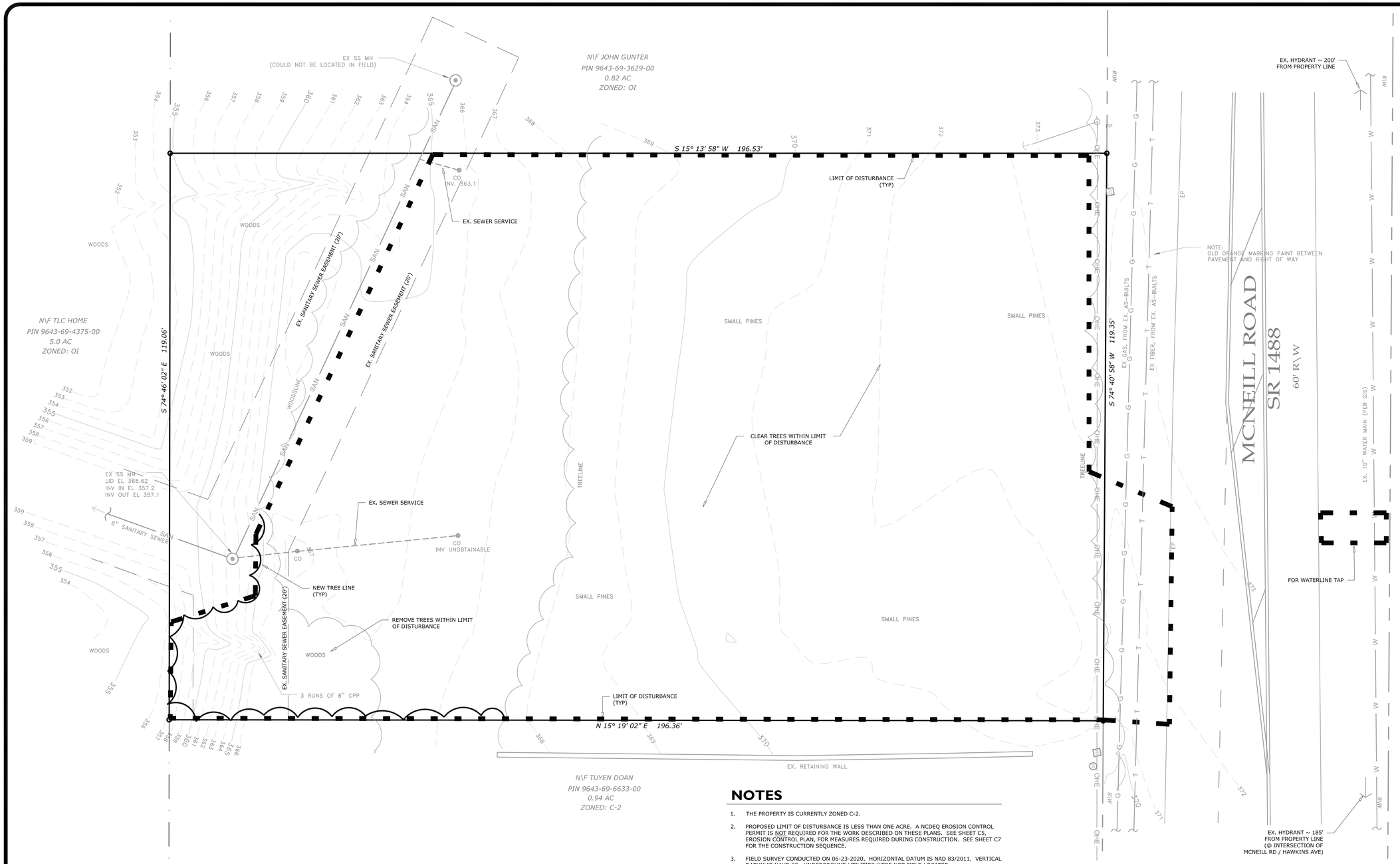

NOTES

1. THE PROPERTY IS CURRENTLY ZONED C-2.
2. PROPOSED LIMIT OF DISTURBANCE IS LESS THAN ONE ACRE. A NCDEQ EROSION CONTROL PERMIT IS NOT REQUIRED FOR THE WORK DESCRIBED ON THESE PLANS. SEE SHEET C5, EROSION CONTROL PLAN, FOR MEASURES REQUIRED DURING CONSTRUCTION. SEE SHEET C7 FOR THE CONSTRUCTION SEQUENCE.
3. FIELD SURVEY CONDUCTED ON 06-23-2020. HORIZONTAL DATUM IS NAD 83/2011. VERTICAL DATUM IS NAVD 88. UNDERGROUND UTILITIES WERE NOT FIELD LOCATED.
4. BASED ON EVALUATION OF THE NRCS SOILS SURVEY / USGS TOPO MAP AND A SITE VISIT THERE ARE NO APPARENT JURISDICTIONAL WATERS PRESENT ON THE PROPERTY.
5. DEMOLITIONED ITEMS TO BE DISPOSED IN ACCORDANCE WITH LOCAL REQUIREMENTS.
6. CONTRACTOR SHALL NOT REMOVE EXISTING VEGETATION / LANDSCAPING OUTSIDE THE LIMIT OF DISTURBANCE UNLESS APPROVED BY THE OWNER.
7. OWNER RESPONSIBLE FOR OBTAINING TEMPORARY CONSTRUCTION EASEMENT (OR AGREEMENT) FROM ADJACENT PROPERTY OWNER(S) FOR ANY WORK THAT MAY BE REQUIRED ON PRIVATE / PUBLIC PROPERTY(S).
8. THE OWNER MUST OBTAIN APPROPRIATE APPROVALS FOR ANY OFF-SITE WORK, INCLUDING THE NCDOT FOR WORK IN THE R/W OF MCNEILL ROAD. CONTRACTOR TO FOLLOW THE SPECIFIC REQUIREMENTS PROVIDED IN THE NCDOT DRIVEWAY PERMIT AND NCDOT ENCROACHMENT AGREEMENT (WATER SERVICE) FOR THIS PROJECT.
9. UNDERGROUND UTILITIES SHOWN ON THESE PLANS SHALL BE CONSIDERED APPROXIMATE. ADDITIONAL UTILITIES MAY BE PRESENT WITHIN THE WORK AREA. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO BEGINNING WORK.
10. CONTRACTOR TO REVIEW SITE ACCESS, MATERIAL STORAGE, AND STAGING AREAS WITH OWNER PRIOR TO BEGINNING WORK.
11. CONTRACTOR TO COORDINATE PROPOSED WORK WITH THE APPROPRIATE UTILITY OWNER PRIOR TO BEGINNING THE WORK. REMOVAL/RELOCATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, OR OTHERWISE, MAY BE NECESSARY TO COMPLETE THE PROPOSED WORK.
12. THE PROPOSED SITE AREA IS NOT LOCATED IN A DESIGNATED WATER SUPPLY WATERSHED.

NORTH

10 0 5 10 20

SCALE: 1" = 10'

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PROFESSIONAL ENGINEER'S SEAL

VOGEL COMMERCIAL BUILDING

MCNEILL ROAD
SANFORD, NORTH CAROLINA

EXISTING CONDITIONS / DEMOLITION

REVISIONS

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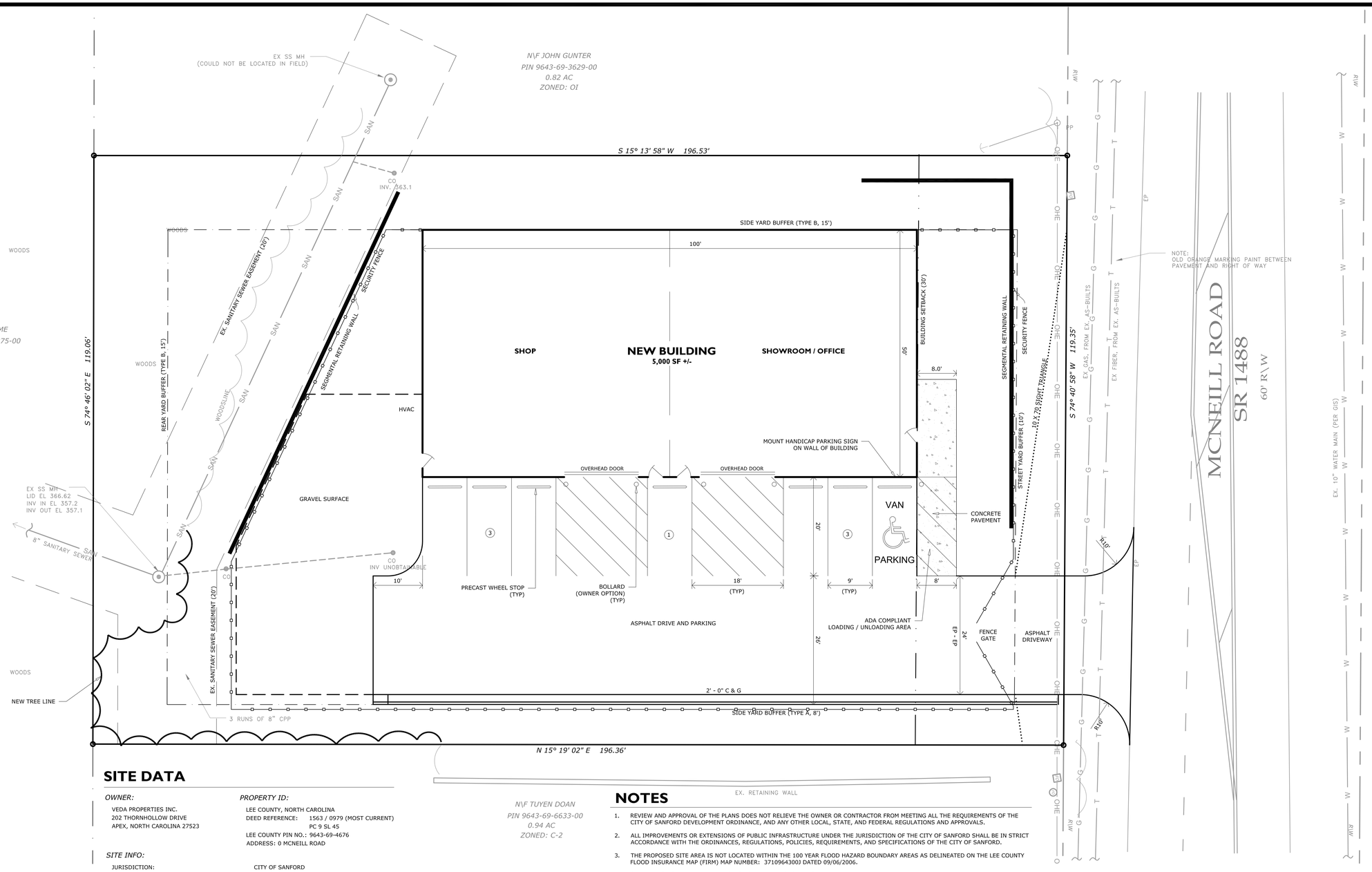

SITE DATA

OWNER:

VEDA PROPERTIES INC.
202 THORNHOLLOW DRIVE
APEX, NORTH CAROLINA 27523

PROPERTY ID:

LEE COUNTY, NORTH CAROLINA
DEED REFERENCE: 1563 / 0979 (MOST CURRENT)
PC 9 SL 45
LEE COUNTY PIN NO.: 9643-69-4676
ADDRESS: 0 MCNEILL ROAD

SITE INFO:

JURISDICTION:	CITY OF SANFORD
TOWNSHIP:	WEST SANFORD
ZONING CLASSIFICATION:	C-2
PROPERTY ACREAGE:	0.53 AC
USE EXISTING:	UNDEVELOPED
USE PROPOSED:	AUTOMOTIVE REPAIR SHOP
BUILDING GSF EXISTING:	5,000 SF +/-
BUILDING GSF NEW:	0 SF
BUILDING GSF PROPOSED (EX TO REMAIN + NEW):	5,000 SF +/-
PARKING SPACES REQUIRED:	7 (2 SPACES PER BAY + 1 SPACE PER EMPLOYEE AT MAXIMUM SHIFT)
PARKING SPACES EXISTING:	0 (ON-SITE)
PARKING SPACES NEW:	7 (INCLUDES 1 HANDICAP SPACE)
PARKING SPACES PROPOSED (EX + NEW):	7 (INCLUDES 1 HANDICAP SPACE)
IMPERVIOUS AREA EXISTING:	0 AC (0%)
IMPERVIOUS AREA NEW:	0.29 AC (55%)
IMPERVIOUS AREA PROPOSED (EX TO REMAIN + NEW):	0.36 AC (55%)
STREET YARD REQUIRED (FRONT):	8 FT
BUFFER YARD REQUIRED (SIDE, WEST):	15 FT
BUFFER YARD REQUIRED (SIDE, EAST):	8 FT
BUFFER YARD REQUIRED (REAR):	8 FT
SETBACK REQUIRED (FRONT):	30 FT (FROM RECORDED PLAT)
SETBACK REQUIRED (SIDE):	0 FT
SETBACK REQUIRED (REAR):	0 FT
WATER SUPPLY:	PUBLIC (CITY OF SANFORD)
SANITARY SEWER:	PUBLIC (CITY OF SANFORD)

NOTES

1. REVIEW AND APPROVAL OF THE PLANS DOES NOT RELIEVE THE OWNER OR CONTRACTOR FROM MEETING ALL THE REQUIREMENTS OF THE CITY OF SANFORD DEVELOPMENT ORDINANCE, AND ANY OTHER LOCAL, STATE, AND FEDERAL REGULATIONS AND APPROVALS.
2. ALL IMPROVEMENTS OR EXTENSIONS OF PUBLIC INFRASTRUCTURE UNDER THE JURISDICTION OF THE CITY OF SANFORD SHALL BE IN STRICT ACCORDANCE WITH THE ORDINANCES, REGULATIONS, POLICIES, REQUIREMENTS, AND SPECIFICATIONS OF THE CITY OF SANFORD.
3. THE PROPOSED SITE AREA IS NOT LOCATED WITHIN THE 100 YEAR FLOOD HAZARD BOUNDARY AREAS AS DELINEATED ON THE LEE COUNTY FLOOD INSURANCE MAP (FIRM) MAP NUMBER: 3710964300J DATED 09/06/2006.
4. OWNER HAS NOT IDENTIFIED JURISDICTIONAL WATERS ON THIS PROPERTY.
5. THE PROPOSED SITE AREA IS NOT LOCATED IN A DESIGNATED WATER SUPPLY WATERSHED.
6. CONTRACTOR TO VERIFY QUANTITIES SHOWN ON THESE PLANS WITH ACTUAL FIELD CONDITIONS.
7. ALL HANDICAP ACCESSIBLE AREAS ON THE SITE SHALL CONFORM TO THE REQUIREMENTS OF VOLUME 1-C OF THE NC STATE BUILDING CODE.
8. DETAILED DESIGN OF ANY RETAINING WALLS SHOWN SHALL BE BY THE OWNER/CONTRACTOR. THE FINAL LAYOUT AND LENGTH MAY NEED TO BE ADJUSTED PER THE FINAL DESIGN AND ACTUAL FIELD CONDITIONS. COORDINATE FENCE INSTALLATION WHERE SHOWN ALONG TOP OF RETAINING WALL. PROVISIONS MAY NEED TO BE MADE WITH WALL TOP CAPS TO ATTACH FENCE POSTS.
9. CONTACT DUKE ENERGY PROGRESS WHEN WORKING WITHIN 15' OF THEIR POLES.
10. OWNER IS RESPONSIBLE FOR SECURING NECESSARY EASEMENTS FOR WORKING OFF-SITE, INCLUDING ANY WORK WITHIN THE PUBLIC R/W.
11. NO MONUMENT SIGN PROPOSED WITH THESE SITE PLANS. A SIGN PERMIT MUST BE OBTAINED FROM THE CITY OF SANFORD PLANNING DEPARTMENT PRIOR TO INSTALLATION.
12. 10' X 70' SIGHT TRIANGLES SHOWN ON DRIVEWAY.
13. CONTRACTOR RESPONSIBLE FOR ADEQUATE TRAFFIC CONTROL MEASURES DURING CONSTRUCTION. CONTRACTOR MAY BE REQUIRED TO SUBMIT M.O.T. PLAN TO NCDOT PRIOR TO BEGINNING WORK. REFER TO THE NCDOT DRIVEWAY PERMIT AND ENCROACHMENT AGREEMENT FOR THIS PROJECT.
14. PROPOSED TRASH DISPOSAL IS BY ROLL CARTS. NO DUMPSTER PROPOSED.
15. PROPOSED FENCE SHOWN ON THE ALONG THE REAR AND SIDES IS PROPOSED TO TO BE 6' HIGH CHAIN LINK WITH WHITE SLATS FOR PRIVACY. THE FRONT FENCE IS PROPOSED TO BE BLACK ALUMINUM MATERIAL. FENCE DESIGN BY OTHERS.
16. ANTICIPATED PERMITS REQUIRED FOR THE SITE WORK AS PROPOSED:
    - -CITY OF SANFORD TRC
    - -NCDOT ENCROACHMENT AGREEMENT
    - -NCDOT DRIVEWAY PERMIT

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10 0 5 10 20
SCALE: 1" = 10'

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PROFESSIONAL ENGINEER'S SEAL

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MCNEILL ROAD
SANFORD, NORTH CAROLINA

SITE LAYOUT

REVISIONS

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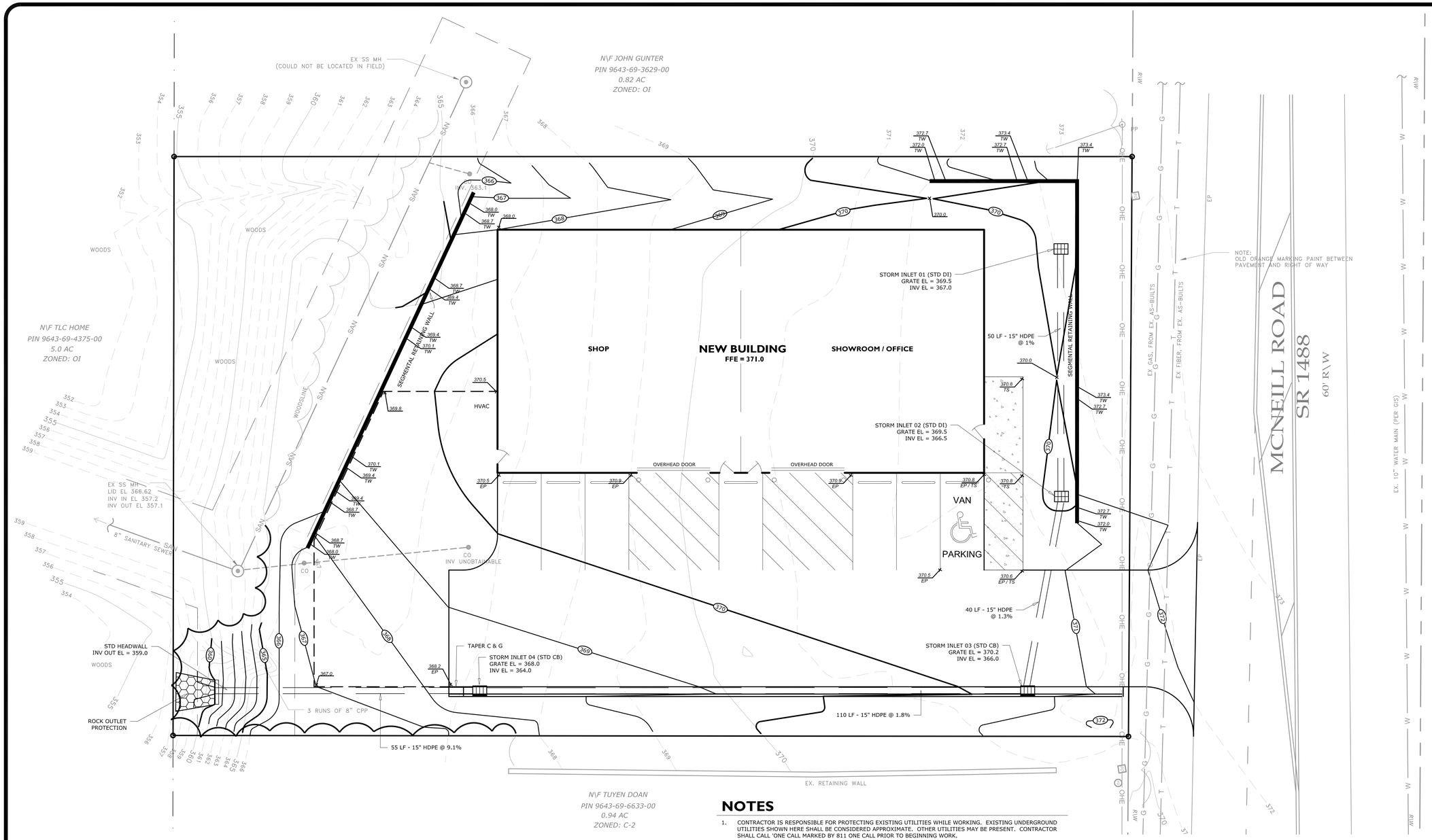

NOTES

1. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES WHILE WORKING. EXISTING UNDERGROUND UTILITIES SHOWN HERE SHALL BE CONSIDERED APPROXIMATE. OTHER UTILITIES MAY BE PRESENT. CONTRACTOR SHALL CALL 'ONE CALL MARKED BY 811 ONE CALL PRIOR TO BEGINNING WORK.
2. CONTRACTOR SHALL KEEP WORK WITHIN THE LIMITS OF DISTURBANCE. THE LIMITS OF DISTURBANCE IS 0.48 AC. AN EROSION CONTROL PERMIT IS NOT REQUIRED, HOWEVER THE CONTRACTOR MUST INSTALL AND MAINTAIN EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT. SEE SHEET 5 FOR EROSION CONTROL PLAN.
3. BORROW (FILL) MATERIAL IS EXPECTED FOR THIS PROJECT TO PROVIDE THE GRADES SHOWN ON THIS PLAN. BORROW / DISPOSAL SITES MUST COMPLY WITH NCDEQ RULES FOR LAND DISTURBANCE.
4. CONTRACTOR TO SECURE TEMPORARY CONSTRUCTION EASEMENT (OR AGREEMENT) FOR WORK ON ADJACENT PROPERTY(S) PRIOR TO ANY OFF-SITE WORK.
5. CONTRACTOR TO COORDINATE WITH POWER COMPANY (DUKE ENERGY) PRIOR TO GRADING WITH THEIR EASEMENT OR WITHIN 15' OF THEIR POWER POLES AND EQUIPMENT.
6. CONTRACTOR TO VERIFY FINAL ELEVATIONS WITH ACTUAL FIELD CONDITIONS.
7. THE RETAINING WALLS SHOWN ON THESE PLANS SHALL BE DESIGNED BY OTHERS. THE LENGTHS AND ELEVATIONS SHOWN FOR THE WALLS ON THESE PLANS MAY BE ADJUSTED AS NECESSARY BY THE OWNER'S STRUCTURAL ENGINEER.
8. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM BUILDING WALLS AT ALL TIMES DURING CONSTRUCTION.
9. FINAL GRADE ON THE HANDICAP PARKING SPACES SHALL BE 2% MAX IN ANY DIRECTION.
10. CONTRACTOR TO DIRECT ROOF LEADERS INTO ENCLOSED DRAIN SYSTEM USING HDPE UNDERGROUND PIPING. TIE THE BUILDING DOWNSPOUTS (ROOF LEADERS) TO PROPOSED HDPE COLLECTOR PIPE WITH APPROPRIATE HDPE FITTINGS OR TIE DIRECTLY INTO STORM INLETS. ALL PIPING SHOULD HAVE 1% MIN. SLOPE. VERIFY EXACT LOCATIONS OF DOWNSPOUTS PER ARCHITECTURAL PLANS. .
11. ELEVATIONS BASED ON NAVD 88. PROPOSED AND EXISTING CONTOUR LINES ARE SHOWN AT 1' INCREMENTS.
12. CONTRACTOR TO REFER TO THE REQUIREMENTS PROVIDED ON THE EROSION CONTROL PLAN (SHEET 5) AND CONSTRUCTION SEQUENCE (SHEET 7) PRIOR TO BEGINNING GRADING OPERATION.
13. CONTRACTOR TO FOLLOW THE SPECIFIC REQUIREMENTS PROVIDED IN THE NCDOT DRIVEWAY PERMIT AND NCDOT ENCROACHMENT AGREEMENT (FOR WATER SERVICE) FOR THIS PROJECT.

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GRADING AND STORM DRAINAGE

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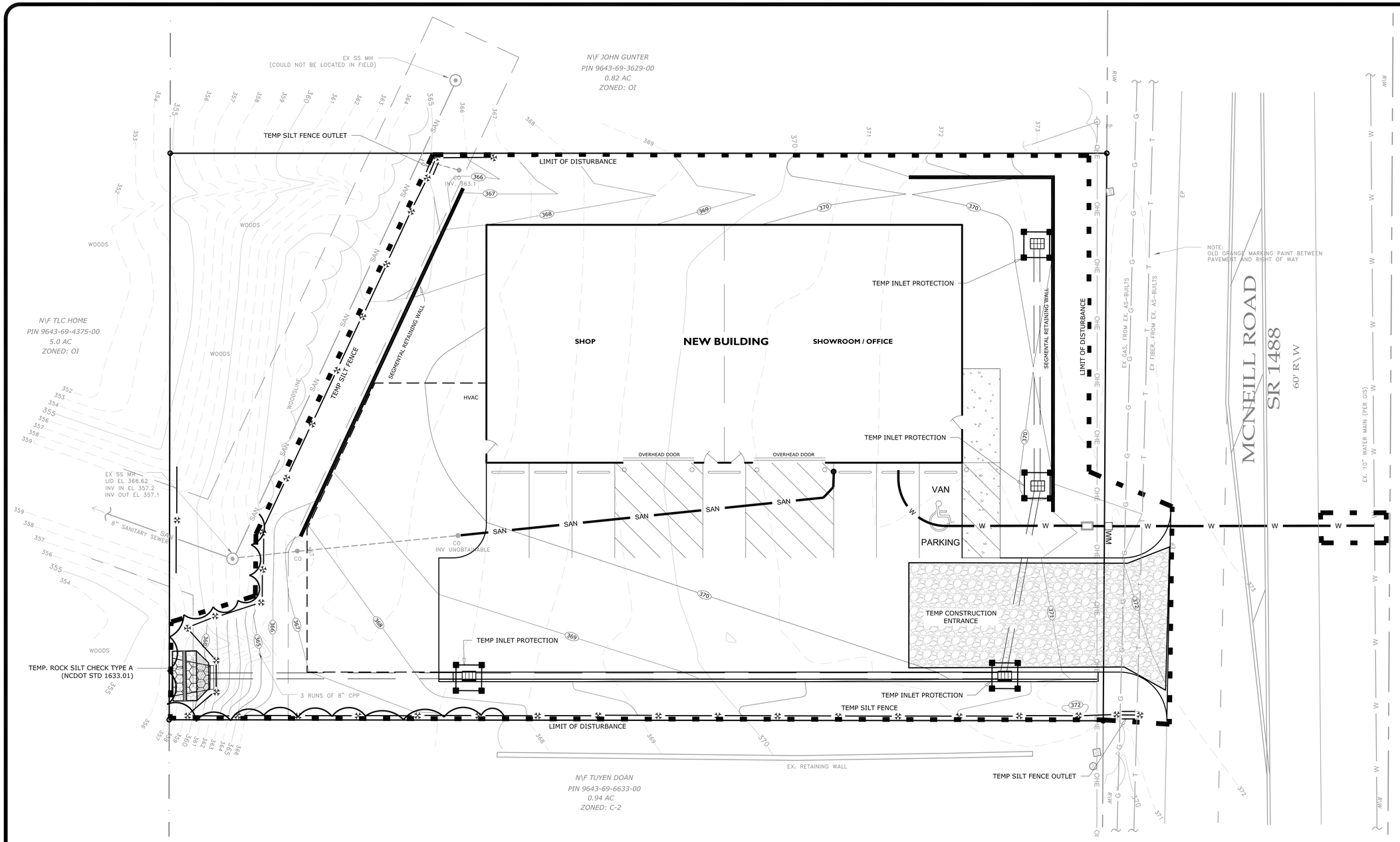

LEGEND OF EROSION CONTROL MEASURES

- TEMP. SILT FENCE
- TEMP. SILT FENCE OUTLET
- TEMP. INLET PROTECTION
- TEMP. DIVERSION DITCH (TD)
- LIMIT OF DISTURBANCE
- TEMP. ROCK SILT CHECK
- RECP / DITCH LINER / MATTING
- ROCK LINER / PROTECTION
- TEMP. CONSTRUCTION ENTRANCE

NOTES

1. THIS PLAN SHOWS THE EROSION CONTROL MEASURES FOR ONE PHASE OF CONSTRUCTION.
2. LIMIT OF DISTURBANCE = 0.48 AC +/-. NCDEQ EROSION CONTROL PERMIT IS NOT REQUIRED.
3. SEE SHEET 7 FOR THE CONSTRUCTION SEQUENCE, MAINTENANCE PLAN, SEEDING SPECIFICATIONS, AND DETAILS.
4. OFF-SITE BORROW / WASTE SITES MUST COMPLY WITH NCDEQ RULES AND REGULATIONS FOR LAND DISTURBANCE.
5. CONTRACTOR MAY NEED TO FIELD ADJUST PROPOSED EROSION CONTROL MEASURES TO FIT ACTUAL FIELD CONDITIONS.
6. CONTRACTOR TO KEEP ALL CONSTRUCTION/STORAGE OPERATIONS WITHIN LIMIT OF DISTURBANCE. ANY DISTURBANCE OUTSIDE THE LIMIT OF DISTURBANCE WILL REQUIRE A MODIFICATION TO THE NCDEQ EROSION CONTROL PERMIT.
7. CUT/FILL SLOPES SHALL BE 2:1 MAXIMUM.
8. THIS PROPERTY IS LOCATED IN THE CAPE FEAR RIVER BASIN. SITE DRAINS TO BIG BUFFALO CREEK, A CLASS 'C' WATERS, STREAM INDEX 17-40.
9. THE SOIL TYPE (ACCORDING TO THE NRCS MAP) ON THE SITE IS MfB (MYODAN FINE SANDY LOAM, HYDROLOGIC GROUP 'B'.

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EROSION CONTROL

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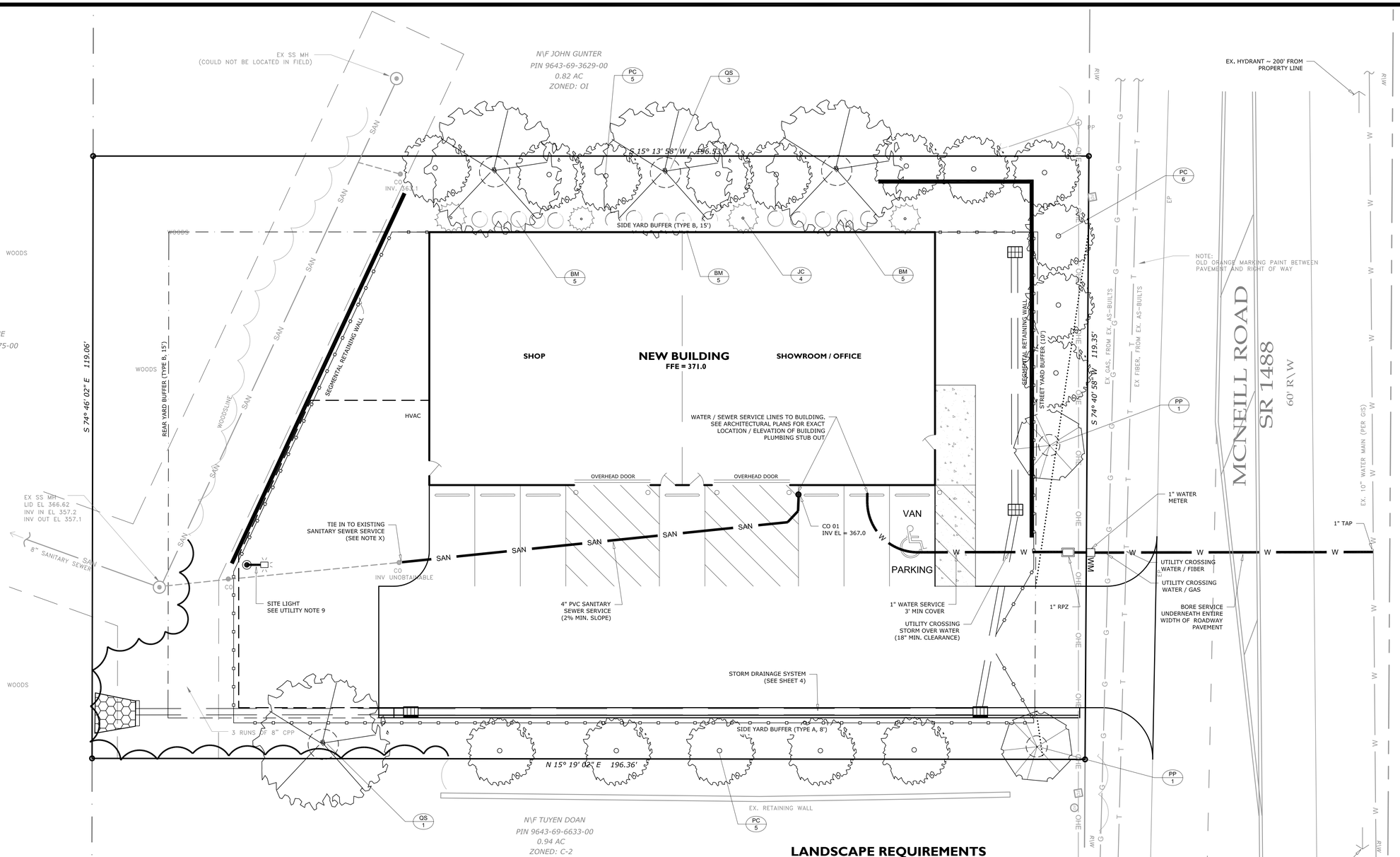

UTILITY NOTES

1. CONSTRUCTION OF UTILITY LINES MAY NOT BEGIN UNTIL ALL FEES ARE PAID, ALL PERMITS ARE PRESENT ON SITE, AND NOTIFICATION OF CONSTRUCTION IS MADE TO THE APPLICABLE PERMITTING AGENCIES IN ACCORDANCE WITH THEIR POLICES.
2. EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS SHOULD BE CONSIDERED APPROXIMATE - OTHER UNDERGROUND UTILITIES NOT SHOWN MAY BE PRESENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY LOCATE EXISTING UTILITIES WITHIN THE WORK AREA PRIOR TO START OF CONSTRUCTION. THE EXACT LOCATION AND SIZE OF THE EXISTING UTILITIES TO BE CONNECTED TO SHOULD BE VERIFIED PRIOR TO THE START OF CONSTRUCTION.
3. WATER SERVICE SIZES SHALL BE CONSIDERED PRELIMINARY. FINAL SIZES FOR SERVICE LINES, METERS, AND BACKFLOW PREVENTION TO BE PROVIDED BY BUILDING PLUMBING ENGINEER.
4. WATER AND SEWER SERVICE LINES ARE TO BE BURIED WITH A MINIMUM 3' COVER. THE SERVICE LINES SHALL BE EXTENDED TO WITHIN 5' OF BUILDING. COORDINATE SERVICE SIZE, LOCATIONS, AND DEPTHS WITH ARCHITECTURAL PLANS.
5. MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN WATER AND SEWER SERVICES. WHERE NOT PRACTICAL, PROVIDE 18" VERTICAL SEPARATION.
6. CONTRACTOR TO NOTIFY THE CITY OF SANFORD (UTILITY OWNER) PRIOR TO TAPPING THE EXISTING WATER MAIN. CONTRACTOR TO REFER TO THE NCDOT ENCROACHMENT AGREEMENT OBTAINED FOR THIS PROJECT TO INSTALL THE NEW WATER SERVICE IN THE R/W.
7. REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION TO BE INSTALLED ON THE DOMESTIC WATER SERVICE. THE RPZ SHALL BE ABOVE-GRADE AND HOUSED IN AN INSULATED ENCLOSURE.
8. IRRIGATION SUPPLY SYSTEM DESIGN BY OTHERS, IF ANY.
9. SITE LIGHTING DESIGN BY OTHERS. LIGHT LOCATION ON THIS PLAN SHALL BE CONSIDERED PRELIMINARY. THE SITE LIGHTING PLAN SHALL BE SUBMITTED TO CITY PLANNING DEPARTMENT FOR APPROVAL PRIOR TO INSTALLATION.
10. CONTRACTOR TO COORDINATE INSTALLATION OF NEW UTILITY SERVICES FOR POWER, GAS, PHONE, CABLE, INTERNET WITH THE RESPECTIVE UTILITY OWNERS AND LEE COUNTY (PROJECT OWNER). SEE ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
11. NO OTHER WORK THAN WHAT IS SHOWN ON THESE PLANS IS ALLOWED IN THE EXISTING SANITARY SEWER EASEMENT.

LANDSCAPE NOTES

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

LANDSCAPE REQUIREMENTS

STREET YARD (MCNEILL ROAD):

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

PROVIDED: 10' WIDE - 6 SMALL TREES (119 LF OF FRONTAGE)

BUFFER YARD (SIDE, WEST):

REQUIREMENT: TYPE B (15' WIDE 0.7 POINTS / L.F.)
1 LARGE TREE PER 75 L.F. YARD
1 SMALL TREE PER 100 L.F. YARD

PROVIDED: 8' WIDE - 105 POINTS (150 L.F.* YARD - 105 POINTS REQD)
(* 46 FT OF THIS LINE IS CONSIDERED WOODED TO REMAIN)
3 LARGE TREES (36 POINTS)
7 SMALL TREE (42 POINTS)
4 LARGE SHRUBS (12 POINTS)
15 SMALL SHRUBS (15 POINTS)

BUFFER YARD (SIDE, EAST):

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

PROVIDED: 8' WIDE - 42 POINTS (196 L.F. YARD - 40 POINTS REQD)
1 LARGE TREE (12 POINTS)
5 SMALL TREES (30 POINTS)
MAINTAINING A PORTION OF EXISTING VEGETATION

BUFFER YARD (REAR):

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

PROVIDED: MAINTAINING A MAJORITY OF EXISTING WOODS ALONG THIS LINE.
AVERAGE WIDTH OF EXISTING WOODS TO REMAIN ALONG THIS LINE IS 20 FT.

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY	PLANTING SIZE
QS	QUERCUS SHUMARDII	SHUMARD OAK	4	2" CAL. / 10-15' HT.
PC	PRUNUS CAROLINIANA	CAROLINA LAUREL CHERRY	16	1 1/2" CAL. / 6'-8' HT.
PP	PISSARDI PLUM	PISSARD PLUM	2	1 1/2" CAL. / 6'-8' HT.
JC	JUNIPERUS CHINENSIS	BLUE POINT JUNIPER	4	3 GAL
BM	BUXUS MICROPHYLLA	WINTERGREEN BOXWOOD	15	1 GAL

NORTH

10 0 5 10 20

SCALE: 1" = 10'

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VOGEL COMMERCIAL BUILDING

MCNEILL ROAD
SANFORD, NORTH CAROLINA

UTILITY AND LANDSCAPE

REVISIONS

AGENCY REVIEW ONLY

Scale: NTS	Drawn by: JRT
Sheet: 6 of 9	Designed by: JRT
	Reviewed by: JRT
Project Number: 20-011	Date: 31 JUL 2020

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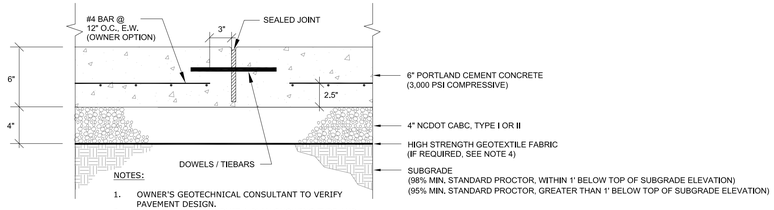
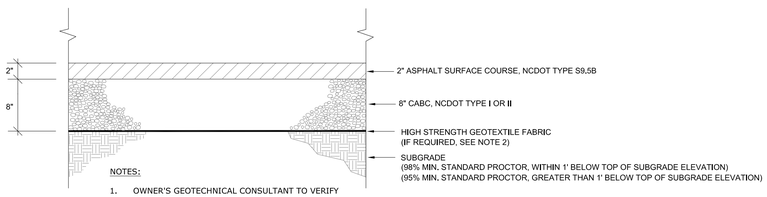


NOTES:

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

A-7 CONCRETE PAVEMENT

NTS

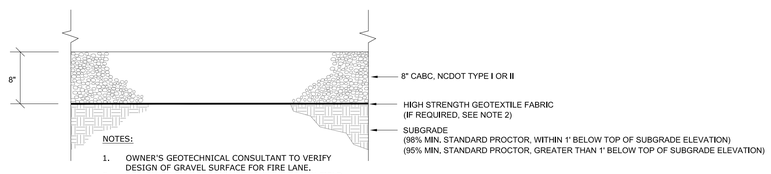


NOTES:

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

B-7 ASPHALT PAVEMENT

NTS

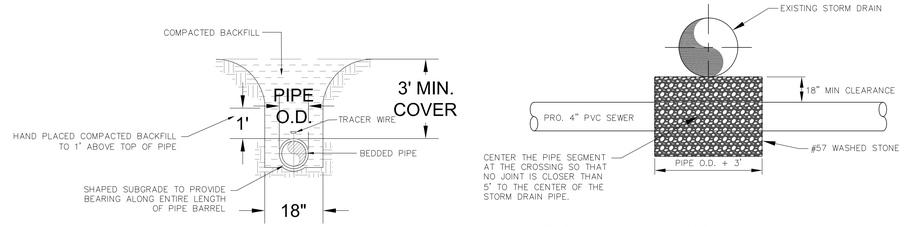


NOTES:

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

C-7 GRAVEL SURFACE

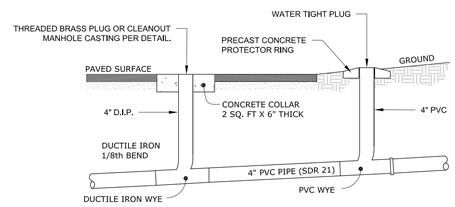
NTS



FOR SEWER SERVICE CROSSING UNDER EXISTING UTILITY PIPE

D-7 SANITARY SEWER SERIVCE - PIPE LAYING

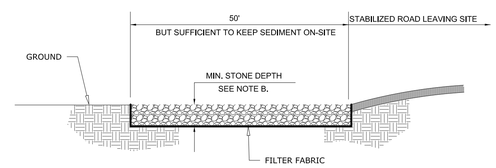
NTS



PAVED AREAS NON-PAVED AREAS

E-7 SANITARY SEWER SERVICE CLEANOUTS

NTS



PROFILE

NOTES:

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

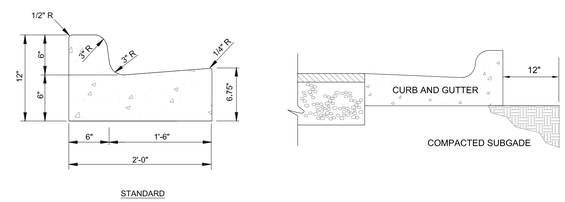
B) STONE SHALL BE NCDOT CLASS A STONE AND 12" THICK.

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

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

I-7 TEMP. CONSTRUCTION ENTRANCE

NTS



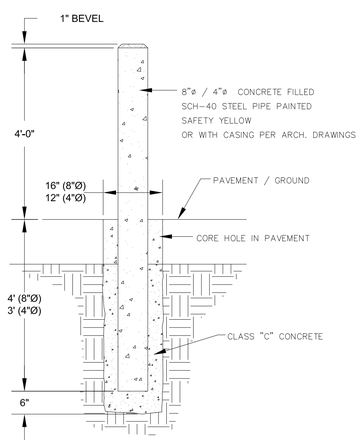
STANDARD

NOTES:

1. CURB AND GUTTER TO BE CONCRETE (MIN. COMPRESSIVE STRENGTH OF 3,000 PSI).
2. 1/2" EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 50 FEET, AT THE ENDS AND MID-POINT OF RETURNS, AND AT ANY POINT WHERE THE NEW CURB AND GUTTER ABUTS OTHER CONCRETE STRUCTURES.
3. 5' LONG TRANSITION SECTIONS SHALL BE PROVIDED BETWEEN 'STANDARD' TO 'SPILL' OR TO 'DEPRESSED' GUTTER, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. USE 'SPILL' GUTTER WHERE ABUTTING ASPHALT SURFACE SLOPES AWAY FROM GUTTER. GUTTER AND AS SPECIFIED ON PLANS.

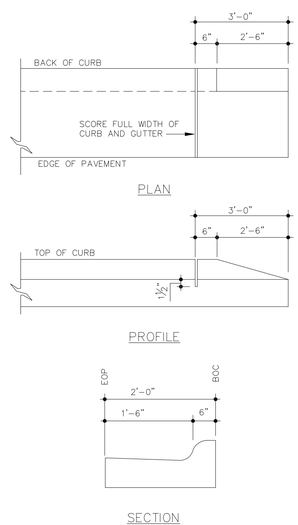
F-7 CONCRETE C & G

NTS



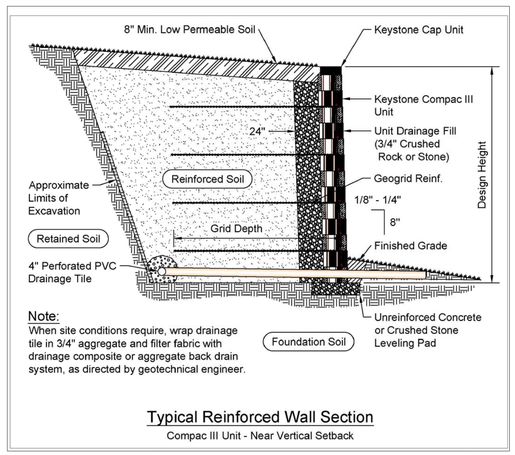
G-7 BOLLARD

NTS



H-7 METHOD OF TAPERING C & G

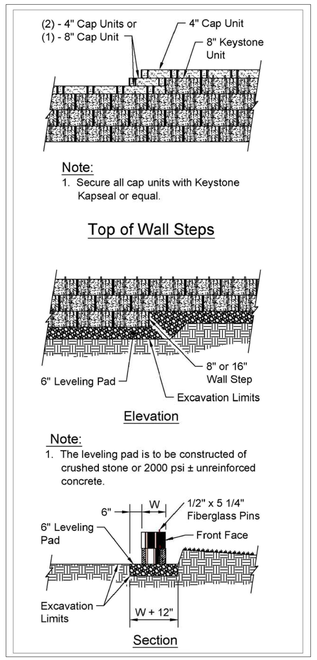
NTS



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section

Compac III Unit - Near Vertical Setback



Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps

Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.

Section

J-7 SEGMENTAL RETAINING WALL - TYPICAL SECTIONS

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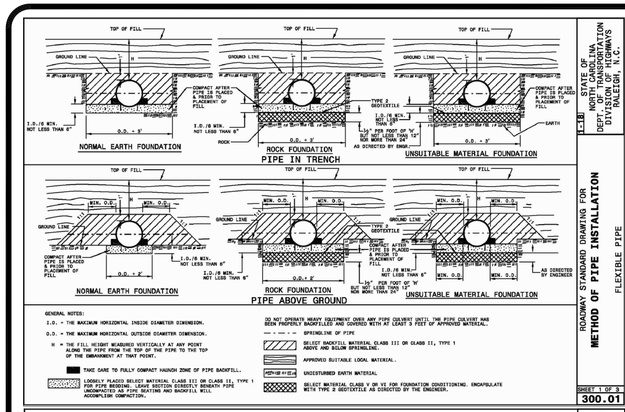
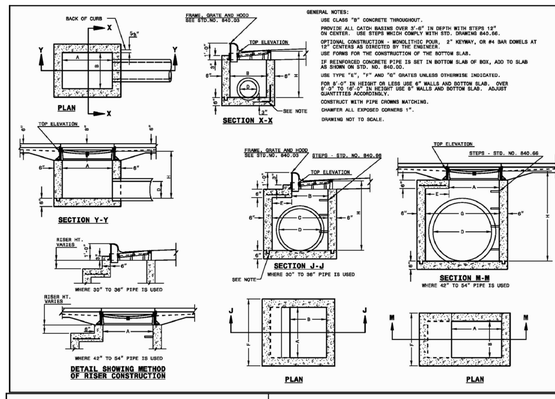


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR **METHOD OF PIPE INSTALLATION** FLEXIBLE PIPE

SHEET 1 OF 3 **300.01**

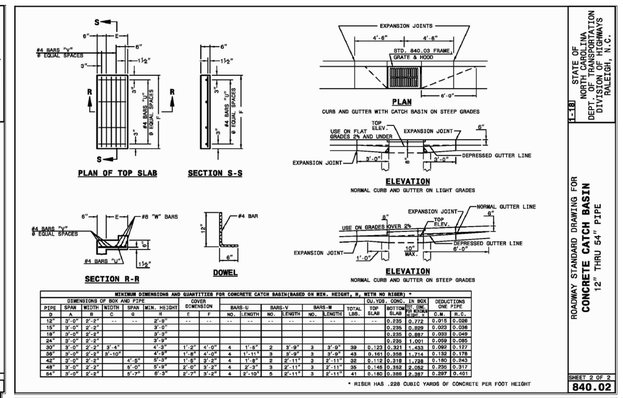


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE

SHEET 1 OF 3 **840.02**



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO BISERS) *																
DIMENSIONS OF BOX AND PIPE						SKEW ELIMINATION	BARS-L		BARS-W		TOTAL BARS	TOTAL LBS.	CU.YDS. CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT		NO.	LENGTH	NO.	LENGTH			BOTTOM SLAB	WALL PER FT. HT.	C.W.	R.C.
12"	3'-0"	2'-0"	--	--	2'-6"	--	--	--	--	--	--	--	0.235	0.072	0.015	0.006
15"	3'-0"	2'-0"	--	--	2'-6"	--	--	--	--	--	--	--	0.235	0.072	0.020	0.006
18"	3'-0"	2'-0"	--	--	2'-6"	--	--	--	--	--	--	--	0.235	0.084	0.025	0.049
24"	3'-0"	2'-0"	--	--	2'-6"	--	--	--	--	--	--	--	0.235	1.001	0.050	0.065
30"	3'-0"	2'-0"	3'-6"	--	2'-6"	--	1'-3"	4'-0"	4	1'-3"	2	3'-9"	30	0.123	0.321	1.433	0.090	0.177
36"	3'-0"	2'-0"	4'-10"	--	4'-9"	--	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	2'-0"	--	4'-8"	5'-0"	2'-0"	2'-2"	4	2'-8"	3	2'-11"	3	2'-11"	32	0.112	0.218	1.728	0.162	0.243
48"	3'-0"	2'-0"	--	5'-0"	5'-9"	2'-0"	2'-5"	4	3'-3"	3	2'-11"	35	0.148	0.352	2.052	0.230	0.317
54"	3'-0"	2'-0"	--	6'-0"	6'-9"	2'-0"	2'-8"	4	3'-10"	3	2'-11"	38	0.180	0.388	2.387	0.287	0.401

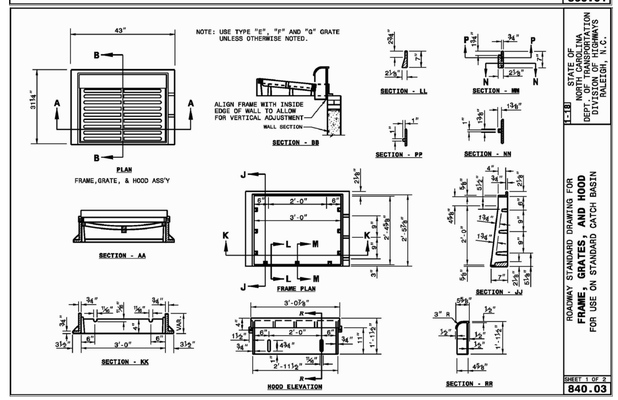
* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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

1-18

ROADWAY STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE

SHEET 2 OF 3 **840.02**



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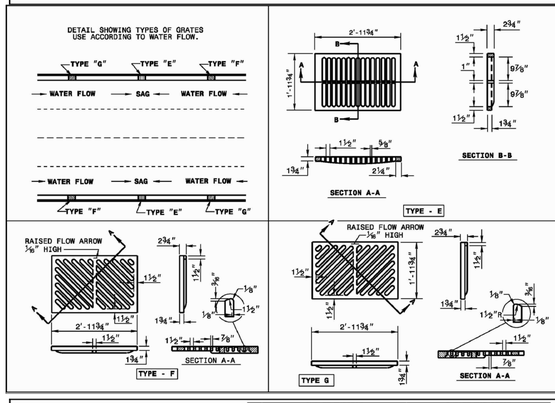
1-18

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

SHEET 1 OF 2 **840.03**

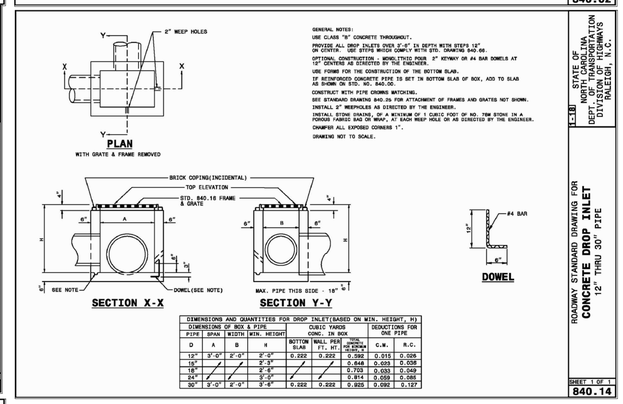


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

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

SHEET 2 OF 2 **840.03**



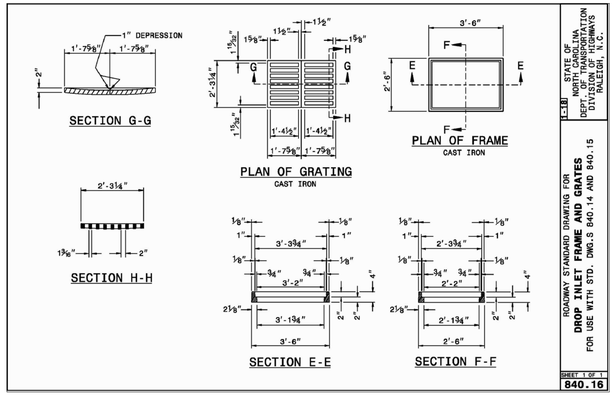
DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)							
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	WEEPS PER FT. HT.	C.W.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-6"	0.222	0.222	0.392	0.015	0.005
15"	/	/	2'-3"	/	/	0.648	0.020	0.008
18"	/	/	2'-6"	/	/	0.703	0.030	0.049
24"	/	/	2'-9"	/	/	0.914	0.059	0.065
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

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

1-18

ROADWAY STANDARD DRAWING FOR **CONCRETE DROP INLET** 12" THRU 30" PIPE

SHEET 1 OF 1 **840.14**

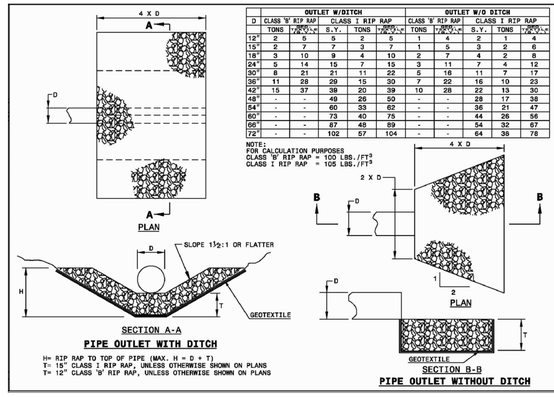


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR **DROP INLET FRAME AND GRATES** FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1 **840.16**



	OUTLET W/DITCH						OUTLET W/O DITCH					
D	CLASS 'B' RIP RAP		CLASS I RIP RAP				CLASS 'B' RIP RAP		CLASS I RIP RAP			
	TONS	CU.YD.	S.Y.	TONS	CU.YD.	S.Y.	TONS	CU.YD.	S.Y.	TONS	CU.YD.	S.Y.
12"	2	5	5	2	5	5	1	4	2	1	4	2
15"	2	7	7	3	7	7	1	5	3	2	6	3
18"	3	10	9	4	10	9	2	7	4	2	8	4
24"	5	14	15	7	15	15	3	11	7	4	12	7
30"	8	21	21	11	22	21	5	16	11	7	17	11
36"	11	28	29	15	30	29	7	22	16	10	23	16
42"	15	37	39	20	39	39	10	28	22	13	30	22
48"	-	-	49	26	50	49	-	-	28	17	38	28
54"	-	-	60	33	62	60	-	-	36	21	47	36
60"	-	-	73	40	75	73	-	-	44	26	56	44
66"	-	-	87	48	89	87	-	-	54	32	67	54
72"	-	-	102	57	104	102	-	-	64	38	78	64

NOTE:
FOR CALCULATION PURPOSES
CLASS 'B' RIP RAP = 100 LBS./FT^3
CLASS I RIP RAP = 105 LBS./FT^3

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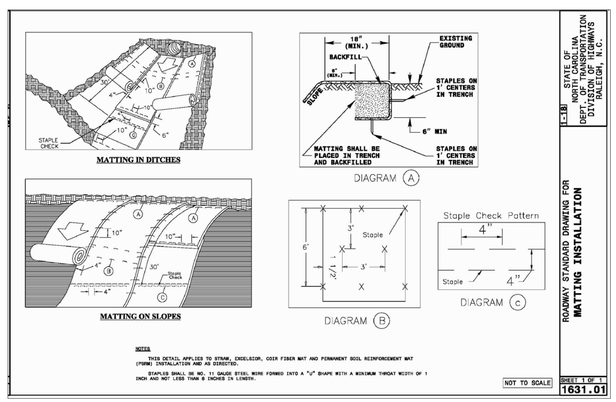
1-18

ROADWAY STANDARD DRAWING FOR **GUIDE FOR RIP RAP AT PIPE OUTLETS**

SHEET 1 OF 1 **876.02**



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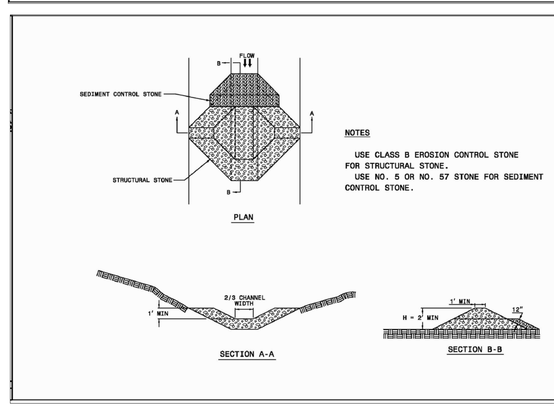
1-18

ROADWAY STANDARD DRAWING FOR **MATTING INSTALLATION**

SHEET 1 OF 1 **1631.01**



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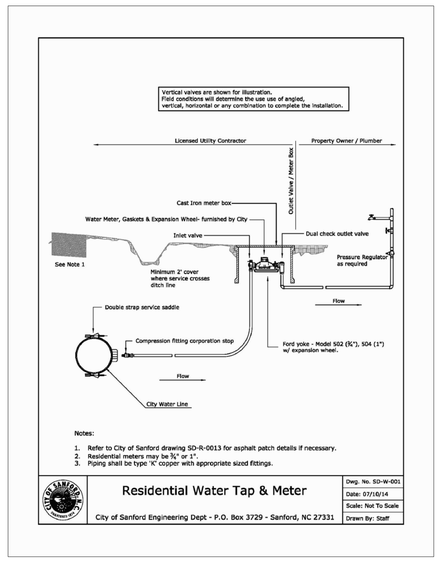
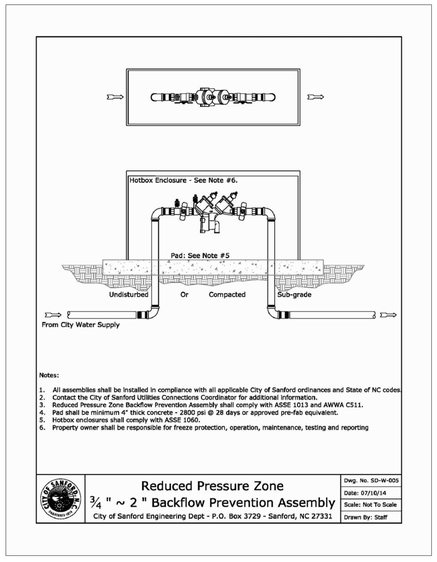
1-18

ROADWAY STANDARD DRAWING FOR **TEMPORARY ROCK SILT CHECK TYPE A**

SHEET 1 OF 1 **1633.01**





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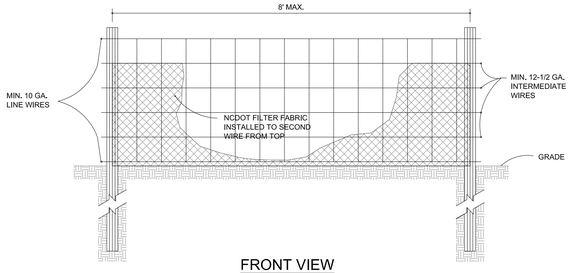
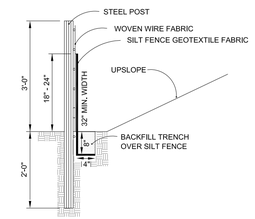


FRONT VIEW

NOTES:

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

-END OF SILT FENCE NEEDS TO BE TURNED UPHILL.

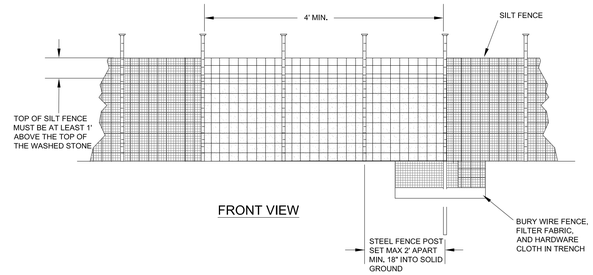


SECTION VIEW

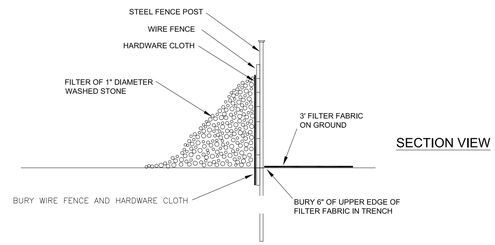
* FOR REPAIR OF SILT FENCE FAILURES, USE No. 57 WASHED STONE. FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.

A-9 TEMP. SILT FENCE

NTS



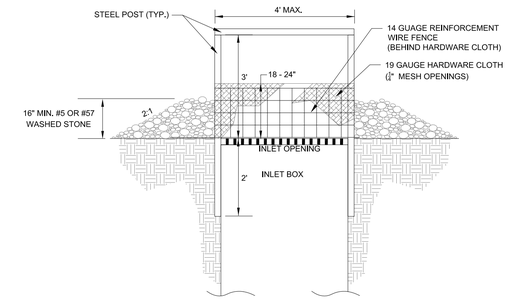
FRONT VIEW



SECTION VIEW

B-9 TEMP. SILT FENCE OUTLET

NTS



C-9 TEMPORARY INLET PROTECTION

CONSTRUCTION SEQUENCE FOR EROSION CONTROL DURING PROJECT DURATION

1. **PROJECT NARRATIVE:** THESE PLANS ARE FOR THE CONSTRUCTION OF A NEW AUTOMOTIVE REPAIR SHOP. A NEW PAVED DRIVEWAY AND PARKING WILL BE ADDED ALONG WITH NEW WATER AND SEWER SERVICES, GRADING, AND STORM DRAINAGE.
2. THE PROPOSED LIMIT OF DISTURBANCE IS LESS THAN ONE ACRE; NO NCDEQ LQS EROSION CONTROL PERMIT REQUIRED FOR THE PROPOSED WORK ON THESE PLANS.
3. JURISDICTIONAL WATERS HAVE NOT BEEN IDENTIFIED ON THE PROPERTY BY THE OWNER. BASED ON FIELD RECONNAISSANCE, THERE ARE NO APPARENT JURISDICTIONAL WATERS LOCATED ON THE PROPERTY.
4. INSTALL THE TEMP. CONSTRUCTION ENTRANCE AS SHOWN ON THE EROSION CONTROL PLAN.
5. INSTALL TEMP. SILT FENCE ALONG LOWER SIDES OF LIMIT OF DISTURBANCE AS SHOWN ON EROSION CONTROL PLAN.
6. INSTALL THE TEMP. SILT FENCE OUTLET IN THE SILT FENCE AS SHOWN ON THE EROSION CONTROL PLAN. MAKE SURE THIS MEASURE IS PLACED IN THE LOW POINT ALONG THE SILT FENCE LINE.
7. BEGIN CLEARING / DEMOLITION.
8. REMOVE TOPSOIL WITHIN LIMITS OF DISTURBANCE AND STOCKPILE.
9. ROUGH GRADE SITE. UNDERCUT AS REQUIRED BY OWNER'S GEOTECHNICAL CONSULTANT. BORROW MATERIAL MAY BE REQUIRED FOR FILL. BORROW / DISPOSAL SITES MUST COMPLY WITH NCEQ LQS REQUIREMENTS.
10. INSTALL SEGMENTAL RETAINING WALLS.
11. BEGIN BUILDING CONSTRUCTION.
12. REMOVE TEMP. CONSTRUCTION ENTRANCE AND PREPARE SUBGRADE FOR ASPHALT PARKING, CONCRETE C & G AND CONCRETE PAVEMENT.
13. INSTALL CONCRETE C & G AND PAVEMENT.
14. INSTALL PAVEMENT CABC BASE COURSE.
15. REMOVE THE TEMP. INLET PROTECTION AROUND THE CATCH BASINS AND INSTALL ASPHALT PAVEMENT.
16. PERFORM SOILS TEST TO DETERMINE THE SOIL AMENDMENTS AND RATES THAT WILL BE REQUIRED FOR SEEDING.
17. FINE GRADE AREAS OUTSIDE OF THE PAVED AREAS AND RE-SPREAD TOPSOIL. IMMEDIATELY SEED DISTURBED AREAS NOT RECEIVING PAVEMENT OR OTHER LANDSCAPE COVER. SEED PER THE SEEDING SCHEDULE (PERMANENT OR TEMPORARY) PROVIDED ON THIS SHEET. NOTE: PERMANENT GROUND COVER IS REQUIRED PER THE SCHEDULE UNDER 'TEMPORARY SEEDING' AND 'PERMANENT SEEDING' ON THIS SHEET.
18. REMOVE THE TEMP. SILT FENCE AND TEMP. SILT FENCE OUTLETS.
19. REMOVE THE TEMP. INLET PROTECTION FOR THE DROP INLETS.
20. INSTALL LANDSCAPE MATERIAL.
21. PROVIDE PERMANENT SEEDING / SODDING, IF TEMPORARY SEEDING WASN'T COMPLETED. ENSURE A GOOD THICK STAND OF GRASS COVER.

MAINTENANCE PLAN FOR TEMP. EROSION CONTROL MEASURES

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

ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL OR RAINFALL > 1.0 INCHES IN 24 HOURS BUT IN NO CASE LESS THAN ONCE EVERY 7 CALENDAR DAYS. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL DEVICES AS DESIGNED.

TEMP. SILT FENCE:

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

TEMP. SILT FENCE OUTLET:

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

TEMP. CONSTRUCTION ENTRANCE:

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

GRASS LINED DITCHES/CHANNELS/SWALES:

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

TEMP. ROCK CHECK / TRAP:

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

RIP RAP LINED DITCHES/CHANNELS/OUTLETS:

1. PAY CLOSE ATTENTION TO INLET AND OUTLET SECTIONS WHERE CONCENTRATED FLOW ENTERS.
2. INSPECT FOR INDICATIONS OF DISPLACED ROCK, SCOUR HOLES, OR BANK FAILURES. MAKE REPAIRS IMMEDIATELY.
3. MAINTAIN VEGETATION ADJACENT TO THE ROCK LINING IN A HEALTHY, VIGOROUS CONDITION TO PROTECT THE AREA FROM EROSION AND SCOUR.

TEMPORARY SEEDING

PROVIDE TEMPORARY SEEDING TO ALL DENUDED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN THE FOLLOWING SCHEDULE:

PERMANENT DITCHES --> IMMEDIATELY
SLOPES 4:1 AND STEEPER --> 7 DAYS
ALL OTHER AREAS --> 14 DAYS

PERFORM SOIL TESTING AFTER ROUGH GRADING IS COMPLETE OF THE TOPSOIL THAT WILL BE SPREAD OVER THE AREAS TO BE SEEDED.

IF SOILS BECOME COMPACTED DURING GRADING, LOOSEN THEM TO A DEPTH OF 6-8 INCHES.

SEEDBED PREPARATION:

LIME: APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE SOIL PH IS NOT KNOWN, APPLY AT A RATE OF 1 TO 1 ½ TONS PER ACRE ON COARSE-TEXTURED SOILS AND 2-3 TONS PER ACRE OF FINE-TEXTURED SOILS. APPLY LIME UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL. SOILS WITH PH HIGHER THAN 6 DO NOT NEED LIME.

FERTILIZER: FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS WITH A MINIMUM APPLICATION OF 4,000 LBS / ACRE. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE APPLICATION.

SURFACE ROUGHENING: IF AREAS TO BE SEEDED BECOME HARDENED, SEALED, OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING.

PLANT SELECTION:

SELECT THE APPROPRIATE SPECIES BASED ON THE PLANTING SEASON.

SEEDING:

APPLY SEED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. USE SEEDING RATES GIVEN IN TABLES. BROADCAST SEEDING AND HYDROSEEDING IS ACCEPTABLE ON STEEP SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED.

SMALL GRAINS SHOULD BE PLANTED NO MORE THAN ONE INCH DEEP AND GRASSES AND LEGUMES ON MORE THAN ½ INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDED MIXTURES SHOULD NOT INCLUDE A WOOD FIBER MULCH.

MULCHING:

MULCHING IS REQUIRED UNDER THE FOLLOWING CONDITIONS:

- SEEDING IN FALL (WOOD FIBER MULCHES NOT ACCEPTABLE)
- SLOPES STEEPER THAN 3:1
- EXCESSIVELY HOT OR DRY WEATHER
- ADVERSE SOILS (SHALLOW, ROCKY, OR HIGH IN CLAY OR SAND)
- AREAS RECEIVING CONCENTRATED FLOW.

FOR CONCENTRATED FLOW AREAS (DITCHES, CHANNELS, SWALES, ETC.) ANCHOR MULCH WITH NETTING AND LIQUID ASPHALT AT A RATE OF 0.10 GALLON PER SQUARE YARD (10 GAL / 1000 SQ FT).

MAINTENANCE:

CONTRACTOR TO MONITOR GRASS ESTABLISHMENT. PROMPTLY RESEEED AREAS WHERE A HEALTHY, DENSE GROWTH DOES NOT ESTABLISH. CONTRACTOR MAY NEED TO PROVIDE NETTING OR TEMPORARY LINERS TO AREAS WHERE GRASS CANNOT BE ESTABLISHED DUE TO EROSION.

Table 6.10b Temporary Seeding Recommendations for Summer

Seeding mixture

Species	Rate (lb/acre)
German millet	40

In the Piedmont and Mountains, a small-stemmed Sudangrass may be substituted at a rate of 50 lb/acre.

Seeding dates
Mountains—May 15 - Aug. 15
Piedmont—May 1 - Aug. 15
Coastal Plain—Apr. 15 - Aug. 15

Soil amendments
Follow recommendations of soil tests or apply 4,000lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting,

Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.10c Temporary Seeding Recommendations for Fall

Seeding mixture

Species	Rate (lb/acre)
Rye (grain)	120

Seeding dates
Mountains—Aug. 15 - Dec. 15
Coastal Plain and Piedmont—Aug. 15 - Dec. 30

Soil amendments
Follow soil tests or apply 4,000lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting.

Maintenance
Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extent temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

Table 6.10a Temporary Seeding Recommendations for Late Winter and Early Spring

Seeding mixture

Species	Rate (lb/acre)
Rye (grain)	120
Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

Seeding dates
Mountains—Above 2500 feet: Feb. 15 - May 15
Below 2500 feet: Feb. 1- May 1
Piedmont—Jan. 1 - May 1
Coastal Plain—Dec. 1 - Apr. 15

Soil amendments
Follow recommendations of soil tests or apply 4,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting,

Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

PERMANENT SEEDING

PROVIDE PERMANENT SEEDING TO ALL DENUDED AREAS THAT WILL NOT BE COVERED BY PAVING, BUILDINGS, OR OTHER LANDSCAPING. AREAS RECEIVING PERMANENT VEGETATION MUST BE STABILIZED WITHIN THE FOLLOWING TIMEFRAMES AFTER FINAL GRADE IS REACHED, UNLESS TEMPORARY STABILIZATION IS APPLIED.

PERMANENT DITCHES --> IMMEDIATELY
SLOPES 4:1 AND STEEPER --> 7 DAYS
ALL OTHER AREAS --> 14 DAYS

PERFORM SOIL TESTING OF THE TOPSOIL THAT WILL BE USED FOR THE SEEDBED TO DETERMINE THE SOIL AMENDMENTS REQUIRED.

COMPLETE GRADING BEFORE PREPARING SEEDBEDS. IF SOILS BECOME COMPACTED DURING GRADING, LOOSEN THEM TO A DEPTH OF 6-8 INCHES.

SEEDBED REQUIREMENTS:

THE SOIL SHOULD MEET THE FOLLOWING MINIMUM CRITERIA FOR VEGETATION ESTABLISHMENT:

- ENOUGH FINE-GRAINED (SILT AND CLAY) MATERIAL TO MAINTAIN ADEQUATE MOISTURE AND NUTRIENT SUPPLY (AVAILABLE WATER CAPACITY OF AT LEAST 0.05 INCHES OF WATER TO 1 INCH OF SOIL
- SUFFICIENT PORE SPACE TO PERMIT ROOT PENETRATION.
- SUFFICIENT DEPTH OF SOIL TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH OF ROCK OR IMPERMEABLE LAYERS SUCH AS HARDPANS SHOULD BE 12 INCHES OR MORE, EXCEPT ON SLOPES STEEPER THAN 2:1 WHERE THE ADDITION OF SOIL IS NOT FEASIBLE.
- A FAVORABLE PH RANGE FOR PLANT GROWTH, USUALLY 6.0-6.5.
- NO LARGE ROOTS, BRANCHES, STONES, LARGE CLODS OF EARTH, AND TRASH. CLODS AND STONES MAY BE LEFT ON SLOPES STEEPER THAN 3:1 IF THEY ARE TO BE HYDROSEEDED.

IF THE ABOVE CRITERIA CANNOT BE MET, SPECIAL SOIL CONDITIONERS OR TOPSOIL MAY BE APPLIED.

SEEDBED PREPARATION:

LIME: APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. WHERE SOIL TESTS ARE NOT AVAILABLE, APPLY GROUND LIMESTONE AT A RATE OF 3,500 LBS / ACRE.

FERTILIZER: FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS. WHERE SOIL TESTS ARE NOT AVAILABLE, APPLY 10-10-10 FERTILIZER AT A RATE OF 1,000 LBS / ACRE.

SURFACE ROUGHENING: IF AREAS TO BE SEEDED BECOME HARDENED, SEALED, OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING.

PLANT SELECTION:

SEE RECOMMENDED SEEDING MIXTURE ON THE TABLE SHOWN ON THIS SHEET. CONTRACTOR TO CONSULT THE SEED SUPPLIER FOR THIS PROJECT TO DETERMINE IF THE RECOMMENDED SEEDING MIXTURE AND SOIL AMENDMENTS SPECIFIED BY THIS PLAN IS APPROPRIATE. THE FINAL SEEDING MIXTURE SELECTED SHALL BE APPROPRIATE BASED ON THE PLANTING SEASON, SOIL TYPE, SLOPES, AND LAND USES. CONSULT WITH ENGINEER IF THE SEED SUPPLIER RECOMMENDS A MIXTURE THAT IS DIFFERENT THAN THAT SPECIFIED ON THIS PLAN.

SEEDING:

USE CERTIFIED SEED (INSPECTED BY THE NORTH CAROLINA CROP IMPROVEMENT ASSOCIATION).

APPLY SEED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE SEEDBED. USE SEEDING RATES GIVEN IN TABLES.

WHEN USING A DRILL OR CULTIPACKER SEEDER, SMALL GRAINS SHOULD BE PLANTED NO MORE THAN ONE INCH DEEP AND GRASSES AND LEGUMES ON MORE THAN ½ INCH.

WHEN BROADCAST SEEDING, SUBDIVIDE AREA INTO WORKABLE SECTIONS AND DETERMINE THE AMOUNT OF SEED NEEDED FOR EACH SECTION. APPLY ONE-HALF THE SEED WHILE MOVING BACK AND FORTH ACROSS THE AREA AND APPLY THE REMAINING SEED IN THE SAME MANNER BUT AT RIGHT ANGLES TO THE FIRST PASS. COVER SEED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRM WITH A ROLLER OR CULTIPACKER.

MULCH AREAS IMMEDIATELY AFTER SEEDING WITH SMALL GRAIN STRAW AT A RATE OF 4,000 LBS / ACRE. ANCHOR MULCH WITH NETTING OR LIQUID ASPHALT AT A RATE OF 400 GAL / ACRE.

ROLLED EROSION CONTROL MATTING:

PROVIDE ROLLED EROSION CONTROL MATTING ON SLOPES 2:1 OR STEEPER AND GRASS LINED SWALES / DITCHES / CHANNELS AFTER SEEDING IS COMPLETE. USE MULCH FOR ALL OTHER AREAS SEEDED.

HYDROSEEDING:

NO HYDROSEEDING FOR THIS PROJECT.

MAINTENANCE:

IRRIGATE DURING DRY PERIODS OR TO SPEED DEVELOPMENT OF FULL COVER.

IF STAND IS INADEQUATE, RE-SEED WHERE BARE SPOTS OR THIN COVER EXISTS. RE-EVALUATE SEED TYPE CHOICE AND QUANTITIES OF LIME AND FERTILIZER. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

RECOMMENDED PERMANENT SEEDING MIXTURE

SEED TYPE	SEEDING RATE	SEEDING SEASON
TALL FESCUE (BLEND)	200 LBS / ACRE	SEPTEMBER - MARCH
RYE GRAIN	40 LBS / ACRE	SEPTEMBER - MARCH
TALL FESCUE (BLEND)	200 LBS / ACRE	MARCH - SEPTEMBER
BERMUDAGRASS	25 LBS / ACRE	MARCH - SEPTEMBER

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SANFORD, NORTH CAROLINA

CONSTRUCTION DETAILS

REVISIONS

AGENCY REVIEW ONLY

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Sheet: 9 of 9	Designed by: JRT
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